CAPACITY STRENGTHENING TOOLKIT

International Hepatitis C in Primary Care and Drug and Alcohol Settings Education Program

Supporting increased hepatitis C screening, linkage-to-care and treatment among people who inject drugs in Nigeria

INHSU

Contents

About

This toolkit is provided to participants of the INHSU Hepatitis C in Primary Care and Drug and Alcohol Settings Education Program. The toolkit is intended to provide participants with practical tools with which to implement HCV testing, linkage to care and treatment processes in their setting.

The toolkit is tailored in line with local guidelines and referral pathways for each workshop location.

Although some resources will be applicable only for participants working within the local area of workshop delivery, many, such as DAA treatment regimen quick reference guides, management procedure templates and assessment checklists, will be relevant regardless of practice location.

Resources applicable across all locations within South Africa are available as an enduring education program component as free downloads via the INHSU website: https://www.inhsu.org/what-we-do/education/nigeria

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- Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM)
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INHSU HCV in Primary Care and Drug and Alcohol Settings

Glossary

Term	Definition
APRI	AST-to-Platelet Ratio Index
Ascites	The accumulation of fluid (usually serous fluid which is a pale yellow and clear fluid) that accumulates in the abdominal cavity
Asymptomatic	Of a condition or a person producing or showing no symptoms
Cessation	The fact or process of ending or being brought to an end
Cerebral infarction	An area of necrotic tissue in the brain resulting from a blockage or narrowing in arteries supplying blood and oxygen to the brain
Cirrhosis	A complication of liver disease which involves loss of liver cells and irreversible scarring of the liver
Enzyme	Macromolecular biological catalysts. They accelerate chemical enzymes
Ethinylestradiol	An orally active estrogen and a synthetic derivative of estradiol, a steroid hormone and the major endogenous estrogen in humans
Etiology	The cause, set of causes, or manner of causation of a disease or condition
Fibrosis	The formation of excess fibrous connective tissue in an organ or tissue in a reparative or reactive process. This can be reactive, benign, or pathological state. In response to injury, this is called scarring, and if it arises from a single cell line this is called a fibroma.
Genotype	The genetic constitution of an individual organism
Hepatocellular carcinoma (HCC)	The most common type of primary liver cancer. It occurs predominantly in patients with underlying chronic liver disease and cirrhosis.
Jaundice	A medical condition with yellowing of the skin or whites of the eyes, arising from excess of the pigment bilirubin and typically caused by obstruction of the bile duct, by liver disease, or by excessive breakdown of red blood cells
Lethargy	A lack of energy
Myalgia	Pain in a muscle or group of muscles
Opioid	An opium-like compound that binds to one or more of the three opioid receptors of the body
Opioid agonist treatment	An effective treatment for addiction to opioid drugs such as heroin and involves taking the opioid agonists methadone or buprenorphine (suboxone)
Palmar erythema	Reddening of the palms
PCR	Polymerase Chain Reaction
Peripheral edema	An accumulation of fluid causing swelling in tissues perfused by the peripheral vascular system, usually in the lower limbs

Portal hypertension	An increase in the blood pressure within a system of veins called the portal venous system
RNA	Ribonucleic acid
Serology	The scientific study or diagnostic examination of blood serum, especially with regard to the response of the immune system to pathogens or introduced substances
Spider nevi	A collection of small, dilated blood vessels that are clustered close to the skin's surface
Thrombocytopenia	A condition in which you have a low blood platelet count
Viremic	A medical condition where viruses enter the blood stream and hence have access to the rest of the body

DECISION MAKING IN HEPATITIS C

HCV

1 When To Test

Clinical Indicators

- Abnormal liver function tests (LFTs) (males, AST ≥ 40 U/L; females, AST ≥ 32 U/L)
- Jaundice and unexplained pruritus

Presence of Risk Factors

- Injecting drug use (current/ever)
- Sharing of drug use equipment
- Born between 1959 - 1978
- Born in high prevalence region^
- Transfusion of unscreened blood, blood products and post organ transplant
- Unsterile tattooing/body piercing
- Unsterile medical/dental procedures
- Time in prison
- Needlestick injury
- Mother to child transmission
- Sexual transmission in men who have sex with men (MSM)
- Sexual transmission in those who are HIV positive
- Sexual transmission in commercial sex workers
- Receiving hemodialysis
- Healthcare workers
- Hepatitis B surface antigen positive
- Presence of STIs

Other

- Initiating PrEP
- When someone requests a test
- Preparation for surgery

When gaining informed consent discuss:

- Reason for test
- What a positive antibody result means
- Next steps if antibody positive
- Availability of curative treatment
- Prevention of HCV if antibody is negative

2 Test/s, Results and Actions

Order HCV Antibody (Ab)*

HCV Ab negative

HCV Ab positive

HCV RNA (qualitative) **+ LFTs**

HCV RNA negative

HCV RNA positive

Does NOT have HCV

Has CLEARED HCV

Has CURRENT HCV

NO action
However, if possible recent infection re-test (HCV Ab), or if ongoing risk factors repeat screening (HCV Ab) annually

RE-TEST if:
Ongoing risk factors
(repeat RNA test annually)

Further ASSESSMENT and TREATMENT
(see next page)

When conveying a NEGATIVE result, discuss:

- Modes of transmission
- Strategies for reducing risk

When conveying a POSITIVE result, discuss:

- Availability of curative treatment
- Modes of transmission and risk reduction
- Lifestyle factors e.g. alcohol minimization, diet
- Availability of peer support, information and any other support services

^Africa, the Middle East (in particular Egypt), the Mediterranean, Eastern Europe, and South Asia

***If high level suspicion also consider requesting reflexive HCV RNA + LFTs**

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DECISION MAKING IN HEPATITIS C

HCV

3 Pre-Treatment Assessment

Baseline screening after positive HCV PCR

- ☐ Complete Blood Count (CBC)
- ☐ Urea, electrolytes, creatinine
- ☐ AST, ALT, GGT, ALP, Tbil, Dbil, INR, Alb
- ☐ Pregnancy test (in women of childbearing age)
- ☐ Qualitative or quantitative HCV RNA if available
- ☐ HCV genotyping

Assess liver fibrosis: cirrhotic status

- ☐ Signs of chronic liver disease (spider naevi, palmar erythema, jaundice, encephalopathy, hepatomegaly, splenomegaly, ascites, peripheral oedema)
- ☐ Non-invasive assessment of fibrosis:
  - Serum biomarkers such as APRI (<1.0 means cirrhosis unlikely). Calculator available. hepatitisc.uw.edu/page/clinical-calculators/apri
  - Elastography assessment e.g. FibroScan® (>12.5 kPa consistent with cirrhosis)
  - Ultrasound assessment

Check for other causes of liver disease/coinfections

- ☐ HIV Ab
- ☐ Hepatitis A – check hep A IgG; vaccinate if negative
- ☐ Hepatitis B – check HBsAg, anti-HBc and anti-HBs; vaccinate if all negative
- ☐ Heavy alcohol intake
- ☐ Fatty liver disease - check weight, BMI

Check for other major co-morbidities

- ☐ Renal impairment (eGFR < 50)
- ☐ Thyroid function test
- ☐ Screening for other autoimmune disorders

Review previous HCV treatment

- Choice/length of treatment may be influenced by prior HCV treatment experience/response

Consider pregnancy and contraception

- HCV treatment not recommended for use in pregnant or lactating women
- Active monitoring during pregnancy and breastfeeding

4 Treatment

Is your patient likely to have cirrhosis?
(APRI > 2 or FibroScan® > 12.5)

☐ Yes → Consider discussion with, or referral to experienced HCV treater

☐ No

Has your patient received previous treatment for HCV?

☐ Yes → Consider discussion with, or referral to experienced HCV treater

☐ No → Click HERE to view treatment recommendations for Nigeria

Treatment	Dosage	Duration if no cirrhosis present
SOF/DAC	400/60 mg Once-daily (1 pill, +/- food)	12 weeks
SOF/LED	400/90 mg Once-daily (1 pill, +/- food)	12 weeks
SOF/RIB	400/200 mg SOF Once-daily RIB Twice-daily*	12/24 weeks

☐ Check for drug-drug interactions at hep-druginteractions.org

SOF/DAC = Sofosbuvir/Daclatasvir (all genotypes)
SOF/LED = Sofosbuvir/Ledipasvir (genotypes1, 4, 5, 6)
SOF/RIB = Sofosbuvir/Ribavirin (genotype 2 for 12 weeks and genotype 3 for 24 weeks)
*RIB + food: <75kg 1000mg/day (400mg/2 capsules in the morning and 600mg/3 capsules in the evening) >75kg 1200mg/day (600mg/3 capsules in the morning and 600mg/3 capsules in the evening).

5 Monitoring

Monitoring while on treatment

- Generally not required, but approach should be individualized
- Side effects of HCV treatment are generally minimal
- Consider monitoring adherence

12 weeks post treatment

- ☐ HCV RNA to confirm cure (sustained virological response SVR12 = cure)
- ☐ Liver enzymes

6 Follow Up

If your patient has:

No cirrhosis and normal liver enzyme results (males, ALT< 45 U/L; females, ALT <34 U/L)
No clinical follow-up for HCV required

Ongoing risk factors
Annual HCV RNA test. If re-infected offer re-treatment. Offer education on harm reduction strategies

Abnormal liver enzyme results
(males, ALT ≥ 30 U/L; females, ALT ≥ 19 U/L) Evaluate for other causes of liver disease and refer to specialist for review

Cirrhosis
Refer to specialist. Patients with cirrhosis require long-term monitoring:

- 6-monthly abdominal ultrasound (hepatocellular carcinoma screening)
- Consideration of screening for esophageal varices

CONSULT WITH A SPECIALIST IF:

Pre-treatment

- Cirrhosis is present or likely – APRI ≥2 and elastography score not available; elastography >12.5kPa
- Coinfected with HIV or HBV
- Renal impairment (eGFR < 50)
- Prior treatment failure of HCV treatment
- Complex drug interactions
- Complex co-morbidities
- Not comfortable prescribing HCV treatment

During treatment

- Major medication side effects

Post treatment

- RNA positive 12 weeks post treatment
- Abnormal liver enzymes at SVR12

For more information:

Nigeria HIV/AIDS Indicator and Impact Survey Technical Report
Nigeria HIV/AIDS Indicator and Impact Survey Summary

This resource was originally developed by ASHM. It has been adapted for Nigeria by ASHM and the International Network on Health and Hepatitis in Substance Users (INHSU), in partnership with local partners.

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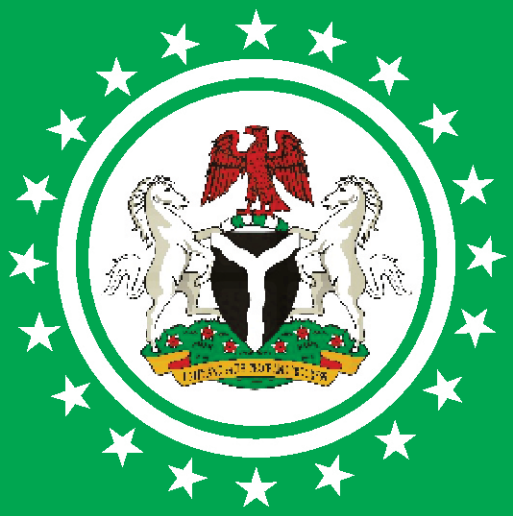

NATIONAL GUIDELINES FOR THE PREVENTION, CARE AND TREATMENT OF VIRAL HEPATITIS B & C IN NIGERIA

NATIONAL AIDS/STIS CONTROL PROGRAM
FEDERAL MINISTRY OF HEALTH

2016

NATIONAL GUIDELINES FOR THE PREVENTION, TREATMENT AND CARE OF VIRAL HEPATITIS IN NIGERIA

NATIONAL AIDS/STIS CONTROL PROGRAMME, FEDERAL MINISTRY OF HEALTH

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FOREWORD

Nigeria contributes significantly to the burden of chronic viral hepatitis infection globally with prevalence of 11% and 2.2% for viral hepatitis B and C respectively. This corresponds to above 20 million people living with viral hepatitis B and/or C in a population of 177 million individuals who are not aware and are at the risk of developing chronic complications of liver cirrhosis and primary liver cell cancers. Most worrisome is the risk of transmitting the infection to other unsuspecting members in the communities.

The National Guidelines for the Prevention, Treatment and Care of Viral Hepatitis in Nigeria has been developed with the guiding principle of achieving Universal coverage through accessible, affordable, available health services based on human rights and equity. Other considerations include government ownership, effective partnership and the use of public health approach for effective and efficient programme implementation.

This document provides strategies towards achieving the global target of eliminating viral hepatitis by 2030 as endorsed by the United Nations member States at the 59th World Health Assembly of 2016 which include protecting against mother to child transmission of viral hepatitis, reaching every child, adolescents, adults and high risk population groups with viral hepatitis B vaccination, ensuring safety of blood transfusion services, organ donation and injection practices and the use of new antiviral drugs for the treatment and cure viral hepatitis B and C respectively.

It is expected that strict adherence to the guidelines will provide the required platform for the attainment of the goal of reducing mortality, morbidity and socio-economic impact of viral hepatitis in Nigeria.

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Federal Republic of Nigeria

PREFACE

This is the first edition of the National Guidelines for Prevention, Treatment and Care of Viral Hepatitis in Nigeria. It is in response to the World Health Assembly resolution for member nations to take action in the prevention, diagnosis and treatment of viral hepatitis that the Federal Government of Nigeria embarked on this noble project to combat the spread of Viral Hepatitis which has been described as a silent epidemic.

The development of this document spanned rigorous processes. It involved various stakeholders including the Academia, Development Partners, Programme managers, Civil Society Organizations, representatives from the states of the federation, pharmaceutical companies, Funders and the United Nations organizations.

The guidelines have been developed with the guiding principle of achieving Universal coverage through accessibility, affordability, availability and human rights and equity. Other considerations include government ownership, effective partnership and the use of public health approach for effective and efficient programme implementation.

The guidelines provide a framework for health care service delivery in the Prevention, Care and treatment of Viral Hepatitis in Nigeria in line with the global aspiration of eliminating viral hepatitis by 2030 as endorsed by the United Nations member States at the 59th World Health Assembly of 2016.

This document is recommended for use by all stakeholders including policy makers at all levels of government, healthcare workers, civil society organizations, local and international partners.

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EXECUTIVE SUMMARY

Viral hepatitis is inflammation of the liver caused by one or more of five main hepatic viruses: A, B, C, D and E. Although, these viruses display similar symptoms and the potential to cause liver disease to varying degrees; they however differ significantly in regards to epidemiology, prevention, diagnosis, and care and treatment. Viral hepatitis is a major global health problem with more than 400 million patients chronically infected, causing over 1.4 million deaths per year. Nigeria is among the countries with a high burden of viral hepatitis with a Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) prevalence of 11% and 2.2%, respectively (FMOH 2013).

Knowledge of viral hepatitis remains low among Nigerians despite being a leading infectious cause of death each year. As a consequence, most of the estimated 20 million Nigerians living with viral hepatitis B or C are undiagnosed, increasing the likelihood of future transmission to others and placing them at greater risk for severe, even fatal health complications such as liver cirrhosis and liver cancer (hepatocellular carcinoma).

Some key subpopulations, such as men who have sex with men (MSM) and people who inject drugs (PWID) have a high risk of viral hepatitis infection. Persons living with HIV are also disproportionately affected by viral hepatitis and related adverse health conditions, considering that HIV, HBV, and HCV share common modes of transmission.[3] The progression of viral hepatitis is accelerated among persons with HIV; therefore, HIV co-infected persons experience greater liver-related health problems than non-HIV infected persons. Recipients of organs, blood, and tissue, along with persons working or receiving care in health settings continue to be at risk for viral hepatitis infection as well.

Nigeria is among countries with the highest burden of viral hepatitis with the prevalence of HBV and HCV at 11% and 2.2%, respectively. The distribution of HBV by sex is 62.6% of males and 37.4% of females, while the distribution of HCV by sex is 52.4% to 47.6%. Infections are most common among 21-40 year olds, although substantial perinatal and childhood transmissions do occur. Medical personnel, especially surgeons and dentists are at the greatest risk of infection, while other healthcare workers, commercial sex workers, and drivers are also at significant risk of infection. In Nigeria, HBV transmission results in substantial morbidity and mortality from chronic HBV, liver cirrhosis, and hepatocellular carcinoma. Risk factors for transmission in Nigeria include sexual intercourse, local circumcision, local uvelectomy, scarification, tribal marks, surgical procedures, body piercing, home birth, and ~~receipt of~~ blood transfusions

These are the first edition of the Federal Ministry of Health guidelines for the prevention, care and treatment of viral hepatitis especially B and C in Nigeria. These guidelines have been developed for use by policy makers, programme managers, and health-care providers at all levels of care in Nigeria.

The development of this document is aligned with the global principle of eliminating viral hepatitis by 2030 which is in keeping with the United Nations adoption during the 59th World Health Assembly in May 2016. The strategies and recommendations have been adopted based on the principle of achieving universal health coverage including accessibility, availability, affordability

and human rights and equity. Other considerations include government ownership, effective partnership and the use of public health approach.

The recommendations are structured along the continuum of care for persons with chronic viral hepatitis B and C from initial assessment of stage of disease and eligibility for treatment, to initiation of first-line antiviral therapy and monitoring for disease progression, toxicity and hepatocellular cell carcinoma and switch to second-line drugs in persons with treatment failure especially in viral hepatitis B and for viral hepatitis C using antiviral drugs. They are intended for use across age groups and adult populations.

These guidelines are covered in seven (7) chapters. Chapter 2 dealt with the management of viral hepatitis B including prevention of perinatal and early childhood HBV infection through infant hepatitis B vaccination; catch-up vaccination and other prevention strategies in key affected populations such as persons who inject drugs, men who have sex with men, and sex workers; as well as prevention of HBV transmission in health-care settings. The use of alcohol reduction interventions to reduce progression of liver disease in those with CHB was also highlighted. It also recommended the use of simple, non-invasive diagnostic tests to assess the stage of liver disease and eligibility for treatment; prioritize treatment for those with most advanced liver disease and at greatest risk of mortality; and recommend the preferred use of nucleos(t)ide analogues with a high barrier to drug resistance (tenofovir and entecavir, and entecavir in children aged 2–11 years) for first- and second-line treatment. These guidelines also recommend lifelong treatment in those with cirrhosis; and regular monitoring for disease progression, toxicity of drugs and early detection of Hepatocellular cancer. An additional chapter highlights management considerations for specific populations, including those co-infected with HIV, HCV and hepatitis D virus (HDV); children and adolescents; and pregnant women.

.Chapter 3 dwelt on the management of viral hepatitis C, The majority (80%) of HCV infections progresses to Chronic Liver Disease (CLD). Outcomes vary widely from subclinical infection to end stage liver diseases (ESLD, 20%) and liver cancer (5%). It provides the guidelines for screening, treatment and care persons with chronic hepatitis c virus (HCV) infection. The Direct Acting Antiviral Drugs and interferon based regimen are the drugs of choice in the treatment of viral hepatitis C. The treatment regimens and duration depend majorly on the presence of liver cirrhosis in the patient, the viral genotype

Chapter 7 recommended strategies for effective programme management of viral hepatitis including health system strengthening, decentralization of services, task shifting, logistics management, monitoring and evaluation and operational research for the control of viral hepatitis in Nigeria.

ACRONYMS/ABBREVIATIONS

ADR: Adverse drug reaction
AEs: Adverse events
AEFI: adverse events following immunization
AHB: Acute hepatitis B
ALP: Alkaline Phosphatase
ALT: Alanine Transaminase
APRI: AST to platelet ratio index
ART: Anti-Retroviral Therapy
AST: Aspartate Transaminase
CLD: Chronic Liver Disease
Cr: Creatinine
CSOs: Civil Society Organisations
DAAs: Direct-Acting Antivirals
DNA: Deoxyribonucleic Acid
EASL: European Association for the Study of the Liver
EIA: Enzyme immunoassay
ELISA: Enzyme-linked Immunosorbent Assay
EVR: Early Virological Response
FDA: Food and Drug Administration
FDC: Fixed-Dose Combination
FMOH: Federal Ministry of Health
FSW: Female Sex Workers
GFR: Glomerular Filtration Rate
GI: Gastro-Intestinal
HAI: Histological Activity Index
HBV: Hepatitis B Virus
HCC: Hepatocellular Carcinoma
HCV: Hepatitis C Virus
HCWs: Health Care Workers
HDV: Hepatitis D Virus
HEV: Hepatitis E Virus
HIV: Human Immunodeficiency Virus
ICSR: Individual Case Safety Report
IDP: Internally Displaced Persons
IM: Intra-Muscular
INR: international Normalized Ratio
LMICs: Low and Middle-Income Countries
MAH: Marketing Authorization Holder
MSM: Men who have Sex with Men
MTCT: Mother To Child Transmission

NA: Nucleot(s)ide Analogue
NAT: Nucleic Acid Test
NAFDAC: National Agency for Food and Drug Administration and Control
NGOs: Non-Governmental Organizations
NPC: National Pharmacovigilance Centre
NPHCDA: National Primary Health Care Development Agency
PCR: Polymerase Chain Reaction
PHC: Primary Health Care
PMTCT: Prevention of Mother-To-Child Transmission
PRASCO: Pharmacovigilance Rapid Alert System for Consumer Reporting
PT: Prothrombin Time
PV: Pharmacovigilance
PWID: People Who Inject Drugs
RBV: Ribavirin
RDT: Rapid Diagnostic Test
RNA: Ribo-Nucleic Acid
SEs: Side Effects
SMOH: State Ministry of Health
SOGHIN: Society for Gastroenterology and Hepatology in Nigeria
SPHCDA: National Agency for Food and Drug Administration and Control
STI: Sexually Transmitted Infection
SVR: Sustained Virologic Response
TB: Tuberculosis
TDF: Tenofovir Disoproxil Fumarate
WHO: World Health Organization

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CHAPTER ONE

INTRODUCTION

1.0 OVERVIEW

Viral hepatitis is inflammation of the liver caused by one or more of five main hepatic viruses: A, B, C, D and E. Although, these viruses display similar symptoms and the potential to cause liver disease to varying degrees; they however differ significantly in regards to epidemiology, prevention, diagnosis, and care and treatment. Viral hepatitis is a major global health problem with more than 400 million patients chronically infected, causing over 1.4 million deaths per year.[1] Nigeria is among the countries with a high burden of viral hepatitis with a Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) prevalence of 11% and 2.2%, respectively (FMOH 2013).

Knowledge of viral hepatitis remains low among Nigerians despite being a leading infectious cause of death each year. As a consequence, most of the estimated 20-24 million Nigerians living with viral hepatitis B or C are undiagnosed, increasing the likelihood of future transmission to others and placing them at greater risk for severe, even fatal health complications such as liver cirrhosis and liver cancer (hepatocellular carcinoma).

Some key subpopulations, such as men who have sex with men (MSM) and people who inject drugs (PWID) have a high risk of viral hepatitis infection. Persons living with HIV are also disproportionately affected by viral hepatitis and related adverse health conditions, considering that HIV, HBV, and HCV share common modes of transmission.[3] The progression of viral hepatitis is accelerated among persons with HIV; therefore, HIV co-infected persons experience greater liver-related health problems than non-HIV infected persons. Recipients of organs, blood, and tissue, along with persons working or receiving care in health settings continue to be at risk for viral hepatitis infection as well.

1.1 GLOBAL PERSPECTIVES

Current rates of viral hepatitis infection in Nigeria are reflective of the global disease burden involving hundreds of millions of persons. One in every 12 persons worldwide is living with viral hepatitis; approximately 240 million persons are infected with chronic HBV and another 80 million are infected with chronic HCV infection.[1] Globally, an estimated 7% of primary liver cancer and 54% of liver cirrhosis cases are caused by viral hepatitis, and approximately 1.4 million deaths from viral hepatitis occur each year.

The proportion of persons living with viral hepatitis is greatest in Asia, sub-Saharan Africa, and Egypt. Nigeria accounts for 8.3% and 4.5% of the global burden of chronic HBV and HCV respectively. The prevalence of HCV infection is particularly high among subpopulations (e.g. people who inject drugs (PWID) and persons living in correctional settings) in many parts of the world.

1.2 EPIDEMIOLOGY

1.2.1 Epidemiology of Viral Hepatitis in Nigeria

Nigeria is among countries with the highest burden of viral hepatitis with the prevalence of HBV and HCV at 11% and 2.2%, respectively. The distribution of HBV by sex is 62.6% of males and 37.4% of females, while the distribution of HCV by sex is 52.4% to 47.6%. Infections are most common among 21-40 year olds, although substantial perinatal and childhood transmissions do occur. Medical personnel, especially surgeons and dentists are at the greatest risk of infection, while other healthcare workers, commercial sex workers, and drivers are also at significant risk of infection. In Nigeria, HBV transmission results in substantial morbidity and mortality from chronic HBV, liver cirrhosis, and hepatocellular carcinoma. Risk factors for transmission specific to Nigeria include local circumcision, local uvelectomy, scarification, tribal marks, surgical procedures, body piercing, home birth, and receipt of blood transfusions.

1.2.2 Viral Hepatitis subtypes

Viral Hepatitis has five major types- A, B, C, D and E, with varying degrees of epidemiology, prevention, diagnosis and treatment.

Hepatitis A Virus (HAV), which is primarily spread via faecal-oral transmission, causes Hepatitis A infection; when an uninfected, unvaccinated person ingests food or water that is contaminated with the faeces of an infected person. The disease is closely associated with unsafe water, inadequate sanitation, and poor personal hygiene. Symptomatic progression is rare with mostly mild cases characterized by full recovery and lasting immunity from further HAV infections. However, a few cases can be severe and life threatening. Safe and effective vaccines are available to prevent HAV infection.

Children are likely to have experienced an episode of hepatitis A virus infection before the age of 10. Those infected in childhood do not experience noticeable symptoms. Epidemics are uncommon due to herd immunity from prior infection. HAV may lead to significant economic and social consequences due to delayed recovery lasting weeks to months; preventing the expedited return to work, school or daily life. The impact on food establishments, with identified HAV as a source of transmission in outbreaks, can be substantial.

HAV rarely causes death. Unlike HBV and HCV, HAV does not cause chronic liver disease and is rarely fatal; however, the infection may cause debilitating symptoms and fulminant hepatitis (acute liver failure), resulting in substantial mortality. Persons with pre-existing chronic liver disease, including chronic HBV and HCV, are at increased risk of serious complications from HAV infection.

Hepatitis B infection is a vaccine-preventable disease transmitted through infected blood, semen, and other body fluids. HBV is 50-100 times more infectious than HIV with several modes of transmission; such as perinatal transmission from infected mother to child, unsafe sexual intercourse, transfusion of HBV-infected blood and blood products, unsafe medical procedures, sharing of needles and sharps and horizontally between children, as well as other intra-familial sources of infection. Globally, it is estimated that 2 billion people have been infected with HBV of which approximately 240 million are chronically infected with HBV. Among those with chronic HBV, up to 30% go on to develop liver disease. The average prevalence rate for HBV in Nigeria

ranges between 11- 13.7% with an estimated 20 million Nigerians chronically infected.[iii] There is no known virologic cure for HBV infection, however antiviral treatment has been shown to reduce the transmission risk, decrease the likelihood of developing liver complications resulting in death and improve prognosis.

Hepatitis C infection is a blood borne virus 10 times more infectious than HIV with no currently available vaccine. The most common modes of transmission are through HCV-infected blood, unsafe medical procedures, and sharing of needles and sharps. Less common modes of transmission are sexual and perinatal transmission. Globally, an estimated 80 million patients are chronically infected resulting in roughly 700 thousand deaths per year.[i] An estimated 3.6 million patients are infected with HCV in Nigeria; however, the epidemiology of HCV in Nigeria is not well defined due to paucity of data. With current HCV direct acting antiviral (DAAs) agents, higher rates of sustained virologic response (SVR) have been recorded globally.

Hepatitis D infection occurs exclusively in persons infected with HBV; replication occurs solely in the presence of HBV. Co-infection with HDV and HBV can result in significant morbidity and mortality. HBV vaccination is protective against both HBV and HDV infections in HBsAg negative individuals.

Hepatitis E infection is transmitted mainly through contaminated drinking water and food. Other transmission routes have been identified, which include transfusion of infected blood products and perinatal transmission. Hepatitis E Virus (HEV) infection is usually self-limiting and resolves within 4–6 weeks. Occasionally, fulminant HEV develops with acute liver failure, which can lead to death. Globally, HEV outbreaks and sporadic cases occur in resource-limited countries with limited access to essential water, sanitation, hygiene and health services, and may affect large numbers of people. In recent years, outbreaks have occurred in areas of conflict and humanitarian emergencies, such as war zones, and in camps for refugees or internally displaced persons (IDP). An estimated 20 million infections and 3.3 million acute cases occur annually worldwide with an estimated 56,600 deaths. HEV infection is associated with increased morbidity and mortality in pregnant women and new-borns. There is no available treatment capable of altering the course of acute HEV, although HEV vaccination exists, it is not widely available. Prevention is the most effective approach against the disease.

As HEV is usually self-limiting, hospitalization is generally not required. However, hospitalization is required for people with fulminant HEV and should also be considered for symptomatic pregnant women. Maintaining standards for public water supplies, establishing proper waste management systems, and maintaining hygienic practices such as hand washing with safe water, particularly before handling food, can reduce the risk of infection and transmission. Avoiding consumption of water and/or ice of unknown purity, and adhering to safe food practices are also useful.

1.3GUIDING PRINCIPLES

The development of this document is aligned with the National Policy for the Control of Viral Hepatitis in Nigeria. This is founded upon the following principles;

1.Universal Health Coverage: Ensuring that all Nigerians can utilize effective, preventive, curative, and palliative high-quality health care services for viral hepatitis. This can be achieved through the following;

- **Accessibility:** The provision of various viral hepatitis services at different levels of the health care system.
- **Affordability:** The uptake of viral hepatitis prevention, care and treatment, as well as support services should be at minimal cost.
- **Availability:** The provision of viral hepatitis testing, vaccination, pharmaceutical, laboratory as well as care and treatment services should be available at various points of care throughout the health care system.
- **Human rights and equity:** The treatment of patients in a client-focused manner through which all patients receive the same level of care irrespective of gender, ethnicity or social status.

2.Government ownership: Government at the Federal, State, and Local levels should commit to ensuring the goal of health for all citizens through provision of appropriate interventions for viral hepatitis infection.

3.Partnerships: Ensuring evidence-based interventions, services and policies through inter-sectorial collaboration, service/programme integration and involvement of affected people and communities.

4.Public health approach: Adopt the principles of public health approach to provide a useful framework to guide a response to viral hepatitis. The approach will include definition of the problem through systematic collection of information about the magnitude, scope, characteristics and consequences of viral hepatitis. It also includes the establishment and implementation of interventions based on research and epidemiological evidence, and monitoring the impact as well as cost effectiveness of interventions.

CHAPTER TWO

MANAGEMENT OF HEPATITIS B

2.1PREVENTION OF HEPATITIS B

2.1.1 Infant and Neonatal Hepatitis B Vaccination

In Nigeria, the current routine immunization schedule for infants includes four doses of HBV vaccine. The first dose is the monovalent HBV vaccine administered within the first 24 hours of life. Subsequent doses of the vaccine are given as a component of the pentavalent vaccine at 6 weeks, 10 weeks, and 14 weeks of age. The Pentavalent vaccine provides coverage for Diphtheria, Pertussis, Tetanus, Hepatitis B and Haemophilus influenza type B.

Recommendation:
This guideline recommends the above schedule as appropriate

Dosage:

Age	HBV Vaccine	Dose	Route
At birth (within 24 hours)	Monovalent	10µg / 0.5 ml	Intramuscular
6 weeks	Pentavalent	0.5 ml	Intramuscular
10 weeks	Pentavalent	0.5 ml	Intramuscular
14 weeks	Pentavalent	0.5 ml	Intramuscular

2.1.2 Prevention of mother-to-child HBV transmission

The currently recommended practice to reduce mother-to-child perinatal transmission or horizontal transmission relies on the administration of HBV vaccine and concurrent administration of hepatitis B immune globulin (HBIG) and also the administration of oral nucleos(t)ide analogues to HBV-infected pregnant mothers in the 3rd trimester (28 weeks upwards) of pregnancy till delivery.

Recommendation:

- All exposed babies (babies born to HBsAg positive mothers) should receive hepatitis B immune globulin (HBIG) intramuscularly in addition to the HBV vaccine. This HBIG must be given within 24 hours of birth with the 1st dose of HBV vaccine. The site of administration for HBV vaccine and HBIG should be different.
- HBV-infected pregnant women with HBeAg positivity should be treated with nucleos(t)ide analogues.

- HBV-infected pregnant women who are HBeAg negative but with high viraemia (≥ 200,000 IU/ml) should be treated with nucleos(t)ide analogues.
- Tenofovir, lamivudine, are the recommended drugs to be used from week 28 till delivery.
  - Entecavir* its safety In pregnancy is not known (ref WHO)

2.1.3. Prevention of hepatitis B transmission in older children, adolescents & adults

- In unvaccinated older children (aged from 1 – 11 years) the recommended schedule is as follows:

  Monovalent HBV vaccine at 0, 1 and 6 months should be administered (dose – 10µg /0.5ml, IM)
- In previously unvaccinated adolescents and adults the recommended schedule is as follows:

  Monovalent HBV vaccine at 0, 1 and 6 months should be administered (dose – 20µg / 1 ml, IM)

  Indication for immunization in these categories:
  - All HBsAg negative individuals should be immunized
  - However, where anti - HBs test is done and titre is ≥ 10 mIU/mL then vaccination is not required
- Special Populations
  - Persons who do not respond to first series of Hepatitis B vaccine should complete a second 3-dose vaccine series. The second vaccine series should be given on the usual 0, 1 and 6-month schedule.
  - For HIV, haemodialysis and other Immuno-compromised individuals, it is recommended that the dose of vaccine should be doubled (dose 40µg / 2 ml) and a fourth dose should be added, following the following schedule – 0, 1, 2, and 6 months

2.1.4 General measures to reduce HBV transmission

Individuals who are HBsAg positive should:

- Adopt correct and consistent condom use during sexual intercourse if the partner is not HBV immune or adequately vaccinated.
- Avoid sharing sharps, razors, toothbrushes, or other personal care items;
- Not donate sperm, blood products or organs;
- Follow standard universal precautions with open cuts or bleeding.

2.1.5 HBV vaccination of household and sexual contacts

Household members and sexual partners of persons with chronic HBV are at increased risk of HBV infection and should be vaccinated if they are negative for HBsAg, anti-HBs,and IgG and anti HBc tests are available, vaccination is recommended when results are negative. Dosing schedules depend on the type of vaccine, age at administration, need for rapid immunization, and previous response to HBV vaccination.

Recommendation:

- Household members and Sexual contacts of persons with Chronic HBV should be vaccinated. *The dose and schedule should be as mentioned above in 2.1.3*

2.1.6 Measures to Reduce Disease Progression in Persons with Chronic Hepatitis B

Alcohol reduction

Significant alcohol intake (>20 g/day in women and >30 g/day in men) can accelerate the progression of HBV- related cirrhosis. It is recommended that a history of alcohol consumption should be taken in all persons with HBV infection, followed by the offer of Brief Intervention (Counselling & health education) for persons with moderate-to-high alcohol intake.

2.1.7 Prevention of hepatitis B transmission in health-care settings

The prevention of hepatitis B transmission in healthcare settings includes

- Hand washing including surgical hand preparation, and use of gloves
- Safe handling and disposal of sharps and waste, safe cleaning of equipment
- Screening of donors, donated blood and blood products.
- Improved access to safe blood
- Vaccination of health care workers
- Build capacity of healthcare personnel
- Post-exposure prophylaxis following needle-stick injury/sexual exposure/mucosal or percutaneous (bite) HBV exposure
  - Wounds should be washed with soap and water, and mucous membranes flushed with water
  - The source individual should be screened for HBsAg, HIV and HCV antibody
  - HBsAg, anti-HBs and IgG anti-HBc should be checked in the exposed individual, to assess whether the individual is infected, immune or non-immune to HBV
  - If the source individual is HBsAg-positive or status is unknown, HBIG (0.06 mL/kg or 500 IU) is given intramuscularly and active vaccination commenced (0, 1 and 6 months) if the exposed individual is non-immune. HBIG and vaccine should be given at different injection sites. HBIG is repeated at 1 month if the contact is HBeAg positive, has high HBV DNA levels or if this information is not known. If the exposed individual is a known non-responder to HBV vaccination, then two doses of HBIG should be given 1 month apart.
  - Anti-HBs titres should be measured 1–2 months after vaccination
- Injection safety in health-care settings - Health care workers are required to use auto-disable syringes for intramuscular, intra-dermal and subcutaneous injections and a sufficient supply of quality-assured syringes with matching quantities of safety boxes in health-care settings. Avoidable unsafe practices ultimately lead to large-scale transmission of blood-borne viruses among patients, health-care providers and the community at large.

Unsafe practices include, but are not limited to the following prevalent and high-risk practices:

- Reuse of equipment to administer injections to more than one person, including reintroduction of injection equipment into multi-dose vials
- Recapping of used needles, and unsafe handling of sharps as they lead to accidental needle-stick injuries in health-care workers, which occur while giving an injection or after the injection
- The use of injections for health conditions where oral formulations are available and recommended as the first-line treatment
- Unsafe sharps waste management, putting health-care workers, waste management

workers and the community at large at risk. Unsafe management of sharps waste includes incomplete incineration, disposal in open pits or dumping sites, leaving used injection equipment in hospital laundry, and other practices that fail to secure infected sharps waste.

2.1.8 Prevention of Sexual Transmission of Hepatitis B Among High Risk Populations

High-risk populations include the following

- Female Sex workers (FSW)
- Male sex workers
- People who inject drugs (PWID)
- Sickle cell anaemia patients
- Inmates of prisons and other correction facilities
- Sexual partners and close contacts of HBV-infected individuals
- Men who have sex with men (MSM)
- Kidney disease patients on maintenance haemodialysis
- Other related high-risk behaviour.

Preventive measures include:

- Promotion of correct and consistent condom use
- Targeting and routine screening of high risk population
- Hepatitis B vaccination
- Developing strategies to increase uptake and complete the hepatitis B vaccination schedule
- Offering peer education interventions to reduce the incidence of viral hepatitis
- Integrated action to increase access to medical and social services for vulnerable persons, victims of rape and discrimination.

2.2 DIAGNOSIS OF HBV

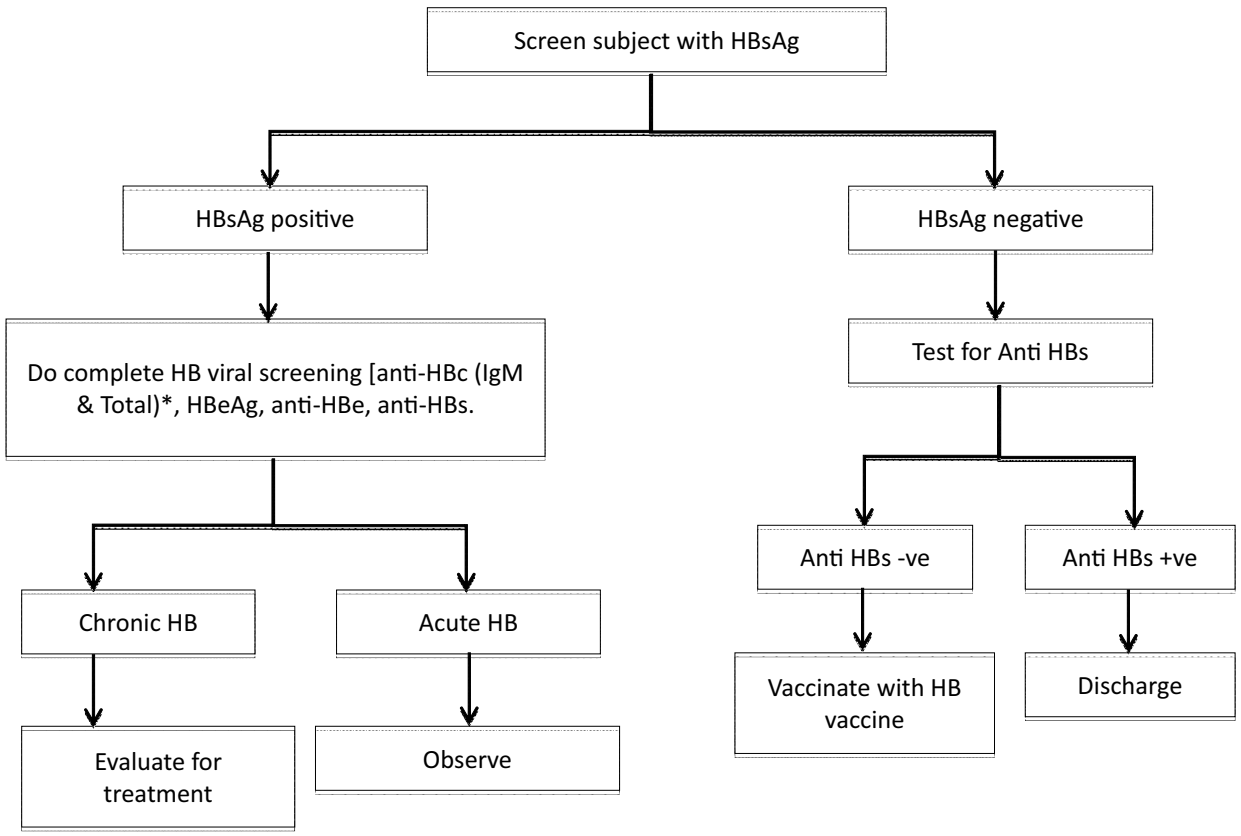
Clinical Evaluation

A detailed history and physical examination of patients are required. Alcohol, drugs and history of other risk factors should be taken. Physical examination is conducted to evaluate for features of chronic liver disease such as jaundice, hepatomegaly, splenomegaly and GI bleeding. The presence of ascites is highly suggestive of decompensated liver cirrhosis. These patients should be considered for treatment prioritization and referred for specialized care.

Recommendation:

Following the identification of an HBsAg positive person the following should be done to confirm diagnosis and assess the patient.

SCREENING AND MANAGEMENT OF HEPATITIS B



*In areas where HBV serology panel is inaccessible a repeat HBsAg test is required in 6 months. Where positive, chronic Hepatitis B is confirmed.

Interpretation of Hepatitis B Serologic Tests /Markers

Test	Results	Interpretation
HBsAg	Negative	Susceptible
Anti-HBc	Negative	
Anti-HBs	Negative	
HBsAg	Negative	Immune due to vaccination
Anti-HBc	Negative	
Anti-HBs	Positive with >10mIU/mL*	
HBsAg	Negative	Immune due to vaccination
Anti-HBc	Positive	
Anti-HBs	Positive	
HBsAg	Positive	Acutely Infected
Anti-HBc	Positive	
IgM anti-HBc	Positive	
Anti-HBs	Negative	
HBsAg	Positive	Chronically Infected
Anti-HBc	Positive	
IgM anti-HBc	Negative	
Anti-HBs	Negative	
HBsAg	Negative	Four Interpretations possible
Anti-HBc	Positive	
Anti HBs	Negative	

Interpretation of Hepatitis B Serologic Tests /Markers

Four interpretations:

1- May be recovering from acute HBV infection.

2- May be distantly immune and the test is not sensitive enough to detect a very low level of anti-HBs in the serum.

3- May be susceptible with a false positive anti-HBc.

4. May be chronically infected and have an undetectable level of HBsAg present in the serum (Occult HBV)

Chronic Hepatitis B (CHB) is defined as the persistence of HBsAg for more than 6 months or presence of chronic liver disease attributable to HBV infection. HBeAg: In persons with CHB, a positive HBeAg result usually indicates the presence of active HBV replication and high infectivity. Post vaccination testing, when it is recommended, should be performed 1-2 months following dose #3.

[19] CDC, Epidemiology and Prevention of Vaccine-Preventable Diseases, The Pink Book: Course Textbook - 13th Edition (2015), http://www.cdc.gov/vaccines/pubs/pinkbook/hepb.html

Assessment of Liver disease

Assessment of hepatic injury/severity:

Liver injury and the severity can be assessed using the following tests: Aspartate transaminase (AST), alanine transaminase (ALT), alkaline phosphatase (ALP), bilirubin, albumin, prothrombin time (PT), ultrasonography.

Liver enzymes: Aminotransaminaselevels may fluctuate with time, and single measurements of ALT and AST do not indicate disease stage. Usually, the ALT concentrations are higher than those of AST, but with disease progression to cirrhosis, the AST/ALT ratio may be reversed. Tests of liver synthetic function and/or portal hypertension include serum albumin, bilirubin, platelet count and prothrombin time (27,28). A progressive decline in serum albumin concentrations, rise in bilirubin and prolongation of the prothrombin time are characteristically observed as decompensated cirrhosis develops.

Full blood count (including platelet count).

Imaging

Ultrasound scan

CT scan where applicable/necessary

Non-invasive tests (NITs):

Non-invasive methods for assessing the stage of liver disease are supplanting liver biopsy and have been validated in adults with CHB. Blood and serum markers for fibrosis, including APRI and FIB-4, as well as commercial markers such as Fibro Test can be estimated, or transient elastography (Fibro Scan) performed to rule out advanced fibrosis (33–35).

Liver Fibrosis Assessment by Non –Invasive Tests

Aspartate aminotransferase (AST)-to-Platelet Ratio Index (APRI) is a simple index for estimating

hepatic fibrosis based on a formula derived from AST and platelet concentrations. For the purpose of early initiation of patients on therapy, the cutoff of 2.0 should be considered. Below is the formula to be used for APRI Score:

APRI Score and Liver Fibrosis Assessment Formula:

$$APRI = \frac{\frac{\text{AST Level}}{\text{AST (Upper Limit of Normal)}}}{\text{Platelets Count (109)/L}} \times 100$$

NB: In this formula the platelet count is expressed in 1000 of platelets per microliter. If the patient has 137,000 platelets per microliter then you use 137 as the denominator in the formula.

An online calculator can be found at: http://www.hepatitisc.uw.edu/page/clinical-calculators/apri

Interpretation of Aminotransferase Platelet Ratio Index (APRI)

APRI Value	*Interpretation*	*Action*
>2	*High Probability (94%) of F4 Cirrhosis*	*Prioritize for treatment*
Between 1 & 2	*Risk of Advanced Fibrosis*	*Consider for treatment*
<1	*Reduced Risk of Advanced Fibrosis*	*Consider for treatment*
<0.5	*Less risk of significant Fibrosis*	*Monitor and/or delay treatment*

Liver biopsy:

Liver biopsy has been used to ascertain the degree of necroinflammation and fibrosis, and to help guide the decision to treat. There are several established methods of scoring histology and measuring activity (necroinflammation) separately from staging (fibrosis). However, limitations of biopsy include sampling error, subjectivity in reporting, high costs, the risks of complications, discomfort to the patient, and the need for training and infrastructure in Low middle income countries (LMICs). The pathological features of CHB on liver biopsy depend upon the stage of the disease, host immune response and degree of virus replication.

Liver biopsy findings should be categorized into mild, moderate or severe chronic necroinflammiation or, better still, semi- quantitatively scored by a scoring system like the KnodellHistological Activity Index (HAI). Comments about degree of fibrosis should also be included.

Recommendation:
To be done by an appropriately trained physician

2.2.2 Evaluation for Antiviral Therapy in HBV infection

Evaluation for Antiviral Therapy in HBV Infection
HBV Infection: Who to treat.

Recommendation:

- As a priority, all adults, adolescents and children with CHB and clinical evidence of compensated or decompensated cirrhosis (or cirrhosis based on APRI score >2 in adults) should be treated, regardless of ALT levels, HBeAg status or HBV DNA levels. (WHO) evidence)
- Treatment is recommended for adults with CHB who do not have clinical evidence of cirrhosis (or based on APRI score< 2 in adults), but are aged more than 20 years, and have persistently abnormal ALT levels and evidence of high-level HBV replication (HBV DNA >20 000 IU/mL), in HBeAg positive patients (APASL, SOGHIN)
- Treatment is recommended for HBeAg negative patients with serum HBV DNA ≥ 2,000IU/ml
- Treatment should be considered based on persistently abnormal ALT levels alone, regardless of HBeAg status, in the absence of other known causes of elevated ALT (SOGHIN)HBsAg +ve patient with a Positive family history of liver cancer should be treated irrespective of other parameters.
- HBV Infection: Who not to treat but continue to monitor

Recommendation:

- Antiviral therapy is not recommended and can be deferred in persons without clinical evidence of significant fibrosis (or based on APRI score<2 n adults), or fibroscan evidence where available and with persistently normal ALT level and low levels of HBV replication (HBV DNA <2000 IU/mL), regardless of HBeAg status. (WHO, APASL,EASL)
- Treatment can be deferred in HBeAg- positive persons aged 20 years or less and persistently normal ALT levels. (SOGHIN)
- Continued monitoring is necessary in all persons with CHB, but in particular those who do not currently meet the above-recommended criteria for who to treat or not to treat, to determine if antiviral therapy may be indicated in the future to prevent progressive liver disease. These include: persons without cirrhosis aged 20 years or less, with HBV DNA levels >2000 IU/ mL but persistently normal ALT (SOGHIN)

Goals of Treatment

a. To achieve undetectable HBV DNA levels
b. To achieve HBeAg ser0-coversion and development of anti –HBe
c. Normalisation of Serum ALT

d. To prevent liver disease progression to cirrhosis, liver failure and liver cancer
e. Loss of HBsAg and development of Anti-HBs
f. To improve quality of life.

Pre-treatment Counselling

It is important that patients are fully informed in simple terms about the following in order to improve compliance:

2. The health implications of chronic HBV infection (liver failure, Cirrhosis –Hardening /scarring of the liver, Liver cancer)
    a. The chronic nature of the disease – monitoring and treatment may be lifelong.
    b. The possibility that spouse(s), children and close relatives may be infected and the need to screen and protect if uninfected.
    c. The need to avoid further health risks such as alcohol, herbal concoctions, *aflatoxins (mouldy groundnuts)multiple sexual partners, tattooing, scarification marks (to avoid risk of co-infections and possibly re-infection in cases of cure)..
3. The financial implications of treatment options in relation to the desired goal of treatment.
4. Potential side effects of the treatment options should be discussed.

The objectives and likely outcomes of treatment should be discussed in terms of virological response, normalization of liver functions and prevention or reduction in the risk of further liver

HBV Treatment Recommendations

- In all adults, adolescents and children age 12 and above, in whom antiviral therapy is indicated, the nucleos(t)ide analogues (NAs) which have a high barrier to drug resistance (Tenofovir is the preferred drug of choice, or with Entecavir as alternative)are recommended. Entecavir is recommended in children aged 2- 11 years or those who cannot tolerate Tenofovir. (WHO). Tenofovir should be avoided in renal impairment.
- Pegylated interferon therapy is recommended in patients for finite treatment who have following parameters:
  Viremia of HBV DNA < 107 IU / ml Elevated serum ALT (> 1x upper limit of normal)

Young patient aged ≤ 45 years(it is approved for use in children aged 2-18years .)

- Pegylated interferon is contraindicated in decompensated cirrhosis

Nas with a high risk of resistance (lamivudine, adefovir & Telbivudine) can lead to drug resistance and are not recommended.

- Telbivudine is preferable in patients with renal impairment,
- Conventional interferon is no longer recommended.

Special Populations

Co – infections

HBV/HCV- Treatment is for the dominant infection while monitoring is for the latent infection, the dominant infection is the infection with the higher viral load.

HBV/HIV- Simultaneous treatment for both diseases; treatment should include drugs effective for both conditions and these include tenofovir+ emtricitabine, in combination with Non-nucleoside reverse transcriptase inhibitor or protease inhibitor.

HBV/HDV- treatment is with Pegylated Interferon for 48 weeks

Chemo/Immunosuppressive therapy

Before commencing chemotherapy, every patient should be screened for HBsAg/anti-HBc as HBV infection may flare on starting treatment. HBsAg positive patients should be started on oral Nucleoside analogues one week before commencement of chemotherapy and continued for 6 months after stopping chemotherapy.

Table 1a. Profile of HBV treatment options

Nucleoside Analogues	RESISTANCE BARRIER	DOSE	DURATION	ROUTE	INDICATION	COST	REMARKS
Tenofovir	Low risk of resistance	300mg dly	Life-long, or until loss of HBsAg/HBeAg positivity	P.O	High viral load	Low	Watch out for Nephrotoxicity
Entecavir	Low risk of resistance	0.5mg dly Lamivudine naïve	Life-long , or until loss of HBsAg/HBeAg positivity	P.O	High viral load	Moderate	Maybe used in place of Tenofovir

Table 1b. Profile of HBV treatment options

Interferons	RESISTANCE BARRIER	DOSE	DURATION	ROUTE	INDICATION	COST	REMARKS
PegylatedInterferon	Not applicable	180mcg wkly	48 weeks	S.C	Low viral load High ALT	high	For finite duration of therapy, Higher HBsAg loss & Higher HBeAg seroconversion

MONITORING AND FOLLOW-UP

Success of therapy is dependent on the proper baseline investigations and monitoring of therapy to determine success and prevent harm to the patient

Baseline investigations to initiate therapy for CHB– in addition to investigations for evaluation include

Serum Electrolyte, Urea and Creatinine for all patients

HIV screening

Exclude non-viral causes of liver disease if suspected (e.g. Liver scan)

Pregnancy test

Psychiatric assessment

HDV test (if available)

Treatment monitoring indices for CHB on Interferon therapy

HBsAg test

White blood cell and Platelet count

HBeAg testing for HBeAg positive patients

HBV DNA

EU,Cr for patients

Serum ALT

Thyroid function test (T3, T4, TSH)

Treatment monitoring indices for CHB on NA Nucleos(t)ide Analogues therapy

HBsAg test

White blood cell and Platelet count

HBeAg testing for HBeAg positive patients

HBV DNA

Serum Creatinine (Cr) for patients

Serum ALT

2.4 MONITORING AND FOLLOW-UP

Success of therapy is dependent on appropriate baseline investigations and patient monitoring for desirable clinical outcomes and reduced risk of harm to the patient.

In addition to investigations for evaluation, the baseline investigation to initiate therapy for CHB includes:

1) Serum Electrolyte, Urea and Creatinine for all patients
2) HIV screening
3) Exclusion of non-viral causes of liver disease if suspected (e.g. Liver scan)

4) Pregnancy test
5) Psychiatric assessment
6) HDV test (if available)

Additionally, treatment monitoring indices for CHB on Interferon therapy

1) HBsAg test
2) White blood cell and Platelet count
3) HBeAg testing for HBeAg positive patients
4) HBV DNA
5) Electrolytes, Creatinine for patients
6) Serum ALT
7) Thyroid function tests (T3, T4, TSH)

Treatment monitoring indices for CHB on Nucleos(t)ide Analogues therapy:

1) HBsAg test
2) HBeAg testing for HBsAg-positive patients
3) HBV DNA
4) Serum Creatinine (Cr) for patients
5) Serum ALT

Table 2. Treatment monitoring for CHB (Nueclos(t)ide analogue Therapy)

BASELINE	4WEEKS	12 WEEKS	24 WEEKS	48 WEEKS	ANNUALLY	REMARKS
HBV viral load		+			+	Monitor annually subsequently (if available)
ALT	+	+	+			
Serum Creatinine	+	+	+			Monitor annually subsequently
HBsAg test					+	Annual monitoring until HBsAg loss
HBeAg test			+			Annual monitoring

Table 3. Treatment monitoring for CHB (Peg-interferon Therapy)

BASELINE	4WEEKS	8 WEEKS	12 WEEKS	24 WEEKS	48 WEEKS	18 MONTHS
HBV viral load			+	+	+	+ (End of monitoring for Interferon)
ALT	+	+	+			
Psychiatric assessment						
WBC & Platelet	+	+	+			
Thyroid function				+	+	
HBsAg test				+	+	+

Table 4. Treatment Endpoint/ indices of CHB

AGENTS	DURATION OF TREATMENT	
	HBeAg positive	**HBeAg negative**
Nucleoside Analogues	6-12 months after HBeAg seroconversion, undetectable serum HBV DNA and appearance of anti HBe	Until HBsAg loss
Pegylated Interferon	48 weeks Sustain Immunological Control HBeAg seroconversion	48 weeks Sustain Immunological Control and Loss of HBs Ag

***Where there are challenges with treatment response refer the patient to the Gastroenterologist/ Hepatologist**

CHAPTER THREE

MANAGEMENT OF HEPATITIS C

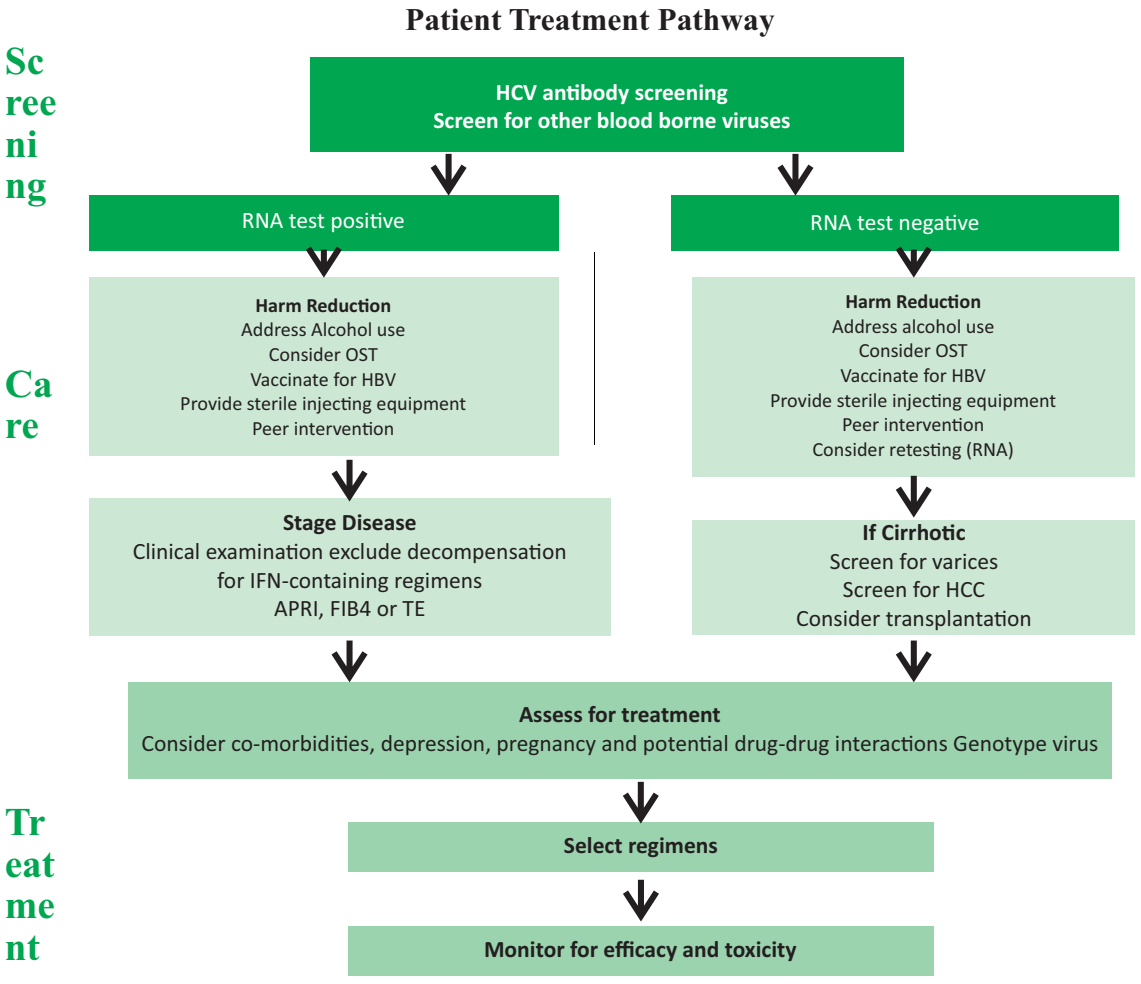
The majority (80%) of HCV infections progress to Chronic Liver Disease (CLD). Outcomes vary widely from subclinical infection to end stage liver diseases (ESLD, 20%) and liver cancer (5%). The more advanced the liver fibrosis, the more severe the disease outcomes. Management of HCV infection requires a comprehensive strategy to prevent and control HCV infection and related chronic liver disease.

3.1 GOALS OF MANAGEMENT

The general goals of management include the following:

a) To achieve a sustained virologic response (SVR) or cure where possible
b) To prevent liver disease progression to cirrhosis, liver failure and hepatocellular carcinoma
c) To prevent transmission of HCV infections
d) To improve quality of life.

A detailed pathway to be followed for the management of hepatitis C is shown in figure 3.1 below



3.2 HCV diagnosis

1. **Screening:**

   Detection of HCV antibodies is the first step to diagnosis. Screening is conducted on whole blood, serum or plasma specimen, using rapid test or Enzyme Immunoassay (EIA) kits that are approved by NAFDAC and other stringent regulatory authorities (FDA, WHO).

   Who to screen:

   - Persons with past history of blood or blood products transfusion or organ transplant
   - People who inject drugs (PWID)
   - Persons with a history of haemodialysis
   - Infants born to HCV positive mothers
   - Contacts of HCV infected persons
   - Health care workers especially those with known history of needle sticks/sharps exposure
   - Clinical evidence of chronic liver disease or abnormal liver enzyme tests
   - Persons living with HIV (PLHIV)
   - Patients with tattoos, scarification marks, or other local surgical procedures
   - Men who have sex with men (MSM), Female sex workers (FSW), and persons with a history of incarceration

2. **Confirmation (Virologic evaluation of HCV infection):**

   Approximately 15–25% of persons who are infected with HCV will spontaneously clear the infection and do not develop chronic infection. These persons are HCV Ab seropositive but no longer infected with HCV. A nucleic acid test (NAT) for HCV RNA, which detects the presence of virus, is needed to distinguish persons with chronic HCV infection from those who have cleared the infection. NAT for HCV RNA is important prior to commencing and during treatment to assess treatment response. NAT can include RNA quantitative or qualitative testing for the detection of HCV RNA and should be performed directly following a positive HCV serological test to establish the diagnosis of chronic HCV infection.

3. **HCV RNA Genotyping:**

   There are six HCV genotypes. (Genotype 1-6) In a HCV RNA positive person, the HCV genotyping should be done to determine optimal treatment **only if** pan-genotypic treatment regimens are un-available.

3.3 Assessment of Liver disease

3.3.1: Clinical Evaluation

A detailed history and physical examination of patients is required. Alcohol, drugs and history of other risk factors are evaluated. Physical examination is conducted to evaluate for features of chronic liver disease such as jaundice, hepatomegaly, splenomegaly and GI bleeding. The presence of ascites is highly suggestive of decompensated liver cirrhosis. These patients should be considered for treatment prioritization and referred for specialized care.

3.3.2: Assessment of hepatic injury / severity

1. Liver enzymes and other tests of liver function:

Liver enzymes include aspartate transaminase (AST), alanine transaminase (ALT), and alkaline phosphatase (ALP). Other tests of liver synthetic function and/or portal hypertension include serum albumin, bilirubin, platelet count and prothrombin time. A progressive decline in serum albumin concentrations, rise in bilirubin, ALT, AST, ALP and prolongation of the prothrombin time are characteristically observed as decompensated cirrhosis develops.

2. Haematological test:

   Full blood count (including platelets count) and test of coagulation such as Prothrombin Time and International Normalized Ratio (INR)

3. Liver Imaging; to evaluate hepatic parenchyma, intra hepatic masses and adnexa
   - Ultrasound scan
   - CT scan where applicable/necessary

3.3.3: Non-invasive tests (NITs) for Liver Fibrosis Assessment

Non-invasive methods for assessing the stage of liver disease are supplanting liver biopsy and have been validated in adults with Chronic HCV. Blood and serum markers for fibrosis, including APRI and FIB-4, as well as commercial markers such as Fibro Test can be estimated, or transient elastography (Fibro Scan) performed to rule out advanced fibrosis.

APRI Score and Liver Fibrosis Assessment:

Aspartate aminotransferase (AST)-to-Platelet Ratio Index (APRI) is a simple index for estimating hepatic fibrosis based on a formula derived from AST and platelet concentrations. For the purpose of early initiation of patients on therapy, the cutoff of 1.0 should be considered. APRI and FIB-4 scores are easily calculated using standard clinical labs. Below is the formula to be used for APRI Score:

APRI and FIB 4 Score calculation:

$$APRI = \frac{\frac{\text{AST Level}}{\text{AST (Upper Limit of Normal)}}}{\text{Platelets Count } (10^9)/L} \times 100$$

NB: In this formula, the Platelets Count is expressed in thousands of platelets per microliter. So, if a patient has 137,000 platelets/µl, we would use 137 as the denominator of the formula.

$$FIB\text{-}4 = \frac{\text{Age [years]} \times \text{AST [IU/L]}}{(\text{platelets } [10^9/L] \times \sqrt{\text{ALT [IU/L]}}).16}$$

ALT - alanine aminotransferase IU - international unit AST - aspartate aminotransferase ULN - upper limit of normal

An online calculator can be found at: http://www.hepatitisc.uw.edu/page/clinical-calculators/apri

Table 3.1. Low and High cut-off values for the detection of significant cirrhosis and fibrosis

	APRI (low-cut off)	APRI (high cut - off)	FIB4 (low cut - off)	FIB4 (high cut - off)	Transient elastography (Fibroscan)
Significant fibrosis (METAVIR = F2)	0.5	1.5	1.45	3.25	7-8.5kPa
Cirrhosis (METAVIR F4)	1.0	2.0	-	-	11-14kPa

Table 3.2. Summary of sensitivity and specificity of APRI, FIB4 and Fibroscan for the detection of advanced cirrhosis and fibrosis (all values are percentages)

		APRI (low-cut off)	APRI (high cut-off)	FIB4 (low cut - off)	FIB4 (high cut-off)	Transient elastography (Fibroscan)
Significant fibrosis (METAVIR ≥ F2)	Sensitivity (95% CI)	82 (77-86)	39 (32-47)	89 (79-95)	59 (43-73)	79 (74-84)
	Specificity (95% CI)	57 (49-65)	92 (89-94	42 (25-61)	74 (56-87)	83 (77-88)
Cirrhosis (METAVIR F4)	Sensitivity (95% CI)	77 (73-81)	48 (41-56)	-	-	89 (84-92)
	Specificity (95% CI)	78 (74-81)	94 (91-95)	-	-	91 (89-93)

3.3.4: Liver biopsy

Liver biopsy has been used to ascertain the degree of necroinflammation and fibrosis, and to help guide the decision to treat. There are several established methods of scoring histology and measuring activity (necroinflammation) separately from staging (fibrosis).

Limitations of biopsy include sampling error, subjectivity in reporting, high costs, the risks of bleeding and pneumothorax, discomfort to the patient, and the need for training and infrastructure in LMICs. Liver biopsy findings should be categorized into mild, moderate or severe chronic necroinflammation.

Using the METAVIR group scoring system:

Fibrosis is staged on a scale of F0 to F4, as follows;

- F0 = no fibrosis.
- F1 = portal fibrosis without septa.
- F2 = few septa (moderate fibrosis).
- F3 = numerous septa without cirrhosis (advanced fibrosis).

- F4 = cirrhosis.

Significant fibrosis is defined by the presence of F2, F3 or F4

3.4 ANTIVIRAL THERAPY

Antiviral therapy is the cornerstone of treatment of chronic HCV infection. With the arrival of new antiviral therapies, a high rate of sustained virologic response (SVR) is possible in almost all patients.

3.4.1: Goal of Antiviral Therapy

The goal of antiviral therapy in patients with chronic HCV is eradication of HCV RNA, which is predicted by attainment of SVR. SVR is defined as aviremia 12 or 24 weeks after completion of antiviral therapy. An SVR confers a 97 to 100 % chance of being HCV RNA negative during long-term follow-up and can therefore be considered as virologic cure of HCV infection. SVR has been associated with decrease in all-cause mortality, liver-related death, need for liver transplantation, hepatocellular carcinoma, and liver-related complications even among those patients with advanced liver fibrosis.

3.4.2: Evaluation for Antiviral Therapy in HCV

1. All patients with HCV infection (confirmed with HCV RNA) should be treated.
2. However, if prioritization is necessary, refer to the table below.

Table 3.3. Indications for treatment of chronic hepatitis C: Who should be treated and when?

Treatment Priority	Patient group
Treatment is indicated	• All treatment-naïve and treatment-experienced patients with compensated and decompensated liver disease
Treatment should be prioritized	• Patients with significant fibrosis or cirrhosis, APRI score ≥1.0 (or equivalent Metavir score of F3 or F4) including decompensated cirrhosis • Patients with HIV co-infection • Patients with HBV co-infection • Patients with an indication for liver transplantation • Patients with HCV recurrence after liver transplantation • Patients with clinically significant extra-hepatic manifestations • Patients with debilitating fatigue • Individuals at risk of transmitting HCV (active injection drug users, men who have sex with me and high-risk sexual practices, women of child bearing age who wish to get pregnant, haemodialysis patients, incarcerated individuals
Treatment should be considered	• Patients with APRI score <1 (or equivalent METAVIR score of F0 -F2
Treatment is justified	• Patients with moderate fibrosis (F2)
Treatment can be deferred	• Patients with no or mild disease (F0-F1) and none of the above-mentioned extra-hepatic manifestations
Treatment is not recommended	• Patients with limited life expectancy due to non liver related comorbidities

3.5 TREATMENT

3.5.1: Pre-treatment Counselling

In order to improve compliance HCV counselling before commencement of HCV treatment should include;

1. The health implications of chronic HCV infection (liver failure, cirrhosis, Liver cancer)
2. The chronic nature of the disease – monitoring may be lifelong
3. The possibility that spouse(s), children and close relatives may be infected and the need to screen and protect if uninfected
4. The need to avoid further health risks such as alcohol, herbal concoctions, aflatoxins (mouldy groundnuts), multiple sexual partners, tattooing, and scarification procedures (to avoid risk of co-infections and possibly re-infection)
5. The financial implications of treatment options in relation to the desired goal of treatment
6. The potential side effects of treatment options
7. The objectives and likely outcomes of treatment in regards to virologic response, normalization of liver function, prevention/reduction in the risk of further liver damage and liver cancer
8. The potential drug-drug or drug-food interactions (see appendix)

3.5.2: Treatment Options

There are many drugs approved for the treatment of Hepatitis C as shown in Table 3.4, which include all oral DAA therapy and interferon based regimen. Treatment regimens and duration depend on the presence or absence of liver cirrhosis in the patient, the viral genotype (for genotype specific regimens), and other factors that may complicate therapy. Several treatment regimens are available (see Table 3.5).

Interferon based regimen are characterized by significant adverse events (flu-like syndrome, anaemia, pancytopenia etc.), long treatment duration and lower efficacy rates. However, antiviral resistance does not occur.

DAAs have revolutionized HCV treatment and improved treatment outcomes. However, antiviral resistance may occur in rare instances. Pan-genotypic DAAs regimens are widely recommended as they provide high efficacy across all genotypes, have excellent safety profiles, and are administered orally. DAAs can be combined with Pegylated interferon to improve efficacy and reduce duration of treatment.

Table 3.4: Existing HCV Medicines and Dosage

Product	Presentation	Dosage
Sofosbuvir	Tablets containing 400mg of Sofosbuvir	One tablet once daily (morning)
Simeprevir	Capsules containing 150mg of Simeprevir	One capsule once daily (morning)
Daclatasvir	Tablets containing 30 or 60mg of Daclatasvir	One tablet once daily (morning)
Sofosbuvir/Ledipasvir	Tablets containing 400mg of Sofosbuvir and 90mg or Ledipasvir	One tablet once daily (morning)
Paritaprevir/Ombitasvir/Ritonavir	Tablets containing 75mg of Paritaprevir, 12.5mg of Ombitasvir and 50mg of Ritonavir	Two tablets once daily (morning)
Dasabuvir	Tablets containing 250mg of Dasabuvir	One tablet twice daily (morning and evening)
	Solution for injection containing 180, 135 or 90μg of PegIFN-α2a	Once weekly subcutaneous injection of 180 μg (or less if dose reduction needed)
PegIFN-α2b	Solution for injection containing 50 μg per 0.5ml of PegIFN-α2b	Once weekly subcutaneous of 1.5 μg/kg (or less if dose reduction needed)
Ribavirin	Capsules containing 200mg of Ribavirin	Two capsules in the morning and 3 in the evening if body weight<75kg or Three capsules in the morning and 3 in the evening if body weight>75≥kg

The choice of HCV treatment regimen should be individualized based on efficacy of treatment and response. However, for a public health approach, a simplified regimen with limited side effects, good efficacy, and oral route of administration is recommended.

Table 3.5. A list of preferred regimens:

PREFERRED REGIMENS FOR THE TREATMENT OF HEPATITIS C		
REGIMEN	**FEATURES**	**MAJOR CONTRAINDICATIONS**
Sofosbuvir/Daclatasvir	Highly efficacious across all genotypes and HIV+ patients	No clinically significant contraindication
	Affordable	
	Well tolerated, short duration, minimum SEs, AEs and drugs interactions	
Sofosbuvir/Ledipasvir (FDC)	Highly efficacious across most genotypes but not indicated for GT 2 & 3	No clinically significant contraindication
	Affordable	
	Well tolerated, short duration, minimum SEs, limited drugs interaction	
Sofosbuvir + Ribavirin	Acceptable cure rates across all genotypes	Pregnancy or unwillingness to use contraception
	More expensive and less tolerable than all-DAAs regimens, but better than Peg-IFN	
	No risk of resistance	
	Can be used across all genotypes but with lower efficacy	Decompensated cirrhosis
		Uncontrolled depression or epilepsy
	Most Expensive	Pregnancy or unwillingness to use contraception
	Least tolerable regimen: injections, frequent SEs and AEs	Poorly controlled hypertension, cardiac failure or diabetes
		Abnormal Hematologic indices (see table 15), Serum Cr >1.5mg/dl
	No risk of resistance	Breastfeeding

Preferred regimen(s) for Public Health Approach (Without Genotyping)

Sofosbuvir + Daclatasvir

- 12 weeks (All Genotypes) for non-cirrhotic patients (APRI < 1.0)
- 24 weeks (All Genotypes) for cirrhotic patients (APRI ≥ 1.0)

Special Considerations for ART patients:

- Increase daclatasvir dosage to 90mg per day when co-administered with Efavirenz
- Decrease daclatasvir dosage to 30mg per day when co-administered with Atazanavir/Ritonavir
- Decrease daclatasvir dosage to 30 mg per day with the antibacterials clarithromycin, telithromycin, erythromycin and the antifungals ketoconazole, itraconazole, posaconazole and voriconazole

Sofosbuvir + Ribavirin:

- 24 weeks for all patients (All genotypes, non-cirrhotic and cirrhotic)
  - Of note, this is a sub-optimal regimen for certain genotypes based on SVR12 rates in clinical trials (AASLD/EASL/WHO treatment recommendations). However, with limited availability of DAAs, it remains a secondary option for Nigeria.

Table 3.6. Preferred regimen(s) if Genotype is available

A.Patients without cirrhosis (APRI <1.0)

Genotype	Sofosbuvir/ Daclatasvir	Sofosbuvir/ Ledipasvir	Sofosbuvir/ Ribavirin	PegIFN/Sofosbuvir/ Ribavirin
1	12 [A/E/S/W]	12[A/W]; 8-12*[E/S]		12 [E/S]
2	12 [A/E/S/W]		12 [A/E/S/W]	12 [E/S]
3	12 [A/E/S/W]		24 [A/E/S/W]	12 [A/E/S]
4	12[E/S/W]	12 [A/E/S/W]		12 [A/E/S]
5	12[E/S]	12 [A/E/S/W]		12 [A/E/S/W]
6	12[E/S]	12 [A/E/S/W]		12 [A/E/S/W]

Notes
A=AASLD 2016 HCV Treatment Guidelines (Treatment naïve patients only)
E=EASL 2015 HCV Treatment Guidelines
S=SOGHIN 2015 Treatment Guidelines
W=WHO 2016 HCV Treatment Guidelines
*8 weeks in treatment naïve if baseline HCV RNA below 6 million IU/ml

Sofosbuvir + Daclatasvir:

- All Genotypes= 12 weeks

Sofosbuvir + Ribavirin:

- Genotype 2= 12 weeks
- Genotype 3= 24 weeks

Sofosbuvir + Ledipasvir:

- Genotypes 1, 4, 5, 6= 12 weeks
- Genotype 1 can be treated for 8 weeks if treatment naïve and HCV RNA below 6 million IU/ml (EASL)

B. Patients with compensated cirrhosis (APR≥1.0)

Genotype	Sofosbuvir /Daclatasvir	Sofosbuvir /Daclatasvir/ Ribavirin	Sofosbuvir /Ledipasvir	Sofosbuvir /Ledipasvir /Ribavirin	Sofosbuvir/ Ribavirin	PegIFN/ Sofosbuvir/ Ribavirin
1	24 [A/E/S/W]	12[E/W]; 24 [A]	12[A]; 24 [E/S/W]	12[W]; 12-24*[E]		12 [E/S]
2	12[E/W]; 16-24 [A]; 24 [S]				16[W];16-20[E/S];16-24[A]	12 [E/S]
3	24[A/S]	24 [A/E/W]			24[A]	12 [A/E/S/W]
4	24[E/S/W]	12[E/W]	12[A]; 24[E/S/W]	12[W]; 12-24*[E]		12 [A/E/S/W]
5	24[E/S]	12[E]	12 [A]; 24 [E/S/W]	12[W]; 12-24*[E]		12 [A/E/S/W]
6	24[E/S]	12[E]	12 [A]; 24 [E/S/W]	12[W]; 12-24*[E]		12 [A/E/S/W]

Notes

A=AASLD 2016 HCV Treatment Guidelines (Treatment naïve patients only)

E=EASL 2015 HCV Treatment Guidelines

S=SOGHIN 2015 Treatment Guidelines

W=WHO 2016 HCV Treatment Guidelines

*Extension of treatment to 24 weeks if treatment experienced and negative predictors of response

Sofosbuvir + Daclatasvir

- All Genotypes= 24 weeks
- Genotype 2= treatment can shortened to 12-16 weeks
- *Special Considerations for ART patients (See Figure 2)*

Sofosbuvir + Daclatasvir + Ribavirin

- Genotype 1= 12-24 weeks
- Genotype 3= 24 weeks
- Genotypes 4, 5, 6= 12 weeks
- *Special Considerations for ART patients (See Figure 2)*

Sofosbuvir + Ledipasvir

- Genotypes 1, 4, 5, 6= 12-24 weeks
- *Special Considerations for ART patients (See Figure 2)*

Sofosbuvir + Ledipasvir + Ribavirin

- Genotypes 1, 4, 5, 6= 12 weeks (EASL recommends extending treatment to 24 weeks if treatment experienced and negative predictors of response such as platelet count <75 x 10^3/ul)
- *Special Considerations for ART patients (See Figure 2*

Sofosbuvir + Ribavirin:

- Genotype 2= 16-24 weeks
- Genotype 3= 24 weeks

3.6 SPECIAL POPULATIONS

3.6.1 HIV and HCV co-infection

Assessment of potential drug-drug interactions is of critical significance in HIV-infected persons who are about to start HCV treatment. Careful consideration of such interactions is important to avoid toxicity and to ensure efficacy of the regimens used to treat both HIV and HCV in order to prevent the development of ARV resistance and increase likelihood of SVR. Reported interactions are updated on a regular basis and therefore consultation with a frequently updated database is strongly recommended

3.6.2 HBV and HCV co-infection

HBV/HCV: HBV and HCV co-infection may result in an accelerated disease course. In this instance, HCV is considered to be the main driver of the disease. Persons co-infected with HBV and HCV can be treated with antiviral therapy for HCV. SVR rates are similar to those of HCV mono-infected persons. After HCV clearance, there is a risk for HBV re-activation and this may require treatment with anti-HBV antiviral therapy

3.6.3 TB and HCV co-infection

Severe concurrent infections such as TB should generally be treated before commencing therapy for HCV. ART should be initiated with persons with HIV-associated TB as soon as possible, regardless of CD4 count. There are limited reported data on the co-management of persons co-infected with HCV, HIV and TB but such cases need sound clinical judgment in order to reduce the additive side-effects, pill burden and drug–drug interactions.

3.6.4 Persons with renal impairment

Both ribavirin and PEG-IFN require dose adjustment in persons with renal failure, and baseline testing of renal function is required before initiating therapy. Hepatic metabolism occurs for PEG-IFNα2a, while PEG-IFNα2b is renally cleared. While a theoretical accumulation of PEG-IFNα2b could occur in persons with haemodialysis, no differences have been reported clinically. All oral DAAs are recommended in this group. However, there are no data regarding the safety of this medication among persons with renal impairment.

3.7 MONITORING AND FOLLOW-UP

3.7.1 Treatment Monitoring

Direct Acting Antivirals

DAA regimens are much better tolerated by patients, as they have fewer adverse events and less likely to be discontinued early

Recommendation:

Treatment monitoring is not generally required when using all-oral regimen, except in the following situations

- Renal impairment: If Sofosbuvir or Ribavirin based regimens are utilized in patients with chronic kidney disease, renal function should be monitored (Creatinine Clearance) as both exhibit renal clearance.

Dose Adjustments

- Ribavirin:
  - Moderate (30-50mL/min)=Alternating doses of 200mg and 400mg every other day
  - Severe (<30mL/min)= 200mg/day
  - ESRD= 200mg/day

  *Note: Sofosbuvir/Ribavirin only recommended for GT 2, 3 as above if genotype known.
- Sofosbuvir:
  - Mild-moderate (30-80mL/min)= No dose adjustment
  - Severe and ESRD= Not recommended
- Ribavirin based regimens: Severe hemolytic anemia with significant initial drops in haemoglobin may occur; therefore careful monitoring should be initiated.
- Direct monitoring of viral replication through NAT (Viral load) testing is not recommended
- Complex patients in specialist care may require more advanced chemistry and haematology monitoring

Pegylated interferon

For pegylated interferon based regimens, the following monitoring tests are recommended

- Monthly haematological and biochemical profile
- Three monthly Thyroid Function Tests
- Monthly evaluation for depression

Patients on pegylated interferon based regimen should be monitored closely for adverse effects as well as response to therapy. Tests to help monitor drug toxicity include the following:

- Complete blood count with differential
- Renal function testing
- Liver function tests (including alanine aminotransferase [ALT] level)
- Thyrotropin level

3.7.2 Confirmation of efficacy

Confirmation of SVR can be done with qualitative or quantitative NAT post-treatment to evaluate virologic response to therapy.

- DAA Regimens: testing at 12 weeks post-treatment (SVR12)
- Interferon-based regimens: testing at 12 weeks post-treatment (SVR12)

Patients who do not achieve SVR should be referred to a specialist and evaluated for re-treatment

3.7.3 Follow-up

Patients with decompensated cirrhosis and HBV/HCV co-infected patients should be referred to specialist centers.

Assessment and follow up for the progression of disease and for evidence of HCC is an essential part of the care of persons with HCV-related cirrhosis. Compensated cirrhosis may also progress over time to decompensated cirrhosis associated with ascites, oesophageal and gastric varices, and eventually to liver failure, renal failure and sepsis, all of which are life-threatening. The diagnosis of decompensated liver disease is based on both laboratory and clinical assessment, and therefore a careful medical examination of patients must be made before starting treatment. Persons with cirrhosis (including those who have achieved SVR) should be screened for HCC with

six-monthly ultrasound examination and α-fetoprotein estimation, and should have endoscopy every 1-2 years to exclude oesophageal varices.

3.8 PROGRAMMATIC APPROACH TO HCV MANAGEMENT

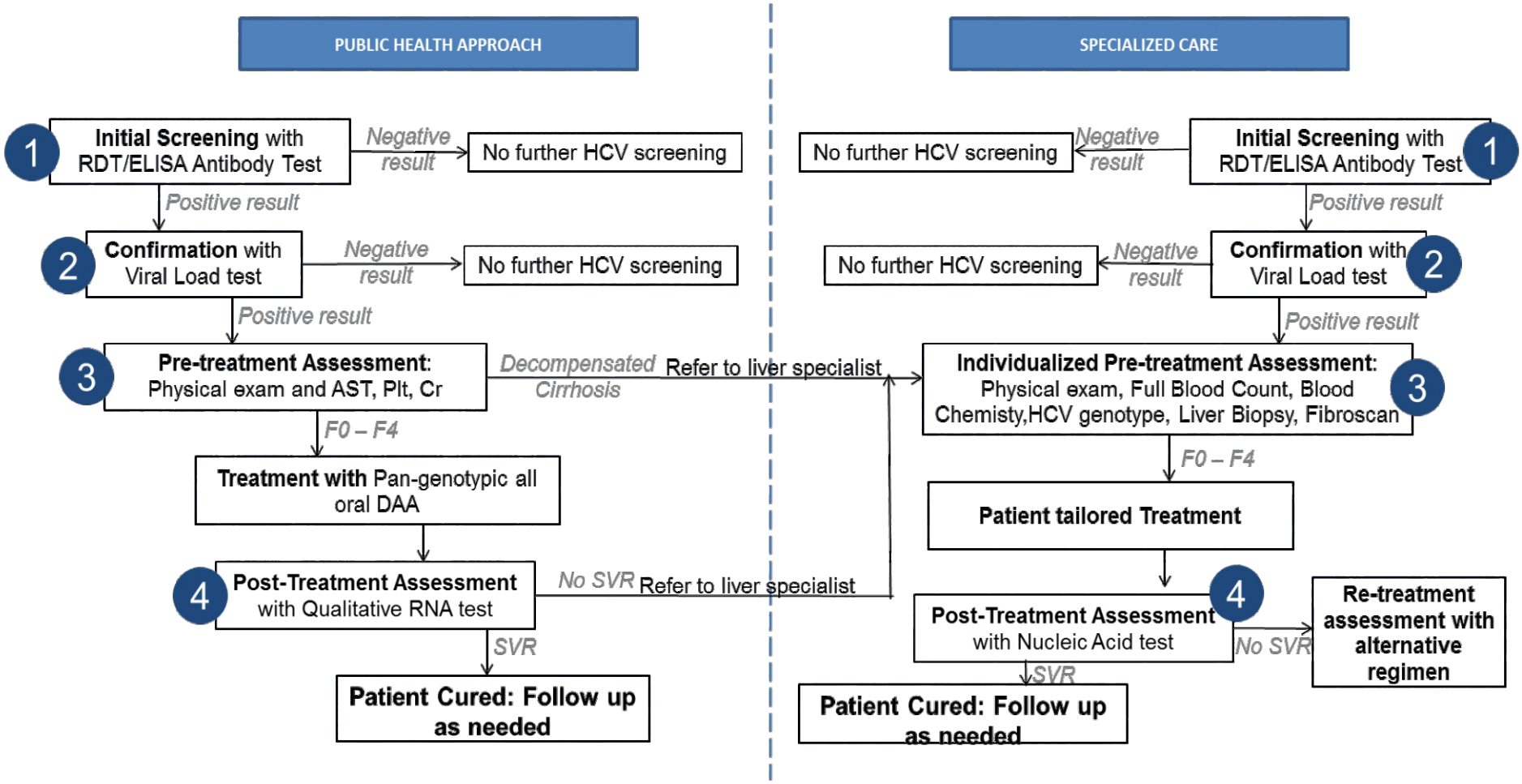


Table 3.7. Implementing the public health approach in HCV therapy

Item	Protocol Section	Specialized Standard of Care Lab Description	Included in public health approach (Yes/No)	Implementation modalities
1	Pre-treatment Screen	**Hepatitis C antibody** (Serum HCV Ab)	**Yes**	The HCV Ab can be performed using an ELISA assay or rapid test. A number of rapid tests are available with differing performance characteristics, such as sensitivity and specificity; which should be considered during selection of screening tests.
2	Pre-treatment Assessment	**Qualitative /quantitative HCV RNA**	**Yes**	Confirmation of chronic HCV is required secondary to false positives during initial screening as well as clearance of previous HCV infection. As with screening tests, NAT performance characteristics should be considered in selection of confirmatory testing platforms.
3	Pre-treatment Assessment	**Physical Exam:** Blood pressure, heart rate, pulse, cardiac, respiratory, abdominal, and neurological exam	**Yes**	Physical examination allows for evaluation of advanced liver disease (decompensated cirrhosis) manifested by evidence of bleeding from varices in the stomach or esophagus, jaundice, ascites (fluid in abdomen), edema of the lower extremities, and mental changes. Individuals with evidence of decompensated cirrhosis will be referred to a liver specialist for management.
4	Pre-treatment Assessment	**HCV Genotype and subtype**	**No**	A pan-genotypic regimen should be adopted.
5	Pre-treatment Assessment	**Platelet** **Hepatic Function Panel:** **Albumin** **Bilirubin** **Alkaline phosphatase** **Alanine aminotransferase and aspartate aminotransferase**	**Yes- AST, Plt** **No- Alb, Bili, Alk Phos, ALT**	AST and Plt allows for calculation of APRI score (AST to Platelet ratio index). APRI is a non-invasive measure of liver damage (advanced scarring (fibrosis) or cirrhosis) and guides treatment duration and ongoing management of liver disease post-SVR. Referral to specialists is not required for patients with APRI>1 and no signs of decompensation, but when/where available should result in liver cancer screening for advanced liver disease (ascites, encephalopathy, GI bleeding) and referral to tertiary treatment centers for evaluation by specialists.
6	Pre-treatment Assessment	**Creatinine/Calculated glomerular filtration rate (GFR):** Measure of kidney function.	**Yes**	One of the medications used in this protocol (sofosbuvir) is renally cleared and there is currently limited safety data in patients with poor kidney function. A GFR <30 ml/min would be an indication to consider delay in therapy until more safety data is available or other regimens are available.
7	Post-treatment Assessment at week 24 (End of Treatment + 12 Weeks)	**At Week 24** (12 weeks after ending treatment): Qualitative HCV RNA	**Yes**	Measurement of sustained virological response (SVR) is recommended at 12 weeks post treatment. If there is no HCV detected in the blood 12 weeks after finishing treatment, the patient has achieved SVR 12 and is considered cured.
8	Post-treatment Assessment at week 24	**At Week 24** (12 weeks after ending treatment): HCV Genotype and subtype	**Maybe**	If SVR12 is not achieved, HCV genotyping and subtyping is recommended. This occurs in a minority of patients; assuming the cost of genotyping at this point significantly decreases overall treatment costs while providing information requisite for future retreatment.

3.9 PREVENTION

To reduce the number of Hepatitis C infections and HCV-related diseases, it is necessary to implement primary, secondary and tertiary prevention methods. Primary prevention methods reduce the risk of contracting the infection. Secondary prevention aims to identify disease at the earliest stage to reduce the impact of disease after it has occurred. Tertiary prevention aims to reduce the impact of on-going illness that has lasting effects.

3.9.1 Primary Prevention Methods

Primary prevention activities reduce the potential risk for HCV transmission from blood, sexual intercourse with infected persons, and exposure to needles (drugs, tattoos, piercings). Precautionary measures should include;

- Educating the public on HCV and modes of transmission and infection
- Not sharing razors, toothbrushes, manicure tools and other items that could be contaminated with blood
- Making sure that sterile equipment is used when getting a tattoo or piercing
- Never sharing IV drug needles or other drug equipment
- Counselling and education to prevent initiation of injecting drugs or risky sexual practices, especially for adolescents
- Counselling those who are at risk for sexually transmitted diseases and drug-related infections on what those individuals can do to minimize their risk of becoming infected

Individuals who use illegal drugs should be advised to;

- Stop using and injecting drugs
- Enter and complete a substance-abuse treatment
- Never share needles If drug use is continued
- Use sterile equipment and clean the site of injection
- Get vaccinated against Hepatitis A and Hepatitis B

Individuals who are at risk for STDs should be advised to;

- Have sex with only one uninfected partner or not to have sex at all
- Use condoms correctly and every time to protect themselves and their partner
- Get vaccinated against Hepatitis B
- If there is a risk for infection, individuals should be routinely tested

3.9.2 Secondary Prevention Methods

Secondary prevention activities reduce risks of chronic disease by identifying the HCV infected individuals through testing and by providing appropriate medical treatments. Methods that should be done include;

- Counselling patients infected with HCV about the disease, treatment methods and what can be done to prevent transmission to other individuals
- Diagnosing at which stage the infection is and implementing appropriate treatment

Precautions that can be taken to prevent the spread of HCV in a hospital setting;

- For transfusion and transplants, thorough screening of the blood is necessary to make sure it is not infected
- Personal protective equipment should be worn at all times by the hospital staff when

dealing with the patients
- Washing hands after and between patients is necessary
- Sharing of non-disposable items between patients should be avoided
- Getting vaccinated against Hepatitis B

Currently, there is no vaccine against HCV because the high mutability of the virus complicates vaccine development.

3.9.3 Prevention of Hepatitis C among at risk populations

- Ensuring safe injection practices in healthcare and community settings
- Ensure safe transfusion of blood and blood products
- Promotion of correct and consistent condom use
- Routine screening of sex workers in high-prevalence settings
- Offer peer education interventions to people who inject drugs to reduce the incidence of viral hepatitis
- Integrated action to eliminate discrimination and gender violence, and to increase access to Medical and social services

CHAPTER FOUR

CARE AND SUPPORT

4.1 DEFINITION

Care and Support, in the context of viral hepatitis B and C, means catering to the needs of people infected with viral hepatitis B and C and providing appropriate support for them, their families and caregivers. Care and Support adds to the holistic, facility based, multidisciplinary and patient-focused care for persons infected.

4.2. CARE AND SUPPORT FOR PEOPLE INFECTED WITH HBV & HCV

4.2.1 Nutritional Support

People with viral hepatitis will thrive best on a balance diet and may need nutritional support to achieve this. However this cannot take place of specific antiviral terrapy Discussed in chapters 2 and 3 above.

The patients should be counselled on the following:

- The need for adequate intake of energy and protein rich foods, fruits and vegetables
- The need for micronutrient supplementation, .
- These micronutrients may enhance the immune status of the patients. They may be found in dark green leafy vegetables, yellow and orange fruits, sweet potatoes, pumpkins, carrots, avocado and tomatoes.
- Patient should be counselled against using herbal medicines as the specific treatment for viral hepatitis
- In situation where chronic Hepatitis B and C has been established, iron supplementation should be discouraged.
- Fatty food should be discouraged.
- Obesity should be discouraged as steatosis may worsen the effect of HCV infections

4.2.2 Lifestyle and Behavioural Change

Behavioural changes that should be encouraged to reduce risk of progression to chronic liver disease and transmission of hepatitis viruses include:

- Cessation of alcohol, smoking, foods containing aflatoxins and recreational drug use

In addition,

- People infected with the hepatitis viruses should be counselled on how to deal with stress and live a healthy lifestyle.
- They should be counselled on how to avoid transmitting the virus to others

4.2.3 Specific Considerations for Viral Hepatitis Positive Pregnant Women

- Hepatitis B screening should be routine during antenatal visit.
- Pregnant women positive for HBV infection should have viral load done in their 3rd trimester and treated with Nucleoside Analogues to reduce the chance of MTCT.

- Babies born to Hepatitis B positive mothers should have Hep B immunoglobins at birth and first dose of monovalent Hep B vaccine within 24 hours of birth.

4.2.4 Disclosure of Hepatitis Status to Children

Disclosing hepatitis infection status to children is a sensitive issue, which must consider the needs, feelings, age, beliefs and understanding of the child and caregiver. It must however be done to improve outcomes in the treatment and care of children.

Importance of Disclosure to Children

- Reduction of developing myths about their infection
- Improvement of access to care and support services
- Enhancement of adherence to treatment and coping strategies
- Reduction of negative psychosocial impact
- It helps to reduce the risk of transmission

Counselling for disclosure in children

This involves counselling the caregivers to support age-appropriate hepatitis infection status disclosure to the child with minimal negative impact. Parents who decline or fail to disclose to their children should be counselled on the importance of the child knowing his/her status, and assisted to do so.

Steps for Counselling hepatitis infected Children and their Families

- Evaluate the child and family for readiness-including child's age and maturity. Five to seven years are earliest recommended ages for disclosure, and all should be disclosed by age 12.
- Ascertain a child's and caregiver's understanding of hepatitis infection
- Explain the benefits of early awareness of hepatitis infection to the child and care giver/family
- Provide on-going psychosocial support.

4.3 IMMUNIZATION

Immunization is an effective way of preventing diseases. Immunizations should be given according to the national immunization schedule. Adults with HCV infection who are hepatitis B negative should have the standard three doses of hepatitis B vaccine.

Human Immunoglobulin (HBIG) as a passive immunization should be made available to those exposed to the virus, and who are hepatitis B negative.

4.4 UNIVERSAL SAFETY PRECAUTIONS

All health facilities in the private and public sector should adopt a policy for the prevention of accidental occupational exposure to blood borne pathogens.

Minimum Standards of Universal Safety Precautions to be observed by health workers include:

- Routine hand washing with soap and water before and after contact with any patient
- Use of barrier precautions eg PEP
- Safe handling and disposal of sharp instruments and equipment, including needles and syringes

- Strict adherence to injection principles
- Do no harm to Self, to the client and to the Community

Materials should be provided for universal precautions. The minimum materials/equipment to be provided include:

- Liquid soap from a dispenser or container
- Running water or a bucket with tap kept full with clean water or a ladle for dipping, if running water is not available
- Single-use towels (paper towels, or cloth towels that will be used once and laundered). If not available, hands should be air-dried.
- SOPs and Job aids to educate personnel on susceptibility to hepatitis virus infection and means of prevention

4.5 Linkages, Networks and Referral Services

Referral is the process by which client needs for treatment, care and support services are assessed and prioritized, and clients are provided with assistance in accessing such services. Referral should also include proactive actions necessary to facilitate initial contact with treatment, care and support service providers. Patients who are screened in primary health centres should have access to treatment and more advanced services in secondary and tertiary level facilities.

Reasons for referral

Clinical services

These include clinical evaluation and management, monitoring the progression to liver disease, more advanced investigation and monitoring for development of HCC Hepato Cellular Carcinoma.(HCC)

Social/Legal support services

Clients who test positive may require legal and/or social services for counselling on how to prevent or deal with discrimination in school, employment, housing and public accommodation.

Community Awareness, Engagement and Participation

The burden of Hepatitis virus diseases is very heavy in Nigeria and to effectively drive the prevention, control and management efforts, and intensification of social mobilization, communication, advocacy, community participation and community engagement strategies at National, State, LGA and Ward levels is very imperative.

It is also very necessary to identify key players/leaders at all levels for advocacy and social mobilization.

Advocacy

- key stakeholders to support Community mobilization to create awareness and demand for the interventions delivered.
- Traditional, religious leaders, NGOs, CBOs, women and youth associations and others as it relates to the area.

SOCIAL MOBILIZATION – Response to Prevention and Control of Hepatitis Virus Diseases

- Messages to change behaviours

- Community dialogues to interact with people to build trust and negotiate for ownership
- Advocacy to leaders to support efforts
- Identify and develop relationship, trust, credibility and sense of ownership with leaders.
- Identify all assets in the nation, state LGA and ward
- Develop appropriate key messages to the level of the audiences.

Communication

- TV,/ Radio drama, songs and music around the community
- Use of informants/educators (mobile public announcement tricycle)
- Rallies
- Road shows
- Use of OB Van to announce benefits, dates, age group and venue of the campaign.
- Identify key women groups to help mobilize their peers. This should include young women within the age group. E.g., FOMWAN, YWCA, etc.
- Identify key influencers / opinion leaders such as youth leaders, NYSC members etc to be part of the mobilization team.
- Develop appropriate key messages for the target age groups. IEC messages could help.
- Sensitization of the community pre and during implementation.
- Engagement of community leaders during micro planning process
- Mobilization of key opinion leaders in the area especially young women and husbands.
- Improve Interpersonal communication skills of Health workers and town announcers

CHAPTER FIVE

ADHERENCE TO ANTIVIRAL THERAPY

5.1 DEFINITIONS

Adherence is a term used to describe the patients' behaviour of taking drugs correctly based on mutual agreement between the patient and health care provider; it involves:

- Taking the right drugs
- The right dose
- The right frequency
- The right time

Adherence also means a patient attending all scheduled clinic visits. Adherence to antiviral treatment is an essential component of individual and programmatic treatment success. Adherence is crucial for delaying or preventing the development of drug resistance to some of the antiviral drugs. The measures to ensure optimal adherence should be undertaken at initiation and during therapy.

5.2 ADHERENCE PREPARATION FOR ANTIVIRAL THERAPY

The success of any adherence strategy depends on the education of patients before the initiation of treatment, an assessment of their understanding of and readiness for treatment. Adherence counselling includes giving basic information on hepatitis B and C infections and their manifestations, and the benefits and side effects of antiviral medications. It also includes how the medications should be taken and the importance of not missing any dose, what to do if doses are missed and steps to be taken to restart therapy if doses are missed. Information and education materials can be particularly useful in this process. Consideration should be given to the patient's lifestyle when possible, and may involve relatives, friends and/or community members as agreed with the patient.

5.3 ONGOING ADHERENCE FOR CLIENTS ON ANTIVIRAL THERAPY

It is essential to continue with adherence counselling. This should involve adherence assessments during every visit andr post treatment follow up.

5.4. MEASUREMENT OF ADHERENCE

Virologic cure for HCV and functional cure for HBV are strongly dependent on adherence to taking the prescribed medications. Adherence in many studies is measured by expressing the number of doses taken as a percentage of the number of doses prescribed. Measurement methods include: patient self-report, pharmacy drug pick-up, pill count, questionnaire and electronic drug monitoring methods.

5.4.1 Factors known to improve Adherence

The following factors have been associated with high adherence rates:

- Increased access to Antiviral Therapy
- Individual patients, family, peers and friends, community members, or treatment-supporter engagement in adherence education
- Family-based care if more than one family member is infected
- Continuous and effective adherence counselling, including knowledge and understanding of hepatitis B and C infection, course of treatment, expected adverse reactions and management of such reactions.
- Drug regimen simplicity e.g. Fixed Drug Combination (low pill burden)

Shorter duration of therapy

- When possible use drugs with less adverse effects.

5.4.2 Factors Associated with Poor Adherence

- Poor patient-caregiver relationship
- Forgetfulness
- Depression
- Lack of patient education
- Drug toxicity
- Severe illness
- Pregnancy related conditions
- Incarceration
- Long duration of treatment
- Lack of social support
- Substance abuse
- Cost of treatment.

5.4.3 Strategies for Improving Adherence

- Treatment education for patients and involvement of treatment partners
- Routine assessment and reinforcement of adherence during follow up
- Fixed dose combination
- Reminders and patient engagement tools (e.g. drug calendars, pill boxes, a reminder call/ SMS text messages, alarm clock)
- Positive feedback on health improvements
- Address adverse events
- Address life-style factors e.g. alcohol abuseAdapting therapy to the client's /patient's lifestyle
- Support groups
- Improved social support.

CHAPTER SIX

MANAGEMENT OF ADVERSE REACTIONS AND COMPLICATIONS OF ANTI HEPATITIS MEDICINES

The therapeutic benefits of medicines should always outweigh the risk. While the safety profiles for medicinal products have been established, adverse events (AEs) are not uncommon. AEs are often encountered with medicinal products in the course of prevention and patient management. AEs are identified and managed on time through effective Pharmacovigilance.

6.1 PHARMACOVIGILANCE; ADVERSE DRUG REACTION (ADR) AND ADVERSE EVENTS FOLLOWING IMMUNIZATION (AEFI)

Pharmacovigilance is the science and activities relating to the detection, assessment, understanding, response and prevention of adverse drug reactions (ADRs) and other potential medicine-related problems including adverse events following immunization (AEFIs). A pharmacovigilance system is designed to monitor the safety of authorised medicinal products and detect any change to their risk-benefit ratio. A pharmacovigilance system like any system is characterised by its structures, processes and outcomes (refer to Good Vigilance Practice). The pharmacovigilance system should be in such a way that public health emergencies and preparedness plans are developed as appropriate.

Adverse Event (AE) is any untoward medical occurrence in a patient or clinical trial participant administered a medicinal product and which does not necessarily have a causal relationship with the treatment.

An adverse event can therefore be any unfavourable and unintended sign (e.g. an abnormal laboratory finding), symptom, or disease temporally associated with the use of a medicinal product, whether or not considered related to the medicinal product.

Adverse drug reaction (ADR) is defined as a response to a drug which is noxious and unintended, and which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of a disease, or for the modification of physiological function.

Adverse event following immunization (AEFI) is any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine. If not rapidly and effectively dealt with, can undermine confidence in a vaccine and ultimately have dramatic consequences for immunization coverage and disease incidence.

Reporting of ADR and AEFI requires structures and processes for the collection, recording and transmission of reports of suspected adverse reactions associated with medicinal products for human use to the National Pharmacovigillance Center. These can be achieved by ensuring all stakeholders adhere to their roles and responsibilities as shown in Table 12 below.

Table 12: Roles and responsibilities of stakeholders in the PV system for hepatitis

STAKEHOLDER	RESPONSIBILITIES
FMOH, SMOH, NPHCDA, SPHCDA, State NAFDAC Offices and NAFDAC Headquarters	• Strengthen facility based pharmacovigilance units to ensure that the collected reports are authentic, legible, accurate, consistent, verifiable and as complete as possible for clinical assessment. • Ensure consumers and Healthcare professionals have requisite knowledge to enable them report suspected AR and where necessary immediate investigation should be carried out to ascertain the authenticity of the information.
NPHCDA/ SPHCDA	• Establish systems to ensure counseling of all caregivers on AEFIs and pharmacovigilance. • Investigation backed with laboratory analysis and documentation
Marketing Authorization Holder (MAH)	• Establish mechanisms enabling the traceability of products and systems for the collection and reporting of ADRs/AEFIs, including follow-up of reports while complying with data protection principles. • Ensure that all ADR/AEFI information regarding medicinal products marketed by the MAH, within or outside Nigeria are reported to NAFDAC (refer to MAH guideline and PV policy).
Healthcare providers	• Assess patients for AE at every encounter and report all suspected adverse events using the ADR/AEFI reporting form.
Community/Individuals/CSOs/NGOs and patient groups	• Identify and report all AEs through designated channels (Health facilities, NAFDAC, SMOH, FMOH, SPHCDA, NPHCDA)
NAFDAC	• Receive, investigate, assess, provide feedback and archive information on ADR/AEFIs in compliance with the data protection requirements. • Establish systems for capacity

6.2 CLASSIFICATION OF ADVERSE DRUG REACTIONS

The World Health Organization classifies ADRs into four categories based on the severity grades. Severity is a subjective assessment made by the healthcare provider and/or the patient. Despite being subjective, it is useful in identifying adverse reactions that may affect adherence or that needs prompt intervention. The following guide can be used to estimate the severity grade of ADRs;

Table 13: WHO Severity Grading of ADR

Grade 1 – Mild ADR		Transient or mild discomfort (<48 hours) No limitation of activity No medical intervention or therapy required
Grade 2 – Moderate ADR		Mild to moderate limitation of activity Some assistance may be needed No or minimal medical intervention required
Grade 3 – Severe		Marked limitation of activity Some assistance usually required Medical intervention or therapy required Hospitalization possible
Grade 4 – Life Threatening ADR		Extreme limitation of activity Significant assistance required Significant medical intervention or therapy required Hospitalization or hospice care probable.

Vaccine reactions (AEFI) can be classified into two types:

1. Common, usually minor and self-limiting
2. Rare and serious

An AEFI is considered serious if: it results in death, is life-threatening, requires patient hospitalization or prolongation of existing hospitalization, it results in persistent or significant disability/incapacity, it results in congenital anomaly/birth defect or requires intervention to prevent permanent impairment or damage.

Common adverse events associated with hepatitis vaccinations are as follows;

Hepatitis B vaccine	**Nausea, vomiting, redness of the face, neck, arms, and occasionally, upper chest, drowsiness, sleeplessness, fatigue, pain and tenderness at injection site, pruritus, fever, dizziness, headache, vertigo, swelling at injection site, induration at injection site, erythema, ecchymoses, joint pain, skin rash or welts (may occur days or weeks after receiving the vaccine), blurred o r other vision changes, confusion, difficulty in breathing or swallowing, dizziness, faintness or light headedness when getting up suddenly from a lying or sitting position, itching especially of the feet or hands, muscle weakness, numbness or tingling of the arms and legs, reddening of the skin, especially around the ears, sweating, swelling of the eyes, face, or inside of the nose, unusual tiredness or weakness (sudden and severe), Hard lump, unusual tiredness or weakness, muscle pain, agitation, back pai n or stiffness in neck or shoulder, chills, constipation, diarrhea, difficulty with moving, feeling of warmth, general feeling of discomfort or illness, sore throat, runny nose, lack/decreased appetite, stomach cramps or pain, sudden redness of skin, swell ing of glands in the armpit or neck, trouble with sleeping, unable to sleep, weight loss.**
Hepatitis A vaccine	Tiredness, headache, loss of appetite, nausea, slightly raised temperature (normal temperature is 36-36.8ºC), swelling and induration at injection site.

Table 14: Common laboratory and clinical abnormalities associated with medicines for prevention and management of hepatitis

Tenofovir (TDF)	Tubular renal dysfunction, Fanconi syndrome [Risk factors: Underlying renal disease; Older age; BMI <18.5 (or body weight<50 kg); Untreated diabetes mellitus; Untreated hypertension; Concomitant use of nephrotoxic drugs or a boosted PI], Lactic acidosis or severe, hepatomegaly with, steatosis, [Risk factors: Prolonged exposure to nucleoside analogues; Obesity], Exacerbation of hepatitis B (hepatic flares) [Risk factors: Discontinuation of TDF due to toxicity] Nervous system: Insomnia, headache, dizziness, depression, Fatigue, anxiety, peripheral neuropathy Dermatologic: Skin rash (includes maculopapular, pustular, or vesiculobullous); pruritus; or urticaria, pruritus, Diaphoresis Endocrine & metabolic: Hypercholesterolemia, increased serum triglycerides, Weight loss, glycosuria, hyperglycemia, lipodystrophy Gastrointestinal: Abdominal pain, nausea, diarrhea, vomiting, Increased serum amylase, anorexia, dyspepsia, flatulence Neuromuscular & skeletal: Decreases in bone mineral Density [Risk factors: History of osteomalacia and pathological fracture; risk factors for osteoporosis or bone loss], increased creatinine phosphokinase, weakness, Back pain, arthralgia, myalgia Miscellaneous: Fever Cardiovascular: Chest pain Genitourinary: Hematuria Hematologic & oncologic: Neutropenia Hepatic: Increased serum ALT, increased serum AST, increased serum transaminases, increased serum alkaline phosphatase Renal: Increased serum creatinine, renal failure Respiratory: Sinusitis, upper respiratory tract infection, nasopharyngitis, pneumonia Postmarketing and/or case reports: Angioedema, exacerbation of hepatitis B (following discontinuation), Fanconi's syndrome, hepatitis, hypersensitivity reaction, hypokalemia, hypophosphatemia, immune reconstitution syndrome, increased gamma-glutamyl transferase, interstitial nephritis, lactic acidosis, myopathy, nephrogenic diabetes insipidus, nephrotoxicity, osteomalacia, pancreatitis, polyuria, proteinuria, proximal tubular nephropathy, renal insufficiency, renal tubular necrosis, rhabdomyolysis, severe hepatomegaly with steatosis
Entecavir	Hepatic: Elevated ALT, post treatment exacerbation of hepatitis/ALT flare, deaths due to liver-related causes (e.g. hepatic failure, hepatic encephalopathy, hepatorenal syndrome, upper gastrointestinal hemorrhage; hepatic encephalopathy. On-treatment exacerbation of hepatitis/ALT flares, Elevated AST, lactic acidosis and severe hepatomegaly with steatosis (including fatal cases), severe acute exacerbations of hepatitis B (after discontinuation of therapy). Post treatment exacerbations of hepatitis or ALT flare other such as hepatic failure, hepatic encephalopathy, hepatorenal syndrome, and upper gastrointestinal hemorrhage. Hematologic: Decreased albumin (less than 2.5 g/dL), platelets (less than 50,000/mm3) with hepatic decompensation.

	Gastrointestinal: Elevated lipase, Diarrhea, dyspepsia, nausea, vomiting, elevated amylase, abdominal pain, upper gastrointestinal hemorrhage, peripheral edema, ascites, pyrexia/fever, fatigue, ascites, and pyrexia were reported in patients with hepatic decompensation Oncologic: Hepatocellular carcinoma, Malignant neoplasms, Renal: Creatinine increase of at least 0.5 mg/dL, increase serum creatinine of 0.5 mg/dL and renal failure were reported in patients with hepatic decompensation. Increased serum creatinine, Renal failure Respiratory: Upper respiratory infection, cough, nasopharyngitis, rhinitis Metabolic: Fasting hyperglycemia, decreased blood bicarbonate, Elevated alkaline phosphatase, lactic acidosis. Genitourinary: Hematuria, glycosuria, dysuria. Nervous system: Headache, dizziness, somnolence, insomnia Dermatologic: Erythema, photosensitivity with lethargy Musculoskeletal: Arthralgia, myalgia, back pain
Ribavirin	Respiratory: dyspnea, cough, pharyngitis, rhinitis, and sinusitis, pulmonary infiltrates, pneumonitis, pulmonary hypertension, pneumonia, sarcoidosis, and exacerbation of sarcoidosis. Mechanically ventilated patients may be predisposed to respiratory deterioration. Immunologic: Hypersensitivity reactions (urticaria, angioedema, bronchoconstriction, and anaphylaxis.) Dermatologic: Severe skin reactions including vesiculobullous eruptions, Stevens-Johnson syndrome, erythema multiforme, and exfoliative dermatitis/erythroderma) skin irritation from prolonged drug contact. Alopecia, pruritus dermatitis, dry skin, increased sweating, eczema, lichenoid eruptions and maculopapular rashes. Rash has been reported in patients treated with and health care workers exposed to aerosolized ribavirin. Stevens-Johnson syndrome and toxic epidermal necrolysis have been reported during post marketing. Cardiovascular: angina, arrhythmia, and fatal and nonfatal myocardial infarctions, cardiac arrest, hypotension, bradycardia, bigeminy, tachycardia, hypertension, digitalis toxicity and congenital heart disease. Hematologic: anemia, lymphopenia, neutropenia, thrombocytopenia and leukopenia. Aplastic anemia and thrombotic thrombocytopenic purpura, pancytopenia (marked decreases in red blood cells, neutrophils, and platelets) Ocular: blurred vision, corneal ulcer, Conjunctivitis, Eye irritation, Lacrimation, damage to contact lenses. Gastrointestinal: nausea and vomiting, diarrhea, vomiting, abdominal pain, dry mouth, dyspepsia, constipation, Peptic ulcer, gastrointestinal bleeding, pancreatitis, and colitis. Musculoskeletal: myalgia, arthralgia, musculoskeletal pain, and back pain, Myositis. Nervous system: headache, dizziness (excluding vertigo), memory impairment, Peripheral neuropathy, coma, cerebral hemorrhage, Taste perversion, Hearing impairment, hearing loss. Metabolic: anorexia, weight decrease, Diabetes mellitus, Dehydration, falsely low hemoglobin A1c levels. Psychiatric: irritability/anxiety/nervousness/emotional lability, insomnia, depression, concentration impairment, mood alteration, and agitation. Suicide, suicidal ideation, psychosis, aggression, anxiety, drug abuse/overdose, psychotic disorder, and

	hallucination Endocrine: hypothyroidism General: fatigue, pyrexia, myalgia, headache, and rigors, Fatigue/asthenia, pyrexia, rigors, chills, influenza-like illness, unspecified pain, right upper quadrant pain, pain, chest pain, malaise, Hyperuricemia in association with hemolysis and flushing. Hepatic: hepatic dysfunction, fatty liver, cholangitis, Hyperbilirubinemia, hepatomegaly and ALT. Immunologic: sepsis, osteomyelitis, endocarditis, pyelonephritis, pneumonia, sarcoidosis, systemic lupus erythematosus, rheumatoid arthritis, Resistance mechanism disorders, including viral infection, fungal infection. Genitourinary: Menstrual disorder.
Pegylated Interferon	Nervous system: Dizziness, headache, concentration impairment, Vertigo, syncope, migraine, memory impairment, weakness, hypoesthesia, hyperesthesia, paresthesia, tremor, taste disturbance, somnolence, tinnitus, Influenza-like signs/symptoms, fatigue/asthenia, pyrexia, fatigue, rigors, asthenia, pain, overall resistance mechanism disorders, Fever, chills, chest pain, influenza-like illness, malaise, lethargy, shivering, hot flushes, thirst, infections (fungal, viral, bacterial), peripheral edema, flushing, earache. Musculoskeletal: back pain have been reported in CHC patients. Myalgia, arthralgia, arthritis, muscle weakness, neck pain, musculoskeletal pain and muscle cramps Hematologic: Neutropenia, anemia, lymphopenia, Thrombocytopenia, lymphadenopathy, Neutropenia, anemia and thrombocytopenia Gastrointestinal: Nausea/vomiting, diarrhea, abdominal pain, dry mouth, dyspepsia, Nausea, diarrhea, nausea/vomiting, abdominal pain, vomiting, upper abdominal pain, dysphagia, mouth ulceration, gingival bleeding, glossitis, stomatitis, flatulence, gastritis, gingivitis, cheilitis, constipation and oral candidiasis Psychiatric: Insomnia, irritability/anxiety/nervousness, irritability, depression, anxiety, Concentration impairment, mood alteration, nightmares, aggression, emotional disorders, nervousness, decreased libido, affect lability, apathy, Impairment of desire, sexual satisfaction affected (potentially) and sexual dysfunction Dermatologic: Alopecia, pruritus, dermatitis, dry skin, increased sweating, rash and eczema combination therapy, dry skin, Common: Increased sweating, eczema, psoriasis, urticaria, skin disorder, photosensitivity reaction, night sweats, herpes simplex, lipodystrophy, Injection site reactions and cutaneous necrosis. Hepatic: Elevated ALT Metabolic: Anorexia, weight decrease, decreased appetite and Hyperlactacidemia/lactic acidosis Respiratory: Dyspnea, cough and exertional dyspnea Immunologic: autoimmune phenomena include hypothyroidism, sarcoidosis, systemic lupus erythematosus, rheumatoid arthritis, immune thrombocytopenic purpura, thyroiditis, psoriasis. Cardiovascular: Tachycardia, palpitations, Ocular: Blurred vision, eye pain, eye inflammation, xerophthalmia Post marketing reports: Serous retinal detachment Endocrine: Hypothyroidism, abnormal thyroid laboratory values

	Genitourinary: Chromaturia, Impotence, chromaturia Hypersensitivity: Anaphylaxis, Anaphylactic shock
Sofosbuvir	General: Fatigue, asthenia, pyrexia, chills, influenza-like illness, pain, Chest pain Nervous system: Headache, dizziness, Disturbance in attention, migraine, memory impairment. Gastrointestinal: Increased lipase, Nausea, diarrhea, vomiting, Increased lipase, abdominal discomfort, constipation, dyspepsia, dry mouth, gastroesophageal reflux. Dermatologic: Pruritus, rash, Alopecia, dry skin. Psychiatric Insomnia, irritability, Depression, anxiety, agitation, Severe depression was reported, particularly in patients with history of psychiatric illness. Hematologic: Decreased hemoglobin, anemia, neutropenia, decreased neutrophils, decreased lymphocyte count, decreased platelet count and decreased platelets, Pancytopenia. Cardiovascular: bradycardia (including cases requiring pacemaker intervention), Decreased weight Musculoskeletal: Myalgia, arthralgia, increased creatine kinase, back pain, muscle spasms Respiratory: Dyspnea, cough, Nasopharyngitis, exertional dyspnea Hepatic: Increase bilirubin, (greater than 1.5 times ULN).
Daclatasvir	General: Fatigue, asthenia, influenza-like illness, pyrexia, Hot flush, pain, weight decreased. Nervous system: Headache, Dizziness, migraine Dermatologic: Pruritus, rash, dry skin, alopecia Psychiatric: Insomnia, irritability, Depression, anxiety Hematologic: Anemia, neutropenia, Thrombocytopenia, Decreased hemoglobin, eosinophilia Respiratory: Cough, nasopharyngitis, dyspnea, Exertional dyspnea, nasal congestion, upper respiratory tract infection Gastrointestinal: Diarrhea, nausea, Upper abdominal pain, constipation, flatulence, gastroesophageal reflux disease, dry mouth, vomiting, elevated lipase Musculoskeletal: Myalgia, arthralgia Common: Back pain Metabolic: Decreased appetite Cardiovascular: bradycardia heart block, cardiac arrhythmias Hepatic: Increased ALT, increased AST Increased total bilirubin [Ref] Genitourinary: Urinary tract infection Ocular: Common: Dry eye[Ref]
Ledispavir	Applies to ledipasvir / sofosbuvir: oral tablet General: Fatigue [Ref] Nervous system: Headache Gastrointestinal: Nausea, diarrhea, increased lipase Increased lipase, Lipase elevation was transient and asymptomatic. Psychiatric: Insomnia Hepatic: Increased bilirubin

	Cardiovascular: bradycardia, fatal cardiac arrest, cases requiring pacemaker intervention Musculoskeletal: Increased creatine kinase

6.3 DRUG TOXICITY

Drug toxicity is the unwanted effect of drugs resulting from administration in excess of the required therapeutic dose, or accumulation of drug in the body due to inefficient absorption, distribution, metabolism or excretion. Drug toxicity can be detected clinically (history and clinical examination) and/or through laboratory testing.

In the event of drug toxicity, the offending drug(s) must be discontinued and changed to another drug from within its class. In adverse drug reactions, the patient should be managed based on the classification of the ADR.

6.3.1 Laboratory Toxicity Monitoring

Laboratory monitoring of patients receiving Pegylated interferon based regimens for hepatitis treatment is very important for early detection and prevention of some ADRs. The abnormal laboratory values (laboratory test abnormalities) may be early warning signals preceding the clinical manifestations of some ADRs in patients receiving anti-hepatitis (medicines). The following laboratory tests are desirable for laboratory toxicity monitoring of patients receiving medicines for treatment or prophylaxis:

The severity grading of laboratory test abnormalities may guide prompt intervention and prevent the negative consequences of ADR. The following guide (Table 15) can be used to estimate the severity grade of laboratory adverse events:

Table 15: Severity Grading of Laboratory Adverse Events in Adults and Adolescents

Item	Reference Range	LABORATORY TEST ABNORMALITIES **Grade 1 Toxicity**	**Grade II Toxicity**	**Grade II I Toxicity**	Grade IV Toxicity
HAEMATOLOGY					
Hemoglobin	10.5 - 18.0g/dl	8.0 – 9.4 g/dl	7.0 - 7.9 g/dl	6.5 - 6.9 g/dl	< 6.5 g/dl
Absolute neutrophil count or Granulocyte count	2.0 – 7.5 $x10^9$/L	1 - 1.5$x10^9$/L	0.75 – 0.99$x10^9$/L	0.5 - 0.749 $x10^9$/L	<0.5 x 10^9 /L

Platelet count	100–450 x 10^9/L	70–99x 10^9/L	50 – 69 x 10^9/L	30 – 49 x10^9/L	< 29 x 10^9/L
Total WBC	4.0 – 11.0x10^9/L	2.0-3.9x10^9/l	1.0 – 1.9 x 10^9/L	< 1.0 x 10^9/L	-
CHEMISTRY					
ALT	5.0 – 38U/L	1.25 - 2.5 x ULN	>2.5 - 5xULN	>5.0 -10 x ULN	>10 x ULN
Triglycerides	<1.69 mmol/l	1.69- 2.25 mmol/l	2.26-5.63mmol/l	5.64-13.5mmol/L	>13.56 mmol/L
Cholesterol		>1.0 - 1.3 x ULN	4.52-8.48mmol/L	8.49-13.56mmol/l	>13.56mmol/L
Lactate	< 2 mmol/l	-	2 – 5 mmol/l	5 – 10 mmol/l	>10mmol/l
Glucose (hyperglycemia)	4 – 6 mmol/l	6 – 8 . 9 mmol/l	8.91-13.88mmol/l	13.89-27.76mmol/l	> 27.76mmol/l
Glucose (hypoglycemia)	**4 – 6 mmol/l**	**3.01-3.55mmol/l**	**2.19-3.00 mmol/l**	**1.67-2.18 mmol/l**	<1.67 mmol/l
Amylase	28 - 100U/L	> 1.0 – 1.5 x ULN	> 1.5 – 2.0 x ULN	> 2.0 – 5.0 x ULN	> 5.0 x ULN
Bilirubin	2 – 21µmol/L	1.1 – 1.5 x ULN	1.6 – 2.5 x ULN	2.6 – 5.0 x ULN	> 5.0 x ULN
Lipase	< 1.5 U/mL	> 1.0 – 1.5 x ULN	> 1.5 – 2.0 x ULN	> 2.0 – 5.0 x ULN	> 5.0 x ULN
Creatinine	0.7 – 1.5mg/dl or 62 - 133µmol/L	> 1.0 -1.5x ULN	> 1.5 -3.0 x ULN	> 3.0 -6.0 x ULN	> 6.0 x ULN

Sodium Hyponatraemia	136-145 mmol/l	130 - 135mmol/l	123-129mmol/l	116-122mmol/l	<116mmol/l
Sodium Hypernatraemia	136-145mmol/l	146 - 150mmol/l	151-157mmol/l	158 - 165mmol/l	>165mmol/l
Potassium Hyperkalaemia	3.5 – 5.0 mmol/l	5.1 – 6.0 mmol/l	6.1– 6.5 mmol/l	6.6 - 7.0 mmol/l	>7.0mmol/l
Potassium Hypokalaemia	3.5 -5.0 mmol/l	3.5 –3.0 mmol/l	3.0 –2.5 mmol/l	2.5 –2.0 mmol/l	<2.0mmol/L
Management		Continue Antiviral Therapy, and consult expert		Continue Antiviral Therapy, and consult expert	Consider stopping **Antiviral Therapy** and consult expert
		Lipid imbalances could be managed with exercise, diet and pharmacologically using fibrates and/or statins			

6.4 STEPS TO RECOGNIZE ADVERSE EVENTS (AES)

- Health care workers should;
- Ask and look for any Aes
- Take a detailed history of the patient
- Establish time relationships; as the time from the start of therapy/immunization to the time of onset of the suspected reaction should be logical
- Carry out a thorough physical examination with appropriate laboratory investigations (if necessary)
- Check the known pharmacology of the medicine, intervention or medication given

6.5 PRINCIPLES OF MANAGEMENT OF ADVERSE DRUG REACTIONS AND ADVERSE EVENT FOLLOWING IMMUNIZATION

Ensure routine screening of all patients receiving medicines for signs/symptoms indicating possible AE using the appropriate forms (see Appendix I and II).

- If there are no new signs and/or symptoms indicating possible adverse reactions, continue case management of patients.
- If there are any new signs and/or symptoms indicating possible adverse reactions:
  - Determine the severity of the adverse event(s) using WHO Severity Grading of ADRs
  - If the suspected adverse event(s) is mild (ADR severity grade 1), counsel patients on how to manage the adverse event(s), document intervention and then manage patients as appropriate.

If the suspected adverse event(s) is moderate, severe or life-threatening (ADR severity grade II –

IV), manage the patients' AEs as appropriate and then document intervention, report the adverse events using the Yellow Form and Adverse Event following Immunization Reporting Form.

What Should Be Reported About ADRs?

- All suspected reactions/incidence that occurred after administration of new medicines
- All serious or unexpected (unusual) AEs that one suspects for established or well-known drugs
- If an increased frequency of a given reaction is observed
- All suspected AEs associated with drug-drug, drug-food or drug-food supplement interactions.
- ADRs in special fields of interest such as drug abuse, misuse, medication error, overdose, occupational exposure, pregnancy, breastfeeding mothers and the aged population.
- ADRs related to failure of contraceptives
- Lack of efficacy of a medication, or when suspected pharmaceutical defects are observed
- Reactions suspected of causing death, danger to life, hospital admissions, prolonged hospitalization, or birth defects.
- When in doubt whether the suspected adverse event/reaction is an ADR or not, you must report to the National Pharmacovigilance Centre.
- Only complete ICSRs and AEFI reports should be transmitted to the NPC.
- Components of complete ICSR include identifiable patient, identifiable reporter, event and the drug

All ADRs should be reported on time (refer to guidelines and policy) to the National Pharmacovigilance Centre using the Yellow form approved by the National Agency for food and Drug Administration and control (NAFDAC). Channels for reporting include;

- Health Institutions (PHC, SHC, THC as well as private hospitals)
- NAFDAC State Pharmacovigilance offices
- Zonal Pharmacovigilance office
- NAFDAC headquarters
- PRASCO (Pharmacovigilance Rapid Alert System for Consumer Reporting
- Food and Drug Services Department), FMOH
- All AEFI during routine immunization within 30 days and up to 42 days for mass campaigns.

Antiviral (anti-hepatitis) drugs must be stopped immediately if there is suspected life threatening adverse drug reaction (grade IV) following the provisions of the national guidelines.

When dealing with multiple drugs suspected to be associated with an ADR**,** consider the possibility of a drug-drug interaction. Furthermore, do a label and literature search (consult the NPC and drug information focal person as necessary).

Establish a functional hospital – based pharmacovigilance committee (with a term of reference) in all centers to coordinate medicines clinical pharmacovigilance; refer all cases of AEs to the hospital based PV committee.

6.6 DRUG-DRUG INTERACTIONS

Drug interaction is the modification of the mechanism of action of one drug by another. Drug interactions can be beneficial, of no consequence, or harmful. Multiple drug use ('polypharmacy') is extremely common in patients being managed for CHB and CHC, so the potential for drug-drug interaction is likely. Adverse drug interactions can be catastrophic, but are often avoidable.

It is important to note that Anti-viral drugs are metabolized by the Cytochrome P450 3A4 isoenzyme in the liver. As a result, other drugs metabolized by this enzyme can either raise or lower the level of antivirals or be increased or decreased themselves by these interactions.

Table 16. Drug-Drug Interactions between co-administered HIV and HCV treatment

HIV Antiviral Drugs	Sofosbuvir	Daclatasvir	Ledipasvir /Sofosbuvir	Pegylated IFN	Ribavarin
NRTIs					
Abacavir (ABC)	◆	◆	◆	■	■
Lamivudine (3TC)	◆	◆	◆	■	●
Zidovudine (AZT)	◆	◆	◆	●	●
Tenofovir	◆	■	■	■	■
NNRTIs					
Efavirenz (EFV)	◆	■	■	◆	◆
Nevirapine (NVP)	◆	■	◆	◆	◆
Protease Inhibitors					
Atazanavir (ATV/r)				◆	■
Lopinavir	◆	◆	◆	◆	◆
Ritonavir	◆	■	◆	◆	◆

●*These drugs should not be co-administered*
■*Potential interaction*
◆ *No clinical significant interaction expected*

6.7 PREVENTION OF ADVERSE DRUG REACTIONS

- Applying the principles of rational use of medicines can prevent most ADRs:
- Use of few drugs, whenever possible
- Use drugs that you are familiar with
- Do not change therapy from known drugs to unfamiliar ones without good reason
- All patients commencing medicines should be properly counseled on the ADRs related to the medications and what to do when it occurs or is suspected. The healthcare provider should be knowledgeable about this
- Be vigilant (look for) these adverse effects when initiating therapy and during follow-up visit

CHAPTER SEVEN

PROGRAMMATIC MANAGEMENT OF VIRAL HEPATITIS

The successful implementation of the recommendations in these guidelines and establishment of affordable prevention, treatment and care programs for viral Hepatitis in the public and private sectors will depend on a well-planned process of adaptation and integration into relevant national strategies. Essential operational and service delivery issues will be addressed on an ongoing basis to ensure long-term effectiveness and sustainability of the national Program. This will be achieved by making the best use of available human and financial resources, thereby maximizing retention of patients across the continuum of care. Specifically, efforts will be made to promote task shifting, improve laboratory and diagnostic services; and strengthen procurement and supply management systems.

7.1 DECENTRALIZATION AND INTEGRATION OF SERVICES

Viral hepatitis treatment and care services providers should implement recommendations from this National Guidelines for the decentralization of Treatment Centers. Decentralization and integration of Viral Hepatitis services will contribute to improvement in the accessibility and ownership of services.

Under this arrangement PHCs can offer prevention services such as screening, vaccination, PMTCT and referrals. Trained clinicians can perform treatment initiation.

The key programmatic components of service delivery for Viral Hepatitis care and treatment are adequate clinic infrastructure, human resources, Health Care Workers (HCWs), a referral system, laboratory and diagnostic services, reliable drug supply, monitoring and evaluation, civil society engagement and private sector participation.

7.2 HUMAN RESOURCE DEVELOPMENT

The limited availability of skilled health workers to deliver quality services is a major setback to the attainment of universal access to viral hepatitis prevention, treatment and care. At all levels of service provision, whether at health facility or community-based there should be adequate human resource to cater for the needs of patients. However, this is not the case and as such several interventions should implemented be to boost human resource for Viral Hepatitis.

7.2.1 Training of Health Workers

All health workers involved in the provision of Viral Hepatitis services must have received adequate training prior to offering services and re-trained thereafter.

Training of health workers must conform with globally accepted standards using nationally approved viral Hepatitis training curriculum and manuals

7.2.2 Training of Community Members

Community volunteers should be trained to provide sensitization and mobilization services for viral hepatitis control, using a community directed intervention approach.

7.2.3 Personnel Recruitment and Retention

Governments, agencies and stakeholders at all levels of care should ensure availability of adequate numbers of health workers at all facilities providing viral Hepatitis services.

7.2.4 Task Shifting

Government and implementing agencies at all levels should adopt task-shifting strategies, which involves the rational redistribution of tasks among health workforce teams. It involves health workers undertaking tasks that are not listed in their professional schedule of duties. Task shifting reduces the burden of work on a particular cadre of health worker and increases the efficiency and productivity in health facilities with large volumes of patient. Task shifting applies to the different services that are offered to the community.

7.3 PROCUREMENT AND SUPPLY MANAGEMENT SYSTEMS

Procurement and supply management systems are required to ensure that viral hepatitis commodities, including antiviral medicines, vaccines and laboratory commodities are available in sufficient quantities at all times when they are needed. This depends on adequate financing, forecasting, supply planning, procurement, warehousing, distribution and tracking. The successful administration of this system requires multi-team collaboration including pharmacists, medical officers, medical records personnel, procurement officers, distribution agents, customs and excise officers, shipping agents, manufacturers of the commodities and administrators of health facilities. The very first step is in determining what should be procured and in what quantity.

Drugs and other commodities required for viral hepatitis prevention treatment and care include:

- Vaccines
- Anti-viral drugs
- Rapid test kits and consumables
- Viral load reagents, sample collection kits, and consumables
- Equipment, reagents and consumables for haematology and chemistry laboratory tests

7.3.1 Viral Hepatitis commodities, Storage and Distribution

The commodity distribution process begins when requests are made, processed and the commodities get to the end user through health care providers at service delivery point.

The logistic system for viral hepatitis is aligned with the existing harmonized Logistics Management Information System. The responsibility for maintaining appropriate stock levels rests on the facility logistics team. Facility's replenishment for consumed stock occurs bi-monthly in response to submission of copies of the ordering Combined Report and Request forms. The reports are directly transmitted to the Central Medical Stores and then to the Logistics Unit in the National Programme where they are analysed for various decisions – ranging from routine re-supply to quantification and forecasting and supply planning. Feedback on reports from the facilities is processed by the Logistics Unit of NASCP and communicated to the facilities. When orders are ready for pick-up, distribution agents are notified and the commodities are transported

and delivered directly to the service delivery points.

Table 7.1: National Reporting schedule

Bimonthly Review Period	Report sent to the central
January – February Report	1st – 7th March
March – April Report	1st – 7th May
May – June Report	1st – 7th July
July – August Report	1st – 7th September
September – October Report	1st – 7th November
November – December Report	1st – 7th January

7.3.2 Key features of Nigerian Viral Hepatitis commodities' logistics system

Inventory Control System

The forced ordering ("Pull" system) has two-levels (Central and Facility) and is based on maximum-minimum thresholds. Service delivery points are "forced" to order at the end of the review period (2 months in FMOH program).

The quantity of commodities in the logistics system is tracked as a stock status (i.e. how long stocks will last).

The maximum stock level (4 months of stock in FMOH program) is set high enough to guarantee adequate supply at all times during the ordering cycle, but low enough to prevent overstock and wastage.

The minimum stock level (2 months of stock in FMOH program) is set as low as possible but includes a safety margin to prevent stock-outs.

The stock level in the facility has to be assessed frequently as this will alert the storekeeper in case of the need to place emergency order. The emergency order is done when stock levels drop to 2 weeks of stock; it disregards the review period. The quantity to order is calculated to top up the stock on hand to maximum level.

7.3.3 Logistics Management Information system (LMIS)

One of the primary components of any logistics system is a functional Logistics Management Information System (LMIS) that ensures availability of timely and accurate data for decision-making. These essential data must always be collected for products at all levels.

The three essential data elements include;

Stock on Hand: Describes the quantities of usable stock of commodities available at a particular point in time. Stock-on-hand information guides us when to place an order and how much of each item is in stock. It also guides redistribution decisions.

Consumption: Describes the quantity of commodities used during the report and order cycle. The rate of consumption is the link between the consumer and the supply chain.

Losses and Adjustments: Losses include the quantity of commodities removed from the distribution system for any reason other than usage (e.g. losses, expiry, and damage). Adjustments may include receipt or issue of supplies to or from one facility to another that is not

their usual supplier (e.g. a transfer) or a correction to account for a difference between what was counted during a physical inventory and what was recorded on the inventory control card. Losses/adjustments may therefore be a negative or positive number.

In order to collect and report the above mentioned data items, a number of forms described below were designed for the management of these commodities.

7.3.4 The LMIS Forms /Tools

Inventory Control Card

This tracks the quantity of health commodities (vaccines, anti-viral drugs, etc) in a facility's storage area. This record collects two essential data items: stock on hand and the losses & adjustment data. The Inventory Control Card should always be kept in a facility's storage area.

Daily Consumption Record for Vaccines, Anti-Viral drugs and Daily Usage Record or Register for Test Kits and Reagents

These collect the number of commodities that have been used in the facility daily over a defined period of time. This information is called Consumption data and is one of the essential data items. The Daily Consumption Record for Anti-Viral drugs should be kept with the person(s) who dispenses. The Daily Usage Record for test kits and reagents should be kept with the person(s) who runs the lab tests.

Record for Returning/Transferring Commodities

This is a transactional form that is used in the event that commodities may be required to be returned to the CMS or transferred to another facility at the same level for various reasons ranging from expiry, damage, change in the treatment guidelines, or over-stocking.

Combined Report Requisition Issue and Receipt Form (CRRIRF)

This form summarizes the information that is collected on the Inventory Control Card, Daily Consumption Record, and Daily Usage Record and is sent to the central store on a regular basis. The CRRIRF uses this reported data to calculate the facility order quantities and monitor whether stock is maintained according to plan (no overstock, shortages, or stock outs). Information from this report is critical to a well-functioning logistics system.

Roles and Responsibilities of Logistics personnel

Central Store Pharmacist

- Receives commodities
- Fulfils orders (re-supply)
- Updates Inventory Control Card when commodities are issued or received
- Ensures the storage of commodities according to the storage standards
- Helps to manage commodities in the warehouse
- Generates national-level reports

Central Store Officer

- Ensures the storage of commodities according to the storage standards
- Updates inventory control cards

Facility Pharmacists/Laboratory Scientist

- Completes the daily consumption record and usage record for commodities Documents all transactions in the inventory control cards maintained in the unit
- Orders commodities and issue commodities to the various points of service in the facility
- Completes the CRRIRF at the end of review period
- Collects the daily consumption and usage registers / reports from other locations where commodities are dispensed e.g. PMTCT units and feeder sites
- Sends back unusable commodities that must be returned to the CMS after filling out the record for returning commodities
- Aggregates all usage data from the daily usage register for commodities and enter in the Combined Reports Requisition Issue and Issue Forms and send to the Central Warehouse
- Monitors the management of commodities in the store.

Facility Anti-Viral Team Leader

- Endorses CRRIRF to be sent to the central store

7.4 MONITORING AND EVALUATION

7.4.1 Monitoring implications

Monitoring and evaluation will help programme managers assess the effectiveness of interventions and linkages between services along the cascade of prevention, treatment and care for Hepatitis and related conditions (Fig 7.1). This information is essential to detect and respond to challenges or gaps in programme performance and quality of services. As the programme matures, monitoring individual and population level outcomes, including toxicity and adverse events, drug resistance, viral suppression, mortality, survival and incidence, is also essential to assess its impact.

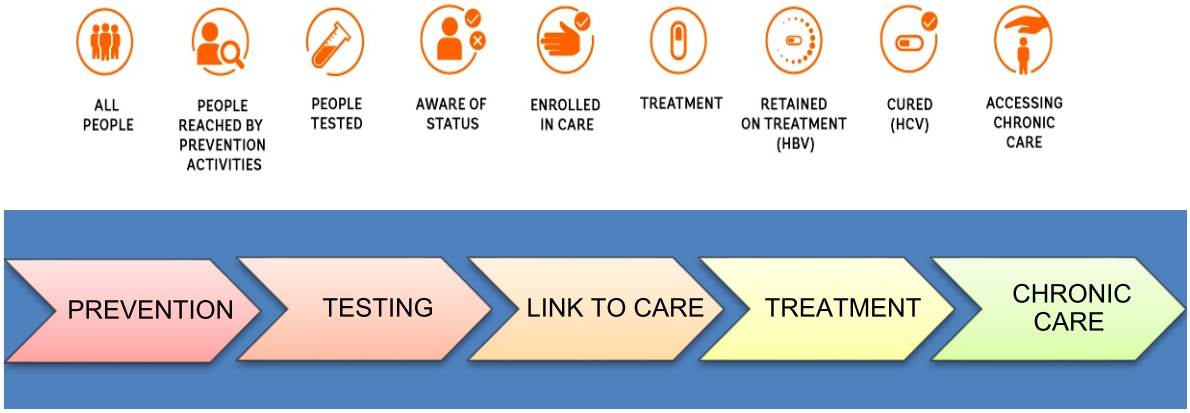
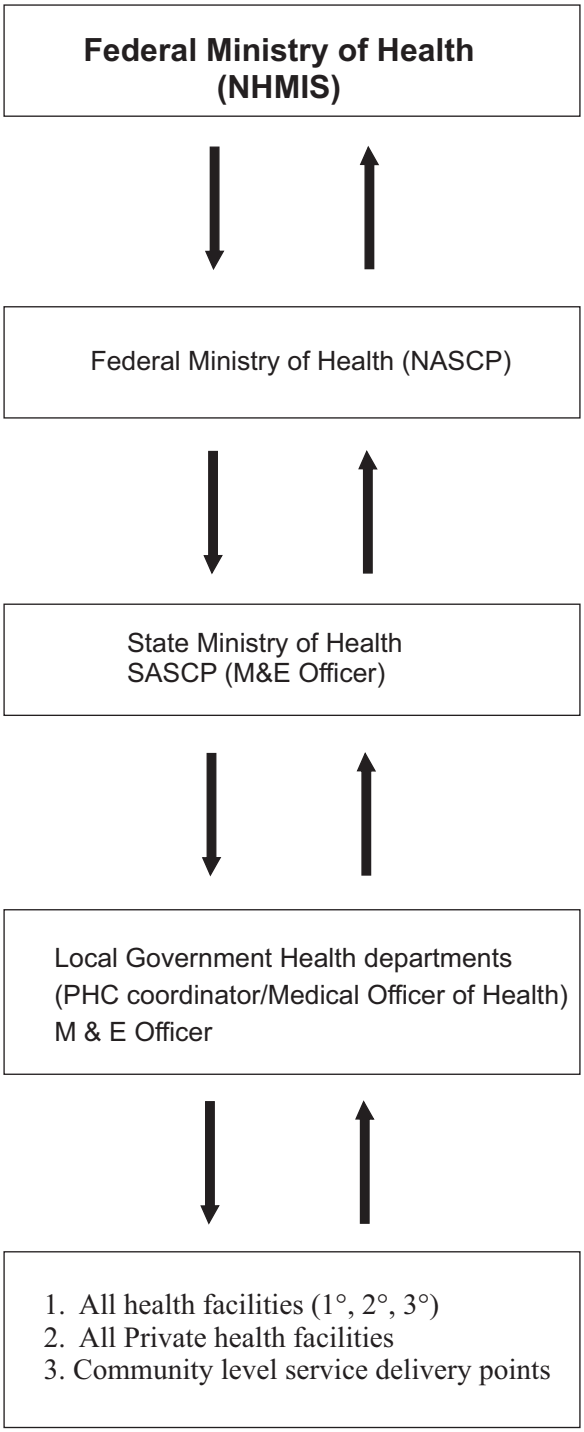


Fig7.1 Viral Hepatitis prevention, treatment and care cascade

7.4.2 National framework for results-based management

The National framework for results based management will enhance the effective monitoring of strategies and activities towards an effective monitoring of the hepatitis response in Nigeria.

Fig7.2: **Data flow process**



Collection of data will be done through routinely reported data from all facilities or sentinel sites; population-based surveys; surveillance data; observations on cohorts of people living with Hepatitis; and periodic evaluation.

Programme input and processes can also be monitored through facility surveys or updated lists of service availability including documenting the availability and training of human resources and monitoring the availability of Hepatitis medicines and diagnostics at various geographical and service delivery points.

Special studies can be considered to support routine monitoring. In considering how best to collect critical data, efforts should also be made to review monitoring systems, such as better linkage of the monitoring of Hepatitis with HIV, TB and other disease conditions both at the community and facility levels.

7.4.3 Monitoring and Evaluation guidelines for Viral Hepatitis Control Program in Nigeria for State and LGA Health Workers

A guideline focusing on national core indicators, tools and methodology for monitoring and evaluation of viral hepatitis in Nigeria in has been developed. All states and LGAs in Nigeria are expected to collect and use the minimum core indicators as enunciated in the National Health Sector M & E guidelines.

***Objective*:** To provide orientation on viral hepatitis monitoring & evaluation.

Expected Outcome: Users to appreciate the critical role of Monitoring and Evaluation in the implementation of viral hepatitis in Nigeria in order to achieve the strategic targets.

Monitoring: This is a process of tracking the progress and identify challenges of the implementation of planned activities and their outputs (using process/output indicators). This will ensure that activities are carried out in a timely manner, implemented according to planned objectives, ensure judicious use of resources and entrench accountability.

Evaluation: This is a process of measuring **Outcomes** and **Impacts** of interventions. Evaluation of outcomes and impacts is needed to document periodically whether defined strategies and implemented activities leads to expected results in terms of:

- **Outcomes**: e.g. cure rate for HCV, rate of coverage of vaccines etc.
- **Impacts**: e.g. reduction of morbidity, mortality or economic losses.

7.4.4 Monitoring the outputs and outcomes of scaling up access to antiviral drugs

In addition to monitoring the implementation of the strategies, Health Information Systems will also monitor the outputs and outcomes associated with the interventions. Table 7.1 lists areas for gathering data for assessing programmes that lead to anticipated outputs and outcomes at various points along the cascade of hepatitis treatment and care.

Table 7.1: Overview of data areas for monitoring and evaluating the hepatitis treatment cascade

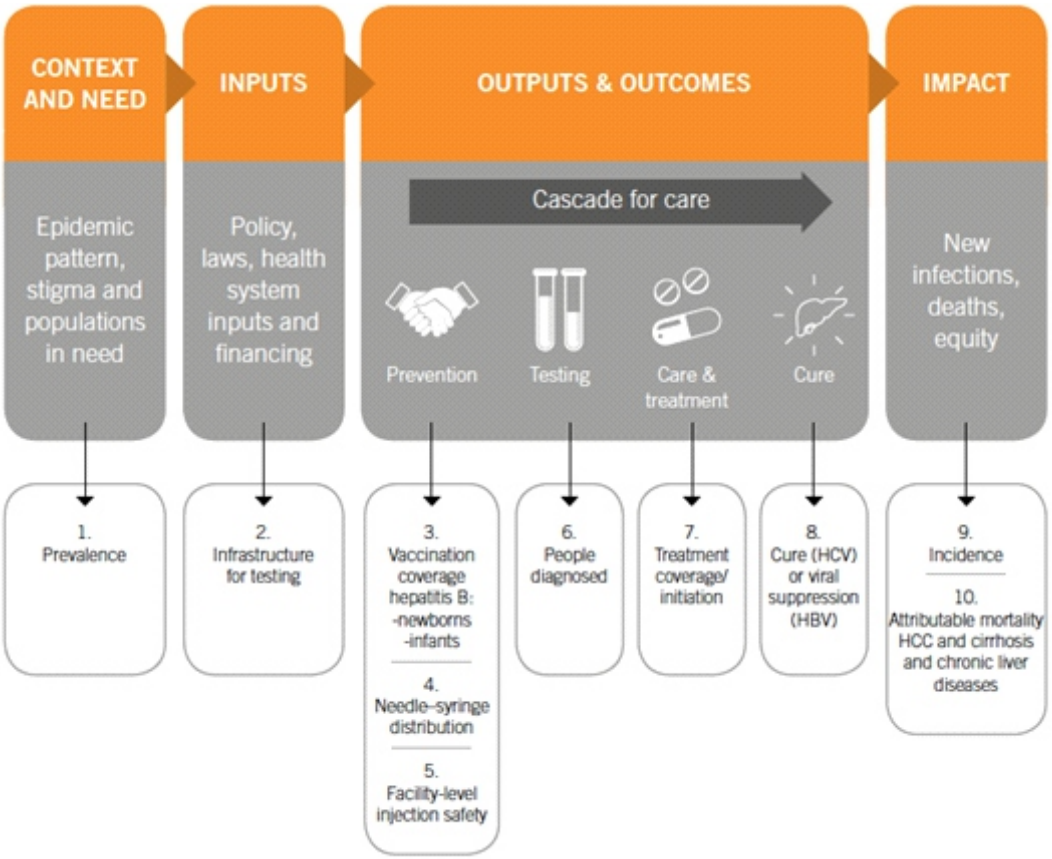
Step in the cascade for care	Indicator areas	Relevance
Epidemic Pattern	Number of people living with hepatitis in various categories	Estimates the prevalence and distribution of people living with hepatitis among the population. Estimates the size of relevant populations and need for hepatitis interventions, to reflect service needs and focus planning
Prevention	Hepatitis B vaccination: new-borns, infants, adults	This indicator monitors and guides immunization programmes to prevent MTCT of HBV
Testing	People diagnosed	Number of people newly diagnosed estimates the proportion of persons with hepatitis who know their status and measures the entry point to the continuum of care, disaggregated estimates can point to gaps in diagnosing people chronically infected with viral hepatitis
Care and Treatment	Treatment coverage/initiation	Measures strength of link between diagnosis and enrolment in care. Indicates access to treatment. Trends over time reflect on progress in treating patients.
Cure	Cure (HCV) or Viral suppression (HBV)	Measures how many are cured among those who completed treatment (HCV), Measures virological suppression achieved among all those currently on treatment regardless of when they started

Table 7.3: Monitoring of the key interventions

Summary of new recommendation areas	Implications for monitoring	Responsible groups
Awareness creation	Data on percentage coverage; number of persons aware of status	NASCP
Viral Hepatitis testing and counselling	Data on percentage coverage; number of persons tested	NASCP
HBV/HCV/HIV testing and counselling	Data on Hepatitis B and C among people in HIV care	NASCP
Persons in care	Data on the number and percentage of different populations (such as adults, adolescents, children and pregnant and breastfeeding women) who are in care based on the eligibility criteria Review of the monitoring system for assessment is needed and how best to collect the relevant data, disaggregated by age and sex	
Persons on treatment including co-morbidities	Data on the antiviral regimen among different population such as adults, adolescents, children, pregnant and breastfeeding women. Monitoring tools may need to be adjusted to reflect regimen options. Monitoring on virologic cure after 12 weeks of treatment for HCV patients Monitoring of the antiviral regimens for the HIV/HBV/HCV co-infected individuals	
Response to treatment and diagnosing treatment failure	Data on percentage of people receiving treatment that had a viral suppression and /or SVR	
Service delivery	Data on retention and adherence among various populations Monitoring of the integration of Hepatitis into facilities providing HIV services, maternal and child health services, STI services and drug dependence services Monitoring the functionality of linkages from HIV, maternal and child health, STI and drug dependence services to hepatitis care and linkages between communities, transfers peripheral facilities and hospitals	
Task shifting	Data on the number of non-physician clinicians, midwives and nurses who are trained in the management of Hepatitis. Monitoring of the number of community health workers who are trained on the management of Hepatitis	

APPENDIX 1

Monitoring and Evaluation Framework: 10 indicators to measure the health sector response

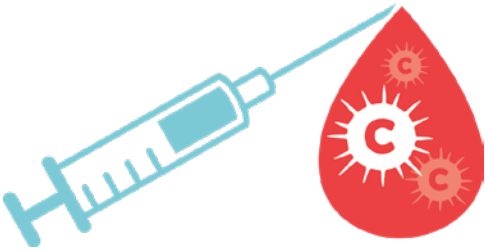


NATIONAL AIDS/STIS CONTROL PROGRAM
FEDERAL MINISTRY OF HEALTH
2016

Introduction to hepatitis C

The word *hepatitis* comes from the Ancient Greek word for liver (*hepar*) and the Latin word for inflammation (*itis*). Chemicals, drugs, excessive alcohol consumption or blood-borne viruses can all cause inflammation to the liver.

What is hepatitis C?



Hepatitis C is an infection caused by the hepatitis C virus that causes inflammation of the liver. Infection can occur through blood-to-blood contact due to unsafe injection and other skin penetration practices, inadequate sterilisation of medical equipment, and the transfusion of unscreened blood and blood products.

Currently, there is no vaccine for hepatitis C virus, as there is for hepatitis A and hepatitis B. A person can be re-infected throughout their life and can live with more than one hepatitis virus at once.

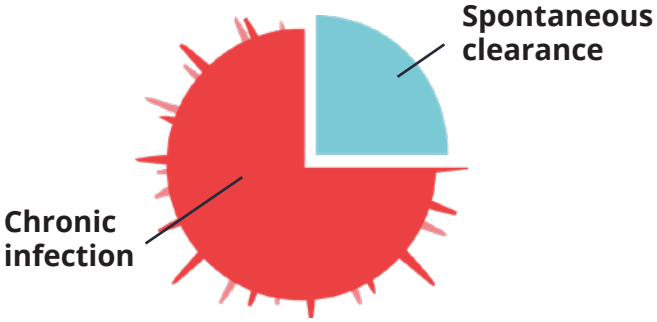
Symptoms and diagnosis

HCV infection can range in severity from a mild illness lasting a few weeks to a serious, lifelong illness.

Common symptoms of acute infection are:

- General aches and pains
- Nausea
- Abdominal pain and discomfort
- Loss of appetite
- Rarely yellowing of the eyes and skin (jaundice)

About 25% of people infected will clear the virus naturally in the first 12 months (**acute infection**).



However, if the infection does not clear up on its own, the virus continues to damage the liver. Of those who are exposed to hepatitis C, up to 75% will go on to develop **chronic infection**.

A person living with chronic hepatitis C may not know they have it because it can take many years for symptoms to appear. Consequently, many people live undiagnosed for years. Some cannot identify how they were infected.

Impact on the liver

Over time Hepatitis C infection can seriously impair liver function, causing fibrosis or cirrhosis (scarring of the liver), and can lead to hepatocellular carcinoma (HCC).

The rate of progression to cirrhosis is variable and depends on several factors, including age of initial infection, male gender, alcohol consumption, co-infections including HIV and hepatitis B virus, and obesity. Around 10-15% of people living with chronic HCV infection will develop cirrhosis within the first 20 years after infection; those who develop cirrhosis are at increased risk of HCC.

Geographical distribution

Globally, there about 70 million people living with hepatitis C, a figure which represents roughly 1% of the population[1] . The regions most affected are Africa and Central and East Asia.

1%

70 million people

Hepatitis C genotypes

There are six main genotypes (viral strains) of HCV worldwide, each with numerous subtypes, and their distribution varies by region. Knowing the genotype is important when making decisions about treatment.

New treatments

Unlike HIV and HBV infection, hepatitis C infection can be cured.

Testing for the virus is simple and the new generation treatments are far more effective, easier to take and have fewer side-effects than the older medications.

[1] The Polaris Observatory HCV Collaborators. Global prevalence and genotype distribution of hepatitis C virus infection in 2015: a modelling study. Lancet Gastroenterology and Hepatology 2016 Dec 15. http://dx.doi.org/10.1016/S2468-1253(16)30181-9

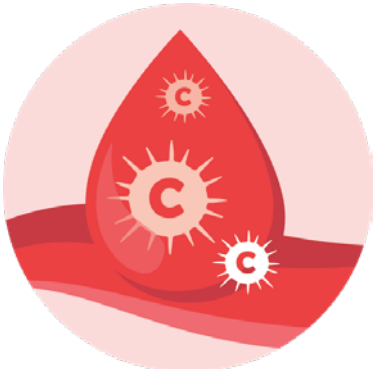
Hepatitis C virus testing and baselining

Has the person ever been exposed to HCV?

Test 1 - The Antibody (Ab) test

A positive HCV Ab result indicates that the person has been exposed to the virus at some point in their life. Note that:

- A positive HCV Ab test result does not distinguish between acute, chronic or cleared infection.
- The presence of HCV antibodies does not provide protection against HCV.



A negative result means that current HCV infection is unlikely. The HCV antibody test has low rates of false negatives or positives. However, this test may need to be repeated if the person has been exposed to risk recently (and possibly tested during the 'window period').

A small number (<5-10%) of immunocompromised hosts, including people living with HIV, may never develop HCV Ab, despite chronic HCV infection. In this case, HCV RNA testing should be performed to diagnose active HCV infection.

Does the person currently have HCV?

Test 2 - The RNA test

This can be determined by ordering a HCV RNA test. This is a test to detect the presence of virus in the blood, by Polymerase Chain Reaction (PCR). The HCV RNA test may be qualitative or quantitative. A positive result confirms the detection of HCV RNA and current viraemic HCV infection.

Ab
Antibody test EVER come into contact with HCV

RNA
Infected with the virus NOW

Ab + + RNA + = **Infected** with HCV **NOW**

Ab + + RNA – = **Infected** with HCV in the **PAST**

Ab – + RNA – = **NEVER** infected with HCV

What HCV genotype do they carry?

AA HCV genotype test is necessary for treatment options that are genotype-specific. HCV genotyping is a routine laboratory test performed during RNA testing.

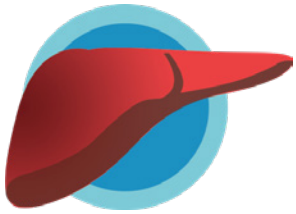
Pan genotypic treatment regimens are also available making all genotypes easier to treat.

Check your local guidelines for what treatment options are available.

What is the HCV RNA level (HCV “viral load”)?

Quantitative HCV RNA at treatment commencement (baseline) may help predict a person’s response to therapy. A low pre-treatment HCV RNA (“viral load”) may allow for a shorter duration of therapy. The length of therapy should be discussed with your local support network who can advise on the most appropriate regimen and its duration.

How is their liver functioning?



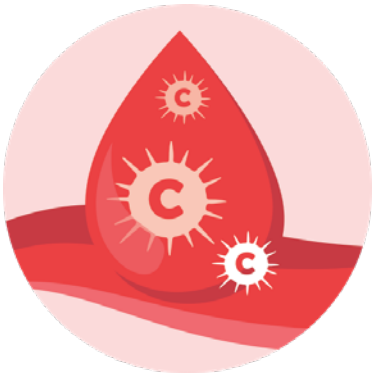
Liver Function tests (LFTs) provide a baseline of current liver function and help identify damage to liver cells. The relevant component tests of a routine LFT are bilirubin, ALP, GGT, ALT and AST. Documentation of the presence or absence of cirrhosis influences treatment regimen and duration.

How hepatitis C spreads

The hepatitis C virus is a blood-borne virus, meaning it's transmitted when the blood of an infected person enters another person's bloodstream. It only takes a small amount of blood to transmit hepatitis C. The virus can live outside of the body for at least four days. In other conditions, it can survive for much longer (e.g. for many weeks inside a syringe).

Understanding the risks

There are many myths about exactly how hepatitis C is transmitted. It is important to know that the riskiest activities are those with the highest potential and frequency of blood-to-blood contact. Those activities that have no chance of exchanging blood are considered no risk. Based on these distinctions, high-risk, some-risk and no-risk activities are outlined below.



High-risk activities

- Unsterile medical or dental procedures and traditional medical practices where the skin is pierced.
- Re-using someone else's injecting equipment for drugs.
- Unsterile tattooing or body piercing.

Moderate-risk activities

- Needle-stick injuries to healthcare workers.
- Mother-to-child transmission may happen during pregnancy or childbirth if mother has hepatitis C.
- Transfused with unscreened blood and blood products.
- Re-using someone else's personal items that may have blood on them, such as razors and toothbrushes.
- Blood-to-blood contact during sex, especially with unprotected anal intercourse.

No-risk activities

If there is no blood-to-blood contact, there is no risk of transmission of hepatitis C. People cannot get or transmit hepatitis C by:

- Sharing toilets, drinking glasses or eating utensils
- Hugging, kissing or touching
- Using swimming pools
- Mosquito or other insect bites
- Coughing or sneezing

Risks for people living with hepatitis C

Understanding how hepatitis C is transmitted is important for people who are living with hepatitis C so they can reduce the chance of:

Being infected with another genotype of hepatitis C.

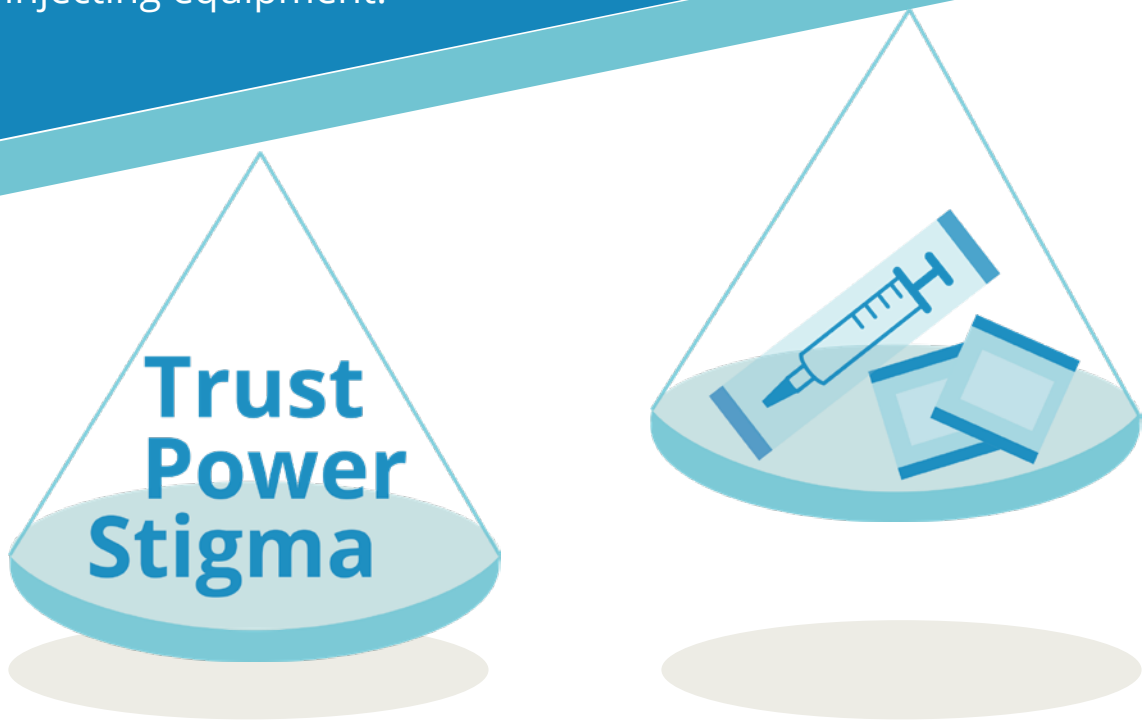
Being re-infected with the same genotype of hepatitis C.

Transmitting hepatitis C to another person.

INHSU

Something to think about: **injecting in the real world**

There are multiple reasons why someone who injects drugs may not feel able to access new, sterile injecting equipment.



Sometimes people who inject drugs may be part of social networks where they are unable to exercise full control over the circumstances in which they inject. For example, in some intimate or familial relationships, voicing an expectation that each person will use their own sterile equipment may be interpreted as implying a lack of trust, making a person uncomfortable or unwilling to jeopardise their relationships in this way.

In other situations, there may be a power imbalance between people who inject together which prevents the person with less power in the relationship from demanding that each person use their own, new equipment. This might be the case, for example, in a relationship between an older man with years of injecting experience and a younger woman who has injected for only a year or two and relies on her partner to purchase and prepare the drugs.

Some people may never have learnt to inject themselves, and rely on others to do it for them. In this case, they are dependent on the person injecting them to be willing to prepare the injections using new equipment, and the experienced injector may be unable or unwilling to do so. In prison, the extremely limited access to injecting equipment means that people who inject drugs in this environment inevitably do so with used equipment.

It is helpful if you acknowledge patients' best intentions while recognising the reality of their lived constraints.

For example, Needle and Syringe Programmes may have uneven distribution. This, combined with stigma and discrimination that some drug users may experience when accessing equipment, and the potential that their confidentiality may be breached and they will be identified as someone who injects drugs, can leave people reluctant to use services.

People may also be reluctant to access NSPs if they feel their eligibility for OST may be threatened, for example if their access points for both OST and sterile equipment are co-located.

If, however, your patient is able to and comfortable accessing their local Needle and Syringe Programme, you could advise them to, where possible, stock up with more injecting equipment than they think they might need ("so there's always some spares, for you or anyone else who might need them"). Patients may also find it useful to make contact with their local peer organisation to access advice and support from people who understand and can relate to their circumstances.

Consent and confidentiality

In your discussions with your patient, you need to ensure they are well informed of the testing process, and you should obtain their verbal informed consent to proceed with testing. You have an opportunity to educate your patient on how to prevent HCV transmission, and assure them of your confidentiality through the discussion.

Gaining informed consent

- Inform the patient of your confidentiality and alleviate any anxiety they have regarding this
- Enquire about their motivation for getting tested
- Provide clear, appropriate information about HCV, including natural history and modes of transmission
- Explain the process of testing, window period and possibility of indeterminate results
- Discuss benefits of early detection
- Assess their ability to cope with positive result and social supports
- Supply written material about HCV (excellent resources for patients are available from www.hepctrust.org.uk)

Conveying test results

- Always give test results in person where possible
- Explain the meaning of the result and discuss immediate implications for the patient
- Avoid overloading the person with information
- Provide emotional support
- Reinforce education about transmission prevention and harm reduction
- Allow adequate time to answer the patient's questions
- Advise on aspects of positive status disclosure
- Arrange any further tests and offer follow-up as required
- Supply written material and contact details for relevant support services and/or peer-based drug users' organisation.

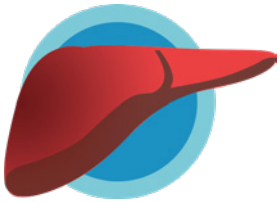
How to test for fibrosis

Once HCV has been diagnosed, the degree of liver fibrosis needs to be determined, as accurate staging will determine appropriate treatment and monitoring.

Non-invasive assessment

Although fibrosis assessment is imperative, liver biopsy is no longer required for most patients with chronic HCV infection. Non-invasive assessment of fibrosis has eliminated the need for biopsy in the majority of patients, and histologic confirmation of clinically evident cirrhosis is not required.

Liver ultrasound



Liver imaging may be used to assess for complications of cirrhosis, including hepatocellular carcinoma and portal hypertension. An ultrasound is preferred over CT scan as the initial investigation to avoid unnecessary radiation.

- If the ultrasound shows an abnormality, such as a nodule, more accurate cross-sectional imaging, such as computed tomography scan or magnetic resonance imaging scan, with and without contrast, would be indicated.

FibroScan®

FibroScan® is most accurate in identifying patients:

- Without significant fibrosis (<7.5 kPa)
- With cirrhosis (>11.5 kPa)

It is important to note that:

- Diagnostic accuracy declines when attempting to determine intermediate stages of fibrosis.
- Liver stiffness is increased independently of the degree of fibrosis in inflammatory liver conditions (E.g. acute HCV infection, acute alcoholic hepatitis or non-alcoholic steatohepatitis).
- Hepatic steatosis may increase the liver stiffness measurement obtained by FibroScan®. Abdominal obesity may overestimate the FibroScan® score – make sure the appropriate sized probe is used for each patient.
- FibroScan® does not give a reason for fibrosis or provide info on other liver pathology.

How FibroScan® works

An ultrasonic transducer sends a vibration wave into the liver. The velocity of the wave correlates with tissue stiffness. The stiffer the liver is, the greater the degree of fibrosis.

FibroScan® examination

Ideally, a patient should have fasted for 4 hours before the procedure.

While the patient is lying down, the probe is placed on the skin over the liver area, typically in the right mid-axillary line. Generally 10 measurements are taken to exclude outliers. The patient feels a gentle 'flick' each time a vibration wave is generated by the probe.

The whole procedure takes 5-10 minutes to perform, causes no discomfort, and results are available immediately.

APRI score

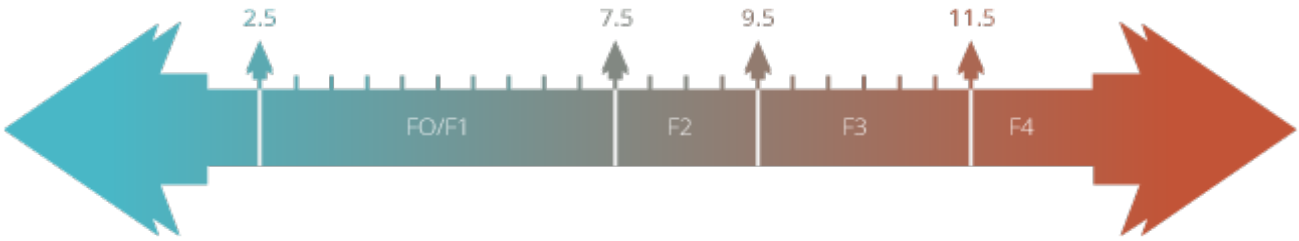
Although serum biomarkers have a role in patient management, they should not be over-interpreted.

In general, FIB-4 or APRI is most accurate for identifying patients at both ends of the spectrum of hepatic fibrosis: those at low risk for early or minimal disease (fibrosis stage 0 to 1) and those at high risk for advanced disease (fibrosis stage 3 to 4).

FibroScan® staging – understanding a FibroScan® result

The FibroScan® provides a numerical score of liver stiffness, which indicates the severity of liver fibrosis.

The diagram below show what FibroScan® scores mean.



Score	2.5 – 7.4	7.5 – 9.4	9.5 – 11.4	> 11.5
Indicates	F0/F1	F2	F3	F4
	No/Mild fibrosis	Moderate fibrosis	Severe fibrosis	Cirrhosis
	Indicates no or minimal liver fibrosis and no evidence of progressive liver disease.	Indicates significant liver fibrosis and evidence of progressive liver disease.	Indicates severe liver fibrosis and high risk progression to cirrhosis.	Indicates extensive liver fibrosis consistent with cirrhosis.

Signs of advanced liver disease

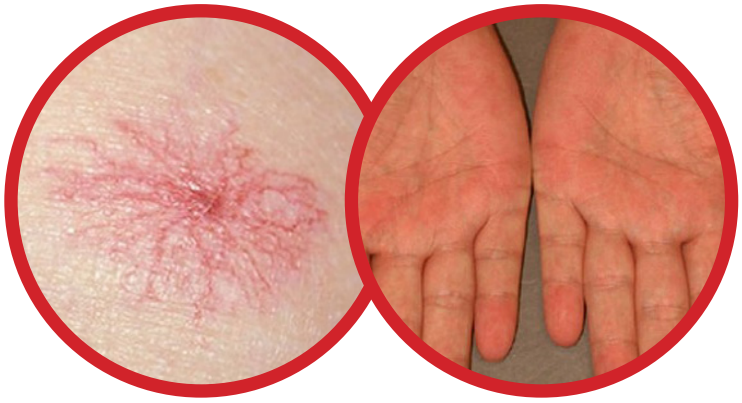
Liver disease, caused by HCV infection, can cause many signs and symptoms. As the disease evolves, signs can appear in many people – but not all, even when cirrhosis is present. Once the disease is well advanced, the features of hepatic decompensation and portal hypertension may appear, including ascites, jaundice, bleeding varices, coagulopathy, encephalopathy and renal failure.

Clinicians need to know what to look for as part of the process for staging liver disease. Cirrhosis severity can be staged by the Child-Pugh, and is based on serum bilirubin, serum albumin, INR, presence of ascites and presence of encephalopathy.

The Fib 4 (Fibrosis 4) score is a non-invasive scoring system based on several laboratory tests that help to estimate the amount of scarring in the liver. A Fib 4 calculator can be found at https://www.hepatitisc.uw.edu/page/clinical-calculators/fib-4.

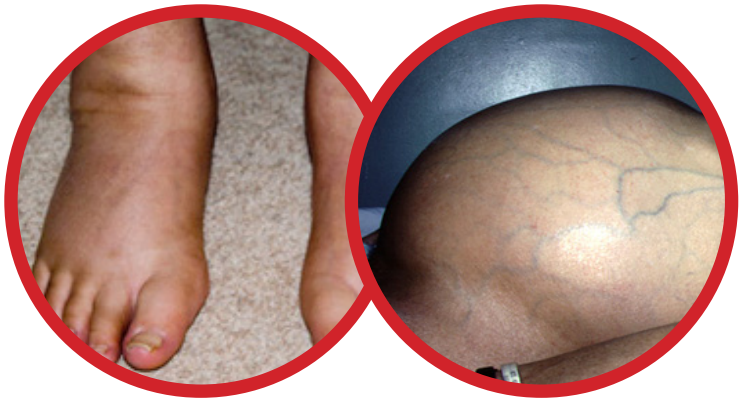
An Enhanced Liver Fibrosis (ELF) score can also be used to help estimate fibrosis. The ELF score combines quantitative serum concentration measurements of three fibrosis markers. Find out more about ELF scores at www.gpnotebook.co.uk/simplepage.cfm?ID=x2016072075237544321

Physical examination findings in chronic liver disease (of any aetiology) may include hepatomegaly and splenomegaly. A wide variety of non-specific signs (e.g. leukonychia, palmer erythema and gynaecomastia) have been associated with liver disease but these signs are of limited value. It is important to determine whether there are any signs of liver decompensation and the physical examination should focus on looking for these features. If there is doubt as to the severity of the liver disease the patient should be discussed with local experts.



Physical examination findings associated with decompensated liver disease

- Signs of hepatic encephalopathy: Drowsiness, asterixis (or 'hepatic flap')
- Jaundice
- Ascites
- Peripheral edema
- Bruising



Complications of chronic liver disease and cirrhosis

- Portal hypertension – varices on endoscopy
- Ascites – may be detected clinically or on ultrasound examination
- Hypersplenism (with or without splenomegaly)
- Synthetic dysfunction
- Hypoalbuminaemia
- Coagulopathy
- Hepatic encephalopathy
- Hepatocellular carcinoma
- Hepatopulmonary and hepatorenal syndromes

Some of the most common extra-hepatic manifestations of HCV infection are described here.

Immune-mediated

Hematologic

- Mixed cryoglobulinemia (10-25% of HCV people have cryoglobulins but this is rarely symptomatic)
- Cryoglobulinaemic vasculitis
- B-cell non-Hodgkins's lymphoma
- Monoclonal gammopathy
- Immune-mediated thrombocytopenia

Rheumatologic

- Sicca syndrome
- Arthralgia/myalgia
- Autoantibody production (ie, cryoglobulin, rheumatoid factor, ANA, anticardiolipin Ab, antithyroid Abs, anti-SM Ab)
- Polyarteritis nodosa

Inflammatory-related

Renal

- Glomerulonephritis
- Nephrotic syndrome

Endocrine

- Type 2 diabetes mellitus
- Insulin resistance

Central and peripheral nervous system

- Depression
- Cognitive impairment
- Peripheral neuropathy

Systemic

- Fatigue

Dermatologic

- Porphyria cutanea tarda
- Lichen planus
- Cutaneous necrotising vasculitis

Other causes of liver damage

When determining how to treat HCV, other causes of liver disease also need to be identified, as these can influence treatment options.

Identifying other causes of liver disease		
Condition	Test	Comment
Non-alcoholic fatty liver disease	Weight BMI Abdominal ultrasound	Very common
Alcoholic liver disease	History CBC LFT	Raised MCV, AST>ALT, raised triglycerides. History of alcohol consumption.
Hepatitis B infection HIV infection	Serology HBsAg anti-HBs anti-HBc HIV Ab	Vaccinate for hepatitis B if non-immune. Check for viral coinfection.
Haemochromatosis	Iron studies Genetic testing	Prevalence 1:400 but gene penetration is low and disease is much less common than the genotype implies.
Autoimmune liver disease	Auto-antibodies	Uncommon, associated with other autoimmune disease
Medication-induced liver disease	Patient history	
Alpha-1-antitrypsin	Alpha 1 antitrypsin	Rare
Wilson's disease	Family history Ceruloplasmin	Very rare Autosomal recessive Symptoms onset usually in adolescence and early 20s.

Understanding cirrhosis

Assessing liver fibrosis helps determine whether the patient could have cirrhosis. Cirrhosis is a histological diagnosis indicating liver disease with necrosis, collapse of architecture, regeneration, and fibrosis surrounding nodules of liver tissue. Cirrhotic status determines treatment regimen and length of treatment, and determines whether the patient needs specialist care.

Assessing severity

Assessing the severity of liver disease is not an exact science, but we can make an excellent attempt if we have:

- A good history to identify risk, likely duration, confounding factors, current symptoms
- A good physical examination to document any evidence of advancing liver disease
- An understanding of liver function tests and consistent use of these for diagnosis and monitoring
- An understanding of other investigations, which may provide insights into disease severity and/or the nature of the factors contributing to the presentation.

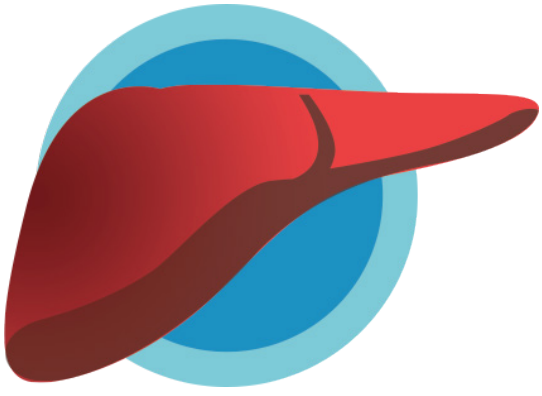
In the presence of cirrhosis and portal hypertension, hypersplenism develops and this leads to reduced haemoglobin, white cell count and platelet count (pancytopaenia). In many, the platelet count falls first and a count of < 100,000 is a surrogate marker of cirrhosis reflecting both the hypersplenism and a reduced production of thrombopoietin by the damaged liver.

Types of cirrhosis

In compensated cirrhosis, no complications have occurred.

Decompensated cirrhosis shows the presence of complications of liver dysfunction and/or portal hypertension. Symptoms include:

- Jaundice
- Hepatic encephalopathy
- Ascites and peripheral oedema
- Variceal haemorrhage



Lab markers of cirrhosis

Blood tests can help identify cirrhosis. Common markers include:

- Reduced platelet count – a count of <100 often indicates cirrhosis
- Lower albumin, total protein
- Lower platelets
- Increased globulin
- Prolonged INR or PT
- Increased bilirubin
- Liver enzymes elevation AST>ALT

Low albumin and platelets <150 are early markers of cirrhosis.

How to assess

Cirrhosis can be assessed through FibroScan® and APRI scores, described in the **HCV Testing** resource.

The Child-Pugh score is a scoring system that can also be used to measure the severity of chronic liver disease inclusive of cirrhosis. A higher score indicates worsening liver function. The score is calculated using several categories:

- total bilirubin, µmol/l (mg/dl)
- serum albumin, g/l
- INR
- presence of ascites
- presence of hepatic encephalopathy

Due to the complexity of managing cirrhosis, it is recommended that patients are managed in conjunction with your local liver unit.

Co-factors in the development of cirrhosis

- Heavy alcohol intake (>4 standard drinks per day)
- Co-infection with HIV or HBV
- Obesity
- Insulin resistance and/or metabolic syndrome
- Autoimmune liver disease – AICAH, PBC, PSC
- Metabolic disorders – haemochromatosis, Wilsons
- a-1 antitrypsin deficiency
- Primary biliary cirrhosis, primary sclerosing cholangitis, biliary atresia
- Chronic inflammatory conditions (e.g. sarcoidosis)

HCV treatment and pregnancy

Administration of PEG-IFN and/or ribavirin in pregnancy is contra-indicated. Animal studies have demonstrated that ribavirin causes birth defects and/or foetal deaths while PEG-IFN is abortifacient.

Ribavirin

Treatment with ribavirin is not recommended during pregnancy or for women who are unable or unwilling to adhere to use of adequate contraception. This includes women who are receiving ribavirin themselves; and/or women who are sexual partners of male patients who are receiving ribavirin.

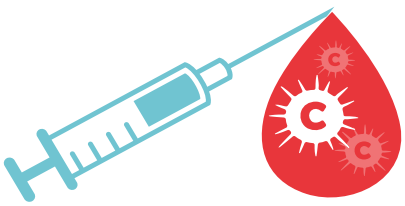
Daclatasvir

Although there is no data regarding daclatasvir for pregnant women, administration is not recommended.

In animal reproduction studies in rats and rabbits, embryo-foetal toxicity was observed in maternally toxic doses that produced exposures of 33 and 98 times the human exposure, respectively, at the recommended human dose of 60 mg.

Other treatments

Other HCV DAA drugs it is recommended that pregnancy is avoided (including sofosbuvir, sofosbuvir/ledipasvir, sofosbuvir/velpatasvir, ombitasvir/paritaprevir/ritonavir, dasabuvir, grazoprevir/elbasvir, glecaprevir/pibrentasvir). They should be used during pregnancy only if the potential benefit justifies the potential risk to the foetus.



Given the lack of data, nursing mothers are advised to discontinue breastfeeding prior to commencement of HCV drug therapy.

Patients and pregnancy

Clinicians will need to advise patients who are either planning to become pregnant, or who are already pregnant, about how to manage treatment.

Planning pregnancy

Female patients who have received ribavirin, and female sexual partners of male patients who have received ribavirin should not become pregnant for at least 6 months after stopping ribavirin.

Pregnant

- Treatment with PEG-IFN and/or ribavirin is contra-indicated.
- Given lack of data, HCV DAAs should be used during pregnancy only if the potential benefit justifies the potential risk to the foetus.

Co-morbid conditions

When deciding on the appropriate HCV treatment, other causes of chronic liver disease (or factors which may affect the progression of liver disease) should be excluded as their presence can impact treatment.

Co-morbid conditions to consider include, but are not limited to:

- HIV
- Hepatitis B virus infection
- Alcohol misuse
- Non-alcoholic steatohepatitis (related to the metabolic syndrome, obesity, diabetes mellitus)
- Hemochromatosis
- Autoimmune hepatitis
- Drug-induced liver injury
- Right ventricular failure

Factors which impact on choice and delivery of HCV treatment include:

- Mental health issues
- Drug and alcohol use (as a marker of lifestyle stability)
- Cardiac disease
- Chronic renal disease
- Advanced decompensated liver disease

Specialist referral should be sought for the following:

- Extra-hepatic manifestations of HCV
  1. Mixed cryoglobulinemia
  2. Renal disease (i.e. membrano-proliferative glomerulonephritis)
  3. HCV-associated lymphoma (i.e. diffuse large B cell lymphoma [DLBCL]).
- Transplant recipients
- Hemoglobinopathies
- Bleeding disorders

How to address co-morbid conditions in HCV treatment

HIV

- There is no apparent impact of HIV co-infection on DAA efficacy. There is, however, lower SVR with interferon-based treatment in HIV/HCV co-infection as compared with HCV mono-infection.
- Consider referral to specialist.
- Drug-drug interactions between DAAs and cART require assessment.
- This population should be prioritised for treatment for both individual and population level benefit, given increasing liver-related morbidity and mortality in those with HIV/HCV co-infection and increasing HCV incidence in HIV-positive MSM.

HBV

- Screen all patients for evidence of current, or prior, HBV infection before starting treatment with DAAs (Hep B sAg, anti-Hep B core Ab, anti-Hep B sAb +/- HBV DNA).
- If diagnosis is chronic HBV (HepB sAg positive) or "occult" HBV infection (HepB sAg negative, anti-Hep B core Ab positive, HBV DNA detected), refer to specialist.
    1. Concurrent HBV nucleoside/nucleotide analogue therapy may be indicated.
    2. Monitor patients for HBV flare-ups or reactivation during treatment and post-treatment follow-up.
- Communicate MHRA/CHM advice that Direct-acting antiviral interferon-free regimens to treat chronic hepatitis C have a risk of hepatitis B reactivation (January 2017) to patient.
- Patients with HBV co-infection should be treated with the same DAA regimens, following the same rules as HCV mono-infected patients.

Mental health

- Discuss potential impact on adherence.
- Assess for drug-drug interactions.
- Multidisciplinary care should be considered.
- Assess social and financial situation.

Drug and alcohol use

- Integrated management of substance use, in combination with HCV care, as required.
- Multidisciplinary care should be considered.
- Discuss potential impact on adherence.
- Assess for drug-drug interactions, including illicit drugs.
- Encourage patient to moderate or abstain from alcohol use.
- Assess social and financial situation.
- Discuss harm reduction strategies.
- Advise about risk of reinfection with ongoing injecting following treatment.

Cardiac disease (patients on amiodarone)

Sofosbuvir is contra-indicated in patients receiving amiodarone. Life-threatening bradyarrhythmias have been reported.

Refer to specialist

Chronic renal disease

Mild to moderate renal impairment (CrCl 30 – 80 mL/min)

- Treat according to the general recommendations.
- No dose adjustments of HCV DAAs are needed.
- Monitor carefully.

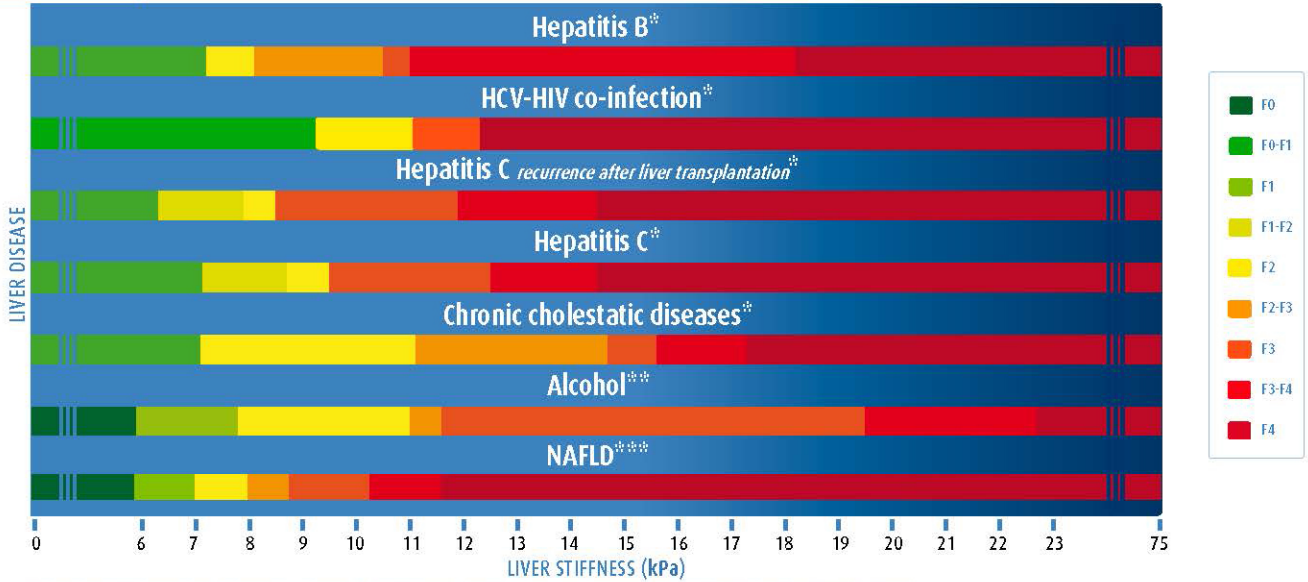
Severe renal impairment or end-stage renal disease, including hemodialysis (CrCl <30 mL/min)

Refer to specialist

- Caution with use of ribavirin given increased risk of hemolytic anemia.

SCORING CARD

CORRELATION BETWEEN LIVER STIFFNESS (kPa) & FIBROSIS STAGE



*According to Metavir score: Transient elastography (FibroScan): V. de Lédinghen, J. Vergniol, Gastroentérologie Clin Bio (2008) 32, 58-67
**According to Brunt score: Nahon et al. J Hepatol (2009) 49, 1062-68, Nguyen-Khac et al. , Aliment Pharmacol Ther (2008), 28, 1188-98
***According to Brunt score: Wong et al. Hepatology (2010) 51, 454-62Transient elastography (FibroScan®): V. de Lédinghen, J. Vergniol, Gastroentérologie Clin Bio (2008) 32, 58-67

NAIIS 2018

NIGERIA HIV/AIDS INDICATOR AND IMPACT SURVEY

...getting to zero

NIGERIA HIV/AIDS INDICATOR AND IMPACT SURVEY

2018 TECHNICAL REPORT

PARTNERS

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ICF

AFENET African Field Epidemiology Network A healthier Africa

NIGERIA HIV/AIDS INDICATOR AND IMPACT SURVEY (NAIIS) 2018
TECHNICAL REPORT

NAIIS 2018 Collaborating Institutions

Federal Ministry of Health, Nigeria (FMoH)
National Agency for the Control of AIDS, Nigeria (NACA)
National Population Commission, Nigeria (NPopC)
National Bureau of Statistics, Nigeria (NBS)
The United States Centers for Disease Control and Prevention (CDC)
The Global Fund to Fight AIDS, Tuberculosis and Malaria (GF)
Center for International Health, Education and Biosecurity (CIHEB) at the University of Maryland, Baltimore (UMB)
ICF International
African Field Epidemiology Network (AFENET)
University of Washington (UW)
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World Health Organization (WHO)
United Nations Children's Fund (UNICEF)

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www.ciheb.org/PHIA

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Contents

Glossary of Terms

90-90-90 targets: According to the United Nations Programme on HIV and AIDS (UNAIDS), by 2020, 90% of all people living with human immunodeficiency virus (HIV) will know their HIV status; 90% of all people with diagnosed HIV will receive sustained antiretroviral therapy (ART); and 90% of all people receiving ART will have viral load suppression.

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

Adolescents: Unless otherwise noted, adolescents are individuals aged 10-19 years. Young adolescents are individuals aged 10-14 years; older adolescents are individuals aged 15-19 years.

Adults: Unless otherwise noted, adults are individuals aged 15-64 years.

Antiretroviral (ARV): A type of medication used to treat HIV.

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

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

Children: Unless otherwise noted, children are individuals aged 0-14 years.

***De facto* household resident:** A person who slept in the household the night prior to the survey.

***De jure* population:** Individuals who are usual residents of the household, irrespective of whether they slept in the household on the night prior to the household interview.

Emancipated minor: As defined by law in Nigeria, an individual less than aged 18 years who is married or is free from any legally competent representative.

Enumeration area (EA): A limited geographic area defined by the National Population Commission (NPopC), the national statistical authority and the NAIIS primary sampling unit.

Head of household: The person who is recognized within the household as being the head and is aged 18 years and older or is considered an emancipated minor.

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

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

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

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

HIV viral load suppression: An HIV VL of less than 1,000 copies per mL.

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

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

Male circumcision: Male circumcision is the removal of some or the entire foreskin (prepuce) from the penis. Medically supervised adult male circumcision is a scientifically proven method for reducing a man's risk of acquiring HIV through heterosexual intercourse.

Nigeria: The Federal Republic of Nigeria.

Prevention of mother-to-child HIV transmission (PMTCT): Mother-to-child HIV transmission (MTCT) is when an HIV-positive woman passes the HIV virus to her baby during pregnancy, labor or 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 and their children and families.

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

Tuberculosis: Tuberculosis (TB) is a contagious bacterial infection caused by Mycobacterium tuberculosis which mostly affects the lungs.

Young adults: Unless otherwise noted, individuals aged 20-24 years are defined as young adults.

Young people: Defined in this survey as the population of individuals aged 15-24 years (including older adolescents and young adults).

List of Abbreviations

AFENET	African Field Epidemiology Network
AIDS	Acquired Immunodeficiency Syndrome
AIMS	Activity Information Management System
ANC	Antenatal care
ART	Antiretroviral therapy
ARV	Antiretroviral
CAPI	Computer Assisted Personal Interview
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
CHAID	Chi-square automatic interaction detection
CI	Confidence interval
CSPro	Census and Survey Processing System
DBS	Dried blood spot
DHS	Demographic and Health Survey
DNA	Deoxyribonucleic acid
DR	Drug resistance
EA	Enumeration area
EIA	Enzyme immunoassay
EID	Early infant diagnosis
FCT	Federal Capital Territory
FMoH	Federal Ministry of Health
FTPS	File Transfer Protocol Secure
GF	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GoN	Government of Nigeria
HBTC	Home-based testing and counseling
HBsAg	Hepatitis B virus surface antigen
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
HIVDR	Human immunodeficiency virus drug resistance
ICC	Intra-cluster correlation
IHVN	Institute of Human Virology Nigeria
IRB	Institutional review board

IVT	Infant virologic HIV testing
LAg	Limiting antigen
LGAs	Local Government Areas
MDRI	Mean duration of recent infection
mL	Milliliter
MS	Mass spectrometry
NACA	National Agency for the Control of AIDS
NAIIS	Nigeria HIV/AIDS Indicator and Impact Survey
NASCP	National AIDS and STI Control Program
NBS	National Bureau of Statistics
NCDC	Nigeria Centre for Disease Control
NHREC	National Health Research Ethics Committee
NPopC	National Population Commission
NRL	National Reference Laboratory
ODn	Normalized optical density
PCR	Polymerase chain reaction
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PFR	Proportion false recent
PHIA	Population-based HIV Impact Assessment
PLHIV	People living with HIV
PMTCT	Prevention of mother-to-child HIV transmission
POC	Point of care
PSU	Primary sampling unit
PT	Proficiency test
PTID	Participant identification
QA	Quality assurance
QC	Quality control
RNA	Ribonucleic acid
RSEs	Relative standard errors
SOP	Standard operating procedure
TB	Tuberculosis
TNA	Total nucleic acid
UMB	University of Maryland, Baltimore
UNAIDS	Joint United Nations Programme on HIV/AIDS
VL	Viral load
VLS	Viral load suppression
WHO	World Health Organization
µL	Microliter

List of Tables and Figures

FOREWORD

The Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) 2018 is the largest HV population-based survey conducted globally with a sample size of 83,909 households and 383,574 individuals and coverage across 36 states (and the Federal Capital Territory). NAIIS determined the HIV incidence, HIV prevalence, viral load suppression and risk behaviours. For the first time, we have estimated national HIV incidence and viral load suppression and the prevalence of hepatitis B and C virus infections. NAIIS also enabled determination of the effectiveness and population-level impact of HIV-related prevention, care and treatment interventions implemented in the country, and our progress towards the achievement of the UNAIDS 90-90-90 targets.

The findings show steady improvements in reducing HIV prevalence, when compared to previous survey estimates. However, gaps remain in awareness of HIV status. The results also show varied HIV prevalence across states and highlights the need for more responsive approaches that take into consideration the situation of the epidemic in each state. The findings in relation to new HIV infections point us towards the need to increase our efforts in targeted testing at community-level, especially in areas with high HIV prevalence and low testing coverage.

While significant progress has been achieved in the overall coverage of ART for People Living With HIV and viral load suppression for those on ART, sustained efforts will be required, to maintain the gains and continue to decrease the risk of transmission of HIV.

One of the key lessons from the results of this survey is that we must continue to invest in addressing the important gender dimensions of access to HIV services, especially noting the difficulties women often experience in accessing health services.

NAIIS reiterates the importance of measuring progress in achieving epidemic control and strengthening capacity at country-level to collect and use surveillance data to inform and improve interventions as it relates to HIV and AIDS as well as Hepatitis B and C infections.

Overall, the results from NAIIS 2018 have provided Government and her partners with critical information to guide policy, programme and funding priorities and have bolstered the joint commitment to achieving epidemic control in Nigeria.

Dr. E. Osagie Ehanire *MD, FWACS*
Honourable Minister of Health

Executive Summary

Key Findings

- Approximately 8 new cases of HIV infection occur annually per 10,000 adults (those aged 15-64 years), with HIV incidence highest among women and men aged 25-34 years (Table 6.A).
- Overall, HIV prevalence among adults was 1.4%, with 1.8% in women and 1.0% in men (Table 7.A).
- Overall, HIV viral load suppression (VLS) prevalence among adults was 43.1%: 45.5% in women and 38.8% in men (Table 10.A).

UNAIDS 90-90-90 Targets

- **Diagnosed (antiretroviral (ARV)-adjusted awareness of HIV-positive status):** Based on self-report and ARV detection data, it is estimated that in Nigeria, 46.9% of persons living with HIV (PLHIV) aged 15-64 years were already aware of their HIV status (50.3% among women living with HIV and 40.9% among men living with HIV). This varied across age groups ranging from 31.0% among young people aged 15-24 years to 52.8% among adults aged 35-49 years (Table 11.B).
- **On treatment (ARV-adjusted treatment status):** Based on self-report and ARV detection data, it is estimated that among the PLHIV aged 15-64 years who were aware of their HIV status, 96.4% were receiving antiretroviral therapy (ART) (95.8% of women and 97.8% of men) (Table 11.B).
- **Viral load suppression (VLS):** Of the 96.4% of PLHIV aged 15-64 years on ART, based on self-report and ARV detection data, 80.9% had VLS, ranging from 75.2% among those aged 25-34 years (76.9% among women and 65.8% among men) to 82.0% among those aged 35-49 years (84.4% among women and 77.4% among men) (Table 11.B).

Other Key Findings

- In Nigeria, 3.1% of households had at least one HIV-positive member (3.3% in rural and 2.8% in urban households) (Table 4.D).
- Among heads of households, 1.9% of heads of households were HIV-positive (3.4% of female heads of households were HIV-positive compared to 1.3% of male heads of household) (Table 4.F).
- HIV prevalence among women of childbearing age (aged 15-49 years) who were pregnant at the time of the survey was 1.1% (Table 7.B).
- Overall, 30.1% of the adult population reported that they had ever tested for HIV and received their results, while 10.2% indicated that they had tested in the 12 months preceding the survey and received their results (Table 8.C).
- Concordance between self-report of ART and detection of ARVs was high among adults, with 94.5% of those who reported current ART use having detectable ARVs in blood. However, self-report of HIV status was less accurate, with detection of ARVs in blood among 24.4% of those who reported that they had not been previously diagnosed with HIV (Table 9.F).
- Among all HIV-positive adults aged 15-64 years, VLS ranged from 31.2% in those aged 20-24 years to 55.6% in those aged 50-54 years (Table 10.B).
- Among adult PLHIV who self-reported not to be aware of their HIV status and did not have detectable ARVs in their blood, 10% of women and 8.0% of men had severe immunosuppression, with a CD4 count less than 200 cells/microliter (µL) (Table 12.B).
- Among HIV-positive adults who reported initiating ART within the 12 months prior to the survey, 95.2% reported that they were still taking ART at the time of the survey. Among those who reported initiating ART more than 12 months prior to the survey, 94.3% reported that they were still taking ART at the time of the survey (Table 12.C, Table 12.D).

- Among women of childbearing age (aged 15-49 years) who delivered in the three years preceding the survey, 76.3% had at least one antenatal care (ANC) visit (Table 13.A).
- Among women who delivered within the 12 months preceding the survey, 41.5% reported knowing their HIV status (Table 13.C).
- Among HIV-positive women who delivered within the 3 years preceding the survey, 84.3% of those who knew their HIV status received ARVs (Table 13.D).
- Among older adolescents (aged 15-19 years) and young adults (aged 20-24 years), 18.1% reported having sexual intercourse before the age of 15 years (20.1% among women and 14.9% among men) (Table 14.A).
- Among early adolescents aged 10-14 years, 1.4% correctly responded to all questions that assessed knowledge of HIV transmission and prevention (1.2% of women and 1.7% of men) (Table 14.B, Table 14.C, Table 14.D).
- Incidence of HIV infection among older adolescents (aged 15-19 years) and young adults (aged 20-24 years) was estimated to be 0.04% (95% confidence interval (CI): 0.01%-0.07%) (Table 6.A).
- HIV prevalence was 0.2% among older adolescents (aged 15-19 years) (0.3% in women and 0.1% in men) and 0.8% among young adults (aged 20-24 years) (1.3% in women and 0.3% in men) (Table 7.C).
- Progress on 90-90-90 targets among older adolescents (aged 15-19 years) and young adults (aged 20-24 years): Based on self-report and detection of ARVs in blood, 31.0% of HIV-positive persons aged 15-24 years were aware of their HIV-positive status prior to the survey (31.7% of women and 28.8% of men). Among those who had been previously diagnosed, 92.3% were on ART. Among those on treatment, 77.1% had VLS (Table 11.B).
- Among adults aged 15 to 64 years who reported having sex in the last 12 months, 14.0% of women and 33.5% of men reported having sex with a non-marital, non-cohabitating partner. Of these adults, 35.3% (26.3% of women and 39.7% of men) reported using a condom during their last sexual intercourse with a non-marital, non-cohabitating partner (Table 15.B, Table 15.C, Table 15.D).
- The overall prevalence of hepatitis B virus (HBV) infection among adults aged 15-64 years was 8.1%, with 10.3% in men and 5.8% in women (Table 16.A).
- The overall prevalence of hepatitis C virus (HCV) infection among adults aged 15-64 years was 1.1%, with 1.3% in men and 1.0% in women (Table 16.B).
- Overall, 9.9% of adult PLHIV had ever visited a clinic for tuberculosis (TB) evaluation. Among adult PLHIV who had ever visited a TB clinic, 40.4% were diagnosed with TB. Of these, 98.8% completed TB treatment (Table 16.C).

Gaps and Unmet Needs

- While overall HIV prevalence determined by NAIIS was lower than reported in previous surveys and estimates, HIV continues to be transmitted in Nigeria.
- Awareness of HIV status is low, only 46.9% of PLHIV either self-reported awareness of their HIV status or had detectable ARVs in their blood. This low rate of awareness hinders the achievement of 90-90-90 targets.

Programmatic Responses or Recommendations

- To ensure 90-90-90 targets are met, the Government of Nigeria (GoN), supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and The Global Fund to Fight AIDS, Tuberculosis and Malaria (GF), is implementing an ART Surge to identify PLHIV who do not know their status or are not in treatment and to provide effective treatment to help all persons reach VLS.
    - GoN is supporting an additional 100,000 PLHIV on treatment.
    - PEPFAR is supporting an additional 500,000 PLHIV on treatment.
    - GF is supporting an additional 110,000 PLHIV on treatment.
- States are helping to ensure efforts are successful by implementing policies that have been shown to improve access to services, including the removal of user fees for HIV-related services.

Conclusion

The results from NAIIS 2018 show varied HIV prevalence across states and underscore the need for effective approaches to addressing the epidemic, including targeted community-level testing efforts in areas with high HIV prevalence and low testing coverage.

In Nigeria, PLHIV on ART can achieve VLS, improving their lives and decreasing the risk of transmission of HIV. The results from NAIIS 2018 provide the Federal Ministry of Health (FMoH), the National Agency for the Control of AIDS, Nigeria (NACA) and their partners with critical information to reset the baseline data on HIV incidence and prevalence in Nigeria. The results have fostered cooperation and reinvigorated efforts across federal, state and international governments as well as donor and implementing organizations to halt the spread of HIV in Nigeria.

1. Introduction

1.1 Background

The Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) was a Population-based HIV Impact Assessment (PHIA) conducted to measure important national and regional HIV-related indicators, including progress toward the achievement of the UNAIDS 90-90-90 targets (UNAIDS, 2014) and to guide policy and funding priorities. PHIAs are part of a multi-country project funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR) to conduct national HIV-focused surveys that describe the status of the HIV epidemic.

With a projected 2016 population of over 180 million and an estimated 3.2 million people infected with HIV, Nigeria is estimated to have the second largest number of people living with HIV (PLHIV) in the world[1] and is among the six nations facing the triple threat of high HIV burden, low treatment coverage and slow decline in new HIV infections.[2] At the end of 2015, Nigeria had over 1,078 facilities providing ART services and over 853,992 PLHIV who had initiated ART.[3] On average, an estimated 180,000 people die annually from AIDS-related illnesses and about 180,000 children aged 17 years or younger are currently orphaned by AIDS in Nigeria.[4]

NAIIS was led by the Government of Nigeria (GoN) under the Federal Ministry of Health (FMoH) and National Agency for the Control of AIDS (NACA). The survey was conducted with funding from PEPFAR and The Global Fund to Fight AIDS, Tuberculosis and Malaria (GF) with technical assistance from the U.S. Centers for Disease Control and Prevention (CDC). The survey was implemented by the NAIIS Consortium and led by the University of Maryland, Baltimore (UMB) under the supervision of the NAIIS Technical Committee.

1.2 Overview of NAIIS 2018

NAIIS, a household-based national survey, was conducted between July and December 2018 to assess the prevalence of HIV and related health indicators, including HBV and HCV infections. NAIIS offered home-based testing and counseling (HBTC) with return of results and collected information about households and individuals' background and the uptake of HIV care and treatment services. This survey is the first in Nigeria to estimate national HIV incidence and viral load suppression (VLS). The results provide information on national and regional progress toward control of the HIV epidemic. The survey also estimated the national prevalence of hepatitis B virus (HBV) infection, hepatitis C virus (HCV) infection, HBV/HIV co-infection and HCV/HIV co-infection.

Although previous HIV facility-based sentinel surveillance, population-based studies and programmatic data provided useful knowledge regarding Nigeria's HIV epidemic and HIV control efforts, current population-based information was critically needed to understand the current status of the epidemic and guide future interventions. NAIIS was designed to provide direct estimates of HIV infection risk and burden; the effectiveness and population-level impact of HIV-related prevention, care and treatment interventions implemented in the country; and Nigeria's progress toward the achievement of the UNAIDS 90-90-90 targets.

1.3 Specific Objectives

The goal of the survey was to estimate incidence and prevalence of HIV in Nigeria, 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 persons aged 15-64 years.

Primary Objectives

To estimate using a household-based, nationally representative sample of adults aged 15-64 years:

- National-level HIV incidence
- National- and state-level HIV prevalence
- National- and state-level prevalence of VLS; defined as HIV ribonucleic acid (RNA) less than 1,000 copies/mL of plasma

Secondary Objectives

To estimate among adults aged 15-64 years the:

- Prevalence of HIV-related risk behaviors, knowledge and attitudes
- Behavioral and demographic determinants of HIV incidence and prevalence
- National prevalence of HBV infection
- National prevalence of HCV infection
- Prevalence of HIV/HBV co-infection among HIV-positive individuals
- Prevalence of HIV/HCV co-infection among HIV-positive individuals

To estimate among the population of adults aged 15-64 and children aged 0-14 years the:

- Uptake of HIV-related services, especially prevention of mother-to-child HIV transmission (PMTCT)-related services and exposure to HIV interventions
- Distribution of CD4 T-cell counts among HIV-positive individuals

To estimate among children aged 0-14 years the:

- National paediatric HIV prevalence

1.4 References

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2. Survey Design and Methodology

NAIIS was a nationally representative, cross-sectional, two-stage, population-based survey of households across Nigeria. The target population was children (aged 0-14 years) and adults (aged 15-64 years) living in the community. The survey population excluded military bases and institutionalized children and adults.

2.1 Study Area

Nigeria lies on the west coast of Africa between latitudes 4016' and 13053' north and longitudes 2040' and 14041' east. It occupies approximately 923,768 square kilometers of land stretching from the Gulf of Guinea on the Atlantic coast in the south to the fringes of the Sahara Desert in the north. The country's 2006 Population and Housing Census placed its population at 140,431,790. Nigeria is the most populous black nation in the world. Nigeria is comprised of 36 states and the Federal Capital Territory (FCT) (Figure 2.A) with 774 Local Government Areas (LGAs), categorized into six geopolitical zones (North West, North East, North Central, South West, South East and South South). Nigeria has more than 500 ethnic groups with the most populous being Hausa, Yoruba and Igbo.

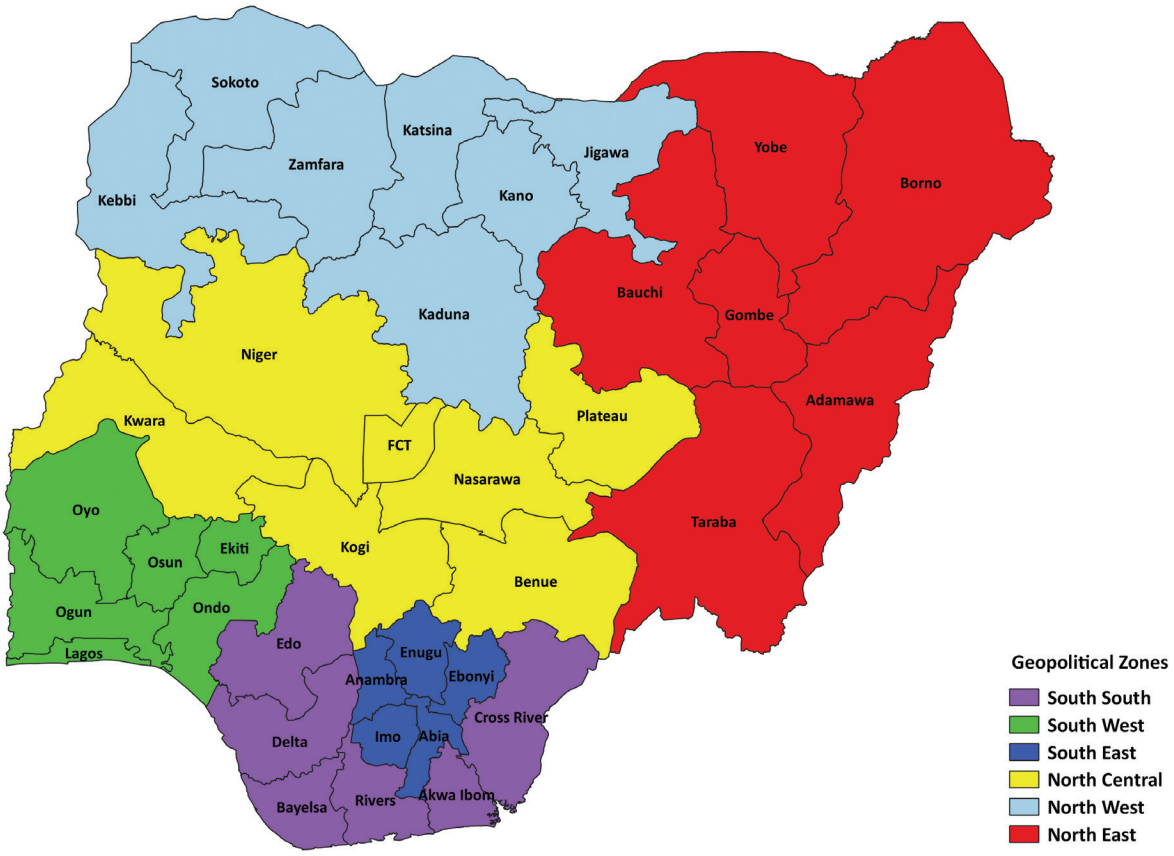

Figure 2.A The six geopolitical zones in Nigeria

2.2 Sampling Methods

NAIIS sampled the population using a two-stage cluster sampling technique, selecting enumeration areas (EAs) followed by households. The sampling frame consisted of 662,855 EAs, a total of 28,900,478 households and 140,431,798 persons based on the 2006 Census, with an average number of households and persons per EA of 44 and 212, respectively. The EAs were mutually exclusive (non-overlapping). This ensured that all households and residents had an equal chance of being included in the survey. Given the variability in household size across Nigeria (range of 4.0 to 5.7 individuals per household), state differences in household size based on the 2006 Census were considered when calculating the number of EAs or primary sampling units (PSUs) to be selected in each state.

The sample size was calculated to provide a representative national estimate of HIV incidence and HIV prevalence among adults aged 15-64 years with a relative standard error (RSE) less than or equal to 9% and 2%, respectively, as well as representative national and state estimates of VLS prevalence among PLHIV with 95% confidence intervals (CIs) between 10% and 15%. The sample size also was calculated to provide HIV prevalence estimates at the state level. One-quarter of the households were randomly selected for inclusion of children, which was designed to provide a representative national estimate of paediatric HIV prevalence with an RSE less than or equal to 0.1205%. The target sample size was 140,974 adults and 31,629 children, for an overall total of 172,603 adults and children.

The first stage of sampling selected 4,035 EAs using a probability proportional to size method. The 4,035 EAs were stratified by Nigeria's 36 states and the FCT. An equal-size approach was proposed with an estimated sample size of 3,700 blood specimens from each state. This number of blood specimens was sufficiently large to obtain robust estimates of HIV prevalence for the population and VLS among HIV-positive individuals in most states. The second stage selected a random sample of households within each EA using an equal probability method. The number of households selected per cluster was 28.

At the request of Lagos State, the NAIIS sample design was adjusted to oversample Lagos State to obtain stable estimates of HIV prevalence in 20 LGAs. The sample of 2,900 responding households with an anticipated 3,677 blood draws among adults aged 15-64 years was increased to a sample of 4,800 responding households with an estimated 6,087 blood draws among adults aged 15-64 years. Lagos State was the only state with a change in the sample design. The evaluation of this "equal-size" approach to the 37 strata, with the larger sample for Lagos State, is presented in Table 2.A.

Table 2.A Distribution of sampled enumeration areas and households by state

State	Total clusters sampled for the survey	Number of households sampled for the survey	Number of households sampled for inclusion of children aged 0-14 years	Number of households sampled for hepatitis B and C tests
Abia	101	2,828	601	233
Adamawa	88	2,464	582	265
Akwa Ibom	104	2,912	846	344
Anambra	100	2,800	875	347
Bauchi	87	2,436	845	411
Bayelsa	100	2,800	358	143
Benue	89	2,492	795	357
Borno	92	2,576	799	365
Cross River	106	2,968	641	242
Delta	103	2,884	888	356
Ebonyi	98	2,744	446	178
Edo	103	2,884	697	264
Ekiti	99	2,772	494	203
Enugu	105	2,940	717	275
FCT[1]	105	2,940	309	215
Gombe	86	2,408	424	203
Imo	101	2,828	828	342
Jigawa	89	2,492	811	354
Kaduna	89	2,492	1,133	513
Kano	82	2,296	1,615	817
Katsina	87	2,436	1,061	490
Kebbi	83	2,324	569	276
Kogi	92	2,576	637	277
Kwara	95	2,660	470	191
Lagos	600	5,400	2,215	777
Nasarawa	89	2,492	349	204
Niger	89	2,492	735	337
Ogun	112	3,136	877	324
Ondo	105	2,940	756	291
Osun	102	2,856	727	304
Oyo	107	2,996	1,249	491
Plateau	90	2,520	602	261
Rivers	103	2,884	1,125	455
Sokoto	88	2,464	685	312

Table 2.A Distribution of sampled enumeration areas and households by state (continued)				
State	Total clusters sampled for the survey	Number of households sampled for the survey	Number of households sampled for inclusion of children aged 0-14 years	Number of households sampled for hepatitis B and C tests
Taraba	91	2,548	435	201
Yobe	89	2,492	433	206
Zamfara	86	2408	591	281
Total	4,035	101,580	28,220	12,105
[1]FCT – Federal Capital Territory.				

2.3 Eligibility Criteria, Recruitment and Consent Procedures

The eligible survey population included:

- Adults aged 18-64 years and emancipated minors aged 15-17 years living in the selected households and adult visitors who slept in the selected household the night before the survey who were willing and able to provide written consent.
- Children and adolescents aged 10-17 years living in the selected households and visitors in the same age bracket who slept in the selected household the night before the survey who were willing and able to provide written assent and whose parents or guardians were willing and able to provide written permission for their participation.
- Children aged <10 years living in the selected households and child visitors in the same age bracket who slept in the selected household the night before the survey whose parents or guardians were willing and able to provide written consent for their participation.

Interviewers used tablets with an electronic informed consent form to collect consents from potential survey participants (Appendix H). All potential participants were given a printed copy of the consent form in either English, Hausa, Igbo or Yoruba, depending on their preference. Consent was recorded by signing or making a mark on the consent form on the tablet and on a printed copy retained by the participant. Consent processes were conducted in different stages. Written consent to participate in the survey was obtained from the identified household head, after which individual members were rostered during the household interview. Emancipated minors (aged 15-17 years) and adults provided written consent on the tablet separately for the interview and for participation in biomarker testing which included HBTC, return of rapid HIV test results, linkage to care (for identified positives) and CD4 counts during household visits. Receipt of test results was a requirement for participation in the biomarker component. If a participant did not want to receive his or her HIV test result, it was considered a refusal and the survey was concluded. Adults were also asked for written consent to store their blood specimens in a repository to perform additional tests in the future. Individuals with disabilities who were otherwise able to give written consent or provide a mark were offered survey participation. Procedures with illiterate participants or participants with a sight disability involved the use of an impartial witness, chosen by the potential participant, who also signed or made a mark on the consent form on the tablet and on the printed copy. If no witness could be identified, the potential participant or household, if the head of household was sight disabled or illiterate, was considered ineligible. Individuals who were unable to give consent due to cognitive impairment or intellectual disability were considered ineligible to participate.

Children aged 10-17 years were asked for assent to the interview and biomarker components after permission was granted by their parents or guardians. For minors below the age of assent (<10 years), consent was obtained from their parents or guardians for biomarker testing. In both cases, when a parent or guardian refused receipt of the child's HIV test result, it was considered a refusal and the survey was concluded.

2.4 Survey Implementation

Training of Field and Laboratory Staff

Survey staff received training on all contents of the data collection instruments, tablet use, standard operating procedures (SOPs) and manuals. The training curriculum included:

- Survey objectives
- Advocacy, communication and social mobilization
- Survey design and methods
- Completion of survey forms
- Data collection

- Communication skills
- Staff responsibilities
- Recruitment of participants
- Informed consent procedures
- Ethical guidelines for research including participants' rights, privacy and confidentiality
- Blood collection for children and adults, including venipuncture and finger/heel stick
- Home-based HIV testing, HBV and HCV testing and counseling
- CD4 count measurement using point-of-care (POC) Pima™ Analyzer
- Biosafety
- Referral of participants to health and social services
- Referrals for adverse events
- Safety procedures in the field
- Protocol deviations, adverse events and reporting of events
- Management and transportation of blood specimens

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

Survey Staff

Fieldwork was conducted by 1,935 field staff composed of 190 team leaders, 380 interviewers, 380 counselors, 380 drivers, 190 community trackers and 415 field laboratorians. Field teams included a team lead, a tracker, two interviewers, two counselors, two field laboratory technicians and two drivers. All teams consisted of male and female staff who spoke the languages used in the study areas to which they were deployed. The field teams were supervised by a director and field implementation was supported by five zonal technical advisors. Three of these five technical advisors oversaw two zones each. Other technical advisors included the HIV Linkage to Care Lead and the National Linkage to Care Advisor. NAIIS staff included 14 field coordinators managed by a central staff team, who guided and oversaw data collection activities, performed quality checks and provided technical support (Appendix D).

In addition, the laboratory staff were organized at different levels (two senior technical lab advisors, four technical lab advisors, 12 zonal and sub-zonal lab coordinators and 18 lab logisticians). A total of 105 satellite laboratory technicians and 10 central lab specialists processed specimens and performed additional procedures for HIV-1 VL, infant virologic HIV testing (IVT)/EID, quality control (QC) and QA.

Pilot Survey

After training all field teams, a pilot was conducted, including informed consent, data collection and management, HIV testing and counseling and laboratory activities in 191 EAs with 25 households per EA of the sampling frame, a total of 4,775 households. Participants in the pilot were informed that they were participating in a pilot. Data collected from these households were not included in the survey. Information gathered from the pilot survey was used to modify survey collection instruments and field procedures. All changes in the questionnaire after the pilot were agreed upon by the FMoH/NACA in consultation with stakeholders and approved by the appropriate institutional review boards (IRBs).

Community Sensitization and Mobilization

Prior to data collection, community sensitization and mobilization were conducted to maximize community support and participation in the survey. Advocacy, communication, sensitization and mobilization activities began four months before fieldwork commenced with a high-level national launch meeting that included key national and regional leaders, mass media and other stakeholders. Activities leveraged existing structures conducted by the state and local government-based mobilization teams in each EA prior to data collection to facilitate ownership of the survey. The mobilization teams held community sensitization meetings, dialogues and rallies; distributed printed information, education and communication materials such as posters, leaflets, flyers and brochures; and conducted house-to-house interpersonal communications with selected households and other community residents. Community mobilization data were captured using paper-based data collection tools and entered into Encuesta, an electronic data collection application.

Supervision

Field supervisors provided ongoing supervision throughout NAIIS field implementation. Field supervisors supported teams by organizing supplies ensured transport of blood specimens, coordinated community-mobilization efforts, provided technical troubleshooting and checked the quality of household procedures and data collected. During monitoring visits, daily monitoring forms were used for household and individual outcome tracking and verifying completeness of interviews. Household revisits were used to verify results. Assessment of the quality of survey procedures, including adherence to protocol and standard operating procedures (SOPs) and identification of challenges, resolutions and responses to challenges with data collection, was also observed by the monitoring teams. Regular debriefing sessions were held between field-based supervisors and monitoring teams. External monitoring teams, including GoN staff, Orphan Reach (formerly QED Clinical Services), state implementation teams and international monitors, periodically (bi-monthly and monthly) observed data collection activities in the field and laboratories to ensure quality and provide technical support, quality checks and controls. Monitoring reports were circulated to collaborating institutions and the NAIIS Technical Committee. As necessary, survey practices were amended to respond to problems identified during monitoring.

Electronic Monitoring System

The Activity Information Management System (AIMS) was used to monitor survey progress. Assignment and tracking of devices to staff was managed by the AIMS inventory module. The AIMS dashboard provided a daily comprehensive overview of the data uploaded into the NAIIS server, e.g., data collection coverage, EA completion status, sampled households, household and eligible household member response rates, biomarkers and overall progress towards the achievement of the target sample. Field data quality was reviewed by 30 data monitors who utilized Voice Over Internet Protocol systems to interact with the field teams and correct identified errors. The data monitors were situated at the central office.

Survey Instrument and Procedure for Data Collection

Survey instruments comprised of questionnaires and laboratory forms were built into a Computer Assisted Personal Interviewing (CAPI) system where the interviewer uses a tablet to administer and record the interview responses. NAIIS interview staff used Android tablets with Census and Survey Processing System (CSPro) software. All tablets were encrypted and password-protected to ensure confidentiality. The questionnaires were translated into the three major Nigerian languages, Hausa, Igbo and Yoruba. The questionnaire was administered in English and the three major Nigerian languages. Household, individual interview, counseling and field laboratory data were recorded using CAPI. The household questionnaire included modules on head of household eligibility; household schedule, including orphan status; and household characteristics (Appendix E). The individual adult questionnaire was administered to participants aged 15-64 years and included modules on socio-demographic characteristics; marriage; reproduction; children; male circumcision (men only); sexual activity; HIV testing; HIV status, care and treatment; tuberculosis and other health issues; and gender norms (Appendix F). Participants who self-reported their HIV-positive status were asked questions about their HIV care experiences. Parents or guardians responded to questions on their children's (aged 0-14 years) health, participation in HBTC services and, if the child was reported to have and HIV-positive status, their child's HIV care experiences as a part of the adult interview. The individual adolescent questionnaire was administered to participants aged 10-14 years and included modules on socio-demographic characteristics; parental support; alcohol and drugs; condoms; sexual behaviors; HIV knowledge; HIV risk perception; HIV testing; HIV stigma; and social norms, intention to abstain, self-efficacy and assertiveness (Appendix G).

2.5 Laboratory

A detailed description of the NAIIS laboratory methodology is available in Appendix B of this report.

All field test results were returned to participants the same day as the survey interview. All participants, whether HIV-positive or HIV-negative, received two copies of the written test results. Identified HIV-positive participants were referred to health facilities of their choice that offered HIV care and treatment services. Emancipated minors received their results directly. For children aged 10-17 years, results were received by the parents or guardians with the child present, only after receiving parental or guardian permission and child assent. Test results for children aged 0-9 years were disclosed and returned to parents or guardians.

Satellite, Mobile and Central Laboratories

A total of 94 satellite laboratories were activated to support NAIIS. Three mobile laboratories supported areas with security challenges or difficult topography. The EAs were mapped and linked to specific satellite and mobile laboratories based on proximity. The Nigeria Centre for Disease Control (NCDC) National Reference Laboratory (NRL) was designated as the central reference laboratory and biorepository for the survey. Trained lab specialists at each satellite and mobile laboratory performed HIV confirmatory tests, conducted QA tests and processed whole blood specimens into plasma aliquots and dried blood spot (DBS) cards for temporary storage at -20°C. HIV rapid test QA was conducted on the first 50 specimens tested by each field laboratory technician. All HIV-positive specimens, whether identified in the field or during QA, underwent confirmatory testing using the Geenius™ HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States). A positive Geenius™ HIV 1/2 result defined an HIV positive test result for the survey. Specimens that were HIV positive from the HBTC and HIV negative on Geenius™ HIV 1/2 were retested using Western blot and Total Nucleic Acid (TNA) PCR. Central laboratory procedures included HIV VL testing, HIV TNA PCR for infant virologic testing and for confirmation of status of those who self-reported an HIV-positive status but tested HIV negative in HBTC, HIV recency testing, HIV drug resistance testing and long-term storage of specimens at -80°C.

The survey conducted household revisits for investigation of discrepancies between the results of tests 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 determine the definitive HIV status for the participant and for analysis.

2.6 Data Processing and Analysis

During the household data collection, questionnaire and laboratory data were transmitted between tablets via Bluetooth connection. This facilitated synchronization of household rosters and ensured data collection for each participant followed the correct pathway. All field data collected in CSPro and the Laboratory Data Management System (LDMS) were transmitted to a central server using File Transfer Protocol Secure (FTPS) over a 4G or 3G telecommunication provider at least once a day. Questionnaire data cleaning was conducted using CSPro and SAS 9.4 (SAS Institute Inc., Cary, North Carolina, United States). Laboratory data were cleaned and merged with the final questionnaire database using unique specimen barcodes and study identification numbers.

All results presented in the technical report were based on weighted estimates unless otherwise stated. Analysis weights accounted for sample selection probabilities and 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 were potential predictors of response and HIV status. The nonresponse adjustment cells were constructed using the Chi-square Automatic Interaction Detector (CHAID) algorithm. The cells were defined based on data from the household interview for the adjustment of individual-level weights and from both the household and individual interviews for the adjustment of blood specimen-level weights. Post-stratification adjustments were implemented to compensate for non-coverage 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 response rates, characteristics of respondents, HIV prevalence, CD4 count distribution, HIV testing, self-reported HIV status, self-reported ART, VLS, PMTCT indicators, HBV, HCV and sexual behavior were conducted using SAS 9.4.

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

2.7 Ethical Considerations

All survey procedures were aligned with recommendations from the ethics and regulatory board. Human subject review was conducted by the CDC IRB, the UMB IRB and the Nigerian National Health Research Ethics Committee.

Informed Consent

The informed consent/assent read to potential participants contained all information required to make an informed decision as to whether to participate, including all elements of informed consent as required by United States 45 Code of Federal Regulations (CFR) 46.116 and 21 CFR 50.25(a)(b). Consent forms (Appendix H) were used for household interviews of adults aged 18-64 years and individual interviews and blood draw for individuals aged 18-64 years. Parental/guardian permission forms were used for interviews and blood draw of minors aged 10-17 years prior to individual assent. Assent forms were used for interviews and biomarkers for minors aged 10-17 years. Parental/guardian permission forms were used for blood draw for minors aged 0-9 years.

3. Response Rate

3.1 Background

Household response rates were calculated using the American Association for Public Opinion Research Response Rate 4 method[1] 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 response rates were calculated as the number of individuals interviewed divided by the number of individuals eligible to participate in the survey. Blood draw response rates for adults were calculated as the number of adults who provided a blood specimen divided by the number of adults who were interviewed. Blood draw response rates for children were calculated as the number of children who provided a blood specimen divided by the number of children eligible to participate in the survey.

3.2 Results

Tables 3.A and 3.B describe the household, individual interview and blood draw response rates.

3.2.1 Key Findings

- A total of 101,267 households were selected, 89,345 were occupied and 83,909 completed the household interview (Table 3.A).
- For adults aged 15-64 years, interview response rate was 91.6% for women and 88.2% for men; blood draw response rate was 92.9% for women and 93.6% for men (Table 3.B).
- For adolescents aged 10-14 years, interview response rate was 86.8% for women and 86.2% for men; blood draw response rate was 91.2% for women and 92.3% for men (Table 3.B).
- For children aged 0-9 years, blood draw response rate was 68.5% for women and men (Table 3.B).

3.3 References

1. American Association for Public Opinion Research (AAPOR). Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf. Accessed March 10, 2019.

Table 3.A Household response rates

Place of residence by number of households selected, occupied and interviewed and household response rates (unweighted), NAIIS 2018

	Place of residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	43,932	57,335	101,267
Households occupied	39,288	50,057	89,345
Households interviewed	36,314	47,595	83,909
Household response rate[1] (unweighted)	90.1	88.3	89.1

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

Table 3.B Interview and blood draw response rates

Place of residence and sex by number of eligible individuals and response rates for individual interviews[1] and blood draws[2] (unweighted), NAIIS 2018

	Place of residence					
	Urban		Rural		Total	
Result	Males	Females	Males	Females	Males	Females
Eligible individuals, aged 0-9 years						
Number of eligible individuals	6,748	6,584	10,183	9,622	16,931	16,206
Blood draw response rate[2]	68.7	67.6	68.4	69.2	68.5	68.5
Eligible individuals, aged 10-14 years						
Number of eligible individuals	2,775	2,724	3,469	3,357	6,244	6,081
Interview response rate[1]	86.3	87.7	86.2	86.1	86.2	86.8
Blood draw response rate[2]	92.5	91.0	92.2	91.4	92.3	91.2
Eligible individuals, aged 15-24 years						
Number of eligible individuals	12,923	15,037	16,990	20,479	29,913	35,516
Interview response rate[1]	84.3	89.4	85.6	89.7	85.0	89.6
Blood draw response rate[2]	93.2	92.9	93.3	93.3	93.2	93.1
Eligible individuals, aged 15-49 years						
Number of eligible individuals	34,223	41,520	44,838	55,486	79,061	97,006
Interview response rate[1]	84.8	91.2	89.5	91.4	87.5	91.3
Blood draw response rate[2]	92.9	92.7	93.9	93.3	93.5	93.0
Eligible individuals, aged 15-64 years						
Number of eligible individuals	40,559	48,116	53,882	64,439	94,441	112,555
Interview response rate[1]	85.4	91.3	90.4	91.7	88.2	91.6
Blood draw response rate[2]	92.9	92.4	94.0	93.3	93.6	92.9

[1]Interview response rate – number of individuals interviewed/number of eligible individuals.
[2]Blood draw response rate – number of individuals who provided blood/number of individuals interviewed.

4. Survey Household Characteristics

4.1 Background

Household compositions are described in terms of sex of the head of household and size of the household. The age structure of the *de facto* household population (i.e., persons who slept in the household the night before) is described by sex as well as urban/rural residence.

4.2 Household Composition

NAIIS documented 83,909 heads of households for all states (Table 4.A). Approximately 57% of the surveyed households resided in rural areas.

4.3 Results

The NAIIS households' characteristics and distributions are detailed in Tables 4.A to 4.F and Figures 4.A to 4.E.

4.3.1 Key Findings

- Among the *de facto* household population, 47.9% were men and 52.1% were women (Table 4.B).
- Nationally, 29.4% of heads of household were women and 70.6% were men. Among heads of households, 3.4% of female heads of households were HIV-positive compared to 1.3% of male heads of household (Table 4.A, Table 4.F).
- Among all households, 3.1% had at least one HIV-positive member. Of households with at least one HIV-positive member, 87.9% had one HIV-positive member and 11.2% had two HIV-positive members (Table 4.D, Table 4.E).

Table 4.A Household composition by state, place of residence and sex of head of household

Percent distribution of household heads by state, place of residence and sex, NAIIS 2018

	Place of residence						Total		
	Urban			Rural					
State	Male Percent	Female Percent	Total Number	Male Percent	Female Percent	Total Number	Male Percent	Female Percent	Total Number
Abia	59.1	40.9	829	60.5	39.5	1,760	60.0	40.0	2,589
Adamawa	78.3	21.7	641	84.8	15.2	1,489	83.1	16.9	2,130
Akwa Ibom	67.7	32.3	316	60.1	39.9	2,232	61.3	38.7	2,548
Anambra	60.0	40.0	1,941	54.7	45.3	399	59.2	40.8	2,340
Bauchi	91.5	8.5	287	96.2	3.8	1,937	95.6	4.4	2,224
Bayelsa	54.9	45.1	586	56.8	43.2	1,777	56.4	43.6	2,363
Benue	64.8	35.2	329	67.5	32.5	1,916	67.2	32.8	2,245
Borno	72.0	28.0	564	80.5	19.5	281	74.7	25.3	845
Cross River	62.6	37.4	493	67.3	32.7	1,905	66.5	33.5	2,398
Delta	50.9	49.1	1,018	50.8	49.2	1,483	50.8	49.2	2,501
Ebonyi	58.3	41.7	478	56.8	43.2	2,133	57.1	42.9	2,611
Edo	53.0	47.0	1,417	64.3	35.7	1,151	57.4	42.6	2,568
Ekiti	56.6	43.4	1,886	63.1	36.9	598	58.0	42.0	2,484
Enugu	64.0	36.0	721	54.4	45.6	1,724	57.0	43.0	2,445
FCT[1]	65.6	34.4	2,112	83.6	16.4	184	67.2	32.8	2,296
Gombe	91.3	8.7	649	92.1	7.9	1,606	91.9	8.1	2,255
Imo	59.4	40.6	740	63.5	36.5	1,796	62.3	37.7	2,536
Jigawa	90.0	10.0	1,142	95.6	4.4	1,091	92.6	7.4	2,233
Kaduna	82.1	17.9	1,173	87.7	12.3	842	84.4	15.6	2,015
Kano	86.6	13.4	1,219	95.9	4.1	686	89.9	10.1	1,905
Katsina	82.3	17.7	304	90.1	9.9	1,629	88.7	11.3	1,933
Kebbi	84.3	15.7	362	89.6	10.4	1,584	88.7	11.3	1,946
Kogi	56.6	43.4	1,310	64.3	35.7	947	59.9	40.1	2,257
Kwara	60.3	39.7	1,155	76.3	23.7	1,010	67.5	32.5	2,165
Lagos	58.4	41.6	3,369	64.4	35.6	449	58.7	41.3	3,818
Nasarawa	78.8	21.2	659	82.0	18.0	1,447	80.9	19.1	2,106
Niger	75.0	25.0	472	87.7	12.3	1,809	85.5	14.5	2,281
Ogun	53.9	46.1	1,465	61.6	38.4	878	56.6	43.4	2,343
Ondo	55.1	44.9	1,207	61.7	38.3	1,339	58.8	41.2	2,546
Osun	51.1	48.9	2,233	63.8	36.2	337	52.9	47.1	2,570
Oyo	53.9	46.1	1,891	71.9	28.1	825	58.9	41.1	2,716
Plateau	62.4	37.6	781	74.8	25.2	1,534	70.8	29.2	2,315
Rivers	66.9	33.1	775	66.1	33.9	1,449	66.4	33.6	2,224

Table 4.A Household composition by state, place of residence and sex of head of household (continued)

Percent distribution of household heads by state, place of residence and sex, NAIIS 2018

	Place of residence						Total		
	Urban			Rural					
State	Male Percent	Female Percent	Total Number	Male Percent	Female Percent	Total Number	Male Percent	Female Percent	Total Number
Sokoto	85.3	14.7	594	86.1	13.9	1,320	85.8	14.2	1,914
Taraba	78.3	21.7	397	84.0	16.0	1,959	83.0	17.0	2,356
Yobe	87.4	12.6	368	92.2	7.8	1,393	91.0	9.0	1,761
Zamfara	83.9	16.1	431	85.8	14.2	696	85.0	15.0	1,127
Total	65.7	34.3	36,314	75.1	24.9	47,595	70.6	29.4	83,909

[1]FCT – Federal Capital Territory.

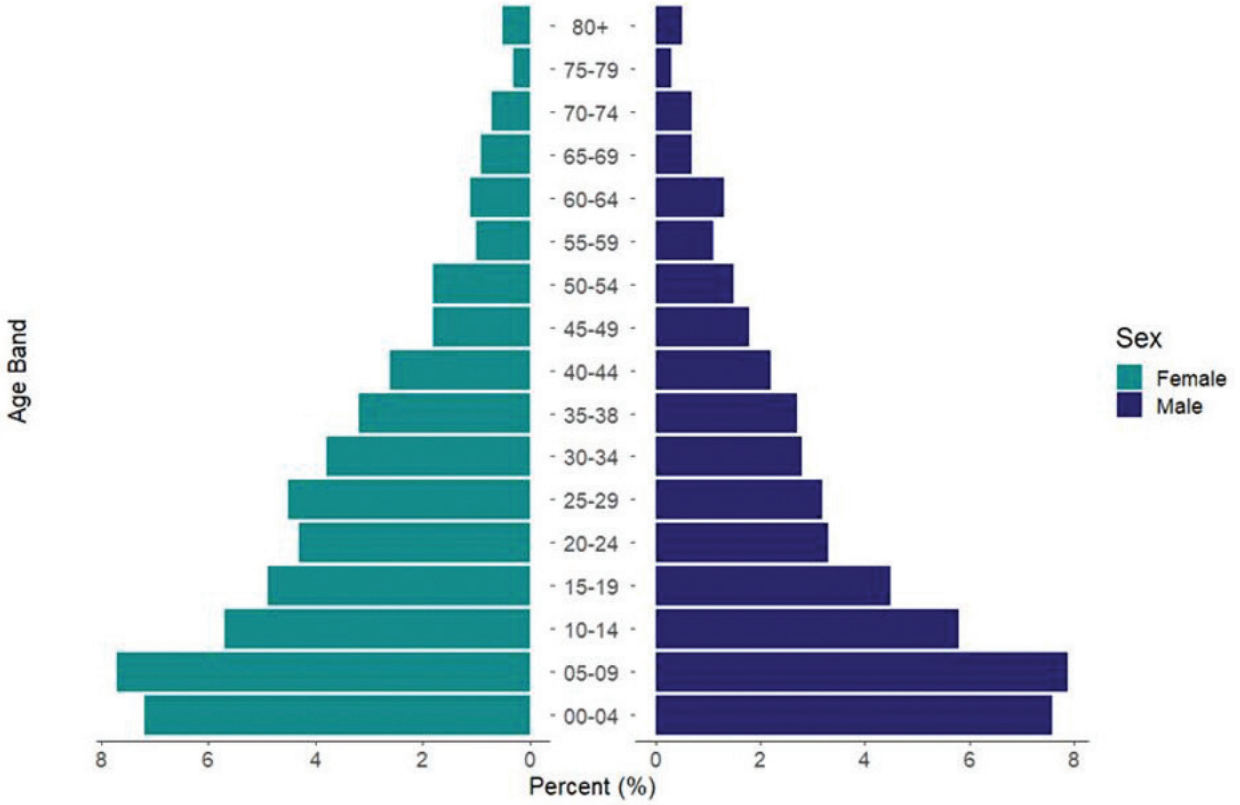

Figure 4.A **Distribution of the *de facto* population by sex and age, NAIIS 2018**

Table 4.B Distribution of *de facto* household population by sex and age

Percent distribution of *de facto* household population by sex and five-year age group, NAIIS 2018

	Males		Females		Total	
Age (years)	Percent	Number	Percent	Number	Percent	Number
0-4	7.6	28,284	7.2	27,122	14.8	55,406
5-9	7.9	29,850	7.6	28,473	15.5	58,323
10-14	5.8	22,235	5.7	21,353	11.5	43,588
15-19	4.5	17,146	4.9	18,898	9.4	36,044
20-24	3.3	12,768	4.3	16,619	7.6	29,387
25-29	3.2	12,669	4.5	17,410	7.7	30,079
30-34	2.8	10,870	3.8	14,397	6.6	25,267
35-39	2.7	10,337	3.2	12,389	5.9	22,726
40-44	2.2	8,389	2.6	10,022	4.8	18,411
45-49	1.8	6,883	1.8	7,272	3.6	14,155
50-54	1.5	6,002	1.8	6,892	3.3	12,894
55-59	1.1	4,356	1.0	3,988	2.1	8,344
60-64	1.3	5,024	1.1	4,670	2.4	9,694
65-69	0.7	2,690	0.9	3,863	1.6	6,553
70-74	0.7	2,695	0.7	2,851	1.4	5,546
75-79	0.3	1,393	0.3	1,311	0.7	2,704
≥80	0.5	2,131	0.5	2,322	1.1	4,453
Total	47.9	183,722	52.1	199,852	100.0	383,574

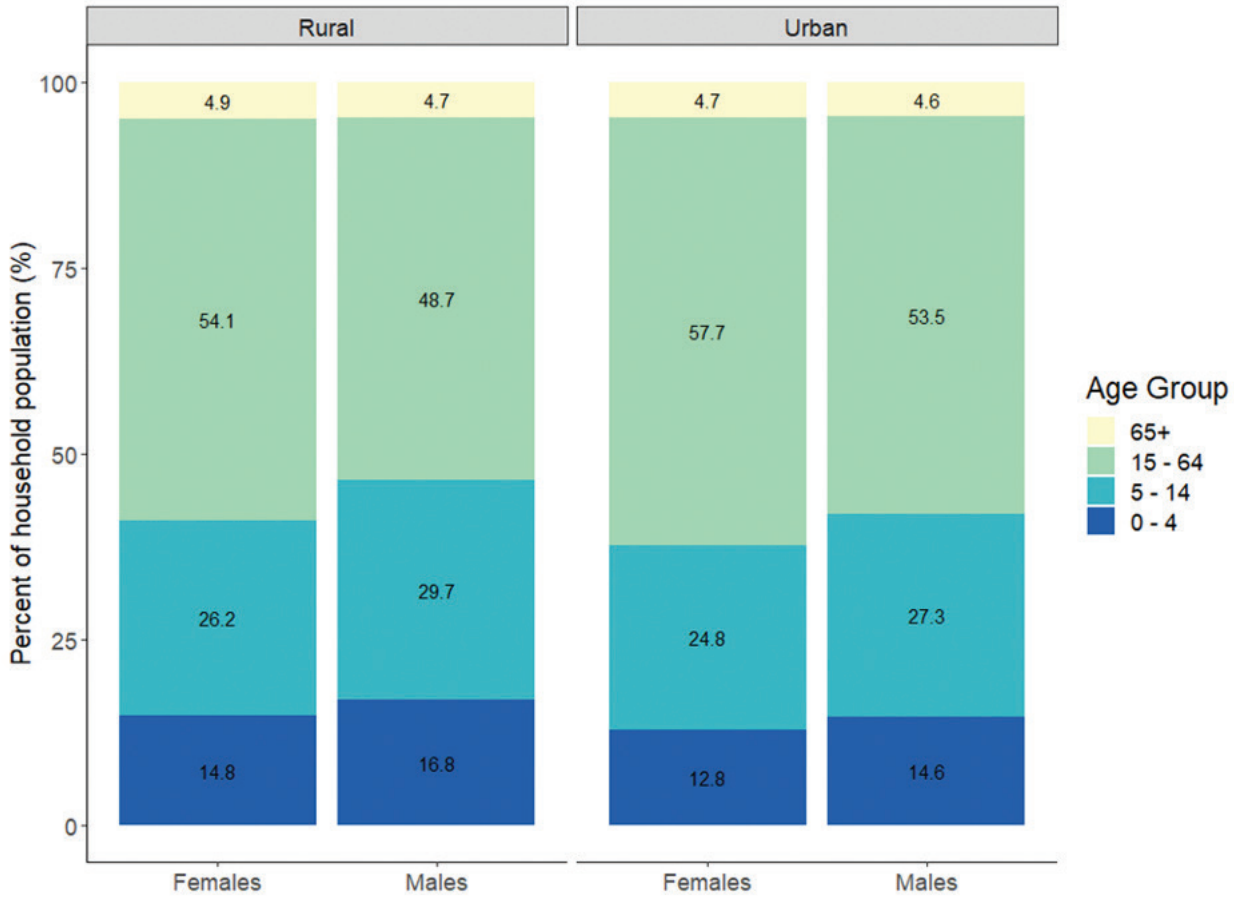

Figure 4.B **Household population by age, sex and residence, NAIIS 2018**

Table 4.C Distribution of *de facto* household population by sex, age and place of residence

Percent distribution of the *de facto* household population by sex, age and place of residence, NAIIS 2018

	Urban						Rural					
	Males		Females		Total		Males		Females		Total	
Age (years)	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number
0-4	14.6	10,516	12.8	10,299	13.7	20,815	16.8	17,768	14.8	16,823	15.8	34,591
5-14	27.3	19,998	24.8	19,769	26.0	39,767	29.7	32,087	26.2	30,057	27.9	62,144
15-64	53.5	40,559	57.7	48,117	55.7	88,676	48.7	53,885	54.1	64,440	51.5	118,325
≥65	4.6	3,601	4.7	4,316	4.7	7,917	4.7	5,308	4.9	6,031	4.8	11,339
Total	100.0	74,674	100.0	82,501	100.0	157,175	100.0	109,048	100.0	117,351	100.00	226,399

Table 4.D Prevalence of HIV-affected households

Percentage of households with at least one *de facto* household member who tested HIV positive by state and place of residence, NAIIS 2018

Socio-demographic characteristics	Urban				Rural				Total			
	Percent	LCL[1]	UCL[2]	Number	Percent	LCL[1]	UCL[2]	Number	Percent	LCL[1]	UCL[2]	Number
State												
Abia	4.9	3.3	6.6	766	5.2	4.1	6.3	1,550	5.1	4.2	6.1	2,316
Adamawa	4.9	3.2	6.6	599	1.9	1.0	2.9	1,402	2.7	1.8	3.6	2,001
Akwa Ibom	7.8	5.5	10.1	293	9.8	8.2	11.3	1,915	9.4	8.0	10.8	2,208
Anambra	5.0	3.5	6.6	1,674	5.8	3.0	8.7	331	5.1	3.7	6.5	2,005
Bauchi	1.9	0.0	3.8	275	1.2	0.6	1.8	1,864	1.3	0.8	1.9	2,139
Bayelsa	3.7	2.0	5.4	533	3.1	2.3	4.0	1,545	3.3	2.5	4.1	2,078
Benue	9.7	5.0	14.3	316	9.4	7.4	11.4	1,771	9.4	7.7	11.3	2,087
Borno	2.3	0.9	3.8	509	2.0	0.0	4.2	261	2.2	1.1	3.4	770
Cross River	3.2	1.2	5.2	452	3.9	2.9	5.0	1,702	3.8	2.9	4.8	2,154
Delta	3.6	2.5	4.8	875	3.2	1.9	4.4	1,220	3.4	2.5	4.3	2,095
Ebonyi	2.3	0.9	3.7	442	2.0	1.3	2.7	1,959	2.0	1.4	2.7	2,401
Edo	3.2	2.2	4.1	1,229	3.4	2.1	4.6	983	3.2	2.6	4.0	2,212
Ekiti	1.3	0.7	1.9	1,500	1.1	0.1	2.1	480	1.3	0.8	1.8	1,980
Enugu	2.4	1.2	3.6	655	4.5	3.3	5.7	1,448	3.9	3.0	4.9	2,103
FCT[3]	3.3	2.3	4.2	1,904	4.2	0.6	7.7	177	3.3	2.4	4.3	2,081
Gombe	5.4	3.4	7.5	630	2.4	1.0	3.8	1,545	3.2	2.0	4.5	2,175
Imo	3.0	1.4	4.6	661	4.8	3.3	6.3	1,533	4.2	3.1	5.4	2,194
Jigawa	1.0	0.4	1.5	1,083	0.6	0.0	1.2	1,040	0.8	0.4	1.2	2,123
Kaduna	3.2	1.7	4.7	1,117	1.7	0.4	2.9	805	2.6	1.6	3.6	1,922
Kano	1.5	0.5	2.6	1,064	1.0	0.2	1.7	634	1.3	0.6	2.1	1,698
Katsina	1.1	0.0	2.6	280	0.5	0.1	1.0	1,496	0.6	0.2	1.1	1,776
Kebbi	3.2	1.1	5.2	339	0.8	0.4	1.3	1,471	1.3	0.7	1.9	1,810
Kogi	1.9	0.9	2.9	1,133	2.1	0.9	3.2	831	2.0	1.3	2.7	1,964
Kwara	2.1	1.1	3.1	973	1.7	0.8	2.5	845	1.9	1.2	2.6	1,818
Lagos	2.6	2.0	3.2	3,046	5.0	2.7	7.3	384	2.8	2.3	3.3	3,430
Nasarawa	4.0	2.4	5.5	623	4.8	3.4	6.2	1,359	4.6	3.6	5.6	1,982
Niger	3.3	0.9	5.7	448	1.6	1.0	2.3	1,679	1.9	1.2	2.6	2,127
Ogun	3.1	2.1	4.1	1,235	2.4	0.9	3.9	688	2.9	2.0	3.7	1,923
Ondo	1.7	0.7	2.8	1,016	2.1	1.2	3.0	1,138	1.9	1.2	2.6	2,154
Osun	1.7	1.1	2.4	1,713	1.4	0.0	2.9	250	1.7	1.1	2.3	1,963
Oyo	1.9	1.2	2.6	1,575	1.1	0.3	1.9	643	1.7	1.1	2.3	2,218
Plateau	5.1	3.5	6.8	746	2.7	2.0	3.5	1,458	3.5	2.7	4.3	2,204

Table 4.D Prevalence of HIV-affected households (continued)

Percentage of households with at least one *de facto* household member who tested HIV positive by state and place of residence, NAIIS 2018

Socio-demographic characteristics	Urban				Rural				Total			
	Percent	LCL[1]	UCL[2]	Number	Percent	LCL[1]	UCL[2]	Number	Percent	LCL[1]	UCL[2]	Number
State												
Rivers	5.4	3.4	7.5	696	7.9	6.2	9.6	1,279	7.0	5.7	8.4	1,975
Sokoto	0.7	0.0	1.5	528	0.9	0.3	1.5	1,217	0.8	0.3	1.3	1,745
Taraba	8.0	4.2	11.8	384	7.0	5.2	8.7	1,881	7.1	5.6	8.7	2,265
Yobe	1.4	0.0	2.9	331	0.7	0.2	1.2	1,321	0.8	0.3	1.4	1,652
Zamfara	0.2	0.0	0.6	389	1.0	0.3	1.8	641	0.7	0.2	1.2	1,030
Wealth quintile												
Lowest	1.2	0.6	1.7	1,528	1.8	1.5	2.1	12,272	1.7	1.5	2.0	13,800
Second	2.0	1.4	2.6	2,677	2.8	2.4	3.2	11,466	2.6	2.3	3.0	14,143
Middle	2.9	2.4	3.5	5,620	4.4	3.9	4.9	10,337	3.8	3.5	4.2	15,957
Fourth	3.0	2.6	3.5	9,936	5.0	4.3	5.6	6,261	3.7	3.4	4.1	16,197
Highest	3.0	2.6	3.4	12,271	4.8	3.8	5.9	2,410	3.3	2.9	3.6	14,681
Total	2.8	2.6	3.1	32,032	3.3	3.1	3.6	42,746	3.1	2.9	3.2	74,778

[1]LCL – lower confidence limit.
[2]UCL – upper confidence limit.
[3]FCT – Federal Capital Territory.

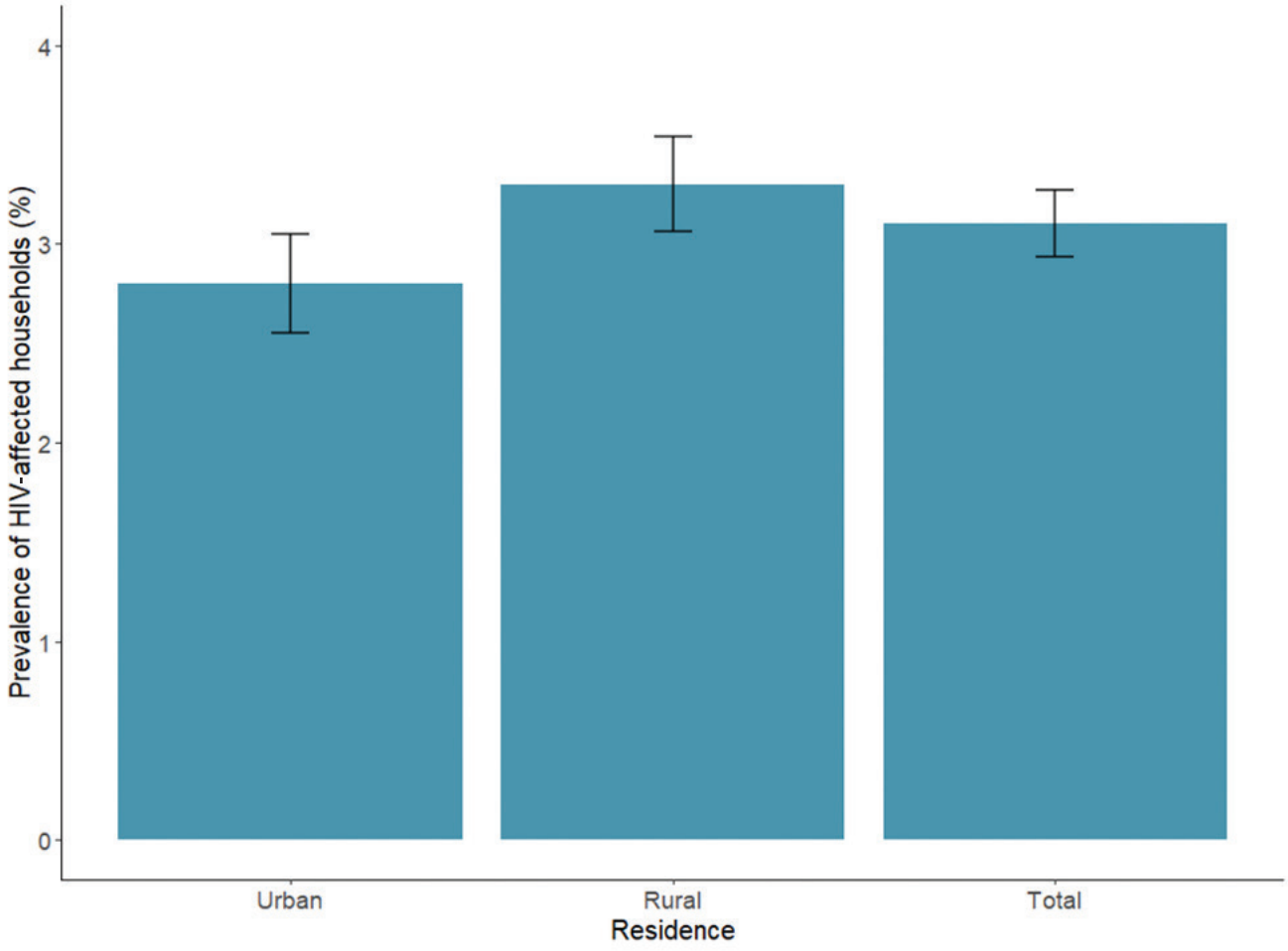

Figure 4.C Prevalence of HIV-affected households by place of residence, NAIIS 2018

Table 4.E HIV-affected households by number of HIV-positive members

Percent distribution of households with at least one de facto HIV-positive household member by number of HIV-positive household members by place of residence, NAIIS 2018

	Place of residence					
	Urban		Rural		Total	
Number of HIV-positive household members	Percent	Number	Percent	Number	Percent	Number
1	88.5	855	87.4	1,276	87.9	2,131
2	10.8	104	11.4	170	11.2	274
3	*	5	*	15	*	20
≥4	*	0	*	0	*	0
Total	100.0	964	100.0	1,461	100.0	2,425

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 4.F 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 and place of residence, NAIIS 2018

Socio-demographic characteristics	Percent	LCL[1]	UCL[2]	Number
Sex of head of household				
Male	1.3	1.2	1.5	43,827
Female	3.4	3.1	3.8	18,398
Place of residence				
Urban	1.9	1.7	2.1	26,394
Rural	2.0	1.8	2.2	35,831
Total	1.9	1.8	2.1	62,225

[1]LCL – lower confidence interval.
[2]UCL – upper confidence interval.

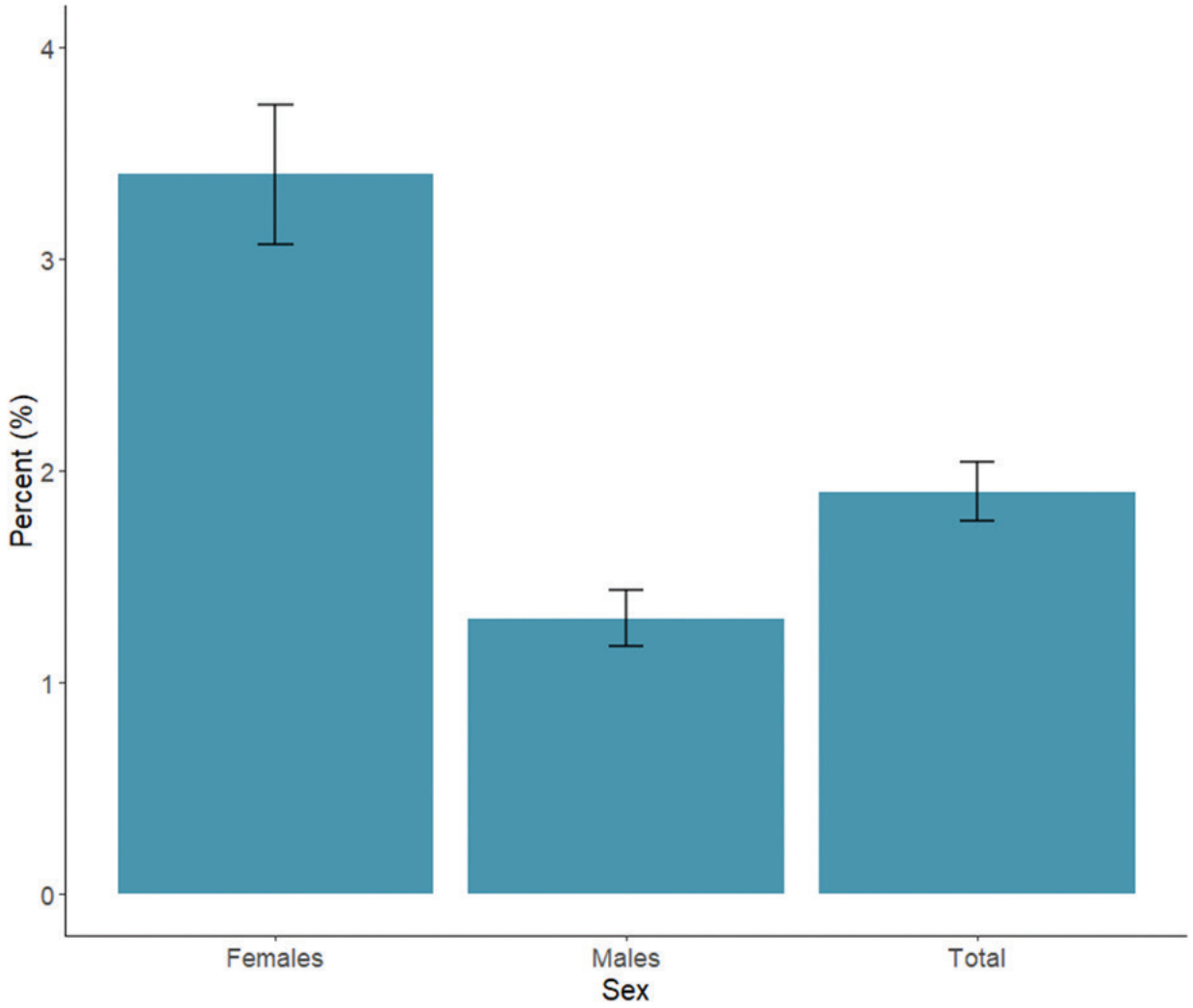

Figure 4.E **Prevalence of households with an HIV-positive head of household by sex, NAIIS 2018**

5. Survey Respondent Characteristics

5.1 Background

This chapter summarizes the basic demographic and socioeconomic characteristics of survey respondents (children (aged ≤14 years), adolescents (aged 10-14 years) and adults (aged 15-64 years). The key indicators in this report are stratified according to these characteristics.

5.2 Demographic Characteristics of the Adult Population

The distribution of the adult population showed a variation between rural (51.8%) and urban (48.2%) dwellers but no variation by sex (Table 5.A).

5.3 Results

Tables 5.A to 5.C present the demographic characteristics of NAIIS respondents.

5.3.1 Key Findings

- Among adult respondents, 87.3% were aged 15-49 years (Table 5.A).
- Among children, 35.5% were aged 5-9 years (Table 5.B).
- Among adult respondents, 57.5% were either married or living together with a higher proportion among women (64.1%) than men (51.2%) (Table 5.A).
- Among adult respondents, 41.8% attained secondary education while 18.0% had no education (Table 5.A).

Table 5.A Demographic characteristics of the adult population

Percent distribution of *de facto* population aged 15-64 years by sex and other selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percent	Number	Percent	Number	Percent	Number
Place of residence						
Urban	48.1	34,635	48.2	43,953	48.2	78,588
Rural	51.9	48,705	51.8	59,112	51.8	107,817
Marital status						
Never married	46.8	34,157	25.9	24,339	36.6	58,496
Married or living together	51.2	47,079	64.1	67,382	57.5	114,461
Divorced or separated	1.5	1,346	3.1	3,289	2.3	4,635
Widowed	0.6	619	6.9	7,939	3.7	8,558
Type of union						
In polygynous union	9.3	8,611	22.7	23,041	15.9	31,652
Not in polygynous union	41.6	38,139	41.2	43,889	41.5	82,028
Not currently in union	49.0	36,122	36.1	35,567	42.7	71,689
Education[1]						
No education	10.6	9,878	25.7	27,876	18.0	37,754
Primary	16.0	14,588	18.4	20,078	17.2	34,666
Secondary	46.1	36,387	37.3	37,606	41.8	73,993
Tertiary	18.8	15,976	11.2	11,825	15.1	27,801
Others	8.4	6,443	7.4	5,561	7.9	12,004
Wealth quintile						
Lowest	17.9	15,831	17.6	18,465	17.8	34,296
Second	18.7	16,154	18.9	19,956	18.8	36,110
Middle	19.7	17,529	20.1	22,201	19.9	39,730
Fourth	21.1	17,573	21.4	22,311	21.3	39,884
Highest	22.6	16,253	22.0	20,132	22.3	36,385
Age (years)						
15-19	19.8	14,323	19.5	16,669	19.7	30,992
20-24	16.4	11,111	16.2	15,141	16.3	26,252
25-29	13.9	11,322	13.8	16,022	13.8	27,344
30-34	12.1	9,680	12.0	13,295	12.0	22,975
35-39	10.4	9,187	10.4	11,477	10.4	20,664
40-44	8.5	7,380	8.5	9,275	8.5	16,655
45-49	6.6	6,166	6.6	6,714	6.6	12,880
50-54	5.2	5,432	5.4	6,418	5.3	11,850
55-59	4.0	4,011	4.3	3,673	4.2	7,684
60-64	3.0	4,728	3.4	4,381	3.2	9,109

Table 5.A Demographic characteristics of the adult population (continued)

Percent distribution of *de facto* population aged 15-64 years by sex and other selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percent	Number	Percent	Number	Percent	Number
Total 15-24 years	36.2	25,434	35.8	31,810	36.0	57,244
Total 15-49 years	87.7	69,169	86.9	88,593	87.3	157,762
Total 15-64 years	100.0	83,340	100.0	103,065	100.0	186,405

[1]Education categories refer to the highest level of education attended, whether that level was completed.

Table 5.B Demographic characteristics of the paediatric population (0-14 years old)

Percent distribution of *de facto* population aged 0-14 years by sex and other selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percent	Number	Percent	Number	Percent	Number
Age						
0-17 months	8.5	2,131	8.1	2,021	8.3	4,152
18-59 months	24.0	6,089	23.3	5,748	23.6	11,837
5-9 years	35.0	8,628	36.0	8,366	35.5	16,994
10-14 years	32.6	5,385	32.6	5,280	32.6	10,665
Place of residence						
Urban	48.1	9,104	49.2	8,943	48.6	18,047
Rural	51.9	13,129	50.8	12,472	51.4	25,601
Geopolitical zone						
North West	40.9	6,588	42.0	6,495	41.4	13,083
North East	14.6	3,761	13.5	3,470	14.1	7,231
North Central	9.2	3,196	9.0	3,039	9.1	6,235
South East	7.7	2,591	7.9	2,496	7.8	5,087
South South	10.1	2,706	10.3	2,718	10.2	5,424
South West	17.5	3,391	17.3	3,197	17.4	6,588
Total 0-4 years	32.4	8,220	31.4	7,769	31.9	15,989
Total 0-14 years	100.0	22,233	100.0	21,415	100.0	43,648

Table 5.C Demographic characteristics of the young adolescent population

Percent distribution of the *de facto* population aged 10-14 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
Place of residence						
Urban	46.1	2,394	47.4	2,388	46.8	4,782
Rural	53.9	2,991	52.6	2,892	53.2	5,883
Geopolitical zone						
North West	28.7	1,455	30.5	1,506	29.6	2,961
North East	15.8	850	15.2	832	15.5	1,682
North Central	13.4	786	12.6	741	13.0	1,527
South East	11.0	675	11.0	630	11.0	1,305
South South	12.3	735	12.8	742	12.5	1,477
South West	18.7	884	18.0	829	18.4	1,713
Total 10-14 years	100.0	5,385	100.0	5,280	100.0	10,665

6. HIV Incidence

6.1 Background

HIV incidence, the measure of new HIV infections in a population over time, provides important information on the status of the HIV epidemic. HIV incidence can be used for effective targeted HIV prevention planning in groups that are most vulnerable to recent HIV infection and to measure the impact of HIV prevention interventions. For the purposes of this analysis, HIV incidence among adults aged 15-64 years is expressed as the cumulative incidence or risk of new infections in a 12-month period, a close approximation to the instantaneous incidence rate (Appendix B). NAIIS was not powered to estimate incidence at the sub-national level or across sub-groups.

6.2 Results

Tables 6.A and 6.B present HIV incidence in Nigeria at the time of the survey.

6.2.1 Key Findings

- The annual incidence of HIV among adults aged 15-64 years was 0.08% (women 0.12%, men 0.05%). This corresponds to 8 new infections per 10,000 persons per year (Table 6.A).
- Annual HIV incidence peaked at 0.22% among women aged 25-34 years and at 0.10% among men in the same age group (Table 6.A).

Table 6.A Annual HIV incidence using LAg/VL[1] testing algorithm

Annual incidence of HIV among persons aged 15-64 years by sex and age using LAg/VL[1] algorithm, NAIIS 2018

Age (years)	Males		Females		Total	
	Percentage annual incidence[2]	95% CI[3]	Percentage annual incidence[2]	95% CI[3]	Percentage annual incidence[2]	95% CI[3]
15-24	0.03	(0.00,0.07)	0.05	(0.01,0.10)	0.04	(0.01,0.07)
25-34	0.10	(0.01,0.19)	0.22	(0.08,0.37)	0.16	(0.07,0.25)
35-49	0.05	(0.00,0.15)	0.10	(0.02,0.18)	0.08	(0.02,0.14)
15-49	0.06	(0.02,0.10)	0.12	(0.07,0.17)	0.09	(0.05,0.12)
15-64	0.05	(0.02,0.09)	0.12	(0.07,0.17)	0.08	(0.05,0.12)

[1] LAg/VL: Limiting antigen/viral load.
[2] Relates to Global AIDS Monitoring indicator 3.1: HIV incidence.
[3] 95% CI (confidence interval) indicates the interval within which the true population parameter is expected to fall 95% of the time.

Table 6.B Annual HIV incidence using LAg/VL/ARV[1] testing algorithm

Annual incidence of HIV among persons aged 15-64 years by sex and age using LAg/VL/ARV[1] algorithm, NAIIS 2018

Age (years)	Males		Females		Total	
	Percentage annual incidence[2]	95% CI[3]	Percentage annual incidence[2]	95% CI[3]	Percentage annual incidence[2]	95% CI[3]
15-24	0.03	(0.00,0.07)	0.05	(0.01,0.10)	0.04	(0.01,0.07)
25-34	0.10	(0.01,0.19)	0.21	(0.07,0.35)	0.15	(0.07,0.24)
35-49	0.05	(0.00,0.15)	0.10	(0.02,0.18)	0.08	(0.01,0.14)
15-49	0.06	(0.02,0.10)	0.11	(0.06,0.16)	0.08	(0.05,0.12)
15-64	0.05	(0.02,0.09)	0.11	(0.06,0.16)	0.08	(0.05,0.11)

[1] LAg/VL/ARV: Limiting antigen/viral load/antiretrovirals.
[2] Relates to Global AIDS Monitoring indicator 3.1: HIV incidence.
[3] 95% CI (confidence interval) indicates the interval within which the true population parameter is expected to fall 95% of the time.

7. HIV Prevalence

7.1 Background

This chapter presents representative estimates of HIV prevalence among adults aged 15-64 years at the national and state level by selected demographic and behavioral characteristics. HIV prevalence testing was conducted in each household using a serological rapid diagnostic testing algorithm based on Nigeria's National HIV Testing Guidelines, with laboratory confirmation of seropositive specimens using a supplemental assay. Appendix A describes the sample design and Appendix B describes the NAIIS HIV testing methodology. Appendix C provides estimates of sampling errors.

7.2 Results

Tables 7.A to 7.C and Figures 7.A to 7.D present HIV prevalence data from the survey.

7.2.1 Key Findings

- HIV prevalence among adults aged 15-64 years was 1.4%. This was lower among men (1.0%) than women (1.8%) and lower in urban (1.3%) areas than in rural (1.5%) areas (Table 7.A).
- HIV prevalence among adults aged 15-49 years was 1.3%. This was lower among men (0.8%) than women (1.7%) and lower in urban (1.1%) than in rural (1.4%) areas (Table 7.B).
- Among adults aged 15-49 years, Akwa Ibom State had the highest HIV prevalence (4.8%) followed by Benue State (4.3%) and Rivers State (3.6%) (Table 7.B).
- Among adults aged 15-49 years, Jigawa and Katsina States had the lowest prevalence at 0.3% each (Table 7.B).

Table 7.A HIV prevalence by demographic characteristics, persons aged 15-64 years

HIV prevalence among persons aged 15-64 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percentage HIV positive	LCL[1]	UCL[2]	Number	Percentage HIV positive	LCL[1]	UCL[2]	Number	Percentage HIV positive	LCL[1]	UCL[2]	Number
Place of residence												
Urban	0.9	0.8	1.0	32,172	1.6	1.5	1.8	40,618	1.3	1.1	1.4	72,790
Rural	1.0	0.9	1.2	45,798	1.9	1.8	2.1	55,128	1.5	1.4	1.6	100,926
State												
Abia	1.7	1.2	2.3	2,306	2.2	1.7	2.7	3,461	2.0	1.6	2.4	5,767
Adamawa	0.8	0.5	1.1	2,601	1.4	0.8	2.0	2,685	1.1	0.7	1.4	5,286
Akwa Ibom	2.9	2.1	3.7	1,939	6.7	5.5	7.8	2,442	4.8	4.0	5.5	4,381
Anambra	1.8	1.1	2.4	1,922	2.6	1.8	3.4	2,731	2.2	1.6	2.8	4,653
Bauchi	0.4	0.1	0.7	2,921	0.6	0.2	1.0	3,203	0.5	0.2	0.8	6,124
Bayelsa	1.4	0.9	2.0	1,722	2.1	1.5	2.7	2,170	1.7	1.3	2.2	3,892
Benue	3.5	2.6	4.3	2,156	6.3	5.0	7.6	2,410	4.8	3.9	5.7	4,566
Borno	1.0	0.2	1.8	795	1.2	0.5	1.9	1,020	1.1	0.5	1.7	1,815
Cross River	1.6	1.1	2.0	2,116	2.1	1.4	2.7	2,501	1.8	1.3	2.3	4,617
Delta	1.2	0.6	1.8	1,580	2.2	1.5	2.9	2,349	1.7	1.3	2.2	3,929
Ebonyi	0.7	0.4	1.0	2,400	0.9	0.6	1.2	4,013	0.8	0.6	1.0	6,413
Edo	1.2	0.7	1.6	1,891	2.3	1.7	3.0	2,427	1.8	1.4	2.2	4,318
Ekiti	0.3	0.1	0.6	1,606	1.1	0.6	1.6	2,007	0.7	0.4	1.0	3,613
Enugu	1.3	0.7	1.8	1,806	2.2	1.6	2.8	2,950	1.8	1.3	2.2	4,756
FCT[3]	0.8	0.4	1.1	2,271	2.2	1.5	2.9	2,360	1.4	1.0	1.8	4,631
Gombe	0.8	0.4	1.2	3,283	1.6	1.0	2.3	3,256	1.2	0.7	1.6	6,539
Imo	1.3	0.7	1.9	2,190	2.0	1.5	2.6	3,253	1.7	1.2	2.1	5,443
Jigawa	0.1	0.0	0.3	2,766	0.5	0.2	0.8	2,936	0.3	0.2	0.5	5,702
Kaduna	0.6	0.3	1.0	2,471	1.4	0.8	2.0	2,782	1.0	0.6	1.4	5,253
Kano	0.4	0.1	0.6	2,125	0.7	0.3	1.2	2,262	0.6	0.3	0.9	4,387
Katsina	0.2	0.0	0.5	1,915	0.4	0.0	0.7	2,209	0.3	0.1	0.5	4,124
Kebbi	0.4	0.1	0.7	1,975	0.8	0.4	1.3	2,268	0.6	0.3	0.9	4,243
Kogi	0.5	0.1	0.8	1,846	1.2	0.8	1.7	2,345	0.8	0.5	1.2	4,191
Kwara	0.4	0.2	0.7	1,913	1.3	0.8	1.8	2,164	0.8	0.5	1.2	4,077
Lagos	0.8	0.5	1.2	3,111	1.9	1.4	2.3	4,391	1.3	1.0	1.6	7,502
Nasarawa	1.3	0.9	1.7	2,566	2.4	1.7	3.0	2,802	1.8	1.3	2.2	5,368
Niger	0.4	0.2	0.6	2,802	1.0	0.6	1.3	3,147	0.6	0.4	0.9	5,949
Ogun	0.9	0.5	1.3	1,424	1.9	1.2	2.5	2,160	1.4	1.0	1.8	3,584
Ondo	0.8	0.3	1.2	1,777	1.3	0.7	1.8	2,317	1.0	0.6	1.4	4,094

Table 7.A HIV prevalence by demographic characteristics, persons aged 15-64 years (continued)

HIV prevalence among persons aged 15-64 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percentage HIV positive	LCL[1]	UCL[2]	Number	Percentage HIV positive	LCL[1]	UCL[2]	Number	Percentage HIV positive	LCL[1]	UCL[2]	Number
Osun	0.7	0.4	1.1	1,515	1.0	0.6	1.5	2,122	0.9	0.6	1.2	3,637
Oyo	0.8	0.4	1.3	1,822	1.0	0.5	1.4	2,296	0.9	0.6	1.2	4,118
Plateau	0.6	0.3	0.9	2,370	2.3	1.7	2.9	2,904	1.5	1.1	1.8	5,274
Rivers	2.8	1.8	3.7	1,791	4.6	3.6	5.7	2,164	3.6	2.9	4.3	3,955
Sokoto	0.4	0.1	0.7	1,956	0.4	0.1	0.7	2,080	0.4	0.2	0.6	4,036
Taraba	1.7	1.3	2.2	3,119	3.6	2.6	4.6	3,653	2.6	2.0	3.3	6,772
Yobe	0.5	0.1	0.8	2,153	0.3	0.0	0.5	2,147	0.4	0.1	0.6	4,300
Zamfara	0.3	0.0	0.7	1,048	0.5	0.2	0.9	1,359	0.4	0.1	0.7	2,407
Marital status												
Never married	0.4	0.4	0.5	31,791	1.3	1.1	1.4	22,743	0.7	0.6	0.8	54,534
Married or living together	1.3	1.2	1.4	44,216	1.4	1.3	1.6	62,473	1.4	1.3	1.5	106,689
Divorced or separated	3.3	2.1	4.5	1,264	5.6	4.7	6.5	3,053	4.8	4.1	5.6	4,317
Widowed	6.9	4.5	9.4	572	5.1	4.5	5.8	7,385	5.3	4.6	5.9	7,957
Type of union												
In polygynous union	1.0	0.8	1.3	8,262	1.2	1.0	1.4	21,569	1.2	1.0	1.3	29,831
Not in polygynous union	1.4	1.2	1.5	35,658	1.6	1.4	1.7	40,496	1.5	1.3	1.6	76,154
Not currently in union	0.6	0.5	0.7	33,627	2.4	2.2	2.6	33,181	1.3	1.2	1.4	66,808
Education[4]												
No education	0.8	0.6	1.0	9,159	1.3	1.1	1.5	25,614	1.1	1.0	1.3	34,773
Primary	1.3	1.1	1.6	13,706	2.5	2.3	2.8	18,838	2.0	1.8	2.1	32,544
Secondary	1.0	0.9	1.1	34,040	1.9	1.7	2.1	35,248	1.4	1.3	1.5	69,288
Tertiary	0.9	0.7	1.1	14,897	1.9	1.6	2.2	10,866	1.3	1.1	1.5	25,763
Others	0.4	0.2	0.7	6,121	0.6	0.3	0.9	5,086	0.5	0.3	0.7	11,207

Table 7.A HIV prevalence by demographic characteristics, persons aged 15-64 years (continued)

HIV prevalence among persons aged 15-64 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percentage HIV positive	LCL[1]	UCL[2]	Number	Percentage HIV positive	LCL[1]	UCL[2]	Number	Percentage HIV positive	LCL[1]	UCL[2]	Number
Wealth quintile												
Lowest	0.6	0.4	0.7	14,989	1.0	0.8	1.2	17,055	0.8	0.7	0.9	32,044
Second	0.8	0.6	1.0	15,230	1.5	1.3	1.7	18,500	1.1	1.0	1.3	33,730
Middle	1.1	0.9	1.3	16,324	2.3	2.1	2.6	20,667	1.7	1.5	1.9	36,991
Fourth	1.1	0.9	1.3	16,468	2.2	1.9	2.4	20,835	1.6	1.5	1.8	37,303
Highest	1.1	0.9	1.4	14,959	1.8	1.5	2.0	18,689	1.4	1.3	1.6	33,648
Pregnancy status												
Currently pregnant	NA	NA	NA	NA	1.1	0.9	1.4	7,039	NA	NA	NA	NA
Not currently pregnant	NA	NA	NA	NA	1.8	1.7	1.9	87,531	NA	NA	NA	NA
Total 15-64 years	1.0	0.9	1.0	77,970	1.8	1.7	1.9	95,746	1.4	1.3	1.4	173,716

[1]LCL – lower confidence limit.
[2]UCL – upper confidence limit.
[3]FCT – Federal Capital Territory.
[4]Education categories refer to the highest level of education attended, whether that level was completed.
NA – not applicable.

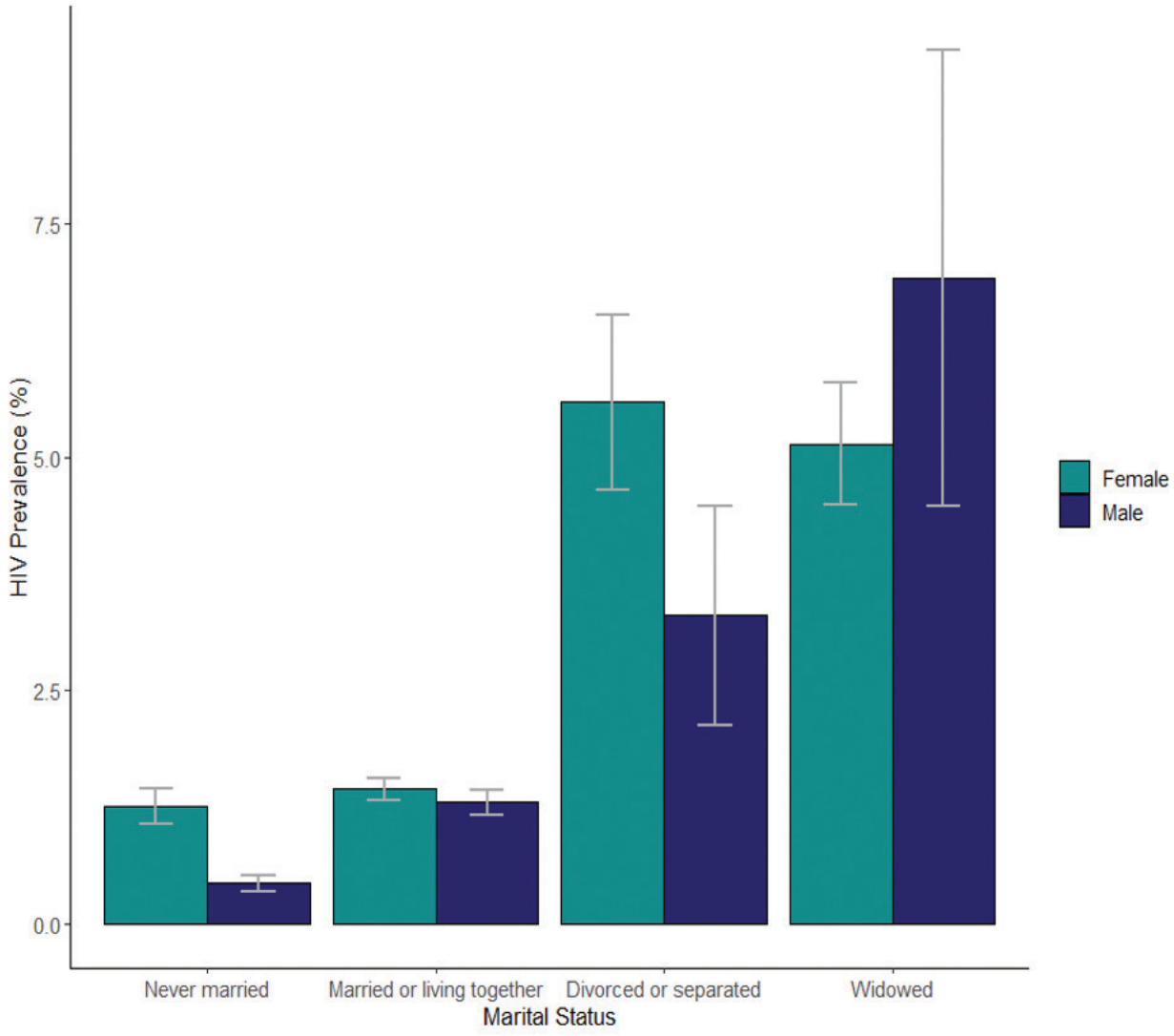

Figure 7.A **HIV prevalence by marital status, persons aged 15-64 years, NAIIS 2018**

Table 7.B HIV prevalence by demographic characteristics, persons aged 15-49 years

HIV prevalence among persons aged 15-49 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percent HIV positive	LCL[1]	UCL[2]	Number	Percent HIV positive	LCL[1]	UCL[2]	Number	Percent HIV positive	LCL[1]	UCL[2]	Number
Place of residence												
Urban	0.7	0.6	0.9	26,969	1.6	1.4	1.8	35,072	1.1	1.0	1.3	62,041
Rural	0.9	0.8	1.1	37,698	1.9	1.7	2.0	47,347	1.4	1.3	1.5	85,045
States												
Abia	1.6	0.9	2.2	1,706	2.3	1.7	2.9	2,658	2.0	1.5	2.4	4,364
Adamawa	0.8	0.4	1.1	2,205	1.4	0.8	2.0	2,414	1.1	0.7	1.4	4,619
Akwa Ibom	2.8	1.9	3.6	1,590	6.9	5.8	8.1	2,024	4.8	4.0	5.6	3,614
Anambra	1.6	0.9	2.3	1,521	2.8	1.9	3.7	2,192	2.2	1.5	2.9	3,713
Bauchi	0.4	0.1	0.7	2,480	0.4	0.1	0.7	2,894	0.4	0.2	0.6	5,374
Bayelsa	1.3	0.8	1.9	1,514	2.0	1.3	2.6	1,907	1.6	1.2	2.1	3,421
Benue	2.7	1.9	3.5	1,790	6.2	4.9	7.4	2,073	4.3	3.5	5.2	3,863
Borno	1.1	0.3	2.0	675	1.2	0.6	1.9	901	1.2	0.5	1.9	1,576
Cross River	1.2	0.7	1.6	1,787	2.0	1.3	2.6	2,169	1.6	1.1	2.0	3,956
Delta	0.9	0.4	1.4	1,289	2.4	1.6	3.1	1,976	1.7	1.2	2.2	3,265
Ebonyi	0.5	0.2	0.9	1,823	0.9	0.6	1.2	3,260	0.7	0.5	1.0	5,083
Edo	1.0	0.5	1.4	1,512	2.2	1.5	2.8	2,014	1.6	1.1	2.0	3,526
Ekiti	0.2	0.0	0.5	1,266	1.0	0.5	1.4	1,600	0.6	0.3	0.8	2,866
Enugu	1.2	0.6	1.9	1,420	2.4	1.7	3.2	2,316	1.9	1.3	2.4	3,736
FCT[3]	0.6	0.2	1.0	1,974	2.1	1.4	2.8	2,148	1.3	0.9	1.7	4,122
Gombe	0.7	0.3	1.1	2,861	1.6	1.0	2.2	2,929	1.1	0.6	1.5	5,790
Imo	1.0	0.4	1.5	1,596	1.9	1.4	2.5	2,451	1.5	1.0	2.0	4,047
Jigawa	0.1	0.0	0.3	2,284	0.5	0.2	0.8	2,674	0.3	0.1	0.5	4,958
Kaduna	0.5	0.1	0.8	2,151	1.3	0.7	2.0	2,505	0.9	0.5	1.3	4,656
Kano	0.3	0.1	0.5	1,805	0.7	0.3	1.1	2,060	0.5	0.2	0.8	3,865
Katsina	0.2	0.0	0.5	1,554	0.3	0.0	0.6	2,001	0.3	0.0	0.5	3,555
Kebbi	0.4	0.1	0.8	1,636	0.8	0.4	1.3	2,087	0.6	0.3	0.9	3,723
Kogi	0.4	0.1	0.8	1,529	1.3	0.8	1.9	1,954	0.9	0.5	1.2	3,483
Kwara	0.4	0.1	0.7	1,585	1.4	0.8	1.9	1,814	0.8	0.5	1.2	3,399
Lagos	0.7	0.3	1.1	2,635	1.7	1.3	2.2	3,787	1.2	0.9	1.5	6,422
Nasarawa	1.1	0.7	1.5	2,285	2.3	1.7	2.9	2,510	1.6	1.2	2.1	4,795
Niger	0.3	0.1	0.6	2,388	0.9	0.6	1.3	2,898	0.6	0.4	0.9	5,286
Ogun	0.5	0.1	0.8	1,145	1.6	1.0	2.2	1,790	1.1	0.7	1.4	2,935

Table 7.B HIV prevalence by demographic characteristics, persons aged 15-49 years (continued)

HIV prevalence among persons aged 15-49 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percent HIV positive	LCL[1]	UCL[2]	Number	Percent HIV positive	LCL[1]	UCL[2]	Number	Percent HIV positive	LCL[1]	UCL[2]	Number
Ondo	0.6	0.2	1.0	1,463	1.1	0.6	1.6	1,924	0.9	0.5	1.2	3,387
Osun	0.7	0.3	1.1	1,230	1.0	0.5	1.5	1,742	0.8	0.5	1.2	2,972
Oyo	0.8	0.3	1.2	1,468	0.9	0.4	1.3	1,916	0.8	0.5	1.1	3,384
Plateau	0.4	0.2	0.7	2,045	2.3	1.6	2.9	2,582	1.3	1.0	1.7	4,627
Rivers	2.6	1.6	3.5	1,520	4.7	3.6	5.9	1,885	3.6	2.8	4.3	3,405
Sokoto	0.4	0.1	0.7	1,549	0.4	0.1	0.7	1,902	0.4	0.1	0.7	3,451
Taraba	1.7	1.2	2.1	2,712	3.4	2.5	4.3	3,279	2.5	1.9	3.1	5,991
Yobe	0.5	0.1	0.9	1,821	0.3	0.0	0.5	1,959	0.4	0.1	0.7	3,780
Zamfara	0.4	0.0	0.8	853	0.5	0.1	0.9	1,224	0.4	0.1	0.8	2,077
Marital status												
Never married	0.4	0.3	0.5	31,494	1.2	1.0	1.4	22,341	0.7	0.6	0.8	53,835
Married or living together	1.2	1.1	1.4	31,925	1.4	1.3	1.6	54,824	1.3	1.2	1.5	86,749
Divorced or separated	3.2	1.8	4.6	912	5.8	4.7	6.8	2,447	4.9	4.1	5.8	3,359
Widowed	6.8	3.1	10.5	223	9.1	7.7	10.5	2,726	8.9	7.6	10.2	2,949
Type of union												
In polygynous union	1.1	0.8	1.4	5,130	1.1	1.0	1.3	18,592	1.1	1.0	1.3	23,722
Not in polygynous union	1.2	1.0	1.4	26,586	1.6	1.5	1.8	35,873	1.4	1.3	1.5	62,459
Not currently in union	0.5	0.4	0.6	32,629	2.3	2.0	2.5	27,514	1.2	1.1	1.3	60,143
Education[4]												
No education	0.8	0.5	1.0	6,719	1.2	1.0	1.4	19,915	1.1	0.9	1.2	26,634
Primary	1.1	0.9	1.3	9,748	2.6	2.3	2.9	14,651	1.9	1.7	2.1	24,399
Secondary	0.9	0.7	1.0	31,247	1.8	1.7	2.0	33,513	1.3	1.2	1.4	64,760
Tertiary	0.7	0.6	0.9	12,357	1.8	1.5	2.2	9,693	1.1	1.0	1.3	22,050
Others	0.4	0.1	0.6	4,570	0.6	0.3	0.9	4,573	0.5	0.3	0.7	9,143

Table 7.B HIV prevalence by demographic characteristics, persons aged 15-49 years (continued)

HIV prevalence among persons aged 15-49 years by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percent HIV positive	LCL[1]	UCL[2]	Number	Percent HIV positive	LCL[1]	UCL[2]	Number	Percent HIV positive	LCL[1]	UCL[2]	Number
Wealth quintile												
Lowest	0.5	0.4	0.6	12,206	1.0	0.8	1.1	15,076	0.7	0.6	0.9	27,282
Second	0.7	0.5	0.9	12,673	1.4	1.2	1.6	16,078	1.0	0.9	1.2	28,751
Middle	0.9	0.7	1.1	13,583	2.3	2.1	2.6	17,320	1.6	1.4	1.8	30,903
Fourth	1.0	0.8	1.2	13,772	2.1	1.9	2.4	17,793	1.5	1.4	1.7	31,565
Highest	1.0	0.7	1.2	12,433	1.7	1.5	2.0	16,152	1.3	1.2	1.5	28,585
Pregnancy status												
Currently pregnant	NA	NA	NA	NA	1.1	0.9	1.4	6,991	NA	NA	NA	NA
Not currently pregnant	NA	NA	NA	NA	1.8	1.7	1.9	74,326	NA	NA	NA	NA
Total 15-49 years	0.8	0.7	0.9	64,667	1.7	1.6	1.9	82,419	1.3	1.2	1.4	147,086

[1]LCL – lower confidence limit.
[2]UCL – upper confidence limit.
[3]FCT – Federal Capital Territory.
[4]Education categories refer to the highest level of education attended, whether that level was completed.
NA – not applicable.

Table 7.C HIV prevalence by sex and age

HIV prevalence among persons aged 0-64 years by sex and age, NAIIS 2018

	Males		Females		Total	
Age	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
0-17 months	0.1	1,159	0.3	1,132	0.2	2,291
18-59 months	0.1	3,937	0.1	3,697	0.1	7,634
5-9 years	0.1	6,505	0.1	6,276	0.1	12,781
10-14 years	0.2	4,972	0.2	4,816	0.2	9,788
15-19 years	0.1	13,344	0.3	15,553	0.2	28,897
20-24 years	0.3	10,368	1.3	14,058	0.8	24,426
25-29 years	0.7	10,592	1.8	14,878	1.2	25,470
30-34 years	1.0	9,067	2.2	12,326	1.6	21,393
35-39 years	1.4	8,623	3.1	10,705	2.2	19,328
40-44 years	1.7	6,904	2.6	8,645	2.2	15,549
45-49 years	2.2	5,769	2.7	6,254	2.4	12,023
50-54 years	2.3	5,053	2.3	5,933	2.3	10,986
55-59 years	1.6	3,773	2.4	3,339	2.0	7,112
60-64 years	1.4	4,477	1.5	4,055	1.4	8,532
Total 0-4 years	0.1	5,096	0.2	4,829	0.1	9,925
Total 0-14 years	0.1	16,573	0.2	15,921	0.1	32,494
Total 15-24 years	0.2	23,712	0.8	29,611	0.5	53,323
Total 15-49 years	0.8	64,667	1.7	82,419	1.3	147,086
Total 15-64 years	1.0	77,970	1.8	95,746	1.4	173,716

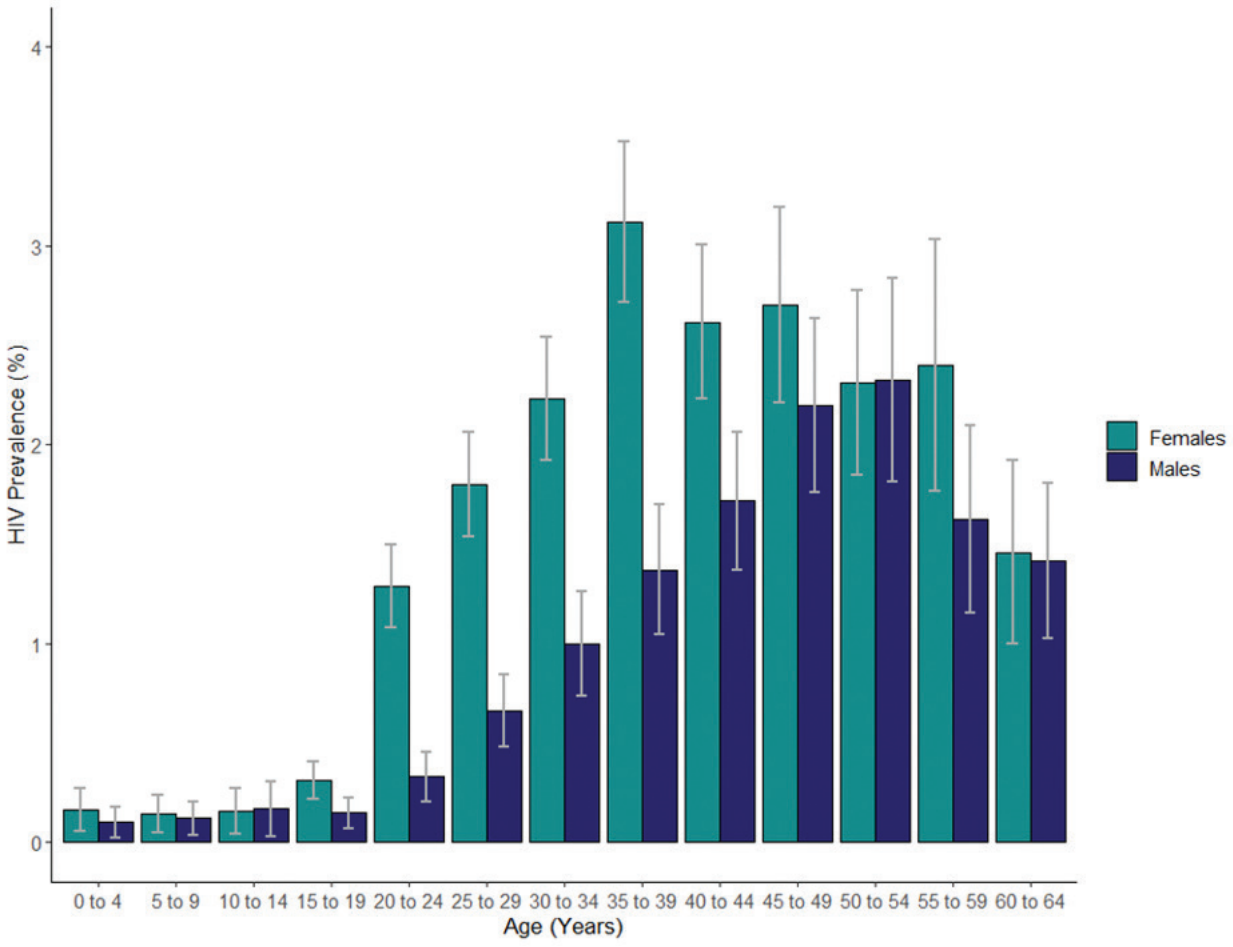

Figure 7.B HIV prevalence by sex and age, NAIIS 2018

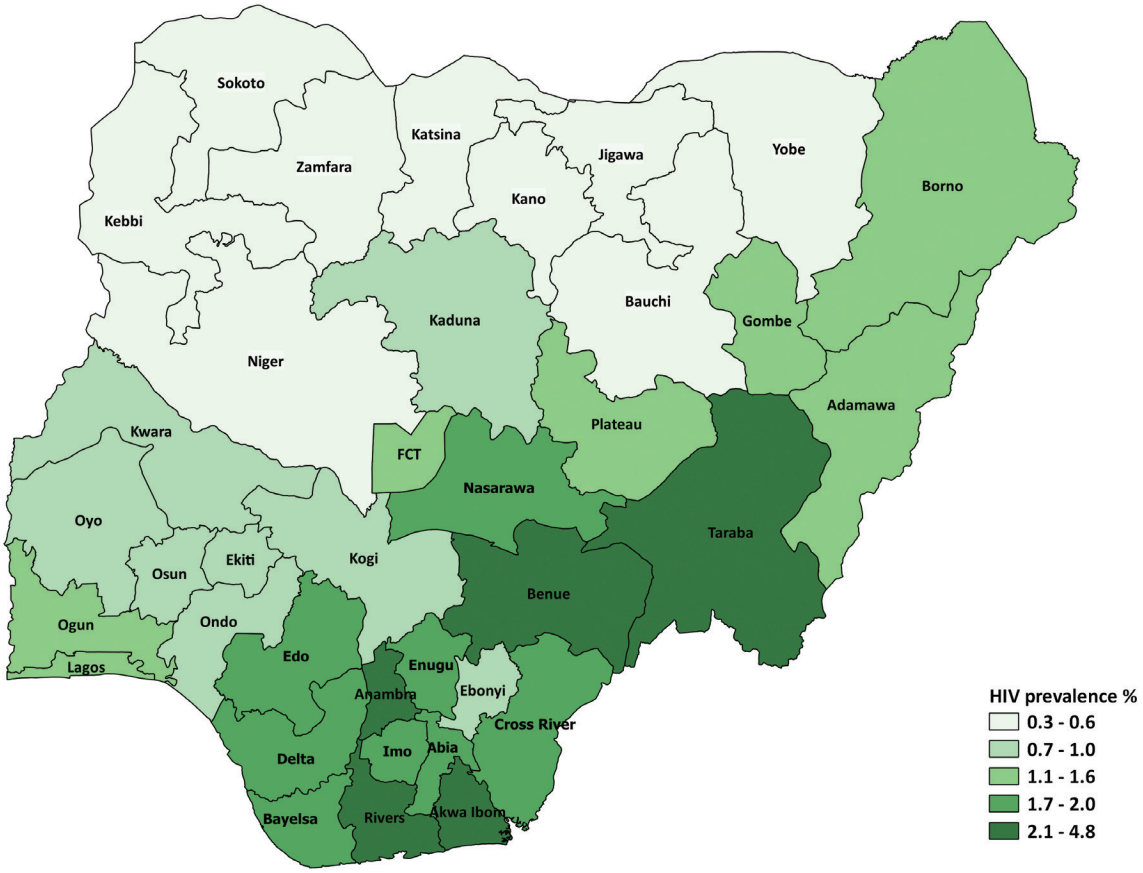

Figure 7.C HIV prevalence among adults aged 15-64 years by state, NAIIS 2018

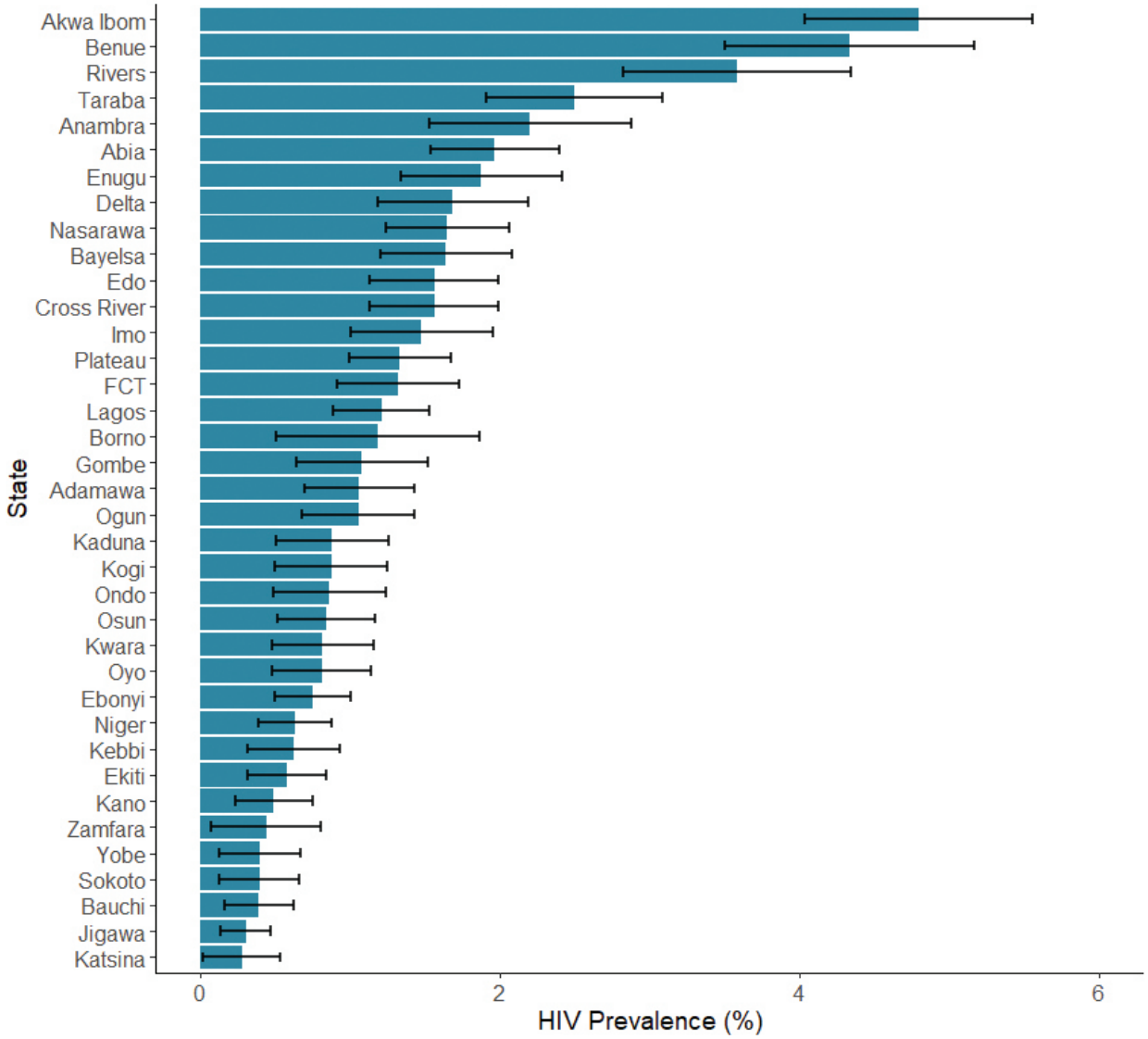

Figure 7.D HIV prevalence among adults aged 15-49 years by state, NAIIS 2018

8. Self-Reported HIV Testing

8.1 Background

HIV testing is necessary for awareness of HIV status and 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 counseling for HIV-positive and HIV-negative individuals to reduce risk of HIV transmission or acquisition and access to screening services for other co-morbidities.

8.2 Results

Tables 8.A to 8.C and Figure 8.A show the results of receipt of HIV test results ever and in the last 12 months.

8.2.1 Key Findings

- Among adults aged 15-64 years, 30.1% self-reported ever having received HIV test results (32.6% among women and 27.7% among men) (Tables 8.A, 8.B and 8.C).
- Among adults aged 15-64 years, 36.8% in urban areas self-reported ever having received HIV test results compared to 23.8% in rural areas (Table 8.C).

Table 8.A Self-reported HIV testing: Men

Percentage of men aged 15-64 years who ever received an HIV test result and received an HIV test result in the past 12 months, by result of NAIIS HIV test and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Ever received HIV test result		Received HIV test result in past 12 months	
	Percent	Number	Percent	Number
NAIIS HIV test result				
HIV positive	54.6	824	16.9	800
HIV negative	27.2	75,836	9.1	74,072
Not tested	30.6	5,247	14.7	5,124
Place of residence				
Urban	32.8	34,049	11.2	33,065
Rural	23.0	47,858	8.0	46,931
Geopolitical zone				
North West	11.2	14,969	4.1	14,892
North East	19.9	15,243	6.6	15,055
North Central	32.9	16,621	14.0	16,225
South East	46.2	11,174	13.4	10,682
South South	40.5	11,891	14.8	11,567
South West	33.8	12,009	10.7	11,575
Marital status				
Never married	19.8	33,676	7.8	33,115
Married or living together	34.5	46,189	11.0	44,907
Divorced or separated	36.5	1,321	12.4	1,284
Widowed	44.0	603	11.6	576
Type of union				
In polygynous union	21.1	8,422	7.4	8,289
Not in polygynous union	37.3	37,456	11.9	36,327
Not currently in union	20.6	35,600	7.9	34,975
Education[1]				
No education	8.3	9,627	2.6	9,541
Primary	22.5	14,276	6.3	13,920
Secondary	26.5	35,801	9.0	34,963
Tertiary	54.6	15,790	20.8	15,191
Others	8.1	6,358	2.7	6,329

Table 8.A Self-reported HIV testing: Men (continued)

Percentage of men aged 15-64 years who ever received an HIV test result and received an HIV test result in the past 12 months, by result of NAIIS HIV test and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Ever received HIV test result		Received HIV test result in past 12 months	
	Percent	Number	Percent	Number
Wealth quintile				
Lowest	9.8	15,549	3.5	15,428
Second	16.9	15,875	6.0	15,646
Middle	25.3	17,245	8.4	16,844
Fourth	33.7	17,257	11.2	16,743
Highest	47.4	15,981	16.9	15,335
Age (years)				
15-19	6.3	14,095	2.0	13,981
20-24	21.0	10,967	8.7	10,790
25-29	32.1	11,146	13.0	10,887
30-34	39.0	9,547	14.7	9,293
35-39	40.4	9,041	14.2	8,775
40-44	39.7	7,250	11.9	7,040
45-49	37.1	6,071	10.5	5,870
50-54	32.9	5,293	8.1	5,139
55-59	31.5	3,904	8.5	3,777
60-64	26.9	4,593	6.6	4,444
Total 15-24 years	13.0	25,062	5.0	24,771
Total 15-49 years	27.2	68,117	9.8	66,636
Total 15-64 years	27.7	81,907	9.5	79,996

[1]Education categories refer to the highest level of education attended, whether that level was completed.

Table 8.B Self-reported HIV testing: Women

Percentage of women aged 15-64 years who ever received an HIV test result and received an HIV test result in the past 12 months, by result of NAIIS HIV test and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Ever received HIV test result		Received HIV test result in past 12 months	
	Percent	Number	Percent	Number
NAIIS HIV test result				
HIV positive	59.2	1,840	19.5	1,762
HIV negative	32.1	90,372	10.4	87,151
Not tested	33.0	6,988	15.6	6,742
Place of residence				
Urban	41.0	42,498	13.6	40,481
Rural	24.7	56,702	8.5	55,174
Geopolitical zone				
North West	16.5	16,808	4.6	16,570
North East	21.5	15,756	7.2	15,369
North Central	30.7	18,757	12.5	18,070
South East	49.6	17,063	16.4	16,149
South South	43.9	14,869	15.5	14,412
South West	42.5	15,947	14.1	15,085
Marital status				
Never married	22.2	23,862	9.2	23,304
Married or living together	36.5	64,457	11.8	61,897
Divorced or separated	45.6	3,180	14.6	3,035
Widowed	29.9	7,602	7.9	7,326
Type of union				
In polygynous union	22.5	21,942	6.5	21,348
Not in polygynous union	44.0	42,077	14.6	40,134
Not currently in union	25.6	34,644	9.4	33,665
Education[1]				
No education	12.9	26,139	3.9	25,652
Primary	30.0	19,317	8.4	18,605
Secondary	39.2	36,707	13.7	35,201
Tertiary	69.6	11,641	26.7	10,896
Others	14.7	5,302	3.8	5,212

Table 8.B Self-reported HIV testing: Women (continued)

Percentage of women aged 15-64 years who ever received an HIV test result and received an HIV test result in the past 12 months, by result of NAIIS HIV test and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Ever received HIV test result		Received HIV test result in past 12 months	
	Percent	Number	Percent	Number
Wealth quintile				
Lowest	12.4	17,407	3.7	17,136
Second	18.8	19,071	6.1	18,597
Middle	29.3	21,415	9.7	20,689
Fourth	40.7	21,649	13.8	20,725
Highest	55.0	19,658	19.3	18,508
Age (years)				
15-19	11.4	16,232	5.0	16,039
20-24	33.7	14,610	13.8	14,090
25-29	45.0	15,401	17.1	14,730
30-34	45.4	12,733	15.2	12,184
35-39	45.5	11,040	13.5	10,537
40-44	36.8	8,914	9.2	8,558
45-49	33.9	6,464	8.8	6,216
50-54	26.6	6,119	7.0	5,903
55-59	26.4	3,529	7.4	3,388
60-64	20.3	4,158	4.1	4,010
Total 15-24 years	21.4	30,842	8.9	30,129
Total 15-49 years	33.7	85,394	11.6	82,354
Total 15-64 years	32.6	99,200	10.9	95,655

[1]Education categories refer to the highest level of education attended, whether that level was completed.

Table 8.C Self-reported HIV testing: Total

Percentage of HIV-positive persons aged 15-64 years who ever received an HIV test result and received an HIV test result in the past 12 months, by result of NAIIS HIV test and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Ever received HIV test result		Received HIV test result in past 12 months	
	Percent	Number	Percent	Number
NAIIS HIV test result				
HIV positive	57.6	2,664	18.6	2,562
HIV negative	29.5	166,208	9.7	161,223
Not tested	31.8	12,235	15.2	11,866
Place of residence				
Urban	36.8	76,547	12.4	73,546
Rural	23.8	104,560	8.2	102,105
Geopolitical zone				
North West	13.7	31,777	4.3	31,462
North East	20.7	30,999	6.9	30,424
North Central	31.9	35,378	13.3	34,295
South East	48.0	28,237	15.0	26,831
South South	42.2	26,760	15.1	25,979
South West	38.1	27,956	12.3	26,660
Marital status				
Never married	20.7	57,538	8.3	56,419
Married or living together	35.6	110,646	11.4	106,804
Divorced or separated	42.5	4,501	13.9	4,319
Widowed	31.0	8,205	8.2	7,902
Type of union				
In polygynous union	22.1	30,364	6.8	29,637
Not in polygynous union	40.5	79,533	13.2	76,461
Not currently in union	22.7	70,244	8.6	68,640
Education[1]				
No education	11.5	35,766	3.5	35,193
Primary	26.4	33,593	7.4	32,525
Secondary	32.1	72,508	11.0	70,164
Tertiary	60.0	27,431	22.9	26,087
Others	11.0	11,660	3.2	11,541

Table 8.C Self-reported HIV testing: Total (continued)

Percentage of HIV-positive persons aged 15-64 years who ever received an HIV test result and received an HIV test result in the past 12 months, by result of NAIIS HIV test and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Ever received HIV test result		Received HIV test result in past 12 months	
	Percent	Number	Percent	Number
Wealth quintile				
Lowest	11.0	32,956	3.6	32,564
Second	17.8	34,946	6.0	34,243
Middle	27.3	38,660	9.0	37,533
Fourth	37.2	38,906	12.5	37,468
Highest	51.0	35,639	18.1	33,843
Age (years)				
15-19	8.8	30,327	3.5	30,020
20-24	27.1	25,577	11.1	24,880
25-29	38.3	26,547	14.9	25,617
30-34	42.1	22,280	14.9	21,477
35-39	42.9	20,081	13.9	19,312
40-44	38.3	16,164	10.6	15,598
45-49	35.6	12,535	9.7	12,086
50-54	29.8	11,412	7.6	11,042
55-59	29.0	7,433	8.0	7,165
60-64	23.5	8,751	5.4	8,454
Total 15-24 years	17.1	55,904	6.9	54,900
Total 15-49 years	30.4	153,511	10.6	148,990
Total 15-64 years	30.1	181,107	10.2	175,651

[1]Education categories refer to the highest level of education attended, whether that level was completed.

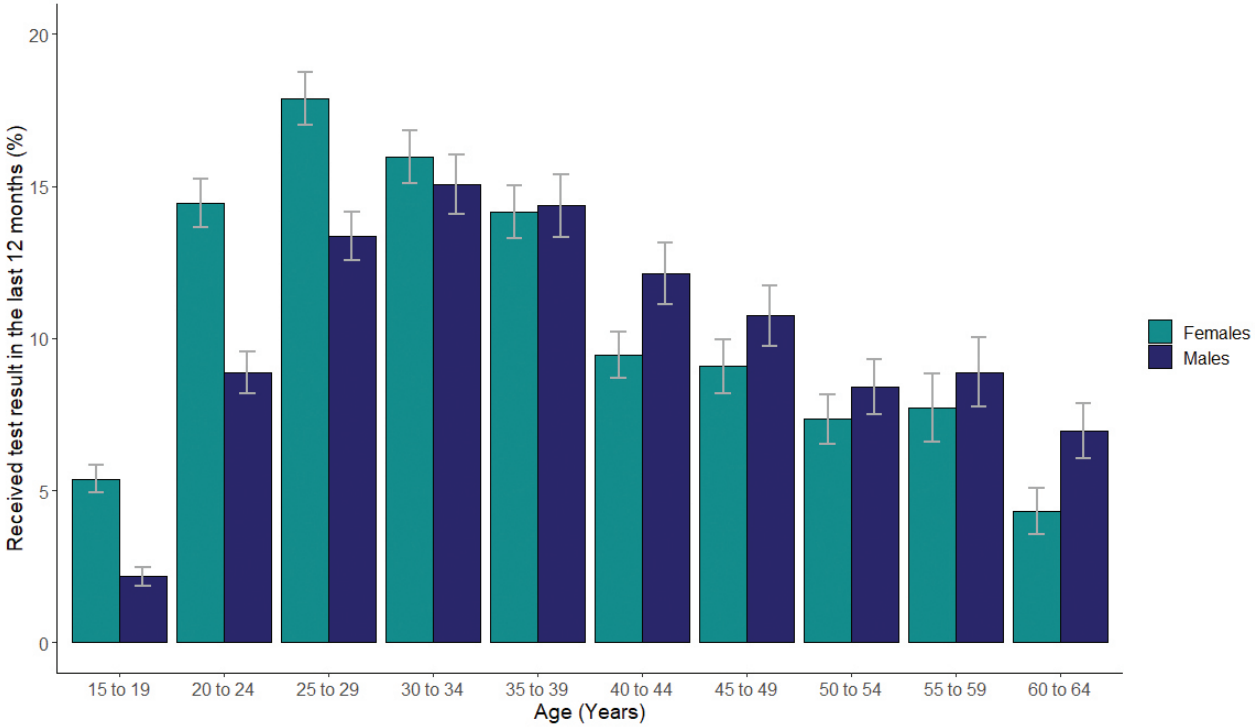

Figure 8.A Proportion of adults aged 15-64 years who self-report receiving HIV test results in the last 12 months by sex and age, NAIIS 2018

9. HIV Diagnosis and Treatment

9.1 Background

Recent studies have proven that treating PLHIV at higher CD4 counts improves immune recovery, decreases the incidence of non-AIDS events and comorbidities and mortality and reduces sexual and vertical transmission. In 2016, after an extensive review of evidence of both the clinical and population-level benefits of expanding ART, WHO changed its recommendation to support a policy of "Treatment for All," regardless of CD4 count.[1,2] In Nigeria, the "test and treat" policy was adopted in December 2016. NAIIS determined the presence of four ARVs (efavirenz, lopinavir, nevirapine and atazanavir) in blood as markers of the first- and second-line regimens prescribed in Nigeria at the time of the survey.

9.2 Results

Tables 9.A to 9.F and Figure 9.A describe ART uptake in Nigeria during NAIIS.

9.2.1 Key Findings

- Among HIV- positive adults aged 15-64 years, 71.1% self-reported being unaware of their HIV status (Table 9.C).
- Of HIV- positive adults aged 15-64 years, 25.9% reported being on ART (Table 9.C).
- The percentage of HIV- positive adults aged 15-64 years unaware of their HIV status was higher in rural areas (74.0%) than urban areas (67.4%) (Table 9.C).
- Among individuals who self-reported an HIV- positive status and being on ART, 94.5% had ARVs detected in their blood. Among those who self-reported an HIV- positive status and not being on ART, 42.0% had ARVs detected in their blood (Table 9.F).
- Among those who self-reported not being previously diagnosed, 24.4% had ARVs detected in their blood (Table 9.F).

9.3 References

1. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection.* Geneva: World Health Organization; 2016. https://www.who.int/hiv/pub/arv/arv-2016/en/. Accessed March 10, 2019.
2. World Health Organization. *Treat all: Policy adoption and implementation status in countries.* Geneva: World Health Organization; 2017. http://apps.who.int/iris/bitstream/handle/10665/259532/WHO-HIV-2017.58-eng.pdf;jsessionid=B3857967C208CC9E4093EEA9CEDC3A0C?sequence=1. Accessed March 10, 2019.

Table 9.A HIV treatment status: Men

Percent distribution of HIV-positive men aged 15-64 years by self-reported HIV and treatment status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Place of residence					
Urban	72.7	1.4	26.0	100.0	310
Rural	73.0	1.9	25.1	100.0	518
Geopolitical zone					
North West	66.5	1.0	32.5	100.0	55
North East	76.2	0.8	23.0	100.0	137
North Central	50.9	1.5	47.6	100.0	185
South East	78.4	2.9	18.7	100.0	147
South South	79.7	2.1	18.2	100.0	217
South West	79.6	1.0	19.4	100.0	87
Marital status					
Never married	90.0	0.7	9.3	100.0	160
Married or living together	68.8	2.0	29.1	100.0	589
Divorced or separated	60.9	2.3	36.7	100.0	42
Widowed	64.3	0.0	35.7	100.0	36
Type of union					
In polygynous union	69.3	4.6	26.2	100.0	90
Not in polygynous union	68.4	1.6	29.9	100.0	496
Not currently in union	81.9	0.9	17.3	100.0	238
Education[2]					
No education	82.6	0.3	17.1	100.0	75
Primary	73.0	1.5	25.4	100.0	199
Secondary	77.7	1.6	20.7	100.0	365
Tertiary	55.3	2.9	41.8	100.0	163
Others	*	*	*	*	26
Wealth quintile					
Lowest	76.4	1.1	22.5	100.0	101
Second	67.5	2.2	30.4	100.0	141
Middle	70.3	2.7	27.1	100.0	205
Fourth	71.9	1.2	26.8	100.0	203
Highest	77.6	1.2	21.2	100.0	178

Table 9.A HIV treatment status: Men (continued)

Percent distribution of HIV-positive men aged 15-64 years by self-reported HIV and treatment status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Age (years)					
15-19	*	*	*	*	23
20-24	88.3	0.0	11.7	100.0	37
25-29	88.7	1.5	9.8	100.0	72
30-34	84.8	2.0	13.2	100.0	88
35-39	78.4	1.3	20.3	100.0	116
40-44	67.8	0.4	31.7	100.0	129
45-49	63.9	2.5	33.6	100.0	123
50-54	57.2	1.9	40.9	100.0	111
55-59	62.5	0.0	37.5	100.0	62
60-64	57.4	6.6	36.0	100.0	67
Total 15-24 years	91.1	1.2	7.7	100.0	60
Total 15-49 years	77.3	1.5	21.2	100.0	588
Total 15-64 years	72.9	1.7	25.5	100.0	828

[1]Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 9.B HIV treatment status: Women

Percent distribution of HIV-positive women aged 15-64 years by self-reported HIV and treatment status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Place of residence					
Urban	64.4	4.5	31.1	100.0	736
Rural	74.6	3.1	22.4	100.0	1,096
Geopolitical zone					
North West	68.6	7.2	24.2	100.0	112
North East	67.7	0.9	31.4	100.0	252
North Central	59.9	1.9	38.2	100.0	447
South East	69.3	5.2	25.4	100.0	317
South South	80.3	4.5	15.2	100.0	481
South West	67.1	2.5	30.4	100.0	223
Marital status					
Never married	77.3	3.7	19.0	100.0	302
Married or living together	71.7	3.8	24.5	100.0	972
Divorced or separated	62.4	6.0	31.5	100.0	191
Widowed	62.7	2.3	35.0	100.0	362
Type of union					
In polygynous union	74.1	0.5	25.4	100.0	285
Not in polygynous union	70.8	5.2	24.0	100.0	677
Not currently in union	68.2	3.6	28.2	100.0	855
Education[2]					
No education	78.3	2.6	19.1	100.0	359
Primary	72.7	2.5	24.8	100.0	503
Secondary	66.0	4.6	29.4	100.0	722
Tertiary	64.6	3.0	32.4	100.0	209
Others	69.7	13.7	16.6	100.0	34
Wealth quintile					
Lowest	82.8	2.7	14.4	100.0	207
Second	68.8	1.8	29.4	100.0	310
Middle	70.4	5.6	24.0	100.0	493
Fourth	66.5	3.0	30.5	100.0	476
Highest	69.1	3.9	27.0	100.0	346

Table 9.B HIV treatment status: Women (continued)

Percent distribution of HIV-positive women aged 15-64 years by self-reported HIV and treatment status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Age (years)					
15-19	87.0	1.6	11.3	100.0	58
20-24	82.8	6.1	11.1	100.0	186
25-29	78.5	3.1	18.4	100.0	273
30-34	71.3	6.5	22.2	100.0	291
35-39	63.0	5.1	31.9	100.0	346
40-44	60.8	3.5	35.7	100.0	241
45-49	60.0	1.8	38.2	100.0	158
50-54	62.9	0.0	37.1	100.0	145
55-59	75.5	0.0	24.5	100.0	73
60-64	79.5	0.0	20.5	100.0	61
Total 15-24 years	83.8	5.0	11.1	100.0	244
Total 15-49 years	70.0	4.4	25.6	100.0	1,553
Total 15-64 years	70.1	3.7	26.2	100.0	1,832

[1]Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

Table 9.C HIV treatment status: Total

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV and treatment status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Place of residence					
Urban	67.4	3.4	29.2	100.0	1,046
Rural	74.0	2.6	23.4	100.0	1,614
Geopolitical zone					
North West	67.8	4.9	27.3	100.0	167
North East	71.1	0.9	28.0	100.0	389
North Central	56.9	1.8	41.4	100.0	632
South East	72.7	4.4	22.9	100.0	464
South South	80.1	3.6	16.3	100.0	698
South West	71.4	2.0	26.6	100.0	310
Marital status					
Never married	82.4	2.5	15.1	100.0	462
Married or living together	70.4	3.0	26.5	100.0	1,561
Divorced or separated	62.1	5.2	32.7	100.0	233
Widowed	62.9	2.0	35.1	100.0	398
Type of union					
In polygynous union	72.7	1.6	25.6	100.0	375
Not in polygynous union	69.7	3.5	26.8	100.0	1,173
Not currently in union	71.8	2.8	25.3	100.0	1,093
Education[2]					
No education	79.1	2.1	18.7	100.0	434
Primary	72.8	2.2	25.0	100.0	702
Secondary	70.6	3.4	25.9	100.0	1,087
Tertiary	60.3	2.9	36.8	100.0	372
Others	72.7	7.2	20.1	100.0	60
Wealth quintile					
Lowest	80.4	2.1	17.4	100.0	308
Second	68.3	1.9	29.8	100.0	451
Middle	70.3	4.7	25.0	100.0	698
Fourth	68.5	2.4	29.2	100.0	679
Highest	72.6	2.8	24.6	100.0	524

Table 9.C HIV treatment status: Total (continued)

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV and treatment status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Age (years)					
15-19	90.1	2.3	7.6	100.0	81
20-24	84.1	4.7	11.2	100.0	223
25-29	81.5	2.6	15.9	100.0	345
30-34	75.6	5.0	19.3	100.0	379
35-39	68.0	3.9	28.1	100.0	462
40-44	63.7	2.3	34.1	100.0	370
45-49	61.8	2.1	36.1	100.0	281
50-54	60.0	1.0	39.0	100.0	256
55-59	70.3	0.0	29.7	100.0	135
60-64	68.8	3.2	28.0	100.0	128
Total 15-24 years	85.6	4.1	10.3	100.0	304
Total 15-49 years	72.5	3.4	24.1	100.0	2,141
Total 15-64 years	71.1	3.0	25.9	100.0	2,660

[1]Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

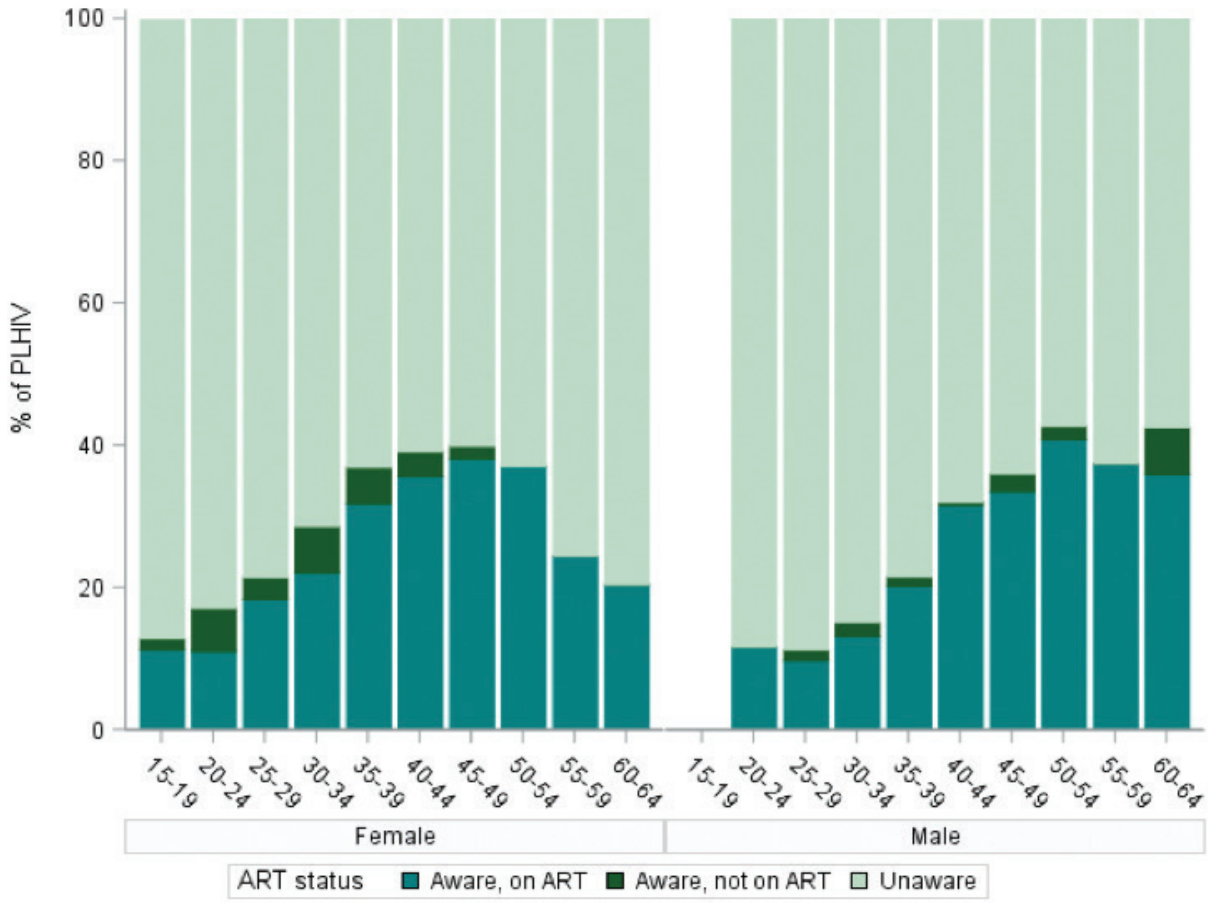

Figure 9.A Proportion of HIV-positive adults reporting awareness of HIV status and ART status by sex and age, NAIIS 2018

The estimates for men aged 15-19 years were not presented because the unweighted sample size was 30 or less people.

Table 9.D Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Men

Percent distribution of ARV status by self-reported HIV treatment status among HIV-positive men aged 15-64 years, NAIIS 2018

Characteristics	ARVs[1]		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	81.7	18.3	100.0	577
Previously diagnosed, not on ART[2]	*	*	*	17
Previously diagnosed, on ART[2]	6.6	93.4	100.0	234
Total 15-24 years	72.6	27.4	100.0	61
Total 15-49 years	66.6	33.4	100.0	601
Total 15-64 years	62.1	37.9	100.0	845

[1]Antiretroviral detection assay included only atazanavir, efavirenz and lopinavir. Participants who reported antiretroviral therapy use or had an undetectable viral load but had no evidence of the first three ARVs were tested for nevirapine as well.
[2]ART – antiretroviral therapy.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 9.E Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Women

Percent distribution of ARV status by self-reported HIV treatment status among HIV-positive women aged 15-64 years, NAIIS 2018

Characteristics	ARVs[1]		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	72.0	28.0	100.0	1,262
Previously diagnosed, not on ART[2]	58.7	41.3	100.0	56
Previously diagnosed, on ART[2]	4.9	95.1	100.0	508
Total 15-24 years	72.5	27.5	100.0	254
Total 15-49 years	54.8	45.2	100.0	1,602
Total 15-64 years	53.5	46.5	100.0	1,888

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

Table 9.F Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Total

Percent distribution of ARV status by self-reported HIV treatment status among HIV-positive persons aged 15-64 years, NAIIS 2018

Characteristics	ARVs[1]		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	75.6	24.4	100.0	1,839
Previously diagnosed, not on ART[2]	58.0	42.0	100.0	73
Previously diagnosed, on ART[2]	5.5	94.5	100.0	742
Total 15-24 years	72.5	27.5	100.0	315
Total 15-49 years	58.8	41.2	100.0	2,203
Total 15-64 years	56.6	43.4	100.0	2,733

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

10. Viral Load Suppression

10.1 Background

The key treatment success indicator for PLHIV is VLS. For NAIIS, VLS was defined as VL less than 1,000 HIV RNA copies per mL of plasma. This chapter describes VLS among the population of HIV-positive adults by socio-demographic characteristics.

10.2 Results

Tables 10.A and 10.B, along with Figures 10.A to 10.D, present VLS data of PLHIV.

10.2.1 Key Findings

- Among adults aged 15-64 years who tested HIV positive, 43.1% had VLS (women 45.5%, men 38.8%). The prevalence of VLS was lower in rural than urban areas (40.3% and 46.7%, respectively) (Table 10.A).
- Among adults previously diagnosed and self-reported on ART, VLS was 82.5% (Table 10.A).
- VLS was lowest among those never married (31.6%) and highest in those who that were widowed (52.9%) (Table 10.A).
- VLS was highest among adults in the North Central Zone (63.8%) and lowest among adults in the South South Zone (31.1%) (Table 10.A).
- VLS varied by age group, ranging from 31.2% among adults aged 20-24 years to 55.6% among adults aged 50-54 years (Table 10.B).

Table 10.A Viral load suppression prevalence by demographic characteristics

Percentage distribution of HIV-positive persons aged 15-64 years with viral load suppression (VLS) (<1,000 copies/mL)[1] by sex, self-reported HIV diagnosis, antiretroviral therapy (ART) status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males		Females		Total	
	Percentage VLS	Number	Percentage VLS	Number	Percentage VLS	Number
Self-reported diagnosis and treatment status						
Not previously diagnosed	24.9	577	31.2	1,267	28.8	1,844
Previously diagnosed, not on ART	*	17	40.0	56	39.7	73
Previously diagnosed, on ART	79.5	234	84.2	509	82.5	743
Place of residence						
Urban	38.9	319	51.1	759	46.7	1,078
Rural	38.7	526	41.2	1,135	40.3	1,661
Geopolitical zone						
North West	52.1	55	43.7	120	46.7	175
North East	46.4	141	51.5	262	49.5	403
North Central	60.0	189	65.7	462	63.8	651
South East	35.2	148	37.5	329	36.6	477
South South	27.2	221	33.3	491	31.1	712
South West	26.9	91	48.8	230	41.2	321
Marital status						
Never married	25.6	163	35.6	313	31.6	476
Married or living together	43.3	601	46.1	1,008	44.9	1,609
Divorced or separated	35.6	44	43.0	197	41.3	241
Widowed	36.1	36	54.8	371	52.9	407
Type of union						
In polygynous union	46.7	91	44.2	304	44.9	395
Not in polygynous union	43.3	507	47.1	694	45.3	1,201
Not currently in union	28.7	243	45.1	881	40.8	1,124
Education[2]						
No education	41.6	77	50.3	377	48.5	454
Primary	40.6	203	38.5	517	39.2	720
Secondary	35.5	375	45.6	741	41.6	1,116
Tertiary	45.0	164	55.7	217	50.7	381
Others	*	26	28.8	37	31.2	63

Table 10.A Viral load suppression prevalence by demographic characteristics (continued)

Percentage distribution of HIV-positive persons aged 15-64 years with viral load suppression (VLS) (<1,000 copies/mL)[1] by sex, self-reported HIV diagnosis, antiretroviral therapy (ART) status and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percentage VLS	Number	Percentage VLS	Number	Percentage VLS	Number
Wealth quintile						
Lowest	49.0	102	45.3	215	46.6	317
Second	42.2	144	43.7	322	43.2	466
Middle	38.0	211	42.2	503	40.8	714
Fourth	40.7	206	50.6	498	47.2	704
Highest	31.8	182	44.9	356	39.6	538
Total 15-24 years	33.6	61	32.2	255	32.6	316
Total 15-49 years	33.5	601	44.7	1,607	40.9	2,208
Total 15-64 years	38.8	845	45.5	1,894	43.1	2,739

[1]Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 10.B Viral load suppression by age (5-year age groups)

Percentage distribution of HIV-positive persons aged 0-64 years with viral load suppression (VLS) (<1,000 copies/mL)[1] by sex and age, NAIIS 2018

	Males		Females		Total	
Age (years)	Percentage VLS	Number	Percentage VLS	Number	Percentage VLS	Number
0-4	*	7	*	10	*	17
5-9	*	9	*	10	*	19
10-14	*	7	*	8	*	15
15-19	*	24	32.6	58	36.5	82
20-24	27.9	37	32.1	197	31.2	234
25-29	14.8	72	39.5	282	32.6	354
30-34	24.7	92	40.0	302	35.1	394
35-39	37.5	116	51.5	356	47.1	472
40-44	38.0	132	53.5	251	47.2	383
45-49	44.0	128	54.6	161	49.7	289
50-54	58.8	114	52.5	149	55.6	263
55-59	45.5	63	48.2	76	47.2	139
60-64	62.5	67	47.8	62	54.8	129
Total 15-24 years	33.6	61	32.2	255	32.6	316
Total 15-49 years	33.5	601	44.7	1,607	40.9	2,208
Total 15-64 years	38.8	845	45.5	1,894	43.1	2,739

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

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

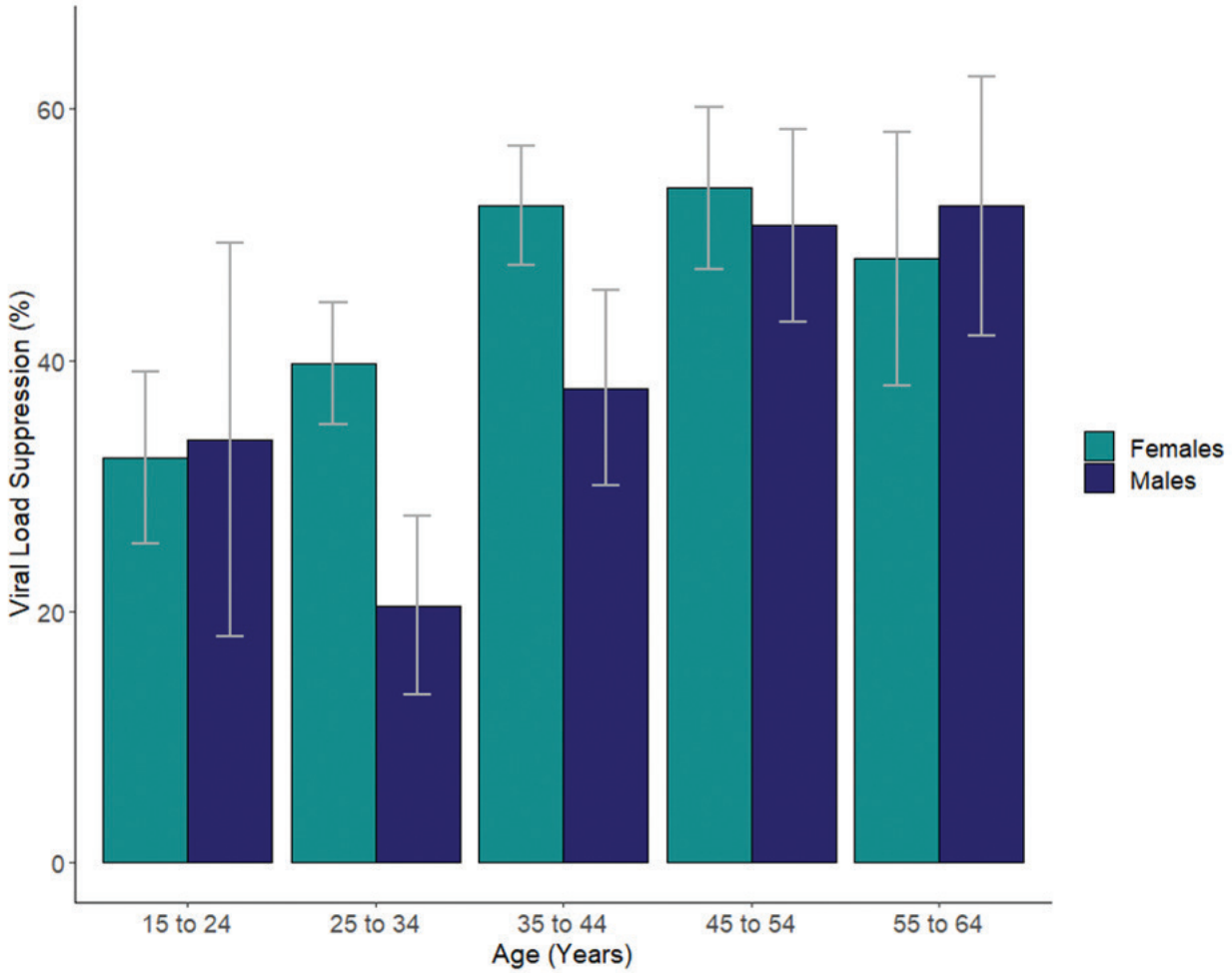

Figure 10.A Proportion of viral load suppression among HIV-positive persons by sex and age, NAIIS 2018
The estimates for children aged 0-14 years were not presented because the unweighted sample size was 30 or less people.

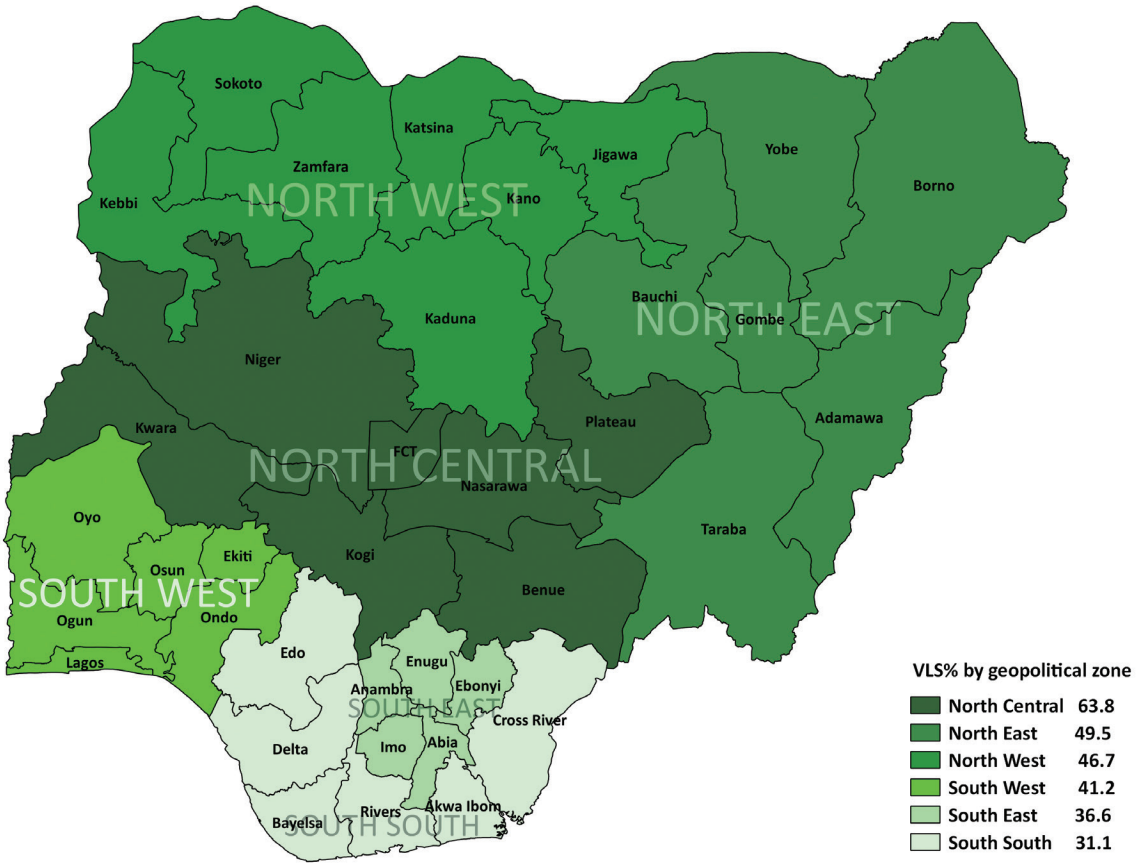

Figure 10.B Viral load suppression (VLS) (<1,000 copies/mL) among HIV-positive adults aged 15-64 years by geopolitical zone, NAIIS 2018

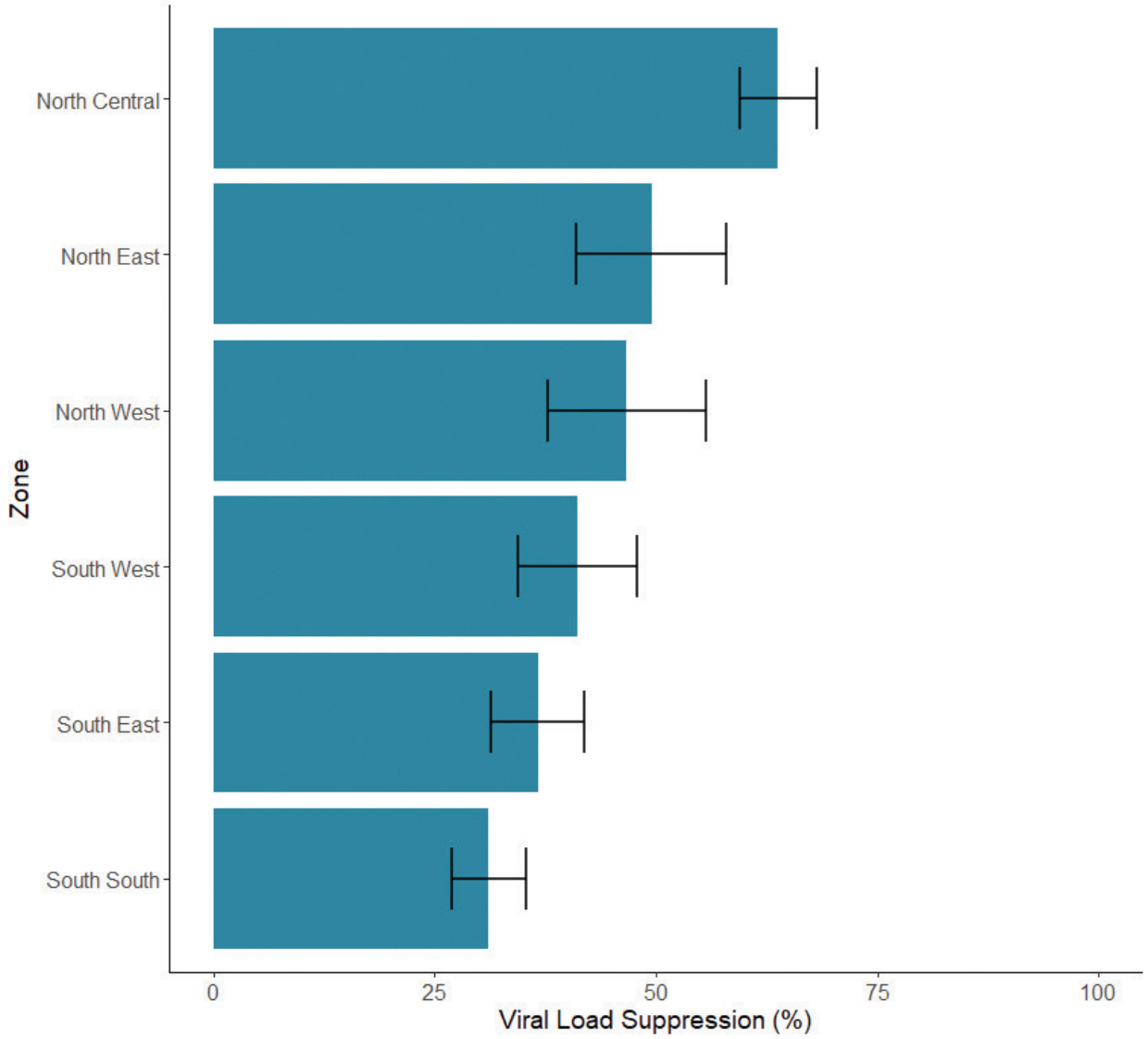

Figure 10.C Viral load suppression (<1000, copies/mL) among HIV-positive adults aged 15-64 years by geopolitical zone, NAIIS 2018

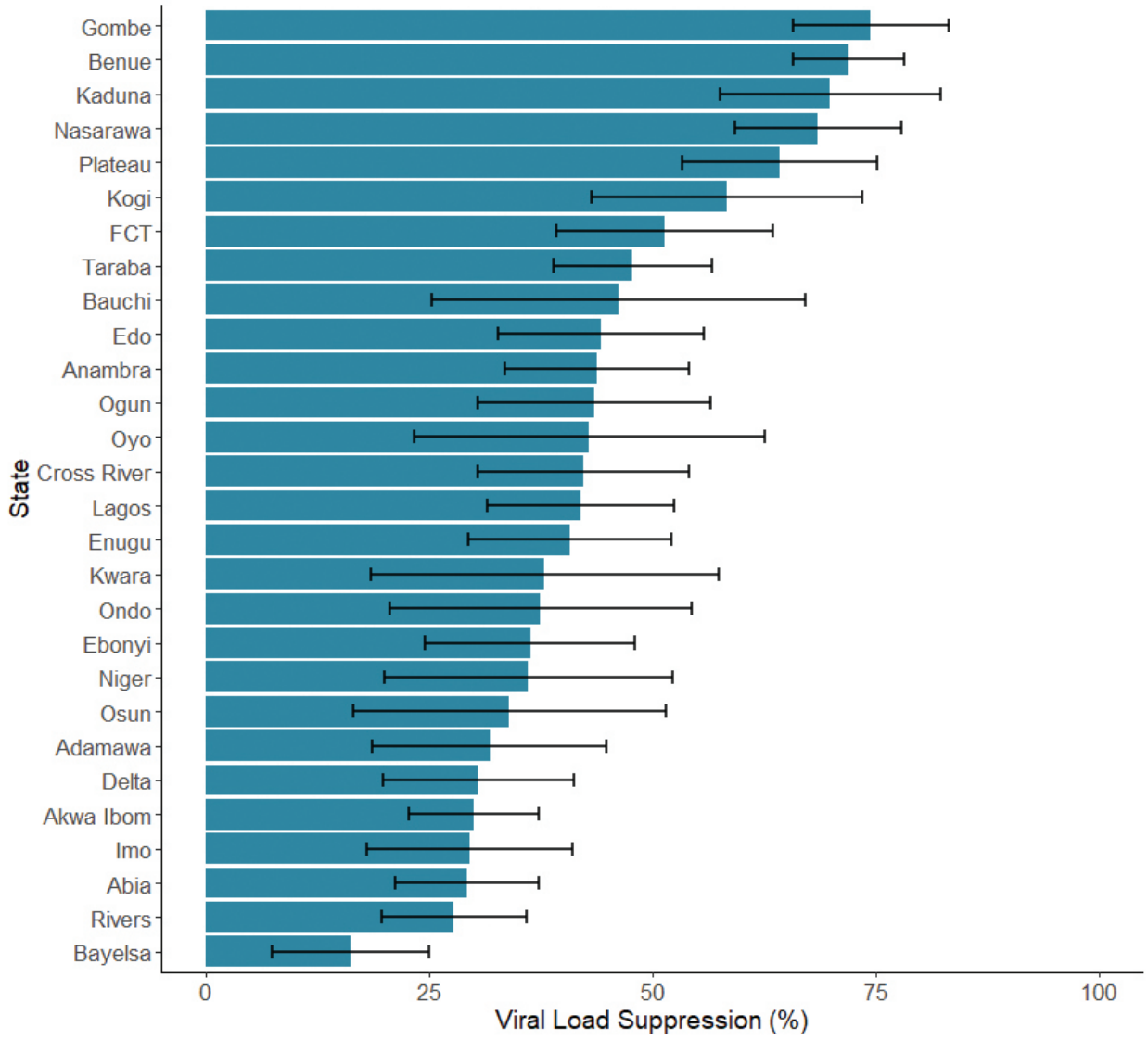

Figure 10.D Viral load suppression among HIV-positive adults aged 15-64 years by state, NAIIS 2018
The estimates were not presented for states where the unweighted sample size was 30 or less people.

11. UNAIDS 90-90-90 Targets

11.1 Background

UNAIDS set ambitious targets referred to as 90-90-90 to bring the HIV epidemic under control. The 90-90-90 targets propose that by 2020, 90% of all PLHIV will know their HIV status; 90% of all persons diagnosed with HIV will receive sustained ART; and 90% of all persons receiving ART will have VLS.[1] Awareness of HIV-positive status and treatment status among PLHIV who know their HIV-positive status are indicators of access to services. VLS among individuals who know their HIV status and are on treatment provides a marker of access to and retention in care and a measure of program success. VLS of 73% (90 x 90 x 90) or greater among all PLHIV is an indication of successful testing and treatment services.

The 90-90-90 results are presented first as self-report and second as verified by ARV biomarker data. In the first case, participants were defined as 'aware' of their HIV-positive status if they self-reported knowing they were HIV positive before NAIIS HIV testing and 'on treatment' if they self-reported ART use. In the second case, self-reported 'aware' and 'on treatment' have been adjusted to include participants with ARV biomarkers detected in their blood specimen as aware' and 'on treatment' even when they did not self-report. In both sets of results, individuals who had achieved VLS but were not aware of their HIV-positive status or were not on ARVs, either by self-report or ARV biomarker data, were excluded from the numerator for the third 90.

11.2 Results

Tables 11.A to 11.C, along with Figure 11.A, show progress towards attaining the 90-90-90 targets in adults at the time of NAIIS.

11.2.1 Key Findings

- Diagnosed: Among HIV-positive adults aged 15-64 years, 46.9% self-reported knowing their HIV status or had detectable ARVs in their blood (40.9% of men and 50.3% of women) (Table 11.B).
- On Treatment: Among HIV-positive adults aged 15-64 years who knew their HIV status, 96.4% self-reported being on ART or had detectable ARVs (97.8% of men and 95.8% of women) (Table 11.B).
- Suppressed Viral Load: Among HIV-positive adults aged 15-64 years who self-reported being on ART or had detectable ARVs, 80.9% had VLS (79.2% of men and 81.7% of women) (Table 11.B).

11.3 References

1. Joint United Nations Programme on HIV/AIDS (UNAIDS). 90-90-90: An ambitious treatment target to help end the AIDS epidemic. Geneva: UNAIDS; 2014. http://www.unaids.org/sites/default/files/media_asset/90-90-90_en_0.pdf. Accessed March 10, 2019.

Table 11.A Adult self-reported ART status: Conditional percentages

90-90-90 targets among people living with HIV aged 15-64 years by sex and age, NAIIS 2018

	Diagnosed[1]					
	Males		Females		Total	
Age (years)	Percentage who self-reported HIV-positive diagnosis	Number	Percentage who self-reported HIV-positive diagnosis	Number	Percentage who self-reported HIV-positive diagnosis	Number
15-24	8.9	60	16.2	244	14.4	304
25-34	13.5	160	25.2	564	21.7	724
35-49	29.9	368	38.4	745	35.1	1,113
15-49	22.7	588	30.0	1,553	27.5	2,141
15-64	27.1	828	29.9	1,832	28.9	2,660
	On Treatment,[2] among those diagnosed					
	Males		Females		Total	
Age (years)	Percentage who self-reported being on ART[2]	Number	Percentage who self-reported being on ART[2]	Number	Percentage who self-reported being on ART[2]	Number
15-24	*	5	68.9	42	71.6	47
25-34	*	22	80.8	145	81.9	167
35-49	95.3	124	90.1	284	91.8	408
15-49	93.4	151	85.4	471	87.7	622
15-64	93.8	251	87.7	565	89.8	816
	Virally Suppressed,[3] among those on treatment					
	Males		Females		Total	
Age (years)	Percentage virally suppressed[3]	Number	Percentage virally suppressed[3]	Number	Percentage virally suppressed[3]	Number
15-24	*	4	78.3	31	80.9	35
25-34	*	19	80.1	125	78.6	144
35-49	77.3	117	85.2	259	82.5	376
15-49	77.2	140	83.3	415	81.5	555
15-64	79.5	234	84.2	509	82.5	743

[1]Relates to Global AIDS Monitoring indicator 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIABGNOSED_NAT.
[2]Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX_CURR_NAT / SUBNAT.
[3]Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads and POEPFAR VL_SUPPRESSION_NAT.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 11.B Adult self-reported ART status or presence of laboratory antiretroviral (ARV) data: Conditional percentages

90-90-90 targets among people living with HIV aged 15-64 years by sex and age, NAIIS 2018

	Diagnosed[1]					
	Males		Females		Total	
Age (years)	Percentage who self-reported HIV-positive or with detectable ARVs[1]	Number	Percentage who self-reported HIV-positive or with detectable ARVs[1]	Number	Percentage who self-reported HIV-positive or with detectable ARVs[1]	Number
15-24	28.8	60	31.7	248	31.0	308
25-34	19.2	161	46.9	577	38.6	738
35-49	45.3	372	57.4	762	52.8	1,134
15-49	35.8	593	49.3	1,587	44.8	2,180
15-64	40.9	835	50.3	1,870	46.9	2,705
	On Treatment,[2] among those diagnosed					
	Males		Females		Total	
Age (years)	Percentage with detectable ARVs or who self-reported being on ART[2]	Number	Percentage with detectable ARVs or who self-reported being on ART[2]	Number	Percentage with detectable ARVs or who self-reported being on ART[2]	Number
15-24	*	14	91.3	83	92.3	97
25-34	96.5	34	95.7	288	95.9	322
35-49	98.2	187	95.2	442	96.2	629
15-49	97.7	235	94.9	813	95.7	1,048
15-64	97.8	382	95.8	984	96.4	1,366
	Virally Suppressed,[3] among those on treatment					
	Males		Females		Total	
Age (years)	Percentage virally suppressed[3]	Number	Percentage virally suppressed[3]	Number	Percentage virally suppressed[3]	Number
15-24	*	13	78.4	77	77.1	90
25-34	65.8	33	76.9	277	75.2	310
35-49	77.4	183	84.4	424	82.0	607
15-49	75.2	229	81.3	778	79.6	1,007
15-64	79.2	373	81.7	949	80.9	1,322

[1]Relates to Global AIDS Monitoring indicator 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIABGNOSED_NAT.
[2]Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX_CURR_NAT / SUBNAT.
[3]Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads and POEPFAR VL_SUPPRESSION_NAT.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 11.C Adult self-reported ART status or presence of laboratory antiretroviral (ARV) data: Unconditional percentages

90-90-90 targets among people living with HIV aged 15-64 years by sex and age, NAIIS 2018

	Diagnosed[1]					
	Males		Females		Total	
Age (years)	Percentage who self-reported HIV-positive diagnosis or with detectable ARVs[1]	Number	Percentage who self-reported HIV-positive diagnosis or with detectable ARVs[1]	Number	Percentage who self-reported HIV-positive diagnosis or with detectable ARVs[1]	Number
15-24	28.8	60	31.7	248	31.0	308
25-34	19.2	161	46.9	577	38.6	738
35-49	45.3	372	57.4	762	52.8	1,134
15-49	35.8	593	49.3	1,587	44.8	2,180
15-64	40.9	835	50.3	1,870	46.9	2,705
	On Treatment[2]					
	Males		Females		Total	
Age (years)	Percentage with detectable ARVs or who self-reported being on ART[2]	Number	Percentage with detectable ARVs or who self-reported being on ART[2]	Number	Percentage with detectable ARVs or who self-reported being on ART[2]	Number
15-24	27.5	60	29.0	248	28.6	308
25-34	18.5	161	44.9	577	37.0	738
35-49	44.5	372	54.6	762	50.8	1,134
15-49	35.0	593	46.8	1,587	42.9	2,180
15-64	40.0	835	48.2	1,870	45.3	2,705
	Virally Suppressed[3]					
	Males		Females		Total	
Age (years)	Percentage virally suppressed[3]	Number	Percentage virally suppressed[3]	Number	Percentage virally suppressed[3]	Number
15-24	20.1	60	22.7	248	22.1	308
25-34	12.2	161	34.5	577	27.8	738
35-49	34.4	372	46.1	762	41.6	1,134
15-49	26.3	593	38.0	1,587	34.1	2,180
15-64	31.7	835	39.4	1,870	36.6	2,705

[1]Relates to Global AIDS Monitoring indicator 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIAGNOSED_NAT.
[2]Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX_CURR_NAT / SUBNAT.
[3]Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads and PEPFAR VL_SUPPRESSION_NAT.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

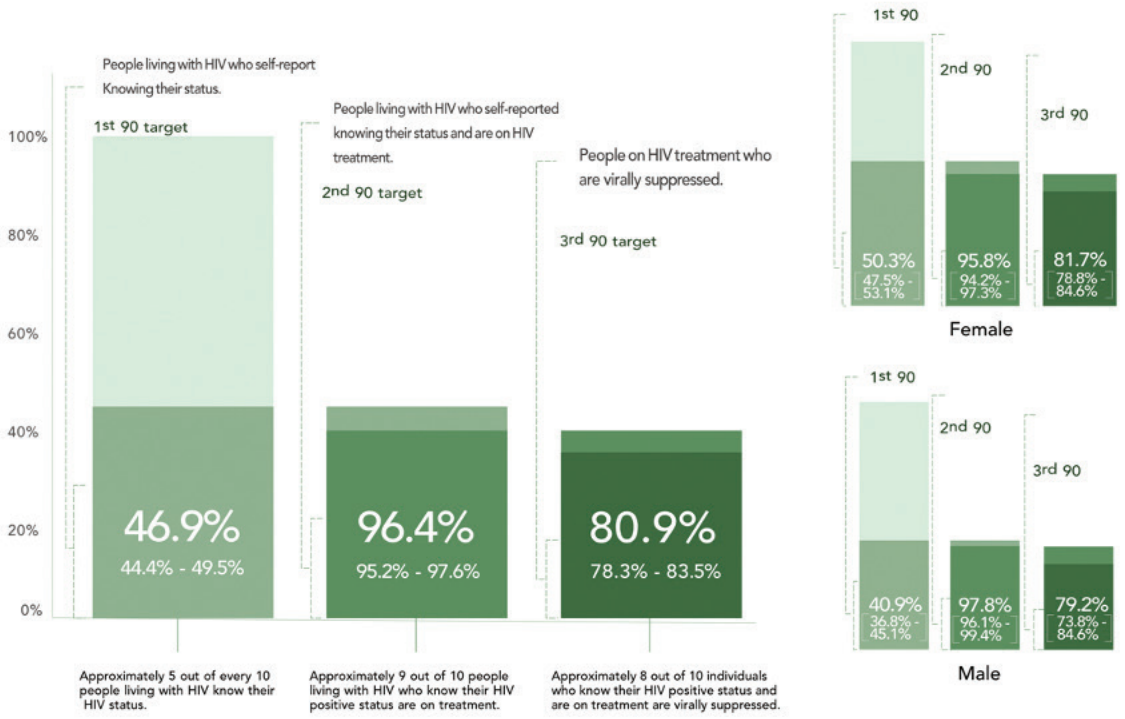

Figure 11.A Adult 90-90-90: Conditional percentages (adjusted for laboratory antiretroviral data among adults aged 15-64 years), NAIIS 2018

12. Clinical Perspectives on People Living with HIV

12.1 Background

Nigeria implemented the "test and treat" policy for all in 2016. Ensuring the treatment program is people-centered and innovative to meet this policy requires diligent monitoring and responsiveness.[1] Clinical indicators such as CD4 count at diagnosis and retention on ART can provide evidence of the ability to reach vulnerable populations and quality of care. The distribution of CD4 counts also reflects population health and the potential impact of HIV on mortality.

12.2 Results

Tables 12.A to 12.E and Figure 12.A present data on clinical characteristics of PLHIV from the survey.

12.2.1 Key Findings

- Among newly diagnosed HIV-positive adults aged 15-64 years who self-reported being HIV negative and had no detectable ARVs, 9.3% had a CD4 count <200 cells/µLl and 29.5% had <350 cells/µLl (Table 12.B).
- Among HIV-positive adults aged 15-64 years who self-reported being on ART ≤12 months prior to the survey, 77.9% of women and 81.7% of men were virally suppressed (Table 12.E).
- Among HIV-positive adults aged 15-64 years who initiated ART ≤12 months prior to the survey, 95.2% were still receiving ART (Table 12.C).
- Among HIV-positive adults aged 15-64 years who initiated ART >12 months prior to the survey, 94.3% were still receiving ART (Table 12.D).
- Among HIV-positive adults aged 15-64 years with VLS, 28.3% reported not being on ART (30.5% among women and 24.7% among men) (Table 12.E).

12.3 References

1. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection.* Geneva: World Health Organization; 2016. http://www.who.int/hiv/pub/arv/arv-2016/en/. Accessed March 10, 2019.

Table 12.A Median CD4 count and prevalence of immunosuppression

Median (Q1, Q3) CD4 count of HIV-positive persons aged 15-64 years and percentage with immunosuppression (<500 cells/µL) by sex, self-reported diagnosis and antiretroviral therapy (ART) status and socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males			Females			Total		
	Median (Q1, Q3)[1]	Percentage <500 cells/µL	Number	Median (Q1, Q3)[1]	Percentage <500 cells/µL	Number	Median (Q1, Q3)[1]	Percentage <500 cells/µL	Number
Self-reported diagnosis and treatment status									
Not previously diagnosed	445 (297,663)	57.6	570	517 (325,751)	46.7	1,249	495 (312,716)	50.8	1,819
Previously diagnosed, not on ART	*	*	17	579 (282,747)	39.2	56	514 (282,717)	47.6	73
Previously diagnosed, on ART	441 (311,592)	58.6	231	606 (395,799)	36.9	503	541 (351,749)	44.6	734
Place of residence									
Urban	406 (279,632)	59.4	314	553 (339,754)	42.1	753	511 (306,711)	48.3	1,067
Rural	457 (313,646)	58.2	521	533 (339,775)	45.1	1,115	502 (327,739)	49.8	1,636
Geopolitical zone									
North West	412 (297,651)	58.2	55	556 (276,737)	41.4	117	514 (289,713)	47.5	172
North East	437 (292,612)	65.1	139	560 (279,780)	44.1	257	484 (289,702)	52.5	396
North Central	446 (293,649)	55.4	185	568 (386,825)	41.1	456	533 (335,771)	45.9	641
South East	420 (281,572)	60.2	148	518 (315,754)	47.8	325	479 (311,681)	52.5	473
South South	486 (312,678)	54.0	217	547 (361,771)	42.3	484	521 (337,745)	46.5	701
South West	406 (267,637)	63.9	91	516 (329,747)	46.4	229	480 (308,686)	52.5	320
Marital status									
Never married	437 (323,638)	56.7	161	555 (357,742)	43.3	307	516 (328,707)	48.6	468
Married or living together	437 (298,647)	59.3	595	538 (349,784)	42.9	995	501 (319,724)	50.0	1,590
Divorced or separated	481 (275,577)	57.2	44	508 (263,699)	48.6	197	491 (266,671)	50.6	241
Widowed	397 (236,551)	60.2	34	547 (338,757)	44.5	364	526 (325,752)	45.9	398

Table 12.A Median CD4 count and prevalence of immunosuppression (continued)

Median (Q1, Q3) CD4 count of HIV-positive persons aged 15-64 years and percentage with immunosuppression (<500 cells/µL) by sex, self-reported diagnosis and antiretroviral therapy (ART) status and socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males			Females			Total		
	Median (Q1, Q3)[1]	Percentage <500 cells/µL	Number	Median (Q1, Q3)[1]	Percentage <500 cells/ µL	Number	Median (Q1, Q3)[1]	Percentage <500 cells/ µL	Number
Type of union									
In polygynous union	430 (319,613)	62.2	90	537 (318,758)	43.2	300	507 (319,730)	48.2	390
Not in polygynous union	437 (289,646)	59.6	502	538 (353,800)	42.6	685	496 (318,727)	50.7	1,187
Not currently in union	443 (295,619)	57.2	239	543 (329,744)	44.9	868	516 (322,715)	48.1	1,107
Education[2]									
No education	488 (319,666)	53.1	76	565 (341,801)	43.5	367	533 (340,779)	45.4	443
Primary	433 (279,613)	65.2	198	512 (327,760)	46.8	512	485 (303,713)	52.6	710
Secondary	446 (305,662)	55.8	373	555 (357,754)	41.8	732	517 (328,711)	47.4	1,105
Tertiary	432 (325,609)	57.4	162	563 (345,784)	41.1	216	506 (328,702)	48.6	378
Others	*	*	26	339 (134,614)	69.4	36	336 (182,588)	72.5	62
Wealth quintile									
Lowest	456 (296,642)	58.1	100	546 (337,772)	44.8	207	504 (302,726)	49.7	307
Second	428 (303,588)	64.0	144	530 (316,793)	44.2	316	489 (316,714)	51.3	460
Middle	458 (270,654)	59.7	208	539 (327,765)	44.5	499	508 (311,738)	49.4	707
Fourth	426 (316,653)	57.2	203	548 (358,745)	42.6	495	511 (340,725)	47.6	698
Highest	433 (285,647)	56.6	180	539 (336,789)	43.6	351	510 (308,708)	48.9	531

Table 12.A Median CD4 count and prevalence of immunosuppression (continued)

Median (Q1, Q3) CD4 count of HIV-positive persons aged 15-64 years and percentage with immunosuppression (<500 cells/µL) by sex, self-reported diagnosis and antiretroviral therapy (ART) status and socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males			Females			Total		
	Median (Q1, Q3)[1]	Percentage <500 cells/µL	Number	Median (Q1, Q3)[1]	Percentage <500 cells/ µL	Number	Median (Q1, Q3)[1]	Percentage <500 cells/ µL	Number
Age (years)									
15-19	*	*	23	640 (455,806)	31.4	57	639 (451,846)	29.5	80
20-24	493 (373,642)	51.5	36	617 (412,788)	34.3	193	582 (385,729)	38.0	229
25-29	455 (327,672)	56.4	72	514 (314,755)	48.6	279	494 (325,736)	50.8	351
30-34	453 (289,652)	60.0	92	527 (324,759)	44.5	302	505 (311,705)	49.4	394
35-39	434 (306,646)	59.5	115	517 (315,725)	47.0	353	490 (313,713)	51.0	468
40-44	443 (295,595)	60.4	129	589 (332,794)	41.2	244	511 (318,739)	49.0	373
45-49	403 (292,620)	63.8	126	506 (288,719)	47.3	160	443 (291,683)	54.8	286
50-54	437 (265,605)	56.9	113	538 (379,766)	44.5	144	493 (327,727)	50.8	257
55-59	328 (214,539)	71.3	63	611 (414,818)	35.2	74	506 (299,763)	49.7	137
60-64	475 (251,662)	52.7	66	432 (320,538)	63.1	62	439 (310,654)	58.1	128
Total 15-24 years	547 (385,692)	42.5	59	625 (423,804)	33.7	250	602 (392,771)	35.8	309
Total 15-49 years	446 (312,650)	58.3	593	546 (330,762)	43.7	1,588	513 (324,719)	48.5	2,181
Total 15-64 years	438 (299,640)	58.7	835	542 (339,768)	43.8	1,868	507 (320,723)	49.1	2,703

[1]The interquartile range (IQR) is a measure of variability, based on dividing a data set into quartiles. Quartiles divide a rank-ordered data set 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.

[2]Education categories refer to the highest level of education attended, whether that level was completed.

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

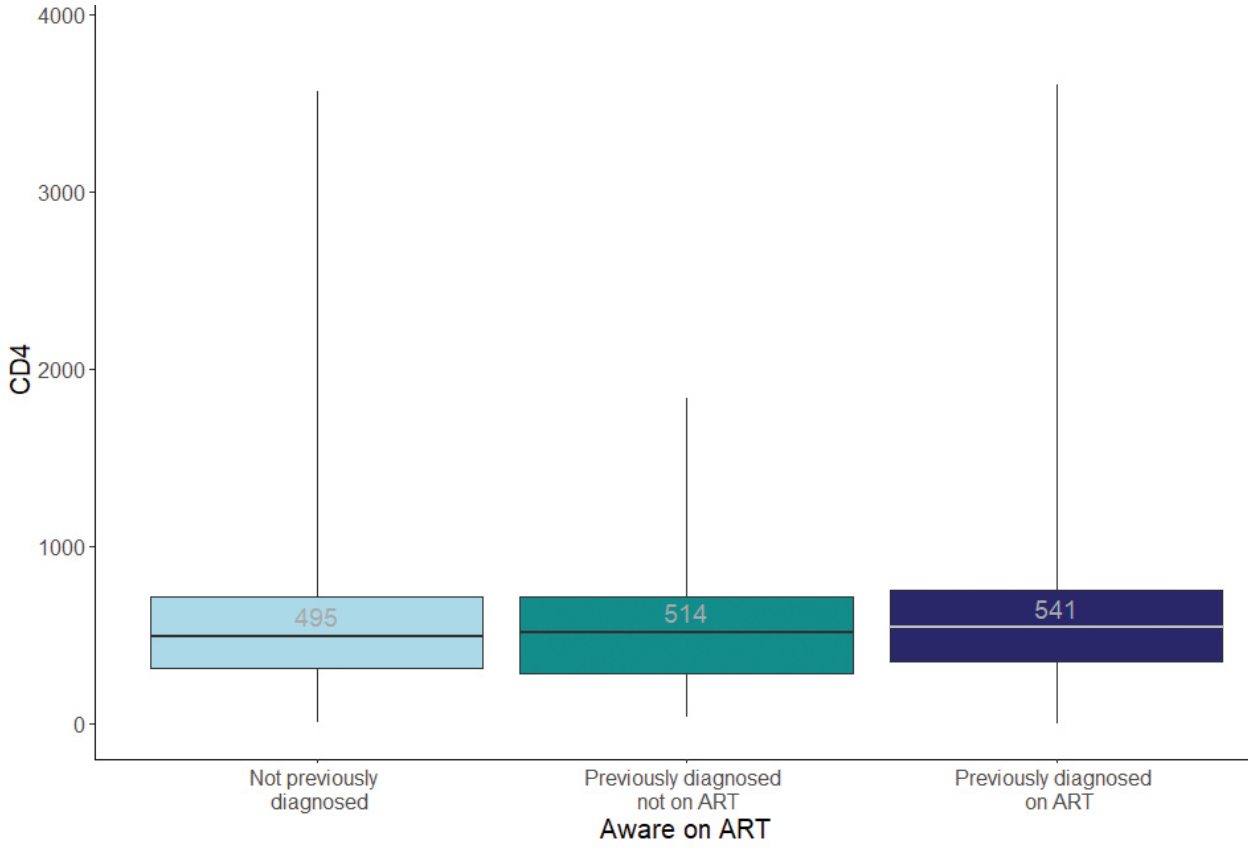

Figure 12.A CD4 count distribution among HIV-positive adults by antiretroviral therapy status (ART), NAIIS 2018

Table 12.B Late HIV diagnosis

Percentage distribution of persons aged 15-64 years who tested HIV positive in NAIIS but self-reported HIV negative, who had no detectable antiretrovirals and who had a CD4 cell count <200 cells/µL and < 50 cells/µL by sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males			Females			Total		
	Percentage <200 cells/ µL[1]	Percentage <350 cells/ µL[1]	Number	Percentage <200 cells/ µL[1]	Percentage <350 cells/ µL[1]	Number	Percentage <200 cells/ µL[1]	Percentage <350 cells/ µL[1]	Number
Place of residence									
Urban	12.5	33.1	60	13.3	27.8	142	13.0	29.9	202
Rural	3.9	34.4	92	7.1	25.8	181	5.9	29.1	273
Geopolitical zone									
North West	*	*	7	*	*	9	*	*	16
North East	*	*	17	*	*	27	19.9	46.5	44
North Central	*	*	23	5.0	36.7	40	9.2	46.5	63
South East	6.1	34.0	40	4.8	28.2	92	5.3	30.2	132
South South	2.7	25.1	47	6.8	18.3	103	5.3	20.8	150
South West	*	*	18	16.2	26.7	52	14.0	26.2	70
Marital status									
Never married	8.2	23.0	44	3.7	19.4	68	5.7	21.0	112
Married or living together	5.6	39.3	92	9.3	25.8	180	7.8	31.3	272
Divorced or separated	*	*	9	*	*	29	22.1	32.0	38
Widowed	*	*	6	18.1	40.5	46	18.3	40.6	52
Type of union									
In polygynous union	*	*	15	16.7	39.8	39	13.7	41.7	54
Not in polygynous union	5.6	41.6	75	6.4	21.5	137	6.1	29.6	212
Not currently in union	11.9	25.4	59	10.9	27.9	143	11.3	27.1	202
Education[2]									
No education	*	*	2	*	*	24	*	*	26
Primary	4.8	32.4	33	6.1	32.9	77	5.6	32.7	110
Secondary	4.5	32.0	76	11.5	25.9	165	8.9	28.2	241
Tertiary	12.1	35.7	38	11.5	21.9	55	11.8	27.8	93
Others	*	*	3	*	*	1	*	*	4

Table 12.B Late HIV diagnosis (continued)

Percentage distribution of persons aged 15-64 years who tested HIV positive in NAIIS but self-reported HIV negative, who had no detectable antiretrovirals and who had a CD4 cell count <200 cells/µL and < 50 cells/µL by sex and selected socio-demographic characteristics, NAIIS 2018

	Males			Females			Total		
Socio-demographic characteristics	Percentage <200 cells/ µL[1]	Percentage <350 cells/ µL[1]	Number	Percentage <200 cells/ µL[1]	Percentage <350 cells/ µL[1]	Number	Percentage <200 cells/ µL[1]	Percentage <350 cells/ µL[1]	Number
Wealth quintile									
Lowest	*	*	8	*	*	20	*	*	28
Second	*	*	21	12.8	30.1	31	17.1	44.7	52
Middle	4.1	30.2	33	11.6	24.3	75	8.9	26.4	108
Fourth	7.7	29.7	37	7.6	27.9	98	7.6	28.5	135
Highest	6.3	28.4	53	10.6	25.9	99	8.8	26.9	152
Age (years)									
15-19	*	*	0	*	*	9	*	*	9
20-24	*	*	14	0.0	18.9	34	0.0	15.3	48
25-29	*	*	21	8.0	30.5	72	5.7	27.8	93
30-34	7.1	39.4	31	15.9	20.9	55	11.5	30.2	86
35-39	*	*	27	8.0	28.2	66	8.7	29.7	93
40-44	*	*	11	*	*	29	11.2	28.8	40
45-49	*	*	22	*	*	29	18.1	45.4	51
50-54	*	*	15	*	*	20	4.5	24.1	35
55-59	*	*	6	*	*	5	*	*	11
60-64	*	*	5	*	*	4	*	*	9
Total 15-24 years	*	*	14	0.0	16.2	43	0.0	13.9	57
Total 15-49 years	8.1	34.2	126	9.2	26.1	294	8.8	29.0	420
Total 15-64 years	8.0	33.8	152	10.0	26.8	323	9.3	29.5	475

[1]Relates to Global AIDS Monitoring indicator 1.5: Late HIV diagnosis.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 12.C Retention on antiretroviral therapy (ART): People initiating ART ≤12 months prior to the survey

Percentage distribution of HIV-positive persons aged 15-64 years who self-reported still on ART after initiation ≤12 months prior to the survey by sex and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Presence of detectable ARVs[2]						
Detectable	*	11	*	22	97.4	33
Not detectable	*	6	*	15	*	21
Place of residence						
Urban	*	16	89.0	42	91.4	58
Rural	96.6	39	99.4	59	98.1	98
Geopolitical zone						
North West	*	3	*	5	*	8
North East	*	13	*	15	*	28
North Central	*	17	96.9	32	96.6	49
South East	*	8	*	13	*	21
South South	*	13	*	22	97.3	35
South West	*	1	*	14	*	15
Marital status						
Never married	*	9	*	15	*	24
Married or living together	97.3	37	91.5	48	94.1	85
Divorced or separated	*	7	*	16	*	23
Widowed	*	2	*	22	*	24
Type of union						
In polygynous union	*	5	*	16	*	21
Not in polygynous union	97.0	32	87.1	32	92.4	64
Not currently in union	*	18	96.6	53	96.5	71
Education[3]						
No education	*	6	*	15	*	21
Primary	*	9	*	28	95.2	37
Secondary	*	21	92.0	47	92.5	68
Tertiary	*	19	*	10	*	29
Others	.*	0	*	0	*	0

Table 12.C Retention on antiretroviral therapy (ART): People initiating ART ≤12 months prior to the survey (continued)

Percentage distribution of HIV-positive persons aged 15-64 years who self-reported still on ART after initiation ≤12 months prior to the survey by sex and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Wealth quintile						
Lowest	*	6	*	9	*	15
Second	*	10	*	15	*	25
Middle	*	18	*	27	92.6	45
Fourth	*	13	92.0	33	94.6	46
Highest	*	8	*	17	*	25
Age (years)						
15-19	*	0	*	2	*	2
20-24	*	4	*	10	*	14
25-29	*	2	*	18	*	20
30-34	*	3	*	13	*	16
35-39	*	12	*	21	97.6	33
40-44	*	6	*	13	*	19
45-49	*	12	*	13	*	25
50-54	*	8	*	9	*	17
55-59	*	6	*	2	*	8
60-64	*	2	*	0	*	2
Total 15-24 years	*	4	*	12	*	16
Total 15-49 years	97.6	39	93.4	90	94.8	129
Total 15-64 years	97.0	55	94.2	101	95.2	156

[1]Relates to Global AIDS Monitoring indicator 1.3: Retention on antiretroviral therapy at 12 months.
[2]Antiretroviral detection assay included only atazanavir, efavirenz and lopinavir. Participants who reported ART use or had an undetectable viral load but had no evidence of the first three ARVs were tested for nevirapine as well.
[3]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 12.D Retention on antiretroviral therapy (ART): People initiating ART >12 months prior to the survey

Percentage distribution of HIV-positive persons aged 15-64 years who self-reported still on ART after initiation >12 months prior to the survey by sex and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Presence of detectable ARVs[2]						
Detectable	97.5	73	96.9	190	97.0	263
Not detectable	*	10	*	25	49.7	35
Place of residence						
Urban	98.2	74	92.4	213	94.2	287
Rural	94.4	107	94.2	210	94.3	317
Geopolitical zone						
North West	*	12	*	25	91.6	37
North East	*	28	100.0	64	100.0	92
North Central	97.0	74	99.1	146	98.3	220
South East	*	21	92.5	70	94.5	91
South South	89.8	31	83.6	65	85.9	96
South West	*	15	94.8	53	94.7	68
Marital status						
Never married	*	8	96.7	44	97.2	52
Married or living together	95.5	154	93.0	218	94.2	372
Divorced or separated	*	9	88.0	53	90.4	62
Widowed	*	10	94.5	108	95.1	118
Type of union						
In polygynous union	*	25	99.6	54	95.1	79
Not in polygynous union	97.2	128	90.5	161	93.9	289
Not currently in union	*	27	93.5	205	94.4	232
Education[3]						
No education	*	13	93.8	66	94.8	79
Primary	95.9	45	97.7	105	97.1	150
Secondary	96.9	62	93.2	174	94.3	236
Tertiary	94.4	56	94.5	67	94.4	123
Others	*	5	*	11	*	16

Table 12.D Retention on antiretroviral therapy (ART): People initiating ART >12 months prior to the survey (continued)

Percentage distribution of HIV-positive persons aged 15-64 years who self-reported still on ART after initiation >12 months prior to the survey by sex and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Wealth quintile						
Lowest	*	19	*	25	94.6	44
Second	93.0	38	98.0	81	96.2	119
Middle	95.6	44	91.3	105	92.6	149
Fourth	97.6	44	96.8	119	97.0	163
Highest	96.5	36	88.5	93	91.3	129
Age (years)						
15-19	*	0	*	6	*	6
20-24	*	0	*	19	*	19
25-29	*	5	86.9	38	89.0	43
30-34	*	10	89.4	62	88.8	72
35-39	*	19	94.3	95	94.3	114
40-44	100.0	36	91.3	76	94.6	112
45-49	97.7	33	97.2	45	97.4	78
50-54	96.1	37	100.0	47	97.9	84
55-59	*	17	*	20	100.0	37
60-64	*	24	*	15	92.6	39
Total 15-24 years	*	0	*	25	*	25
Total 15-49 years	96.8	103	91.8	341	93.1	444
Total 15-64 years	96.2	181	93.3	423	94.3	604

[1]Relates to Global AIDS Monitoring indicator 1.3: Retention on antiretroviral therapy at 12 months.
[2]Antiretroviral detection assay included only atazanavir, efavirenz and lopinavir. Participants who reported ART use or had an undetectable viral load but had no evidence of the first three ARVs were tested for nevirapine as well.
[3]Education categories refer to the highest level of education attended, whether or not that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 12.E Viral load suppression by self-reported antiretroviral therapy (ART) status

Percentage distribution of HIV-positive persons aged 15-64 years with viral load suppression (VLS) (<1,000 copies/mL) by self-reported ART status and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristic	On ART > 12 months		On ART ≤ 12 months		Not on ART	
	With viral load suppression	Number[1]	With viral load suppression	Number[1]	With viral load suppression	Number[1]
Sex						
Male	79.2	176	81.7	52	24.7	555
Female	85.9	403	77.9	95	30.5	1,233
Residence						
Urban	84.3	277	83.0	52	29.7	665
Rural	82.8	302	76.9	95	27.3	1,123
Age (years)						
15–24	*	22	*	13	25.3	253
25–64	83.8	557	78.7	134	28.9	1,535
Total 15–64 years	83.6	579	79.4	147	28.3	1,788

[1]Number of HIV-positive persons who had viral load values.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

13. Prevention of Mother-to-Child HIV Transmission

13.1 Background

PMTCT, also known as prevention of vertical transmission, refers to interventions to prevent transmission of HIV from an HIV-positive mother to her infant during pregnancy, labor, delivery or breastfeeding.[1] To prevent mother-to-child HIV transmission (MTCT), WHO recommends a comprehensive four-pronged approach: (1) primary prevention of HIV infection among women, especially young women; (2) prevention of unintended pregnancies among HIV-positive women; (3) provision of specific interventions to reduce HIV transmission from HIV-infected women to their infants; and (4) provision of treatment, care and support for HIV-positive mothers, their infants and family.[2,3]

13.2 Results

Tables 13.A to 13.D present statistics on ANC attendance, breastfeeding practices, awareness of a woman's HIV status prior to or during pregnancy, use of ART during pregnancy in women who were aware of their HIV-positive status during pregnancy and infant HIV testing to confirm HIV infection through self-report by the mother and through biomarker testing during the survey.

13.2.1 Key Findings

- In the three years preceding the survey:
  - 76.3% of women aged 15-49 years who delivered in the three years preceding the survey attended at least one ANC visit, 87.1% in urban areas and 68.1% in rural areas (Table 13.A).
  - ANC attendance for women aged 15-49 years was lowest for those with no education (56.9%) and highest for those with tertiary education (97.6%) (Table 13.A).
  - ANC attendance was lowest among women aged 15-19 years (64.6%) and highest among women aged 35-39 years (80.6%) (Table 13.A).
  - 84.3% of those who knew their HIV-positive status received ARVs (Table 13.D).
- Among women aged 15-49 years who gave birth within the past 12 months, 41.5% reported knowing their status during their pregnancy (Table 13.C).

13.3 References

1. Joint United Nations Programme on HIV/AIDS (UNAIDS). Prevention of mother-to-child transmission of HIV (PMTCT). The Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project. Accessed March 10, 2019.

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. *JAMA.* 2000; 283:1175-1182. doi:10.1001/jama.283.9.1175.

3. World Health Organization. *Towards the elimination of mother-to-child transmission of HIV: Report of a WHO technical consultation.* Geneva: World Health Organization; 2011. http://apps.who.int/iris/bitstream/handle/10665/44638/9789241501910_eng.pdf;jsessionid=CD35DAE3C3D00349A9B149BCFF9262C4?sequence=1. Accessed March 10, 2019.

Table 13.A Antenatal care

Percentage of women aged 15-49 years who delivered in the three years preceding the survey and who attended at least one antenatal care (ANC) visit for their most recent birth by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Percentage who attended at least one ANC visit	Number
Place of residence		
Urban	87.1	9,181
Rural	68.1	14,420
Geopolitical zone		
North West	67.2	4,226
North East	71.2	4,924
North Central	72.4	3,764
South East	93.9	3,546
South South	74.6	3,271
South West	86.4	3,870
State		
Abia	93.9	707
Adamawa	76.1	732
Akwa Ibom	67.5	532
Anambra	95.2	615
Bauchi	69.7	1,169
Bayelsa	49.4	620
Benue	66.0	511
Borno	80.2	248
Cross River	83.8	604
Delta	79.1	492
Ebonyi	87.5	949
Edo	87.6	530
Ekiti	86.0	500
Enugu	94.6	624
FCT[1]	89.9	432
Gombe	79.2	1,015
Imo	96.0	651
Jigawa	78.9	868
Kaduna	71.7	661
Kano	82.4	734
Katsina	54.2	564
Kebbi	37.7	539
Kogi	77.6	428

Table 13.A Antenatal care (continued)

Percentage of women aged 15-49 years who delivered in the three years preceding the survey and who attended at least one antenatal care (ANC) visit for their most recent birth by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Percentage who attended at least one ANC visit	Number
Kwara	82.8	398
Lagos	88.3	1,041
Nasarawa	85.8	643
Niger	57.9	699
Ogun	89.2	548
Ondo	83.9	564
Osun	93.1	582
Oyo	78.4	635
Plateau	77.5	653
Rivers	71.9	493
Sokoto	47.0	537
Taraba	63.3	923
Yobe	57.9	837
Zamfara	44.5	323
Marital status		
Never married	72.1	1,166
Married or living together	76.5	21,641
Divorced or separated	77.2	547
Widowed	80.6	238
Type of union		
In polygynous union	68.4	6,098
Not in polygynous union	79.8	15,418
Not currently in union	74.4	1,951
Education[2]		
No education	56.9	6,352
Primary	78.1	4,068
Secondary	86.7	9,064
Tertiary	97.6	2,409
Others	66.0	1,677
Wealth quintile		
Lowest	55.3	5,066
Second	67.1	4,852
Middle	81.4	5,011
Fourth	88.1	4,704
Highest	93.6	3,968

Table 13.A Antenatal care (continued)

Percentage of women aged 15-49 years who delivered in the three years preceding the survey and who attended at least one antenatal care (ANC) visit for their most recent birth by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Percentage who attended at least one ANC visit	Number
Age (years)		
15-19	64.6	1,682
20-24	74.2	5,309
25-29	78.2	6,929
30-34	78.4	5,171
35-39	80.6	3,132
40-44	80.3	1,120
45-49	69.3	258
Total 15-24 years	71.7	6,991
Total 15-49 years	76.3	23,601

[1]FCT – Federal Capital Territory.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

Table 13.B 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, child's age and mother's HIV status, NAIIS 2018

Characteristic	Never breastfed	Ever breastfed, but not currently breastfeeding	Currently breastfeeding	Number
Child's age (months)				
0-1	0.9	52.4	46.7	1,395
2-3	2.1	55.4	42.5	1,423
4-5	1.2	59.0	39.8	1,378
6-8	1.0	59.1	39.8	2,062
9-11	0.9	57.9	41.2	1,852
12-17	1.0	71.7	27.2	4,108
18-23	1.0	90.5	8.4	2,930
24-36	0.7	97.0	2.2	5,486
Mother's NAIIS HIV test result				
HIV positive	2.2	77.4	20.4	311
HIV negative	1.0	73.3	25.7	21,357
Not tested	1.4	71.6	27.1	1,689

Table 13.C Prevention of mother-to-child HIV (PMTCT) transmission: Knowledge of HIV status

Percentage distribution of women aged 15-49 years who gave birth within the past 12 months who were tested for HIV during antenatal care and received their results or who already knew they were HIV positive by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Tested for HIV and received result[1]		Percentage who already knew they tested HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the past 12 months
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Place of residence					
Urban	0.0	57.0	0.7	57.7	3,193
Rural	0.1	29.3	0.4	29.8	5,169
Geopolitical zone					
North West	0.0	27.0	0.2	27.3	1,468
North East	0.0	28.2	0.3	28.5	1,730
North Central	0.0	44.5	0.5	45.1	1,321
South East	0.1	65.1	0.6	65.8	1,393
South South	0.3	44.8	0.6	45.7	1,235
South West	0.1	51.7	0.9	52.7	1,215
Marital status					
Never married	0.0	33.9	1.5	35.4	410
Married or living together	0.1	41.5	0.4	42.0	7,746
Divorced or separated	0.0	36.1	1.3	37.4	147
Widowed	0.0	42.4	0.9	43.3	57
Type of union					
In polygynous union	0.0	27.8	0.2	27.9	2,073
Not in polygynous union	0.1	46.5	0.5	47.1	5,629
Not currently in union	0.0	35.1	1.4	36.5	614
Education[2]					
No education	0.0	19.0	0.1	19.2	2,162
Primary	0.0	36.7	0.6	37.3	1,359
Secondary	0.2	52.4	0.6	53.2	3,371
Tertiary	0.0	80.5	1.3	81.8	885
Others	0.0	18.7	0.0	18.7	576

Table 13.C Prevention of mother-to-child HIV (PMTCT) transmission: Knowledge of HIV status (continued)

Percentage distribution of women aged 15-49 years who gave birth within the past 12 months who were tested for HIV during antenatal care and received their results or who already knew they were HIV positive by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Tested for HIV and received result[1]		Percentage who already knew they tested HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the past 12 months
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Wealth quintile					
Lowest	0.0	16.5	0.1	16.7	1,796
Second	0.0	25.9	0.3	26.1	1,716
Middle	0.1	41.9	0.2	42.1	1,806
Fourth	0.2	52.8	0.9	53.9	1,660
Highest	0.1	74.0	1.1	75.3	1,384
Age (years)					
15-19	0.0	26.8	0.0	26.8	753
20-24	0.0	35.5	0.2	35.8	1,986
25-29	0.1	44.3	0.5	45.0	2,536
30-34	0.1	47.0	0.7	47.7	1,770
35-39	0.2	48.1	0.8	49.1	977
40-44	0.0	46.2	1.5	47.7	280
45-49	0.0	30.9	2.1	33.0	60
Total 15-24 years	0.0	32.9	0.1	33.1	2,739
Total 15-49 years	0.1	41.0	0.5	41.5	8,362

[1]Relates to PEPFAR PMTCT_STAT_NAT / SUBNAT.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

Table 13.D Prevention of mother-to-child HIV transmission: HIV-positive pregnant women who received antiretrovirals (ARVs)

Percent distribution of women aged 15-49 years who gave birth within the past three years and received antiretrovirals (ARVs) during pregnancy by HIV result and selected socio-demographic characteristics, NAIIS 2018

HIV result and socio-demographic characteristics	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 three years
NAIIS HIV test result				
HIV positive	73.7	22.5	96.2	87
HIV negative	*	*	*	29
Not tested	*	*	*	12
Place of residence				
Urban	71.0	9.0	80.0	63
Rural	67.5	22.4	89.9	65
Geopolitical zone				
North West	*	*	*	11
North East	*	*	*	21
North Central	*	*	*	29
South East	*	*	*	25
South South	*	*	*	20
South West	*	*	*	22
Marital status				
Never married	*	*	*	10
Married or living together	74.4	16.0	90.4	102
Divorced or separated	*	*	*	13
Widowed	*	*	*	3
Type of union				
In polygynous union	*	*	*	16
Not in polygynous union	73.8	16.3	90.1	86
Not currently in union	*	*	*	26
Education[2]				
No education	*	*	*	15
Primary	*	*	*	24
Secondary	68.0	22.6	90.6	57
Tertiary	*	*	*	29
Others	*	*	*	3

Table 13.D Prevention of mother-to-child HIV transmission: HIV-positive pregnant women who received antiretrovirals (ARVs) (continued)

Percent distribution of women aged 15-49 years who gave birth within the past three years and received antiretrovirals (ARVs) during pregnancy by HIV result and selected socio-demographic characteristics, NAIIS 2018

HIV result and socio-demographic characteristics	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 three years
Wealth quintile				
Lowest	*	*	*	12
Second	*	*	*	15
Middle	73.6	8.6	82.2	32
Fourth	68.5	15.3	83.8	31
Highest	69.0	18.4	87.4	38
Age (years)				
15-19	*	*	*	1
20-24	*	*	*	12
25-29	71.7	13.0	84.7	32
30-34	78.9	11.4	90.3	34
35-39	75.9	15.5	91.4	36
40-44	*	*	*	12
45-49	*	*	*	1
Total 15-24 years	*	*	*	13
Total 15-49 years	69.5	14.8	84.3	128

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

[2]Education categories refer to the highest level of education attended, whether that level was completed.

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

14. Adolescents and Young People

14.1 Background

A third of the sub-Saharan Africa population is made up of individuals between the ages of 10 and 24 years.[1] Young people aged 15-24 years are more likely to engage in risky sexual behaviors than older adults and less likely to visit health care facilities. Control of HIV in this population is particularly challenging but critical for long-term epidemic control.[1]

14.2 Results

Table 14.A shows the prevalence of early sexual debut before 15 years among young persons aged 15-24 years. Tables 14.B to 14.D show knowledge of HIV prevention among adolescents aged 10-14 years. These knowledge data were measured by asking participants to agree or disagree with both accurate and inaccurate statements about HIV prevention.

14.2.1 Key Findings

- Among young people aged 15-24 years, 18.1% reported sexual debut before the age of 15 years (Table 14.A).
- Among young women aged 15-24 years, sexual debut before age 15 years was 24.2% in rural areas compared to 13.8% in urban areas (Table 14.A).
- Comprehensive knowledge of HIV prevention among adolescents aged 10-14 years was 1.4% (girls 1.2%, boys 1.7%) (Table 14.B, Table 14.C, Table 14.D).

14.3 References

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

Table 14.A Age at sexual debut

Percentage of older adolescents and young adults aged 15-24 years who have had vaginal sex by age at sexual debut, sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percentage who had sex before age of 15 years	Percentage who had sex between age of 15 and 19 years	Percentage who had sex between age of 20 and 24 years	Number	Percentage who had sex before age of 15 years	Percentage who had sex between age of 15 and 19 years	Percentage who had sex between age of 20 and 24 years	Number	Percentage who had sex before age of 15 years	Percentage who had sex between age of 15 and 19 years	Percentage who had sex between age of 20 and 24 years	Number
Place of residence												
Urban	15.9	65.0	19.1	3,457	13.8	69.8	16.4	6,533	14.7	67.8	17.5	9,990
Rural	13.9	67.6	18.4	5,088	24.2	69.2	6.6	11,963	20.7	68.7	10.7	17,051
Geopolitical zone												
North West	7.7	63.9	28.3	656	29.1	66.8	4.1	3,872	25.1	66.3	8.6	4,528
North East	10.7	63.7	25.6	1,040	24.7	70.4	4.9	3,876	21.2	68.7	10.1	4,916
North Central	11.1	68.0	21.0	1,837	14.9	72.6	12.5	3,307	13.3	70.7	16.0	5,144
South East	18.6	63.6	17.7	1,378	11.8	69.0	19.2	2,348	15.0	66.5	18.5	3,726
South South	17.9	70.7	11.5	2,020	15.9	73.8	10.3	2,898	16.8	72.3	10.9	4,918
South West	17.2	65.6	17.1	1,614	9.2	67.7	23.1	2,195	13.4	66.6	20.0	3,809
Marital status												
Never married	17.6	66.3	16.1	6,543	15.2	68.6	16.3	5,948	16.6	67.2	16.2	12,491
Married or living together	5.9	66.6	27.6	1,898	22.2	69.9	7.9	11,953	19.4	69.3	11.2	13,851
Divorced or separated	11.0	70.3	18.7	80	22.6	69.9	7.4	505	20.7	70.0	9.3	585
Widowed	*	*	*	8	18.4	68.9	12.7	69	18.4	69.6	12.1	77
Type of union												
In polygynous union	9.4	69.7	20.9	88	29.0	66.9	4.1	3,464	28.3	67.0	4.7	3,552
Not in polygynous union	5.7	66.4	27.9	1,796	19.1	71.2	9.7	8,427	16.2	70.2	13.7	10,223
Not currently in union	17.5	66.4	16.1	6,631	15.8	68.7	15.5	6,522	16.8	67.3	15.9	13,153

Table 14.A Age at sexual debut (continued)

Percentage of older adolescents and young adults aged 15-24 years who have had vaginal sex by age at sexual debut, sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males				Females				Total			
	Percentage who had sex before age of 15 years	Percentage who had sex between age of 15 and 19 years	Percentage who had sex between age of 20 and 24 years	Number	Percentage who had sex before age of 15 years	Percentage who had sex between age of 15 and 19 years	Percentage who had sex between age of 20 and 24 years	Number	Percentage who had sex before age of 15 years	Percentage who had sex between age of 15 and 19 years	Percentage who had sex between age of 20 and 24 years	Number
Education[1]												
No education	9.5	70.6	19.9	547	30.9	66.3	2.7	4,605	28.1	66.9	5.0	5,152
Primary	14.2	63.1	22.7	648	23.1	72.0	4.9	2,375	20.8	69.7	9.5	3,023
Secondary	17.2	67.3	15.5	5,691	12.3	73.9	13.8	8,625	14.6	70.8	14.6	14,316
Tertiary	10.2	62.3	27.5	1,343	3.8	56.4	39.8	1,500	7.3	59.7	33.0	2,843
Others	5.2	66.9	27.9	315	34.3	64.8	0.9	1,370	28.8	65.2	6.0	1,685
Wealth quintile												
Lowest	9.5	70.9	19.6	1,173	31.5	65.3	3.2	4,248	26.0	66.7	7.3	5,421
Second	11.4	65.5	23.0	1,486	25.1	69.9	5.0	4,095	21.1	68.6	10.2	5,581
Middle	16.3	64.7	19.0	1,959	16.9	74.1	9.1	4,051	16.6	70.6	12.8	6,010
Fourth	17.8	66.0	16.2	2,049	12.0	71.9	16.1	3,608	14.5	69.3	16.2	5,657
Highest	15.8	66.3	17.9	1,878	9.0	65.9	25.1	2,494	12.5	66.1	21.4	4,372
Age (years)												
15-19	27.1	72.9	NA	2,577	28.3	71.7	NA	6,088	27.9	72.1	NA	8,665
20-24	10.3	64.0	25.7	5,968	15.7	68.3	16.0	12,408	13.5	66.6	19.9	18,376
Total 15-24 years	14.9	66.4	18.7	8,545	20.1	69.5	10.5	18,496	18.1	68.3	13.5	27,041

[1]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.
NA – not applicable.

Table 14.B Adolescent knowledge about HIV prevention: Adolescent boys

Percentage distribution of adolescent boys aged 10-14 years who correctly identify both ways of preventing the transmission of HIV and reject major misconceptions about HIV transmission by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Percentage who correctly answered the questions:											
	Can a person reduce their chance of getting HIV by not having sex?	Number	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Number	Can a healthy-looking person have HIV?	Number	Can ARVs make people with HIV less likely to spread the virus?	Number	Can a mother with HIV or AIDS pass HIV to her unborn baby?	Number	All five questions	Number[1]
Place of residence												
Urban	13.5	1,532	8.4	2,387	11.8	1,532	8.3	1,532	14.9	1,532	2.7	2,388
Rural	5.6	2,251	3.6	2,982	4.2	2,251	3.0	2,251	4.5	2,251	0.8	2,982
Geopolitical zone												
North West	3.3	1,161	2.4	1,452	2.7	1,161	1.6	1,161	2.6	1,161	0.9	1,453
North East	2.1	743	1.6	848	1.3	743	1.1	743	1.5	743	0.5	848
North Central	5.1	642	3.8	785	4.4	642	2.6	642	4.6	642	1.3	785
South East	20.5	353	7.9	668	18.4	353	13.5	353	22.1	353	2.6	668
South South	25.3	380	12.7	734	19.5	380	15.5	380	22.0	380	2.9	734
South West	17.7	504	10.0	882	15.2	504	10.3	504	21.2	504	2.8	882
Education[2]												
No education	0.3	420	0.3	438	0.4	420	0.0	420	0.2	420	0.0	438
Primary	3.1	2,203	1.9	3,056	1.9	2,203	1.7	2,203	2.9	2,203	0.4	3,056
Secondary	27.3	982	15.1	1,678	24.1	982	16.3	982	27.6	982	4.7	1,679
Tertiary	*	1	*	1	*	1	*	1	*	1	*	1
Wealth quintile												
Lowest	2.0	924	1.5	1,038	1.3	924	0.8	924	0.8	924	0.1	1,038
Second	3.8	883	2.5	1,080	2.6	883	2.1	883	2.8	883	0.7	1,080
Middle	6.2	818	3.8	1,175	4.8	818	2.6	818	4.7	818	0.8	1,176
Fourth	12.1	681	7.0	1,113	10.4	681	8.8	681	13.1	681	2.6	1,113
Highest	30.4	477	14.6	963	26.9	477	17.9	477	35.2	477	4.3	963

Table 14.B Adolescent knowledge about HIV prevention: Adolescent boys (continued)

Percentage distribution of adolescent boys aged 10-14 years who correctly identify both ways of preventing the transmission of HIV and reject major misconceptions about HIV transmission by selected socio-demographic characteristics, NAIIS 2018

	Percentage who correctly answered the questions:											
Socio-demographic characteristics	Can a person reduce their chance of getting HIV by not having sex?	Number	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Number	Can a healthy-looking person have HIV?	Number	Can ARVs make people with HIV less likely to spread the virus?	Number	Can a mother with HIV or AIDS pass HIV to her unborn baby?	Number	All five questions	Number[1]
Total 10-14 years	8.9	3,783	5.8	5,369	7.4	3,783	5.2	3,783	8.8	3,783	1.7	5,370

[1]Includes only participants who answered all five questions.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 14.C Adolescent knowledge about HIV prevention: Adolescent girls

Percentage distribution of adolescent girls aged 10-14 years who correctly identify both ways of preventing the transmission of HIV and reject major misconceptions about HIV transmission by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Percentage who correctly answered the questions:											
	Can a person reduce their chance of getting HIV by not having sex?	Number	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Number	Can a healthy-looking person have HIV?	Number	Can ARVs make people with HIV less likely to spread the virus?	Number	Can a mother with HIV or AIDS pass HIV to her unborn baby?	Number	All five questions	Number[1]
Place of residence												
Urban	13.2	1,397	5.9	2,379	12.6	1,397	6.9	1,396	13.7	1,396	1.8	2,379
Rural	3.9	2,118	2.6	2,880	3.9	2,118	3.0	2,118	4.3	2,118	0.7	2,880
Geopolitical zone												
North West	1.6	1,172	1.0	1,494	1.4	1,172	0.7	1,172	1.3	1,172	0.4	1,494
North East	0.9	690	0.8	828	0.9	690	0.7	690	0.8	690	0.3	828
North Central	3.3	595	2.6	741	3.5	595	2.3	595	3.6	595	1.0	741
South East	23.2	253	6.6	626	22.7	253	15.1	253	24.2	253	2.6	626
South South	19.4	354	7.6	742	18.6	354	14.1	354	20.8	354	1.8	742
South West	22.9	451	9.5	828	22.1	451	11.5	450	25.1	450	2.3	828
Education[2]												
No education	0.3	564	0.3	604	0.3	564	0.3	564	0.3	564	0.3	604
Primary	2.7	1,941	1.4	2,782	2.2	1,941	1.7	1,940	2.3	1,940	0.4	2,782
Secondary	24.9	874	10.3	1,725	25.1	874	14.3	874	27.4	874	2.8	1,725
Tertiary	*	0	*	1	*	0	*	0	*	0	*	1
Wealth quintile												
Lowest	0.6	895	0.5	1,026	0.6	895	0.5	895	0.7	895	0.2	1,026
Second	2.0	802	1.5	1,000	1.8	802	1.9	802	2.4	802	0.5	1,000
Middle	5.1	758	2.9	1,123	5.1	758	3.4	757	4.7	757	0.8	1,123
Fourth	11.8	629	5.3	1,131	11.8	629	7.2	629	12.8	629	2.0	1,131
Highest	30.1	431	10.3	979	28.7	431	15.5	431	32.1	431	2.5	979
Total 10-14 years	7.8	3,515	4.1	5,259	7.6	3,515	4.6	3,514	8.2	3,514	1.2	5,259

[1]Includes only participants who answered all five questions.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table 14.D Adolescent knowledge about HIV prevention: Total[1]

Percentage distribution of adolescents aged 10-14 years who correctly identify both ways of preventing the transmission of HIV and reject major misconceptions about HIV transmission by selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Percentage who correctly answered the questions:											
	Can a person reduce their chance of getting HIV by not having sex?	Number	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Number	Can a healthy-looking person have HIV?	Number	Can ARVs make people with HIV less likely to spread the virus?	Number	Can a mother with HIV or AIDS pass HIV to her unborn baby?	Number	All five questions	Number[1]
Place of residence												
Urban	13.3	2,929	7.2	4,766	12.2	2,929	7.6	2,928	14.3	2,929	2.3	4,767
Rural	4.8	4,369	3.1	5,862	4.0	4,369	3.0	4,369	4.4	4,369	0.7	5,862
Geopolitical zone												
North West	2.4	2,333	1.7	2,946	2.1	2,333	1.2	2,333	2.0	2,333	0.6	2,947
North East	1.6	1,433	1.2	1,676	1.1	1,433	0.9	1,433	1.2	1,433	0.4	1,676
North Central	4.3	1,237	3.2	1,526	4.0	1,237	2.4	1,237	4.1	1,237	1.1	1,526
South East	21.6	606	7.3	1,294	20.2	606	14.2	606	22.9	606	2.6	1,294
South South	22.5	734	10.2	1,476	19.0	734	14.8	734	21.5	734	2.3	1,476
South West	20.1	955	9.8	1,710	18.4	955	10.9	954	23.0	955	2.6	1,710
Education[2]												
No education	0.3	984	0.3	1,042	0.4	984	0.2	984	0.3	984	0.2	1,042
Primary	2.9	4,144	1.6	5,838	2.0	4,144	1.7	4,143	2.6	4,144	0.4	5,838
Secondary	26.2	1,856	12.7	3,403	24.6	1,856	15.4	1,856	27.5	1,856	3.8	3,404
Tertiary	*	1	*	2	*	1	*	1	*	1	*	2
Wealth quintile												
Lowest	1.3	1,819	1.0	2,064	1.0	1,819	0.7	1,819	0.7	1,819	0.1	2,064
Second	3.0	1,685	2.0	2,080	2.2	1,685	2.0	1,685	2.6	1,685	0.6	2,080
Middle	5.7	1,576	3.3	2,298	5.0	1,576	3.0	1,575	4.7	1,576	0.8	2,299
Fourth	12.0	1,310	6.2	2,244	11.1	1,310	8.1	1,310	13.0	1,310	2.3	2,244
Highest	30.3	908	12.5	1,942	27.7	908	16.8	908	33.7	908	3.4	1,942
Total 10-14 years	8.4	7,298	5.0	10,628	7.5	7,298	4.9	7,297	8.5	7,298	1.4	10,629

[1]Includes only participants who answered all five questions.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

15. HIV Risk Factors

15.1 Background

During NAIIS, participants were asked questions about high-risk behaviors, including early sexual debut, recent engagement with multiple sexual partners, condom use at last sexual intercourse, recent engagement in paid sexual intercourse and condom use at last sexual intercourse with a non-marital, non-cohabitating partner. With this information, programs can focus resources to reach individuals most at risk for HIV infection and individuals most in need of information.

In 2007, WHO and UNAIDS recommended voluntary medical male circumcision as a cost-effective strategy to reduce the spread of HIV. Therefore, men aged 15-64 years were asked if they had been medically or traditionally circumcised.

15.2 Results

Tables 15.A to 15.E illustrate NAIIS data about HIV risk factors.

15.2.1 Key Findings

- Among men aged 15-64 years, HIV prevalence was 1.5% among those with no condom use during sex with a non-marital, non-cohabiting partner compared to 0.9% among those who used condoms with a non-marital, non-cohabiting partner (Table 15.A).
- Among married men who had sex with a non-marital, non-cohabiting partner in the past 12 months, 34.3% reported using a condom the last time they had sex compared to 17.3% of married women (Table 15.B, Table 15.C).
- Among men aged 15-64 years, 28.0% self-reported medical circumcision status, 56.8% reported non-medical circumcision status and 1.8% reported being uncircumcised (Table 15.E).

Table 15.A HIV prevalence by sexual behavior

Prevalence of HIV among persons aged 15-64 years who ever had vaginal sex by sex and sexual behavior characteristics, NAIIS 2018

Sexual behavior characteristics	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age (years) at first sexual intercourse						
<15	0.9	3,151	1.5	10,746	1.3	13,897
15-19	1.4	19,158	2.0	44,801	1.8	63,959
20-24	1.1	19,099	2.4	17,176	1.6	36,275
≥25	1.4	12,487	2.0	5,103	1.5	17,590
Number of sexual partners in the past 12 months						
0	1.7	12,229	3.5	17,630	2.7	29,859
1	1.2	31,406	1.6	62,241	1.4	93,647
≥2	1.2	14,430	3.6	2,964	1.6	17,394
Condom use at last sexual intercourse in the past 12 months						
Used condom	1.2	6,150	4.1	4,104	2.2	10,254
Did not use condom	1.2	39,775	1.5	60,559	1.4	100,334
Condom use at last sex with a non-marital, non-cohabitating partner						
Used condom	0.9	5,632	4.0	2,366	1.7	7,998
Did not use condom	1.5	8,770	3.4	6,881	2.2	15,651
No sexual intercourse with a non-marital, non-cohabitating partner in the past 12 months	1.1	31,553	1.4	55,997	1.3	87,550
Total 15-24 years	0.4	8,451	1.1	17,805	0.9	26,256
Total 15-49 years	1.2	45,445	2.0	69,769	1.6	115,214
Total 15-64 years	1.3	58,326	2.0	83,055	1.7	141,381

Table 15.B Condom use at last sex with a non-marital, non-cohabitating partner: Men

Percentage distribution of men aged 15-64 years who reported having sex in the past 12 months who also reported having a non-marital, non-cohabiting partner in the past 12 months and among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months, the percentage distribution who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner by selected socio-demographic characteristics, NAIIS 2018

	Among men who reported having sex in the past 12 months		Among men who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	
Socio-demographic characteristics	Percentage who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner[1]	Number
Place of residence				
Urban	39.3	19,939	42.2	7,301
Rural	28.3	28,776	36.6	7,826
Geopolitical zone				
North West	5.5	8,674	37.6	361
North East	11.6	7,148	32.7	886
North Central	30.3	9,287	44.9	2,756
South East	49.1	7,216	45.7	3,065
South South	58.2	8,090	36.2	4,437
South West	49.5	8,300	38.6	3,622
Marital status				
Never married	95.0	10,507	42.5	9,942
Married or living together	11.8	37,220	34.3	4,353
Divorced or separated	86.1	720	30.8	614
Widowed	82.9	229	19.8	190
Type of union				
In polygynous union	6.1	6,897	19.1	440
Not in polygynous union	13.0	30,266	35.7	3,896
Not currently in union	94.3	11,456	41.6	10,746
Education[2]				
No education	8.4	5,499	25.5	435
Primary	18.8	9,181	24.9	1,677
Secondary	48.1	19,109	39.7	8,687
Tertiary	43.3	10,440	47.1	4,210
Others	2.7	4,451	7.7	114

Table 15.B Condom use at last sex with a non-marital, non-cohabitating partner: Men (continued)

Percentage distribution of men aged 15-64 years who reported having sex in the past 12 months who also reported having a non-marital, non-cohabiting partner in the past 12 months and among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months, the percentage distribution who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner by selected socio-demographic characteristics, NAIIS 2018

	Among men who reported having sex in the past 12 months		Among men who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	
Socio-demographic characteristics	Percentage who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner[1]	Number
Wealth quintile				
Lowest	8.7	9,025	25.6	814
Second	17.8	9,001	32.3	1,737
Middle	34.6	9,911	35.5	3,355
Fourth	44.9	10,464	40.4	4,382
Highest	51.0	10,314	44.7	4,839
Age (years)				
15-19	89.5	1,866	40.4	1,692
20-24	72.1	4,889	43.1	3,523
25-29	48.2	7,221	41.8	3,523
30-34	33.3	7,175	41.2	2,293
35-39	21.0	7,062	37.2	1,484
40-44	16.6	5,639	35.5	938
45-49	13.6	4,741	33.5	627
50-54	11.5	4,071	21.1	467
55-59	9.5	2,964	24.3	294
60-64	10.1	3,087	10.9	286
Total 15-24 years	76.4	6,755	42.4	5,215
Total 15-49 years	37.9	38,593	40.8	14,080
Total 15-64 years	33.5	48,715	39.7	15,127

[1]Relates to Global AIDS Monitoring indicator 3.18: Condom use at last high-risk sex.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

Table 15.C Condom use at last sex with a non-marital, non-cohabitating partner: Women

Percentage distribution of women aged 15-64 years who reported having sex in the past 12 months who also reported having a non-marital, non-cohabitating partner in the past 12 months and among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months, the percentage distribution who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner by selected socio-demographic characteristics, NAIIS 2018

	Among women who reported having sex in the past 12 months		Among women who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	
Socio-demographic characteristics	Percentage who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner[1]	Number
Place of residence				
Urban	17.4	28,520	29.1	4,862
Rural	11.2	41,523	22.7	4,840
Geopolitical zone				
North West	2.8	14,316	16.5	339
North East	4.4	12,134	17.0	613
North Central	9.1	12,255	34.3	1,176
South East	27.5	9,750	30.9	2,408
South South	30.5	10,415	23.6	2,998
South West	22.1	11,173	27.0	2,168
Marital status				
Never married	76.8	8,119	31.8	6,347
Married or living together	2.3	59,011	17.3	1,330
Divorced or separated	77.9	1,471	14.7	1,137
Widowed	62.1	1,397	14.4	859
Type of union				
In polygynous union	2.1	20,086	9.6	404
Not in polygynous union	2.3	38,593	20.6	882
Not currently in union	75.2	10,987	27.8	8,343
Education[2]				
No education	3.0	20,312	3.3	599
Primary	9.1	13,512	13.8	1,239
Secondary	25.1	23,182	28.5	5,566
Tertiary	28.1	8,177	34.7	2,217
Others	1.9	4,781	0.9	76

Table 15.C Condom use at last sex with a non-marital, non-cohabitating partner: Women (continued)

Percentage distribution of women aged 15-64 years who reported having sex in the past 12 months who also reported having a non-marital, non-cohabitating partner in the past 12 months and among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months, the percentage distribution who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner by selected socio-demographic characteristics, NAIIS 2018

	Among women who reported having sex in the past 12 months		Among women who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	
Socio-demographic characteristics	Percentage who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner[1]	Number
Wealth quintile				
Lowest	3.7	14,306	12.4	614
Second	7.5	14,040	19.6	1,194
Middle	14.9	14,154	22.7	2,205
Fourth	20.8	14,302	27.2	2,811
Highest	23.0	13,241	31.9	2,878
Age (years)				
15-19	34.8	5,378	33.6	2,094
20-24	23.2	11,429	30.9	2,791
25-29	12.9	13,664	26.6	1,806
30-34	8.4	11,489	21.0	946
35-39	7.7	9,601	19.6	735
40-44	7.0	7,231	11.5	520
45-49	8.2	4,691	14.4	362
50-54	7.1	3,706	8.4	255
55-59	7.0	1,647	2.6	104
60-64	8.2	1,207	6.1	89
Total 15-24 years	27.1	16,807	32.1	4,885
Total 15-49 years	14.7	63,483	27.3	9,254
Total 15-64 years	14.0	70,043	26.3	9,702

[1]Relates to Global AIDS Monitoring indicator 3.18: Condom use at last high-risk sex.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

Table 15.D Condom use at last sex with a non-marital, non-cohabitating partner: Total

Percentage distribution of adults aged 15-64 years who reported having sex in the past 12 months who also reported having a non-marital, non-cohabitating partner in the past 12 months and among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months, the percentage distribution who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner by selected socio-demographic characteristics, NAIIS 2018

	Among adults who reported having sex in the past 12 months		Among adults who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	
Socio-demographic characteristics	Percentage who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner[1]	Number
Place of residence				
Urban	27.7	48,459	37.9	12,163
Rural	18.9	70,299	32.1	12,666
Geopolitical zone				
North West	3.9	22,990	28.6	700
North East	7.3	19,282	27.1	1,499
North Central	19.3	21,542	42.3	3,932
South East	38.2	16,966	40.3	5,473
South South	44.3	18,505	31.9	7,435
South West	36.0	19,473	35.1	5,790
Marital status				
Never married	88.3	18,626	39.1	16,289
Married or living together	6.4	96,231	30.8	5,683
Divorced or separated	81.0	2,191	21.1	1,751
Widowed	65.4	1,626	15.5	1,049
Type of union				
In polygynous union	3.2	26,983	14.7	844
Not in polygynous union	7.5	68,859	33.4	4,778
Not currently in union	86.4	22,443	36.6	19,089
Education[2]				
No education	4.3	25,811	13.7	1,034
Primary	13.5	22,693	20.8	2,916
Secondary	37.1	42,291	36.1	14,253
Tertiary	37.5	18,617	43.6	6,427
Others	2.3	9,232	4.7	190

Table 15.D Condom use at last sex with a non-marital, non-cohabitating partner: Total (continued)

Percentage distribution of adults aged 15-64 years who reported having sex in the past 12 months who also reported having a non-marital, non-cohabitating partner in the past 12 months and among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months, the percentage distribution who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner by selected socio-demographic characteristics, NAIIS 2018

	Among adults who reported having sex in the past 12 months		Among adults who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	
Socio-demographic characteristics	Percentage who reported having sex with a non-marital, non-cohabiting partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabiting partner[1]	Number
Wealth quintile				
Lowest	5.8	23,331	20.8	1,428
Second	12.0	23,041	27.8	2,931
Middle	23.9	24,065	31.2	5,560
Fourth	32.4	24,766	36.0	7,193
Highest	37.3	23,555	40.9	7,717
Age (years)				
15-19	49.6	7,244	36.9	3,786
20-24	41.2	16,318	38.8	6,314
25-29	28.1	20,885	37.9	5,329
30-34	20.1	18,664	36.8	3,239
35-39	14.3	16,663	32.4	2,219
40-44	11.8	12,870	28.4	1,458
45-49	11.0	9,432	26.9	989
50-54	9.6	7,777	17.0	722
55-59	8.5	4,611	17.5	398
60-64	9.5	4,294	9.7	375
Total 15-24 years	43.8	23,562	38.2	10,100
Total 15-49 years	25.0	102,076	36.4	23,334
Total 15-64 years	23.0	118,758	35.3	24,829

[1]Relates to Global AIDS Monitoring indicator 3.18: Condom use at last high-risk sex.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

Table 15.E Male circumcision

Percent distribution of males aged 15-64 years by self-reported circumcision status, by NAIIS HIV test result and selected socio-demographic characteristics, NAIIS 2018

HIV status and socio-demographic characteristics	Circumcised[1]			Uncircumcised	Unknown	Number
	Medical circumcision	Non-medical circumcision	Method not known			
NAIIS HIV test result						
HIV positive	31.0	53.7	13.3	1.1	0.8	845
HIV negative	27.8	57.1	12.1	1.7	1.2	77,125
Not tested	29.2	53.0	13.5	2.3	1.9	5,370
Place of residence						
Urban	33.8	46.4	16.6	1.6	1.7	34,635
Rural	22.6	66.5	8.1	1.9	0.9	48,705
Geopolitical zone						
North West	8.6	87.6	0.7	2.6	0.5	15,094
North East	13.9	83.2	0.5	1.9	0.4	15,563
North Central	29.2	62.4	5.8	1.7	0.9	16,916
South East	63.2	20.0	15.0	0.6	1.1	11,354
South South	38.6	41.9	16.7	1.4	1.5	12,025
South West	37.4	22.4	35.6	1.5	3.1	12,388
Marital status						
Never married	35.0	48.2	13.2	2.0	1.7	34,157
Married or living together	21.6	64.8	11.1	1.6	0.9	47,079
Divorced or separated	27.7	53.1	16.6	1.9	0.6	1,346
Widowed	24.7	57.3	15.6	1.7	0.7	619
Type of union						
In polygynous union	8.5	83.2	5.2	2.4	0.8	8,611
Not in polygynous union	24.3	61.0	12.5	1.4	0.8	38,139
Not currently in union	34.6	48.4	13.3	2.0	1.6	36,122
Education[2]						
No education	7.3	80.4	4.6	6.5	1.3	9,878
Primary	19.7	66.8	10.6	1.7	1.2	14,588
Secondary	35.2	47.0	15.2	1.1	1.6	36,387
Tertiary	40.1	42.4	15.5	1.1	0.9	15,976
Others	3.3	94.1	1.1	1.1	0.5	6,443
Wealth quintile						
Lowest	7.4	86.0	2.7	3.2	0.7	15,831
Second	15.7	75.6	5.5	2.2	1.1	16,154
Middle	26.8	60.6	10.1	1.5	1.0	17,529
Fourth	36.6	44.3	16.6	1.1	1.4	17,573
Highest	47.5	26.3	23.0	1.2	2.0	16,253

Table 15.E Male circumcision (continued)

Percent distribution of males aged 15-64 years by self-reported circumcision status, by NAIIS HIV test result and selected socio-demographic characteristics, NAIIS 2018

HIV status and socio-demographic characteristics	Circumcised[1]			Uncircumcised	Unknown	Number
	Medical circumcision	Non-medical circumcision	Method not known			
Age (years)						
15-19	33.3	51.3	11.2	2.0	2.2	14,323
20-24	31.0	54.3	11.9	1.5	1.3	11,111
25-29	29.8	55.7	11.8	1.6	1.1	11,322
30-34	30.0	55.0	12.0	2.0	1.0	9,680
35-39	27.8	55.9	13.4	1.9	0.9	9,187
40-44	23.3	60.2	14.0	1.6	1.0	7,380
45-49	22.9	61.8	12.8	1.4	1.0	6,166
50-54	18.2	66.0	12.8	2.1	0.9	5,432
55-59	17.7	67.9	11.5	2.0	0.9	4,011
60-64	15.0	70.9	12.0	1.4	0.7	4,728
Total 15-24 years	32.3	52.6	11.5	1.8	1.8	25,434
Total 15-49 years	29.5	55.3	12.2	1.8	1.3	69,169
Total 15-64 years	28.0	56.8	12.2	1.8	1.3	83,340

[1]Relates to Global AIDS Monitoring indicator 3.16: Prevalence of male circumcision and PEPFAR VMMC_TOTALCIRC NAT / SUBNAT.
[2]Education categories refer to the highest level of education attended, whether that level was completed.

16. HBV and HCV Screening and TB Services

16.1 Background

PLHIV are at risk for acquiring other infections, including tuberculosis (TB), hepatitis B virus (HBV) and hepatitis C virus (HCV). TB is the leading cause of death for PLHIV in Africa. HIV infection predisposes a person to TB infection and progression to active disease. Information regarding health seeking behavior, particularly for TB health services, is therefore very important.

HIV, HBV and HCV have similar transmission routes and concurrent infection with HIV and either HBV or HCV often results in more rapid progression of HBV or HCV to cirrhosis and higher liver-disease mortality. NAIIS 2018 provides population-based HBV and HCV prevalence among HIV-positive individuals aged 15-64 years and a subset of HIV-negative individuals, which supports actionable policy recommendations for screening and treatment. This chapter describes the prevalence of HBV and HCV in persons aged 15 to 64, by sex, age, socio-demographic characteristics and HIV status.

16.2 Results

Tables 16.A to 16.C report NAIIS findings on co-infections associated with HIV.

16.2.1 Key Findings

- The overall prevalence of HBV infection among adults aged 15-64 years was 8.1% (10.3% in men and 5.8% in women). HBV prevalence peaked at ages 35-39 years (10.2%) and was lowest at ages 55-59 years (2.5%) (Table 16.A).
- The overall prevalence of HCV infection among individuals aged 15-64 years was 1.1% (1.3% in men and 1.0% in women). HCV prevalence peaked at ages 50-54 years (3.3%) and was lowest at ages 15-19 years (0.4%) (Table 16.B).
- The prevalence of HBV infection among HIV-positive adults aged 15-64 years was 8.9% (Table 16.A).
- The prevalence of HCV among HIV-positive adults aged 15-64 years was 1.1% (Table 16.B).
- Among adults found to be HIV-positive during NAIIS 2018, 9.9% had ever visited a clinic for TB evaluation.

Table 16.A Hepatitis B virus (HBV) infection prevalence by sex and demographic characteristics: Persons aged 15-64 years

Prevalence of hepatitis B surface antigen (HBsAg+) among persons aged 15-64 years by HIV status, sex and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percentage HBsAg positive[1]	Number	Percentage HBsAg positive[1]	Number	Percentage HBsAg positive[1]	Number
NAIIS HIV test result						
HIV positive	13.3	843	6.5	1,891	8.9	2,734
HIV negative	10.3	3,551	5.7	4,153	8.1	7,704
Place of residence						
Urban	9.8	1,812	5.5	2,640	7.6	4,452
Rural	10.8	2,582	6.0	3,404	8.5	5,986
Marital status						
Never married	10.8	1,410	5.2	1,085	8.8	2,495
Married or living together	10.0	2,785	5.6	3,893	7.7	6,678
Divorced or separated	6.2	128	8.4	352	7.8	480
Widowed	1.7	67	7.6	706	7.2	773
Education[2]						
No education	9.0	488	6.5	1,532	7.2	2,020
Primary	9.8	863	5.7	1,329	7.7	2,192
Secondary	10.1	1,828	5.9	2,194	8.2	4,022
Tertiary	11.6	821	3.7	675	8.6	1,496
Others	11.8	390	5.9	308	9.3	698
Wealth quintile						
Lowest	12.0	859	7.7	1,010	10.0	1,869
Second	10.7	860	6.2	1,149	8.5	2,009
Middle	10.5	911	6.0	1,414	8.2	2,325
Fourth	11.0	939	4.9	1,352	8.1	2,291
Highest	7.4	825	4.4	1,119	5.9	1,944
Pregnancy status						
Currently pregnant	NA	NA	5.9	435	NA	NA
Not currently pregnant	NA	NA	5.8	5,526	NA	NA
Number of pregnancies						
0	NA	NA	5.2	950	NA	NA
1	NA	NA	6.6	667	NA	NA
2-5	NA	NA	6.4	2,922	NA	NA
>5	NA	NA	4.9	1,478	NA	NA

Table 16.A Hepatitis B virus (HBV) infection prevalence by sex and demographic characteristics: Persons aged 15-64 years (continued)

Prevalence of hepatitis B surface antigen (HBsAg+) among persons aged 15-64 years by HIV status, sex and selected socio-demographic characteristics, NAIIS 2018

	Males		Females		Total	
Socio-demographic characteristics	Percentage HBsAg positive[1]	Number	Percentage HBsAg positive[1]	Number	Percentage HBsAg positive[1]	Number
Male circumcision						
Circumcised	10.2	4,279	NA	NA	NA	NA
Not circumcised	11.4	77	NA	NA	NA	NA
Number of sexual partners in the past 12 months						
0	10.7	1,438	5.8	1,842	8.5	3,280
1	10.8	2,035	5.8	3,930	7.7	5,965
≥2	8.3	862	5.4	244	7.9	1,106
Age (years)						
15-19	10.3	443	5.4	604	7.9	1,047
20-24	10.7	464	6.4	815	8.6	1,279
25-29	13.7	605	5.1	988	9.5	1,593
30-34	11.2	591	7.6	857	9.5	1,448
35-39	13.1	561	7.2	825	10.2	1,386
40-44	9.2	485	6.3	633	7.7	1,118
45-49	7.7	405	4.1	406	5.9	811
50-54	6.1	344	6.6	405	6.3	749
55-59	3.9	229	1.1	227	2.5	456
60-64	5.2	267	2.5	284	3.8	551
Total 15-24 years	10.5	907	5.9	1,419	8.2	2,326
Total 15-49 years	11.1	3,554	6.1	5,128	8.6	8,682
Total 15-64 years	10.3	4,394	5.8	6,044	8.1	10,438

[1]The numerator for HBV prevalence is the number of persons who tested positive for HBV. The denominator for HBV prevalence is the number of people who were tested for HBV.
[2]Education categories refer to the highest level of education attended, whether that level was completed.
NA – not applicable.

Table 16.B Hepatitis C virus (HCV) infection prevalence by demographic characteristics: Persons aged 15-64 years

Prevalence of hepatitis C (HCV RNA+) among persons aged 15-64 years by HIV status, sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males		Females		Total	
	Percentage HCV RNA positive[1]	Number	Percentage HCV RNA positive[1]	Number	Percentage HCV RNA positive[1]	Number
NAIIS HIV test result						
HIV positive	0.8	843	1.2	1,891	1.1	2,734
HIV negative	1.3	3,552	1.0	4,153	1.1	7,705
Place of residence						
Urban	0.7	1,813	0.1	2,640	0.4	4,453
Rural	1.8	2,582	1.8	3,404	1.8	5,986
Marital status						
Never married	0.4	1,411	0.3	1,085	0.4	2,496
Married or living together	1.9	2,785	1.2	3,893	1.6	6,678
Divorced or separated	1.5	128	0.6	352	0.9	480
Widowed	3.6	67	1.6	706	1.8	773
Education[2]						
No education	3.1	488	2.3	1,532	2.5	2,020
Primary	2.0	863	1.7	1,329	1.8	2,192
Secondary	1.1	1,829	0.2	2,194	0.7	4,023
Tertiary	0.6	821	0.2	675	0.4	1,496
Others	0.2	390	0.3	308	0.2	698
Wealth quintile						
Lowest	2.3	859	1.5	1,010	1.9	1,869
Second	1.6	860	2.3	1,149	2.0	2,009
Middle	1.8	911	1.0	1,414	1.4	2,325
Fourth	0.7	940	0.3	1,352	0.5	2,292
Highest	0.0	825	0.2	1,119	0.1	1,944
Pregnancy status						
Currently pregnant	NA	NA	0.6	435	NA	NA
Not currently pregnant	NA	NA	1.0	5,526	NA	NA
Number of pregnancies						
0	NA	NA	0.3	950	NA	NA
1	NA	NA	0.2	667	NA	NA
2-5	NA	NA	1.4	2,922	NA	NA
>5	NA	NA	1.4	1,478	NA	NA

Table 16.B Hepatitis C virus (HCV) infection prevalence by demographic characteristics: Persons aged 15-64 years (continued)

Prevalence of hepatitis C (HCV RNA+) among persons aged 15-64 years by HIV status, sex and selected socio-demographic characteristics, NAIIS 2018

Socio-demographic characteristics	Males		Females		Total	
	Percentage HCV RNA positive[1]	Number	Percentage HCV RNA positive[1]	Number	Percentage HCV RNA positive[1]	Number
Male circumcision						
Circumcised	1.2	4,280	NA	NA	NA	NA
Not circumcised	2.4	77	NA	NA	NA	NA
Number of sexual partners in the past 12 months						
0	0.8	1,439	0.9	1,842	0.9	3,281
1	1.6	2,035	1.1	3,930	1.3	5,965
≥2	1.4	862	0.4	244	1.3	1,106
Age (years)						
15-19	0.5	443	0.3	604	0.4	1,047
20-24	0.6	465	0.4	815	0.5	1,280
25-29	0.9	605	0.7	988	0.8	1,593
30-34	1.3	591	1.7	857	1.5	1,448
35-39	1.5	561	1.2	825	1.3	1,386
40-44	1.6	485	0.1	633	0.8	1,118
45-49	1.9	405	2.1	406	2.0	811
50-54	3.1	344	3.5	405	3.3	749
55-59	3.2	229	0.7	227	2.0	456
60-64	2.4	267	2.6	284	2.5	551
Total 15-24 years	0.5	908	0.3	1,419	0.4	2,327
Total 15-49 years	1.0	3,555	0.8	5,128	0.9	8,683
Total 15-64 years	1.3	4,395	1.0	6,044	1.1	10,439

[1]The numerator for HCV prevalence is the number of persons who tested positive for hepatitis C (HCV RNA+). The denominator for HCV prevalence is the number of people who were tested for HCV.

[2]Education categories refer to the highest level of education attended, whether that level was completed.

NA – not applicable.

Table 16.C Clinic attendance for tuberculosis (TB) evaluation and services: Total

Percent of respondents aged 15-64 years who self-reported ever visiting a clinic for tuberculosis (TB), diagnosed with TB and treated for TB by HIV status and selected socio-demographic characteristics, NAIIS 2018

			Among those who had ever visited a clinic for TB evaluation		Among those who were diagnosed with TB	
HIV status and socio-demographic characteristics	Percentage who ever visited a clinic for TB evaluation	Number	Percentage who were diagnosed with TB	Number	Percentage who were treated for TB	Number
NAIIS HIV test result						
HIV positive	9.9	2,714	40.4	281	98.8	114
HIV negative	1.7	169,175	26.1	2,769	89.7	746
Not tested	2.5	12,523	18.9	303	84.8	58
Place of residence						
Urban	2.3	77,899	23.7	1,752	89.1	429
Rural	1.5	106,513	30.2	1,601	91.6	489
Geopolitical zone						
North West	1.8	32,334	24.8	470	85.2	121
North East	1.5	31,524	26.8	500	89.8	142
North Central	1.4	35,986	31.4	628	91.6	187
South East	2.6	28,616	24.5	689	94.3	178
South South	1.9	27,112	27.7	529	89.3	148
South West	2.1	28,840	26.1	537	93.0	142
Marital status						
Never married	1.5	57,997	25.5	835	84.0	219
Married or living together	2.0	113,139	26.1	2,141	93.1	573
Divorced or separated	3.3	4,592	32.8	156	88.9	54
Widowed	2.7	8,459	30.4	215	93.3	71
Type of union						
In polygynous union	1.6	31,208	25.2	474	94.3	136
Not in polygynous union	2.1	81,163	26.4	1,654	92.8	434
Not currently in union	1.7	71,048	26.9	1,206	86.1	344
Education[1]						
No education	1.0	36,801	28.7	357	93.4	113
Primary	1.9	34,369	31.0	624	92.9	209
Secondary	1.7	73,485	27.8	1,219	90.8	333
Tertiary	3.6	27,679	20.0	992	90.3	212
Others	1.5	11,915	31.4	158	76.3	51

Table 16.C Clinic attendance for tuberculosis (TB) evaluation and services: Total (continued)

Percent of respondents aged 15-64 years who self-reported ever visiting a clinic for tuberculosis (TB), diagnosed with TB and treated for TB by HIV status and selected socio-demographic characteristics, NAIIS 2018

HIV status and socio-demographic characteristics	Percentage who ever visited a clinic for TB evaluation	Number	Among those who had ever visited a clinic for TB evaluation: Percentage who were diagnosed with TB	Number	Among those who were diagnosed with TB: Percentage who were treated for TB	Number
Wealth quintile						
Lowest	1.2	33,633	31.3	362	91.9	126
Second	1.3	35,674	29.5	450	87.6	127
Middle	1.8	39,357	26.1	694	90.2	204
Fourth	2.1	39,585	27.0	850	91.7	233
Highest	2.7	36,163	23.1	997	89.6	228
Age (years)						
15-19	1.0	30,578	21.5	278	78.8	60
20-24	1.3	25,989	22.5	316	85.5	68
25-29	1.8	27,068	22.4	432	88.1	101
30-34	2.0	22,723	24.4	407	85.7	93
35-39	2.3	20,470	30.1	458	93.9	126
40-44	2.2	16,487	33.6	344	89.5	123
45-49	2.8	12,782	31.7	344	96.5	112
50-54	2.5	11,697	24.1	272	94.1	79
55-59	3.3	7,613	24.9	243	97.7	72
60-64	3.0	9,005	31.2	259	94.9	84
Total 15-24 years	1.2	56,567	22.0	594	82.4	128
Total 15-49 years	1.7	156,097	26.4	2,579	89.0	683
Total 15-64 years	1.9	184,412	26.3	3,353	90.3	918

[1]Education categories refer to the highest level of education attended, whether that level was completed.

APPENDIX A SAMPLE DESIGN METHODOLOGY

Appendix A provides a high-level overview of NAIIS sampling and weighting procedures. In-depth details are provided in the Sampling and Weighting Document, which may be found on the NAIIS project website.

A.1 Sample Design

Overview

The NAIIS sample design was a stratified multistage probability sample design, with strata defined by the 37 states of the country. First-stage primary sampling units were defined as EAs created for the 2006 census. Second-stage sampling units were defined as households within EAs and, finally, eligible persons within households. Within each state, EAs were selected with probabilities proportionate to the 2018 projected number of households in the EA based on the 2006 census. The allocation of the sample EAs to the 37 states was designed to achieve specified precision levels for (1) a national estimate of HIV incidence and (2) state-level estimates of HIV prevalence and 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 EAs. Upon completion of the listing process, a random systematic sample of 28 dwelling units/households was selected from each EA, except for Lagos where eight dwelling units/households were selected from each EA. Within the sampled households, all eligible adults aged 15-64 years were included in the study sample for data collection. All eligible children aged 0-14 years in a subsample of the sampled households were included in the study for data collection.

Population of Inference

The population of inference for NAIIS was comprised of the *de facto* household population. The *de facto* population was 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 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 NAIIS.

- The relative standard error of the national estimate of HIV incidence among persons aged 15-64 was set at ~30%.
- The 95% confidence intervals were used for the estimated VLS rate among HIV-positive persons aged 15-64 in each of the 37 strata (states) calculated at ~10%.

The following assumptions were used to develop the sample design for NAIIS:

- An overall HIV prevalence rate of 3.4% that varied by state.
- An annual HIV incidence rate for adults aged 15-64 of 0.49%.
- A MDRI of 130 days, yielding an annualization rate of 365/130 = 2.8077. Hence, the estimated HIV incidence rate for MDRI = 130 days was Pm= 0.0060/2.8077 = 0.0021 (0.21%).
- The VLS rate among HIV-positive adults aged 15-49 in each state h of Pvh = 50%. This was a conservative assumption because it overstated the actual variance of the VLS rate.
- An intra-cluster correlation (ICC) of 0.02 for both prevalence and incidence. The ICC provided an average measure of the homogeneity of responses within the first-stage sampling units.

- An occupancy rate of 100% was used for sampled dwelling units. Note that this was not included in the calculation of the overall survey response rate but does determine the initial numbers of dwelling units to be sampled.
- An overall household response rate of 90.6% was witnessed among the occupied dwelling units.[1]
- The average number of persons aged 15-64 in a household was 2.47.[1]
- The percentage of persons in households who were aged 0-14 was 45.7%.[1]
- The percentage of persons in households who were aged 15-64 was 48.2%.[1]
- Among individuals aged 15-64 in eligible responding households, the biomarker response rate was 77.3%. This corresponded to an overall biomarker response rate of 63%. This was a conservative estimate derived from response rates in the 2012 National HIV & AIDS and Reproductive Health Survey (NARHS 2012).[1]
- Among children aged 0-14 in eligible responding households, the biomarker response rate was 63%.

[1]The assumed values of response rates and number of participating persons per household were based on data from the 2013-14 Nigeria Demographic and Health Survey (DHS) and NARHS 2012.

Selection of the Primary Sampling Units (PSUs)

The sampling frame consisted of 662,855 EAs containing 28,900,478 households and 140,431,798 persons. A stratified sample of 4,035 EAs was selected from the sampling frame. The 37 strata specified for sampling were the 37 states of Nigeria. The EA samples were selected systematically and with probabilities proportionate to a measure of size (MOS) equal to the 2018 projected number of households in the EA based on the 2006 census. Prior to selection, the EAs were sorted by type of EA, including urban/rural and other geographic variables in the frame. The sorting of the EAs prior to sample selection induces an implicit geographic stratification. To select the sample from an individual 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 an individual stratum is proportional to the MOS of the EA in the stratum.

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 NAIIS 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 Sampling and Weighting Document. Twenty-eight households were sampled from each cluster in all states except for Lagos state, where eight households were sampled per cluster.

Selection of Individuals

The selection of individuals for NAIIS involved the following steps: (1) compiling a list of all individuals

known to reside in the household or who slept in the household during the night prior to data collection; (2) identifying those rostered individuals who were eligible for data collection; and (3) selecting for the study those individuals 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.

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 that 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 NAIIS, nonresponse could occur at different stages of data collection, including (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 could arise when some members of the survey population have no chance of being selected for the sample. For example, noncoverage could 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 NAIIS included several steps. Methods and results for each of the steps below are detailed in the Sampling and Weighting Document.

Initial checks: Checks of the data files were carried out as part of the survey and data quality control and the probabilities of selection for EAs and households are calculated and checked.

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

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

Calculation of person-level interview weights: Once the household weights were determined, they were used to calculate the individual base weights. The individual base weights were then adjusted for nonresponse among the eligible individuals, with a final adjustment for the individual weights to compensate for under-coverage in the sampling process by post-stratifying, i.e., weighting up, to 2018 population projections.

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

Appendix B Laboratory Methodology

B.1 Field-Based Laboratory Procedures

Trained and qualified survey laboratory staff collected whole blood specimens from identified eligible and consenting participants. Specimen volume varied by age: a 14 mL venous blood specimen was collected from adults aged 15-64 years, a 6 mL venous blood specimen was collected from children aged 2-14 years and a 1 mL capillary blood specimen was collected from children aged <2 years, using a finger stick for children aged 6 to 23 months and a heel stick for infants below 6 months of age. For participants ≥2 years who could not provide a venous blood specimen, blood was collected from a finger stick using the 1 ml ethylene diamine tetra acetic acid (EDTA) microtube.

Blood samples were labeled with a unique pre-printed bar-coded participant identification number (PTID) and stored in temperature-controlled cooler boxes with ultra-low freezer packs which were replenished daily. At the end of each day, specimens were transported to a satellite laboratory for processing into plasma aliquots and dried blood spots (DBS) and were frozen within 24 hours of blood collection.

B.2 Household-Based Procedures

HBTC services, including HIV rapid testing and counseling, HBsAg and HCV rapid testing, point-of-care (POC) CD4 testing and return of results, were carried out in accordance with Nigeria's National HIV Testing Guidelines. HIV rapid testing was conducted in the field (Figure B.1) using a serial rapid-testing algorithm. Determine™ HIV ½ (Abbott Molecular Inc., Des Plaines, Illinois, United States) was used as a screening test. Uni-Gold™ (Trinity Biotech, plc., Wicklow, Ireland) was used as a confirmatory test. STAT PAK® HIV ½ Assay (Chembio Diagnostic Systems Inc., Medford, New York, United States) was used as a tie-breaker test for discordant screening and confirmatory tests. NAIIS participants with non-reactive results on the screening test were reported as HIV negative; those with a reactive screening test underwent confirmatory testing. Participants with reactive results on both the screening and confirmatory tests were classified as HIV-positive. Participants with a reactive screening test result, followed by a non-reactive confirmatory test result, had the tie-breaker test performed to determine HIV status. Participants with reactive tie-breaker tests were classified as HIV-positive while those with non-reactive tests were classified as HIV-negative.

Figure B.1 Nigerian National Serial HIV Rapid Testing Algorithm, NAIIS 2018

CD4 Testing

CD4 cell count was measured for all participants who tested HIV positive and a randomly selected 2% of the population who tested HIV negative. All CD4 testing was performed using the validated Pima™ CD4 Point of Care Testing (POCT) system (Abbott Molecular Inc., Chicago, IL, United States, formerly Alere).

Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) Testing

All HIV-positive participants (aged 15-64) and approximately 5,303 randomly selected HIV-negative respondents (aged 15-64) were screened for HBV using Determine™ HBsAg test kit (Abbott Inc., Chicago, Illinois, United States, formerly Alere) and for HCV using OraQuick® HCV Rapid Antibody Test (Orasure Technologies, Inc., Bethlehem, Pennsylvania, United States). Participants with a positive HCV antibody result underwent confirmatory HCV RNA quantitative PCR testing (viral load test) using Roche platform.

Quality Assurance (QA) and Quality Control (QC)

QC panels consisting of positive and negative control specimens and PT panels which contained blinded positive and negative levels of all biomarkers (HIV, HBV and HCV) were regularly distributed to both the field and satellite laboratories. To ensure that test kits and staff competencies were adequately monitored, bi-weekly QC testing and two rounds of PT panels were completed. The first 50 HIV rapid tests performed by each field laboratorian were retested at the satellite lab until concordance was 100%.

B.3 Satellite and Central Laboratory-Based Procedures

At the satellite laboratories, specimens were processed into plasma aliquots and one to two DBS cards, depending on age of the participant and volume of the specimen. For infants <2 years, who provided blood from a heel stick in a one mL microtube, one to two DBS cards were prepared. All DBS cards were prepared in the laboratory. Plasma and DBS samples were labeled with unique bar-code labels generated from the LDMS. Plasma aliquots and DBS were frozen within 24 hours of blood collection. Specimens were stored in the satellite laboratories in -20^{o}C freezers with temperature control monitors. Within a week, specimens were transported to the central laboratory using the cooler boxes with ultra-low freezer packs. At the central laboratory, specimens were stored in -80^{o}C freezers with temperature control monitors in a purpose-built biorepository with a secured electrical supply.

Geenius™ HIV 1/2 Testing

All HIV-positive specimens were retested at the satellite laboratory using Geenius™ HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States) as the confirmatory test. Participants who had reactive results on both rapid and Geenius™ HIV 1/2 tests were classified as HIV-positive. Participant specimens with a reactive rapid test result followed by a non-reactive confirmatory test result at the satellite laboratory were subjected to further QA discrepancy resolution at the central laboratory. Specimens from participants who self-reported being HIV positive with an HIV negative test result at HBT received further testing, including additional HIV serial rapid testing and Geenius™ HIV 1/2 testing in the satellite and central laboratories as well as deoxyribonucleic acid (DNA) polymerase chain reaction (PCR) to resolve discrepancies.

HIV Viral Load Testing

VL testing of HIV-positive participants was done using the Roche solutions for molecular diagnostics (COBAS® AmpliPrep/COBAS® TaqMan® HIV-1 Test, version 2.0, Roche Molecular Diagnostics, Indianapolis, Indiana, United States).

HIV-1 VL using DBS specimens from children and adults with an insufficient volume of plasma was measured on the Roche COBAS® AmpliPrep instrument and COBAS® TaqMan® 48 analyzer using the COBAS® AmpliPrep/COBAS® TaqMan® free virus elution (FVE) protocol, HIV-1 Test version 2.0 (Roche Molecular Diagnostics, Branchburg, New Jersey, United States) and internal QC was performed according to the manufacturer's specifications.

VL results were sent to the health facilities selected by the HIV-positive participant within 8 to 10 weeks of specimen collection. The facility referral focal person contacted the HIV-positive participant via mobile phone, informing them that their VL results were available. The facility referral focal person also used the mobile phone to document that the participant enrolled into care, initiated on antiretroviral therapy (ART) and received viral load results using the Unstructured Supplementary Service Data (USSD) codes.

Classification of Final HIV Status

For participants aged 18 months-64 years, the algorithm for classification of final HIV status included results from rapid HIV testing and Geenius™ HIV 1/2 confirmatory testing on all positives. In addition, Western Blot, TNA PCR and VL RNA PCR were done on discrepant results. For participants less than 18 months, the algorithm for classification of final HIV status included results from rapid HIV testing and HIV TNA PCR. Classification of final HIV status was used to determine estimates for HIV prevalence and to inform estimates for HIV incidence.

Infant HIV Virologic Testing (IVT)/Early Infant Diagnosis (EID)

All infants <18 months were tested for HIV using the Determine™ HIV 1/2 Rapid Test. Infants who were reactive on Determine received IVT/EID testing using prepared DBS. In addition, infants born to mothers of unknown HIV status or HIV-positive mothers were screened using the Determine™ HIV 1/2 HIV Test and received IVT/EID testing using prepared DBS. HIV TNA PCR using COBAS® TaqMan® HIV-1 Qualitative Test (Roche Molecular Systems, Branchburg, NJ, USA) United States) analyzer was conducted at the central laboratory. Specimens with HIV-negative results were categorized as HIV negative while specimens with HIV-positive results were reported as HIV-positive. Results were returned to the infant's parent or guardian at the household within two weeks of specimen collection.

HIV Recent Infection Testing Algorithm

A total of 2,759 specimens were tested at the central laboratory for HIV incidence at the end of data collection. Specimens from HIV-positive participants ≥18 months old were tested for recent HIV infection using the HIV-1 Limiting Antigen (LAg) Avidity Assay Testing Algorithm (Figure B.2). This assay was based on the principle of Enzyme Immunoassay (EIA).

Two different laboratory-based testing algorithms were used to estimate incidence for PLHIV participants ≥18 months old. HIV-1 LAg Avidity plus VLVL and HIV-1 LAg Avidity plus viral load and ARV detection were used to distinguish recent from long-term infection. Incidence estimates were obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays, with assay performance characteristics of an MDRI of 130 days (95% CI: 118, 142), a time cutoff (T) of 1.0 year and a residual proportion false recent (PFR) of 0.00. Each algorithm employed a combination of assays: HIV-1 LAg Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) and VL (Figure B.2) and HIV-1 LAg Avidity EIA, VL and ARV detection.

Specimens with a normalized optical density (ODn) value ≤2.0 during initial testing were confirmed by further testing of the specimen in triplicate. For those HIV-positive specimens with median normalized ODn value ≤1.5, VL results were reviewed to increase the positive predictive value of true recent infections. Specimens with ODn values >1.5 were classified as long-term infections. Specimens with final ODn value <0.4 were retested by the HIV diagnostic testing algorithm to confirm HIV-1 seropositivity (Figure B.2).

Specimens identified as HIV negative based on the ODn reading were excluded from the total number of HIV-positive specimens and incorporated into the total number of HIV-negative specimens for incidence estimation. Specimens with VL <1,000 copies/mL were classified as long-term infections, while those with VL ≥1,000 copies/mL were classified as recent infections (Figure B.2). In the ARV-adjusted algorithm, specimens with VL ≥1,000 copies/mL and with detectable ARVs were classified as long-term infections, while specimens with VL ≥1,000 copies/mL and without detectable ARVs were classified as recent infections.

Incidence estimation is based on recent/long-term (LT) classification using algorithms with LAg Avidity.[1,2,3] The first testing algorithm (i.e., HIV-1 LAg Avidity plus VL) uses VL testing to exclude specimens with low VL and limit misclassification of persons as recent infections who are elite controllers or on effective ART. The second algorithm (i.e., HIV-1 LAg Avidity plus VL and ARV detection) uses ARV detection to exclude specimens with high VL and limit misclassification as recent infections of persons who are on ART but have poor treatment adherence.

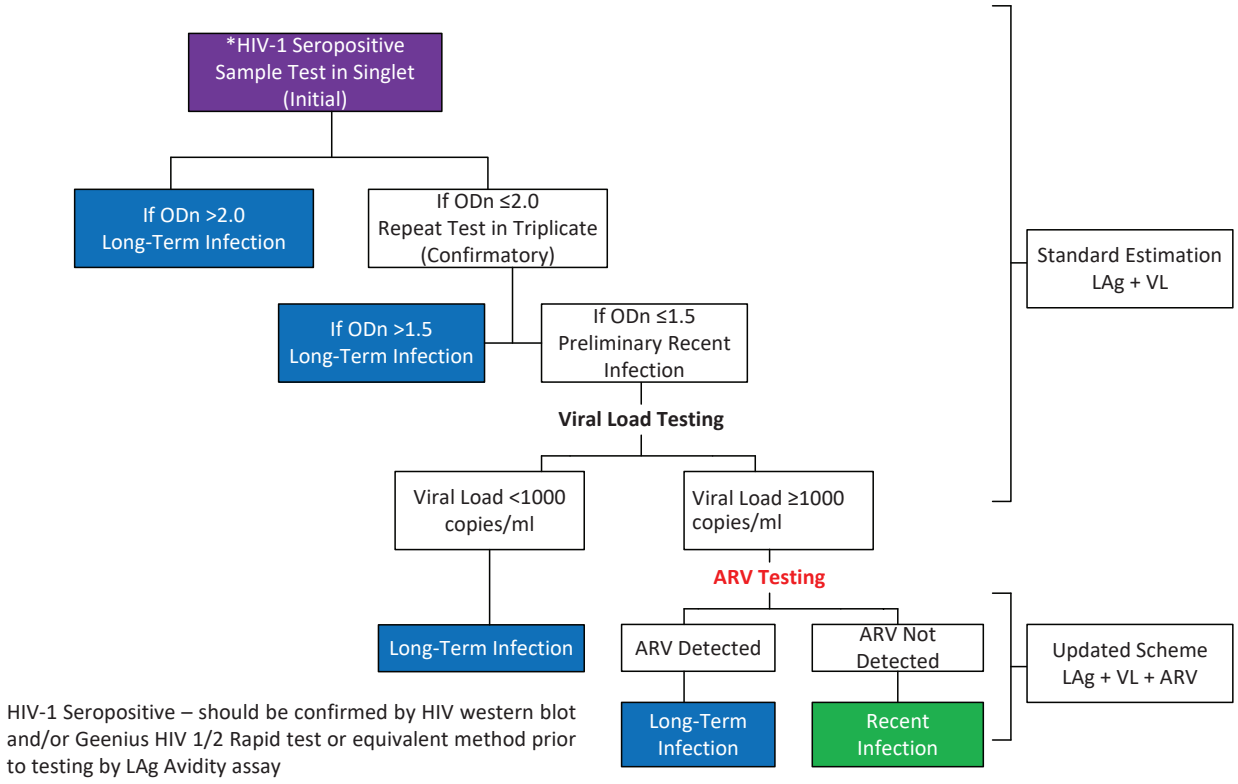

Figure B.2 Testing Algorithm for LAg Avidity Testing, NAIIS 2018

Detection of Antiretrovirals

ARV detection was performed by the Division of Clinical Pharmacology of the Department of Medicine at the University of Cape Town, South Africa. Qualitative screening, for detectable concentrations of ARVs, was conducted on DBS specimens from all HIV-positive adults and children using high-resolution liquid chromatography coupled with tandem mass spectrometry (MS). Protein precipitation followed by high performance liquid chromatography with MS/MS detection using a gradient elution methodology described by Koal et al.[1] was used for the qualitative determination of four ARV drugs from DBS This qualitative assay separates the parent compound from the fragments and is highly specific 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. Four ARVs, efavirenz, lopinavir, atazanavir and nevirapine, were selected as markers for the most commonly prescribed first- and second-line regimens. These ARVs have relatively long half-lives, allowing for a longer period of detection following intake. Detection of ARVs indicates participant use of a given drug at the time of blood collection. Specimens from participants who were virally suppressed or self-reported being on ART but had no evidence of the first three compounds were tested for nevirapine. Results below the limit of detection among individuals who reported taking ART indicate that there was no recent exposure to the regimen and that adherence to a prescribed regimen was suboptimal, but cannot be interpreted as "not on ART." Given the limited number of ARVs selected for detection, NAIIS could not rule out the use of other ART regimens.

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 errors such as transcription errors during data entry. While NAIIS implemented numerous quality assurance and control measures to minimize non-sampling errors, these were impossible to avoid and difficult to evaluate statistically. In contrast, sampling errors can be evaluated statistically. Sampling errors are a measure of the variability between all possible samples. The sample of respondents selected for NAIIS was 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 could yield results that differed somewhat from the results of the actual sample selected. Although the degree of variability cannot be 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 statistic (e.g., proportion, mean, rate, count). In turn, the standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of approximately plus or minus two times the standard error of that statistic in 95% of all possible samples of identical size and design.

NAIIS utilized a multi-stage stratified sample design, which required complex calculations to obtain sampling errors. The Taylor linearization method of variance estimation was used for survey estimates that are proportions, e.g., HIV prevalence. The Jackknife repeated replication method was used for variance estimation of more complex statistics such as rates, e.g., annual HIV incidence and counts such as the number of people living with HIV.

The Taylor linearization method treats any percentage or average as a ratio estimate, $r = y/x$, where *y* represents the total sample value for variable *y* and *x* represents the total number of cases in the group or subgroup under consideration. The variance of *r* is computed using the formula given below, with the standard error being the square root of the variance:

$$SE^2(r) = \text{var}(r) = \frac{1-f}{x^2}\sum_{h=1}^{H}\left[\frac{m_h}{m_h-1}\left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h}\right)\right]$$

in which

$$z_{hi} = y_{hi} - rx_{hi} \text{ and } z_h = y_h - rx_h$$

Where h represents the stratum, which varies from 1 to *H*,

m_h is the total number of clusters selected in the h^{th} stratum,

y_{hi} is the sum of the weighted values of variable *y* in the i^{th} cluster in the h^{th} stratum,

x_{hi} is the sum of the weighted number of cases in the i^{th} cluster in the h^{th} stratum and,

f is the overall sampling fraction, which is so small that it is ignored.

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

$$r \pm t_{(0.975,K)} \sqrt{\mathrm{var}(r)}$$

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 NAIIS are presented in Tables C.1 through C.9. For most variables, sampling error tables include the weighted estimate, unweighted denominator, standard error or design effect and lower- and upper-95% confidence limits.

Table C.1 Sampling errors: Annual HIV incidence LAg/VL/ARV testing algorithm by sex and age, NAIIS 2018				
Age (years)	Weighted estimate (%)	Design effect	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL				
15-24	0.04	1.03	0.01	0.07
25-34	0.15	1.92	0.07	0.24
35-49	0.08	2.11	0.01	0.14
15-49	0.08	1.68	0.05	0.12
15-64	0.08	1.70	0.05	0.11
MALES				
15-24	0.03	0.99	0.00	0.07
25-34	0.10	1.44	0.01	0.19
35-49	0.05	3.11	0.00	0.15
15-49	0.06	1.70	0.02	0.10
15-64	0.05	1.79	0.02	0.09
FEMALES				
15-24	0.05	1.10	0.01	0.10
25-34	0.21	2.39	0.07	0.35
35-49	0.10	1.46	0.02	0.18
15-49	0.11	1.76	0.06	0.16
15-64	0.11	1.75	0.06	0.16

Table C.2 Sampling errors: HIV prevalence by sex and age, NAIIS 2018

Age	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
0-17 months	0.19	2,291	0.09	0.02	0.36
18-59 months	0.11	7,634	0.04	0.04	0.19
5-9 years	0.13	12,781	0.03	0.07	0.20
10-14 years	0.16	9,788	0.05	0.07	0.25
Total 0-4 years	0.13	9,925	0.03	0.07	0.20
Total 0-14 years	0.14	32,494	0.02	0.10	0.19
15-19 years	0.23	28,897	0.03	0.16	0.29
20-24 years	0.80	24,426	0.06	0.67	0.92
25-29 years	1.22	25,470	0.09	1.05	1.38
30-34 years	1.60	21,393	0.11	1.40	1.81
35-39 years	2.23	19,328	0.14	1.96	2.49
40-44 years	2.16	15,549	0.14	1.89	2.43
45-49 years	2.45	12,023	0.17	2.12	2.77
50-54 years	2.32	10,986	0.18	1.97	2.67
55-59 years	2.02	7,112	0.21	1.61	2.43
60-64 years	1.44	8,532	0.15	1.14	1.74
Total 15-24 years	0.49	53,323	0.03	0.42	0.55
Total 15-49 years	1.27	147,086	0.04	1.19	1.35
Total 15-64 years	1.36	173,716	0.04	1.28	1.45
MALES					
0-17 months	0.08	1,159	0.08	0.00	0.25
18-59 months	0.11	3,937	0.04	0.02	0.19
5-9 years	0.12	6,505	0.04	0.03	0.21
10-14 years	0.17	4,972	0.07	0.03	0.30
Total 0-4 years	0.10	5,096	0.04	0.02	0.18
Total 0-14 years	0.13	16,573	0.03	0.07	0.19
15-19 years	0.15	13,344	0.04	0.07	0.23
20-24 years	0.33	10,368	0.06	0.21	0.46
25-29 years	0.66	10,592	0.09	0.48	0.85
30-34 years	1.00	9,067	0.13	0.74	1.26
35-39 years	1.37	8,623	0.17	1.04	1.70
40-44 years	1.72	6,904	0.18	1.37	2.06
45-49 years	2.20	5,769	0.22	1.76	2.63
50-54 years	2.32	5,053	0.26	1.81	2.84
55-59 years	1.63	3,773	0.24	1.16	2.10

Table C.2 Sampling errors: HIV prevalence by sex and age, NAIIS 2018 (continued)

Age	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
MALES					
60-64 years	1.42	4,477	0.20	1.02	1.81
Total 15-24 years	0.23	23,712	0.04	0.16	0.30
Total 15-49 years	0.83	64,667	0.04	0.75	0.92
Total 15-64 years	0.96	77,970	0.04	0.87	1.05
FEMALES					
0-17 months	0.29	1,132	0.15	0.00	0.59
18-59 months	0.12	3,697	0.05	0.02	0.23
5-9 years	0.14	6,276	0.05	0.05	0.24
10-14 years	0.16	4,816	0.06	0.04	0.27
Total 0-4 years	0.16	4,829	0.05	0.06	0.27
Total 0-14 years	0.16	15,921	0.03	0.09	0.22
15-19 years	0.31	15,553	0.05	0.21	0.40
20-24 years	1.29	14,058	0.11	1.08	1.50
25-29 years	1.80	14,878	0.13	1.54	2.06
30-34 years	2.23	12,326	0.16	1.92	2.54
35-39 years	3.12	10,705	0.21	2.71	3.53
40-44 years	2.62	8,645	0.20	2.23	3.01
45-49 years	2.70	6,254	0.25	2.21	3.19
50-54 years	2.31	5,933	0.24	1.85	2.78
55-59 years	2.40	3,339	0.32	1.76	3.03
60-64 years	1.46	4,055	0.24	1.00	1.92
Total 15-24 years	0.75	29,611	0.06	0.64	0.87
Total 15-49 years	1.74	82,419	0.06	1.62	1.85
Total 15-64 years	1.79	95,746	0.06	1.67	1.90

Table C.3 Sampling errors: HIV prevalence by residence and state, persons aged 15-64 years, NAIIS 2018

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
		TOTAL			
Place of residence					
Urban	1.3	72,790	0.1	1.1	1.4
Rural	1.5	100,926	0.1	1.4	1.6
State					
Abia	2.0	5,767	0.2	1.6	2.4
Adamawa	1.1	5,286	0.2	0.7	1.4
Akwa Ibom	4.8	4,381	0.4	4.0	5.5
Anambra	2.2	4,653	0.3	1.6	2.8
Bauchi	0.5	6,124	0.1	0.2	0.8
Bayelsa	1.7	3,892	0.2	1.3	2.2
Benue	4.8	4,566	0.5	3.9	5.7
Borno	1.1	1,815	0.3	0.5	1.7
Cross River	1.8	4,617	0.2	1.3	2.3
Delta	1.7	3,929	0.2	1.3	2.2
Ebonyi	0.8	6,413	0.1	0.6	1.0
Edo	1.8	4,318	0.2	1.4	2.2
Ekiti	0.7	3,613	0.2	0.4	1.0
Enugu	1.8	4,756	0.2	1.3	2.2
FCT[1]	1.4	4,631	0.2	1.0	1.8
Gombe	1.2	6,539	0.2	0.7	1.6
Imo	1.7	5,443	0.2	1.2	2.1
Jigawa	0.3	5,702	0.1	0.2	0.5
Kaduna	1.0	5,253	0.2	0.6	1.4
Kano	0.6	4,387	0.2	0.3	0.9
Katsina	0.3	4,124	0.1	0.1	0.5
Kebbi	0.6	4,243	0.1	0.3	0.9
Kogi	0.8	4,191	0.2	0.5	1.2
Kwara	0.8	4,077	0.2	0.5	1.2
Lagos	1.3	7,502	0.2	1.0	1.6
Nasarawa	1.8	5,368	0.2	1.3	2.2
Niger	0.6	5,949	0.1	0.4	0.9
Ogun	1.4	3,584	0.2	1.0	1.8
Ondo	1.0	4,094	0.2	0.6	1.4
Osun	0.9	3,637	0.2	0.6	1.2
Oyo	0.9	4,118	0.2	0.6	1.2

Table C.3 Sampling errors: HIV prevalence by residence and state, persons aged 15-64 years, NAIIS 2018 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
Plateau	1.5	5,274	0.2	1.1	1.8
Rivers	3.6	3,955	0.4	2.9	4.3
Sokoto	0.4	4,036	0.1	0.2	0.6
Taraba	2.6	6,772	0.3	2.0	3.3
Yobe	0.4	4,300	0.1	0.1	0.6
Zamfara	0.4	2,407	0.2	0.1	0.7
MALES					
Place of residence					
Urban	0.9	32,172	0.1	0.8	1.0
Rural	1.0	45,798	0.1	0.9	1.2
State					
Abia	1.7	2,306	0.3	1.2	2.3
Adamawa	0.8	2,601	0.2	0.5	1.1
Akwa Ibom	2.9	1,939	0.4	2.1	3.7
Anambra	1.8	1,922	0.3	1.1	2.4
Bauchi	0.4	2,921	0.1	0.1	0.7
Bayelsa	1.4	1,722	0.3	0.9	2.0
Benue	3.5	2,156	0.4	2.6	4.3
Borno	1.0	795	0.4	0.2	1.8
Cross River	1.6	2,116	0.2	1.1	2.0
Delta	1.2	1,580	0.3	0.6	1.8
Ebonyi	0.7	2,400	0.2	0.4	1.0
Edo	1.2	1,891	0.2	0.7	1.6
Ekiti	0.3	1,606	0.1	0.1	0.6
Enugu	1.3	1,806	0.3	0.7	1.8
FCT[1]	0.8	2,271	0.2	0.4	1.1
Gombe	0.8	3,283	0.2	0.4	1.2
Imo	1.3	2,190	0.3	0.7	1.9
Jigawa	0.1	2,766	0.1	0.0	0.3
Kaduna	0.6	2,471	0.2	0.3	1.0
Kano	0.4	2,125	0.1	0.1	0.6
Katsina	0.2	1,915	0.1	0.0	0.5
Kebbi	0.4	1,975	0.1	0.1	0.7
Kogi	0.5	1,846	0.2	0.1	0.8
Kwara	0.4	1,913	0.1	0.2	0.7
Lagos	0.8	3,111	0.2	0.5	1.2

Table C.3 Sampling errors: HIV prevalence by residence and state, persons aged 15-64 years, NAIIS 2018 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
MALES					
Nasarawa	1.3	2,566	0.2	0.9	1.7
Niger	0.4	2,802	0.1	0.2	0.6
Ogun	0.9	1,424	0.2	0.5	1.3
Ondo	0.8	1,777	0.2	0.3	1.2
Osun	0.7	1,515	0.2	0.4	1.1
Oyo	0.8	1,822	0.2	0.4	1.3
Plateau	0.6	2,370	0.1	0.3	0.9
Rivers	2.8	1,791	0.5	1.8	3.7
Sokoto	0.4	1,956	0.2	0.1	0.7
Taraba	1.7	3,119	0.2	1.3	2.2
Yobe	0.5	2,153	0.2	0.1	0.8
Zamfara	0.3	1,048	0.2	0.0	0.7
FEMALES					
Place of residence					
Urban	1.6	40,618	0.1	1.5	1.8
Rural	1.9	55,128	0.1	1.8	2.1
State					
Abia	2.2	3,461	0.2	1.7	2.7
Adamawa	1.4	2,685	0.3	0.8	2.0
Akwa Ibom	6.7	2,442	0.6	5.5	7.8
Anambra	2.6	2,731	0.4	1.8	3.4
Bauchi	0.6	3,203	0.2	0.2	1.0
Bayelsa	2.1	2,170	0.3	1.5	2.7
Benue	6.3	2,410	0.7	5.0	7.6
Borno	1.2	1,020	0.4	0.5	1.9
Cross River	2.1	2,501	0.3	1.4	2.7
Delta	2.2	2,349	0.4	1.5	2.9
Ebonyi	0.9	4,013	0.2	0.6	1.2
Edo	2.3	2,427	0.3	1.7	3.0
Ekiti	1.1	2,007	0.2	0.6	1.6
Enugu	2.2	2,950	0.3	1.6	2.8
FCT[1]	2.2	2,360	0.4	1.5	2.9
Gombe	1.6	3,256	0.3	1.0	2.3
Imo	2.0	3,253	0.3	1.5	2.6
Jigawa	0.5	2,936	0.1	0.2	0.8
Kaduna	1.4	2,782	0.3	0.8	2.0

Table C.3 Sampling errors: HIV prevalence by residence and state, persons aged 15-64 years, NAIIS 2018 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
		FEMLAES			
Kano	0.7	2,262	0.2	0.3	1.2
Katsina	0.4	2,209	0.2	0.0	0.7
Kebbi	0.8	2,268	0.2	0.4	1.3
Kogi	1.2	2,345	0.2	0.8	1.7
Kwara	1.3	2,164	0.3	0.8	1.8
Lagos	1.9	4,391	0.2	1.4	2.3
Nasarawa	2.4	2,802	0.3	1.7	3.0
Niger	1.0	3,147	0.2	0.6	1.3
Ogun	1.9	2,160	0.3	1.2	2.5
Ondo	1.3	2,317	0.3	0.7	1.8
Osun	1.0	2,122	0.2	0.6	1.5
Oyo	1.0	2,296	0.3	0.5	1.4
Plateau	2.3	2,904	0.3	1.7	2.9
Rivers	4.6	2,164	0.5	3.6	5.7
Sokoto	0.4	2,080	0.2	0.1	0.7
Taraba	3.6	3,653	0.5	2.6	4.6
Yobe	0.3	2,147	0.1	0.0	0.5
Zamfara	0.5	1,359	0.2	0.2	0.9

[1]FCT – Federal Capital Territory.

Table C.4 Sampling errors: Viral load suppression by age, NAIIS 2018

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
			TOTAL		
0 to 14	21.8	51	6.2	9.5	34.0
15 to 24	32.6	316	3.4	26.0	39.2
25 to 34	33.9	748	2.2	29.7	38.2
35 to 44	47.1	855	2.1	43.0	51.3
45 to 54	52.3	552	2.6	47.2	57.4
55 to 64	49.9	268	3.8	42.4	57.3
Total 15-24 years	32.6	316	3.4	26.0	39.2
Total 15-49 years	40.9	2,208	1.4	38.2	43.6
Total 15-64 years	43.1	2,739	1.3	40.6	45.6
			MALES		
0 to 14	*	23	7.2	0.0	24.6
15 to 24	33.6	61	8.0	18.0	49.3
25 to 34	20.4	164	3.6	13.3	27.6
35 to 44	37.8	248	4.0	30.0	45.5
45 to 54	50.7	242	3.9	43.1	58.4
55 to 64	52.3	130	5.3	41.9	62.6
Total 15-24 years	33.6	61	8.0	18.0	49.3
Total 15-49 years	33.5	601	2.4	28.7	38.2
Total 15-64 years	38.8	845	2.1	34.7	42.9
			FEMALES		
0 to 14	*	28	9.3	13.4	50.1
15 to 24	32.2	255	3.5	25.4	39.1
25 to 34	39.7	584	2.5	34.9	44.6
35 to 44	52.3	607	2.4	47.6	57.0
45 to 54	53.7	310	3.3	47.2	60.2
55 to 64	48.1	138	5.1	38.0	58.2
Total 15-24 years	32.2	255	3.5	25.4	39.1
Total 15-49 years	44.7	1,607	1.5	41.8	47.6
Total 15-64 years	45.5	1,894	1.4	42.7	48.3

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table C.5 Sampling errors: Viral load suppression by residence and zone, persons aged 15-64 years, NAIIS 2018

Characteristics	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
Place of residence					
Urban	46.7	1,078	2.0	42.7	50.7
Rural	40.3	1,661	1.6	37.1	43.5
Geopolitical zone					
North West	46.7	175	4.6	37.7	55.6
North East	49.5	403	4.3	41.0	57.9
North Central	63.8	651	2.2	59.4	68.2
South East	36.6	477	2.7	31.4	41.9
South South	31.1	712	2.1	26.9	35.3
South West	41.2	321	3.4	34.5	47.9
MALES					
Place of residence					
Urban	38.9	319	3.4	32.2	45.6
Rural	38.7	526	2.6	33.5	43.9
Geopolitical zone					
North West	52.1	55	7.9	36.6	67.5
North East	46.4	141	5.6	35.5	57.3
North Central	60.0	189	4.3	51.6	68.4
South East	35.2	148	4.5	26.4	44.1
South South	27.2	221	3.4	20.6	33.8
South West	26.9	91	5.3	16.5	37.3
FEMALES					
Place of residence					
Urban	51.1	759	2.3	46.6	55.5
Rural	41.2	1,135	1.8	37.6	44.7
Geopolitical zone					
North West	43.7	120	5.4	33.1	54.3
North East	51.5	262	4.9	41.8	61.2
North Central	65.7	462	2.4	61.0	70.4
South East	37.5	329	3.0	31.5	43.4
South South	33.3	491	2.5	28.3	38.2
South West	48.8	230	3.8	41.3	56.2

Table C.6 Sampling errors: Self-reported ARV 90-90-90 by age (conditional percentages), NAIIS 2018

Age (years)	Diagnosed					On Treatment					Virally Suppressed				
	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	14.4	304	2.4	9.7	19.0	71.6	47	7.6	56.6	86.6	80.9	35	7.7	65.8	96.0
25-34	21.7	724	1.9	17.9	25.4	81.9	167	4.1	73.9	90.0	78.6	144	4.0	70.7	86.5
35-49	35.1	1,113	1.8	31.6	38.6	91.8	408	1.6	88.8	94.9	82.5	376	2.4	77.8	87.2
15-49	27.5	2,141	1.3	25.0	30.0	87.7	622	1.7	84.4	91.0	81.5	555	1.9	77.7	85.2
15-64	28.9	2,660	1.2	26.6	31.2	89.8	816	1.3	87.1	92.4	82.5	743	1.6	79.4	85.7
MALES															
15-24	8.9	60	5.0	0.0	18.7	*	5	14.3	57.9	100.0	*	4	8.7	75.2	100.0
25-34	13.5	160	3.3	7.1	19.9	*	22	7.2	72.7	100.0	*	19	11.9	49.3	96.0
35-49	29.9	368	2.9	24.3	35.5	95.3	124	1.8	91.8	98.8	77.3	117	5.2	67.0	87.6
15-49	22.7	588	2.1	18.5	26.8	93.4	151	2.0	89.5	97.3	77.2	140	4.7	68.0	86.3
15-64	27.1	828	1.9	23.5	30.8	93.8	251	1.6	90.7	97.0	79.5	234	3.5	72.6	86.4
FEMALES															
15-24	16.2	244	2.7	10.9	21.4	68.9	42	8.3	52.5	85.3	78.3	31	8.8	61.1	95.5
25-34	25.2	564	2.2	20.8	29.6	80.8	145	4.6	71.8	89.8	80.1	125	4.0	72.2	88.0
35-49	38.4	745	2.2	34.2	42.6	90.1	284	2.1	85.9	94.3	85.2	259	2.3	80.6	89.7
15-49	30.0	1,553	1.4	27.2	32.8	85.4	471	2.1	81.3	89.6	83.3	415	1.9	79.5	87.0
15-64	29.9	1,832	1.3	27.3	32.5	87.7	565	1.8	84.1	91.2	84.2	509	1.7	80.9	87.5

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table C.7 Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), NAIIS 2018

Age (years)	Diagnosed					On Treatment					Virally Suppressed				
	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	31.0	308	3.4	24.3	37.7	92.3	97	2.9	86.5	98.1	77.1	90	5.3	66.7	87.4
25-34	38.6	738	2.3	34.1	43.1	95.9	322	1.3	93.3	98.4	75.2	310	3.2	68.9	81.5
35-49	52.8	1,134	1.8	49.2	56.3	96.2	629	1.0	94.3	98.0	82.0	607	1.9	78.3	85.7
15-49	44.8	2,180	1.4	42.0	47.6	95.7	1,048	0.8	94.1	97.2	79.6	1,007	1.5	76.6	82.6
15-64	46.9	2,705	1.3	44.4	49.5	96.4	1,366	0.6	95.2	97.6	80.9	1,322	1.3	78.3	83.5
MALES															
15-24	28.8	60	8.1	13.0	44.6	*	14	4.4	87.1	100.0	*	13	13.7	46.0	99.8
25-34	19.2	161	3.6	12.1	26.2	96.5	34	3.4	89.8	100.0	65.8	33	9.8	46.6	85.0
35-49	45.3	372	3.1	39.2	51.4	98.2	187	1.0	96.2	100.0	77.4	183	4.1	69.4	85.3
15-49	35.8	593	2.4	31.1	40.6	97.7	235	1.0	95.7	99.7	75.2	229	3.6	68.0	82.3
15-64	40.9	835	2.1	36.8	45.1	97.8	382	0.8	96.1	99.4	79.2	373	2.7	73.8	84.6
FEMALES															
15-24	31.7	248	3.6	24.7	38.8	91.3	83	3.6	84.3	98.3	78.4	77	5.4	67.7	89.0
25-34	46.9	577	2.5	42.0	51.8	95.7	288	1.4	93.0	98.5	76.9	277	3.3	70.4	83.3
35-49	57.4	762	2.1	53.3	61.5	95.2	442	1.3	92.6	97.8	84.4	424	1.9	80.7	88.0
15-49	49.3	1,587	1.5	46.3	52.3	94.9	813	1.0	93.0	96.8	81.3	778	1.6	78.1	84.4
15-64	50.3	1,870	1.4	47.5	53.1	95.8	984	0.8	94.2	97.3	81.7	949	1.5	78.8	84.6

An asterisk indicates that an estimate is based on a very small number (30 or less) of unweighted cases and has been suppressed.

Table C.8 Sampling errors: HBV prevalence by age, NAIIS 2018					
Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
15-19	7.9	1,047	1.0	5.9	9.9
20-24	8.6	1,279	1.1	6.3	10.8
25-29	9.5	1,593	1.0	7.5	11.5
30-34	9.5	1,448	1.2	7.2	11.7
35-39	10.2	1,386	1.2	7.9	12.6
40-44	7.7	1,118	1.1	5.5	9.9
45-49	5.9	811	1.2	3.6	8.3
50-54	6.3	749	1.4	3.5	9.2
55-59	2.5	456	0.8	0.9	4.1
60-64	3.8	551	1.1	1.7	5.9
Total 15-24 years	8.2	2,326	0.8	6.7	9.7
Total 15-49 years	8.6	8,682	0.4	7.8	9.5
Total 15-64 years	8.1	10,438	0.4	7.3	8.9
MALES					
15-19	10.3	443	1.7	7.0	13.5
20-24	10.7	464	2.0	6.8	14.6
25-29	13.7	605	1.8	10.2	17.2
30-34	11.2	591	1.9	7.5	14.9
35-39	13.1	561	1.9	9.5	16.8
40-44	9.2	485	1.7	5.8	12.5
45-49	7.7	405	1.7	4.3	11.1
50-54	6.1	344	1.7	2.8	9.5
55-59	3.9	229	1.5	1.0	6.8
60-64	5.2	267	1.9	1.5	8.8
Total 15-24 years	10.5	907	1.3	7.9	13.0
Total 15-49 years	11.1	3,554	0.7	9.6	12.5
Total 15-64 years	10.3	4,394	0.7	9.0	11.6
FEMALES					
15-19	5.4	604	1.1	3.2	7.6
20-24	6.4	815	1.1	4.3	8.5
25-29	5.1	988	0.9	3.4	6.8
30-34	7.6	857	1.3	5.1	10.2
35-39	7.2	825	1.4	4.5	10.0
40-44	6.3	633	1.4	3.5	9.1
45-49	4.1	406	1.7	0.8	7.4
50-54	6.6	405	2.3	2.0	11.1

Table C.8 Sampling errors: HBV prevalence by age, NAIIS 2018 (continued)					
Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
FEMALES					
55-59	1.1	227	0.7	0.0	2.5
60-64	2.5	284	1.1	0.3	4.7
Total 15-24 years	5.9	1,419	0.8	4.4	7.4
Total 15-49 years	6.1	5,128	0.5	5.1	7.0
Total 15-64 years	5.8	6,044	0.4	4.9	6.6

Table C.9 Sampling errors: HCV prevalence by age, NAIIS 2018

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
15-19	0.4	1,047	0.2	0.0	0.9
20-24	0.5	1,280	0.2	0.1	0.9
25-29	0.8	1,593	0.2	0.3	1.3
30-34	1.5	1,448	0.5	0.6	2.4
35-39	1.3	1,386	0.4	0.6	2.1
40-44	0.8	1,118	0.4	0.1	1.6
45-49	2.0	811	0.6	0.8	3.2
50-54	3.3	749	0.9	1.6	5.0
55-59	2.0	456	0.8	0.4	3.6
60-64	2.5	551	0.8	0.8	4.2
Total 15-24 years	0.4	2,327	0.2	0.1	0.8
Total 15-49 years	0.9	8,683	0.1	0.6	1.2
Total 15-64 years	1.1	10,439	0.1	0.9	1.4
MALES					
15-19	0.5	443	0.4	0.0	1.2
20-24	0.6	465	0.4	0.0	1.3
25-29	0.9	605	0.3	0.2	1.6
30-34	1.3	591	0.5	0.3	2.4
35-39	1.5	561	0.5	0.5	2.5
40-44	1.6	485	0.7	0.2	3.0
45-49	1.9	405	0.7	0.4	3.3
50-54	3.1	344	1.1	1.0	5.1
55-59	3.2	229	1.5	0.2	6.3
60-64	2.4	267	1.1	0.2	4.7
Total 15-24 years	0.5	908	0.3	0.0	1.0
Total 15-49 years	1.0	3,555	0.2	0.6	1.4
Total 15-64 years	1.3	4,395	0.2	0.9	1.6
FEMALES					
15-19	0.3	604	0.3	0.0	1.0
20-24	0.4	815	0.2	0.0	0.7
25-29	0.7	988	0.3	0.1	1.3
30-34	1.7	857	0.7	0.3	3.0
35-39	1.2	825	0.6	0.1	2.3
40-44	0.1	633	0.0	0.0	0.1
45-49	2.1	406	0.9	0.3	3.9
50-54	3.5	405	1.4	0.8	6.2

Table C.9 Sampling errors: HCV prevalence by age, NAIIS 2018 (continued)					
Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
FEMALES					
55-59	0.7	227	0.5	0.0	1.8
60-64	2.6	284	1.3	0.1	5.0
Total 15-24 years	0.3	1,419	0.2	0.0	0.7
Total 15-49 years	0.8	5,128	0.2	0.5	1.1
Total 15-64 years	1.0	6,044	0.2	0.7	1.3

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Popoola Rasheedah, Field Laboratorian 1
Omoloye Olawale Tolulope, Field Laboratorian 2
Ojo Oreoluwa Oluwafunke, Team Lead
Bello Fausat Adenike, Interviewer 1
Sodipo Olalekan, Interviewer 2
Olowookere Josephine Olu, Counsellor 1
Olatuja Dayo Moses, Counsellor 2
Effiong Chizuroke Deborah, Field Laboratorian 1
Dada John Olusegun, Field Laboratorian 2
Onifade Oluwaseun Samuel, Team Lead
Ajayi Oluwabusayo Omolade, Interviewer 1
Owadokun Babatope Akintayo, Interviewer 2
Nwogwugwu Ugochukwu, Counsellor 1
Mayungbe Temidayo Saidat, Counsellor 2
Olasunkanmi Abe Joseph, Field Laboratorian 1
Segun-Oladoye Moromoke, Field Laboratorian 2
Ezeani Esu Uleator, Team Lead
Adeyemo Omolara Tinuade, Interviewer 1
Tairu Oluwaseyi Adams, Interviewer 2
Ajibola Omolola Florence, Counsellor 1
Babalola Gbenga Jocob, Counsellor 2
Adegboye Adesola Folakemi, Field Laboratorian 1
Ajileye Ayodeji Blessing, Field Laboratorian 2
Maduekwe Emmanuel Chidozie, Team Lead
Iseyemi Olajumoke Folasade, Interviewer 1
Olanipekun Seyi Olalekan, Interviewer 2
Imonitie Oluwafunmilayo Elizabeth, Counsellor 1
Anjorin Oluwatoyin Esther, Counsellor 2
Akindele Damilola, Field Laboratorian 1
Inaolaji Temitope, Field Laboratorian 2
Oluseesin Mobolaji Joshua, Team Lead
Sobakin Adedoyin Justina, Interviewer 1
Bakare Olufemi Rasaq, Interviewer 2
OladipupoBusturat Idowu, Counsellor 1
Oluwawole Blessing Phebe, Counsellor 2
Igbinosa Adesua, Field Laboratorian 1
Omisore Abiodun Margaret, Field Laboratorian 2
Adeyiga Adeyemi Mofolorunso, Team Lead
Okunade Temitope Opeyemi, Interviewer 1
Akiode Peter Oluwasegun, Interviewer 2
Osuolale Bolatito Tundun, Counsellor 1
Fatokun Anthonia Ayoola, Counsellor 2
Onakade Adewale, Field Laboratorian 1
Anunwa Uzoamaka, Field Laboratorian 2
Aderibigbe Adedayo Ayodele, Team Lead
Ojo Christiana Oluwagbemisola, Interviewer 1
Akande Sunday Olalekan, Interviewer 2
Nwanerih Magdalene, Counsellor 1
Adegoke Adewale Gabriel, Counsellor 2
Okafor Omotunde, Field Laboratorian 1
Adeyanju Motolani, Field Laboratorian 2
Ogunniyi Olasunkanmi Olamide, Team Lead
Ulanmo Caroline Chinelo, Interviewer 1
Aregbesola Oluwaseun Modupe, Interviewer 1
Olusoga Omolade Olubusayo, Counsellor 1
Oviawe Kenneth Osaro, Counsellor 2
Osuntade Abiodun Abiola, Field Laboratorian 1
Adekunle OlalekanZainab, Field Laboratorian 2
Ojogbede AdewaleKayode, Team Lead
Faloye Tolulope Olabisi, Interviewer 1
Sotanwa Rotimi Adeshina, Interviewer 2
Olukayode Oluwaseun Ige, Counsellor 1
Gbadebo Oluwatosin Esther, Counsellor 2
Atinsola Ayodeji, Field Laboratorian 1
Apara Mary O, Field Laboratorian 2
Akinsoji Olatinwo Ishola, Team Lead
Olalekan Omolayo Mary, Interviewer 1
Adewole Felix Bamidele, Interviewer 2
Siyanbola Oludotun Olubukola, Counsellor 1
Odusilu Abdulateef Adeyinka, Counsellor 2
Lawal Olukayode, Field Laboratorian 1

Nwaokolo Christiana, Field Laboratorian 2
Olorunsogo Ayodeji Opeyemi, Team Lead
Emmanuel Oluwadamilare, Interviewer 1
Omobomi Michael Favour, Interviewer 2
AfolabiAfolasade Mary, Counsellor 1
Emenyonu Vanessa Onyinye, Counsellor 2
Agbadaola Akinola, Field Laboratorian 1
Amoo Adebayo Aminat, Field Laboratorian 2
Ajao Sheriff Olanrewaju, Team Lead
Abimbola Abisayo Samuel, Interviewer 2
Dare Temitope Hannah, Interviewer 2
Olutayo Motunrayo Ayomide, Counsellor 1
Akinmameji Folusho Omolade, Counsellor 2
Agboola Tolulope O, Field Laboratorian 1
Olayi Joy, Field Laboratorian 2
Falana OlamideJuliana, Team Lead
Oladunjoye Oluwadamilola Mary, Interviewer 1
Olarinmoye Abayomi Tolu, Interviewer 2
Olatunde-Ajagbe Yemisi Olayinka, Counsellor 1
Adekunle Adeolu Joseph, Counsellor 2
Kareem Aishat, Field Laboratorian 1
Adeeso Joy Funmi, Field Laboratorian
Onanubi Kehinde Abisoye, Team Lead
Akintan Temitope Olanrewaju, Interviewer 1
Oyedele Gbolabowale Adesanya, Interviewer 2
Larunsi Abiodun Elizabeth, Counsellor 1
Jaiyeola Ayomide Faith, Counsellor 2
Adelodun Mary Olajumoke, Field Laboratorian 1
Olufemi Olusola, Field Laboratorian 2
Fagbohun Azizat Tolani, Team Lead
Achodor Cynthia, Interviewer 1
AjayiSamuel Temitope, Interviewer 2
Oladejo Ajoke Misturat, Counsellor 1
Adedeji Adelanke Tope, Counsellor 2
Olowoyeye Adenike, Field Laboratorian 1
Ajuebor Donald, Field Laboratorian 2
Bisiriyu Adeniyi Hakeem, Team Lead
Taiwo Mary Kehinde, Interviewer 1
Kazeem Tajudeen Adebayo, Interviewer 2
Daramola Tosin Rachael, Counsellor 1
Omidiji Christiannah Bolanle, Counsellor 1
Olaniyan Olawale, Field Laboratorian 1
Omotola Ayodele Akeju, Field Laboratorian 2
Ologun Augustine Omodele, Team Lead
Akintola Oluwafisayomi, Interviewer 1
Olajide Kolawole James, Interviewer 2
Fadare Tolani Sadiat, Counsellor 1
Ilawole Abayomi Ayomikun, Counsellor 2
Aminat Olasumbo Agboola, Field Laboratorian 1
Clement Timothy Alukwu, Field Laboratorian 2
Hassan Fatima Alake, Team Lead
Bamigboye Folasade Adejonwo, Interviewer 1
Aderinko Opeyemi Michael, Interviewer 2
Jenrola Mojisola Morenikeji, Counsellor 1
Adesina Olusegun Oloyede, Counsellor 2
Sunmola OlufunkeOluwaremi, Field Laboratorian 1
Chukwuemeka Andrew, Field Laboratorian 2
Folajimi-Senjobi Omowunmi Folake, Team Lead
Oyebamiji Deborah Oyewumi, Interviewer 1
Ojo Oladele Fagbamila, Interviewer 2
Ayejusunle Esther Titi, Counsellor 1
Fakeye Anthony Olutope, Counsellor 2
Ogbonna Leona-Mary, Field Laboratorian 1
Ayeni Olarenwaju, Field Laboratorian 2
Martins Motunrayo Olayinka, Team Lead
Adaraniwon Titilayo Oluwaseun, Interviewer 1
Babawale Olusegun Ayotunde, Interviewer 2
Daniel Oluwatoyin Christiana, Counsellor 1
FasusiJimoh Olaoluwa, Counsellor 2
Olowosile Bolaji, Field Laboratorian 1
Okosun Peter, Field Laboratorian 2
Babasola Oluwafolakemi Mary, Team Lead
Fadipe Adenike Elizabeth, Interviewer 1
Yahaya Musbau Adekunle, Interviewer 2
Balogun Victoria Ifeola, Counsellor 1
Fajemisin Adegbuji Joseph, Counsellor 2
Mark Chinelo Prisca, Field Laboratorian 1
Oyewole Oluwafemi, Field Laboratorian 1
Oladepo Adeola Ayodotun, Team Lead
Adebumiti Oluwatosin O, Interviewer 1
Kehinde Seye Temitayo, Interviewer 2
Bosede Olanrewaju Isreal, Counsellor 1
AsiriuwaEsther Omorogiuwa, Counsellor 2
Igbinoba Amenaghamwon Maltida, Field Laboratorian 1
Ogundero Oluwabunmi, Field Laboratorian 2
Adewuyi Folashade Olutokunbo, Team Lead
Olaleye Titilope Bolaji, Interviewer 1
Denning Abakah, Interviewer 2
Obi Amaka Jacinta, Counsellor 1
Kazeem Olalekan Taoreed, Counsellor 2
Ajayi Folake, Field Laboratorian 1
Oyah Kingsley Moses, Field Laboratorian 2
Balogun Ayodeji Joseph, Team Lead
Muhammed Muftiat Oluwadamilola, Interviewer 1
Aregbesola Kunle Samson, Interviewer 2
Arowolo Bukayo Olatunji, Counsellor 1
Adeyemi Florence Biola, Counsellor 2
Musa Sarah, Field Laboratorian 1
Adegbenro Adebukola, Field Laboratorian 2
Akinwunmi-Omidiji Ayo, Team Lead
Adelaja Bolanle Aboyede, Interviewer 1
TimothySamuel Ibukun, Interviewer 2
Adeleke Dorcas Olatundun, Counsellor 1
Okeke Samuel Chikwuebuka, Counsellor 2
Jibulu Folashade, Field Laboratorian 1
Oriowo Oluwabunmi, Field Laboratorian 2
AjayiOlusola Hassan, Team Lead
Oyetoro Ganiyat Gbemisola, Interviewer 2
Fadipe Adeniyi Jordan, Interviewer 2
Omodare Oluwatosin, Counsellor 2
Nwakaego Nwakaego Frances, Counsellor 2
Jolaosho BeulahOdunayo, Field Laboratorian 1
Odelotan Blessing, Field Laboratorian 2
Olagunoye Ajibola Olatunji, Team Lead
Afolabi Oluseyi Omotola, Interviewer 1
Da-Costa Titilade Timileyin, Interviewer 2
Oguntade Olusolape Adebimpe, Counsellor 1
Adediji Peter Olaoluwa, Counsellor 2
Fayoyiwa Grace, Field Laboratorian 1
Oladele Bosede Bunmi, Field Laboratorian 2

Adepoju Funmilade Olasunmbo, Team Lead
Adeleke Taiwo Ademola, Interviewer 1
Abubakar Joy Oge, Interviewer 1
Obe Olufunsho Abayomi, Counsellor 1
Adefolayiga Adebukola Morounkola, Counsellor 2
Osinaya Oluwatobi, Field Laboratorian 1
Adeyeye Elizabeth Oluwabukola, Field Laboratorian 2
Faniku Ayokunle Iseoluwa, Team Lead
AwakanAbiola Ibukunola, Interviewer 1
Ulagba Elizabeth Ene, Interviewer
Balogun Oluwadamilola Ayomide, Counsellor 1
Deinde Becky Olubunmi, Counsellor 2
AjimudaBabatunde, Field Laboratorian 1
Akinsuroju Adedolapo, Field Laboratorian 2
Suara-Ogunfolaji Khadijah Olawumi, Team Lead
Ajimuda Morayo Felicia, Interviewer 1
Akerele Babatope Hayford, Interviewer 2
Babatunde Sammie Pelumi, Counsellor 1
Falana Adeola Janet, Counsellor 2
Ologunaye Stephen, Field Laboratorian 1
Oduola Tolulope, Field Laboratorian 2
Akinbowale Saheed Olalekan, Team Lead
Oyedokun Joy Oyetoke, Interviewer 1
Akinrogunde Olamigoke, Interviewer 2
Ilesanmi Taiwo Julianah, Counsellor 1
Ashefor Sylvester Zamije, Counsellor 2
Omojola Olawale, Field Laboratorian 1
Oni Ibukunoluwa, Field Laboratorian 2
Ige Monsuru Mabayomije, Team Lead
Adeoye Rachael Olajumoke, Interviewer 1
Aremu Damilare Adeniyi, Interviewer 2
AkomoledeAnthonia Iyabode, Counsellor 1
Ewuola Christopher Afolabi, Counsellor 2
Ogunjobi KemisolaMary, Field Laboratorian 1
Adepoju Tosin, Field Laboratorian 2
Bamgbade Bunmi Omotunde, Team Lead
Olufemi Olajumoke Adeola, Interviewer 1
Bamiteko Olugbenga Adebanjo, Interviewer 2
Gbadamosi Oluwaseun Taibat, Counsellor 1
Babalola Sunday Ezekiel, Counsellor 2
Iyanda Tolulope, Field Laboratorian 1
Nwosu Ifeanyi Joseph, Field Laboratorian 2

North East Zone

Igawe Philip Bobu, Team Lead
Grace Yila Maikano, Interviewer
Adamu Shehu Timta, Interviewer
Salisu Hafsat, Counsellor
Awu Monica A, Counsellor
Musa Mamman, Field Laboratorian
MuhammedAdama, Field Laboratorian
Ali Joy, Team Lead
Aliyu Ja'afar Jafar, Interviewer
Alkali Aisha, Interviewer
Davo Blessing, Counsellor
Danazumi Samaila, Counsellor
Ismail Ali Yerima, Field Laboratorian
Babaja Rashida, Field Laboratorian
Abraham Zirra, Team Lead
Mohammed Awwal, Interviewer
DavidRuby Gana, Interviewer
Lumba Nelson, Counsellor
Sani Sylvia, Counsellor
Musa Muhammed Sabo, Field Laboratorian
Paul Hopson Mbi, Field Laboratorian
Chiroma Ali Umar, Team Lead
Dauda Ummi Bagari, Interviewer
Muhammad Imran Barkindo, Interviewer
Danladi Hammari, Counsellor
Idris Bashir, Counsellor
Audu Umar, Field Laboratorian
Peter Dorathy Simon, Field Laboratorian
Vahyalla Musa, Team Lead
Mohammed Amaturrahman, Interviewer
Musa Philip Butu, Interviewer
Kauna Daniel, Counsellor
Inuwa Amina, Counsellor
Abdullahi Bala, Field Laboratorian
Jacob Peter, Field Laboratorian
Abdulrahman Faiza, Team Lead
Aliyu Ruqayya, Interviewer
Ibrahim Mustapha Abdulrazak, Interviewer
Maikano Malate, Counsellor
Gidado Ishaqa A, Counsellor
Abubakar Bura Muhammed, Field Laboratorian
Danjuma Haruna Bello, Field Laboratorian
Dauda Saraya, Team Lead
Suleiman Aishatu, Interviewer
AhmadZakari Abdullahi, Interviewer
Muhammed Abdullahi Magaji, Counsellor
Johnson Abraham, Counsellor
Nggada Hyelhare Paul, Field Laboratorian
Abdullahi Rabiu, Field Laboratorian
Lawal Sulaiman, Team Lead
Umar Maimuna Sule, Interviewer
Mohammed Ismail, Interviewer
Ijato Monica Odudu, Counsellor
Danbade Aliyu Isah, Counsellor
Musa Elizabeth Peleba, Field Laboratorian
Abubakar Muhammed, Field Laboratorian
Magaji Solomon Eziekiel, Team Lead
Haruna Mohammed Bose, Interviewer
Iliya Zira Sallah, Interviewer
Raymond Yoila S, Counsellor
Garba Hadiza Ammani, Counsellor
Yahaya Alpha, Field Laboratorian
Adamu Muhammed, Field Laboratorian
Salihu Isa Idris, Team Lead
Sunday Benjamin, Interviewer
Danfulani Elizabeth Bulus, Interviewer
Simon Evelyn, Counsellor
Bukar Umar Farouk, Counsellor
Abubakar Idris Matinja, Field Laboratorian
Sani Ammar, Field Laboratorian
Akandiya Job Yarakawa, Team Lead
Bello Maryam D, Interviewer
Ahmad Baba Mustapha, Interviewer
Ibrahim Laraba, Counsellor
WaziriBlessing C, Counsellor
Abubakar Adamu, Field Laboratorian
Abdu Ayuba, Field Laboratorian

Yusuf Abdullahi Aliyu, Team Lead
Ibrahim Nafisat Kuru, Interviewer
Muhammad Tasiu, Interviewer
Solomon Sarah Hezekiah, Counsellor
Salihu Asiya, Counsellor
Ya'u Buhari, Field Laboratorian
Usman Abubakar, Field Laboratorian
Halima Ahmed, Team Lead
Mangey Jarumi, Interviewer
Yusuf Zainab, Interviewer
Yakubu Amsa Ibrahim, Counsellor
Eric Anita, Counsellor
Enock Suleiman Bauchi, Field Laboratorian
Abba Muh'd Tar, Field Laboratorian
Mohammed Maru Mustapha, Team Lead
Idi Junaidu, Interviewer
Salihu Maryam, Interviewer
Abdullahi Aisha, Counsellor
Chama Abigail Jessey, Counsellor
Muhammed Nafiu Wada, Field Laboratorian
Reuben Barkahyel, Field Laboratorian
Dauda Shalangwa, Team Lead
Salihu Rukayya Sabiya, Interviewer
Cletus Tari, Interviewer
Sule Ahmed Adaya, Counsellor
Suleiman Fanta, Counsellor
Sani Ibrahim, Field Laboratorian
Maidugu Yusuf Musa, Field Laboratorian
Joseph Musa Gurati, Team Lead
Tukur Auwal, Interviewer
Adamu Mairo, Interviewer
Bathon Tidari Ati, Counsellor
Garba Martha Tani, Counsellor
Ibrahim Adeh, Field Laboratorian
Daniel Dauda, Field Laboratorian
Shehu Mohammed Hashidu, Team Lead
Sa'idu Azimatu, Interviewer
Baba Alikime, Interviewer
Barguma Chafari Isa, Counsellor
Aliyu Umar, Counsellor
Alhamdu Daniel, Field Laboratorian
Isayah Ezekiel Madina, Field Laboratorian
Abdulkarim Mohammed A, Team Lead
Muhammad Ismail Yahuza, Interviewer
Muhammad Maryam Aliyu, Interviewer
George Aggrey Lama, Counsellor
Yusuf Umar, Counsellor
Agnes Audu, Field Laboratorian
Habila Soba, Field Laboratorian
Garba Grace Kati, Team Lead
Usman Hadiza Mohammed, Interviewer
Hassan Munirah Muhammad, Interviewer
Obonyilo Sunday Johnson, Counsellor
Lukman Aliyu Baba, Counsellor
Alh Babagana Modu, Field Laboratorian
Abdullahi Shehu, Field Laboratorian
Saidu Sarkinyamma Bello, Team Lead
Dominic Solomon, Interviewer
Muhammed Maryam, Interviewer
Yakubu Elizabeth, Counsellor
Adamu Muhammad Itas, Counsellor
Mamza Munakur, Field Laboratorian
Makwai Hassan Umar, Field Laboratorian
Ahmed Maimuna, Team Lead
Garba Amina Muhammed, Interviewer
Nemtai Vakkai, Interviewer
Yahaya Balarabe, Counsellor
Goni Amma Muazu, Counsellor
Keren Sajel, Field Laboratorian
Sali Benjamin Luka, Field Laboratorian
Yakubu Wilfred Hwankhi, Team Lead
Abdullahi Mohammed Angula, Interviewer
Kish Pemale, Interviewer
UmarAli, Counsellor
Ali Maria, Counsellor
Salifa Jedi, Field Laboratorian
Gambo Ndzuresa, Field Laboratorian
Tulari Tine, Team Lead
Abdulmutalebi Aisha A, Interviewer
Goni Dzarma Hamman, Interviewer
Ibrahim Yusuf Muhammed, Counsellor
Mijah Limem, Counsellor
Alyasau Zakari, Field Laboratorian
Solomon Rimamndeyati, Field Laboratorian
Samuel Tari, Team Lead
Mukhtar Safiya, Interviewer
Mohammed Muazu Danburam, Interviewer
Abubakar Aisha, Counsellor
Abubakar Aliyu Idris, Counsellor
AlhassanSani Adamu, Field Laboratorian
Muhammed Sani Usman, Field Laboratorian
Sallau Yusha'u, Team Lead
Musa Sarah, Interviewer
Peter Emmanuel Vandu, Interviewer
Garba Kati, Counsellor
Umar Hajja Aida, Counsellor
Isa Hyalade Sabo, Field Laboratorian
Jonathan Akyaras Mamman, Field Laboratorian
Jibrin Nawukari, Team Lead
Abdullahi Isah, Interviewer
Muhammed Hadiza, Interviewer
Ginasha Joy, Counsellor
Bashir Ado Hassan, Counsellor
Faratu Saleh Adeh, Field Laboratorian
Idiemise David, Field Laboratorian
Idris Halimat, Team Lead
Joshua Asimiya, Interviewer
Dame Judith, Interviewer
Anjili Peter, Counsellor
Suleiman Safiya, Counsellor
Audu Nana Guh, Field Laboratorian
Hamidu Tijjani Usman, Field Laboratorian
Ahmed Muktar Abubakar, Team Lead
Ibrahim Umar, Interviewer
Muhammad Maijidda, Interviewer
Jonah Yacheson, Counsellor
Dinshiya Joda Gabriel, Counsellor
Ismail Musa Muhammed, Field Laboratorian
Yakubu Musa Zakshi, Field Laboratorian
Musa Sarki, Team Lead

Muhammad Saudatu, Interviewer
Salihu Bako Apake, Interviewer
Ali Fatima Alhaji, Counsellor
Lumni Sunsuwa Deborah, Counsellor
Jafa'aru Hadiza, Field Laboratorian
Kyari Shettima, Field Laboratorian
Ibrahim Bunu, Team Lead
Aliyu Abubakar Garba, Interviewer
Sogi Caroline, Interviewer
Danladi Saraya, Counsellor
Muhammad Nuru Zakari, Counsellor
Hamma'adama Sumaiyatu, Field Laboratorian
Ibrahim Abbas Muhammad, Field Laboratorian

North Central Zone

Balogun Bunmi Dorathy, Team Lead
Adamu Usman, Interviewer
Umar Hannatu Sulaiman, Interviewer
Nkom Michael, Counsellor
Ahmed Bilkisu Adamu, Counsellor
Salaudeen HaleematSadiat, Field Laboratorian
UsmanMahmud, Field Laboratorian
Lekwat Anastasia, Team Lead
Hassan Ibrahim, Interviewer
Ishaq Aisha, Interviewer
AlkaliPromise, Counsellor
Tijjani Bilkisu, Counsellor
Okpanachi Mary, Field Laboratorian
DanielGish, Field Laboratorian
Emmanuel Ofana, Team Lead
Shaba Abdulkadir, Interviewer
Samke Kursiyya, Interviewer
BabaRabi Asabe, Counsellor
Abdullahi Ramatu, Counsellor
Edache Onyeche, Field Laboratorian
Lohor Iliya Petlong, Field Laboratorian
Ajiboye Motunrayo, Team Lead
Tijjani Sekinat, Interviewer
Adah Erik Ojonugwa, Interviewer
MohammadKolo Chekpa, Counsellor
Fakunle Itunu, Counsellor
AdajiOtafu Joseph, Field Laboratorian
Daniel Nenbammun, Field Laboratorian
Oyedeji Olufemi Solomon, Team Lead
Nafiu Abdulwahab, Interviewer
Mohammed Safiya Adamu, Interviewer
Pyop SharonAndrew, Counsellor
Shaibu Josephine H., Counsellor
Adeleye Bolanle Enitan, Field Laboratorian
Nimmak Samuel, Field Laboratorian
AdogaRoselineOgenyo, Team Lead
Garba Bashir Tahir, Interviewer
Ndanusa Halima, Interviewer
Michael Victoria, Counsellor
MohammedSamira, Counsellor
Akor Shedrack Egbunu, Field Laboratorian
Musa Simi Priscilla, Field Laboratorian
MuhammedAbdullahiUmar, Team Lead
Akano Olayinka Eyitayo, Interviewer
Donli Onyeka Ebiere, Interviewer
Aboshin Elizabeth Member, Counsellor
Zakari Ruth, Counsellor
John Onuche Noah, Field Laboratorian
Lawrence Gift, Field Laboratorian
Adgidzi EuniceAsheobin, Team Lead
Mustapha Olabanji Mohammed, Interviewer
Abubakar Asmau Bello, Interviewer
Idris Hajara, Counsellor
Hosea Victor, Counsellor
Bognet VirginiaPhilip, Field Laboratorian
Timloh Danjuma Haruna, Field Laboratorian
KassimAbdulmuminiMaikudi, Team Lead
H Aliyu, Interviewer
Musa Rifkatu, Interviewer
Dei Jennifer Iverien, Counsellor
Ochende John Femi, Counsellor
Okpe Rita Ochanya, Field Laboratorian
Nimark Maurice, Field Laboratorian
DalhatuAhmedMuhammad, Team Lead
Ibrahim Yahaya, Interviewer
Mustapha Fatimah Wuraola, Interviewer
Egwumah Grace Ile, Counsellor
UsmanShehuIdris, Counsellor
OlatunjiAbdulwasiuShola, Field Laboratorian
Shedrach Bulus Nghozei, Field Laboratorian
Abdullahi Abubakar, Team Lead
Isah Idris Tijjani, Interviewer
Shehu Hafsat, Interviewer
AzuOnyia Blessing, Counsellor
Zakari Hauwa, Counsellor
Usman Mohammed, Field Laboratorian
KabiruUmar Nuhu, Field Laboratorian
Hosle Tangkat, Team Lead
Amile Msoo Sara, Interviewer
Ibrahim Habiba, Interviewer
AbdulahiMohammedWachiko, Counsellor
Benson Peace, Counsellor
Bolanle Fatima Salaudeen, Field Laboratorian
Christopher Namo, Field Laboratorian
DuhurLongjiSimon, Team Lead
Ramalan Mariam Aliyu, Interviewer
Obe Abu, Interviewer
Halliday JanetData, Counsellor
Akue Theophilus, Counsellor
Abah Martha Ejiga, Field Laboratorian
Alhassan Yusuf, Field Laboratorian
DakumLongjiBenji, Team Lead
Ahmed Medinat Abiodun, Interviewer
Gofwen Morgan, Interviewer
Suleiman Yusuf, Counsellor
Ali Adama, Counsellor
Riliwan Jamiu, Field Laboratorian
Yunana Meshak, Field Laboratorian
Dr. DzungweAmos Mvendaga, Team Lead
Ephraim Grace, Interviewer
Gana MusaAliyu, Interviewer
Abdullahi Mansur, Counsellor
Adetona Habibat, Counsellor
AbidemiBunmi Ajayi, Field Laboratorian
TankoRichard M, Field Laboratorian
AbdullahiKassim Adams, Team Lead

Obioha Christine, Interviewer
AhmedIdris, Interviewer
MohammedAnas Iliayasu, Counsellor
Abubakar Tessy Naomi, Counsellor
Manchesterismus Osime, Field Laboratorian
UmarAliyu Saleh, Field Laboratorian
AbdullahiNasiru, Team Lead
AlhassanIbrahim Ibrahim, Interviewer
Akpaka Martha, Interviewer
Danladi Cathrine Maikasuwa, Counsellor
Muhammed Abdulkareem, Counsellor
Eze Kelvin, Field Laboratorian
ZakouAmadou, Field Laboratorian
Omenka AlexAlagi, Team Lead
ShuaibuBala, Interviewer
Aboje Aladi Victoria, Interviewer
Zekeri Roseline Rabi, Counsellor
Kitka Manji, Counsellor
Habiba Ghazali, Field Laboratorian
Haruna Kaburu Hassan, Field Laboratorian
Tyotswam Yanmeer Simeone, Team Lead
Mohammed Maimuna Katu, Interviewer
Abdulkarim Abdulrazak, Interviewer
Isa Abubakar, Counsellor
Ibrahim Salama K, Counsellor
Assumpta Nwankwo, Field Laboratorian
Gideon Zam Nunkpan, Field Laboratorian
JohnAnthony Tiri, Team Lead
Oyelere Yewande Ololade, Interviewer
Adamu Aisha Ahmad, Interviewer
UkpojuJames Inalegwu, Counsellor
Akunnwa Ifeoma, Counsellor
TheophilusIdah Ebah, Field Laboratorian
AmusaHazzan Taye, Field Laboratorian
Katu AliyuMohammed, Team Lead
Okowche Ebute David, Interviewer
Katu Salamatu, Interviewer
Tukur Lawal, Counsellor
MohammedAisha, Counsellor
Pankwal Bapina Masoyi, Field Laboratorian
Rachael Christopher, Field Laboratorian
Njemanze Ulunma, Team Lead
Iyela Mekane, Interviewer
Sani Usman, Interviewer
Christopher Victoria Lakpa, Counsellor
Saa'aungwa Uchenna Egbulafu, Counsellor
Abdullahi Mairiga, Field Laboratorian
Shuaibu Sahura Aliyu, Field Laboratorian
Agbir Mary Mrumun, Interviewer
Ahmed Sani, Interviewer
Onuche Blessing Ejura, Interviewer
Mohammed Sadiya, Counsellor
Saad Aminat Omawumi, Counsellor
Olayemi James, Field Laboratorian
Ahmed Aminat Saba, Field Laboratorian
Obele Oluchukwu, Team Lead
Yakubu Ibrahim Idoko, Interviewer
Bello Aisha, Interviewer
Usman Abbas Mohammed, Counsellor
Abdullahi Suwaiba, Counsellor
Umar AhmedAdamu, Field Laboratorian
Fidelis Moses Ebu, Field Laboratorian
Olajide Tunde, Team Lead
Umar Hauwa Nata'allah, Interviewer
Akusuk Ishaku, Interviewer
Katu Comfort Joshua, Counsellor
Ogbagbe Beatrice Ngozi, Counsellor
Ndagi Saba Mohammed, Field Laboratorian
Samon Amegwa Oji, Field Laboratorian
Julius Janet Jummai, Team Lead
Tijjani Zaharadeen Dalhatu, Interviewer
Tau Dingchi Joy, Interviewer
Akopari Lateefa Bola, Counsellor
Yunusa Emmanuel, Counsellor
Aluku Alfred John, Field Laboratorian
Shamaki Samson Y, Field Laboratorian
Dangana Shehu, Team Lead
Mohammed Fatima Ndanusa, Interviewer
Onaolapo Yinka A., Interviewer
Micheal Peter Adamu, Counsellor
Aliyu Rukaya, Counsellor
David Ademiluyi, Field Laboratorian
Nyam Arin, Field Laboratorian
Baba Kolo, Team Lead
Bala Yahaya, Interviewer
Aliyu Saadatu, Interviewer
Ayodele Abidemi, Counsellor
Suleiman Hajara Musa, Counsellor
Ajibo Promise Adaora, Field Laboratorian
Anate Halima Onize, Field Laboratorian
Ibrahim Chindo Bisallah, Team Lead
Musa Shuaibu, Interviewer
Opadeyi Yetunde, Interviewer
Chigbu Dorcas Onyeje, Counsellor
Lenkhat Blessing Ishaku, Counsellor
Okwuowulu Onyinye, Field Laboratorian
UmarAbdullahi Namadi, Field Laboratorian
OchigboMichael Onyilo, Team Lead
Maikasuwa Mohammed Ahmad, Interviewer
Issa Balikis Ayoola, Interviewer
Danladi Joseph, Counsellor
Johnson Syntyche, Counsellor
UsmanAhmed Tanko, Field Laboratorian
Ogunkoya Funke Oluseun, Field Laboratorian
EmmanuelOmotoyinbo, Team Lead
Zakari Abubakar Zaria, Interviewer
Danladi Nanna, Interviewer
Ojabo Ben Abba, Counsellor
Elechukwu Nkiruka, Counsellor
Iloeje Uchenna, Field Laboratorian
John Oge, Field Laboratorian
Okeji Wakilat, Team Lead
Yahaya Gloria, Interviewer
Yahaya Abdullahi Doma, Interviewer
Amanyi Mary Iyonu, Counsellor
Buhari Abdulhafeez Oladimeji, Counsellor
Abdullahi Aminu, Field Laboratorian
Emeka Aniachunam, Field Laboratorian
HamzaSalma, Team Lead
Gwom Jerry Dalyop, Interviewer

Oyinloye Bukola A, Interviewer
Onwe Moses, Counsellor
Memeyen Titilayo, Counsellor
Mohammed Majin, Field Laboratorian
Agba Rita Uyilowhoma, Field Laboratorian
Sadiq Abubakar Musa, Team Lead
Farouk Aliyu Haydar, Interviewer
Makpa Victoria Ilya, Interviewer
KazumKhadijat Omofolahan, Counsellor
Joroh Enoch Daniel, Counsellor
Chundung Davou, Field Laboratorian
Abdul-Azeez Aisha Bint, Field Laboratorian
Adejo Grace, Team Lead
Ayuba Babatunde Akeem, Interviewer
Onda Erima, Interviewer
Ibrahim El-Ameen, Counsellor
Slowe Triumph, Counsellor
Dike Godfrey Chukwudi, Field Laboratorian
Paul Daniel Edet, Field Laboratorian

North West Zone

Abdullahi Naja'atu, Team Lead
Lawal Aisha Shehu, Interviewer
Ibrahim Dalhatu Nasir, Interviewer
Tukur Badiya Bello, Counsellor
Ahmed Safiya, Counsellor
Muhammad Musa Abdullahi, Field Laboratorian
Ibrahim Maryam, Field Laboratorian
Atiku Salma Ibrahim, Team Lead
Shehu Farouq Hayat, Interviewer
Abubakar Sadeeq Suleiman, Counsellor
Shehu Maryam Salihu, Interviewer
Peter Justina, Counsellor
Yahaya Muhammad, Field Laboratorian
Adamu Amina Usman, Field Laboratorian
Usman Halima, Team Lead
Ibrahim Wasilat Mashi, Counsellor
Madaki Hameeda Mansur, Interviewer
Buhari Mustapha Farouk, Interviewer
Sani Jamilu Alhaji, Counsellor
Abba Mustapha, Field Laboratorian
Altine Rilwanu, Field Laboratorian
Mohammed Maimuna Baban Inna, Team Lead
Yusuf Shamsu Saleh, Interviewer
Isyaka Zulaihat Ibrahim, Interviewer
Umar Isah Buhari, Counsellor
Luka Grace Abbott, Counsellor
Aliyu Abdullahi, Field Laboratorian
BasheerAbubakar, Team Lead
Balarabe Rabi, Interviewer
Abba Sadi, Interviewer
Usman Jamila Ladan, Counsellor
Bandi Abdulmalik, Counsellor
Abdullahi Hamisu, Field Laboratorian
Lawan Umar Umar, Field Laboratorian
Akanet Sheyin Richard, Team Lead
Sirajo Ishaq Bala, Counsellor
Dalhatu Aliyu Tijjani, Interviewer
Bello Firdausi Khatume, Counsellor
Muhammad Nafisa Adamu, Interviewer
Bello Hashimu Bunza, Field Laboratorian
Muhammad Abubakar, Field Laboratorian
Mande Aliyu Tambaya, Team Lead
Danladi Hannatu, Counsellor
Surajo Zaharaddeen, Interviewer
Abubakar Shuhaima, Counsellor
Garba Hauwau Dangida, Interviewer
Mohammed Auwal, Field Laboratorian
Shuaibu Umma, Field Laboratorian
Aliyu Zainab Abdullah, Team Lead
Bello Fatima Tafida, Interviewer
Tijjani Tijjani, Interviewer
Ibrahim Rashida Gorko, Counsellor
Abubakar Shamsu Shehu, Counsellor
Bello Nafisatu, Field Laboratorian
Shuaibu Shamsuddeen, Field Laboratorian
Shehu Ibrahim Ado, Team Lead
Lukman Ibrahim Musa, Interviewer
Abba Su'ad Yola, Interviewer
AliyuJamila, Counsellor
Yahaya Abdulkadir, Counsellor
Attahiru Saifullahi, Field Laboratorian
Muhammad Zainab, Field Laboratorian
Danjuma Jenom Sunday, Team Lead
Hussaini Usman, Interviewer
AliyuMaryamSani, Counsellor
Atoyebi Rukayya, Interviewer
Iliyasu Garba, Counsellor
Sani Ahmed Kusada, Field Laboratorian
Garba Samiru, Field Laboratorian
Bashir Khadija, Team Lead
Muhammad Nabila Turaki, Counsellor
Adam Muhammad Yau, Counsellor
El-Yakub Firdausi Ado, Interviewer
Musa Idris, Interviewer
Usman Victor, Field Laboratorian
Ahmad Maryam, Field Laboratorian
AliyuIbrahim Shehu, Team Lead
Abubakar Sanusi, Counsellor
Abdullahi Abba Muhammad, Interviewer
Muhammad Umma, Interviewer
Usman Zuwaira Ladan, Counsellor
Sama'ila Yusuf, Field Laboratorian
Bala Jamila Saleh, Field Laboratorian
Abba Rabiu Hussain, Team Lead
Sani Mustapha, Interviewer
Abubakar Maryam K, Counsellor
Shaheed Saifullahi, Counsellor
Ahmad Aminatu Bala, Interviewer
Lukman Yusuf, Field Laboratorian
Bature Muhammad M., Field Laboratorian
Hassan Safina Mashi, Team Lead
Alhassan Abdullahi, Counsellor
Ishiaku Rahina, Counsellor
Bako Junaidu Mustapha, Interviewer
Adamu Aisha Ali, Interviewer
Usman Mukhtar, Field Laboratorian
Isa Murtala, Field Laboratorian
Musa Muslim Kurawa, Team Lead
Sani Asmau Kankia, Interviewer
Dahiru Maimuna, Interviewer

Isyaku Hadiza, Counsellor
Adam Salamatu Muhammad, Counsellor
Ahmad Salisu Madaki, Field Laboratorian
Aliyu Isa Yeldu, Field Laboratorian
Baba Hadiza, Team Lead
Salisu Umar Dabai, Interviewer
Abdulrahman Maryam, Interviewer
Yusuf Musayyib, Counsellor
Hamisu Asmau, Counsellor
Saad Aminu, Field Laboratorian
Ibrahim Saratu Tunau, Field Laboratorian
HussainAisha Umar, Team Lead
Bello Salihu Wada, Interviewer
Rufai Zuwaira, Interviewer
Jouro Ibrahim Adam, Counsellor
Paul Gloria Yusuf, Counsellor
Adamu Hauwa, Field Laboratorian
Muhammad Mukhtar, Field Laboratorian
Abdulsamad Hassan, Team Lead
John Joyce, Interviewer
Abubakar Salihu, Interviewer
Ibrahim Fatima Abdullahi, Counsellor
Muhammad Usman, Counsellor
Sani Fatima, Field Laboratorian
Dahiru Nura, Field Laboratorian
Ibrahim Mani Kankia, Team Lead
Buhari Muhammad, Interviewer
Dalhatu Maimuna Tijjani, Interviewer
Tukur Hassan Maru, Counsellor
Ismail Bala, Counsellor
Adamu Mahdi Ahmed, Field Laboratorian
Abdurrauf Sani, Field Laboratorian
Yusuf Sameer Sanusi, Team Lead
Galadimawa Susan, Interviewer
Bello Umar Kasarawa, Interviewer
Ahmad Ummahanni Atiku, Counsellor
Magaji Juma'are Makarfi, Counsellor
Zebulon Kennedy, Field Laboratorian
Isa Yakubu, Field Laboratorian
Abubakar Bilkisu Gulma, Team Lead
Saminu Aliyu, Interviewer
Muhammad Halisa, Interviewer
Tahir Rahama, Counsellor
Lawal Naziru, Counsellor
Lawal Nazir Habib, Field Laboratorian
Firdausi Abubakar, Field Laboratorian
Ahmed Rabiu Sambo, Team Lead
Johnson Euodias Chat, Counsellor
Barau Hassan, Counsellor
Biliyaminu Zainab Abdullahi, Interviewer
Buhari Abbatti, Interviewer
Liti Yahaya, Field Laboratorian
Muhammad Umar, Field Laboratorian
Julius Jessica Solomon, Team Lead
Yunusa Nafisa Bello, Interviewer
Halilu Umar Anka, Interviewer
Bako Sarah, Counsellor
Abdulkadir Nura, Counsellor
Ilu Lurwanu, Field Laboratorian
Alhassan Yunusa, Field Laboratorian
Haruna Yusuf, Team Lead
Hassan Suwaiba, Interviewer
Yohanna Christiana Rambo, Counsellor
Muazu Aminu, Counsellor
Ibrahim Inusa, Interviewer
Sani Muntari, Field Laboratorian
Yusuf Hajara, Field Laboratorian
Samaila Kabiru, Team Lead
Adam Sunusi Salisu, Counsellor
Dalhat Maryam Muazu, Counsellor
Tijjani Illyasu, Interviewer
Lawal Shamsiya, Interviewer
Umaru Samuel, Field Laboratorian
Okechukwu Chisom Emmanuel, Field Laboratorian
Nasidi Abubakar Said, Team Lead
Usman Rabi Muhammed, Interviewer
Maida Emmanuel Tajo, Counsellor
Ibrahim Zainab Danladi, Counsellor
Sa'ad Fatima Abubakar, Interviewer
Ibrahim Sani Ahmed, Field Laboratorian
Ibrahim Talatu, Field Laboratorian
Attahiru Abubakar, Team Lead
Lawan Jibrin Muhammed, Interviewer
Ibrahim Habiba, Interviewer
Sada Aliyu, Counsellor
Saminu Shamsiya Usman, Counsellor
Paul Precious Awulo, Field Laboratorian
Isa Abdulkadir, Field Laboratorian
Auwal Aliyu Aliyu, Team Lead
Sadiq Abubakar Saidu, Interviewer
Usman Hafsat, Interviewer
Godwin Emmanuel, Counsellor
Jibril Suwaiba, Counsellor
Mohammed Abdurrahman, Field Laboratorian
Aliyu Abdulkadir, Field Laboratorian

South South Zone
Anayo Ozowuba, Zonal Mobilizer
Lekia Princewill Eli, State Based Mobilizer
Paul Isiugo, State Based Mobilzer
Egeni Godspower Ken Anselem, State Based Mobilizer
Ibe Agbirigba, Community Mobilizer
Hopelyn Ifeoma, Community Mobilizer
Jim David, Community Mobilizer
Ifeanyi Ogbonda, Community Mobilizer
Godspower Mgba, Community Mobilizer
Eke Bethel Ikedi, Community Mobilizer
Kiikpoye Mark, Community Mobilizer
Tenegheni Linus, Community Mobilizer
Okorogba Godspower, Community Mobilizer
Kaliwana Ali, Community Mobilizer
Sogbeye Briggs, Community Mobilizer
Clifford Emmanuel, Community Mobilizer
Ibiang Efayohobase Ekpo, Community Mobilizer
Gold Amachree, Community Mobilizer
Adairi Tolofari, Community Mobilizer
Dokubo Sogbeba, Community Mobilizer
Austin Braide, Community Mobilizer
Titi Sunday Goya, Community Mobilizer
Llyod Ebenezer, Community Mobilizer

Ohalem Smart Emeka, Community Mobilizer
Chibundu Uchegbu, Community Mobilizer
Tenalo Stephen Bariduanen, Community Mobilizer
Acheola Mgbede, Community Mobilizer
Barisi-Letam Chibor, Community Mobilizer
Te-Erebe Barilugbene Humble, Community Mobilizer
Edith Edoghotu John, Community Mobilizer
Otobo Dennis, Community Mobilizer
Ezechimere Royal Chinedum, Community Mobilizer
Anucha Sylvester I., Community Mobilizer
Jaja Gabriel Bruce, Community Mobilizer
Ananwudi Chukwuma Cyril, Community Mobilizer
Manikpo Gibson Epbabari, Community Mobilizer
Chinedu Chukwuma, Community Mobilizer
Allu Favour Clement, Community Mobilizer
Felix Essien Ekandem, State Based Mobilizer
Mary Etim Bassey, State Based Mobilizer
Emediong D Udon, State Based Mobilizer
Anienamakan E. Udo, Community Mobilizer
Esifa Joseph, Community Mobilizer
Wasinfereke Udoessien, Community Mobilizer
Asuquo Effiong Andrew, Community Mobilizer
Inyang O. Hezekiah, Community Mobilizer
Otu Josiah Gebriel, Community Mobilizer
Ofonime John Darby, Community Mobilizer
Abasiubong J Edet, Community Mobilizer
Joseph Ngwonye, Community Mobilizer
Blessing Edet Samuel, Community Mobilizer
Blessing Ekwere, Community Mobilizer
Udofia Itoro Akpan, Community Mobilizer
Uba U Kingsley, Community Mobilizer
Gloria Felix Obong, Community Mobilizer
Asuquo Essien Isong, Community Mobilizer
Mayen Okopide, Community Mobilizer
Ekwere Yaknti E., Community Mobilizer
David Thompson Atang, Community Mobilizer
Blessing D. Udo, Community Mobilizer
Elizabeth Ofong Ndah, Community Mobilizer
Archibong Usen Okon, Community Mobilizer
Emmanuel Udoh, Community Mobilizer
Abanuma Linus I, Community Mobilizer
Emaediong Cyril, Community Mobilizer
Ambrose, Prosperity, Community Mobilizer
Nsisong Patrick Ekong, Community Mobilizer
Edi-Ubong Umoumoh, Community Mobilizer
Idongesit Harry U., Community Mobilizer
Janet Nkereuwem Eneokon, Community Mobilizer
Idoreyin Felix, Community Mobilizer
Ubong Edwin Obot, Community Mobilizer
Christiana I. Etim, Community Mobilizer
Udeme Michael, Community Mobilizer
Ekpo Ignatius Itu, Community Mobilizer
Uduak Peter Akpan, Community Mobilizer
Utomobong Peter, Community Mobilizer
Linus Udoma, Community Mobilizer
Mfonobong Smart O., Community Mobilizer
Solomon Bassey Ema, Community Mobilizer
Egeni Godspower Ken, State Based Mobilizer
Tonye Ayamah, State Based Mobilizer
Summerset B Kieri, State Based Mobilizer
Nelson-Ebimie Rachel Ebiere, State Based Mobilizer
Amgbare Clementina, Community Mobilizer
Osezuwa Ovonlen, Community Mobilizer
Otobo Dennis, Community Mobilizer
Dickson Mokison, Community Mobilizer
Oguta Seleke-Owei, Community Mobilizer
Beauty B. Ozuzu, Community Mobilizer
Osumanyi Amina Osman, Community Mobilizer
Ombu Henry, Community Mobilizer
Aroh Josephine, Community Mobilizer
Egbe Oyinpreye, Community Mobilizer
Ndiomu Oyinmiebi, Community Mobilizer
Emmanuel Oyindoubara, Community Mobilizer
Ben-Wakama Ebigoni, Community Mobilizer
Patricia Oduh, Community Mobilizer
Edodo Christopher, Community Mobilizer
Abule Festus, Community Mobilizer
Victor Omubo, Community Mobilizer
Keremah Walter, Community Mobilizer
Awudu Ebibiegbaghe, Community Mobilizer
Roseline Ngoka, Community Mobilizer
Ofoin Ben, Community Mobilizer
Paul Ayibanua, Community Mobilizer
Azigere Martins, Community Mobilizer
Naibi Ballantyne, Community Mobilizer
Ben Lawrence Ekpezu, Community Mobilizer
Rose Nwokezi, Community Mobilizer
Juliana Agida, Community Mobilizer
Sambo Tiemote, Community Mobilizer
Igoin A. Azibalamabini, Community Mobilizer
Danbokolo Ayebainaemi, Community Mobilizer
Titus Seribo Godspower, Community Mobilizer
Kwegbe Adendo, Community Mobilizer
Minna Botamarau-Etaremi, Community Mobilizer
Chamberlain Fedigha, Community Mobilizer
Ifere Obeten, State Based Mobilizer
Lawrencia Nseobot, State Based Mobilizer
Bassy I. Ibor, State Based Mobilizer
Egbe Ebe Ukera, Community Mobilizer
Innocent Ojong, Community Mobilizer
Christiana Okon, Community Mobilizer
Godwin Wonah, Community Mobilizer
Umoh Eno, Community Mobilizer
Dr. Emmanuel Adaji, Community Mobilizer
Maria Ofem Abam, Community Mobilizer
Nkoyo Oka, Community Mobilizer
Ekong Sylvanus, Community Mobilizer
Agbor Martins Okon, Community Mobilizer
Ajeh Onen Omenka, Community Mobilizer
Mary Erim, Community Mobilizer
Ekuri Kingsley Ogar, Community Mobilizer
Edith Essi-Animbang, Community Mobilizer
Edor Harrison Rebua, Community Mobilizer
Owan Emenrecia, Community Mobilizer
Justina I. Ashagwu, Community Mobilizer
Janet Ubelebi Aniah, Community Mobilizer
Patrick Abang, Community Mobilizer
Agida Solomon, Community Mobilizer
Christiana Kujoh, Community Mobilizer
Joseph Okate, Community Mobilizer

Kyrian Ushen, Community Mobilizer
Priscilla Okuku, Community Mobilizer
Catherine Igelle, Community Mobilizer
Friday Ogar, Community Mobilizer
Dr. Mrs. Ikwo Okpebri, Community Mobilizer
Paul Inyang, Community Mobilizer
Elemi Alaga, Community Mobilizer
Adi Cynthia Aboli, Community Mobilizer
Aja Mba, Community Mobilizer
Stella Eyo, Community Mobilizer
Asuquo Akpama, Community Mobilizer
Mary Ekpo Bassey, Community Mobilizer
Grace Sifo Obiageli, State Based Mobilizer
Eris Ibi, State Based Mobilizer
Onowugbeda Esther, State Based Mobilizer
Uzoka Emmanuel, Community Mobilizer
Okerekutu Daniel Okemute, Community Mobilizer
Solace Ugochukwu Uba, Community Mobilizer
Ojo Evelyn, Community Mobilizer
Rita Owho, Community Mobilizer
Dorcas Owhojero, Community Mobilizer
Simeon Newton, Community Mobilizer
Ojugbo Ogar Augustine, Community Mobilizer
Ogbinaka Donatus, Community Mobilizer
Momoh Victor, Community Mobilizer
Lauretta Onieba, Community Mobilizer
Amrete Cynthia, Community Mobilizer
Mercy Alakis Awana, Community Mobilizer
Nkpo Isaiah Uwa, Community Mobilizer
Anthony Nwachukwu, Community Mobilizer
Ezolome Kadiri, Community Mobilizer
Andrew Agboro Eseoghene, Community Mobilizer
Udjor Augustine, Community Mobilizer
Chibueze Sixtus Uchegbu, Community Mobilizer
Florish Izibili, Community Mobilizer
Johnson Omoni Florence, Community Mobilizer
Bridget Kubiangha, Community Mobilizer
Helen Lelekumo, Community Mobilizer
Nanu Ola Micheal, Community Mobilizer
Peter Anighoro, Community Mobilizer
Edafe Hitler, Community Mobilizer
Nwaeli Chidinma Paschal, Community Mobilizer
Eyekomogba Grace, Community Mobilizer
Seifegha Tare-Out, Community Mobilizer
Omokaro Felicia, State Based Mobilizer
Israel Owoade, State Based Mobilizer
Ukponahiunsi Lawrence, State Based Mobilizer
Francis Osayande, Community Mobilizer
Gbenoba Nancy Nkem, Community Mobilizer
Osamudiamen Igbinoba, Community Mobilizer
Eghomwanre Ayere, Community Mobilizer
Uwadiae Oboghene, Community Mobilizer
Urowayino Omayemi, Community Mobilizer
Odigie N. Sandra, Community Mobilizer
Irorere Peter, Community Mobilizer
Osebhor Juliet, Community Mobilizer
Roseline Odiase, Community Mobilizer
Abdullateef Bashorun, Community Mobilizer
Paul Oyarenua, Community Mobilizer
Bartholomew Okondo, Community Mobilizer
Iyoribhe Michael, Community Mobilizer
Esther Enekhor, Community Mobilizer
Obasanmi Jude, Community Mobilizer
John Odion Unuigbe, Community Mobilizer
Kedi Cynthia, Community Mobilizer
Omozee Vivian, Community Mobilizer
Umoru David, Community Mobilizer
Hajia Aperua Yusuf, Community Mobilizer
Kadiri Blessing Brown, Community Mobilizer
Shaka Sherifat, Community Mobilizer
Ozeigbe Ighodaro, Community Mobilizer
Itua Osasunmhen, Community Mobilizer
Akpan, Community Guide
Friday Udo Isong, Community Guide
Chief Akpan Joshua, Community Guide
Christian Faith Mission, Community Guide
Bassey Edet Aya, Community Guide
Edueno Inyang, Community Guide
Udesi Udung Okpo, Community Guide
Cecilia Peter, Community Guide
Francis Nkuda, Community Guide
Benjamin Timothy, Community Guide
Sunday John Uwe, Community Guide
Peter Okon Ekwere, Community Guide
Chief Ekidem, Community Guide
Oduok, Community Guide
Engr Sunday Inyang, Community Guide
Chief A U Ukpong, Community Guide
Monday Sammy Jacob, Community Guide
Uton John Ene, Community Guide
Akpan Dickson Attat, Community Guide
Reuben Nkanah Akpan, Community Guide
Idem Eld Enefiok, Community Guide
Archibong, Community Guide
Michael William, Community Guide
Joseph Daniel David, Community Guide
Edem Eyo, Community Guide
Etim Udo Iko Akpabio, Community Guide
Chife Anthony Ekpe, Community Guide
Emmanuel Edem Okon, Community Guide
Chife Bassey Joshua, Community Guide
Chife Ezekiel D Akpan, Community Guide
Engr Okon M. Umoren, Community Guide
Chife Titus Udom, Community Guide
Monday Brownson, Community Guide
Aniekan Ikpong, Community Guide
Sunday Udoekong Akwa, Community Guide
Lawrence Udosen, Community Guide
Solomon Joshua, Community Guide
Justine Edet Jimmy, Community Guide
Akpan Job Udobong, Community Guide
Jim Jonah Etukudo, Community Guide
Efanga Inyang, Community Guide
Akpan Asua, Community Guide
Godwin Archibong, Community Guide
Ekanem Ekanem, Community Guide
Chief Edet O Umoren, Community Guide
Emmanuel Hanson, Community Guide
Paul Okokon, Community Guide
Edet Umo Akpan, Community Guide

Edem Esa, Community Guide
Akpan Umoibe, Community Guide
Essiet Umoh, Community Guide
Ikot Ekpat, Community Guide
Friday Udoette, Community Guide
Patrick Dick, Community Guide
Dominic Johnson, Community Guide
Usoikpong, Community Guide
Monday Dick Ntoto, Community Guide
Eyo Nkanta, Community Guide
Chief Okon Udomfu, Community Guide
John Akpan Ikonah, Community Guide
Chief James Ekwere, Community Guide
Dickson Umoh, Community Guide
Chief Udo Ntino, Community Guide
Chief Sunday Frank, Community Guide
Nicholas Kende, Community Guide
Bolanle Ebi, Community Guide
Barugu O. Utavie, Community Guide
Felix Micheal, Community Guide
Delipule Alex Peters, Community Guide
Promise Otonye Ayamah, Community Guide
Dagana Godwin, Community Guide
Joy Igoin, Community Guide
Kai Bolouzimo, Community Guide
Sunday Mgbeke, Community Guide
Felicia Yinkore, Community Guide
Enos Igoni, Community Guide
Sarah Elvin, Community Guide
Godknows Assumpta, Community Guide
Azou Wisdom, Community Guide
Kosuowei I. Patrick, Community Guide
Thomas Awiki, Community Guide
Francis Amaitari, Community Guide
Bonny Fiezibeya, Community Guide
Omokewe Godgift, Community Guide
Ugele Kingsley Tumini, Community Guide
Golpin Osiki, Community Guide
Edolor Hope, Community Guide
Ogoinja Oyindoubara, Community Guide
Pereladei Gbenefadei, Community Guide
Asanaebi Edward, Community Guide
Afili Oweilakeme, Community Guide
Orhvertakpo Peter, Community Guide
Ayibanua A. Oweika, Community Guide
Oyobolo Mattew, Community Guide
Oyobolo Ebi Clifford, Community Guide
Itiedu Pretty, Community Guide
Tari Clement, Community Guide
Nelson-Ebimie Ayibamiete, Community Guide
Omiete Alfred, Community Guide
Mark Orlu, Community Guide
Ambrose A. George, Community Guide
Joel Aprebo, Community Guide
Goodluck Don-Solomon, Community Guide
Bomo Blessing Serace, Community Guide
Omieworio S. Berenengia, Community Guide
Omubo Festus Suoyo, Community Guide
Jane Ifeoma Ifekwe, Community Guide
Agnes Inoh, Community Guide
Philomena Abubu Onyanga, Community Guide
Ndiomu Tamaraebi, Community Guide
Samuel Bioduomoye, Community Guide
Deigh Minengiyefa, Community Guide
Robinson Atonbara, Community Guide
Asechemie Eunice Amiebi, Community Guide
Naomi Robinson, Community Guide
Powedei Debekeme, Community Guide
Albeson Francis, Community Guide
Suboh Stephen, Community Guide
Ogbotimibo Ebimokemini, Community Guide
Frank Inatari, Community Guide
German Inangonimi, Community Guide
Bestman Ogopadei, Community Guide
Benjamin Osia, Community Guide
Woyinkuro Mattew, Community Guide
Ebimuan Opuaye, Community Guide
German Inagonimi, Community Guide
Sunday I. David, Community Guide
Ebimene Osiakeme, Community Guide
Ebibotei.D. Egeun, Community Guide
Izonfadei Timilaemi, Community Guide
Fredrick Suoeri, Community Guide
Adokiye Macaulye, Community Guide
Horsefal Ibiye Nancy, Community Guide
Adiki-Teke Ibibia, Community Guide
Mokwunye Chima, Community Guide
Emmanuel Godbless Umkpa, Community Guide
Coleman Dede, Community Guide
Egapekpar Paul, Community Guide
Efere Godknows, Community Guide
Koteteh Anyens, Community Guide
Benson Azibagiri, Community Guide
Azibapu Maclean, Community Guide
Rohdric Moses, Community Guide
Elekele Larry, Community Guide
Eminence Royal Chiamaka, Community Guide
Simon Izonfadei, Community Guide
Imbazi Denyefa, Community Guide
Oniso Inoukiye, Community Guide
Ayawari A. Amaebi, Community Guide
Abuja Okobokebidei, Community Guide
George Thompson, Community Guide
Tekeme Emmanuel Oti, Community Guide
Oguta Gooday Prince, Community Guide
Nemina Dineni Elemobiri, Community Guide
Johnson Ebikonrein, Community Guide
Cylon Young, Community Guide
Maxwell Linus Tam, Community Guide
Odubo Ebikeseye, Community Guide
Isaac Biakpara, Community Guide
Daupade Emmanuel, Community Guide
Saviour Rufus, Community Guide
Newman Amas, Community Guide
Imoro Famous, Community Guide
Siboke Preye, Community Guide
Ibifiri Okujagu, Community Guide
Solomon Anthony E, Community Guide
Ezeamaiwe Innocent, Community Guide
Odumegwu Amaka, Community Guide

Igumbor Waziri, Community Guide
Okpali Joseph, Community Guide
Nweke Paul, Community Guide
Kwuhodu Anthony, Community Guide
Pius Chidi, Community Guide
Alfred Gebriel O, Community Guide
Chikagwai Andrew Jideofor, Community Guide
Imafidon Lizzy Nneka, Community Guide
Vera Okafor, Community Guide
Nsolo Azuka Augustine, Community Guide
Okolugbo Ijeoma Christy, Community Guide
Odogbo Onyeakaluziam Joseph, Community Guide
Omuni Ugochukwu Fred, Community Guide
Udeh Emmanuel Chuks, Community Guide
Elujekor Endurance Onyekachi, Community Guide
Odu Evelyn, Community Guide
Eboagwu Happy Nonyelum, Community Guide
Rapu Valentine, Community Guide
Egonu Emmanuel, Community Guide
Adinkwu Evelyn, Community Guide
Osokogu Faith Chidinma, Community Guide
Anochie Nwayobuije, Community Guide
Onyenike Romanus Emeka, Community Guide
Sunday Osogbue, Community Guide
Ngozi Udome, Community Guide
Echi Sunday C, Community Guide
Ochor Robert Chika, Community Guide
Ogodu Ngozi Caro, Community Guide
Opia Gabriel, Community Guide
Daniel Miller, Community Guide
Ochuko Odudu, Community Guide
Julius Ederiene, Community Guide
Adogbeji Ochuko, Community Guide
Ebah Esther Akpor, Community Guide
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Eziomedafe J Josephine, Community Guide
Ewono Azino, Community Guide
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Agu Timi Priscilia, Community Guide
Anighoro Irene Erhuvwu, Community Guide
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Uwajegre Justice Obukohwo, Community Guide
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Chinedu Okunbor Benard, Community Guide
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Ifioma Johnbull, Community Guide
Afesumen Peace, Community Guide
Aigbodion Queen, Community Guide
Uanserume Stephen, Community Guide
Agidigbi Rebecca, Community Guide
Momodu Yakubu, Community Guide
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Aimuan Osamudiamen, Community Guide
Oyamhenda Thursday Osazuwa, Community Guide
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Igho Grace, Community Guide
Blessing Uwadiae, Community Guide
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Osonokwu Blessing, Community Guide
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Kelvin Osemwegie, Community Guide
Damiro Richard, Community Guide
Adewumi Richmond Lawrence, Community Guide
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Isaac Sunday, Community Guide
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Ikerodah Nefisat, Community Guide
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Appolus Matthew, Community Guide
West Oluji Obeta, Community Guide
Agbara Cyril Isaac, Community Guide
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Chinedu Francis, Community Guide
Ordukwu Ozoemenam, Community Guide
Promis Ibuchim Nlemogu, Community Guide
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Uwame Chima Samuel, Community Guide
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Asuquo E. Emmanuel, Community Guide
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Enyong Valentine, Community Guide
Roselineline Udofot, Community Guide
Uduak Okon, Community Guide
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Margaret Umo Umo, Community Guide
Ene Edet Okon, Community Guide
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Patience Bassey Eyong, Community Guide
Roland Ubi, Community Guide
Ayei Sylvester Eni, Community Guide
Usang Effiom Eteng, Community Guide
Affiong Sunday Edet, Community Guide
Wofai Ofem Egom, Community Guide
Ibor Ofem Bassey, Community Guide
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Joseph Emmanuel, Community Guide
Ekpong Natty, Community Guide
Iyali Solomon, Community Guide
Mary John, Community Guide
Raphael Neji, Community Guide
Eyam Ntun Eyam, Community Guide
Takon Nsed, Community Guide
Simon Arop, Community Guide
Ayeiamon O. Omenka, Community Guide
Nkim Ojong Nsan, Community Guide
Cyril Ewu Okpa, Community Guide
Augustine Eka Mathew, Community Guide
Emmanuel Agbor Ojong, Community Guide
Owan Patrick A., Community Guide
Anthony Obi, Community Guide
Awo Righteous, Community Guide
Otu Kenneth, Community Guide
Philips Abang, Community Guide
Clifford Ofre Kekong, Community Guide
Donald Tiku, Community Guide
Ijoko O. Emmanuel, Community Guide

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Oko David Agabi, Community Guide
Ogar Timothy I., Community Guide
Mary Gaga, Community Guide
Stephen Ashep, Community Guide
Cecilia Aruku, Community Guide
Joseph Ndifon, Community Guide
David Obi, Community Guide
Patrick Agida, Community Guide
Simon Okpe, Community Guide
Julianbenita Ogar, Community Guide
Emmanuel Odey, Community Guide
Abugbe Undiandeye, Community Guide
Robert Ashie, Community Guide
Philip Ekwetiong, Community Guide
Wisdom Libeh, Community Guide
Emmanuel Kayang, Community Guide
Boniface Abia, Community Guide
Christopher Akebke, Community Guide
Abru Augustine, Community Guide
David Ogomade, Community Guide
Okwori Oko, Community Guide
Odey Atukpa, Community Guide
Odey Otegu, Community Guide
Emmanuel Ebiale, Community Guide
James Egede, Community Guide
Kingsley Bassey, Community Guide
Angela, Community Guide
Effiong Holmes, Community Guide
Umoh Uwakmfon, Community Guide
Jesam Bassey, Community Guide
Pastor Sunny Nkanu, Community Guide
Akama Sam, Community Guide
Emeh Ekoro Ekpoto, Community Guide
Epoto Henry, Community Guide
Fanny, Community Guide
Lawrence Slot Onang, Community Guide
Enyi Urom, Community Guide
Erom Uno, Community Guide
Prince Effiong Ekpenyong, Community Guide
Moses Aniefiok James, Community Guide
Innocent Ugunanim Ekpo, Community Guide
Nyong Ekpo Nyong, Community Guide
Rosemary Effiom, Community Guide
Obo Effiom, Community Guide
Samuel Nya Okon, Community Guide
Gabriel Okon, Community Guide
Victor Eyibio Nteri, Community Guide

South East Zone

Osinachi Dim, Zonal Mobilizer
Onwuka Edith Nkechi, Zonal Mobilizer & State Based Mobilizer
Okeke Johnbosco Nkemdilim, State Based Mobilizer
Rejoice Oluchi U, State Based Mobilizer
Okafor Nkiruka Juliana, Community Mobilizer
Ementa Edmond Emeka, Community Mobilizer
Obiekwe Stella Ngozi, Community Mobilizer
Ikenna Onyekachukwu Awgu, Community Mobilizer
Aduba Njideka Amalachukwu, Community Mobilizer
Bernard I L, Community Mobilizer
Obeche Ifeanyi, Community Mobilizer
Onwuka Chiamaka Stella, Community Mobilizer
Okeke Charles Obinna, Community Mobilizer
Peter Chukwuweike Okolie, Community Mobilizer
Christiana Ozuah Obiageli, Community Mobilizer
Nwaboh Mirian Azuka, Community Mobilizer
Chiezie N G Chiezie, Community Mobilizer
Okoye Nkiru, Community Mobilizer
Ogu Caroline Nkechi, Community Mobilizer
Nweke Justina Chinyere, Community Mobilizer
Ewuzie Jennifer Chinelo, Community Mobilizer
Umegbolu Gladys Onyemaechi, Community Mobilizer
Onwujiobi Andrew Ekenedirichukwu, Community Mobilizer
Ikeh Alphonsus Uwamezezie, Community Mobilizer
Okolo Kingsley C, Community Mobilizer
Enemo Rebecca, Community Mobilizer
Obagha Onyedika Harrison, Community Mobilizer
Onuora Mary Florentina (Rev. Sr.), Community Mobilizer
Nduka Roseann Amaka, Community Mobilizer
Nnubia Vero Oluchi, Community Mobilizer
Ezeibe L.I., Community Mobilizer
Okafor Modestus, State Based Mobilizer
Ezurike Edwin Okey, State Based Mobilizer
Abanobi Felix Chinwe P., State Based Mobilizer
Mgborogwu Ijeoma, Community Mobilizer
Ezurike Maryann, Community Mobilizer
E Gbuka Festus, Community Mobilizer
Orji Bettel Ikechukwu, Community Mobilizer
Ikenna Pamela C, Community Mobilizer
Amadi Anthony, Community Mobilizer
Benneth Colette, Community Mobilizer
Ikealugbu Nneka, Community Mobilizer
Okezie Juliana, Community Mobilizer
Okafor Vivian, Community Mobilizer
Amadi Matthew, Community Mobilizer
Echeobina Adaku, Community Mobilizer
Ihekarie Samuel, Community Mobilizer
Ugochukwu Caroline, Community Mobilizer
Arodiwe Victor, Community Mobilizer
Nnamdi Bridget, Community Mobilizer
Onyeagba Goodness, Community Mobilizer
Njioku Chioma, Community Mobilizer
Akamadu Ngozi, Community Mobilizer
Ozims Stella, Community Mobilizer
Onwuliri Paschal, Community Mobilizer
Osueke Johnson, Community Mobilizer
Admike Caroline, Community Mobilizer
Agor Mary, Community Mobilizer
Nwaorgu Assumpta, Community Mobilizer
Amadi Clara, Community Mobilizer
Iwuji Benedette, Community Mobilizer
Onwuama Henrietta, Community Mobilizer
Nzepume Ikechukwu C, Community Mobilizer
Mary Ann Ezurike, Community Mobilizer
Okorie Esther, Community Mobilizer
Amadi Anthony, Community Mobilizer
Ejiofor Clementina, Community Mobilizer
Maureen Obih, Community Mobilizer
Chieke Christian, Community Mobilizer
Okolo Chidimma, Community Mobilizer
Mkpuma Victor O, State Based Mobilizer

Nwali Benson O, State Based Mobilizer
Ibiam Azu Agwu, State Based Mobilizer
Vincent Uma, Community Mobilizer
Sampson Nweke, Community Mobilizer
Elom Isaac, Community Mobilizer
Onyinye Oyudo, Community Mobilizer
Abara Blessing, Community Mobilizer
Mba Kate, Community Mobilizer
Chima Emmanuel, Community Mobilizer
Geradine Nweke, Community Mobilizer
Nwafor Chukwunonso, Community Mobilizer
Ogodo Arinze, Community Mobilizer
Onwe Ubaka W., Community Mobilizer
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Inyimagu Joseph, Community Mobilizer
Emma Nworie, Community Mobilizer
Darlington Okwudili N., Community Mobilizer
Clement Ogodo, Community Mobilizer
Nweke Nebechi, Community Mobilizer
Inya Emeka, Community Mobilizer
Odah Ruth, Community Mobilizer
Ikpor Nkechinyere, Community Mobilizer
Oji Onyinyechi, Community Mobilizer
Orji Ikechukwu, Community Mobilizer
Elijah O. Uduma, Community Mobilizer
Okike Felicia, Community Mobilizer
Orji Theophilus, Community Mobilizer
Emmanuel Ayowuo, Community Mobilizer
Uneke Christiana, Community Mobilizer
Ekwe Francis, Community Mobilizer
Elebe Elizabeth, Community Mobilizer
Kalu Gold N., Community Mobilizer
Rev. Jonathan Emenikeh, State Based Mobilizer
John Ife Ajogwu, State Based Mobilizer
Eze Martina Onuabuchi, State Based Mobilizer
Mercy N Ezema, Community Mobilizer
Eze Franklyn Onyekachukwu, Community Mobilizer
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Nwafor Onyebuchi M, Community Mobilizer
Ezeoma Sylvanus Okechukwu, Community Mobilizer
Onah Nkiruka Francisca, Community Mobilizer
Aninwonye Patience Chinenye, Community Mobilizer
Sunday Samuel Okonkwo, Community Mobilizer
Eze Fidelia Ndidiamaka, Community Mobilizer
Ugwoke Nkeiruka Cynthia, Community Mobilizer
Emmanuel Umeh Okafor, Community Mobilizer
Onwuka Alfreda, Community Mobilizer
Ugwu Georgina Ifeoma, Community Mobilizer
Vivtor Onwura Nwagbo, Community Mobilizer
Onuora Scholastica Ifeyinwa, Community Mobilizer
Igwe Innocent, Community Mobilizer
Nzekwe Stella Ifeyinwa, Community Mobilizer
Esomchi Humphrey, Community Mobilizer
Egwuagu Jude Okechukwu, Community Mobilizer
Sampson Eze, Community Mobilizer
Ene Sabina Ozoemena, Community Mobilizer
Ogene Chiesonu Justina, Community Mobilizer
Nnajiofor Cyril Osondu, Community Mobilizer
Agbo Jude Obiorah, Community Mobilizer
Ugwu Joy Anulika, Community Mobilizer
Blessing O Onyema, Community Mobilizer
Beatrice Ngozi Egu, Community Mobilizer
Ugwu Charity Onyedika, Community Mobilizer
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Ndie Grace Ngozichukwuka, Community Mobilizer
Amadi Babian Ufuoma, Community Mobilizer
Offiah Ephraim Junior, Community Mobilizer
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Anosike Michael, Community Mobilizer
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Chukwuma Nwabuko, Community Mobilizer
Emilia Imaga, Community Mobilizer
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Ochu Kalu, Community Mobilizer
Uche Eni, Community Mobilizer
Uchechi Oleka, Community Mobilizer
Ihueze Joy, Community Mobilizer
Lucky Meregini, Community Mobilizer
Ijeoma Obasi, Community Mobilizer
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Nkemjika Nneji, Community Mobilizer
Ijeoma Okoro, Community Mobilizer
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Happiness Adugba, Community Mobilizer
Maduka Rita, Community Mobilizer
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Ann Chioma Eze, Community Mobilizer
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Okpokiri Nkeiru, Community Mobilizer
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Chimezie Salvation, Community Mobilizer
Ukoha-Eze Joy I, Community Mobilizer
Patience Ekekwe, Community Mobilizer
Precious Njoku, Community Mobilizer
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Nwajiaku Emma, Community Guide
Theo Nwangwu, Community Guide
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Nwakwo Chidozie, Community Guide
Ifeoma Okafor, Community Guide

Obi Onura Lucky, Community Guide
Ifeakandu Umechukwu, Community Guide
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Orachusi Ngozi, Community Guide
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Mbaneme Chukwudi, Community Guide
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Ifejiaka Chiwado, Community Guide
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Nwadinaobi Chika, Community Guide
Chikwu Benarad, Community Guide
Onumonu Lazerus, Community Guide
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Peter Ijeoma, Community Guide

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Purity Nnamdi, Community Guide
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Chibuike Ohueokpu, Community Guide
Eboh Uwaezoke, Community Guide
Charity Umezurike, Community Guide
Justice Nnaihu, Community Guide
Mbagwu Calista, Community Guide
Felix Ekezie, Community Guide
Davidson Oguebuka, Community Guide
Samuel Onyego, Community Guide
Grace Anyelle, Community Guide
Chukwudi Ihejrika, Community Guide
Agujiobi Charles, Community Guide
Unegbu Jonah, Community Guide
Ebele Chukwuma, Community Guide
Chukwuebuka Echeta, Community Guide
Ogbonna Mercy, Community Guide
Nnasiri Magreth, Community Guide
Iwueke Samuel, Community Guide
Iheanaeho Aloysius, Community Guide
Ozuruigbo Chinasa, Community Guide
Ann Emeh, Community Guide
Nkiru Nwaribeaku, Community Guide
Mike Ajagwuuno, Community Guide
Inno Obiejiofor, Community Guide
Damian Emeruo, Community Guide
Odu Habert, Community Guide
Chukwu Christian, Community Guide
Nwamuo Ben, Community Guide
Uchenna Ayoha, Community Guide
Opara Rapheal, Community Guide
Ugochukwu Chidi, Community Guide
Osuagwu Casimir, Community Guide
Adiukwu Happiness, Community Guide
Ejim Madu, Community Guide
Chukwuebuka Hyginus, Community Guide
Anyanwu Augustina, Community Guide
Magnus Okolo, Community Guide
Chinwe Stanley, Community Guide
Iwunze Eucharia, Community Guide
Nwaogu Samuel, Community Guide
Julieth Chinyere, Community Guide
Anumadu Faith, Community Guide
Mgborogwu Emmanuel, Community Guide
Onwumere Anthony, Community Guide
Vincent Nwokocha, Community Guide
Obaji Nnamdi, Community Guide
Daniel Ugo, Community Guide
Raymond Nkwocha, Community Guide
Opara Ejike, Community Guide
Oparaiwu Francisca, Community Guide
Bright Ajoku, Community Guide
Roseline Agor, Community Guide
Innoma Maduagwu, Community Guide
Mr. Alex Nwaozuzu, Community Guide
Godwin Ubughu, Community Guide
Ebuka Godwin, Community Guide
Cecilia Egbonu, Community Guide
Thaddeus Asiegbu, Community Guide
Rita Odume, Community Guide
Ndubuisi Ogechi, Community Guide
Duru Jude, Community Guide
Ukazu Fortunatus, Community Guide
Ikechukwu Nwifuru, Community Guide
Vincent Nwege, Community Guide
Chukwuka, Community Guide
Francis Nwogha, Community Guide
Victor Nwigube, Community Guide
Prince Hycienth Alieze, Community Guide
Patrick Okoye, Community Guide
Okoche Ugwu, Community Guide
Ekuma Emmanuel, Community Guide
Uche Ken Akwuba, Community Guide
Gabriel O. Amadi, Community Guide
Oko Michael Anwara, Community Guide
Uche Nicholas, Community Guide
Joseph O. Uwa, Community Guide
Ude Livinus Oko, Community Guide
Ogbonnaya Ukpai Okoro, Community Guide
John Igwe Jack, Community Guide
Janet Eseni Ama, Community Guide
Orji Chukwu, Community Guide
Ude Nnachi Azuenya, Community Guide
Kalu Udu, Community Guide
Ugochukwu Nwokpuru, Community Guide
Ogbanya John, Community Guide
Nworie Chibueze, Community Guide
Nwodom Okechukwu Daniel, Community Guide
Mbam Chukwuma, Community Guide
Achu Kingsley, Community Guide
John Nwochi, Community Guide
Nwafor Williams, Community Guide
Eze Paul, Community Guide
Nwamkpu Timothy, Community Guide
Nwali Jeremaiah, Community Guide
Nwali Ijeoma, Community Guide
Eze Patrick, Community Guide
Uguru Victor Onyemaechi, Community Guide
Chukwu Linda, Community Guide
Igboke Vincent N., Community Guide
Igwe Joseph Chukwudi, Community Guide
Otubo Elijah, Community Guide
Ogbaga Sunday, Community Guide
Edukwu Anayochukwu N., Community Guide
Chukwuma Mbam, Community Guide
Sunday Nwali, Community Guide
James Eleke, Community Guide
Nwoku Chinenye, Community Guide
Sunday Nweke, Community Guide
Nwali Friday Ekwueme, Community Guide
Aligbo Cletus, Community Guide

Eze Ejike, Community Guide
Vincent Omoha, Community Guide
Oguji Kingsley, Community Guide
Chinasa Nnaji, Community Guide
Usulor Sunday, Community Guide
Obioma Emmanuel, Community Guide
Peter Onwe, Community Guide
Oke Chukwuma Joseph, Community Guide
Aja Boniface, Community Guide
Tony Dickson, Community Guide
Ajah John Chibuike, Community Guide
Joshua Obasi, Community Guide
Michael Onyinyechi, Community Guide
Nwibo Nwachi Ogbonna, Community Guide
Utazi Simeon, Community Guide
Jude Nwogha, Community Guide
Nwibo Michael, Community Guide
Angel Pius, Community Guide
Alieze Ugochukwu, Community Guide
Nwankwoagu Harrison, Community Guide
Ogodo Hycient, Community Guide
Sunday Nkwuda, Community Guide
Okemini Felix, Community Guide
Innocent Nwogha, Community Guide
Chukwu Okoro, Community Guide
Isaiah Chukwu, Community Guide
Ogbonna Ugbana, Community Guide
Benjamin Okereke, Community Guide
Nsude Anoke, Community Guide
Ndudi Kenechi, Community Guide
Ogbonnaya Nwafor, Community Guide
Chibueze Emmanuel, Community Guide
Ome Chukwuemeka, Community Guide
Ajima James, Community Guide
Ugadu Innocent, Community Guide
Ituma John, Community Guide
Ituma James Ubochi, Community Guide
Anyigor Esther, Community Guide
Nwanga Esther, Community Guide
Ikechukwu Nwokpor, Community Guide
Sunday Ndubuisi, Community Guide
Sunday Amos, Community Guide
Abel Nome, Community Guide
Clement Orie, Community Guide
Pius Chukwu, Community Guide
Uchechukwu Ogbonnaya, Community Guide
Chinedu Okoro, Community Guide
Paulinus Onyemaechi, Community Guide
Igwe Ifeanyi Nweke, Community Guide
Nnamdi Ineke, Community Guide
Ameh Paul & Daniel, Community Guide
Eze Stella, Community Guide
Omeh Chukwudi, Community Guide
Ajibo Chika, Community Guide
Chizoba Eze, Community Guide
Ejike Onoh, Community Guide
Odoh Oliver, Community Guide
Okechukwu Michael, Community Guide
Omeh Emmanuel, Community Guide
Usman Ikedichukwu Eze, Community Guide
Eze Josephine (Mama Ike), Community Guide
Okeke Moses, Community Guide
Eugene Idoko, Community Guide
Okpe Ambrose, Community Guide
Boniface Eze, Community Guide
Egwu Kenneth, Community Guide
Eze Jude, Community Guide
Chidozie Julliet Chisom, Community Guide
Nnamchi Alloysius, Community Guide
Dominic Odo, Community Guide
Enoch Ugwu, Community Guide
Odo Emmanuel, Community Guide
Pius Nnaji, Community Guide
Ugwuoju Bethrand, Community Guide
Ozioma Ezugwu, Community Guide
Ezugwu Mathias, Community Guide
Chinemerem, Community Guide
Emeka, Community Guide
Ukpazi Sunday, Community Guide
Odo Thomas, Community Guide
Ibiam Thomas, Community Guide
Ajibo Joseph, Community Guide
Emeka Omeje, Community Guide
Nnah Kelvin, Community Guide
Ozotta Alfred, Community Guide
Onyishi Fidelis, Community Guide
Afam Odo, Community Guide
Ezeugwu Kelvin, Community Guide
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Ezeugwu Kingsley (Otega), Community Guide
Hyacinth Oluku, Community Guide
Ikechukwu Cletus Ifeanyi, Community Guide
Ekwueme Sylvernus Okafor, Community Guide
Chioma Okongwu, Community Guide
Chidera Nebokike, Community Guide
Akwusie Uche, Community Guide
Adolphus Ani, Community Guide
Ephraim Madubueze, Community Guide
Mathias Ojukwu, Community Guide
Engr. Chris Ojoto, Community Guide
Anthony Ene (Warrior), Community Guide
Aniagbo Purity, Community Guide
Innocent, Community Guide
Hon. Aniekwe Kananyochukwu I., Community Guide
Ezeabia Cyril, Community Guide
Azuka Amalinze, Community Guide
Monday & Chibueze, Community Guide
Chibuzo Nnam, Community Guide
Michael Ugwumba, Community Guide
Ogbu Ikechukwu, Community Guide
Fredrick Nweke, Community Guide
Ebere Ani, Community Guide
Emmanuel Nweke, Community Guide
Ani Ifeanyi, Community Guide
Johnson Onyibo, Community Guide
Ugomma Egeonu, Community Guide
Ani Maureen, Community Guide
Onyia Maureen, Community Guide
Chinenye Obute, Community Guide
Madu Ijeoma, Community Guide

Chidere Celestina, Community Guide
Desmond Ogbozulu, Community Guide
Adaora Ugwuede, Community Guide
Ngwu Chukwuebuka, Community Guide
Eze Chinenye, Community Guide
Solomon Nweke, Community Guide
Ene Josephine, Community Guide
Aniugwu Alloysius, Community Guide
Nnam Chijioke S, Community Guide
Ikechukwu Ede, Community Guide
Nwobodo Chukwuma, Community Guide
Uchenna Chukwuokoh, Community Guide
Igbokwe Kenneth, Community Guide
Mbamalu Felix, Community Guide
Ani Emmanuel, Community Guide
Ogbomma Peter, Community Guide
Chidi Owoene, Community Guide
Okafor Chikamso, Community Guide
Zeluwa Onuoha, Community Guide
Ibe Kenneth, Community Guide
Joseph Ezie, Community Guide
Ume Anuo Darlington, Community Guide
Francis Onwuaji, Community Guide
Obiekpo China, Community Guide
Onyeka Ikechukwu, Community Guide
Chidubem Jonah, Community Guide
Ijeoma Omenazu, Community Guide
Elder Onyenweaku C, Community Guide
Merit Anaba, Community Guide
Uguru Ejere, Community Guide
Chukwu Orji, Community Guide
John Chukwu, Community Guide
Amarachi Ikwegbu Mary, Community Guide
Agwu Ogbu Ukoji, Community Guide
Prince Uduma Uka, Community Guide
Odo City, Community Guide
Collins Chidi, Community Guide
Chinaza Nwachukwu, Community Guide
Marvelous Ekpendu, Community Guide
Uzoma Nwauzor, Community Guide
Eze Ogbonna, Community Guide
Chief Loveday Emmanuel, Community Guide
Benjamin Chile, Community Guide
Prince Godwin Njoku, Community Guide
Owuala Azubike, Community Guide
Prince Uzoma Asonye, Community Guide
Apia Okoroafor, Community Guide
Amos Okore, Community Guide
Okkore Nwankwo Ifi, Community Guide
Ajunwa Ihuoma U, Community Guide
Dickson Orji, Community Guide
Nnenna Agwu, Community Guide
Orieji Nmong, Community Guide
Micheal Orji Ogudu, Community Guide
Stanley Oriaku, Community Guide
Teddy, Ogbonna, Community Guide
Nandu Chima, Community Guide
Collins Chucks, Community Guide
Ogbonna Nwadiobi, Community Guide
Ekwuribe Ejike, Community Guide
Igwe Endurance, Community Guide
Nwakama Arthur, Community Guide
Enyinnaya Alilionwu, Community Guide
Chief Okezie Nwaogu, Community Guide
Chief Chinatu Nwosu, Community Guide
Deacon Uche Festus, Community Guide
Emeka Ugwumba, Community Guide
Anayo Ukaumunna, Community Guide
Emeka Alozie, Community Guide
Izuchukwu Ida, Community Guide
Chima Anthony, Community Guide
Uche Mary, Community Guide
Pst. Abraham Promise, Community Guide
Obinna Awazie, Community Guide
Ndubuisi Mgbeahuru, Community Guide
Uloma Nwala, Community Guide
Naomi Friday, Community Guide
Bright Ezigbo, Community Guide
Chigozie Nze, Community Guide
Okafor Emmanuel, Community Guide
Godwin, Community Guide
Ikechukwu Ukeje, Community Guide
Emeka Ihedinma, Community Guide
Nwandire Ogumbuaja, Community Guide
Samuel Otuonye, Community Guide
Osundu Chukwuemeka, Community Guide
James Ogbonna A, Community Guide
Nwosu Basil, Community Guide
Love Kanu, Community Guide
Ugoeze Egege, Community Guide
Rutherford Eluwa, Community Guide
Christopher Nteh, Community Guide
Chief Chigbu Odimuko, Community Guide
Ubabuoke Nwosu, Community Guide
Ikechukwu Amaike, Community Guide
Nwaogu Friday, Community Guide
Chisom Sunday, Community Guide
Joel Obioma Osondu, Community Guide
Akpam Abara, Community Guide
Osundu Chukwuemeka, Community Guide
Orji Joseph, Community Guide
Chimere Uka, Community Guide
Ibeabuchi Luke Ngozi, Community Guide
Chukwudi Ogu, Community Guide
Chief Peter Nwogwugwu, Community Guide
Edmond Isaac I, Community Guide
Maduforo Gaius, Community Guide
Chief Nwaeze Ukaumunna, Community Guide
Nwadiala Dike, Community Guide
Saturday Ogbonna, Community Guide
Gift Ubani, Community Guide
Gold Ikechi, Community Guide
Anne Nwanne, Community Guide
Ogechi Geoffery, Community Guide
Isreal Izuogu, Community Guide
Micheal Ogbonna, Community Guide
Amarachi Ogbonnaya, Community Guide
Esther John, Community Guide
Rita Nwachukwu, Community Guide
Obi Chigozie, Community Guide

Anugbo F. U., Community Guide
Igbo Joyce, Community Guide
Nwakama Okugbua, Community Guide
Ikechukwu Ahamba, Community Guide
Ako Nwakama, Community Guide
Chinwendu John, Community Guide

South West Zone

Dr. Olubunmi Ayinde, Zonal Mobilizer
Ekundayo Olajumoke Kemi, State Based Mobilizer
Ajayi Oluwabaigbe Remi, State Based Mobilizer
Aderonke Adefolaju, State Based Mobilizer
Oladunjoye Taiwo Elizabeth, State Based Mobilizer
Babatunde, Community Mobilizer
Temitope Adesuyi, Community Mobilizer
Mercy Oluwatoyin Olotu, Community Mobilizer
Abiodun T Ayinde, Community Mobilizer
Oluwabukola Adedeji, Community Mobilizer
Owoeye Ronke Ajoke, Community Mobilizer
Fabunmi Elizabeth Bukola, Community Mobilizer
Florence Yemisi Ajiboye, Community Mobilizer
Love Ogundipe, Community Mobilizer
Stella Ireti Aluko, Community Mobilizer
Abraham Fagbemi, Community Mobilizer
Dada Dupe Tunde, Community Mobilizer
Kayode Owoso, Community Mobilizer
Adeyemi Stephanie Ajumobi, Community Mobilizer
Mohammed Ismaila, Community Mobilizer
Fasusi Felicia Adeleye, Community Mobilizer
Akomolafe Elijah Olukayode, Community Mobilizer
Ilesanmi Bosede Veronica, Community Mobilizer
Adeola Patricia Olayinka, Community Mobilizer
Mrs. Dorcas Olubukola Oladiipo, Community Mobilizer
Mrs. Florence Adebayo Olabisi, Community Mobilizer
Oyerinde Toluwase Funke, Community Mobilizer
Oluwumiju Kikelomo, Community Mobilizer
Mrfajeminigba David, Community Mobilizer
Mrs. Adewemimo Tolulope A, Community Mobilizer
Mr. Idowu Olasunkanmi Timothy, Community Mobilizer
Mrs. Adalumo Comfort Abeke, Community Mobilizer
Mrs. Adeniyi Oluwatoyin, Community Mobilizer
Fagbohun Itunu, Community Mobilizer
Ogunsakin Anike Sanmi, Community Mobilizer
Agwuagha Chinyere Elechi, Community Mobilizer
Akinola Eunice, Community Mobilizer
Jumoke Ayoade, Community Mobilizer
Bukola Ajayi, State Based Mobilizer
Ilawole Olubunmi, State Based Mobilizer
Sulaimon Rasaq Adegboyega, State Based Mobilizer
Usman Abdul Waheed, State Based Mobilizer
Hon. Aladeyelu Azeez Adebayo, State Based Mobilizer
Orolugbagbe Modupe, Community Mobilizer
Kajola Abiodun Mujidat, Community Mobilizer
Awodumila Dupe Stella, Community Mobilizer
Animasaun Teslim Akorode, Community Mobilizer
Finnih Oluwatoyin Adenike, Community Mobilizer
Ayinde Mudashiru Bolaji, Community Mobilizer
Sanni-Afolabi Olanike Rashidat, Community Mobilizer
Ijaoba Nurudeen Babatunde, Community Mobilizer
Seriki Basirat M, Community Mobilizer
Fadipe Olayinka Sarat, Community Mobilizer
Fatunbi-Lawal Falali Oluwatoyin, Community Mobilizer
Olarinde Titilayo, Community Mobilizer
Kowiu-Kazeem Patricia Aderemi, Community Mobilizer
Akinwunmi Omodele Olatunji, Community Mobilizer
Alao Tawakalitu Adejoke, Community Mobilizer
Ogunyemi O. Taiwo, Community Mobilizer
Olaoye Charles S, Community Mobilizer
Durowoju Temilola Christianah, Community Mobilizer
Odufuye Adedayo, Community Mobilizer
Ahmed Ogundipe M.F, Community Mobilizer
Adeyemi Zainab Romoke, Community Mobilizer
Ekerin Adebukola Lateefat, Community Mobilizer
Usman Balikis Olaide, Community Mobilizer
Okeowo Shakirat Titilope, Community Mobilizer
Wakilat Muhammad, Community Mobilizer
Airat Dupeola Kolawole, Community Mobilizer
Olawole Abiola O., Community Mobilizer
Francisco Feyinfolu, Community Mobilizer
Elizabeth Olapeju, Community Mobilizer
Fakunle Temitope Luk An, Community Mobilizer
Adepeju Adebimpe Raji, Community Mobilizer
Folami Adenike Oluwaranti, Community Mobilizer
Ochowechi Vincent, Community Mobilizer
Alao Tawakalitu Adejoke, Community Mobilizer
Akinterinwa Temitope, Community Mobilizer
Badejo Ireti, Community Mobilizer
Honfor Grace Adesola, Community Mobilizer
Japhet Chinedu, Community Mobilizer
Olushola-Jimoh Tolulope Adebanke, State Based Mobilizer
Oladele Folasade Adeseun, State Based Mobilizer
Ogunkunle Titilade, State Based Mobilizer
Adio Olusegun, Community Mobilizer
Tunde Onajonwo, Community Mobilizer
Onifadeenitan, Community Mobilizer
Ibrahim B.I., Community Mobilizer
Adebisi Toyin, Community Mobilizer
Femi Olubisi, Community Mobilizer
Olorunfemioluwakayode, Community Mobilizer
Oguntona Remi, Community Mobilizer
Gidado Kehinde Yusuff, Community Mobilizer
Dare Adaramoye, Community Mobilizer
Shotonwa-Roagess O.M, Community Mobilizer
Adelakun Adeniyi, Community Mobilizer
Mayowa Adeyemi, Community Mobilizer
Taiwo Abioye, Community Mobilizer
Oladeji Adenike, Community Mobilizer
Akinrin Adetosin, Community Mobilizer
Titi Ajibola, Community Mobilizer
Ayomo Folakemi, Community Mobilizer
Bolanle-Ojoo Tope, Community Mobilizer
Moses Adedokun, Community Mobilizer
Owolabi Funmilayo, Community Mobilizer
Joseph Ejekere, Community Mobilizer
Olaniran Sarah, Community Mobilizer
Okesina Adebare, Community Mobilizer
Ogunrinde D.A., Community Mobilizer
Babalola Florence, Community Mobilizer
Salami O.O., Community Mobilizer
Wale Akanbi, Community Mobilizer
Adetoye Funmilayo, Community Mobilizer

Olutayo Adisa, Community Mobilizer
Alawode Oluwatoyinwunmi, Community Mobilizer
Adedeji R.A., Community Mobilizer
Fatoki Helen, Community Mobilizer
Ogunlade Victoria, Community Mobilizer
Adegoke A.T., Community Mobilizer
Ojeladedaniel Taiwo, Community Mobilizer
Adeleke R.O., Community Mobilizer
Bola Olarenwaju, Community Mobilizer
Titilola Rotimi, Community Mobilizer
Sunday Olaniyi Adeniyi, Community Mobilizer
Tajudeenadetunji, Community Mobilizer
Ipadeola Rasheed Lasun, Community Mobilizer
Salawudeennurat, Community Mobilizer
Adedeji Iyabo Nike, Community Mobilizer
Shaibu Olajire, Community Mobilizer
Olawunmi Adeyinka, Community Mobilizer
Uteno Pauline, Community Mobilizer
Babalola Motunrayo Kudirat, State Based Mobilizer
Ayanniyi Temidayo, State Based Mobilizer
Bolanle Durosomo, State Based Mobilizer
Ayantayo Bilikisu Temitope, Community Mobilizer
Fagbemi Olaronke K, Community Mobilizer
Agemo Margaret Ruth, Community Mobilizer
Dasaolu Oluwakemi O., Community Mobilizer
Bisiriyu Felicia Abosede, Community Mobilizer
Osunfowora Bolanle R., Community Mobilizer
Mustapha Mariam M., Community Mobilizer
Lawal Olajumoke Monsurat., Community Mobilizer
Adeniji Olufunke Elizabeth, Community Mobilizer
Oyekan Ogundeji C.B., Community Mobilizer
Gbadamosi Rafiat, Community Mobilizer
Adesina Olusesan Temitoe, Community Mobilizer
Tomori Olawunmi, Community Mobilizer
Abiodunabiodun A., Community Mobilizer
Aito Adejoke Olubunmi, Community Mobilizer
Opeoluwa Yetunde Veronica, Community Mobilizer
Adesoga Oluwakemi Victoria., Community Mobilizer
Mosudi Omolara Risikat, Community Mobilizer
Sokoya Bosede Esther, Community Mobilizer
Adekola Adebola Tanwa, Community Mobilizer
Amusan Gideon Adepegba, Community Mobilizer
Soyinka Abosede Oluwakemi, Community Mobilizer
Ajibade Oluwaseun, Community Mobilizer
Rome Shadrack Olaoluwa., Community Mobilizer
Aregbesola Sixtus Moore, Community Mobilizer
Adeogun Modupeola Oluwatoyin, Community Mobilizer
Funmilayo A. Hassan, Community Mobilizer
Agboola Oladoyin, Community Mobilizer
Ayomide Oluwatosin, Community Mobilizer
Olusanya Toyin, Community Mobilizer
Shoniran Hafiz Olanrewaju, Community Mobilizer
Babalola Olalekan Sunday, Community Mobilizer
Opaleye Jones Olumuyiwa, Community Mobilizer
Popoola Faidat Abiodun, Community Mobilizer
Okediran Abiola Monsurat, Community Mobilizer
Samson Toluwalope Banjo, Community Mobilizer
Ajilore Olusegun Johnson, State Based Mobilizer
Oyelere Bukola Esther, State Based Mobilizer
Adeleke Kazeem Adeyinka, State Based Mobilizer
Mr. Adeniran Adegoke, Community Mobilizer
Oyeniran A.A., Community Mobilizer
Oladunmoye B.I., Community Mobilizer
Omotomilola Kayode, Community Mobilizer
Fala R.O., Community Mobilizer
Yusuf Ganiyat, Community Mobilizer
Obajemu F.A., Community Mobilizer
Taiwo A.A, Community Mobilizer
Oroleye G.A., Community Mobilizer
Oladele Sikiru, Community Mobilizer
Adebayo B.S., Community Mobilizer
Haleem L.O., Community Mobilizer
Fabiyi E.A., Community Mobilizer
Bamidele C.B., Community Mobilizer
Ajibike E.O., Community Mobilizer
Fakokunde, Community Mobilizer
Ojuola O.L., Community Mobilizer
Akinloye, Community Mobilizer
Adedapo Kemi, Community Mobilizer
Dosumu K., Community Mobilizer
Opesetan C.A, Community Mobilizer
Olaniyi, Community Mobilizer
Adewale Aliyat O, Community Mobilizer
Mr. Ademola Adebisi, Community Mobilizer
Olufemi Oyeremi, Community Mobilizer
Banji Oladipo, Community Mobilizer
Ololade Osunfisan, Community Mobilizer
Monsurat Oluwakemi, Community Mobilizer
Orolakin Adetoro Yahaya, Community Mobilizer
Omoyele Oluwaseun Omotola, Community Mobilizer
Olatunde Ajayi, Community Mobilizer
Sadugba Tolulope Abosede, Community Mobilizer
Mercy Awojobi, Community Mobilizer
Odewole Clement, Community Mobilizer
Oladipo Olawumi Yetunde, Community Mobilizer
Falaye Oyeyemi, Community Mobilizer
Olanrewaju Ojo, Community Mobilizer
Akintola Olumide Tobi, Community Mobilizer
Ogunlusi Abiola Felix, Community Mobilizer
Benjamen Fadiji, Community Mobilizer
Akinrelere F. Joyce, State Based Mobilizer
Akomolafe Pius, State Based Mobilizer
Falokun Rosemary Oludolapo, State Based Mobilizer
Momoh B. A., Community Mobilizer
Smart V.O., Community Mobilizer
Awe F. D., Community Mobilizer
Dr. Adegeye Solomon A, Community Mobilizer
Olowo F. O., Community Mobilizer
Kehinde Victoria, Community Mobilizer
Salami Lateef, Community Mobilizer
Alo M O, Community Mobilizer
Faleyeoluwakemi C, Community Mobilizer
Adekunle Ademola, Community Mobilizer
Oride Olusola, Community Mobilizer
Adelusi Olayinka, Community Mobilizer
Letimisobijo, Community Mobilizer
Metbemu Edi-Olu E., Community Mobilizer
Adenuoye G. O., Community Mobilizer
Ademoyegun M.M, Community Mobilizer
Adewole O. F., Community Mobilizer

Oluwadarefemisola, Community Mobilizer
Dunapo C. S., Community Mobilizer
Edema Omowaire Victoria, Community Mobilizer
Omotehinseifeniye R, Community Mobilizer
Adegbite G. A., Community Mobilizer
Akinniranyeakintade, Community Mobilizer
Adekugbe Olayinka, Community Mobilizer
Akanjishamsudeen, Community Mobilizer
Olagundoye B. K., Community Mobilizer
Akinola Clement, Community Mobilizer
Fasawe T. A., Community Mobilizer
Koledoye Ayokunle, Community Mobilizer
Asogbon S. D., Community Mobilizer
Oluwatuyi G. O., Community Mobilizer
Anjorin Cecilia B., Community Mobilizer
Highest Eloho Yvonne, Community Mobilizer
Akinwande Mayowa, Community Mobilizer
Sam-Omoolorun, Community Mobilizer
Coker Felicia, Community Mobilizer
Adelegan Mary, Community Mobilizer
Adewumi Modupe, Community Mobilizer
Akinkunmi Olusegun Adisa, Community Guide
Oluwaseyi Samuel Akinlabi, Community Guide
Uthman Abdulrahman Olalekan, Community Guide
Ajiboye Taofeek Adesina, Community Guide
Adisa John Gbadebo, Community Guide
Samuel Oyetunji, Community Guide
Gbadamosi Jelili, Community Guide
Olawale Owolabi, Community Guide
Musiliu Kareem, Community Guide
Ojetola Ojerinde, Community Guide
Rafiu Ajani Lamidi, Community Guide
Shamsudeen Abdulsalam, Community Guide
Nafiu Moruff Kehinde, Community Guide
Oyerogba Joshua, Community Guide
Arivin Godpower, Community Guide
Olagunju, Olatunde Ayomide, Community Guide
Rasidat Dasola Muritala, Community Guide
Lasekan Johnson Joshua, Community Guide
Eniola James Idowu, Community Guide
Babatunde Alarape Ade, Community Guide
Gbadegesin Johnson Bolaji, Community Guide
Safiu Kolapo Akinleye, Community Guide
Adebiyi Tosin Oluwawumi, Community Guide
Olufemi Dada, Community Guide
Mohammed Muritala, Community Guide
Yusuff R O, Community Guide
Adelere Taiwo Odunola, Community Guide
Sulyman Mufutau, Community Guide
Rahman Diediea Jimoh, Community Guide
Jimoh Oguniyi Alabi, Community Guide
Olujide Solomon Ogunshola, Community Guide
Kamorudeen Hammed Gbolahan, Community Guide
Ganiyu Aremu, Community Guide
Rasaq Babatunde Lasisi, Community Guide
Oke Sarafa Ayeke, Community Guide
Kehinde George Ogunlade, Community Guide
Adeagbo Oluwatayo Abiodun, Community Guide
Rasheed A Oladejo, Community Guide
Olanrewaju Saheed Turayo, Community Guide
Adebola Bukola Mary, Community Guide
Mukaila Ishola Oduola, Community Guide
Adegoke David Oladeji, Community Guide
Oluwasola Olasunka Sotanmide, Community Guide
Abdulsalaam Abdu Fatai Idowu, Community Guide
Remi Irefin, Community Guide
Ajayi Elizabeth Temilade, Community Guide
Salau Afees Bayonle, Community Guide
Azeez, Mutairu Babatunde, Community Guide
Aderoju Adegoke Isiaka, Community Guide
Timileyin Sodiq Olapade, Community Guide
Abiola Idris Akinsoji, Community Guide
Azeez Akeem Babatunde, Community Guide
Oladimeji Olayinka Sulaiman, Community Guide
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Yahya Abba, Community Mobilizer
Moh'd K. Bala, Community Mobilizer
Ahmed Y. Sule, Community Mobilizer
Zamnan Hamidu Audu, Community Mobilizer
Aliyu Umar, Community Mobilizer
Aishatu Bamanga, Community Mobilizer
Bello Bamanga, Community Mobilizer
Bello Bako, Community Mobilizer
Hayatu Zabairu, Community Mobilizer
Yahya Kabiru Moh, Community Mobilizer
Bala Angelo, Community Mobilizer
Tanimu Nasiru, Community Mobilizer
Polycarp Levi Jediel, Community Mobilizer
Ladabi Daniel, Community Mobilizer
Umar Abubakar, Community Mobilizer
Solomon John, Community Mobilizer
Bashir Mohammed Modibbo, Community Mobilizer
Samuel Pulyso Sambo, Community Mobilizer
M Isa Mohammed, Zonal Mobilizer
Naomi Titus Dauda, Zonal Mobilizer
Abubaka Musa, Zonal Mobilizer
Adamu Abdu Balbayo, Community Mobilizer
Baba Gana Adam, Community Mobilizer

Umara Abukar, Community Mobilizer
Zara Ma'aji, Community Mobilizer
Yagana Grema, Community Mobilizer
Yagana Bukar, Community Mobilizer
Mustapha Sambo, Community Mobilizer
Tijani Alh. Nasir, Community Mobilizer
Tumfana Amon Mamza, Community Mobilizer
Usman Adamu Yamta, Community Mobilizer
Racheal Dauda, Community Mobilizer
Audu M. Yerima, Community Mobilizer
Matilda James Mshelia, Community Mobilizer
Shettima Yahaya, Community Mobilizer
Hadiza Ibrahim, Community Mobilizer
Lukman Mohammed, Community Mobilizer
Bukar Usman Yarda, Community Mobilizer
Alhaji Sale Abdullahi, Community Mobilizer
Tanko Apagu, Community Mobilizer
Usman Mohammed, Community Mobilizer
Baba Grema Usman, Community Mobilizer
Abdullahi Bukar, Community Mobilizer
Bulama Mala, Community Mobilizer
Ali Mongula, Community Mobilizer
Musa Suleiman, Community Guide
Ali Mai Unguwa, Community Guide
Salisu Mohammed, Community Guide
Iliyasu Buba, Community Guide
Liti Umaru, Community Guide
Ibrahim Musa, Community Guide
Jumba Adamu, Community Guide
Yau Musa, Community Guide
Wakili Abdu, Community Guide
Musa Umar, Community Guide
Bello J Manu, Community Guide
Auwalu Musa, Community Guide
Auwalu Hamza, Community Guide
Umar Yahaya, Community Guide
Idris Ibrahim, Community Guide
Safiyanu Bayi, Community Guide
Bako Abudullahi, Community Guide
Kawu Dogo, Community Guide
Sani Ubali Danmadubi, Community Guide
Mohammed Zakari, Community Guide
Jauro Bode Adamu, Community Guide
Abubakar Abdullahi, Community Guide
Yusuf Garba, Community Guide
Iliyasu Hamza, Community Guide
Abubakar Adamu, Community Guide
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Ibrahim Bunu Umar, Community Guide
Abdulaziz Abdullahi, Community Guide
Maryam Saidu, Community Guide
Adam Mohd, Community Guide
Yusuf Salihu, Community Guide
Adamu Auta, Community Guide
Aliyu Isah, Community Guide
Abdulkarim Halilu, Community Guide
Ephraim Markus, Community Guide
Malam Abubakar Rauta Geji, Community Guide
Aliyu Abdullahi Magnet, Community Guide
Danrimi Bako, Community Guide
Ibrahim Bayaro, Community Guide
Markus Daniel, Community Guide
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Arziki Biturus, Community Guide
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Usman Hussaini, Community Guide
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Mohd Hassan, Community Guide
Ubi Lafiya, Community Guide
Abubakar Mohd, Community Guide
Ibrahim S Kari, Community Guide
Bappah Yahaya, Community Guide
Alh Amadu, Community Guide
Ahmed Mohd, Community Guide
Ali Bala, Community Guide
Malam Hussaini, Community Guide
Malam Ibrahim Aliyu, Community Guide
Musa D Musa, Community Guide
Malam Hassan, Community Guide
Malam Danlami, Community Guide
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Ibrahim Aliyu, Community Guide
Ibrahim Yunusa, Community Guide
Basiru Usman, Community Guide
Ibrahim Ladan, Community Guide
Rabiu Chiroma, Community Guide
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Salisu Muhammadu, Community Guide
M Manu Umaru, Community Guide
Yau Alhaji Mohd, Community Guide
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Ajiyel Kolere, Community Guide
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Idrissa Mohammed, Community Guide
Gambo Bulama, Community Guide
Salisu Garba, Community Guide
Garba Mohammed, Community Guide

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Mallam Awa, Community Guide
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Hassan Adamu, Community Guide
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Muktari Yerima, Community Guide
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Mahammadu Santalma, Community Guide
Sani Dahiru Mai Shayi, Community Guide
M. Aminu Mal Umar, Community Guide
Adamu Garba, Community Guide
Alhaji Babe, Community Guide
Ahmadu Buraje, Community Guide
Babagana Manu, Community Guide
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Mohd Bulama Tatari, Community Guide
Bulama Ardo Nunu, Community Guide
Yerima Muktar, Community Guide
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Hussaini Jauro, Community Guide
Bulama Adamu Manunga, Community Guide
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Mohammadu Belloji, Community Guide
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Muhammad Jibril Idriss, Community Guide
Sheettima Fantami, Community Guide
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Maigari Dau, Community Guide
Mai Gari Ambadu, Community Guide
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Tukur Kurgaram, Community Guide
Zannah Sulhuma, Community Guide
Lawan Musa, Community Guide
Mallau Kawami, Community Guide
Baduma Digiri, Community Guide
Umar Mallam Kachalla, Community Guide
Mohammed Kaumi, Community Guide
Ibrahim Musa, Community Guide
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Ibrahim Durgu, Community Guide
Ahmadu Mai Lemo, Community Guide
Adamu Bamai, Community Guide
Ahmadu, Community Guide
Ahmad Mohammed, Community Guide
Abdullahi Gimba, Community Guide
Maigari Mohammed, Community Guide
Babayo Umaru, Community Guide
Abubakar Yerima, Community Guide
Usman Alhaji Dawaki, Community Guide
Kawu Mahmuda, Community Guide
Adamu Shuaibu D, Community Guide
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Bala Masaya, Community Guide
Abdu Maidawa, Community Guide
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Mohammed Isah Danbaba, Community Guide
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Ndotti Mohammed, Community Guide
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Adamu Haruna, Community Guide
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Babubakar Kapullo, Community Guide
Hassan Sambo, Community Guide
Abubakar Jauro, Community Guide
Mamman Mohammed, Community Guide
Aminu Abubakar, Community Guide
Kuna Mohammed, Community Guide
Sambo Adamu Jamari, Community Guide
Sani Jungudo, Community Guide
Sale Wakili Dan Buram, Community Guide
Usman Liman, Community Guide
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Adamu Ajiya, Community Guide
Audu Danjuma, Community Guide
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Umar Shaibu, Community Guide
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Ayuba Mongaring Shehu, Community Guide
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Absolom Y Baka, Community Guide
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Bitrus Takwaf, Community Guide
Danlami Hamma, Community Guide
Cain Maiganga Lamdam, Community Guide
Timothy Haruna, Community Guide
Usman Muhammadu, Community Guide
Ishaku Haruna, Community Guide
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Yakubu Baba, Community Guide
Boyi Bitrus, Community Guide
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Lewi Sunday Manto Bare, Community Guide
Jotham Thomas, Community Guide
Fela Nuhu, Community Guide
Babangida Bello, Community Guide
Jega Amos, Community Guide
Mohammed Ibrahim, Community Guide
Abubakar Saleh Bare, Community Guide
M Isa Adamu, Community Guide
Mr. Adamu Ali, Community Guide
Philip Isah, Community Guide
Kantoma Danbaki, Community Guide
Murtala Wawe, Community Guide
Epson Sokka, Community Guide
Joshua Mistaki, Community Guide
Luraiwa Williams, Community Guide
Ibrahim Mohd Sulaiman, Community Guide
Miriam Yuwel Timza, Community Guide
Nanatu Naphali, Community Guide
Abdulrahman Isah, Community Guide
Abigail Usman, Community Guide
Ayuba Yopo, Community Guide
Abubakar Usman Njidda, Community Guide
Yakubu Julde, Community Guide
Habila Dodo Didango, Community Guide
Salihu Yusuf, Community Guide
James S Skanto, Community Guide
Daniel N Mathias, Community Guide
Saad Bello, Community Guide
Yunusa Usman, Community Guide
Abdulmumini Baba, Community Guide
Bem Jonathan, Community Guide
Nasiru I Nagodi, Community Guide
Jeremiah Nlaanga, Community Guide
Rilwanu Aliyu Ibrahim, Community Guide
Harisu Ibrahim, Community Guide
Dennis Wundeng, Community Guide
Danladi Ajiya, Community Guide
Abubakar G Mohammed, Community Guide
Yabkwwa Rimande, Community Guide
Mamman Useni, Community Guide
Tanko Mohammed, Community Guide
Ibrahim Iliyasu, Community Guide
Paul Emmanuel, Community Guide
Ibrahim Abubakar, Community Guide
Peter Biko, Community Guide
Mustapher Abubakar, Community Guide
Dahiru Umar, Community Guide
Mustapher Adamu, Community Guide
Masudu Ibrahim, Community Guide
Umar Sabo, Community Guide
Haruna S Daro, Community Guide
Joshua Baba, Community Guide
Polycap Roman, Community Guide
Garba Shombi, Community Guide
Kachalla Namiri, Community Guide
Abdulrazak Sulaiman, Community Guide
Ibahim A Musa, Community Guide
Lukas Mashi, Community Guide
Kasong Samuel, Community Guide
Ishaya Yanga, Community Guide
Donatus Kwanti, Community Guide
Tobious Kllah, Community Guide
Donatus Buba, Community Guide
Godwin Vayi, Community Guide
Kuristsi Ikimbafan, Community Guide
Daniel Andenyang, Community Guide
Danladi Sambo, Community Guide
Galadima Kumar, Community Guide
Abbas Kasimu, Community Guide
Steven Nubalga, Community Guide
Shingwa Nuchanu Emmanuel, Community Guide
Emmanuel U Ikoh, Community Guide
Shadow Kabea, Community Guide
Adamu / Gwafwe Danjuma, Community Guide
Funga Jonathan, Community Guide
Emmanuel Buba, Community Guide
Aliyu Jataua, Community Guide
Boyi Mbria, Community Guide
Sunji Umaru, Community Guide
Aberchi Audu, Community Guide
Rimantanum Boyi, Community Guide
Hafsat Sule, Community Guide
Nuhu Muhammed, Community Guide
Ibrahim Saadu, Community Guide
Usman Tomas, Community Guide
Saidu Isa, Community Guide
Emmanuel Japhet, Community Guide
Suleiman Saidu, Community Guide
Muhammed S Hamidu, Community Guide

Ephesian Chirvah, Community Guide
Saidu Ibrahim, Community Guide
Yakubu Kaseun, Community Guide
Yakubu Jeremiah, Community Guide
Hashimu Maihula, Community Guide
Sa'adu Lauya, Community Guide
Abdullahi Mairiga, Community Guide
Abenda Lahaga Sabastine, Community Guide
Shittu Mohammed, Community Guide
Istifanus Mvendaga, Community Guide
Hamidu Teler, Community Guide
Babangida Bello, Community Guide
Maigari Audi, Community Guide
Enoch Tormusa, Community Guide
Rufai Danjum A, Community Guide
Zayyanu Sanusi, Community Guide
Joshua Dantani, Community Guide
Christopher Garbiya Saasu, Community Guide
Emmanuel Dauda, Community Guide
Sanfo Danladi, Community Guide
Ishaku Isa Bello, Community Guide
Abdullahi A. Jangmani, Community Guide
Idris Garba, Community Guide
Andrew Barsheba, Community Guide
Suleiman Iliyasu, Community Guide
Adamu Audu, Community Guide
Isa Ali, Community Guide
Adamu Bakari Ahire, Community Guide
Mohammad U Ardo Yaji, Community Guide
Yahaya Inuwa, Community Guide
Tukur Bobboi, Community Guide
Yahya Bapetel, Community Guide
Aminu Ibrahim, Community Guide
Joda Talala, Community Guide
Shehu Adamu Abdullahi, Community Guide
Daiyabu Abubakar, Community Guide
Aliyu Isa Ahmed, Community Guide
Kalangi Japheth Jatimi, Community Guide
Edisson Tonnaha, Community Guide
Ephraim Kemuel, Community Guide
Aminu Ishaku Gambo, Community Guide
Emmanuel Hyaki, Community Guide
Samson K. Nasi, Community Guide
Ibra Ugusta, Community Guide
Husseini Musa, Community Guide
Wakili Adamu Ali, Community Guide
Saidu Adamu Barde, Community Guide
Sani Usman, Community Guide
Umar Dahiru, Community Guide
Mustapha Alim, Community Guide
Yahaya Musa, Community Guide
Justina Hebron, Community Guide
Jacob Audi, Community Guide
Abdulraheed Ibrahim, Community Guide
Monday Eli, Community Guide
Munbu Aggi, Community Guide
Jeriel Jedison, Community Guide
Amos Abbare, Community Guide
Walle Ezra, Community Guide
Abubakar Jauro, Community Guide
Falilatu Aliyu, Community Guide
Yunana Jidauna, Community Guide
Peter Anthony, Community Guide
Michael Musa Loko, Community Guide
Maxwell Chaslan, Community Guide
Auwalu Ibrahim, Community Guide
Diana Emmanuel, Community Guide
Rahima Isa, Community Guide
Benham Musa, Community Guide
Friday Stephen, Community Guide
Abubakar T.J. Sale, Community Guide
Ezra Samson Audu, Community Guide
Abubakar Bello, Community Guide
Adadiyon Dumne, Community Guide
Mansur Moh'd, Community Guide
Adam Ahmadu Adam, Community Guide
Suleiman Abubakar, Community Guide
Penuel Dabal, Community Guide
Farida Abdullahi, Community Guide
Faisal Gidado, Community Guide
Ibrahim Dalhatu, Community Guide
Ahmed Abdulhamid, Community Guide
Luka Sajo, Community Guide
Zaham Zakariya, Community Guide
Ladipwety Enderly, Community Guide
Gaddafi Mohammed, Community Guide
Umar Sa'ad, Community Guide
Saidu Mohammed, Community Guide
Ahamdu Yugudu, Community Guide
Abubakar Aliyu, Community Guide
Enon Ali Toms, Community Guide
Ahmadu Hamadu, Community Guide
Gibson Elisha, Community Guide
Abdullahi Jiji, Community Guide
Salihu Bakari Bello, Community Guide
Elam Katsina, Community Guide
Jibril Baba, Community Guide
Jethro Zidon, Community Guide
Jauro Ahmadu, Community Guide
Hebron Bulus, Community Guide
Solomon David Kwabe, Community Guide
Lydia Yohanna, Community Guide
Mathias Zira, Community Guide
Danladi Kwatri, Community Guide
Bada A Mallam, Community Guide
Mustapha Babagana, Community Guide
Kollo Mustapha, Community Guide
Isiyaka Haruna, Community Guide
Ibrahim Lawan Bukar, Community Guide
Babagana A Buja, Community Guide
Konto Ali, Community Guide
Sani Suleiman, Community Guide
Ahmed Shattima, Community Guide
Mohammed Makin, Community Guide
Babagana Modu, Community Guide
Hamza Abubakar, Community Guide
Fatima M Bulama, Community Guide
Mohammed Musa, Community Guide
Usman Wadu, Community Guide
Ndaye Samson, Community Guide

Ishaku Bulum, Community Guide
Ali Gana, Community Guide
Shatima Isa, Community Guide
Alh Kadafur Y Birma, Community Guide
Ali Mohd Usman, Community Guide
Ibrahim Mohammed, Community Guide
Abdulkariam Lawan Mohd, Community Guide
Musa Pamun, Community Guide
Ishaku Mai Kaji, Community Guide
Usman Ali, Community Guide
Mai Anguwa Haruna, Community Guide
Ezikel Samaila, Community Guide
Danladi Inusa, Community Guide
Bulama Musa, Community Guide

North Central Zone

Nakoto Esther Useni, Zonal Mobilizer
Zubairu Kudirat Bolanle, State Based Mobilizer
Gbadeyan Olawale James, State Based Mobilizer
Alabi Ibrahim, State Based Mobilizer
Alabi Aminat Titilayo, Community Mobilizer
Allasoka Lisala Elkana, Community Mobilizer
Abdulraman Fatimoh, Community Mobilizer
Oke Comfort, Community Mobilizer
Suleiman Ajape, Community Mobilizer
Woli Bilkisu Adejimi, Community Mobilizer
Yusuf O. Rasheedat, Community Mobilizer
Giwa Idowu Muhibat, Community Mobilizer
Mohammed Amdalat Toyin, Community Mobilizer
Ajiboye TaibatArinola, Community Mobilizer
Rafiu Alhassan, Community Mobilizer
Bashirat Hassan, Community Mobilizer
Ishola Fatai (Laca), Community Mobilizer
Olaitan Jimoh (Laca), Community Mobilizer

Akanbi Ibrahim Abiodun, Community Mobilizer
Owolabi Titilayo, Community Mobilizer
Afolayan Idowu, Community Mobilizer
Wale Raphael Ajibaye, Community Mobilizer
Raji Modupe, Community Mobilizer
Agbede Obafemi, Community Mobilizer
Omotosho Felicia Funke, Community Mobilizer
Odofin MonisolaAdijat, Community Mobilizer
Afolabi Ajape, Community Mobilizer
Suleiman Yoniki Ahmed, Community Mobilizer
Saidu Lawal, Community Mobilizer
Mohammed Mudi, Community Mobilizer
Usman Zikki Nasir, Community Mobilizer
Bayo Apata, Community Mobilizer
Haruna Adamu, Community Mobilizer
Adam Aliyu, Community Mobilizer
Fatimoh Abubakar, Community Mobilizer
Gana Paul, Community Mobilizer
Yakubu Mamman, Community Mobilizer
Umar S Salihu, Community Mobilizer
Abbas S. Liman, State Based Mobilizer
Victoria Matthew, State Based Mobilizer
Usman Aisha Hajiya, State Based Mobilizer
HanatuWochiko, Community Mobilizer
Ahmed Bawa Abubakar, Community Mobilizer
Ahmad, Muhammad Adamu, Community Mobilizer
Usman Alhaji Muhammed, Community Mobilizer
Garba Aishatu Paiko, Community Mobilizer
Tani Shagabe, Community Mobilizer
Yaro Martha Otsahel, Community Mobilizer
Sabina Chinchan, Community Mobilizer
Adie Josiah Ashue, Community Mobilizer
Idris Abdulmalik Musa, Community Mobilizer
Ibrahim Ishaku Dodo, Community Mobilizer
Samaila Garba, Community Mobilizer
Shuaibu Faruna, Community Mobilizer
Adamu A. Usman, Community Mobilizer
Abubakar Abdul-Hamid, Community Mobilizer
Umar Abdulkarim Y., Community Mobilizer
Yakubu Abdulakeem, Community Mobilizer
Hassan Wachiko, Community Mobilizer
Synthia Faithful Kpetu, Community Mobilizer
Markus, Grace Nemah, Community Mobilizer
Hajara Bala, Community Mobilizer
Waziri Yakubu Bagudu, Community Mobilizer
Ibrahim Mohammed, Community Mobilizer
Mohammed Ibrahim Sanusi, Community Mobilizer
Mohammed Abdullahi Ndana, Community Mobilizer
Abdulmalik Mustapha, Community Mobilizer
Tsado Rachel Kaka, Community Mobilizer
Mairiga Alhaji Aliyu, Community Mobilizer
Sule Aminu A., Community Mobilizer
Nmadu Solomon Ndagi, Community Mobilizer
Acheku Yusuf Kemso, State Based Mobilizer
Hamza Aliyu, State Based Mobilizer
Mathias A. Okpanachi, State Based Mobilizer
Mamudu Sadiq Akaba, Community Mobilizer
Muhammed Eneze Habibat, Community Mobilizer
Esther Oluwaninshola Kayode, Community Mobilizer
Bako Helen, Community Mobilizer
Slyvester Atabor, Community Mobilizer
Florence M. Adomu, Community Mobilizer
Omolaiye Edisha, Community Mobilizer
Osho John Torunleke, Community Mobilizer
Taiye Arojojoye David, Community Mobilizer
Joseph Sesan, Community Mobilizer
Badaki Emily Bosede, Community Mobilizer
Ibinaiye Joseph Kehinde, Community Mobilizer
Ekunrin Folashade M., Community Mobilizer
Bosede Toyin Micah, Community Mobilizer
Yakubu Rekiyat, Community Mobilizer
Ojo Emmanuel O., Community Mobilizer
Alao O Williams, Community Mobilizer
Abdulraheem Sefinat, Community Mobilizer
Abdulhakim Bello Mayaki, Community Mobilizer
Akor Sani, Community Mobilizer
Peter Ejigbo Ibrahim, Community Mobilizer
Shedrack Ojochegbe Mathias, Community Mobilizer
Yakubu Mohammed, Community Mobilizer
David Mary Lade, Community Mobilizer
Abaniwo Nathaniel, Community Mobilizer
Mohammed M. Ndagi, Community Mobilizer
Onuh Sunday, Community Mobilizer
Rakiya J. Shuaibu, Community Mobilizer
Mohammed Lawal, Community Mobilizer
Shittu Jibrin, Community Mobilizer
Adama Patience Ojone, Community Mobilizer
Yunusa Abdullahi, Community Mobilizer

Muhammed Yusuf Awal, Community Mobilizer
Achimugu Paul Odoma, Community Mobilizer
Egbunu Abigail, Community Mobilizer
Idoko Rebecca, State Based Mobilizer
Dooshima Alpha Iorzua, State Based Mobilizer
Utume Josephine M, State Based Mobilizer
Aaver Japhet Aondowase, Community Mobilizer
Abaya Comfort Msurshima, Community Mobilizer
Enger Terdoo Jerome, Community Mobilizer
Achigili Florence, Community Mobilizer
Musa Sediq Achadu, Community Mobilizer
Agor Odeh Godwin, Community Mobilizer
Tijani Mohammed, Community Mobilizer
Agum Kuma Naga, Community Mobilizer
Albert A Finbar, Community Mobilizer
Ambe Cletus Atakpa, Community Mobilizer
Abdullahi Bala Giwa, Community Mobilizer
Anza Grace Teraver, Community Mobilizer
Helen Ashaver, Community Mobilizer
Cletus O. Honn, Community Mobilizer
Edeh Ocheje Amos, Community Mobilizer
Elizabeth Onuh, Community Mobilizer
Martha Ichapi, Community Mobilizer
Gwaza Mwuese, Community Mobilizer
Member Rachel Hanior, Community Mobilizer
Vincent Anza, Community Mobilizer
Inalegwu John Freeman, Community Mobilizer
Isah Yahaya, Community Mobilizer
Ivarave Fanen Martins, Community Mobilizer
Jeiyol Salome Nguveren, Community Mobilizer
Lilian Otugbo, Community Mobilizer
Ahire Mercy, Community Mobilizer
Adi Charles Ordain, Community Mobilizer
Gudu Mrumun Umbur, Community Mobilizer
Nelson Emmanuel Ogor, Community Mobilizer
Oko Lazarus Idankpa, Community Mobilizer
Veronica Idoko, Community Mobilizer
Omaiye Fredrick Sunday, Community Mobilizer
Emmanuel Elaigwu, Community Mobilizer
Ishimayina Christopher, Community Mobilizer
Sugh Emmenuel, Community Mobilizer
Anyam Serumun Solomon, Community Mobilizer
James K Wattan, State Based Mobilizer
Garos M Bature, State Based Mobilizer
Umar Farouk Musa, State Based Mobilizer
Micah Luka, Community Mobilizer
Bemgba G Martins, Community Mobilizer
Adams Kabir Moh, Community Mobilizer
Cecilia Mike Omonaiyer, Community Mobilizer
Grace C. Job, Community Mobilizer
Miriam Gish, Community Mobilizer
Esther Umukoro, Community Mobilizer
Almagani Emmanuel, Community Mobilizer
Alfred Nakoto, Community Mobilizer
Kachollom Abdul, Community Mobilizer
Dung Chundung Bulus, Community Mobilizer
Hannatu Zang Samuel, Community Mobilizer
Chuwang Joseph Fom, Community Mobilizer
Francis Kargwak Zitta, Community Mobilizer
Nanji Fazing, Community Mobilizer
Grace N. John, Community Mobilizer
Elizabeth T. Panyim, Community Mobilizer
Dinatu G. Nuhu, Community Mobilizer
Musa Ataki, Community Mobilizer
Tahdok Domye Raymond, Community Mobilizer
Joshua Dajen, Community Mobilizer
Arung Charity Chatbenet, Community Mobilizer
Thomas Ngwim, Community Mobilizer
Christiana Sabo Watson, Community Mobilizer
Benjamin Musa Dung, Community Mobilizer
Bashir Abdulhamid, Community Mobilizer
Simdul S Nimyel, Community Mobilizer
Yankuka Mary Gerji, Community Mobilizer
Kangyang John, Community Mobilizer
Mwanret Longkum, Community Mobilizer
Fati Bello, Community Mobilizer
Elisha Andebutop, State Based Mobilizer
Umbugus Mercy, State Based Mobilizer
Sattong Patience Augustine, State Based Mobilizer
Lilian A Gonji, Community Mobilizer
Igwe Casmir, Community Mobilizer
Agenyi U. E. Abel, Community Mobilizer
Yakubu Yahaya, Community Mobilizer
Christiana Luka Gish, Community Mobilizer
Abigail Maji, Community Mobilizer
Inkab Majimris Jatau, Community Mobilizer
Alice Adamu, Community Mobilizer
Simon Tyolumun Blessing, Community Mobilizer
Nwachukwu Amaechi, Community Mobilizer
Edward Luka, Community Mobilizer
Peter Onuh, Community Mobilizer
Hafsat Mohammed, Community Mobilizer
Tukura Nana, Community Mobilizer
Inuwa Bawa, Community Mobilizer
Musa Mohammed, Community Mobilizer
Francis Ochefije, Community Mobilizer
Ochika Joshua Okakpunoli, Community Mobilizer
Azie Emenike, Community Mobilizer
Toluwalope Ajisegiri, Community Mobilizer
Garba Mohammed Salisu, State Based Mobilizer
Yusuf Muhammad, State Based Mobilizer
Aminu Waziri Lamino, State Based Mobilizer
Yahaya Abubakar Ishagye, State Based Mobilizer
Abubakar Yahaya Ishagye, Community Mobilizer
Hassan Awe Ibrahim, Community Mobilizer
Suleiman Alh Mahmud, Community Mobilizer
Osude Danlami Samson, Community Mobilizer
Abubakar O. Mamman, Community Mobilizer
Illah Obadiah, Community Mobilizer
Dauda Omeri, Community Mobilizer
Ahmed Ogoshi Adamu, Community Mobilizer
Gandu Gideon Akpazi, Community Mobilizer
Ismaila Ogande Umar, Community Mobilizer
Aminu Waziri Lamino, Community Mobilizer
Ahmadu Kaduna Joseph, Community Mobilizer
Nicodemus Joseph Shari, Community Mobilizer
Aliyu Isa Abba, Community Mobilizer
Obed Ishaya Shade, Community Mobilizer
Yakubu Abdullahi Yakubu, Community Mobilizer
Abdullahi Mohammed Tanko, Community Mobilizer
Tella Patience Samson, Community Mobilizer
Garba Muhammed Salisu, Community Mobilizer

Dogara Danjuma, Community Mobilizer
Mustapha Abubakar, Community Mobilizer
Abubakar Isa, Community Mobilizer
Muhammed Sani Kasimu, Community Mobilizer
Haruna Danladi, Community Mobilizer
Lauya Muhammed Gali, Community Mobilizer
Yusuf Muhammed, Community Mobilizer
Kinze Ebenezer Ladan, Community Mobilizer
Vengegyang A. Simon, Community Mobilizer
Sulaiman Qasim Yamusa, Community Mobilizer
Yusuf Asibatu, Community Mobilizer
Abe Jonathan Oshi, Community Mobilizer
Abbakari Likita Bahago, Community Mobilizer
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Esther Danjuma, Community Guide
Benjamin U Ezra, Community Guide
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Kadayi Allahyayi Jude, Community Guide
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Gideon Dauda, Community Guide
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Alege Motunrayo, Community Guide
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Hauwa Abubakar, Community Guide
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Basiru Jibrin, Community Guide
Fatima Sani, Community Guide
Alhassan Shadaki, Community Guide
Mahmud Idris Mairiga, Community Guide
Yusuf Adamu, Community Guide
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Rita Andrew, Community Guide
Usman Moses, Community Guide
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Isa Abdul, Community Guide
Olukotun B Sunday, Community Guide
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Amichable Danladi Emmanuel, Community Guide
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Mohammed Umar, Community Guide
Ibrahim Bawa, Community Guide
Arogundade Shogo, Community Guide
Amina Manko Yahaya, Community Guide
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Amina Haruna, Community Guide
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Zubair Ramatu, Community Guide
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Suleiman O. Abdul, Community Guide
Ajibulu Henry O., Community Guide
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Arogbenga John, Community Guide
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Akomolafe Adekunle, Community Guide
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Ochu Malika, Community Guide
Jibril Jamiu, Community Guide
Owojaiye Olajide David, Community Guide
Ibidunni Emmanuel, Community Guide
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Alhassan Ibrahim, Community Guide
Blessing Ugbede, Community Guide
Simon Haruna, Community Guide
Abubakar Haruna, Community Guide
Odah Jacobs, Community Guide
Yunusa Ahidu, Community Guide

Haruna Sheu, Community Guide
Augustine Maji, Community Guide
Ahmed Ndagi Hassan, Community Guide
Zakariyah Habibullah, Community Guide
Suleiman Alhaji Musa, Community Guide
Yushau Iliyasu, Community Guide
Jamilus Ragada, Community Guide
Yusuf Suleiman Sabiseko, Community Guide
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Akor Joseph George, Community Guide
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Alex Idris, Community Guide
Moses Emmy James, Community Guide
Isah Abubakar, Community Guide
Musa Idris, Community Guide
Alex Idris, Community Guide
Ejigbo Onoja, Community Guide
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Ulugh Takur James, Community Guide
Nomigo Dooshima, Community Guide
Luga Joseph, Community Guide
Twer Oryiman, Community Guide
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Asongo Seember Sandara, Community Guide
Aleje Dennis, Community Guide
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Nyam Msughter, Community Guide
Tsav Emmanuel, Community Guide
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Emmanuel Ochidi, Community Guide
Jennifer Dzegeji, Community Guide
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Ocheje Oche, Community Guide
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Akpakpa Okpe, Community Guide
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Kahimo Amachigh, Community Guide
Mhongor Terzungwe, Community Guide
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Akaaza Christopher, Community Guide
Ugeeh Paul, Community Guide
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Kwaghee Lartin, Community Guide
Yiye Dominic, Community Guide
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Abee Moses Shileve, Community Guide
Hindan Timothy, Community Guide
Iorwuese Num, Community Guide
Ajo T. Terwase, Community Guide
Ikyumen Gabriel Msuhter, Community Guide
Ibav Cyprain Akua, Community Guide
Iorkyaa Member, Community Guide
Igyam Joshua, Community Guide
Edward Utile, Community Guide
Twer Oryiman, Community Guide
Okpe Samson, Community Guide
Asue Iorungwa, Community Guide
Ezek Patrick, Community Guide
Orga Andyar Stephen, Community Guide
Seltim Nanben, Community Guide
Nancwak Poncwat, Community Guide
Sunday Peter, Community Guide
Sanusi Baba, Community Guide
Pam Baja, Community Guide
Jame John, Community Guide
Jame Mandu, Community Guide
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Sunday Tasha, Community Guide
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Khadija Mahmmad, Community Guide
Garba Sani, Community Guide

Sadisu Moh, Community Guide
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Gyang Davou, Community Guide
Yakubu Udiya, Community Guide
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Agwom Jiji, Community Guide
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Alkasim Haruna Mallam, Community Guide
Zakari Mwancgung, Community Guide
Lukman M. Muhammed, Community Guide
Muhammed Maigari, Community Guide
Ezra Adamu, Community Guide
Muhammed Hudu, Community Guide
Micha Koppussa, Community Guide
Pyenkikwam Jngnap, Community Guide
Stephen Sekat, Community Guide
Joseph Longmyap, Community Guide
Mathias Lepse, Community Guide
Wudena Inusa, Community Guide
Yusuf Kyedyen, Community Guide
Joseph Danlami, Community Guide
Denis Dakum, Community Guide
Nenfwang Mwolche, Community Guide
Isma'il Adam, Community Guide
Isma'il Tahiru Abubakar, Community Guide
AyubaBitrus, Community Guide
Mary Moses Izung, Community Guide
Chong Luka Pam, Community Guide
Anthony Davou, Community Guide
Victor Dung Pam, Community Guide
Samuel Temitope Ojiti, Community Guide
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Godwin Kelvin Unabor, Community Guide
Gabriel Moses Timias, Community Guide
Istifanus Yusuf, Community Guide
Kadiya Tewi, Community Guide
Irimiya Davou Pam, Community Guide
Ezekiel Yakubu, Community Guide
Dung Esther Boyl, Community Guide
Bagu Ndam, Community Guide
Lep Ngyang Sambo, Community Guide
Daniel Yakubu Bakwai, Community Guide
Chuwang Joseph Fom, Community Guide
Anthony Isaac, Community Guide
Nimyel Bala, Community Guide
Philip Fashep, Community Guide
Binven Vennim, Community Guide
Timothy Sudubam, Community Guide
Napdul Salven Durven, Community Guide
Joseph N. Dabup, Community Guide
Danjuma Dajan, Community Guide
Panshak Yoila, Community Guide
Dabiet Cletus Koppian, Community Guide
Bature Mantoe Twotkwal, Community Guide
Dandladi Ezra Chinmang, Community Guide
Ayuba Dakwot, Community Guide
Hyacinth Hoomen Longs, Community Guide
Naannan Longwan, Community Guide
Danladi Dasvereng, Community Guide
Bogolnaan Kaatnaan, Community Guide
Sylvanus Danjuma Shekarau, Community Guide
Pannan G. Damues, Community Guide
Fohotnan Patrick, Community Guide
Tambo Baba, Community Guide
Fanzhi Nanmwa Longwa, Community Guide
Clement Sunday, Community Guide
Meimuna Usman, Community Guide
Salisu Ibrahim, Community Guide
Udele Juliana Amarachi, Community Guide
Lucky Asemota, Community Guide
Afinki John Sotaya, Community Guide
Daniel Anold, Community Guide
Ibrahim Emmanuel, Community Guide
Kaura Isaac, Community Guide
Odimara Azu Obinna, Community Guide
Buachie Jerry, Community Guide
Onongaya Joy Uju, Community Guide
Abubakar Isah, Community Guide
Jonah Asuquo Etim, Community Guide
Abraham Asuquo, Community Guide
Dauda Abuhuraira Igashi, Community Guide
Isreal Nsikea Okon, Community Guide
Olayemi Yetunde Esther, Community Guide
Francis Yakubu Papa, Community Guide
Ukpanwanne Ifeanyi, Community Guide
Ukwuije Onyinyechi Precious, Community Guide
Muhammad Zainab Ibrahim, Community Guide
Mary Alidu, Community Guide
Ukpanwanne Kelvin, Community Guide
Charity Amike, Community Guide
Yusuf Ibrahim, Community Guide
David Douglas, Community Guide
Isaac Monday, Community Guide
Gideon Dauda, Community Guide
Victor Kelechi John, Community Guide
Salihu Bashiru Barde, Community Guide
Michael Deborah, Community Guide
Elijah Emmanuel, Community Guide
Hulera Bashiru, Community Guide
Sule Jemila Idris, Community Guide
Nancy Biyama Jesmiel, Community Guide
Onuh Oche, Community Guide
Solomon Baba Jagaba, Community Guide

North West Zone

Shuaibu Musa Kafingana, Zonal Mobilizer
Mohammed A.S. Muhammadu, State Based Mobilizer
Sani Yusuf, State Based Mobilizer
Yusuf Hamza, State Based Mobilizer
Saleh Garba, Community Mobilizer
Ado Ya'u, Community Mobilizer

Nafisa Mudi, Community Mobilizer
Rukayya Muhd Iliya, Community Mobilizer
Maryam Aliyu, Community Mobilizer
Furera Muhd Usman, Community Mobilizer
Daso Garba, Community Mobilizer
Basira Yahaya, Community Mobilizer
Biniya Aliyu, Community Mobilizer
Ayuba Muhammad, Community Mobilizer
Mansur Salisu, Community Mobilizer
Faruku Isah, Community Mobilizer
Usman A. Musa, Community Mobilizer
Farouk Musa, Community Mobilizer
Hadiza Ibrahim, Community Mobilizer
Jabir Usman Muhd, Community Mobilizer
Lawan Alasan, Community Mobilizer
Haruna Abdullahi, Community Mobilizer
Ismail Ishak, Community Mobilizer
Abdulmalik Muhd Adamu, Community Mobilizer
Aliyu Salisu, Community Mobilizer
Salisu Idris Karshi, Community Mobilizer
Sadiq Haruna, Community Mobilizer
Muzammil Sani Musa, Community Mobilizer
Muhammad Danaro Yusuf, Community Mobilizer
Sunusi Aliyu, Community Mobilizer
Abubakar Garba Ibrahim, Community Mobilizer
Auwalu Abba Hussein, Community Mobilizer
Salisu Ado, Community Mobilizer
Umar Sani Yahaya, Community Mobilizer
Bala Malam, Community Mobilizer
Musa Lawal Roni, Community Mobilizer
Nasiru Sa'id Nasidi, State Based Mobilizer
Adam Abdullahi Ado, State Based Mobilizer
Binta Umar Abdullahi, State Based Mobilizer
Aliyu Musa Shehu, State Based Mobilizer
Sani Gali, Community Mobilizer
Hadiza Ghali, Community Mobilizer
Bello Ali Sadik, Community Mobilizer
Salisu Abdulwahab, Community Mobilizer
Shehu A Ilu, Community Mobilizer
Fatima Nasiru, Community Mobilizer
Shamsiyya Tijjani, Community Mobilizer
Abdulrahman Abdulhamid, Community Mobilizer
Mukhtar Sani K/Mata, Community Mobilizer
Nura Musa Sulaiman, Community Mobilizer
Isa Lawan Ibrahim, Community Mobilizer
Hafizu Aliyu, Community Mobilizer
Zainab Rabe Abdullahi, Community Mobilizer
Maryam Aliyu Abdullahi, Community Mobilizer
RabiuA Sarari, Community Mobilizer
Yahaya Abdullahi Yargwanda, Community Mobilizer
Rakiya Bala, Community Mobilizer
Hassan Muhammad Tukur, Community Mobilizer
Yusuf Kabir Yusuf, Community Mobilizer
Bashir Sulaiman, Community Mobilizer
Khalil Ibrahim, Community Mobilizer
Fatima Ibrahim Muhd, Community Mobilizer
Rukayya Abdulrahman, Community Mobilizer
Hannatu Kabir Sulaiman, Community Mobilizer
Umar Muhammad, Community Mobilizer
Abubakar Abdullahi Ado, Community Mobilizer
Fatima Nasir Mu'azu, Community Mobilizer
Ahamad Abdullahi Ado, Community Mobilizer
AuwalSani Muhd, Community Mobilizer
Auwal Abba Hussaini, Community Mobilizer
Abdurrazak Umar, Community Mobilizer
Amina Umar Abdullahi, Community Mobilizer
Sunusi Ali Sadiq, Community Mobilizer
Ruqayya Ibrahim, Community Mobilizer
Maryam Ibrahim, Community Mobilizer
Ibrahim Nasidi, Community Mobilizer
Fatima Habib Sadauki, Community Mobilizer
Yahanasu Bello Bashir, Community Mobilizer
Zainab Nasidi Abdullahi, Community Mobilizer
Aliyu Yunusa Bare, Community Mobilizer
Sani Abdu Garko, Community Mobilizer
Aisha Umar Abdullahi, Community Mobilizer
Jibril Abdullahi Bello, Community Mobilizer
Mustapha Muhammad Idris, Community Mobilizer
Umar Haliru Muhd, Community Mobilizer
Aliyu Salisu, Community Mobilizer
Maryam Isa, Community Mobilizer
Maryam Abdullahi, Community Mobilizer
Mansur Wada, Community Mobilizer
Aliyu Yusuf Gano, Community Mobilizer
Auwalu Uba, Community Mobilizer
Shehu Abdulwahab, Community Mobilizer
Jibril Umar, Community Mobilizer
Ali Shehu, Community Mobilizer
Nafisa Muhammad, Community Mobilizer
Mika'ilu Musa Zango, Community Mobilizer
Fadimatu Muhammadu Nasidi, Community Mobilizer
Hussaini Muhammad Gwarzo, Community Mobilizer
Nura Garba, Community Mobilizer
Usaina Magaji, Community Mobilizer
Gwaggoliya Auwalu, Community Mobilizer
Aisha Bello, Community Mobilizer
Safiya Muhd Lawal, Community Mobilizer
Muhsin Sa'id Salihu, Community Mobilizer
Ibrahim Suleiman Baba, Community Mobilizer
Hajara Umar, Community Mobilizer
Sulaiman Hashim Ibrahim, Community Mobilizer
Usman Dauda, Community Mobilizer
Idris Rabiu, Community Mobilizer
Abubakar Umar, Community Mobilizer
Aisha Sani Musa, Community Mobilizer
Abubakar Yahaya, Community Mobilizer
Sulaiman Auwal, Community Mobilizer
Habibu Ya'u Shu'aibu, Community Mobilizer
Dalhatu Salisu Galadanchi, Community Mobilizer
Abdullahi Nura, Community Mobilizer
Zainab Auwal Umar, Community Mobilizer
Ibrahim Bala, Community Mobilizer
Balarabe Muhd K/Naisa, Community Mobilizer
Abdurra'uf Sulaiman, Community Mobilizer
Aminu Halliru Muhammad, Community Mobilizer
Sagir Umar Aliyu, Community Mobilizer
Jibril Sule Adamu, Community Mobilizer
Abdu Alfindi, Community Mobilizer
Mujahid Sa'id Salihu, Community Mobilizer
Garba Balarabe, Community Mobilizer
Saminu Idris, Community Mobilizer
Sadi Musa, Community Mobilizer

Salihu Muhammad Yusuf, State Based Mobilizer
Bashiru Abubakar Moriki, State Based Mobilizer
Sanusi Lawali, State Based Mobilizer
Muhammad Shamsu, Community Mobilizer
Murtala Abubakar, Community Mobilizer
Garba Bello, Community Mobilizer
Aminu Lawali, Community Mobilizer
Suleiman Abdullahi, Community Mobilizer
Nura Bello, Community Mobilizer
Aminu Abubakar, Community Mobilizer
Yahaya Usman, Community Mobilizer
Surajo Abubakar, Community Mobilizer
Jamilu Musa, Community Mobilizer
Ibrahim Kabir, Community Mobilizer
Jamilu Bello, Community Mobilizer
Umar Badamasi, Community Mobilizer
Muhammad Tukur Adamu, Community Mobilizer
Yusuf Ibrahim, Community Mobilizer
Abdullahi Adamu Sidi, Community Mobilizer
Jamilu Sale, Community Mobilizer
Abdullahi Samaila, Community Mobilizer
Addau Halilu, Community Mobilizer
Abdulrashe Balarabe, Community Mobilizer
Umar Aliyu Zurmi, Community Mobilizer
Sani Usman Akko, Community Mobilizer
Shafi'u Lawali, Community Mobilizer
Lawali Ibrahim, Community Mobilizer
Lawali Musa, Community Mobilizer
Mustapha Abubakar, Community Mobilizer
Mansur Abubakar, Community Mobilizer
Muaze Dinah Balqis, State Based Mobilizer
Musaddiq Bala Usman, State Based Mobilizer
SanusiSani Zamgo, State Based Mobilizer
Ayman Yusuf Sani, Community Mobilizer
Ubale Ibrahim Maigari, Community Mobilizer
Muhammed Junaidu, Community Mobilizer
Sagir Yusuf, Community Mobilizer
Ibrahim Dahiru, Community Mobilizer
Hassan Salmanu, Community Mobilizer
Yakubu Bala, Community Mobilizer
Aminu Ismaila, Community Mobilizer
Ya'u Abubakar, Community Mobilizer
Murtala Waziri, Community Mobilizer
Halima Abubakar, Community Mobilizer
Amina Abubakar, Community Mobilizer
Rukayya Abdullahi, Community Mobilizer
Hindatu Ghali, Community Mobilizer
Khadija Aliyu, Community Mobilizer
Abdullahi Ahmad Salele, Community Mobilizer
Auwal Ibrahim, Community Mobilizer
Sada Muhammad, Community Mobilizer
Abdulmudalib Muhammad, Community Mobilizer
Umar Buhari, Community Mobilizer
Suleiman Hamza, Community Mobilizer
Auwal Bukar, Community Mobilizer
Yusuf Buhari, Community Mobilizer
Abubakar Aliyu, Community Mobilizer
Nasif Ahmad, Community Mobilizer
Murja Mu'azu, Community Mobilizer
Muhammad Suleiman, Community Mobilizer
Rufa'i Hussaini, Community Mobilizer
Lawal Usman, Community Mobilizer
Ibrahim Hussaini, Community Mobilizer
Abdulrasheed Salisu, Community Mobilizer
Nasir Usman Karofi, Community Mobilizer
Auwal Yakubu, Community Mobilizer
Shamsudeen Idris, Community Mobilizer
Abdulmajeed Kabir, Community Mobilizer
Mustapha Haliru Gwarzo, Community Mobilizer
Muhammed Hassan Goronyo, State Based Mobilizer
Abdulhamid Buhari, State Based Mobilizer
Abubakar Aliyu Danmafara, State Based Mobilizer
Aminu A. Sadi, Community Mobilizer
Badamasi Garba, Community Mobilizer
Sirajo Yusuf, Community Mobilizer
Malami Attahiru A, Community Mobilizer
Nasiru Abubakar, Community Mobilizer
Chika Mahe, Community Mobilizer
Asma'u Muhd, Community Mobilizer
Bello Shehu Gwadabawa, Community Mobilizer
Aliyu Muazu, Community Mobilizer
Idris Y. Idris, Community Mobilizer
Murtala Abdullahi, Community Mobilizer
Bala Oroji, Community Mobilizer
Nasiru Abubakar, Community Mobilizer
Iliyasu Marafa Balle, Community Mobilizer
Hamza Ibrahim Turaki, Community Mobilizer
Muslim Umar, Community Mobilizer
Balkisu Yusuf, Community Mobilizer
Abdulmalik Abubakar, Community Mobilizer
Ishaka Mainasara, Community Mobilizer
Yahaya Halilu, Community Mobilizer
Abubakar M. Abubakar, Community Mobilizer
Abubakar Buhari, Community Mobilizer
Farida Ibrahim Turaki, Community Mobilizer
Nasiru Maiturare, Community Mobilizer
Rufai Halilu, Community Mobilizer
Bashir A. Ib Nideen, Community Mobilizer
Abubakar Galadima, Community Mobilizer
Zainab Nasidi, Community Mobilizer
Hauwa A. Aminu, Community Mobilizer
Shamsudeen Haruna, Community Mobilizer
Bello Sambo, Community Mobilizer
Abdullahi Nb Aliyu, Community Mobilizer
Umar Abdullahi Marnona, Community Mobilizer
Jidda Binta Danladi, Community Mobilizer
Jabiru Abubakar, Community Mobilizer
Abdulkarim Idris Abubakar, Community Mobilizer
Aliyu Musa, State Based Mobilizer
Bilal Nabiye Gloria, State Based Mobilizer
Umar Ibrahim, State Based Mobilizer
Muktar A. Mustapha, Community Mobilizer
Usman Abubakar, Community Mobilizer
Auwalu Abba Hussein, Community Mobilizer
Lawal Mohammed, Community Mobilizer
Mohammed Rukaiyat Adam, Community Mobilizer
Umar Ibrahim, Community Mobilizer
Mohammad Haruna, Community Mobilizer
Joseph Audu, Community Mobilizer
Benjamine Maigari, Community Mobilizer
Atuke Ganga Meshach, Community Mobilizer
Uhuami Anataku Sumaila, Community Mobilizer

Obanewo Fibi Sandra, Community Mobilizer
Linda Daura, Community Mobilizer
Anthony Lord Thaddeys, Community Mobilizer
Hassan Ahmed, Community Mobilizer
Evelyn N Rohbam, Community Mobilizer
Chinazo Anthonia Umenwobi, Community Mobilizer
Aminu Babangida, Community Mobilizer
Yashim Hilda Zwahu, Community Mobilizer
Kure Imam Habila, Community Mobilizer
Jibril Isa, Community Mobilizer
Mishael Yakubu, Community Mobilizer
Isa Bawa, Community Mobilizer
Halima Mohammed Sani, Community Mobilizer
Bakut Joel Kaboshio, Community Mobilizer
Haruna Aaron Sunday, Community Mobilizer
Hajara Aliyu, Community Mobilizer
Daha Mohammad, Community Mobilizer
Ismaila Aliyu, Community Mobilizer
Abdulamid Ahmad, Community Mobilizer
Hafsat Idris, Community Mobilizer
Sulaiman Idris, Community Mobilizer
Felicia Boman, Community Mobilizer
Rakiya Ado Shehu, Community Mobilizer
Umar Garba, Community Guide
Muhd Auta Maiwaunguwa, Community Guide
Maigari Zubaru Shehu, Community Guide
Abdullahi Iliyas Fago, Community Guide
Muhd Isa Dagali, Community Guide
Salisu Dayyabu, Community Guide
Maiunguwa Manniru, Community Guide
Maiunguwa Abdullahi Abu, Community Guide
Sunusu Maiunguwa, Community Guide
Mal. Lawal Yankwashi, Community Guide
Salisu Usman, Community Guide
Zahairu Sale, Community Guide
Maigari Usman, Community Guide
Maiunguwa Rabiu Kanya, Community Guide
Muhd Aminu, Community Guide
Maigatari Maiunguwa, Community Guide
Kaya Maiunguwa, Community Guide
Bulama Muazu, Community Guide
Bulama Hannun Giwa, Community Guide
Bulama Maitsamiya, Community Guide
Idris Alasan, Community Guide
Bula Haru Sani, Community Guide
Salisu Rawai, Community Guide
Tata Inakili, Community Guide
Musa Alili, Community Guide
Maigari Abdu, Community Guide
Kawu Sule, Community Guide
Gambo Alhaji Saidu, Community Guide
Maigari Yanono, Community Guide
Muhd Ibrahim, Community Guide
Muhammad Abubakar, Community Guide
Alh. Adam Bayero, Community Guide
Dauda Adamu, Community Guide
Maigari Muhd, Community Guide
Musa Suleiman, Community Guide
Rabiu Haruna, Community Guide
Malam Ali, Community Guide
Hussaini Muhd, Community Guide
Abdullahi Hamza, Community Guide
Musa Muhammad Zugo, Community Guide
Muhd Zanki Haruna, Community Guide
Musa Najabo, Community Guide
Abuabakar Muhd Maigari, Community Guide
Umar Muhd, Community Guide
Balama Amadu, Community Guide
Garba Dahiru, Community Guide
Aliyu Sale, Community Guide
Madubbo Garbou, Community Guide
Ya'u Maiuguwa, Community Guide
Alhassan Umar, Community Guide
Muktar Abdullahi, Community Guide
Abdlmuddalib Abdulrashid, Community Guide
Bala Aliyu Maiunguwa, Community Guide
Jirbrin Madaki, Community Guide
Adamu Abubakar Wakilin, Community Guide
Ibrahim Hudu Maiunguwa, Community Guide
Sarki Ibrahim S. Daral, Community Guide
Yunusa Dalhatu Kodoma, Community Guide
Adamu Da'u Sadau, Community Guide
Hamza Maiunguwa Tokai, Community Guide
Abdullahi Muhd Tuje, Community Guide
Usman Usaini, Community Guide
Maiunguwa Babannan Manzo, Community Guide
Yakubu Usman, Community Guide
Isa Alhaji Yusuf, Community Guide
Musa Gandu, Community Guide
Yusuf A. Ali, Community Guide
Alhaji Salisu Maiunguwa, Community Guide
Hamisu Yusuf, Community Guide
Maiunguwa Uzairu, Community Guide
Musbahu Abdullahi, Community Guide
Shukuranu Harisu, Community Guide
Mainuguwa Bala Ibrahim, Community Guide
Hamisu Yahuza Isa, Community Guide
Maiunguwa Lafiya, Community Guide
Abba Gwadayi, Community Guide
Usaini Maruta, Community Guide
Abubakar Saleh, Community Guide
Ahmadu Usaini, Community Guide
Mallam Yusuf, Community Guide
Kabiru Kafinata, Community Guide
Abubakar Muhd, Community Guide
Sama'ila Abdulsalam, Community Guide
Ibrahim Galadima, Community Guide
Usman Sa'idu, Community Guide
Abubakar Sabiu, Community Guide
Surajo Kabiru, Community Guide
Murtala Ibrahim, Community Guide
Mansur Sule, Community Guide
Bello Rabiu, Community Guide
Sani Ahmad, Community Guide
Mukhtar Abdullahi, Community Guide
Abubakar Abdu, Community Guide
Kabiru Bello, Community Guide
Kabiru Bala, Community Guide
Malam Habu Shanono, Community Guide
Garba Galadima, Community Guide
Majidadi Ibrahim, Community Guide
Tukur Babba, Community Guide

Habibu Mukhtar, Community Guide
Saidu Musa, Community Guide
Rabiu Muhammad, Community Guide
Saminu Aliyu, Community Guide
Malan Sani, Community Guide
Dahiru Hamza, Community Guide
Dini Abubakar, Community Guide
Haruna Uba, Community Guide
Shamsu Adamu, Community Guide
Yazid Hassan, Community Guide
Idris Ya'u, Community Guide
Muhammad Zaharadden, Community Guide
Usman Muhammad, Community Guide
Abdulhamid, Community Guide
Salisu Maifada, Community Guide
Garzali Maifada, Community Guide
Labaran Abdullahi Me Ung, Community Guide
Hamisu Aminu Indabawa, Community Guide
Abba Lawan Daneji, Community Guide
Abbas Abdulkadir, Community Guide
Abdullahi Mai Kano, Community Guide
Saddiku Kuka, Community Guide
Shehu Ilyasu, Community Guide
Usaini Ibrahim, Community Guide
Muhammad Musa, Community Guide
Usaini Abba, Community Guide
Ahmad Magaji, Community Guide
Sule Abdulkadir, Community Guide
Bashir Muhammad, Community Guide
Ahmad Hunainu, Community Guide
Adamu Mukaddas, Community Guide
Sani Lawan, Community Guide
Sama'ila Abdulsalam, Community Guide
Adamu Sulaiman, Community Guide
Sa'idu Garba, Community Guide
Muhammad Lawal, Community Guide
Ibrahim Gora, Community Guide
Musa Ibrahim, Community Guide
Haruna Sule, Community Guide
M. Unguwa Malan Garba, Community Guide
Alh. Abubakar Usman, Community Guide
Halilu Umar, Community Guide
Malan Sani Tela, Community Guide
Malan Abdullahi Lawan, Community Guide
Mika Ilu Zangina Me Ung, Community Guide
Shehu Abdussalam, Community Guide
Ismaila Magaji, Community Guide
Bala Danjuma, Community Guide
Bala Me Unguwa, Community Guide
Amadu Zakari, Community Guide
Ado Garba, Community Guide
Shehu Umar, Community Guide
Datti Umar, Community Guide
Mal Ahmadu Bala, Community Guide
Bala Hamza, Community Guide
Hamisu Yusheu, Community Guide
Shitumuhd, Community Guide
Adamu Ibrahim, Community Guide
Haruna Abdulhamid, Community Guide
Abdllahi Abdulmalik, Community Guide
Yakubu Abdullahi, Community Guide
Kabiru Manya, Community Guide
Idris Garba, Community Guide
Shitu Dauda, Community Guide
Musa Mansur, Community Guide
Abubakar Rafi, Community Guide
Bala Roka, Community Guide
Mohammed Dutsi, Community Guide
Umaru Kura, Community Guide
Muhammad Dan Bukkuyum, Community Guide
Nasiru Abubakar Mazaje, Community Guide
Dan Amo Magaji Nasarawa, Community Guide
Abubakar Shugaba, Community Guide
Sabon Gari Aliyu, Community Guide
Adamu Abdullahi, Community Guide
Abu S/Malami, Community Guide
Mansur Salisu, Community Guide
Sabiu Salisu, Community Guide
Murtala Abdullahi, Community Guide
Magaji Aliyu, Community Guide
Murtala Tukur, Community Guide
Sani Maccido, Community Guide
Sani Galadima, Community Guide
Ibrahim Abdullahi, Community Guide
Sani Usman Dan Ajawo, Community Guide
Abubakar Nabuba, Community Guide
Ashiru Ibrahim, Community Guide
Malam Umar Waziri, Community Guide
Malam Lawali, Community Guide
Beelo Saidu Gura-Guri, Community Guide
Maisallah Muhammad, Community Guide
Bilyaminu Murtala, Community Guide
Lawali Dangaladima, Community Guide
Murtala Yellow, Community Guide
Mamman Dandutsi, Community Guide
Jamilu Bakwai, Community Guide
Kabiru Bala, Community Guide
Yusuf Baburde, Community Guide
Aliyu Bawa, Community Guide
Aliyu Buhari, Community Guide
Daudu Galadima, Community Guide
Sanusi Ibrahim, Community Guide
Audu Dogari, Community Guide
Malam Dahiru, Community Guide
Ibrahim Rafi, Community Guide
Muhammadu S. Fada, Community Guide
Mustapha Madaro, Community Guide
Abubakar Mustapha, Community Guide
Ibahim Abdullahi, Community Guide
Hamza Isa, Community Guide
Abdullahi Salmanu, Community Guide
Muhammed Bature, Community Guide
Samaila Aliyu, Community Guide
Nasiru Muhammad, Community Guide
Anas Magaji, Community Guide
Umaru Muhammad, Community Guide
Maiunguwa Adamu, Community Guide
Aminu Maiunguwa, Community Guide
Sani Marafa, Community Guide
Hameed Abdullahi, Community Guide
Bello Umar, Community Guide
Ibrahim Adamu, Community Guide

Muhammad Wike, Community Guide
Salisu Abubakar, Community Guide
Shafiu Umar, Community Guide
Sarkin Dogarai, Community Guide
Magajin Gari, Community Guide
Nura Muhammad, Community Guide
Sufiyanu Shuaibu, Community Guide
Shehu Idris, Community Guide
Sani Isah, Community Guide
Sani Ibrahim, Community Guide
Usman Lawal Danladi, Community Guide
Muazu Jaafar, Community Guide
Maiunguwa Tijjani Abdullahi, Community Guide
Dalha Rabe, Community Guide
Zaharaddeen Abbas, Community Guide
Dayyabu Idris, Community Guide
Magaji Abdulrahman, Community Guide
Danmulki Sawani, Community Guide
Husaini Abubakar Tsamiya, Community Guide
Nasiru Musa, Community Guide
Aminu Dageji, Community Guide
Maiunguwa Yankuku, Community Guide
Hamisu Abdullahi (Babangida), Community Guide
Salisu Tukur, Community Guide
Maiunguwa Bala, Community Guide
Tasiu Abdu, Community Guide
Hon. Alhasan Abdullahi, Community Guide
Abdulrahman Mohd, Community Guide
Maryam Muhammed, Community Guide
Maigari Amadu, Community Guide
Musa Maigari, Community Guide
Maiunguwa Radi, Community Guide
Abu Damaga, Community Guide
Hayatu Ashiru, Community Guide
Maiunguwa Buhari, Community Guide
Mal Umar Mustafa, Community Guide
Usman Badamasi, Community Guide
Salisu Musa, Community Guide
Maiunguwa Muhammad Saadu, Community Guide
Murtala Umar, Community Guide
Maiunguwa Sadi Abdu, Community Guide
Abdu Mamman, Community Guide
Ayuba Abdullahi, Community Guide
Muhammadu Sani Ibrahim, Community Guide
Kabiru Rabiu, Community Guide
Atiku, Community Guide
Maiunguwa Musa Kyauta, Community Guide
Yahya Gulbi, Community Guide
Alhaji Sale Mamman, Community Guide
Zayyana Ishaq, Community Guide
Maiunguwa Adamu, Community Guide
Muhammad Mustapha, Community Guide
Maiunguwa Dawa, Community Guide
Aminu Saidu, Community Guide
Sani Abba, Community Guide
Kabir Umar, Community Guide
Bawa Na Wakili Maiunguwa, Community Guide
Alhaji Hamza Maiunguwa, Community Guide
Bukadi Tamawa, Community Guide
Mal Ibrahim Sarkin Tasha, Community Guide
Jaridu Tsuge, Community Guide
Maigari Unguwar Gobir, Community Guide
Lawal Yau, Community Guide
Audu Yau, Community Guide
Babangida Lawai, Community Guide
Maiunguwa Lawai Salisu, Community Guide
Shamsuddeen Abdullahi, Community Guide
Haruna Usman, Community Guide
Zakari Iliyasu, Community Guide
Abubakar Lawal, Community Guide
Sule Maiunguwa, Community Guide
Maiunguwa Sani, Community Guide
Maiunguwa Salisu, Community Guide
Sadisu Unguwar Ganye, Community Guide
Ahmad Danladi, Community Guide
Abdulhadi Nasiru, Community Guide
Maounguwa Aminu, Community Guide
Maiunguwa Halilu, Community Guide
Rabiu Saadu, Community Guide
Sadam Yusuf, Community Guide
Nazifi Usman, Community Guide
Aminu Ibrahim, Community Guide
Ibrahim Sani, Community Guide
Murtala Abdulrazak, Community Guide
Maiunguwa Sabiu, Community Guide
Muhammad Dayyabu, Community Guide
Maigari Sani, Community Guide
Musbahu Yusuf, Community Guide
Jamilu Fararu, Community Guide
Abu Dandare, Community Guide
Jafaru Abbas, Community Guide
Dan Isa Hakimi, Community Guide
Garba Manuga Dan Auta, Community Guide
Ibrahim Magaji, Community Guide
Muhammadu Maiyaki, Community Guide
Amadu Buda Hakimi, Community Guide
Zayyanu Muhammad, Community Guide
Nasiru Garba, Community Guide
Garba Mai Katuru, Community Guide
Rabiu Sarkin Fada, Community Guide
Usman Garba, Community Guide
Alh Salihu, Community Guide
Samaila Illo, Community Guide
Salihu Tudu, Community Guide
Abdullahi Jima, Community Guide
Ishaka Ibrahim Gada, Community Guide
Dadi Dangaladima, Community Guide
Salihu Aliyu Sarkin Yaki, Community Guide
Bashiru Dan Jummai, Community Guide
Sani Anguwa, Community Guide
Mamuda Aliyu (Mudi), Community Guide
Muhammadu Yahaya, Community Guide
Haruna Alhassan, Community Guide
Abdullahi Shawaki, Community Guide
Ibrahim Yakubu, Community Guide
Yahaya Turaku, Community Guide
Abdullahi Ibrahim, Community Guide
Junaidu Abdullahi, Community Guide
Sukeiman Abubakar Milo, Community Guide
Gado Hashimu, Community Guide
Kasimu Ahmed, Community Guide
Uwaisu Adamu, Community Guide

Garba Hakimi, Community Guide
Umar Abdu, Community Guide
Abubakar Maigari Zayyara, Community Guide
Chika Wakilin Maigari, Community Guide
Gidado Maigari, Community Guide
Alh. Adu Gada, Community Guide
Dogari Shamaki Yar Tsakuwa, Community Guide
Yusuf Abubakar Kware, Community Guide
Ismaila Muhammad, Community Guide
Sarkin Rafin Dunguji, Community Guide
Halilu Mamman, Community Guide
Bashir Alkali, Community Guide
Mallam Kabiru Abdullahi, Community Guide
Ibrahim Danzaria, Community Guide
Umaru Maishanu, Community Guide
Muktari Aliyu, Community Guide
Malami Bello Mai Karfi, Community Guide
Bello Shehu, Community Guide
Muhammad, Community Guide
Kasimu Muhammad, Community Guide
Yusuf S. Gandu, Community Guide
Mubarak Mubi, Community Guide
Muhammad Roron Hakimi, Community Guide
Bello Isa, Community Guide
Abdullahi Maigari, Community Guide
Dandare Taru, Community Guide
Babangida Garba, Community Guide
Dan Yaya Barmando, Community Guide
Dogo Maidawa Sankira, Community Guide
Umaru Mode, Community Guide
Musa Bello, Community Guide
Abubakar Magani Mai Dange, Community Guide
Yusuf Ibrahim, Community Guide
Umaru Muhammadu, Community Guide
Suleiman Aliyu, Community Guide
Muhamadu Rafi, Community Guide
Mallam Hassan, Community Guide
Hamisu Aliyu, Community Guide
Umaru Magaji, Community Guide
Nura Umar, Community Guide
Sulaiman Abubakar Dikko Dan Dauda, Community Guide
Ali Maikifi, Community Guide
Shehu Dangara, Community Guide
Abubakar Sahabi, Community Guide
Bello Maigari Tudu, Community Guide
Shehu Garba, Community Guide
Nasiru Dodo, Community Guide
Haliru Sarki/Hali Kwardo, Community Guide
Mustapha Bunu, Community Guide
Magaji Bazai, Community Guide
Hamidu, Community Guide
Kaka Hakimi, Community Guide
Livinus Timothy, Community Guide
Bisi, Community Guide
Bawa Kaduna, Community Guide
Ezekiel, Community Guide
Pius Kazah, Community Guide
Jeffrey Ashu, Community Guide
Nuhu Bako, Community Guide
Irimiya Nuhu, Community Guide
Lucious Emmanuel, Community Guide
Banbaki James, Community Guide
Sunday Peter, Community Guide
Joshua Dandoka, Community Guide
Caleb Danjuma, Community Guide
Simon, Community Guide
Isa Abdullahi, Community Guide
Caleb, Community Guide
Mai Angwa Bala Ango, Community Guide
Ishaku Tanko, Community Guide
Sani Yahaya, Community Guide
Shehu Abdullahi, Community Guide
Rayyanu, Community Guide
Muhammed Mugatakarda, Community Guide
Rabiu, Community Guide
Genesis Yakubu, Community Guide
Mr. John, Community Guide
Alh. Yahaya, Community Guide
Yahaya John, Community Guide
Bakariya Sagir, Community Guide
Mai Ungwa Nura Wata, Community Guide
Yusuf Bawa, Community Guide
Hassan Umar, Community Guide
Baban Audi, Community Guide
Ahmed Aliyu, Community Guide
Usman Abdullahi, Community Guide
Mai Ugwa Abubakar Muhammed, Community Guide
Muhammed Auwal Adamu, Community Guide
Aliyu Bello Zuata, Community Guide
Idris Tahir, Community Guide
Mai Ungwa Ayuba, Community Guide
Annas Zubairu, Community Guide
Dalhatu Saidu Sarki, Community Guide
Emmanuel Ogbole, Community Guide
Haruna Hussaini D/Wai, Community Guide
Ungwan Idi, Community Guide
Zulyadani Alkasim, Community Guide
Elisha Lawal, Community Guide
Mai Angwa Shehu Samaidi, Community Guide
Abubakar Abbas, Community Guide
Mai Angwan Danjume, Community Guide
Sa'adu Garba, Community Guide
Munkaila Adamu, Community Guide
Aliyu Audu, Community Guide
Abubakar Yusuf, Community Guide
Suleiman Abdullahi, Community Guide
Mukkaila Adamu (Omo), Community Guide
Jude Mayira, Community Guide
Rabiu Inwura, Community Guide
Shuaibu Tanimu, Community Guide
Mallam Ibrahim Abdulkadir, Community Guide
Musa Idris Ibrahim, Community Guide
Murtala Adamu, Community Guide
Ibrahim Chairman, Community Guide
Saidu Abdulkarim, Community Guide
Rabui Mohammed Taju, Community Guide
Saidu Abdulkarim, Community Guide
Silas Samaila, Community Guide
Rabo Sarki, Community Guide
Sarki Abdulhamid, Community Guide
Abdul Ibada, Community Guide
Daniel Danjuma, Community Guide

Charlse, Community Guide
Josiah Gwara, Community Guide
Elisha Abba, Community Guide
John Akawu, Community Guide
Yahuza Aliyu Kakangi, Community Guide
Hakim Adamu, Community Guide
Christopher Sale, Community Guide
Lawal Umar, Community Guide
Michael Kunama, Community Guide
Daniel Dudu Audu, Community Guide

Laboratory Management
Alash'le Abimiku, Director of Lab Management
Julius Manjengwa, Senior Lab Technical Advisor
Brian Asiimwe, Senior Lab Technical Advisor
Wessen Nega, Senior Lab Technical Advisor
Isiramen Olajide, Lab Technical Advisor
Moses Njoku, Lab Technical Advisor
Augustine Onyeaghala, Lab Technical Advisor
Aliyu Daneji, Lab Technical Advisor
Christopher Ifeanyi Chime, Program Manager, Central Lab
Omotsefe Tessy Aluyi, Program Officer, Lab
Geofrey Azi Yusuf, Program Officer, Lab
Onyema Nwalegu, Program Officer, Lab
Nididi Agala, Senior Program Officer, Biorepository Lab
Michael Ajigo, Lab Officer, Biorepository Lab
Oyebanjo Akin, Lab Officer, Biorepository Lab
Egbenoma Andrew Agboeghian, Lab Officer, Biorepository Lab
Chinwe Offorka, Lab Officer, Biorepository Lab
Martha Tonga, Lab Officer, Biorepository Lab
Onokevbagbe Edewede, Lab Support HQ Staff
Egbulefu Isaac, Lab Support HQ Staff
North Central Zone
Chidi Ihesiaba, Zonal Lab Coordinator
Emily Meshack, Sub-zonal Coordinator
North East Zone
Musa Akusuk, Zonal Lab Coordinator
Rita Wakili, Sub-zonal Coordinator
North West Zone
Mikhail Abubakar, Zonal Lab Coordinator
Abubakar Y. Koki, Sub-zonal Coordinator
South East Zone
Sylvester Ojuigo, Zonal Lab Coordinator
Immaculata Okoechya, Sub-zonal Coordinator
South South Zone
Ogboi Sonny Johnbull, Zonal Lab Coordinator
Promise Eneze, Sub-zonal Coordinator
South West Zone
Jenrola Olarewaju Idris, Zonal Lab Coordinator
Shafiu Gumel, Sub-zonal Coordinator

Satellite Lab Specialists
Tinja Bukar, Satellite Lab Specialist
Babagana Mohammed Aji, Satellite Lab Specialist
Ukwen Riyebande Riken, Satellite Lab Specialist
David Elija, Satellite Lab Specialist
Natty Gilber, Satellite Lab Specialist
Lynn Maori, Satellite Lab Specialist
Usman Sadisu, Satellite Lab Specialist
Obed Tibi, Satellite Lab Specialist
Muhammed Musa, Satellite Lab Specialist
Lubabaty A. Yusuf, Satellite Lab Specialist
Ayuba Haruna Mallah, Satellite Lab Specialist
Florence Ezekiel Pwana, Satellite Lab Specialist
Tima Chida Male, Satellite Lab Specialist
Christopher Rimamnyang M., Satellite Lab Specialist
Mohammed Nuhu, Satellite Lab Specialist
Sunday Liman Irmiya, Satellite Lab Specialist
Fatima Alhaji Ajiya, Satellite Lab Specialist
Zara Alkali Mustapha, Satellite Lab Specialist
Glory Didam, Satellite Lab Specialist
Mohammed Yahaya, Satellite Lab Specialist
Aminu Minjibir Ibrahim, Satellite Lab Specialist
Nasiru Tijjani Zubbairu, Satellite Lab Specialist
Mansur Aminu, Satellite Lab Specialist
Hajia Amina Ibrahim, Satellite Lab Specialist
Amos Tonak, Satellite Lab Specialist
Abubakar Babangida Usman, Satellite Lab Specialist
Ibrahim Muhammad Kamilu, Satellite Lab Specialist
Yahaya Ayuba, Satellite Lab Specialist
Mohammed Kabir, Satellite Lab Specialist
Badamasi Musa, Satellite Lab Specialist
Nasiru Magaji Sadiq, Satellite Lab Specialist
Bala Auna Isah, Satellite Lab Specialist
Ahmed Habibu Badawi, Satellite Lab Specialist
Ibrahim Muhammed Hassan, Satellite Lab Specialist
Fatima Baba Suye, Satellite Lab Specialist
Abdulrazak Dabjuma, Satellite Lab Specialist
Veronica Umoh, Satellite Lab Specialist
Kufreabasi Isaac, Satellite Lab Specialist
Idongesit Udoh, Satellite Lab Specialist
Thomas Odey Jeremiah, Satellite Lab Specialist
Thompson Ejuba, Satellite Lab Specialist
Eseoghenemaro Jarikre, Satellite Lab Specialist
Onuwa Ushiadi, Satellite Lab Specialist
Henry Ugbor, Satellite Lab Specialist
Ernest Igbinovia, Satellite Lab Specialist
Valentine Ikalumhe, Satellite Lab Specialist
Loveday Zeebdee, Satellite Lab Specialist
Brown Princewill Emmanuel, Satellite Lab Specialist
Andy-Nwokocha Mary, Satellite Lab Specialist
Goodness Omu, Satellite Lab Specialist
Kelechi Uzoma, Satellite Lab Specialist
Lorine Daniel Ogheneke, Satellite Lab Specialist
Chidera Florence Eke, Satellite Lab Specialist
Elendu Kalu Eke, Satellite Lab Specialist
Blessing Okezie, Satellite Lab Specialist
Ikelionwu John, Satellite Lab Specialist
Queenet Okeke, Satellite Lab Specialist
Thomas Mbam, Satellite Lab Specialist
Ikechukwu Ukeni, Satellite Lab Specialist
Chima P. Chima, Satellite Lab Specialist
Nkechi Umeh, Satellite Lab Specialist
Ijeoma Assumpta Onyinbo, Satellite Lab Specialist
Adaeze Ikeru, Satellite Lab Specialist
Sabastine Chigozie Nwafor, Satellite Lab Specialist
Victor Oma, Satellite Lab Specialist
Joy Agu, Satellite Lab Specialist
Ezeike Ogbu Michael, Satellite Lab Specialist
Nri-Ezedi Chukwuebuka C., Satellite Lab Specialist
Ejiofor Agbo, Satellite Lab Specialist
Are Olawaremi, Satellite Lab Specialist

Egwumah Christian, Satellite Lab Specialist
John Atizi, Satellite Lab Specialist
Grace Adachi, Satellite Lab Specialist
Regina Aluku, Satellite Lab Specialist
Princess Young, Satellite Lab Specialist
Orji Chiamaka Chisolyte, Satellite Lab Specialist
Onyinye Joe Alago, Satellite Lab Specialist
Stephen Anawo, Satellite Lab Specialist
Gabriel Bolaji, Satellite Lab Specialist
Stephen Davou, Satellite Lab Specialist
Aniobi Frances Chinelo, Satellite Lab Specialist
Elizabeth Duile, Satellite Lab Specialist
Florence Roland, Satellite Lab Specialist
Nwaiwu Chioma, Satellite Lab Specialist
Iyke Adebi, Satellite Lab Specialist
Izegbe Chukwunoso, Satellite Lab Specialist
Muyiwa Olaiya, Satellite Lab Specialist
Kelechi Uzoma Ibezim, Satellite Lab Specialist
Yinka Akinfenwa, Satellite Lab Specialist
Olusegun Ayinla Fasina, Satellite Lab Specialist
Faderera Ogunoye, Satellite Lab Specialist
Peter Olowoniyi, Satellite Lab Specialist
Oluwaseyi Bamisaye, Satellite Lab Specialist
Julius Ademoyegan, Satellite Lab Specialist
Adetunji Alao, Satellite Lab Specialist
Samuel olalere Obadire, Satellite Lab Specialist
Afeez Rasheed, Satellite Lab Specialist
Olarinde Olaide, Satellite Lab Specialist
Folake Abiodun, Satellite Lab Specialist
Oluwafemi Omokayode, Satellite Lab Specialist
Bamidele Fatade, Satellite Lab Specialist
Opeyemi Laluwoye, Satellite Lab Specialist
Opeyemi Ojo, Satellite Lab Specialist
Roseline Anerunoye, Satellite Lab Specialist
Emmanuel Olawale Ogunmola, Satellite Lab Specialist
Ojokuku Hammed, Satellite Lab Specialist
Adeyeye Adetunji Tam, Satellite Lab Specialist
Similoluwa Afolabi, Satellite Lab Specialist
Shande Thomas, Lab Focal Person
Eikojonwa Jibrin Alabila, Lab Focal Person
Enokela Moses Omene, Lab Focal Person
Ahaneku Anthony I. Osuji, Lab Focal Person
Alao Oluwasina Ezekiel, Lab Focal Person
Mrs. Mbah Nwando, Lab Focal Person
Yusuf Paul Omolori, Lab Focal Person
Iduh Jeremiah Adama, Lab Focal Person
Baba Abraham Ajoru, Lab Focal Person
Alamu Abimbola Rukayat, Lab Focal Person
Ishaq Zainab Nosu, Lab Focal Person
Loyede Bidemi Terasar, Lab Focal Person
Etosu Ogoh Stephen, Lab Focal Person
Kelechi Ibezim, Lab Focal Person
Maga Ishaya Ayuba, Lab Focal Person
Mohammed Kudu Shehu, Lab Focal Person
Major Khanu, Lab Focal Person
Aliyu Alhassan, Lab Focal Person
Rindap NimzeJohn, Lab Focal Person
Timothy Nuhu Pam, Lab Focal Person
AjalaEse, Lab Focal Person
Nayingi Kefas, Lab Focal Person
Chris Lawrence, Lab Focal Person
Pwakutti Theodore, Lab Focal Person
Denis Wayagoron, Lab Focal Person
Yusuf Abdul, Lab Focal Person
Abubakar Sarafa, Lab Focal Person
Wo Kadala Reuben/Kevin Ajayi, Lab Focal Person
Manu Abubakar Dauda, Lab Focal Person
Dibal Arhyel Wandali, Lab Focal Person
Luka Joseph, Lab Focal Person
Famoriyo Lateef, Lab Focal Person
Godwin Nwep, Lab Focal Person
UsmanAdbdulrasheed, Lab Focal Person
Stephen Funam, Lab Focal Person
Modu Aji Kolo, Lab Focal Person
Mohammed Yasidi, Lab Focal Person
Ado Mohammed Salisu, Lab Focal Person
Sulaiman Abdulkadir Saeed, Lab Focal Person
Mohammed Tukur Abubakar, Lab Focal Person
Bayei Kezaih D.J., Lab Focal Person
Sadiya H. Umar, Lab Focal Person
Haruna Abdullahi Dauda, Lab Focal Person
Samuel Onyekwere, Lab Focal Person
Iro Mamman Kkr, Lab Focal Person
Babangida Samuel, Lab Focal Person
Kabiru Haruna Yeldu, Lab Focal Person
Ene Martina Onyilo, Lab Focal Person
Nura Altine, Lab Focal Person
Sani Y. Mohammed, Lab Focal Person
Muhammad Alto Abubakar, Lab Focal Person
Usman Aliyu Turaki, Lab Focal Person
Sulaiman Ahmad, Lab Focal Person
Aminu Shehu, Lab Focal Person
Frederick Okosun, Lab Focal Person
Yarima Aliyu Ibrahim, Lab Focal Person
David Chioma Blessing, Lab Focal Person
Ulu Okechukwu, Lab Focal Person
Onyekonwu Vivian, Lab Focal Person
Chioma Opara, Lab Focal Person
Elder Dr. Dan Onyia, Lab Focal Person
Idam Frederick, Lab Focal Person
Onwuka Kalu Chima, Lab Focal Person
Emmanuel Ngwu, Lab Focal Person
Ohanaka Juliana Chinyere, Lab Focal Person
Nsonwu Cajetan Chibuike, Lab Focal Person
Mr. Ederi Aginaye Solomon, Lab Focal Person
Mrs. Ebasi Nneka Nwokorie, Lab Focal Person
Mr. Amang Richard, Lab Focal Person
Mr. Wilson Omang, Lab Focal Person
Ogban Ibor Eni, Lab Focal Person
Ukwamedua Henry, Lab Focal Person
Nze Ikechukwu Francis, Lab Focal Person
Mr. Francis Omuera, Lab Focal Person
Mrs. Evelyn Okorie, Lab Focal Person
John-Wuzuigwe Roseline, Lab Focal Person
Mr. John Alwell, Lab Focal Person
Dr. Friday Ido, Lab Focal Person
Mrs. UmohBenedict Christiana, Lab Focal Person
Mrs. Tolu Fafure Benson, Lab Focal Person
Idowu Adenike Adebimpe, Lab Focal Person
Yusuf Rafiu Adekunle, Lab Focal Person

Peter Mauton, Lab Focal Person
Ibikunle Margaret Olufemi, Lab Focal Person
Mrs. Oke A.O., Lab Focal Person
Akintaju Felix, Lab Focal Person
Mrs. Adesola Alawode, Lab Focal Person
Mrs. Ogunbiyi M.A., Lab Focal Person
Mr. Ajayi Olalekan, Lab Focal Person
Mr. Esan Olubunmi E., Lab Focal Person
Mrs. Kolawole Lydia Iyabo, Lab Focal Person
Mrs. Onayade Temitope, Lab Focal Person
Mr. Niyi Raheem, Lab Focal Person
Mr. Adetona Atiba, Lab Focal Person
Major Abidoye Yetunde, Lab Focal Person

APPENDIX E HOUSEHOLD QUESTIONNAIRE

NIGERIA AIDS INDICATOR AND IMPACT SURVEY (NAIIS)
HOUSEHOLD QUESTIONNAIRE

IDENTIFICATION (1)

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

ENUMERATION AREA . . . . . | | | | |

HOUSEHOLD NUMBER . . . . . | | | | |

PEDIATRIC HOUSEHOLD (1=YES, 2=NO) . . . . . |_|

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY
				MONTH
				YEAR
INTERVIEWER NAME	_____	_____	_____	INT. NUMBER
RESULT*	_____	_____	_____	RESULT
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS
TIME	_____	_____		

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

TOTAL ELIGIBLE MEN (ADULTS AND MATURE MINORS) |_|_|

TOTAL ELIGIBLE WOMEN (ADULTS AND MATURE MINORS) |_|_|

TOTAL ELIGIBLE CHILDREN (6 TO 14 YEARS) |_|_|

TOTAL CHILDREN (0 MONTHS TO 5 YEARS) |_|_|

NAME AND ID OF SUPERVISOR

NAME _____ |_|_|_|_|

MODULE 0: HEAD OF HOUSEHOLD ELIGIBILITY

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
H1A	IS [NAME] AGED 18 YEARS OR OLDER? HOUSEHOLD HEAD MUST BE 18 YEARS OF OLDER, OR MUST BE AN EMANCIPATED MINOR AGE 15-17 YEARS.	YES . . . . . 1 NO 2	→ H2
H1B	IS [NAME] AGED 15 YEARS OR OLDER?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
H1C	IS [NAME] AN EMANCIPATED MINOR? AN EMANCIPATED MINOR IS 15-17 YEARS OF AGE WHO IS MARRIED, OR PREGNANT, OR A PARENT, OR HEAD OF THE HOUSEHOLD.	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
H2	DOES [NAME] HAVE A HEARING DISABILITY? OBSERVE IF THE PARTICIPANT HAS DIFFICULTY ENGAGING IN CONVERSATIONS.	YES . . . . . 1 NO 2	→ H4
H3	CAN THE SURVEY TEAM ACCOMMODATE HEARING DISABILITY OF [NAME]?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
H4	CAN SURVEY BE CONDUCTED IN A LANGUAGE [NAME] SPEAKS?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
H5	DOES [NAME] HAVE A VISUAL IMPAIRMENT?	YES . . . . . 1 NO 2	→ H8
H6	ASK [NAME] TO READ THE TEXT BELOW. Purpose of Survey: This survey will help us know how many people in Nigeria are at risk for getting HIV, have HIV and need health services. Your taking part will help the Federal Ministry of Health make health services better in Nigeria.		
H7	WAS [NAME] ABLE TO READ THE TEXT WITHOUT MUCH PROBLEM?	YES . . . . . 1 NO 2	→ H9
H8	IS [NAME] ABLE TO IDENTIFY A WITNESS?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
H9	IS [NAME] COGNITIVELY ABLE TO CONSENT? DOES THE RESPONDENT UNDERSTAND THE TEXT HE/SHE HAS READ?	YES . . . . . 1 NO 2	→ H10 INELIGIBLE →END INT.
H10	PROCEED TO ASK THE INFORMED CONSENT FOR THE HOUSEHOLD SURVEY.		

HOUSEHOLD SCHEDULE

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	IF AGE 0-17 YEARS: MATURE MINOR STATUS, IF AGE IS 15-17 YEARS	IF AGE 0-17 YEARS: ORPHAN STATUS/PARENT OR GUARDIAN								IF AGE 0-14 YEARS	FOR ALL HOUSE-HOLD MEMBERS	IF RESPONDENT IS MALE AND 18 YEARS OR OLDER, OR MATURE MINOR (SEE COLUMN 7): WIVES AND CO-HABITATING PARTNERS				
1	2	3	4	5	6	7	9	10	10a	11	11a	12	12a	13	13a	14	15	16	16a	16b	16c	16d
	Please give me the first names of the persons who usually live in your household or guests of the household who stayed here last night, starting with the head of the household. A person who usually lives in your household is someone who regularly consumes or contributes to food and other shared household resources. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QS. 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-16D FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? CIRCLE '1' FOR AGE IN YEARS; IF AGE 95 OR MORE, RECORD '95' CIRCLE '2' FOR MONTHS IF AGE IS LESS THAN ONE YEAR 1 = YEAR 2 = MONTH	Is (NAME) a mature minor? A MATURE MINOR IS A PERSON 15-17 YEARS OF AGE WHO IS MARRIED, PREGNANT OR HAS CHILDREN, OR IS NO LONGER UNDER THE CARE OF A PARENT/ GUARDIAN	Is (NAME)'s natural mother alive?	Does (NAME)'s natural mother usually live in this household or was she a guest last night? IF YES: RECORD MOTHER'S LINE NUMBER, **SKIP TO 12**. IF NO: RECORD '00' IF NATURAL MOTHER NOT PRESENT IN HOUSEHOLD	Does (NAME) have a female guardian?	Does (NAME)'s female guardian usually live in this household or was she a guest last night? IF YES: RECORD FEMALE GUARDIAN'S LINE NUMBER. IF NO: RECORD '00' IF FEMALE GUARDIAN NOT PRESENT IN HOUSEHOLD	Is (NAME)'s natural father alive?	Does (NAME)'s natural father usually live in this household or was he a guest last night? IF YES: RECORD FATHER'S LINE NUMBER, **SKIP TO 14**. IF NO: RECORD '00' IF NATURAL FATHER NOT PRESENT IN HOUSEHOLD	Does (NAME) have a male guardian?	Does (NAME)'s male guardian usually live in this household or was he a guest last night? IF YES: RECORD MALE GUARDIAN'S LINE NUMBER. IF NO: RECORD '00' IF MALE GUARDIAN NOT PRESENT IN HOUSEHOLD	RECORD LINE NUMBER OF PARENT/ GUARDIAN WHO WILL FILL OUT CHILDREN'S MODULE FOR (NAME)	CHECK IF (NAME) ELIGIBLE FOR SURVEY?	Does (NAME) have a wife or co-habiting partner who usually lives in this household or was a guest last night? IF NO, GO TO NEXT MEMBER (9)	Please give me the name of (NAME)'s wife/partner. RECORD LINE NUMBER OF (NAME)'S WIFE OR PARTNER 1.	Does (NAME) have any other wife or co-habiting partner who usually lives in this household or was a guest last night? IF YES, RECORD LINE NUMBER OF (NAME)'S WIFE/ PARTNER 2. IF NO, SKIP TO NEXT 9.	Does (NAME) have any other wife or co-habiting partner who usually lives in this household or was a guest last night? IF YES, RECORD LINE NUMBER OF (NAME)'S WIFE/ PARTNER 3. IF NO, SKIP TO NEXT 9.	Does (NAME) have any other wife or co-habiting partner who usually lives in this household or was a guest last night? IF YES, RECORD LINE NUMBER OF (NAME)'S WIFE/ PARTNER 3. IF NO, SKIP TO NEXT 9.
01			M F 1 2	Y N 1 2	Y N 1 2	1 2	Y N DK 1 2 3	Y N DK 1 2 → 8 GO TO 11		Y N DK 1 2 → 8 GO TO 12		Y N DK 1 2 → 8 GO TO 13		Y N DK 1 2 → 8 GO TO 14			Y N 1 2	Y N DK 1 2 → 8 GO TO NEXT				
02			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
03			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
04			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
05			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
06			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
07			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
08			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
09			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				
10			1 2	1 2	1 2	1 2	1 2 3	1 2 → 8 GO TO 11		1 2 → 8 GO TO 12		1 2 → 8 GO TO 13		1 2 → 8 GO TO 14			1 2	1 2 → 8 GO TO NEXT				

2A) Just to make sure that I have a complete listing: are there any other persons such as small children or infants that we have not listed? YES → ADD TO TABLE NO

2B) Are there any other people who may not be members of your family, such as domestic servants, lodgers, or friends who usually live here? YES → ADD TO TABLE NO

2C) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night, who have not been listed? YES → ADD TO TABLE NO

CODES FOR Q. 3: RELATIONSHIP TO HEAD OF HOUSEHOLD

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

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	IF AGE 0-17 YEARS									IF AGE 0-14 YEARS	FOR ALL HOUSE-HOLD MEMBERS	IF RESPONDENT IS MALE AND 18 YEARS OR OLDER, OR MATURE MINOR (SEE COLUMN 7)				
							MATURE MINOR STATUS, IF AGE IS 15-17 YEARS	ORPHAN STATUS/PARENT OR GUARDIAN										WIVES AND CO-HABITATING PARTNERS				
1	2	3	4	5	6	7	9	10	10a	11	11a	12	12a	13	13a	14	15	16	16a	16b	16c	16d
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11			M F 1 2	Y N 1 2	Y N 1 2	1 2	Y N DK 1 2 3	Y N DK 1 2 8 GO TO 11		Y N DK 1 2 8 GO TO 12		Y N DK 1 2 8 GO TO 13		Y N DK 1 2 8 GO TO 14			Y N 1 2	1 2 8 GO TO NEXT				
12			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
13			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
14			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
15			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
16			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
17			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
18			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
19			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				
20			1 2	1 2	1 2	1 2	1 2 3	1 2 8 GO TO 11		1 2 8 GO TO 12		1 2 8 GO TO 13		1 2 8 GO TO 14			1 2	1 2 8 GO TO NEXT				

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13 = ADOPTED OR FOSTER OR STEPCHILD
14 = NOT RELATED
98 = DON'T KNOW

HOUSEHOLD CHARACTERISTICS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	What is the **main** source of drinking water for members of your household?	**PIPED WATER** PIPED INTO DWELLING . . . . . 11 PIPED TO YARD/PLOT . . . . . 12 PUBLIC TAP/STANDPIPE . . . . . 13 PIPED TO NEIGHBOR . . . . . 14 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/JERRY CAN/CARTLESS VENDOR . . . . . 71 SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/ IRRIGATION CHANNEL) . . . . . 81 BOTTLED WATER/DISPENSER WATER 91 SACHET (PURE) WATER . . . . . 92 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ 101B
101A	Where is the water source located?	IN OWN DWELLING . . . . . 1 IN OWN YARD/PLOT . . . . . 2 ELSEWHERE . . . . . 3 DON'T KNOW . . . . . 8 REFUSED 9	
101B	Do you do anything to the water to make it safer to drink?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 103
102	What do you usually do to make the water safer to drink? Anything else? RECORD ALL MENTIONED	BOIL . . . . . A USE WATER FILTER (CERAMIC/ SAND/COMPOSITE/ETC) . . . . . B SEDIMENTATION (LET IT STAND AND SETTLE) . . . . . C DISINFECTION (WATERGUARD, BLEACH, CHLORINE . . . . . D STRAIN THROUGH A CLOTH . . . . . E ALUM . . . . . F SOLAR DISINFECTION . . . . . G OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
103	What kind of toilet facility do members of your household usually use?	**FLUSH OR POUR FLUSH TOILET** FLUSH TO PIPED SEWER SYSTEM 11 FLUSH TO SEPTIC TANK . . . . . 12 FLUSH TO PIT LATRINE . . . . . 13 FLUSH TO SOMEWHERE ELSE . . . 14 FLUSH, DON'T KNOW WHERE . . . . . 15 **PIT LATRINE** VENTILATED IMPROVED PIT LATRINE (VIP) . . . . . 21 PIT LATRINE WITH SLAB . . . . . 22 PIT LATRINE WITHOUT SLAB/ OPEN PIT . . . . . 23 COMPOSTING TOILET . . . . . 31 BUCKET TOILET . . . . . 41 HANGING TOILET/HANGING LATRINE .. 51 NO FACILITY/BUSH/FIELD . . . . . 61 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ 105
104	Do you share this toilet facility with other households?	YES . . . . . 1 NO . . . . . 2 OTHER _____ 6 (SPECIFY) DON'T KNOW . . . . . 8 REFUSED 9	→ 104B
104A	Including your own household, how many households use this toilet facility?	NO. OF HOUSEHOLDS IF LESS THAN 10 [ ][ ] 10 OR MORE HOUSEHOLDS . . . . . 95 DON'T KNOW . . . . . 98 REFUSED 99	
104B	Where is this toilet facility located?	IN OWN DWELLING . . . . . 1 IN OWN YARD/PLOT . . . . . 2 ELSEWHERE 3	
105	Does your housheold have: a) Electricity? b) A connection to the national grid? c) A solar power or inverter? d) A radio? e) A television? f) A non-mobile telephone? g) A computer? h) A refrigerator? i) A table? j) A chair? k) A bed? l) A sofa? m) A cupboard? n) An air conditioner? o) An electric iron? p) A generator? q) A fan?	Y N DK R a) ELECTRICITY . . . . . 1 2 8 9 b) NATIONAL GRID . . . . . 1 2 8 9 c) SOLAR OR INVERTER 1 2 8 9 d) RADIO . . . . . 1 2 8 9 e) TELEVISION . . . . . 1 2 8 9 f) NON-MOBILE PHONE 1 2 8 9 g) COMPUTER . . . . . 1 2 8 9 h) REFRIGERATOR . . . . . 1 2 8 9 i) TABLE . . . . . 1 2 8 9 j) CHAIR . . . . . 1 2 8 9 k) BED . . . . . 1 2 8 9 l) SOFA . . . . . 1 2 8 9 m) CUPBOARD . . . . . 1 2 8 9 n) AIR CONDITIONER . . . 1 2 8 9 o) ELECTRIC IRON . . . . . 1 2 8 9 p) GENERATOR . . . . . 1 2 8 9 q) FAN 1 2 8 9	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
106	What type of fuel does your household **mainly** use for cooking?	ELECTRICITY . . . . . 01 LIQUID PROPANE GAS . . . . . 02 NATURAL GAS . . . . . 03 BIOGAS . . . . . 04 PARAFFIN/KEROSENE . . . . . 05 COAL, LIGNITE . . . . . 06 CHARCOAL FROM WOOD . . . . . 07 FIREWOOD . . . . . 08 STRAW/SHRUBS/GRASS . . . . . 09 ANIMAL DUNG . . . . . 10 NO FOOD COOKED IN THE HOUSEHOLD . . . . . 95 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	
	FOR QUESTIONS 107-109, OBSERVE, DO NOT ASK.		
107	MAIN MATERIAL OF THE FLOOR. RECORD OBSERVATION.	**NATURAL FLOOR** EARTH/SAND . . . . . 11 DUNG . . . . . 12 **RUDIMENTARY FLOOR** WOOD PLANKS . . . . . 21 BAMBOO SLATS . . . . . 22 **FINISHED FLOOR** PARQUET OR POLISHED WOOD . . . 31 VINYL OR ASPHALT STRIPS . . . . . 32 CERAMIC TILES . . . . . 33 CEMENT . . . . . 34 CARPET/RUG . . . . . 35 TERAZZO . . . . . 36 OTHER _____ 96 (SPECIFY)	
108	MAIN MATERIAL OF THE ROOF. RECORD OBSERVATION.	NO ROOF . . . . . 11 **NATURAL ROOFING** THATCH/PALM LEAF(CIYAWA) . . . . 12 MUD . . . . . 13 **RUDIMENTARY ROOFING** WOOD PLANKS . . . . . 21 CARDBOARD . . . . . 22 **FINISHED ROOFING** METAL/ZINC . . . . . 32 WOOD . . . . . 33 CALAMINE/CEMENT FIBER . . . . . 34 CERAMIC TILES . . . . . 35 CEMENT/CONCRETE . . . . . 36 ROOFING SHINGLES . . . . . 37 OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
109	MAIN MATERIAL OF THE EXTERIOR WALLS. RECORD OBSERVATION.	NO WALLS . . . . . 11 **NATURAL WALLS** DIRT . . . . . 12 CANE/PALM/TREE TRUNKS . . . . . 13 BAMBOO WITH MUD . . . . . 14 STONE WITH MUD . . . . . 15 MUD . . . . . 16 **RUDIMENTARY WALLS** CARDBOARD . . . . . 21 REUSED WOOD . . . . . 22 PLYWOOD . . . . . 23 UNBAKED BRICKS . . . . . 24 CARTON . . . . . 25 **FINISHED WALLS** WOOD PLANKS/SHINGLES . . . . . 31 UNBAKED BRICKS COVERED . . . . . 32 WITH PLASTER . . . . . 33 BRICKS . . . . . 34 CEMENT BLOCKS . . . . . 35 CEMENT . . . . . 36 STONE WITH LIME/CEMENT . . . . . 37 OTHER _____ 96 (SPECIFY)	
110	How many rooms in this household are used for sleeping?	ROOMS . . . . . [ ][ ] DON'T KNOW . . . . . 98 REFUSED 99	
111	Is the cooking usually done in the house, in a separate building, or outdoors?	IN THE HOUSE . . . . . 1 IN A SEPARATE BUILDING . . . . . 2 OUTDOORS . . . . . 3 OTHER _____ 6 (SPECIFY)	→ 113
112	Do you have a separate room which is used as a kitchen?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
113	Does any member of this housheold own: a) A watch? b) A mobile phone? c) A bicycle? d) A motorcycle or motor scooter? e) An animal-drawn cart? f) A car or truck? g) A boat with a motor? h) A canoe? i) A Keke Napep?	Y N DK R a) WATCH . . . . . 1 2 8 9 b) MOBILE PHONE . . . . . 1 2 8 9 c) BICYCLE . . . . . 1 2 8 9 d) M-CYCLE/SCOOTER 1 2 8 9 e) ANIMAL-DRAWN CART 1 2 8 9 f) CAR/TRUCK . . . . . 1 2 8 9 g) BOAT WITH MOTOR . 1 2 8 9 h) CANOE . . . . . 1 2 8 9 i) KEKE - NAPEP 1 2 8 9	
114	Does any member of this household have a bank account?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
115	Does this household own any livestock, herds, other farm animals, camels, or poultry?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 117

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
116	How many of the following animals does this household own? IF NONE, RECORD '00'. IF 95 OR MORE, RECORD '95'. IF UNKNOWN, RECORD '98'.		
	a) Milk cows or bulls?	a) COWS/BULLS	
	b) Other cattle?	b) OTHER CATTLE	
	c) Horses, donkeys, or mules?	c) HORSES/DONKEYS/MULES	
	d) Goats?	d) GOATS	
	e) Sheep?	e) SHEEP	
	f) Chicken or other poultry such as ducks?	f) CHICKENS/POULTRY	
	g) Pigs?	g) PIGS	
	h) Camels?	h) CAMELS	
	i) Dogs?	i) DOGS	
	j) Other? SPECIFY: _____	j) OTHER	
117	Does any member of this household own any agricultural land?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 119
118	How many plot/acres/hectares of agricultural land do members of this household own?	PLOT . . . . . 1 ☐☐.☐ ACRES . . . . . 2 ☐☐.☐ HECTARES . . . . . 3 ☐☐.☐ 95 OR MORE UNITS . . . . . 9995 DON'T KNOW . . . . . 9998 REFUSED 9999	
119	Does your household have any mosquito nets that can be used while sleeping?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
120	How many mosquito nets does your household have? ASK TO OBSERVE ALL NETS. COUNT AND RECORD NUMBER.	NUMBER OF NETS ☐ IF MORE THAN 7, RECORD 7.	

APPENDIX F ADULT QUESTIONNAIRE

MODULE 0: ADULT RESPONDENT ELIGIBILITY

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
M1A	IS [NAME] AGED 18 YEARS OR OLDER? ADULT REPSONDENT MUST BE 18 YEARS OF OLDER, OR MUST BE AN EMANCIPATED MINOR AGE 15-17 YEARS.	YES . . . . . 1 NO 2	→ M2
M1B	IS [NAME] AGED 15 YEARS OR OLDER?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
M1C	IS [NAME] AN EMANCIPATED MINOR? AN EMANCIPATED MINOR IS 15-17 YEARS OF AGE WHO IS MARRIED, OR PREGNANT, OR A PARENT, OR HEAD OF THE HOUSEHOLD.	YES . . . . . 1 NO 2	→PARENT ELIGIBILITY /CONSENT.
M2	DOES [NAME] HAVE A HEARING DISABILITY? OBSERVE IF THE PARTICIPANT HAS DIFFICULTY ENGAGING IN CONVERSATIONS.	YES . . . . . 1 NO 2	→ M4
M3	CAN THE SURVEY TEAM ACCOMMODATE HEARING DISABILITY OF [NAME]?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
M4	CAN SURVEY BE CONDUCTED IN A LANGUAGE [NAME] SPEAKS?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
M5	DOES [NAME] HAVE A VISUAL IMPAIRMENT?	YES . . . . . 1 NO 2	→ M8
M6	ASK [NAME] TO READ THE TEXT BELOW. Purpose of Survey: This survey will help us know how many people in Nigeria are at risk for getting HIV, have HIV and need health services. Your taking part will help the Federal Ministry of Health make health services better in Nigeria.		
M7	WAS [NAME] ABLE TO READ THE TEXT WITHOUT MUCH PROBLEM?	YES . . . . . 1 NO 2	→ M9
M8	IS [NAME] ABLE TO IDENTIFY A WITNESS?	YES . . . . . 1 NO 2	INELIGIBLE →END INT.
M9	IS [NAME] COGNITIVELY ABLE TO CONSENT? DOES THE RESPONDENT UNDERSTAND THE TEXT HE/SHE HAS READ?	YES . . . . . 1 NO 2	→ M10 INELIGIBLE →END INT.
M10	PROCEED TO ASK THE INFORMED CONSENT FOR THE ADULT QUESTIONNAIRE.		

MODULE 1: RESPONDENT CONSENT AND BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
100A	ENTER LINE NUMBER OF THE RESPONDENT FROM THE HOUSEHOLD SCHEDULE:	☐☐	
100B	ENTER NAME OF RESPONDENT: _____ (RESPONDENT'S NAME)		
C1	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES . . . . . 1 NO 2	→ END INTERVIEW
L1	ENTER LANGUAGE OF THE QUESTIONNAIRE	ENGLISH . . . . . 1 HAUSA . . . . . 2 YORUBA . . . . . 3 IGBO 4	
L2	ENTER LANGUAGE OF THE INTERVIEW	ENGLISH . . . . . 1 HAUSA . . . . . 2 YORUBA . . . . . 3 IGBO . . . . . 4 OTHER _____ 6 (SPECIFY)	
L3	ENTER NATIVE LANGUAGE OF THE RESPONDENT	ENGLISH . . . . . 1 HAUSA . . . . . 2 YORUBA . . . . . 3 IGBO . . . . . 4 OTHER _____ 6 (SPECIFY)	
L4	WAS A TRANSLATOR USED?	YES . . . . . 1 NO 2	
100	Thank you for agreeing to participate in this survey. Now, I would like to ask you some general questions about yourself, your education, and work.		
101	CHECK: IS RESPONDENT MALE OR FEMALE?	MALE . . . . . 1 FEMALE 2	
102	How old were you on your last birthday?	AGE IN COMPLETED YEARS . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	
103	What is your religion?	ISLAM . . . . . 1 CHRISTIANITY . . . . . 2 TRADITIONAL . . . . . 3 NO RELIGION . . . . . 4 OTHER _____ 6 (SPECIFY) DON'T KNOW . . . . . 8 REFUSED 9	
104	Have you ever attended school?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 108
105	Are you currently enrolled in school?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
106	What is the highest level of school you have attended? Is it primary, secondary or higher?	PRIMARY . . . . . 01 JUNIOR SECONDARY . . . . . 02 SECONDARY . . . . . 03 A-LEVEL . . . . . 04 UNIVERSITY OR ABOVE . . . . . 05 TECHNICAL OR VOCATIONAL . . . . . 06 ADULT LITERACY ONLY (NO FORMAL EDUCATION) . . . . . 07 KORANIC/RELIGIOUS ONLY (NO FORMAL EDUCATION) . . . . . 08 DON'T KNOW . . . . . 98 REFUSED 99	
107	What is the highest [CLASS/YEAR] you completed at that level?	NONE . . . . . 00 YEARS . . . . . [ ][ ] DON'T KNOW . . . . . 98 REFUSED 99	
108	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	→ END MODULE
109	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	

MODULE 2: MARRIAGE

200 Now I would like to ask you about your current and previous relationships and/or marriages.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Have you ever been married or lived together with a [man/woman] as if married?	YES . . . . . 01 NO . . . . . 02 DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
202	How old were you the first time you married or started living with a [man/woman] as if married?	YEARS . . . . . ☐☐ AGE AT MARRIAGE OR FIRST TIME LIVED TOGETHER . . . . . 95 DON'T KNOW . . . . . 98 REFUSED 99	
203	What is your marital status now? Are you married, living together with someone as if married, widowed, divorced, or separated?	MARRIED . . . . . 1 LIVING TOGETHER . . . . . 2 WIDOWED . . . . . 3 DIVORCED . . . . . 4 SEPARATED . . . . . 5 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
203A	CHECK: IS RESPONDENT MALE OR FEMALE?	MALE . . . . . 1 FEMALE 2	→ 212
204	Altogether, how many wives or live-in partners do you have?	NUMBER . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
205	CHECK 16a-16d: IF NO WIVES/PARTNERS RECORDED, SKIP TO 208. The household information shows that you have [NUMBER] household members as your wives or partners. VERIFY AND READ THE NAMES OF WIVES AND PARTNERS LISTED IN THE HOUSEHOLD SCHEDULE.		

205a	CHECK 16a-16d. RECORD NAMES OF WIVES AND PARTNERS FROM HOUSEHOLD.	_____ (NAME)	_____ (NAME)	_____ (NAME)	_____ (NAME)
206	Is [NAME] your wife or partner?	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
207	Does [NAME] live in the household?	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2	YES . . . . . 1 NO . . . . . 2 → 208
207a	DOES THE RESPONDENT HAVE ANOTHER WIFE OR PARTNER?	YES . . . . . 1 → GO TO NEXT WIFE/PARTNER (205a) NO . . . . . 2 → 208	YES . . . . . 1 → GO TO NEXT WIFE/PARTNER (205a) NO . . . . . 2 → 208	YES . . . . . 1 → GO TO NEXT WIFE/PARTNER (205a) NO . . . . . 2 → 208	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
208	Do you have additional spouse(s) or partner(s) that live with you?	YES . . . . . 1 NO 2	→ 211
209	How many additional spouse(s) or partners(s) live with you?	NUMBER	
210	ENTER THE NAME OF [RESPONDENT'S] SPOUSE OR PARTNER THAT LIVE IN HOUSEHOLD.	_____ (NAME) DON'T KNOW . . 8 REFUSED 9	
		_____ (NAME) DON'T KNOW . . 8 REFUSED 9	
		_____ (NAME) DON'T KNOW . . 8 REFUSED 9	
		_____ (NAME) DON'T KNOW . . 8 REFUSED 9	
211	How many other wives or live-in partners do you have who live elsewhere?	NUMBER OF ADDITIONAL SPOUSES OR PARTNERS . . . . DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
211A	CHECK: IS RESPONDENT MALE OR FEMALE?	MALE . . . . . 1 FEMALE 2	→ END MODULE
212	Is your husband or partner living with you now or is he staying elsewhere?	LIVING TOGETHER . . . . . 1 STAYING ELSEWHERE . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 216
212A	CHECK Q.212: IS THE RESPODENT STAYING ELSEWHERE (CODED '2') AND THERE IS NO PARTNER LISTED IN THE HOUSEHOLD ROSTER		→ 216
213	The household information shows that [NAME OF HUSBAND OR PARTNER] as your [husband or partner] who lives with you in this household. Is that correct?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 216 → 216
214	FROM THE HOUSEHOLD SCHEDULE SELECT THE SPOUSE OR PARTNER THAT LIVES WITH THE RESPONDENT	_____ (NAME OF SPOUSE OR PARTNER) NOT LISTED IN THE HOUSEHOLD 00	→ 216
215	Please tell me the name of your spouse/partner that lives with you?	_____ (NAME OF SPOUSE OR PARTNER) DON'T KNOW . . . . . 8 REFUSED 9	
216	Does your husband or partner have other wives or does he live with other women as if married?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
217	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 . . . . . 98 REFUSED 99	

MODULE 3: REPRODUCTION

300 Now I would like to ask you some questions about pregnancies and children.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
300A	CHECK: IS RESPONDENT MALE OR FEMALE?	MALE . . . . . 1 FEMALE 2	→ 335A
301	How many times have you been pregnant including a current pregnancy?	NUMBER OF TIMES . . . . . ☐☐ NEVER . . . . . 00 DON'T KNOW . . . . . 98 REFUSED 99	→ 335A 334
302	Have you ever had a pregnancy that resulted in a live birth? A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	334
303	How many live births have you had since the 1st of January 2015? ENTER '00' IF NONE.	NONE . . . . . 00 NUMBER OF CHILDREN . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	→ 334
303a	Now I would like to ask you some questions about the last pregnancy that resulted in a live birth since the 1st of January, 2015.		
304	Did your last pregnancy result in birth to twins or more?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	306

NO.	QUESTIONS AND FILTERS			
305	What is the name of the [INSERT ORDER OF BIRTH] born 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 WAS NOT NAMED BEFORE DEATH, ENTER 'BIRTH 1'.	_____ (NAME)	_____ (NAME)	_____ (NAME)
305a	DID THE RESPONDENT HAVE ANOTHER CHILD BORN FROM THE LAST PREGNANCY?	YES . . . . . 1 → GO TO THE NEXT CHILD NO . . . . . 2 → 306	YES . . . . . 1 → GO TO THE NEXT CHILD NO . . . . . 2 → 306	YES . . . . . 1 → GO TO THE NEXT CHILD NO . . . . . 2 → 306

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
306	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 WAS NOT NAMED BEFORE DEATH, ENTER 'BIRTH 1'.	_____ (NAME OF CHILD)	
307	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	→ 308A → 318
308	What is the main reason you did not visit a clinic for antenatal care when you were pregnant with [NAME]?	CLINIC WAS TOO FAR AWAY . . . . . 01 COULD NOT TAKE TIME OFF WORK/TOO BUSY . . . . . 02 COULD NOT AFFORD TO PAY FOR THE VISIT . . . . . 03 DID NOT TRUST THE CLINIC STAFF . . . 04 RECEIVED CARE AT HOME . . . . . 05 DID NOT WANT AN HIV TEST DONE . . . 06 HUSBAND/FAMILY WOULD NOT LET ME GO . . . . . 07 USED TRADITIONAL BIRTH ATTENDANT/HEALER . . . . . 08 COST OF TRANSPORT . . . . . 09 RELIGIOUS REASONS . . . . . 10 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ 318
308a	Now, I will ask you some questions about HIV testing. Please remember that your responses will be kept confidential and will not be shared with anyone else.		
309	Were you ever tested for HIV before your pregnancy with [NAME]?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 312
310	Did you test positive for HIV before your pregnancy with [NAME]?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 312
311	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	→ 318 → 316
312	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	
313	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	→ 315 → 318

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
314	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) 6 DON'T KNOW . . . . . 8 REFUSED 9	→ 318
315	What was the result of your last HIV test during your pregnancy with [NAME]?	POSITIVE . . . . . 1 NEGATIVE . . . . . 2 UNKNOWN/INDETERMINANTE . . . . . 3 DID NOT RECEIVE RESULTS . . . . . 4 DON'T KNOW . . . . . 8 REFUSED 9	→ 318
316	Did you take ARVs during your pregnancy with [NAME] to stop [NAME] from getting HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 318 → 318
317	What was the main reason you did not take ARVs while you were pregnant with [NAME]?	NOT PRESCRIBED . . . . . 01 FELT HEALTHY/NOT SICK . . . . . 02 COST OF MEDICATIONS . . . . . 03 COST OF TRANSPORT . . . . . 04 RELIGIOUS REASONS . . . . . 05 TAKING TRADITIONAL MEDICATIONS . . 06 DID NOT WANT PEOPLE TO KNOW HIV STATUS . . . . . 07 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY . . . . . 08 OTHER _____ (SPECIFY) 96 DON'T KNOW . . . . . 98 REFUSED 99	
318	Where did you give birth to [NAME]?	AT HOME . . . . . 1 AT A HEALTH FACILITY . . . . . 2 IN TRANSIT . . . . . 3 OTHER _____ (SPECIFY) 6 DON'T KNOW . . . . . 8 REFUSED 9	→ 325 → 325
319	Were you offered an HIV test during labor (at time of delivery)?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
320a	CHECK 310: WAS RESPONDENT HIV POSITIVE BEFORE PREGNANCY WITH [NAME]?	YES . . . . . 1 NO 2	→ 322
320b	CHECK 315: DID RESPONDENT GET A POSITIVE TEST RESULT DURING PREGNANCY WITH [NAME]?	YES . . . . . 1 NO 2	→ 322
320	Were you tested for HIV during labor?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 325
321	What was the result of the HIV test?	POSITIVE . . . . . 1 NEGATIVE . . . . . 2 UNKNOWN/INDETERMINANT . . . . . 3 DID NOT RECEIVE RESULTS . . . . . 4 DON'T KNOW . . . . . 8 REFUSED 9	→ 325
322a	CHECK 311: WAS RESPONDENT ON ARVS AT TIME OF FIRST ANTENATAL CARE VISIT WHEN PREGNANT WITH [NAME]?	YES . . . . . 1 NO 2	→ 325
322b	CHECK 316: DID RESPONDENT TAKE ARVS DURING PREGNANCY WITH [NAME]?	YES . . . . . 1 NO 2	→ 325
322	During labor, were you offered ARVs to protect [NAME] against HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
323	During labor, did you take ARVs to protect [NAME] against HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 325
324	Did you continue to take the ARVs after delivery?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
325	When did you give birth to [NAME]? IF THE RESPONDENT DOES NOT KNOW, PROBE USING LOCAL EVENT CALENDAR	DAY . . . . . [ ][ ] DON'T KNOW DAY . . . . . 98 REFUSED . . . . . 99 MONTH . . . . . [ ][ ] DON'T KNOW MONTH . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . [ ][ ][ ][ ] DON'T KNOW YEAR . . . . . 9998 REFUSED 9999	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES			SKIP
326	Is [NAME] still alive?	YES . . . . . 1 (SKIP TO 329) NO . . . . . 2 DON'T KNOW . . . 8 REFUSED . . . . . 9 (SKIP TO 329)	YES . . . . . 1 (SKIP TO 329) NO . . . . . 2 DON'T KNOW . . . 8 REFUSED . . . . . 9 (SKIP TO 329)	YES . . . . . 1 (SKIP TO 329) NO . . . . . 2 DON'T KNOW . . . 8 REFUSED . . . . . 9 (SKIP TO 329)	
327	How old was [NAME] in years when he/she died? ENTER '00' IF CHILD WAS LESS THAN ONE YEAR OLD.	LESS THAN 1 YR 00 AGE IN YEARS ☐☐ DON'T KNOW .. 98 REFUSED . . . 99 (SKIP TO 331)	LESS THAN 1 YR 00 AGE IN YEARS ☐☐ DON'T KNOW .. 98 REFUSED . . . 99 (SKIP TO 331)	LESS THAN 1 YR 00 AGE IN YEARS ☐☐ DON'T KNOW . . 98 REFUSED . . . 99 (SKIP TO 331)	
328	How old was [NAME] in months when he/she died? ENTER '00' IF CHILD WAS LESS THAN ONE MONTH OLD.	LESS THAN 1 MO. 00 AGE IN MONTHS ☐☐ DON'T KNOW .. 98 REFUSED . . . 99 (SKIP TO 331)	LESS THAN 1 MO. 00 AGE IN MONTHS ☐☐ DON'T KNOW .. 98 REFUSED . . . 99 (SKIP TO 331)	LESS THAN 1 MO... 00 AGE IN MONTHS ☐☐ DON'T KNOW . . 98 REFUSED . . . 99 (SKIP TO 331)	
329	Is [NAME] living with you?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . 8 REFUSED 9	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . 8 REFUSED 9	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . 8 REFUSED 9	
330	ENTER THE LINE NUMBER AND NAME OF CHILD FROM THE HOUSEHOLD SCHEDULE	_____ (NAME) LINE NO. . ☐☐ NOT LISTED IN HOUSEHOLD 96	_____ (NAME) LINE NO. . ☐☐ NOT LISTED IN HOUSEHOLD 96	_____ (NAME) LINE NO. . ☐☐ NOT LISTED IN HOUSEHOLD 96	
331	Did you ever breastfeed [NAME]?	YES . . . . . 1 NO, NEVER BREASTFED . . 2 NO, CHILD NOT ALIVE . . . 3 DON'T KNOW . 8 REFUSED . . . . . 9 (SKIP TO 334)	YES . . . . . 1 NO, NEVER BREASTFED . . 2 NO, CHILD NOT ALIVE . . . 3 DON'T KNOW . 8 REFUSED . . . . . 9 (SKIP TO 334)	YES . . . . . 1 NO, NEVER BREASTFED . . . . 2 NO, CHILD NOT ALIVE . . . 3 DON'T KNOW . . . 8 REFUSED . . . . . 9 (SKIP TO 334)	
332	For how long did you breastfeed [NAME]? RECORD ANSWER ONLY IN WEEKS OR IN MONTHS. CODE '00' IF LESS THAN 1 WEEK.	WEEKS..... 1 ☐☐ MONTHS... 2 ☐☐ STILL BREASTFEEDING 996 DON'T KNOW.....998 REFUSED..... 999	WEEKS..... 1 ☐☐ MONTHS... 2 ☐☐ STILL BREASTFEEDING 996 DON'T KNOW.....998 REFUSED..... 999	WEEKS..... 1 ☐☐ MONTHS... 2 ☐☐ STILL BREASTFEEDING 996 DON'T KNOW..... 998 REFUSED..... 999	
333	Thank you for the information regarding [NAME]. CHECK 305: DID THE LAST BIRTH HAVE MORE THAN ONE CHILD (I.E., TWINS, TRIPLETS)?	YES . . . . . 1 (SKIP TO NEXT 326) NO 2	YES . . . . . 1 (SKIP TO NEXT 326) NO 2	YES . . . . . 1 (SKIP TO NEXT 326) NO 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
334a	Now, I will ask about your current pregnancies.		
334	Are you pregnant now?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW/UNSURE . . . . . 8 REFUSED 9	→ END MODULE
335a	Now, I will ask you some questions about methods that are used to avoid getting pregnant.		
335	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	→ END MODULE
336	Which method are you or your partner using? SELECT ALL THAT APPLY.	FEMALE STERILIZATION . . . . . A MALE STERILIZATION . . . . . B PILL . . . . . C IUD/COIL . . . . . D INJECTIONS . . . . . E IMPLANT . . . . . F CONDOM . . . . . G FEMALE CONDOM . . . . . H RHYTHM/NATURAL METHODS . . . . . I WITHDRAWAL . . . . . J NOT HAVING SEX . . . . . K OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	

FOOTNOTE:
For Q.305, Q.326 to Q.333 - additional form(s) is/are required for multiple births.

MODULE 4: CHILDREN

400 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:

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
401A	ENTER THE NAME AND LINE NUMBER OF [CHILD]. Now, I am going to ask you about [CHILD NAME].	______ (NAME) LINE NO. [ ][ ]	______ (NAME) LINE NO. [ ][ ]	______ (NAME) LINE NO. [ ][ ]
401	How old was [CHILD] in years at his/her last birthday? ENTER '00' IF CHILD IS LESS THAN ONE YEAR OLD.	LESS THAN 1 YR... 00 AGE IN YEARS [ ][ ] DON'T KNOW .... 98 REFUSED ...... 99 (SKIP TO 403)	LESS THAN 1 YR... 00 AGE IN YEARS [ ][ ] DON'T KNOW .... 98 REFUSED ...... 99 (SKIP TO 403)	LESS THAN 1 YR... 00 AGE IN YEARS [ ][ ] DON'T KNOW .... 98 REFUSED ...... 99 (SKIP TO 403)
402	How old is [CHILD] in months? ENTER '00' IF CHILD IS LESS THAN ONE MONTH OLD.	AGE IN MONTHS [ ][ ] DON'T KNOW .. 98 REFUSED 99	AGE IN MONTHS [ ][ ] DON'T KNOW .. 98 REFUSED 99	AGE IN MONTHS [ ][ ] DON'T KNOW .. 98 REFUSED 99
403	Is [CHILD] a boy or girl?	BOY .... 1 GIRL .... 2 DON'T KNOW .. 8 REFUSED 9	BOY .... 1 GIRL .... 2 DON'T KNOW .. 8 REFUSED 9	BOY .... 1 GIRL .... 2 DON'T KNOW .. 8 REFUSED 9
404	Is [CHILD] enrolled in school?	YES .... 1 NO, NOT CURRENTLY IN SCHOOL .. 2 (SKIP TO 407) NO, TOO YOUNG TO BE IN SCHOOL .... 3 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 408a)	YES .... 1 NO, NOT CURRENTLY IN SCHOOL .. 2 (SKIP TO 407) NO, TOO YOUNG TO BE IN SCHOOL .... 3 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 408a)	YES .... 1 NO, NOT CURRENTLY IN SCHOOL .. 2 (SKIP TO 407) NO, TOO YOUNG TO BE IN SCHOOL .... 3 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 408a)
405	What is the highest level of school [CHILD] has attended: nursery, primary or secondary?	NURSERY .... 1 PRIMARY .... 2 JR. SECONDARY 3 SR. SECONDARY 4 DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)	NURSERY .... 1 PRIMARY .... 2 JR. SECONDARY 3 SR. SECONDARY 4 DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)	NURSERY .... 1 PRIMARY .... 2 JR. SECONDARY 3 SR. SECONDARY 4 DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)
406	What grade/form/year is [CHILD] in now?	GRADE/FORM /YEAR ... [ ] DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)	GRADE/FORM /YEAR ... [ ] DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)	GRADE/FORM /YEAR ... [ ] DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
407	Was [CHILD] enrolled in school during the previous school year?	YES .... 1 NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 408a)	YES .... 1 NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 408a)	YES .... 1 NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 408a)
407a	What level of school was [CHILD] attending during the previous school year: nursery, primary or secondary?	NURSERY .... 1 PRIMARY .... 2 JR. SECONDARY 3 SR. SECONDARY 4 DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)	NURSERY .... 1 PRIMARY .... 2 JR. SECONDARY 3 SR. SECONDARY 4 DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)	NURSERY .... 1 PRIMARY .... 2 JR. SECONDARY 3 SR. SECONDARY 4 DON'T KNOW .. 98 REFUSED ...... 99 (SKIP TO 408a)
408	What grade/form/year was [CHILD] enrolled in during the previous school year?	GRADE/FORM /YEAR ... [ ] DON'T KNOW .. 98 REFUSED 99	GRADE/FORM /YEAR ... [ ] DON'T KNOW .. 98 REFUSED 99	GRADE/FORM /YEAR ... [ ] DON'T KNOW .. 98 REFUSED 99
408A	CHECK: IS [CHILD] A GIRL?	YES .... 1 (SKIP TO 411) NO 2	YES .... 1 (SKIP TO 411) NO 2	YES .... 1 (SKIP TO 411) NO 2
409	Is [CHILD] circumcised? Circumcision is the complete removal of the foreskin from the penis.	YES .... 1 NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 411)	YES .... 1 NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 411)	YES .... 1 NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 411)
410	Who circumcised [CHILD]?	DOCTOR/NURSE/ CLINICAL OFFICER .... 1 TRADITIONAL PRACTITIONER/ CIRCUMCIZER 2 MIDWIFE ...... 3 OTHER ________ 6 (SPECIFY) DON'T KNOW .. 8 REFUSED 9	DOCTOR/NURSE/ CLINICAL OFFICER .... 1 TRADITIONAL PRACTITIONER/ CIRCUMCIZER 2 MIDWIFE ...... 3 OTHER ________ 6 (SPECIFY) DON'T KNOW .. 8 REFUSED 9	DOCTOR/NURSE/ CLINICAL OFFICER .... 1 TRADITIONAL PRACTITIONER/ CIRCUMCIZER 2 MIDWIFE........ 3 OTHER ________ 6 (SPECIFY) DON'T KNOW .. 8 REFUSED 9

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
411	Has [CHILD] ever been tested for HIV?	YES .... 1 (SKIP TO 413) NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 430)	YES .... 1 (SKIP TO 413) NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 430)	YES .... 1 (SKIP TO 413) NO .... 2 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP TO 430)
412	Why has [CHILD] never been tested for HIV? SELECT ALL THAT APPLY.	DON'T KNOW WHERE TO TEST .... A TEST COSTS TOO MUCH .. B TRANSPORT COSTS TOO MUCH ...... C TOO FAR AWAY D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS .... E DON'T NEED TEST/ LOW RISK .... F DID NOT RECEIVE PERMISSION FROM SPOUSE/ FAMILY ...... G AFRAID SPOUSE/ PARTNER/ FAMILY WILL KNOW RESULTS .... H DON'T WANT TO KNOW CHILD HAS HIV .... I CANNOT GET TREATMENT FOR HIV .... J TEST KITS NOT AVAILABLE .. K RELIGIOUS REASONS .. L OTHER ________ X (SPECIFY) DON'T KNOW .. Y REFUSED ...... Z (SKIP TO 430)	DON'T KNOW WHERE TO TEST .... A TEST COSTS TOO MUCH .. B TRANSPORT COSTS TOO MUCH ...... C TOO FAR AWAY D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS .... E DON'T NEED TEST/ LOW RISK .... F DID NOT RECEIVE PERMISSION FROM SPOUSE/ FAMILY ...... G AFRAID SPOUSE/ PARTNER/ FAMILY WILL KNOW RESULTS .... H DON'T WANT TO KNOW CHILD HAS HIV .... I CANNOT GET TREATMENT FOR HIV .... J TEST KITS NOT AVAILABLE .. K RELIGIOUS REASONS .. L OTHER ________ X (SPECIFY) DON'T KNOW .. Y REFUSED ...... Z (SKIP TO 430)	DON'T KNOW WHERE TO TEST .... A TEST COSTS TOO MUCH .. B TRANSPORT COSTS TOO MUCH .... C TOO FAR AWAY D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS .... E DON'T NEED TEST/ LOW RISK .... F DID NOT RECEIVE PERMISSION FROM SPOUSE/ FAMILY ...... G AFRAID SPOUSE/ PARTNER/ FAMILY WILL KNOW RESULTS .... H DON'T WANT TO KNOW CHILD HAS HIV .... I CANNOT GET TREATMENT FOR HIV ...... J TEST KITS NOT AVAILABLE .. K RELIGIOUS REASONS .... L OTHER ________ X (SPECIFY) DON'T KNOW .. Y REFUSED ...... Z (SKIP TO 430)
413	What month and year was [CHILD]'s last HIV test done?	MONTH [ ][ ] DON'T KNOW .. 98 REFUSED ...... 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED 9999	MONTH [ ][ ] DON'T KNOW .. 98 REFUSED ...... 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED 9999	MONTH [ ][ ] DON'T KNOW .. 98 REFUSED ...... 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED 9999
414	What was [CHILD]'s last HIV test result?	POSITIVE ...... 1 NEGATIVE .... 2 UNKNOWN/ INDETERMINATE . 3 DID NOT RECEIVE RESULTS .... 4 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP to 430)	POSITIVE ...... 1 NEGATIVE .... 2 UNKNOWN/ INDETERMINATE . 3 DID NOT RECEIVE RESULTS .... 4 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP to 430)	POSITIVE ...... 1 NEGATIVE .... 2 UNKNOWN/ INDETERMINATE . 3 DID NOT RECEIVE RESULTS .... 4 DON'T KNOW .. 8 REFUSED ...... 9 (SKIP to 430)

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
415	What was the month and year of [CHILD]'s first HIV positive test result? Please give your best guess. This will be the very first HIV positive test result that you have received. PROBE TO VERIFY DATE.	MONTH [ ][ ] DON'T KNOW . . 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED 9999	MONTH [ ][ ] DON'T KNOW . . 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED 9999	MONTH [ ][ ] DON'T KNOW . . 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED 9999
416	Has [CHILD] ever received HIV medical care from a doctor, clinical officer, nurse or any health worker?	YES . . . . 1 (SKIP TO 418) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 421)	YES . . . . 1 (SKIP TO 418) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 421)	YES . . . . 1 (SKIP TO 418) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 421)
417	What is the main reason why [CHILD] has never seen a doctor, clinical officer, or nurse for HIV medical care? READ RESPONSES ALOUD	FACILITY TOO FAR AWAY . . 01 DON'T KNOW WHERE TO GET HIV MED. CARE FOR CHILD . . . . . . 02 COST OF CARE 03 COST OF TRANSPORT 04 DON'T THINK CHILD NEEDS IT/CHILD IS NOT SICK . . . . 05 FEAR THAT OTHERS WILL KNOW CHILD HAS HIV IF I TAKE HIM/HER TO CLINIC . . . . 06 RELIGIOUS REASONS . . 07 CHILD IS TAKING TRAD. MED. 08 OTHER ________ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99 (SKIP TO 421)	FACILITY TOO FAR AWAY . . 01 DON'T KNOW WHERE TO GET HIV MED. CARE FOR CHILD . . . . . . 02 COST OF CARE 03 COST OF TRANSPORT 04 DON'T THINK CHILD NEEDS IT/CHILD IS NOT SICK . . . . 05 FEAR THAT OTHERS WILL KNOW CHILD HAS HIV IF I TAKE HIM/HER TO CLINIC . . . . 06 RELIGIOUS REASONS . . 07 CHILD IS TAKING TRAD. MED. 08 OTHER ________ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99 (SKIP TO 421)	FACILITY TOO FAR AWAY . . 01 DON'T KNOW WHERE TO GET HIV MED. CARE FOR CHILD . . . . . . 02 COST OF CARE 03 COST OF TRANSPORT 04 DON'T THINK CHILD NEEDS IT/CHILD IS NOT SICK . . . . 05 FEAR THAT OTHERS WILL KNOW CHILD HAS HIV IF I TAKE HIM/HER TO CLINIC . . . . 06 RELIGIOUS REASONS . . 07 CHILD IS TAKING TRAD. MED. 08 OTHER ________ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99 (SKIP TO 421)
418	What month and year did [CHILD] first see a doctor, clinical officer or nurse for HIV medical care? PROBE TO VERIFY DATE.	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
419	What month and year did [CHILD] <u>last</u> see a doctor, clinical officer or nurse for HIV medical care?	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 (SKIP TO 421) YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999 (SKIP TO 421)	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 (SKIP TO 421) YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999 (SKIP TO 421)	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 (SKIP TO 421) YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999 (SKIP TO 421)
419A	CHECK 419: WAS LAST VISIT LESS THAN 7 MONTHS AGO?	YES . . . . 1 (SKIP TO 421) NO 2	YES . . . . 1 (SKIP TO 421) NO 2	YES . . . . 1 (SKIP TO 421) NO 2
420	What is the main reason for [CHILD] not seeing a doctor, clinical officer or nurse for HIV medical care for more than 6 months? READ RESPONSES ALOUD	FACILITY TOO FAR AWAY . . 01 DON'T KNOW WHERE TO GET HIV MED. CARE FOR CHILD . . . . . . 02 COST OF CARE 03 COST OF TRANSPORT 04 DON'T THINK CHILD NEEDS IT/CHILD IS NOT SICK . . . . 05 FEAR THAT OTHERS WILL KNOW CHILD HAS HIV IF I TAKE HIM/HER TO CLINIC . . . . 06 RELIGIOUS REASONS . . 07 CHILD IS TAKING TRAD. MED. 08 NO APPT. SCHEDULED/ DID NOT MISS MOST RECENT APPT. . . . . 09 OTHER ________ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99	FACILITY TOO FAR AWAY . . 01 DON'T KNOW WHERE TO GET HIV MED. CARE FOR CHILD . . . . . . 02 COST OF CARE 03 COST OF TRANSPORT 04 DON'T THINK CHILD NEEDS IT/CHILD IS NOT SICK . . . . 05 FEAR THAT OTHERS WILL KNOW CHILD HAS HIV IF I TAKE HIM/HER TO CLINIC . . . . 06 RELIGIOUS REASONS . . 07 CHILD IS TAKING TRAD. MED. 08 NO APPT. SCHEDULED/ DID NOT MISS MOST RECENT APPT. . . . . 09 OTHER ________ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99	FACILITY TOO FAR AWAY . . 01 DON'T KNOW WHERE TO GET HIV MED. CARE FOR CHILD . . . . . . 02 COST OF CARE 03 COST OF TRANSPORT 04 DON'T THINK CHILD NEEDS IT/CHILD IS NOT SICK . . . . 05 FEAR THAT OTHERS WILL KNOW CHILD HAS HIV IF I TAKE HIM/HER TO CLINIC . . . . 06 RELIGIOUS REASONS . . 07 CHILD IS TAKING TRAD. MED. 08 NO APPT. SCHEDULED/ DID NOT MISS MOST RECENT APPT. . . . . 09 OTHER ________ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99
421	Has [CHILD] 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 (SKIP TO 423)	YES . . . . 1 NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 423)	YES . . . . 1 NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 423)

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
422	What month and year was [CHILD] last tested for his/her CD4 count?	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999
423	Has [CHILD] ever taken ARVs, that is, antiretroviral medications to treat his/her HIV infection?	YES . . . . 1 (SKIP TO 425) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 429)	YES . . . . 1 (SKIP TO 425) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 429)	YES . . . . 1 (SKIP TO 425) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 429)
424	What is the main reason [CHILD] has never taken ARVs?	CHILD NOT ELIGIBLE . . . . 01 PROVIDER DIDN'T PRESCRIBE . . 02 HIV MED. NOT AVAILABLE . . 03 DO NOT THINK HE/SHE NEEDS IT/NOT SICK . . 04 COST OF MED. . . 05 COST OF TRANSPORT 06 RELIGIOUS REASONS . . 07 CHILD TAKING TRAD. MED. . . 08 OTHER ______ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99 (SKIP TO 429)	CHILD NOT ELIGIBLE . . . . 01 PROVIDER DIDN'T PRESCRIBE . . 02 HIV MED. NOT AVAILABLE . . 03 DO NOT THINK HE/SHE NEEDS IT/NOT SICK . . 04 COST OF MED. . . 05 COST OF TRANSPORT 06 RELIGIOUS REASONS . . 07 CHILD TAKING TRAD. MED. . . 08 OTHER ______ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99 (SKIP TO 429)	CHILD NOT ELIGIBLE . . . . 01 PROVIDER DIDN'T PRESCRIBE . . 02 HIV MED. NOT AVAILABLE . . 03 DO NOT THINK HE/SHE NEEDS IT/NOT SICK . . 04 COST OF MED. . . 05 COST OF TRANSPORT 06 RELIGIOUS REASONS . . 07 CHILD TAKING TRAD. MED. . . 08 OTHER ______ 96 (SPECIFY) DON'T KNOW 98 REFUSED 99 (SKIP TO 429)
425	What month and year did [CHILD] first start taking ARVs? PROBE TO VERIFY DATE.	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999	MONTH [ ][ ] DON'T KNOW 98 REFUSED . . . . . . 99 YEAR [ ][ ][ ][ ] DON'T KNOW 9998 REFUSED . . . 9999

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
426	Is [CHILD] currently taking ARVs, that is, antiretroviral medications? By currently, I mean that [CHILD] may have missed some doses but [CHILD] is still taking ARVs.	YES . . . . 1 (SKIP TO 428) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 429)	YES . . . . 1 (SKIP TO 428) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 429)	YES . . . . 1 (SKIP TO 428) NO . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . . 9 (SKIP TO 429)
427	Can you tell me the main reason why [CHILD] is not currently taking ARVs?	HAVE TROUBLE GIVING CHILD TABLET EVERYDAY . . 01 CHILD HAS SIDE EFFECTS/ RASH 02 FACILITY/PHARM. TOO FAR TO GET MED. REG 03 COST OF MED. . . 04 COST OF TRANSPORT 05 CHILD IS HEALTH/NOT SICK . . . . 06 FACILITY/PHARM. OUT OF STOCK 07 RELIGIOUS REASONS . . 08 CHILD TAKING TRAD. MED. . . 09 OTHER ______ 96 (SPECIFY) DON'T KNOW . . 98 REFUSED . . . . . . 99 (SKIP TO 429)	HAVE TROUBLE GIVING CHILD TABLET EVERYDAY . . 01 CHILD HAS SIDE EFFECTS/ RASH 02 FACILITY/PHARM. TOO FAR TO GET MED. REG 03 COST OF MED. . . 04 COST OF TRANSPORT 05 CHILD IS HEALTH/NOT SICK . . . . 06 FACILITY/PHARM. OUT OF STOCK 07 RELIGIOUS REASONS . . 08 CHILD TAKING TRAD. MED. . . 09 OTHER ______ 96 (SPECIFY) DON'T KNOW . . 98 REFUSED . . . . . . 99 (SKIP TO 429)	HAVE TROUBLE GIVING CHILD TABLET EVERYDAY . . 01 CHILD HAS SIDE EFFECTS/ RASH 02 FACILITY/PHARM. TOO FAR TO GET MED. REG 03 COST OF MED. . . 04 COST OF TRANSPORT 05 CHILD IS HEALTH/NOT SICK . . . . 06 FACILITY/PHARM. OUT OF STOCK 07 RELIGIOUS REASONS . . 08 CHILD TAKING TRAD. MED. . . 09 OTHER ______ 96 (SPECIFY) DON'T KNOW . . 98 REFUSED . . . . . . 99 (SKIP TO 429)
428	People sometimes forget to take all their ARVs every day. In the last 30 days, how many days has [CHILD] missed taking any ARV pills? CODE '00' IF NONE.	DAYS MISSED [ ][ ] DON'T KNOW . . 98 REFUSED 99	DAYS MISSED [ ][ ] DON'T KNOW . . 98 REFUSED 99	DAYS MISSED [ ][ ] DON'T KNOW . . 98 REFUSED 99
429	Is [CHILD] currently taking Septrin or Cotrimoxazole for his/her HIV treatment? 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 [CHILD] may have missed some doses but is still taking Septrin or Cotrimoxazole.	YES . . . . 1 NO . . . . 2 DON'T KNOW . . 8 REFUSED 9	YES . . . . 1 NO . . . . 2 DON'T KNOW . . 8 REFUSED 9	YES . . . . 1 NO . . . . 2 DON'T KNOW . . 8 REFUSED 9

NO.	QUESTIONS	CHILD 1	CHILD 2	CHILD 3
430	Has [CHILD] ever visited a clinic for tuberculosis for TB diagnosis or treatment?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)
431	Have you ever been told by a doctor, clinical officer, nurse or health worker that [CHILD] had TB?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)
432	Was [CHILD] ever treated for TB?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)
433	Is [CHILD] currently on treatment for TB?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED . . . . . 9 (SKIP TO 435)
434	The last time [CHILD] was treated for TB, did [CHILD] complete at least 6 months of treatment?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED 9	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED 9	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . 8 REFUSED 9
435	Thank you for the information about [CHILD]. DOES THE RESPONDENT HAVE ANOTHER CHILD AGED 0-14 YEARS?	YES . . . . . 1 GO TO THE NEXT CHILD NO . . . . . 2 (END MODULE)	YES . . . . . 1 GO TO THE NEXT CHILD NO . . . . . 2 (END MODULE)	YES . . . . . 1 GO TO THE NEXT CHILD NO . . . . . 2 (END MODULE)

MODULE 5: MALE CIRCUMCISION

500 I will be asking a few questions about circumcision. Circumcision is the complete removal of the foreskin from the penis.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
500A	CHECK: IS RESPONDENT MALE OR FEMALE?	MALE . . . . . 1 FEMALE 2	END MODULE
501	Some men are uncomfortable talking about circumcision but it is important for us to have this information. Some men are circumcised. Are you circumcised?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	503 END MODULE
502	Are you planning to get circumcised?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	END MODULE
503	How old were you when you were circumcised? Please give your best guess. IF LESS THAN ONE YEAR, CODE '00'	LESS THAN ONE YEAR . . . . . 00 AGE IN YEARS . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	
504	Who did the circumcision?	DOCTOR, CLINICAL OFFICER, NURSE 1 TRADITIONAL PRACTITIONER/ CIRCUMCISER . . . . . 2 MIDWIFE . . . . . 3 OTHER _____ 6 (SPECIFY) DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 6: SEXUAL ACTIVITY

600 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.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
601	Have you ever had vaginal sex before? Vaginal sex is when a penis enters a vagina.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
602	How old were you when you had vaginal sex for the very first time?	AGE IN YEARS . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	
603	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, ENTER '000'. IF NUMBER OF PARTNERS IS GREATER THAN 100, ENTER '100'.	NO PARTNERS IN LAST 12 MONTHS 000 NUMBER OF SEXUAL PARTNERS IN LAST 12 MONTHS . . . . . ☐☐☐ DON'T KNOW . . . . . 998 REFUSED 999	→ END MODULE
604a	Now I would like to ask you some questions about the people you have had sex with in the last 12 months. Let me assure you again that your answers are completely confidential and will not be told to anyone. I will first ask you about the most recent person you had sex with. ASK ONLY ABOUT THE LAST 3 PERSONS THE RESPONDENT HAS HAD SEX WITH.		

		LAST SEXUAL PARTNER	SECOND-TO-LAST SEXUAL PARTNER	THIRD-TO-LAST SEXUAL PARTNER
604	Does the person you had sex with live in this household?	YES . . . . . 1 NO . . . . . 2 → (SKIP TO 606)	YES . . . . . 1 NO . . . . . 2 → (SKIP TO 606)	YES . . . . . 1 NO . . . . . 2 → (SKIP TO 606)
605	Please identify the person you had sex with. SELECT THE NAME FROM THE HOUSEHOLD SCHEDULE.	_____ (NAME) IF LISTED IN THE HOUSEHOLD . . . → (SKIP TO 607) NOT LISTED IN THE HOUSEHOLD . . . 96	_____ (NAME) IF LISTED IN THE HOUSEHOLD . . . → (SKIP TO 607) NOT LISTED IN THE HOUSEHOLD . . . 96	_____ (NAME) IF LISTED IN THE HOUSEHOLD . . . → (SKIP TO 607) NOT LISTED IN THE HOUSEHOLD . . . 96

		LAST SEXUAL PARTNER	SECOND-TO-LAST SEXUAL PARTNER	THIRD-TO-LAST SEXUAL PARTNER
606	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 this person.	_____ [INITIALS]	_____ [INITIALS]	_____ [INITIALS]
607	What is your relationship with [INITIALS]?	HUSBAND/ WIFE . . . . . 01 LIVE-IN PARTNER 02 PARTNER, NOT LIVING WITH RESPONDENT. 03 EX-SPOUSE/ EX-PARTNER .. 04 FRIEND / ACQUAINTANCI 05 SEX WORKER . . 06 SEX WORKER CLIENT . . . . . 07 STRANGER . . . 08 OTHER _____ 96 (SPECIFY) DON'T KNOW . 98 REFUSED 99	HUSBAND/ WIFE . . . . . 01 LIVE-IN PARTNER 02 PARTNER, NOT LIVING WITH RESPONDENT. 03 EX-SPOUSE/ EX-PARTNER . . 04 FRIEND / ACQUAINTANCI 05 SEX WORKER . . 06 SEX WORKER CLIENT . . . . . 07 STRANGER . . . 08 OTHER _____ 96 (SPECIFY) DON'T KNOW . 98 REFUSED 99	HUSBAND/ WIFE . . . . . 01 LIVE-IN PARTNER 02 PARTNER, NOT LIVING WITH RESPONDENT. 03 EX-SPOUSE/ EX-PARTNER . . 04 FRIEND / ACQUAINTANCE 05 SEX WORKER . . 06 SEX WORKER CLIENT . . . . . 07 STRANGER . . . 08 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . 98 REFUSED 99
608	Is [INITIALS] male or female?	MALE . . . . . 1 FEMALE . . . . . 2 DON'T KNOW . 8 REFUSED 9	MALE . . . . . 1 FEMALE . . . . . 2 DON'T KNOW . 8 REFUSED 9	MALE . . . . . 1 FEMALE . . . . . 2 DON'T KNOW . . . 8 REFUSED 9
609	How old is [INITIALS]? Please give your best guess.	AGE IN YEARS ☐☐ DON'T KNOW . . . 98 REFUSED 99	AGE IN YEARS ☐☐ DON'T KNOW . . . 98 REFUSED 99	AGE IN YEARS ☐☐ DON'T KNOW . . . 98 REFUSED 99
610	The last time you had sex with [INITIALS] was a condom used?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . 8 REFUSED 9	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . 8 REFUSED 9	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . 8 REFUSED 9
611a	CHECK 607: WAS [INITIALS] A SEX WORKER OR SEX WORKER CLIENT?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 613)	YES . . . . . 1 NO . . . . . 2 (SKIP TO 613)	YES . . . . . 1 NO . . . . . 2 (SKIP TO 613)
611	Did you enter into a sexual relationship with [INITIALS] because [INITIALS] provided you with or you expected that [INITIALS] would provide you gifts, help you to pay for things, or help you in other ways?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . 8 REFUSED . . . . . 9 (SKIP TO 613)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . 8 REFUSED . . . . . 9 (SKIP TO 613)	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . 8 REFUSED . . . . . 9 (SKIP TO 613)
612a	CHECK 607: WAS [INITIALS] THE RESPONDENT'S SPOUSE OR LIVE-IN PARTNER?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 613)	YES . . . . . 1 NO . . . . . 2 (SKIP TO 613)	YES . . . . . 1 NO . . . . . 2 (SKIP TO 613)

		LAST SEXUAL PARTNER	SECOND-TO-LAST SEXUAL PARTNER	THIRD-TO-LAST SEXUAL PARTNER
612	In the last 12 months, what have you received from (INITIALS)? Did you receive... Money? Food? School fees? Employment? Gifts or favors? Transport? Shelter or rent? Protection? SELECT ALL THAT APPLY.	DID NOT RECEIVE ANYTHING . . . A MONEY . . . . B FOOD . . . . C SCHOOL FEES . . D EMPLOYMENT . . E GIFTS/FAVORS F TRANSPORT . . . G SHELTER/RENT . . H PROTECTION . . . I OTHER ________ X (SPECIFY) DON'T KNOW . Y REFUSED . . . . . Z	DID NOT RECEIVE ANYTHING . . . A MONEY . . . . B FOOD . . . . C SCHOOL FEES . . D EMPLOYMENT . . E GIFTS/FAVORS F TRANSPORT . . . G SHELTER/RENT . . H PROTECTION . . . I OTHER ________ X (SPECIFY) DON'T KNOW . Y REFUSED . . . . . Z	DID NOT RECEIVE ANYTHING . . . A MONEY . . . . B FOOD . . . . C SCHOOL FEES . . D EMPLOYMENT . . E GIFTS/FAVORS F TRANSPORT . . . G SHELTER/RENT . . H PROTECTION . . . I OTHER ________ X (SPECIFY) DON'T KNOW . Y REFUSED . . . . . Z
613	Do you expect to have sex with (INITIALS) again?	YES . . . . 1 NO . . . . 2 DON'T KNOW . 8 REFUSED 9	YES . . . . 1 NO . . . . 2 DON'T KNOW . 8 REFUSED 9	YES . . . . 1 NO . . . . 2 DON'T KNOW . 8 REFUSED 9
614	Does (INITIALS) know your HIV status? HIV status could mean you are HIV negative or HIV positive.	YES . . . . 1 NO . . . . 2 DON'T KNOW . 8 REFUSED 9	YES . . . . 1 NO . . . . 2 DON'T KNOW . 8 REFUSED 9	YES . . . . 1 NO . . . . 2 DON'T KNOW . 8 REFUSED 9
615	What is the HIV status of (INITIALS)? READ THE RESPONSES ALOUD.	I THINK [INITIALS] IS POSITIVE . 1 [INITIALS] TOLD ME HE/SHE IS POSITIVE . 2 [INITIALS] IS POSITIVE, TESTED TOGETHER . 3 I THINK [INITIALS] IS NEGATIVE . 4 [INITIALS] TOLD ME HE/SHE IS NEGATIVE . . . 5 [INITIALS] IS NEGATIVE, TESTED TOGETHER . 6 DON'T KNOW STATUS . . . . . 8 REFUSED 9	I THINK [INITIALS] IS POSITIVE . 1 [INITIALS] TOLD ME HE/SHE IS POSITIVE . 2 [INITIALS] IS POSITIVE, TESTED TOGETHER . 3 I THINK [INITIALS] IS NEGATIVE . 4 [INITIALS] TOLD ME HE/SHE IS NEGATIVE . . . 5 [INITIALS] IS NEGATIVE, TESTED TOGETHER . 6 DON'T KNOW STATUS . . . . . 8 REFUSED 9	I THINK [INITIALS] IS POSITIVE . 1 [INITIALS] TOLD ME HE/SHE IS POSITIVE . 2 [INITIALS] IS POSITIVE, TESTED TOGETHER . 3 I THINK [INITIALS] IS NEGATIVE . 4 [INITIALS] TOLD ME HE/SHE IS NEGATIVE . . . 5 [INITIALS] IS NEGATIVE, TESTED TOGETHER . 6 DON'T KNOW STATUS . . . . . 8 REFUSED 9
616	CHECK 603: HAS RESPONDENT HAD ANOTHER PARTNER IN THE LAST 12 MONTHS? I will now ask you about the person you have had sex with prior to (INITIALS).	YES . . . . 1 (GO BACK TO 604 IN NEXT COLUMN) NO . . . . 2 (END MODULE)	YES . . . . 1 (GO BACK TO 604 IN NEXT COLUMN) NO . . . . 2 (END MODULE)	

MODULE 7: HIV TESTING

700 Now I would like to ask you some questions about HIV testing.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
701	Have you <u>ever</u> been tested for HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 703 → 901
702	Why have you never been tested for HIV? SELECT ALL THAT APPLY.	DON'T KNOW WHERE TO TEST . . . . . A TEST COSTS TOO MUCH . . . . . B TRANSPORT COSTS TOO MUCH . . . . . C TOO FAR AWAY . . . . . D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS . . . . . E DON'T NEED TEST/LOW RISK . . . . . F DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY . . . . . G AFRAID SPOUSE/PARTNER/ FAMILY WILL KNOW RESULTS . . . . . H DON'T WANT TO KNOW I HAVE HIV . . . I CANNOT GET TREATMENT FOR HIV . . . J TEST KITS NOT AVAILABLE . . . . . K RELIGIOUS REASONS . . . . . L OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	→ 901
703	What month and year was your last HIV test?	MONTH . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . ☐☐☐☐ DON'T KNOW . . . . . 9998 REFUSED 9999	
704	Where was the last test done?	VCT FACILITY . . . . . 01 MOBILE VCT . . . . . 02 AT HOME . . . . . 03 HEALTH CLINIC / FACILITY . . . . . 04 HOSPITAL OUTPATIENT CLINIC . . . . . 05 TB CLINIC . . . . . 06 STI CLINIC . . . . . 07 HOSPITAL INPATIENT WARDS . . . . . 08 BLOOD DONATING CENTER . . . . . 09 ANC CLINIC . . . . . 10 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
705	What was the result of that HIV test?	POSITIVE . . . . . 1 NEGATIVE . . . . . 2 UNKNOWN/INDETERMINANTE . . . . . 3 DID NOT RECEIVE THE RESULT . . . . . 4 DON'T KNOW . . . . . 8 REFUSED 9	→ END OF MODULE
706	What was the month and year of your first HIV positive test result? Please give your best guess. This will be the very first HIV positive test result that you have received. PROBE TO VERIFY DATE.	MONTH . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . ☐☐☐☐ DON'T KNOW . . . . . 9998 REFUSED 9999	
707	Of the following people, who have you told that you are HIV positive? CHECK ALL THAT APPLY.	NO ONE . . . . . A SPOUSE/SEX PARTNER . . . . . B DOCTOR . . . . . C FRIEND . . . . . D FAMILY MEMBER . . . . . E OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	
708a	Now I would like to ask you questions about your experiences with health care providers.		
708	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, NO NEED TO ATTEND HEALTH FACILITY IN LAST 12 MONTHS . . . . . 3 DON'T KNOW . . . . . 8 REFUSED 9	
709	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	

MODULE 8: HIV STATUS, CARE AND TREATMENT

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
800a	CHECK 705: IS THE RESPONDENT HIV POSITIVE?	YES . . . . . 1 NO 2	→ END MODULE
800	Now I am going to ask you more about your experience with HIV support, care and treatment.		
801	After learning you had HIV, have you ever received HIV medical care from a doctor, clinical officer or nurse?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 803 → 806
802	What is the main reason why you have never received HIV medical care from a doctor, clinical officer, or nurse?	FACILITY IS TOO FAR AWAY . . . . . 01 I DON'T KNOW WHERE TO GET HIV MEDICAL CARE . . . . . 02 COST OF CARE . . . . . 03 COST OF TRANSPORT . . . . . 04 I DO NOT NEED IT / I FEEL HEALTHY / NOT SICK . . . . . 05 I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC . . . . . 06 RELIGIOUS REASONS . . . . . 07 I'M TAKING TRADITIONAL MEDICINE . . . 08 DO NOT TRUST THE STAFF / QUALITY OF CARE . . . . . 09 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ 806
803	What month and year did you first see a doctor, clinical officer or nurse for HIV medical care? PROBE TO VERIFY DATE.	MONTH . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . ☐☐☐☐ DON'T KNOW . . . . . 9998 REFUSED 9999	
804	What month and year did you last see a doctor, clinical officer or nurse for HIV medical care?	MONTH . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . ☐☐☐☐ DON'T KNOW . . . . . 9998 REFUSED 9999	
805A	CHECK 804: WAS MONTH AND YEAR LESS THAN 7 MONTHS FROM DATE OF INTERVIEW OR DID RESPONDENT ANSWER DON'T KNOW?	YES . . . . . 1 NO 2	→ 806
805	What is the main reason for not seeing a doctor, clinical officer or nurse for HIV medical care for more than 6 months?	FACILITY IS TOO FAR AWAY . . . . . 01 DON'T KNOW WHERE TO GET HIV MEDICAL CARE . . . . . 02 COST OF CARE . . . . . 03 COST OF TRANSPORT . . . . . 04 DO NOT NEED IT / I FEEL HEALTHY / NOT SICK . . . . . 05 FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC . . . . . 06 RELIGIOUS REASONS . . . . . 07 TAKING TRADITIONAL MEDICINE . . . . . 08 DO NOT TRUST THE STAFF / QUALITY OF CARE . . . . . 09 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
806	Have you ever had a CD4 count test? The CD4 count tells you how sick you are with HIV and if you need to take ARVs or other HIV medications.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 808A
807	What month and year were you last tested for your CD4 count?	MONTH . . . . . [ ][ ] DON'T KNOW . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . [ ][ ][ ][ ] DON'T KNOW . . . . . 9998 REFUSED 9999	
808	Have you ever taken ARVs, that is, antiretroviral medications to treat HIV infection?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 810 → END MODULE
809	What is the main reason you have never taken ARVs?	NOT ELIGIBLE FOR TREATMENT . . . . . 01 HEALTH CARE PROVIDER DID NOT PRESCRIBE . . . . . 02 HIV MEDICINES NOT AVAILABLE . . . . . 03 FEEL HEALTHY/NOT SICK . . . . . 04 COST OF MEDICATIONS . . . . . 05 COST OF TRANSPORT . . . . . 06 RELIGIOUS REASONS . . . . . 07 TAKING TRADITIONAL MEDICATIONS 08 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
810	What month and year did you first start taking ARVs? PROBE TO VERIFY DATE.	MONTH . . . . . [ ][ ] DON'T KNOW . . . . . 98 REFUSED . . . . . 99 YEAR . . . . . [ ][ ][ ][ ] DON'T KNOW . . . . . 9998 REFUSED 9999	
811	Are you currently taking ARVs, that is, antiretroviral medications? By currently, I mean that you may have missed some doses but you are still taking ARVs.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 813 → END MODULE
812	Can you tell me the main reason why you are not currently taking ARVs?	TROUBLE TAKING IT EVERYDAY . . . . . 01 SIDE EFFECTS . . . . . 02 FACILITY TOO FAR . . . . . 03 COST OF MEDICATIONS . . . . . 04 COST OF TRANSPORT . . . . . 05 FEEL HEALTHY/NOT SICK . . . . . 06 FACILITY WAS OUT OF STOCK . . . . . 07 RELIGIOUS REASONS . . . . . 08 TAKING TRADITIONAL MEDICINES . . . 09 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
813	People sometimes forget to take all of their ARVs every day. In the last 30 days, how many days have you missed taking any of your ARV pills? CODE '00' IF NONE.	NUMBER OF DAYS . . . . . [ ][ ] DON'T KNOW . . . . . 98 REFUSED 99	

MODULE 9: TUBERCULOSIS AND OTHER HEALTH ISSUES

900 Now I will ask you about tuberculosis, or TB.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
901	Have you ever visited clinic for TB diagnosis or treatment?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
902	Have you ever been told by a doctor, clinical officer or nurse that you had TB?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
903	Were you ever treated for TB?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
904	Are you currently on treatment for TB?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE → END MODULE
905	The last time you were treated for TB, did you complete at least 6 months of treatment?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 10: GENDER NORMS

1000 Now I would like to ask you some questions on attitudes and decision-making in your home.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
1001A	CHECK 203: IS THE RESPONDENT MARRIED OR LIVING TOGETHER WITH A [MAN/WOMAN] AS IF MARRIED?	YES . . . . . 1 NO 2	END →MODULE
1001	Who usually makes decisions about health care for yourself: you, your (spouse/partner), you and your (spouse/partner) together, or someone else?	SELF . . . . . 1 SPOUSE/PARTNER . . . . . 2 JOINTLY . . . . . 3 SOMEONE ELSE . . . . . 4 DON'T KNOW . . . . . 8 REFUSED 9	
1002	Who generally decides about how the money you receive/make is spent: you, your (spouse/partner), you and your (spouse/partner) together, or someone else?	SELF . . . . . 1 SPOUSE/PARTNER . . . . . 2 JOINTLY . . . . . 3 SOMEONE ELSE . . . . . 4 DON'T KNOW . . . . . 8 REFUSED 9	
1003A	CHECK Q.607: DID RESPONDENT EVER SELL SEX, ANSWER CODED '7'?	YES . . . . . 1 NO 2	END →MODULE
1003B	CHECK Q.7 FROM HOUSEHOLD ROSTER: IS RESPONDENT 18 YEARS OR OLDER?	YES . . . . . 1 NO 2	→ END MODULE
1003	You mentioned earlier that you have sold sex for money. Thank you for sharing your personal experiences with me. If you want to talk further about these experiences, I can refer you to a place that can provide you with help. FILL OUT REFERRAL FORM FOR CHILDREN IDENTIFIED AS TRAFFICKED MINORS. FILL OUT SUMMARY OF REFERRED TRAFFICKED MINORS. PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS, IF NOT ALREADY GIVEN.		

APPENDIX G ADOLESCENT QUESTIONNAIRE

EARLY ADOLESCENT QUESTIONNAIRE (10-14 YEARS)

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

100A	ENTER LINE NUMBER OF THE CHILD FROM THE HOUSEHOLD SCHEDULE:	☐☐
100B	ENTER NAME OF CHILD: _____ (CHILD'S NAME)	

MODULE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS

100C Now I will be asking you some general questions about yourself and education.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	CHECK THE HOUSEHOLD SCHEDULE: IS THE RESPONDENT MALE OR FEMALE?	MALE . . . . . 1 FEMALE 2	
102	How old were you at your last birthday?	AGE IN COMPLETED YEARS ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	
103	Are you enrolled in school?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 109
104	During the last school week, did you miss any school days for any reason?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 106
105	Why did you miss school?	HAVE BEEN SICK . . . . . 01 DON'T FEEL SAFE TRAVELING TO SCHOOL . . . . . 02 DON'T FEEL SAFE WHILE IN SCHOOL 03 HAVE TO LOOK AFTER MY FAMILY 04 THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL . . . . . 05 SCHOOL IS TOO FAR AWAY . . . . . 06 HAVE TO WORK . . . . . 07 HAVE A CHILD OR I AM PREGNANT (GIRLS ONLY) . . . . . 08 MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) . 09 OTHER _____ (SPECIFY) 96 DON'T KNOW . . . . . 98 REFUSED 99	
106	What is the highest level of school you have attended?	PRIMARY . . . . . 01 JUNIOR SECONDARY . . . . . 02 SENIOR SECONDARY . . . . . 03 A-LEVEL . . . . . 04 KORANIC/RELIGIOUS ONLY (NO FORMAL EDUCATION) . . . . . 05 DON'T KNOW . . . . . 98 REFUSED 99	
107	What grade/form/year are you in now, at that level?	NONE . . . . . 00 YEARS ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
108	What grade/form/year were you in last year?	NONE . . . . . 00 YEARS ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
109	Why are you not enrolled in school?	I HAVE BEEN SICK . . . . . 01 I DON'T FEEL SAFE TRAVELING TO SCHOOL . . . . . 02 I DON'T FEEL SAFE WHILE IN SCHOOL IN SCHOOL . . . . . 03 I DON'T LIKE SCHOOL . . . . . 04 I HAVE TO LOOK AFTER MY FAMILY 05 THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL . . . . . 06 SCHOOL IS TOO FAR AWAY . . . . . 07 I HAVE TO WORK . . . . . 08 I HAVE A CHILD OR IS PREGNANT (GIRLS ONLY) . . . . . 09 MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) . 10 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	
110	Have you ever attended school?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
111	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 AGO . . . . . 1 1 YEAR OR LONGER . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
112a	What is the highest level of school you have attended?	PRIMARY . . . . . 01 JUNIOR SECONDARY . . . . . 02 SENIOR SECONDARY . . . . . 03 A-LEVEL . . . . . 04 KORANIC/RELIGIOUS ONLY (NO FORMAL EDUCTION) . . . . . 05 DON'T KNOW . . . . . 98 REFUSED 99	END →MODULE
112	What is the highest [CLASS/YEAR] you completed at that level?	NONE . . . . . 00 CLASS/YEAR ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	

MODULE 2: PARENTAL SUPPORT

200 Now I will ask you about your parents. For each question, you can answer 'Always', 'Most of the time', 'Sometimes', 'Rarely', 'Never' or 'Don't know', or you can refuse to answer.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Do your parents/guardians understand your problems and worries?	ALWAYS . . . . . 1 MOST OF THE TIME . . . . . 2 SOMETIMES . . . . . 3 RARELY . . . . . 4 NEVER . . . . . 5 DON'T KNOW . . . . . 8 REFUSED 9	
202	Do your parents/guardians really know what you were doing with your free time when you were not at school or work?	ALWAYS . . . . . 1 MOST OF THE TIME . . . . . 2 SOMETIMES . . . . . 3 RARELY . . . . . 4 NEVER . . . . . 5 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 3: ALCOHOL AND DRUGS

300 Now I will 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. For each question, you can always tell me you 'Don't know' or you can refuse to answer any question.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
301	Have you ever had alcohol? For example, wine, beer or liquor? SHOW GRAPHIC OF COMMON ALCOHOLIC BEVERAGES.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 303
302	During the past 1 month, on how many days did you have at least one drink containing alcohol?	NUMBER OF DAYS . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	
303	Have you ever tried drugs such as Marijuana, also known as weed, or Benylene with Codeine, or Tramadol, or similar drugs?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
304	What drugs have you ever tried? ASK: Anything else?	MARIJUANA (WEED) . . . . . A BENYLENE WITH CODEINE . . . . . B TRAMADOl . . . . . C COCAINE . . . . . D HEROINE (CHARLY) . . . . . E SOLUTION . . . . . F CRACK . . . . . G INJECTABLE . . . . . H ROCHI . . . . . I OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	

MODULE 4: CONDOMS

400 Now I would like to ask you some questions about condoms. Your answers will not be told to anyone, even your parents. For each of the questions, you can tell me you 'don't know' or you can refuse to answer any question.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
401	Do you know what a condom is?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
402	Do you know where to get a condom?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 406
403	Where can a person go to get a condom? SELECT ALL THAT APPLY	CLINIC/HOSPITAL . . . . . A KIOSK/SHOP . . . . . B PHARMACY . . . . . C LOCAL FREE DISPENSERY . . . . . D FRIENDS/PEERS . . . . . E BOYFRIEND/GIRLFRIEND . . . . . F OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	
404	If you wanted to, could you yourself get a condom?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 406 → 406
405	Why is it not easy for you to get a condom? SELECT ALL THAT APPLY	TOO FAR . . . . . A COSTS TOO MUCH . . . . . B DO NOT WANT OTHERS TO KNOW . . . C OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Y REFUSED . . . . . Z	
406	Have you ever seen a male condom demonstration? By a condom demonstration, I mean someone like a nurse, peer educator, or another trained adult showed how a male condom is correctly used.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 5: SEXUAL BEHAVIOR

500 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. For each question, you can always tell me you 'don't know' or you can refuse to answer any question.

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.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	Do you know what sex is?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 600
501A	Have you ever had sex?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 600
502	Have you ever had vaginal, anal or oral sex? Vaginal sex is when a penis enters a vagina. Anal sex is when a penis enters an anus. Oral sex is when a person puts his/her mouth on the penis or vagina of another person. SELECT ALL THAT APPLY.	VAGINAL . . . . . A ANAL . . . . . B ORAL . . . . . C DON'T KNOW . . . . . Y REFUSED . . . . . Z	→ 600
503	How old were you when you had sex for the first time?	AGE IN YEARS . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	
504	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	→ 506 → 506
505	The first time you had sex, were you physically forced or were you pressured into having sex through harassment, threats or tricks?	PHYSICALLY FORCED . . . . . 1 PRESSURED . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 507
506	What was the **main** reason that you had sex for the first time?	JUST HAPPENED . . . . . 01 FRIENDS PRESSURED ME TO HAVE SEX . . . . . 02 TO SHOW MY LOVE/FEEL LOVED . . . 03 WANTED TO HAVE SEX . . . . . 04 BOYFRIEND/GIRLFRIEND WANTED TO HAVE SEX . . . . . 05 FOR MONEY/GIFTS . . . . . 06 WANTED TO HAVE A BABY . . . . . 07 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	
507	How old was the person you first had sex with? Please give your best guess.	AGE IN YEARS . . . . . ☐☐ DON'T KNOW . . . . . 98 REFUSED 99	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
508A	CHECK Qs. 401 AND 504: DOES RESPONDENT KNOW WHAT A CONDOM IS, IF THE CODED ANSWER IS '2'	YES . . . . . 1 NO 2	→ 509
508B	CHECK 504: WAS THE RESPONDENT FORCED TO HAVE SEX?	YES . . . . . 1 NO 2	→ 509
508	The first time you had sex, was a condom used?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
509	In total, how many different people have you had sex with? Please give your best guess.	NUMBER OF PARTNERS . . . ☐☐☐ DON'T KNOW . . . . . 998 REFUSED 999	
510A	CHECK 401: DOES RESPONDENT KNOW WHAT A CONDOM IS?	YES . . . . . 1 NO 2	→ 512A
510B	CHECK 504: WAS THE RESPONDENT FORCED TO HAVE SEX (CODE '2')?	YES . . . . . 1 NO 2	→ 510
510C	CHECK 509: DID THE RESPONDENT ANSWER '001', ONLY ONE PARTNER?	YES . . . . . 1 NO 2	→ 512A
510	The last time you had sex was a condom used?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
511	How often do you use a condom during sex? Would you say, Always? Sometimes? or, Never?	ALWAYS . . . . . 1 SOMETIMES . . . . . 2 NEVER . . . . . 3 DON'T KNOW . . . . . 8 REFUSED 9	
512A	CHECK 504: WAS THE RESPONDENT FORCED TO HAVE SEX (CODE '2')?	YES . . . . . 1 NO 2	→ 512
512B	CHECK 509: DID THE RESPONDENT ANSWER '001', ONLY ONE PARTNER?	YES . . . . . 1 NO 2	→ 513A
512	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 thing 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	
513A	CHECK: IS RESPONDENT A GIRL?	YES . . . . . 1 NO 2	→ 514
513	Have you ever been pregnant?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
514	Have you ever talked with a parent or guardian about sex?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 6: HIV KNOWLEDGE

600 Now I would like to ask you some questions about what you know about some things related to HIV. For each question, you can answer 'Yes', 'No', or 'Don't know' or you can refuse to answer.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
601	Have you **ever** heard of HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ 700
602	From where have you heard about HIV? PROBE: Anywhere else? RECORD ALL MENTIONED	SCHOOLS/TEACHERS . . . . . A PARENTS/GUARDIANS/FAMILY . . . . . B FRIENDS . . . . . C RELIGIOUS LEADERS . . . . . D INTERNET . . . . . E MOBILE PHONE . . . . . F HEALTH PROVIDERS/DOCTORS/ NURSES/CLINICAL OFFICIERS . . . . . G TELEVISION/FILM . . . . . H RADIO . . . . . I COMMUNITY HEALTH WORKERS . . . . . J OTHER _____ (SPECIFY) X DON'T KNOW . . . . . Y REFUSED . . . . . Z	
603	Have you ever discussed HIV with your parents or guardian?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
604	Have you taken part in any of the HIV prevention programs? For example: a) Family, life, and health education (FLHE)? b) Sex and sexuality training (a part of the FHLE, but sometimes offered on its own? c) In-school youth program? d) Out of school youth program? e) HIV awareness training or peer education sessions? f) Training on abstinence and being faithful? g) HIV testing services (HTS)? SELECT ALL THAT APPLY PROBE: Any other prevention programs? SHOW CHILD THE LOGO FOR EACH PROGRAM	FAMILY, LIFE, & HEALTH EDUCATION A SEX AND SEXUALITY TRAINING . . . . . B IN-SCHOOL YOUTH PROGRAM . . . . . C OUT OF SCHOOL YOUTH PROGRAM . D HIV AWARENESS TRAINING OR PEER EDUCATION SESSIONS . . . . . E TRAINING ON ABSTINENCE AND BEING FAITHFUL . . . . . F HIV TESTING SERVICES (HTS) . . . . . G NO, NOT TAKEN PART . . . . . W OTHER _____ (SPECIFY) X DON'T KNOW . . . . . Y REFUSED . . . . . Z	
605	Can a person reduce their chance of getting HIV by not having sex?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
605A	CHECK 401: DOES RESPONDENT KNOW WHAT A CONDOM IS?	YES . . . . . 1 NO 2	→ 607
605B	CHECK 501: DOES RESPONDENT KNOW WHAT SEX IS?	YES . . . . . 1 NO 2	→ 607
606	Can a person reduce their chance of getting HIV by using condoms when having sex?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
607	Can a healthy-looking person have HIV or AIDS?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
608	Can a mother with HIV or AIDS pass HIV to her unborn baby?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
609	Are there medicines that people with HIV or AIDS can take to help them live longer?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
610	Can male circumcision help prevent HIV infection? Circumcision is the removal of the foreskin from a penis.	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
611	Can ARVs make people with HIV less likely to spread the virus?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
612	Can ARVs rid HIV from an HIV-positive person's body?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 7: HIV RISK PERCEPTION

700 One can get HIV through various ways. Now I will ask you some questions on what you know about your risks of getting HIV.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
701A	CHECK 601: HAS THE RESPODNENT EVER HEARD OF HIV?	YES . . . . . 1 NO 2	→ 800
701	How likely do you think it is for you to get HIV? Would you say, it is ... Very likely? Somewhat likely? Not likely? Or, You already know you have HIV?	VERY LIKELY . . . . . 1 SOMEWHAT LIKELY . . . . . 2 NOT LIKELY . . . . . 3 ALREADY HAVE HIV . . . . . 4 DON'T KNOW . . . . . 8 REFUSED 9	→ 703 → 800 → END MODULE
702	What is the main reason you think you are likely to get HIV?	HAD SEX WITHOUT A CONDOM . . . . . 01 HAVE OR HAD MANY BOY/GIRL FRIENDS . . . . . 02 HAVE HAD BLOOD TRANSFUSIONS 03 MY MOTHER/FATHER/CLOSE RELATIVE HAS HIV . . . . . 04 DON'T TRUST MY BOY/GIRLFRIEND 05 SELF SICK . . . . . 06 BOY/GIRLFRIEND IS SICK OR HAS DIED . . . . . 07 DESERVE IT/I AM A BAD PERSON . . . 08 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	→ END MODULE
703	What is the **main** reason you think you are not likely to get HIV?	ABSTINENT . . . . . 01 WILL WAIT UNTIL MARRIAGE TO HAVE SEX . . . . . 02 ALWAYS USE CONDOMS . . . . . 03 TRUST MY PARTNER . . . . . 04 HAVE ONLY ONE PARTNER . . . . . 05 GO TO CHURCH/RELIGIOUS HOUSE . 06 AM A GOOD PERSON . . . . . 07 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . . . 98 REFUSED 99	

MODULE 8: HIV TESTING

800 HIV testing is the best way to confirm that someone has HIV. I will like to ask you some questions about HIV testing. Your answers will not be told to anyone, even your parents. For each question, you can tell me you 'don't know' or you can refuse to answer any question.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
801a	CHECK 601: HAS THE RESPONDENT EVER HEARD OF HIV?	YES . . . . . 1 NO 2	→ 900
801	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	
802	To what extent do you agree with the following statement: Only persons who think they might have HIV should get an HIV test. 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	
803	Have you ever been tested for HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
804	Did you receive the results of any of your HIV tests?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
805	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/DON'T KNOW . . . . . 8 REFUSED 9	→ END MODULE
806	Are you currently on treatment for HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 9: HIV STIGMA

900 Now I would like to ask you some more questions about your attitude towards people living with HIV.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
901a	CHECK 601: HAS THE RESPONDENT EVER HEARD OF HIV?	YES . . . . . 1 NO 2	END →MODULE
901b	CHECK 701: DOES RESPONDENT ALREADY HAVE HIV (CODE 4)?	YES . . . . . 1 NO 2	→ END MODULE
901c	CHECK 805: IS RESPONDENT HIV POSITIVE?	YES . . . . . 1 NO 2	→ END MODULE
901	Would you be willing to share food with someone who has HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
902	Would you be friends with someone who has HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
903	Would you be comfortable to have a teacher who has HIV?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	

MODULE 10: SOCIAL NORMS, INTENTION TO ABSTAIN, SELF-EFFICACY AND ASSERTIVENESS

1000 Now I would like to ask you some questions about social norms, your belief and your confidence. This is to get a better understanding of you and your peers attitudes towards sex.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
1000a	CHECK 501: DOES RESPONDENT KNOW WHAT SEX IS?	YES . . . . . 1 NO 2	→ 1005
1001	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 . . . . . 8 REFUSED 9	
1002	Do you feel pressured by your boyfriend/girlfriend to have sex?	YES . . . . . 1 NO . . . . . 2 DON'T HAVE BOYFRIEND/GIRLFRIEND . 3 DON'T KNOW . . . . . 8 REFUSED 9	
1003	Do you feel pressured by your friends to have sex?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
1004	If you did not want to have sex with someone, could you tell them that you do not want to have sex with them?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW . . . . . 8 REFUSED 9	
1005	This is the end of survey. Thank you very much for your time and your responses. Your responses will be useful to HIV programming and services among adolescents in Nigeria.		

APPENDIX H SURVEY CONSENT FORMS

Appendix H1: Survey Consent for Household Interview

Interviewer reads:
What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Nigeria AIDS Indicator and Impact Survey

Hello. My name is_____. I would like to invite you to take part in this survey about HIV in Nigeria. The Federal Ministry of Health and the National Agency for the Control of AIDS (NACA) are leading this survey. They are carrying out the survey with the United States Centers for Disease Control and Prevention (CDC).

Purpose of survey
This survey will help us know how many people in Nigeria have HIV and need health services. It will also tell us about people's risk for getting HIV.

We plan to invite about 98,207 households to take part in this survey. If you take part, you will help the Government of Nigeria make health services better in the country.

Survey Procedures

If you agree to take part in this survey, you will be invited to take part in two interviews: a household interview and a single person interview. In the household interview, we will ask you questions about persons living in your household and the things you have. This interview will last for about 30 minutes.

After the household interview, we will invite you and persons living in your household to take part in single person interviews. The single person interview will take about 40 minutes. We will also offer HIV testing after the interview. We may also offer Hepatitis B and Hepatitis C testing. We will ask each person to give permission to take part before joining the survey.

Potential Risks/Discomfort
Some of the questions may make you feel uncomfortable. You are free to skip a question and continue. The information you provided will be protected in a secure place. Access to the information will be minimized and limited to persons carrying out this survey.

Potential Benefits
You may or may not benefit by taking part in this study. If you take part, you and your household members will get free testing for HIV in your home. In addition, some people may also get free Hepatitis B or Hepatitis C testing. The answers you give will help Government to improve the health services of Nigerians and to develop more effective programs to fight HIV and other diseases.

Alternative to Taking Part
Your alternative is not to take part. If you choose not to take part, the services you or any member of your household receive will not be affected.

Costs to Person Taking Part in the Survey
It will not cost you anything to take part in this study other than your time.

Payment to Person Taking Part in the Survey
You will not receive any payment for taking part in this survey

Confidentiality and Access to Records
Efforts will be made to protect your household information and your answers to the interview questions. A number will be used instead of your name to identify the answers you give. Any answers included in the final report will not have your name or household on it. The information we collect from you will not be released outside of the study partners listed below unless there is an issue of safety.

{DO NOT READ ALOUD]

The following individuals and/or agencies may look at your household records to make sure that we are protecting your rights as someone who takes part in research:

- Staff members from the Nigerian National Health Research Ethics Committees (NHREC) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA)
- The United States Office of Human Research Protections and other government agencies that look at the safety of persons taking part in research to ensure we are protecting your child's rights as a person who takes part in this survey
- Study staff and study monitors

[READ FROM HERE]
Everyone using the survey information will work to keep your personal information secret. Your personal information will not be given out. If you have any questions or concerns about your household rights, or if you believe those rights were violated due to our negligence, you can contact the National Health Research Ethics Committee (NHREC) at

[INDICATE ADDRESS OF POC]

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu
Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

Refusal to Take Part and Right to Withdraw
Your taking part in this survey is voluntary. You do not have to take part in this survey. You are free to change your mind at any time and stop taking part. Refusal to take part or stopping to take part will not affect the health services you or any member of your household receive. If you decide not to take part or stop taking part, we will ask your permission to give us the reasons and the information you gave will not be included in analysis. If you have any questions about the survey, or feel that you have been harmed by taking part, you should contact the responsible investigator:

[INDICATE ADDRESS OF POC]
Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: USCDC Nigeria Country Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

Removal from Survey
The person in charge of the survey can remove your household from the survey without your consent. We will notify you if this happens. You will have a chance to ask questions.

Do you want to ask me anything about the survey?

Consent Statement
I have read this form and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions that I had have been answered satisfactorily. I 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.
Do you agree to do the household interview? 'YES' means that you agree to do the interview. 'NO' means that you will NOT do the interview.

_____Yes _____No

Head of household signature or mark _____ Date: ___/___/___

Printed name of head of household _____

Household ID number _____

[For illiterate participants]

Signature of witness _____ Date: ___/___/___

Printed name of witness _____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Appendix H2: Survey Consent for Individual Adult Interview and Blood Draw
(Age 18 – 64 years)

Nigeria AIDS Indicator and Impact Survey (NAIIS)

[IF PARTICIPANT HAS NOT BEEN THROUGH HOUSEHOLD CONSENT]

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Hello. My name is_____. I would like to invite you to take part in this survey about HIV in Nigeria. The Federal Ministry of Health and the National Agency for the Control of AIDS (NACA) are leading this survey. They are doing it with the United States Centers for Disease Control and Prevention (CDC). You are invited to take part in this survey because you are a member of a household. Taking part in this survey is voluntary.

Purpose of survey
This survey will help us know how many people in Nigeria have HIV and need health services. It will also tell us about people's risk for getting HIV.

We plan to invite about 137,289 members of households like you to take part in this survey. If you take part, you will help the Government of Nigeria make health services better in the country.

→ **GO TO SURVEY PROCEDURES**

[IF PARTICIPANT HAS BEEN THROUGH HOUSEHOLD CONSENT]

Hello, my name is_____.

Survey Procedures

If you take part in this survey, you will be invited to take part in a single person interview. We will ask you questions about yourself, your sexual and social life, and your awareness of HIV services. We will also ask for your permission to do a free HIV test on you. The interview will take about 40 minutes.

The information is collected on this tablet. The information is stored securely and can only be accessed by selected survey staff. The interview will take place in private here in your house or an area around your house.

After the interview, we will offer you HIV testing and may also offer Hepatitis B and Hepatitis C testing. We will also ask your permission to use your leftover blood later in the laboratory for future testing.

Blood draw and HIV testing procedures

If you agree to take the HIV, test trained laboratory personnel will take a small amount, about 14 mL or about one tablespoon 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 HIV results today and offer you conselling services . The testing and counselling session will take about 40 minutes.

If we find HIV in your blood, you will get a Hepatitis B and C test here at home. If we dont find HIV in your blood, you may or may not be selected for Hepatitis B and C testing. We will also test your blood for CD4 cells here at home. The

number of CD4 cells shows how well your body can fight HIV infection and other diseases. We will also test the CD4 cells of some people who do not have HIV in their blood. We will also send your blood to a laboratory to find out your viral load, which is the amount of HIV in your blood. We will send your viral load results to a health facility in about 8-10 weeks from now. We will give you a referral form and information so that you can consult a nurse or doctor to learn more about your HIV, CD4 cells, viral load test results, and your health.

We will also do other additional tests related to HIV.
If we have test results that might help your care or treatment, we will contact you to tell you how you and your doctor or nurse may get these results.

Storage of specimens

We would also like your permission to keep your leftover blood sample for future research tests. These tests may be about HIV or other health issues important for the health of the Nigerian people, such as nutrition or immunization. This will help the Federal Ministry of Health improve the health of the people of Nigeria. This sample will be kept for at least five years and your information will be linked to the stored sample for the 5-year period and delinked afterward. We will attempt to tell you about any test results that are important to your health during the five-year period. Your leftover blood will not be sold or used for profit making. If you do not agree for us to keep your blood sample, we will destroy your blood sample after all tests for this survey are completed.

Potential Risks/Discomfort

Some of the questions may make you feel uncomfortable. You are free to skip a question and continue. The information you provided will be protected in a secure place.

The risks in drawing blood are very small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. If you have any discomfort, bleeding or swelling at the site, please let us know.

You may learn that you are infected with HIV. Learning that you have HIV may cause some emotional discomfort. You will receive advice on how to cope with learning that you have HIV.

If you are selected for Hepatitis B and C testing, you will learn your Hepatitis B and C status. This may cause some emotional discomfort. You will receive advice on how to cope and where to go for treatment.

We will do everything we can to keep the information on your HIV status a secret. Access to the information will be minimized and limited to persons carrying out this survey.

Potential Benefits

You may or may not benefit by taking part in this study. The answers you give will help Government to improve the health services of Nigerians and to develop more effective programs to fight HIV and reduce its spread in the community. The main benefit for you to take part in this survey is the chance to learn more about your health today. If we do not find HIV in your blood, you will learn about what you can do to prevent becoming infected by HIV. If we find HIV in your blood, the benefit is that you will know your HIV status and where to go for life-saving treatment that is provided by the Federal Ministry of Health and the National Agency for the Control of AIDS (NACA) at no cost to you. If you already know that you are HIV positive and are on HIV treatment, the CD4 and viral load tests will help your nurse or doctor know how well your treatment is working.

Alternative to Taking Part in the Survey

Your alternative is not to take part. If you choose not to take part, the services you or any member of your household receive will not be affected.

Costs to Person Taking Part in the Survey

It will not cost you anything to take part in this study other than your time.

Payment to Person Taking Part in the Survey

You will not receive any payment for taking part in this survey

Confidentiality and Access to your Health Information
Efforts will be made to protect your personal information and your answers to the interview questions. A number will be used instead of your name to identify the answers you give. Any answers included in the final report will not have your name on it. The information we collect during the survey will not be released outside of the survey groups unless there is an issue of safety. Everyone using the survey information will work to keep your personal information confidential.

[INTERVIEWER: DO NOT READ ALOUD]

The following individuals and/or agencies may look at your research records to make sure that we are protecting your rights as someone taking part in research:

- Staff members from the Nigerian National Health Research Ethics Committees (NHREC) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA).
- The United States Office of Human Research Protections and other government agencies that look at the safety of persons taking part in research to ensure we are protecting your child's rights as a person who takes part in this survey.
- Study staff and study monitors.

[INTERVIEWER: READ FROM HERE]

Your permission to allow us to use and share your name and contact information with the groups above will expire two years after the end of the survey. If you want to leave the study, have any questions about the survey, or feel that you have been harmed by taking part, you should contact NHREC at:
[INDICATE ADDRESS OF POC]

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu
Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

[READ FROM HERE]

Refusal to Take Part and Right to Withdraw
Your taking part in this survey is voluntary. You are free to withdraw the permission to use your information and leftover blood at any time. Refusal to take part or withdrawal from the survey will not affect the health services you or any member of your household receive. You do not have to take part in giving your blood samples. Even after you agree to give the blood samples you are free to change your mind and stop taking part. You may agree to let us test your blood for HIV and CD4 counts and other HIV tests. If you do not want to give blood, please tell us. If you decide to stop taking part, there will be no adverse physical, social, economic, legal or psychological consequences for your decision to withdraw from the survey. If you have questions or concerns or complaints or if you need to report a medical injury related to the survey, please contact the responsible investigator:

[INDICATE ADDRESS OF POC]
Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

Do you want to ask me anything about the survey?

Consent Statement

I have read this form and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions that I had, have been answered satisfactorily. I agree to take part. I know that after choosing to take part, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

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

   _____Yes _____No

2. Do you agree to give blood for HIV, Hepatitis B and C testing and related testing? 'YES' means that you agree to give blood for HIV testing and related testing. 'NO' means that you will NOT give blood for HIV testing, Hepatitis B, and related testing.

   _____Yes _____No

3. Do you agree to have your leftover blood stored for future research? 'YES' means that you agree to have these blood samples stored for future testing. 'NO' means that these blood samples will NOT be stored for future research.

   _____Yes _____No

4. Do you agree to be contacted should these future studies have clinically actionable results that are related to your health? 'YES' means that you agree to be contacted. 'NO' means that you don't agree to be contacted.

   _____Yes _____No

Participant signature or mark _____ Date: ___/___/___

Printed name of participant _____

Participant ID number _____

[For illiterate participants]

Signature of witness _____ Date: ___/___/___

Printed name of witness _____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Appendix H3: Parent/Guardian Permission for Children, ages 0-9 years

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Now I would like to ask permission for your son/daughter to take part in the survey. Your child's taking part will help the Federal Ministry of Health and National Agency for the Control of AIDS (NACA) to plan well to fight HIV.

[IF PARENT/GUARDIAN HAS BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

Survey Procedures
If you give permission for your child to take part, we will go ahead as mentioned in your consent as follows:

- **[IF CHILD IS 2-9 YEARS OLD]** To do the HIV test in your home, a trained laboratory personnel will take about 6 mL or about 1 teaspoon of blood from your child's arm or a few drops of blood from your child's finger.
- **[IF CHILD IS <2 YEARS OLD]** A trained laboratory person will take a few drops (about 1 mL) from your child's finger or heel for the HIV test.

- We will discuss the results with you and your child, if you want to discuss them with him/her
- If your child has HIV, he/she will get a CD4 test and receive the results today.
- If your child is HIV positive, his/her blood will be sent to a laboratory to determine the viral load. The results will be returned to the clinic or hospital you would like in 8-10 weeks.
- We will give you a referral form so you and your child can consult with a doctor regarding his/her HIV test, and viral load results.
- We will ask for your permission to store your child's leftover blood for future research tests

[FOR CHILDREN ≤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 the antibodies that fight HIV. If we find the antibodies, it does not mean your child has the virus in his/her blood. It just shows that he/she has the antibodies to HIV and that the mother is positive. We will need to send your child's blood to a lab for a special test to know if he/she has the HIV virus. If you give us the name of a clinic or hospital, we can send the result there in about 8 to 10 weeks from now. If you give us your contact information, we will also contact you to tell you that the results have been sent to the clinic or hospital you chose. You will be able to talk to a doctor or nurse at the clininc or hospital about the test result. With your permission, the Federal Ministry of Health will use your child's leftover blood sample for future unspecified test results that may be important towards improving the health of Nigerian children

→ GO TO POTENTIAL STORAGE OF SPECIMENS
[IF PARENT/GUARDIAN HAS NOT BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Purpose of survey
This survey will help us know how many people in Nigeria have HIV and need health services. It will also tell us about people's risk for getting HIV.

We plan to invite about 31,000 children to take part in this survey. If you give permission for your child to take part, you will help the Government of Nigeria make health services better in the country.

Survey Procedures

[FOR CHILDREN 2-9 YEARS OLD] If you agree to allow your child to take part in the survey, a trained laboratory person will take a small amount or about 6 mL of blood or about 1 teaspoon from your child's arm to perform an HIV test here in your home. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger.

[FOR CHILDREN <2 YEAR OLD] If your child is less than 2 years, we will take a few drops (about 1 mL) from your child's finger or heel for the HIV test.

We will give you the results today and counsel you about the results and how to share the 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 counselling session will take about 40 minutes.

If your child tests positive for HIV, We will test his/her blood for C4 cells here and also send his/her blood to a laboratory to test the amount viral load in his/her blood. CD4 cells are the part of your immune system that fights HIV infection and other diseases while viral load is the amount of HIV in the blood. We will also test the CD4 level of some children without HIV. If you provide us with the name of a health facility, we can send your child's viral load results there about 8 to 10 weeks from now.

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, CD4 count, and viral load. If we have test results that might guide your child's care or treatment, we will contact you to tell you how you and your child's doctor or nurse may get these results.

[For children ages 0-<18 months only]

The body makes antibodies to fight HIV. Antibodies from a mother with HIV can enter the baby's blood during pregnancy. The test we perform on your child today will let us know if your child has antibodies to HIV and if the mother is HIV positive. If we find the antibodies, it does not mean your child has the HIV virus in his/her blood. It just tells us that he/she has antibodies to HIV. We will need to send your child's blood sample to a lab for a special test to know if he/she truly has the HIV virus. If you give us the name of a clinic or hospital you would like to send the result to, we can send the result there in about 8 - 10 weeks from now. If you give us your contact information, we will also contact you to tell you that the results have been sent to the clinic or hospital,. You will be able to talk to a doctor or nurse at the clinic or hospital about the test result.

Storage of specimens

We would like to ask for your permission to store your child's leftover blood sample for future research tests. These tests may be about HIV or other health issues important for the health of about 170 million Nigerians, such as nutrition or immunization. This sample will be stored for at least five years, but your child's name will be linked to the sample for only five years. We will attempt to tell you about any test results during the five-year period that are important for your child's health. Your child's leftover blood sample will not be sold or used for profit making. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's blood samples after all tests for this survey are completed.

Potential Risks

The risks to being in the survey and drawing blood are small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. We will do everything we can to minimize these risks and keep your child's information private.

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 have HIV virus found in their blood. If this happens to your child, the benefit is that you will learn his/her HIV and will learn where to take your child for life-saving treatment for HIV that is provided by the Federal Ministry of Health at no cost to you. If you already know that your child has HIV and he/she is taking treatment, the CD4 and viral load tests can help your child's doctor or nurse to find out how well the treatment is working. Your child's taking part in this research could help us learn more about children and HIV in Nigeria and how HIV prevention and treatment programs are working.

Alternative to Taking Part in the Survey

Your alternative is not to let your child take part in the survey. If you choose not to let him/her takes part, the services you and your child receive will not be affected in any way.

Costs to Person Taking Part in the Survey

There is no cost to you for your child being in the survey. All the tests are given at no cost to you.

Payment to Person Taking Part in the Survey

You should also know that you and your child will not be paid for taking part in the survey.

Confidentiality and Access to Your Health Information

We will do everything we can to keep your child's taking part in the survey private. The information we collect from your child will be identified by a number and not by your name or your child's name. Your name and your child's name will not appear when we share survey results. The information we collect from your child will not be released outside of the survey groups listed below unless there is an issue of safety.

[INTERVIEWER: DO NOT READ ALOUD]

The following individuals and/or agencies will be able to look at your child's research 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 he/she takes part in the survey. These include the National Health Research Ethics Committee (NHREC) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA),

- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your child's rights as he/she takes part in this survey

- Study staff and study monitors

[INTERVIEWER: READ FROM HERE]

Your permission to allow us to use and share your child's name and contact information with the groups above will expire two years after the end of the survey. If you want your child to leave the study, have any questions about the survey, or feel that your child has been harmed by taking part, you should contact NHREC at:

[INDICATE ADDRESS OF POC]

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu
Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

Refusal to Take Part and Right to Withdraw

It is your decision whether you will allow your child to join the survey. Your child may stop taking part at any time. If your child does not take part, it will not affect your child's health care in any way. Even after you agree to give your child's blood samples, you are free to change your mind and stop taking part. You may agree to let us test your child's blood for HIV and CD4 counts and other HIV testing and not agree to have his/her blood be kept for future research tests. If you do not want to give your child's blood, please tell us. If you decide to stop taking part, we will request you to complete a refusal/withdrawal form and the samples you gave will not be included in analysis. Your permission to allow us to use and share your child's information with the groups above will expire two years after the end of the survey. If you want to leave the survey, or have the leftover specimen destroyed, have any questions about the survey, or feel that you have been harmed by taking part, you should contact the responsible investigator: …

[INDICATE ADDRESS OF POC]
Dr. Evelyn Ngige

Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

Do you want to ask me anything about your child's taking part in the survey?

Consent Statement
I have read this form, and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to 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. Do you agree that your child give blood for HIV testing and related testing? 'YES' means that you give your permission to have the nurse collect a sample of your child's blood for HIV testing and related testing. 'NO' means that your child will NOT give blood for HIV testing and related testing.

   _____Yes _____No
   (if "Yes" proceed to the next question)

2. Do you agree to have your child's leftover blood stored for future research? 'YES' means that you give permission for your child's leftover blood samples to be stored for future research. 'NO' means that your child's blood samples will NOT be stored for future research.

   _____Yes _____No

3. Do you agree to be contacted should these future studies have clinically actionable results that are related to your child's health? 'YES' means that you agree to be contacted. 'NO' means that you don't agree to be contacted.

   _____Yes _____No

Parent/guardian signature or mark _____ Date: ___/___/___

Printed name of parent/guardian _____

Parent/guardian ID number _____ (If applicable. If not applicable check here __)

[For illiterate participants]

Signature of witness _____ Date: ___/___/___

Printed name of witness _____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Child's name (print) _____

Child's participant ID number _____

Appendix H4: Parent/Guardian Permission for Child Interview and Blood Draw [ages 10-17 years]

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Now I would like to ask you to give us permission to invite your son/daughter to take part in the survey. Your child's taking part will help the Federal Ministry of Health and the National Agency for the Control of AIDS make HIV services better.

[IF PARENT/GUARDIAN HAS BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

Survey Procedures

If you and your child agree, the following will happen, as described in your own consent:

- We will ask questions on HIV and your child's behaviors (about 40 minutes) in private. Your child's answers will not be shared with you.
- To do the HIV test in your home.

[IF 10-14 YEARS]:

- A trained lab technician will take about 6 mL (about 1 teaspoon) of blood from your child's arm or a few drops of blood from your child's finger.
- We will discuss the results with you. We can discuss the results with you and your child together, if you so choose.
- If your child is HIV positive, we will test his/her blood for CD4 cells count here at home. We will send his/her blood to a laboratory to determine the viral load. The results will be returned to the clinic or hospital you would like in 8 – 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
- With your permission, the Federal Ministry of Health will use your child's leftover blood sample for future unspecified test results that may be important towards improving health of Nigerian children.

[IF 15-17 YEARS]:

- A trained lab technician will take about 14 mL (about one tablespoon) of blood from your child's arm or a few drops of blood from your child's finger.
- We will discuss the results with you. We can discuss the results with you and your child together, if you so choose.
- If your child is HIV positive, we will test his/her blood for CD4 cells count here at home. We will send his/her blood to a laboratory to determine the viral load. The results will be returned to the clinic or hospital you would like in 10-12 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
- If your child is HIV positive, he/she will also get a Hepatitis B and C test. If you child tests positive for Hepatitis B or C, we will give you a referral form so you and your child can consult with a doctor regarding his/her test results.
- If your child is HIV negative, he/she may be randomly selected for CD4 testing and for Hepatitis B and C testing. If we have test results that might guide your child's care or treatment, we will give you a referral form so you and your child can consult with a doctor regarding his/her test results.
- With your permission, the Federal Ministry of Health will use your child's leftover blood sample for future unspecified test results that may be important towards improving health of Nigerian children.

→ GO TO STORAGE OF SPECIMENS

[IF PARENT/GUARDIAN HAS NOT BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Purpose of survey
This survey will help us know how many people in Nigeria have HIV and need health services. It will also tell us about people's risk for getting HIV.

We plan to invite about 31,000 children to take part in this survey. If you give permission for your child to take part, you will help the Government of Nigeria make health services better in the country.

Survey Procedures
If you agree to allow us to invite your child to take part in the survey, we will ask your child to do an interview with us in private to learn what your child knows about HIV and about your child's behaviors that may put him or her at risk for HIV. The interview will take about 40 minutes. We will not share your child's answers to the interview questions with you. The interview will take place in private here in your house or an area around your house.

[IF 10-14 YEARS]: If you and your child agree, a trained laboratory person will take a small amount or about 6 mL (about 1 teaspoon) of blood from your child's arm to perform an HIV test here in your home. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger. We will give you the results today and discuss with you how to share the 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 advice session will take about 40 minutes.

If your child tests positive for HIV, we will test his/her blood for CD4 cells count here at home and send his/her blood to a laboratory to test the viral load in his/her blood. CD4 cells are the part of your immune system that fights HIV infection and other diseases while viral load is the amount of HIV in the blood. We will also test the CD4 level of some children without HIV. If you provide us with the name of a health facility, we can send your child's viral load results there about 8 to 10 weeks from now. 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, CD4 count, viral load, and health.

We will also do other additional tests related to HIV. If we have test results that might help your child's care or treatment, we will contact you to tell you how you and your child's doctor or nurse may get these results.

With your permission, the Federal Ministry of Health will use your child's leftover blood sample for future unspecified test results that may be important towards improving health of Nigerian children.

[IF 15-17 YEARS]: If you and your child agree, a trained laboratory personnel will take a small amount or about 14 mL (about one tablespoon) of blood from your child's arm to perform an HIV test here in your home. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger. We will give you the results today and discuss with you how to share the 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 advice session will take about 40 minutes.

If your child tests positive for HIV, we will test his/her blood for CD4 cells count here at home and send his/her blood to a laboratory to test the viral load in his/her blood. CD4 cells are the part of your immune system that fights HIV infection and other diseases while viral load is the amount of HIV in the blood. We will also test the CD4 level of some children without HIV. If you provide us with the name of a health facility, we can send your child's viral load results there about 8 to 10 weeks from now. 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, CD4 count, viral load, and health.

If your child tests positive for HIV, we will test his/her blood for Hepatitis B and C. If your child test positive for Hepatitis B and/or C, 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 Hepatitis and health.

If your child is HIV negative, he/she may be randomly selected for CD4 testing and for Hepatitis B and C testing. If we have test results that might guide your child's care or treatment, we will give you a referral form so you and your child can consult with a doctor regarding his/her test results.

We will also do other additional tests related to HIV. If we have test results that might help your child's care or treatment, we will contact you to tell you how you and your child's doctor or nurse may get these results.

With your permission, the Federal Ministry of Health will use your child's leftover blood sample for future unspecified test results that may be important towards improving health of Nigerian children.

Storage of specimens
We would like to ask for your permission to store your child's leftover blood for future tests. These tests may be about HIV or other health issues important for the health of Nigerian people such as nutrition or immunization. This sample can be stored for at least five years, but your child's name will be linked to the sample for five years. We will attempt to tell you about any test results during the five-year period that are important for your child's health. Your child's leftover blood will not be sold or used for profit making. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's blood samples after all tests for this survey are completed.

Potential Risks
Your child may feel uncomfortable answering some of the questions. Your child does not need to answer any question(s) if they feel the question(s) makes them feel uncomfortable.

The risks to being in the survey and drawing blood are small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. We will do everything we can to minimize these risks and keep your child's information private.

Potential Benefits
There may be no direct benefit to your child for taking part in the interview. The main benefit for your child is the chance to learn more about his/her health today. Some children who take part will be found to have 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 free HIV treatment that is given by the Federal Ministry of Health. If you already know that your child has HIV and he/she is taking drugs for HIV, the CD4 and viral load tests can help your child's doctor or nurse to know how well the drugs are working. Your child's taking part in this research could help us learn more about children and HIV in Nigeria and how HIV prevention and treatment programs are working.

Alternative to Taking Part in the Survey
Your alternative is not to let your child take part in this survey. If you choose not to let him/her take part, the services you all receive will not be affected in any way.

Costs to Person Taking Part in the Survey
There is no cost to you for your child being in the survey.

Payment to Person Taking Part in the Survey
You should also know that you and your child will not be paid for your child to be in the survey.

Confidentiality and Access to Your Child's Health Information
We will do everything we can to keep information about your child's secret. The information we collect from your child will be identified by a number and not by your name or your child's name. Your name and your child's name will not appear when we share survey results. The information we collect from your child will not be released outside of the study partners listed below unless there is an issue of safety.

[INTERVIEWER: DO NOT READ ALOUD]

The following individuals and/or agencies may look at your child's research records to make sure that we are protecting your child's rights as he/she takes part in the survey:

- Staff members from the Nigerian National Health Research Ethics Committees (NHREC) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA)
- The United States Office of Human Research Protections and other government agencies that look at the safety of persons taking part in research to ensure we are protecting your child's rights as a person who takes part in this survey
- Study staff and study monitors

[INTERVIEWER: READ FROM HERE]

Your permission to allow us to use and share your child's name and contact information with the groups above will expire two years after the end of the survey. If you want your child to leave the study, have any questions about the survey, or feel that your child has been harmed by taking part, you should contact NHREC at:
[INDICATE ADDRESS OF POC]

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

Refusal to Take Part and Right to Withdraw
It is your decision about whether you will allow us to invite your child to take part in the survey. Your child may stop taking part at any time. [ONLY IF CONDUCTING ADOLESCENT QUESTIONNAIRE] If your child does not want to answer some of the questions, she/he may skip them and move to the next question. If you agree to allow us to invite your child to take part, you will have the option for your child to test for HIV and CD4 counts and the option to have his/her blood stored for future research. If your child does not take part, it will not affect your child's health care in any way. If you decide to take your child out of the survey, we will request you to complete a refusal/withdrawal form and the samples you gave will not be included in analysis. If you have any questions about the survey, or feel that your child has been harmed by taking part, you should contact the responsible investigator:

[INDICATE ADDRESS OF POC]
Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

Do you want to ask me anything about your child's participation in the survey?

Permission Statement

I have read this form, and/or someone has read it to me. I was encouraged to ask questions and given time to ask

questions. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time.

I agree to allow you to ask my child to be in this survey. I know that after allowing my child to decide whether he/she wants to be in this survey, he/she may withdraw at any time. His/her taking part is voluntary. I have been offered a copy of this permission form.

1. Do you agree for us to ask your child to do the interview? YES' means that you give your permission to have the survey staff ask your child to do the interview. 'NO' means that you do NOT give permission for us to ask your child to be interviewed.

   _____Yes _____No

2. Do you agree for us to ask your child to give blood for HIV testing, Hepatitis B and C and related testing? 'YES' means that you give your permission for us to ask your child to have the laboratorian collect a sample of your child's blood for HIV testing and related testing. 'NO' means that we will NOT ask your child to give blood for HIV testing and related testing.

   _____Yes _____No
   (if "Yes" proceed to the next question)

3. Do you agree for us to ask your child to have your child's leftover blood stored for future research? 'YES' means that you give permission for us to ask your child to store your child's blood samples for future research. 'NO' means that you do NOT give us permission to ask your child to store his/her blood samples for future research.

   _____Yes _____No

4. Do you agree to be contacted should these future studies have clinically actionable results that are related to your child's health? 'YES' means that you agree to be contacted. 'NO' means that you don't agree to be contacted.

   _____Yes _____No

Parent/guardian signature or mark _____ Date: ___/___/___

Printed name of parent/guardian _____

Parent/guardian ID number _____ (If applicable. If not applicable check here __)

[For illiterate participants]

Signature of witness _____ Date: ___/___/___

Printed name of witness _____

Signature of person obtaining permission _____ Date: ___/___/___

Printed name of person obtaining permission _____

Survey staff ID number _____

Child's name (print) _____

Child's participant ID number _____

Appendix H5: Survey Assent for Interview and Blood Draw
[Ages 15-17 years]

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Hello. My name is_____. I would like to invite you to take part in a survey of Nigerians to learn more about HIV in the country. The Federal Ministry of Health and the National Agency for the Control of AIDS (NACA) are leading this survey. They are doing it with the United States Centers for Disease Control and Prevention (CDC). You are invited to take part in this survey because you are a member of a household. Taking part in this survey is voluntary.

Purpose of the survey
This survey will help us know how many people in Nigeria have HIV and need health services. It will also tell us about people's risk for getting HIV.

We plan to ask over 31,000 young persons some of them aged 15-17 years like you and live in a household to join this survey. A survey is a way to learn new information about something by asking questions and testing many people.

We would like to invite you to join this survey. Your parent/guardian said it was okay for us to ask you to join the survey. This form might have some words in it that are not familiar to you. Please ask us to explain anything that you do not understand.

Survey Procedures

If you take part in this survey, you will be invited to take part in a single person interview. We will ask you questions about yourself, your sexual and social life and your awareness of HIV services. We will also ask for your permission to do a free HIV test on you. The interview will take about 40 minutes.

The information is collected on this tablet. The information is stored securely and can only be accessed by selected survey staff. The interview will take place in private here in your house or an area around your house.

After the interview, we will offer you HIV testing and may also offer Hepatitis B and Hepatitis C testing. We will also ask your permission to use you blood later in the laboratory for future testing.

Blood draw and HIV testing procedures

If you agree to take the HIV test, trained laboratory personnel will take a small amount, about 14 mL or one tablespoon 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 your parent or guardian the HIV results today and offer counselling services. The testing and counselling session will take about 40 minutes.

If we find HIV in your blood, you will get a Hepatitis B and C test here at home. We will also test your blood for CD4 cells t here at home. CD4 cells shows how well your body can fight HIV infection and other diseases. We will also test the CD4 cells of some people who do not have HIV in their blood. We will also send your blood to a laboratory to find out your viral load which is the amount of HIV in your blood. We will send your viral load results to a health facility in about 8-10 weeks from now. We will give your parent or guardian a referral form and information so that you and

your parent or guardian can consult a nurse or doctor to learn more about your HIV, CD4 cells, viral load test results, and your health.

We will also do other additional tests related to HIV. Some HIV-negative people may also be randomly selected for Hepatitis B and Hepatitis C testing.

If we have test results that might help your care or treatment, we will contact your parent or guardian to tell you how you and your doctor or nurse may get these results.

Storage of specimens
We would also like your permission to keep your leftover blood sample for future research tests. These tests may be about HIV or other health issues important for the health of Nigerian people, such as nutrition or immunization. This will help the Federal Ministry of Health improve the health of the people of Nigeria. This sample can be kept for at least five years and your name will be linked to the sample for the five years. We will attempt to tell you about any test results during the five-year period that are important to your health. Your leftover blood will not be sold or used for profit making. If you do not agree for us to keep your blood sample, we will destroy your blood sample after all tests for this survey are completed.

Potential Risks/Discomfort
Some of the questions may make you feel uncomfortable. You are free to skip a question and continue. The information you provided will be protected in a secure place.

The risks in drawing blood are very small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. If you have any discomfort, bleeding or swelling at the site, please let us know.

You may learn that you are infected with HIV. Learning that you have HIV may cause some emotional discomfort. You will receive advice on how to cope with learning that you have HIV.

If you are selected for Hepatitis B and C testing, you will learn your Hepatitis B and C status. This may cause some emotional discomfort. You will receive advice on how to cope and where to go for treatment.

We will do everything we can to keep the information on your HIV status a secret. Access to the information will be minimized and limited to persons carrying out this survey.

Potential Benefits
You may or may not benefit by taking part in this study. The answers you give will help Government to improve the health services of Nigerians and to develop more effective programs to fight HIV and reduce its spread in the community. The main benefit for you to take part in this survey is the chance to learn more about your health today. If we do not find HIV in your blood, you will learn about what you can do to stay away from HIV. If we find HIV in your blood the benefit is that you will know your HIV status and where to go for free life-saving treatment that is provided by the Federal Ministry of Health and the National Agency for the Control of AIDS (NACA). If you already know that you are HIV-positive and are on HIV treatment, the CD4 and viral load tests will help your nurse or doctor know how well your treatment is working.

Alternative to Taking Part in the Survey
Your alternative is to not take part. If you choose not to take part, the services you or any member of your household receive will not be affected.

Costs to Person Taking Part in the Survey
There is no cost to you or to your parent/guardian if you take part in this survey.

Payment to Person Taking Part in the Survey
You should also know that you and your parent/guardian will not be paid to be in the survey.

Confidentiality and Access to Your Health Information
What we talk about will be kept secret and will not be shown to anyone outside of the survey team. Your answers to the questions will be identified only by a number. Your name will not appear when we share survey results. You can choose to tell your parent/guardian about the interview. However, we will not tell your answers to your parent or guardian. The information we collect during the survey will not be released outside of the survey groups listed below unless there is an issue of safety.

[INTERVIEWER: DO NOT READ ALOUD]

The following persons and/or agencies may look at your research records to make sure that we are protecting your rights as he/she takes part in the survey:

- Staff members from the Nigerian National Health Research Ethics Committees (NHREC) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA).
- The United States Office of Human Research Protections and other government agencies that look at the safety of persons taking part in research to ensure we are protecting your rights as a person who takes part in this survey.
- Study staff and study monitors.

[INTERVIEWER: READ FROM HERE]

If you want to leave the study, have any questions about the survey, or feel that you have been harmed by taking part, you should contact the NHREC at:

[INDICATE ADDRESS OF POC]

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu
Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

[READ FROM HERE]

Refusal to Take Part and Right to Withdraw
You do not have to take part in the survey. Even If you choose to join the survey, you may change your mind at any time and stop taking part. If you decide not to take part, it will not affect your health care in any way. Your permission to allow us to use and share your information with the groups above will expire two years after the end of the survey. If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact the responsible investigator:

[INDICATE ADDRESS OF POC]
Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

Do you want to ask me anything about the survey?
Assent statement

I have read this form, and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions that I had were answered satisfactorily. I agree to be in this survey. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this assent form.

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

   _____Yes _____No

2. u agree to have your blood tested for HIV Testing, Hepatitis B and C, and other related testing during this survey? 'YES' means that you agree to give blood for Hepatitis B and Hepatitis C testing. 'NO' means that you will NOT give blood for HIV and other related testing

   _____Yes _____No

3. Do you agree to have your leftover blood stored for future research? 'YES' means that you agree to have these blood samples stored for future testing. 'NO' means that these blood samples will NOT be stored for future research.

   _____Yes _____No

4. Do you agree to be contacted should these future studies have clinically actionable results that are related to your health? 'YES' means that you agree to be contacted. 'NO' means that you don't agree to be contacted.

   _____Yes _____No

Participant signature or mark _____ Date: ___/___/___

Printed name of participant _____

Participant ID number _____

Printed name of parent/guardian _____

[For illiterate child]

Signature of witness _____ Date: ___/___/___

Printed name of witness _____

Signature of person obtaining assent _____ Date: ___/___/___

Printed name of person obtaining assent _____

Survey staff ID number _____

Appendix H6: Survey Assent for Adolescent Interview and Blood Draw
[Ages 10-14 years]

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Hello. My name is_____. I would like to invite you to take part in a survey of Nigerians to learn more about HIV in the country. The Federal Ministry of Health and the National Agency for the Control of AIDS (NACA) are leading this survey. They are doing it with the United States Centers for Disease Control and Prevention (CDC). You are invited to take part in this survey because you are a member of a household. Taking part in this survey is voluntary.

Purpose of the survey
This survey will help us know how many people in Nigeria have HIV and need health services. It will also tell us about people's risk for getting HIV.

We plan to ask over 31,000 young persons, some of them aged 10-14 years like you and live in a household, to join this survey. A survey is a way to learn new information about something by asking questions and testing many people.

We would like to invite you to join this survey. Your parent/guardian said it was okay for us to ask you to join the survey. This form might have some words in it that are not familiar to you. Please ask us to explain anything that you do not understand.

Survey Procedures
If you take part in this survey, you will be invited to take part in a single person interview. We will ask you questions about yourself, your sexual and social life and your awareness of HIV. We will also ask for your permission to do free HIV test on you. The interview will take about 40 minutes.

The information is collected on this tablet. The information is stored securely and can only be accessed by selected survey staff. The interview will take place in private here in your house or an area around your house.

Blood draw and HIV testing procedures
If you agree to take the HIV test, trained laboratory personnel will take a small amount, about 6 mL or 1 teaspoons 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 your parent or guardian the HIV results today and offer counselling services. The testing and counselling session will take about 40 minutes.

If we find HIV in your blood, will also test your blood for CD4 cells count here at home. CD4 cells shows how well your body can fight HIV infection and other diseases. We will also test the CD4 of some people who do not have HIV in their blood. We will also send your blood to a laboratory to find out your viral load which is the amount of HIV in your blood. We will send your viral load results to a health facility in about 10-12 weeks from now. We will give your parent or guradian a referral form and information so that they can consult a nurse or doctor to learn more about your HIV, CD4 cells, viral load test results, and your health.

If we have test results that might help your care or treatment, we will contact your parent or guardian to tell them how to get the results.

Storage of specimens
We would also like your permission to keep your leftover blood sample for future research tests. These tests may be about HIV or other health issues important for the health of Nigerian people, such as nutrition or immunization. This will help the Ministry of Health improve the health of the people of Nigeria. This sample can be kept for at least five years and your name will be linked to the sample for the five years. We will attempt to tell you about any test results during the five-year period that are important to your health. Your leftover blood will not be sold or used for profit making. If you do not agree for us to keep your blood sample, we will destroy your blood sample after all tests for this survey are completed.

Potential Risks and benefits
Some of the questions may make you feel uncomfortable. You are free to skip a question and continue. The information you provided will be protected in a secure place.

The risks in drawing blood are very small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. If you have any discomfort, bleeding or swelling at the site, please let us know.

We will do everything we can to keep the information on your HIV status a secret. Access to the information will be minimized and limited to persons carrying out this survey.

Alternative to Taking Part in the Survey
Your alternative is to not take part. If you choose not to take part, the services you or any member of your household receive will not be affected.

Costs to Person Taking Part in the Survey
There is no cost to you or to your parent/guardian if you take part in this survey.

Payment to Person Taking Part in the Survey
You should also know that you and your parent/guardian would not be paid to be in the survey.

Confidentiality and Access to Your Health Information
What we talk about will be kept secret and will not be shown to anyone outside of the survey team. Your answers to the questions will be identified only by a number. Your name will not appear when we share survey results. You can choose to tell your parent/guardian about the interview. However, we will not tell your answers to your parent or guardian. The information we collect during the survey will not be released outside of the survey groups listed below unless there is an issue of safety.

[INTERVIEWER: DO NOT READ ALOUD]

The following persons and/or agencies may look at your research records to make sure that we are protecting your rights as he/she takes part in the survey:

- Staff members from the Nigerian National Health Research Ethics Committees (NHREC) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA).
- The U.S. Office of Human Research Protections and other government agencies that look at the safety of persons taking part in research to ensure we are protecting your rights as a person who takes part in this survey.
- Study staff and study monitors.

[INTERVIEWER: READ FROM HERE]

If you want to leave the study, have any questions about the survey, or feel that you have been harmed by taking part, you should contact the NHREC at:

[INDICATE ADDRESS OF POC]

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu
Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

[READ FROM HERE]

Refusal to Take Part and Right to Withdraw
You do not have to take part in the survey. Even If you choose to join the survey, you may change your mind at any time and stop taking part. If you decide not to take part, it will not affect your healthcare in any way. Your permission to allow us to use and share your information with the groups above will expire two years after the end of the survey. If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact the responsible investigator:

[INDICATE ADDRESS OF POC]
Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

Do you want to ask me anything about the survey?

Assent statement

I have read this form, and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions that I had were answered satisfactorily. I agree to be in this survey. I know that after choosing to be in this survey, I may withdraw at any time. My participation is voluntary. I have been offered a copy of this assent form.

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

   _____Yes _____No

2. Do you agree to have your blood tested for HIV Testing and other related testing during this survey? 'YES' means that you agree to give blood for HIV testing. 'NO' means that you will NOT give blood for HIV testing

   _____Yes _____No

3. Do you agree to have your leftover blood stored for future research? 'YES' means that you agree to have these blood samples stored for future testing. 'NO' means that these blood samples will NOT be stored for future research.

   _____Yes _____No

4. Do you agree to be contacted should these future studies have clinically actionable results that are related to your health? 'YES' means that you agree to be contacted. 'NO' means that you don't agree to be contacted.

   _____Yes _____No

Participant signature or mark _____ Date: ___/___/___

Printed name of participant _____

Participant ID number_____

Printed name of parent/guardian_____

[For illiterate child]

Signature of witness _____ Date: ___/___/___

Printed name of witness _____

Signature of person obtaining assent _____ Date: ___/___/___

Printed name of person obtaining assent _____

Survey staff ID number _____

Appendix H7: Consent to Share Contact Information for Active Linkage to Care of Participants and Parents of Minors 0-14 years

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Purpose of consent
Your child had a positive HIV test today. We have provided you with a referral form that you and your child can take to a health clinic to 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 will provide your contact information and your child's HIV results to health workers or counselors from a trained social service organization. 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 counselors to provide you with support. The counselor can contact you by short message service (SMS), by phone, or in person.

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 counselor will assist you in accessing the health care needed by your child.

What about confidentiality?
Your child's HIV test results and your child's 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 child's confidentiality. However, we cannot guarantee complete confidentiality.

Who should you contact if you have questions?
If you change your mind or have any questions or feel that your child has been harmed by taking part, you should contact the Investigator listed below:

Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

If you decide your child should leave the study, no more information will be collected from you. However, we will not be able to take back the information that has already been collected and shared.

If you have any questions about your child's rights as a person in this survey, you can contact:

National Health Research Ethics Committee of Nigeria
Address: Federal Ministry of Health, Federal Secretariat Complex, Abuja
Tel: +234-803-586-8293

Do you want to ask me anything about the survey?

Consent Statement
Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

1. Do you agree to allow us to share your contact information with the State Ministry of Health or a partner that Ministry of Health works with, who may contact you to assist and support you and your child in seeking HIV care? 'YES' means that you agree for your information to be shared. 'NO' means that you do not agree for your information to be shared.

   _____Yes _____No

2. If yes, do you agree to be contacted by?

   SMS _____Yes _____No

   Phone call _____Yes _____No

   In person _____Yes _____No

Parent/guardian signature or mark _____ Date: ___/___/___

Printed name of parent/guardian _____

Participant ID number_____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Appendix H8: Consent to Share Contact Information for Active Linkage to Care (Participants 18-64 Years)

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Purpose of consent
You had a positive HIV and/or Hepatitis B or Hepatitis C test today. We have provided you with a referral form to bring to a health clinic and seek HIV treatment and/or Hepatitis B or Hepatitis C 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 and or Hepatitis B or C test results to healthcare workers from the State Ministry of Health (SMOH) or to a partner that the SMOH work with. This healthcare worker will contact you to talk to you about HIV and or Hepatitis B or C and help you go for appropriate treatment and care. Anyone who is provided with your details will be experienced in providing support to people living with HIV and or Hepatitis B or Hepatitis C infection 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 short message service (SMS), by phone or in person based on your preference.

What about confidentiality?
Your HIV and or Hepatitis B or C 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 healthcare 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:

Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

You may also wish to contact the Nigerian National Health Research Ethics Committee (NHREC) if you feel your rights have been violated in this study:

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

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 SMOH or a partner that the SMOH 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 SMOH or a partner that the SMOH/ works with, to help me go to a clinic to receive HIV treatment and/or HBV, HCV, care and support"**
>
> ____Check this box if participant AGREES to have their contact information shared with SMOH or their partner

If you DO NOT agree to allow us to share your contact information with SMOH or a partner that SMOH 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 SMOH or a partner that the SMOH works with, to help me go to a clinic to receive HIV treatment, and/or Hepatitis B or Hepatitis C infection care and support"**
>
> ____Check this box if participant DOES NOT AGREE to have their contact information shared with SMOH 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 _____

Appendix H9: Parent/Guardian Consent to Share Contact Information for Active Linkage (Children 15-17 years)

Interviewer reads: What language do you prefer for our discussion today?

☐ English
☐ Hausa
☐ Igbo
☐ Yoruba

Nigeria AIDS Indicator and Impact Survey (NAIIS)

Purpose of consent

Your child had a positive HIV and/or Hepatitis B or Hepatitis C 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 or Hepatitis B or C 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 and/or Hepatitis B or C to healthcare workers from the State Ministry of Health (SMOH) or a partner that the SMOH 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 or Hepatitis B or Hepatitis C infection 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 short message service (SMS), by phone or in person based on your preference.

What about confidentiality?

Your HIV, Hepatitis B, or Hepatitis C 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 healthcare 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:

Dr. Evelyn Ngige
Address: Federal Ministry of Health
Phone: +234-803-303-8090
Email: nkadingige@yahoo.com

Dr. Ibrahim Dalhatu
Address: US CDC Nigeria Office
Phone: +234-806-051-0525
Email: idalhatu@cdc.gov

You may also wish to contact the Nigerian National Health Research Ethics Committee (NHREC) if you feel your rights have been violated in this study:

Address:
Federal Ministry of Health,
Federal Secretariat Complex Shehu
Shagari Way,
Garki, Abuja
P.M.B. 083 Garki Abuja
Tel: +234-803-586-8293
E-mail: info@nhrec.net

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 SMOH or a partner that SMOH work with who can help you and your child go to a clinic to receive HIV treatment, and or Hepatitis B or Hepatitis C infection care and support, please state the following:

"I agree to allow my child's contact information to be shared with the staff of SMOH or a partner that the SMOH work with, to help me and my child go to a clinic to receive HIV treatment, and/or Hepatitis B or C care and support"

____Check this box if participant AGREES to have their child's contact information shared with SMOH or their partner

If you DO NOT agree to allow us to share your child's contact information with SMOH a partner that the SMOH 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 SMOH or a partner that the SMOH works with, to help me and my child go to a clinic to receive HIV treatment, and/or Hepatitis B or Hepatitis C infection 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

1. 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 _____