

# Cameroon Population-based HIV Impact Assessment CAMPHIA 2017-2018



FINAL REPORT  
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# Cameroon Population-based HIV Impact Assessment CAMPRIA 2017-2018

## CAMPRIA 2017-2018 COLLABORATING INSTITUTIONS

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## GLOSSARY OF TERMS

**90-90-90:** An ambitious treatment target to help end the AIDS epidemic. By 2020, 90% of all people living with 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 (VL) suppression (VLS).

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

**Adolescents:** Unless otherwise noted, for the purposes of this report, individuals aged 10-14 years are referred to as young adolescents; individuals aged 15-19 years are referred to as older adolescents.

**Adults:** Unless otherwise noted, for the purposes of this report, the survey population aged 15-64 years are collectively referred to as adults (adult men and women).

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

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

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

**Children:** Unless otherwise noted, for the purposes of this report, individuals 0-14 years of age are collectively defined as children.

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

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

**Head of Household:** The person who is recognized within the household as being the head and is age 18 years or older or is considered an emancipated minor (less than the age of 18 years who is married or is free from any legally competent representative) as defined by law in Cameroon.

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

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

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

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

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

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

**Informed Consent:** Informed consent is a legal condition whereby a person can give consent based upon a clear understanding of the facts, implications, and future consequences of an action. 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. Voluntary medical male circumcision is an important part of national HIV prevention programs in most HIV high-burden countries.

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

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

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

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

**Young Adults:** Unless otherwise noted, individuals 20–24 years of age are defined as young adults.

**Young People:** In this report, the term young people includes older adolescents and young adults as defined above.



## LIST OF ABBREVIATIONS

|                       |  |               |   |
|-----------------------|--|---------------|---|
| <b>AIDS</b>           | Acquired Immunodeficiency Syndrome   | <b>ODn</b>    | (normalized) Optical Density                    |
| <b>ANC</b>            | Antenatal Care   | <b>PCR</b>    | Polymerase Chain Reaction                       |
| <b>ART</b>            | Antiretroviral Therapy   | <b>PEPFAR</b> | U.S. President's Emergency Plan for AIDS Relief |
| <b>ARV</b>            | Antiretroviral   | <b>PFR</b>    | Proportion False Recent                         |
| <b>CAMPHIA</b>        | Cameroon Population-based HIV Impact Assessment  | <b>PHIA</b>   | Population-based HIV Impact Assessment          |
| <b>CDC</b>            | U.S. Centers for Disease Control and Prevention  | <b>PMTCT</b>  | Prevention of Mother-to-Child Transmission      |
| <b>CD4</b>            | CD4+ T-cell  | <b>POC</b>    | Point of Care                                   |
| <b>CI</b>             | Confidence Interval  | <b>PSU</b>    | Primary Sampling Unit                           |
| <b>CREMER</b>         | Centre de Recherches sur les Maladies Emergentes, Re-Emergentes et la Médecine Nucleaire | <b>QA</b>     | Quality Assurance                               |
| <b>DBS</b>            | Dried Blood Spot   | <b>QC</b>     | Quality Control                                 |
| <b>DROS</b>           | Division of Health Operations Research   | <b>RR</b>     | Response Rate                                   |
| <b>EA</b>             | Enumeration Area   | <b>RRC</b>    | Result Returning Coordinator                    |
| <b>EIA</b>            | Enzyme Immunoassay   | <b>RSE</b>    | Relative Standard Error                         |
| <b>EID</b>            | Early Infant Diagnosis   | <b>SMS</b>    | Short Message Service                           |
| <b>HbsAg</b>          | Hepatitis B Surface Antigen  | <b>STI</b>    | Sexually Transmitted Infection                  |
| <b>HBTC</b>           | Home-Based Testing and Counseling  | <b>T</b>      | Time Cutoff                                     |
| <b>HBV</b>            | Hepatitis B Virus  | <b>TB</b>     | Tuberculosis                                    |
| <b>HIV</b>            | Human Immunodeficiency Virus   | <b>TNA</b>    | Total Nucleic Acid                              |
| <b>ICC</b>            | Intra-Cluster Correlation (ICC)  | <b>TWG</b>    | Technical Working Group                         |
| <b>ID</b>             | Identification Number  | <b>UNAIDS</b> | Joint United Nations Programme on HIV and AIDS  |
| <b>INS</b>            | National Institute of Statistics   | <b>VL</b>     | Viral Load                                      |
| <b>IPV</b>            | Intimate Partner Violence  | <b>VLS</b>    | Viral Load Suppression                          |
| <b>LA<sub>g</sub></b> | Limiting Antigen   | <b>VMMC</b>   | Voluntary Medical Male Circumcision             |
| <b>mL</b>             | Milliliter   | <b>WHO</b>    | World Health Organization                       |
| <b>μL</b>             | Microliter   |               |   |
| <b>MDRI</b>           | Mean Duration of Recent Infection  |               |   |
| <b>MICS</b>           | Multiple Indicator Cluster Survey  |               |   |
| <b>MOS</b>            | Measure of Size  |               |   |
| <b>MTCT</b>           | Mother-to-Child Transmission   |               |   |
| <b>NNRTIs</b>         | Non-Nucleoside Reverse Transcriptase Inhibitors  |               |   |
| <b>NRTI</b>           | Nucleoside Reverse Transcriptase Inhibitors  |               |   |



# EXECUTIVE SUMMARY/ SUMMARY OF KEY FINDINGS

## KEY FINDINGS

- The annual HIV incidence in Cameroon was 0.24% (95% confidence interval [CI]: 0.11%-0.37%) among adults (defined as those aged 15-64 years) (corresponding to approximately 31,000 new cases per annum) (Table 5.B).
- In Cameroon, the HIV prevalence was 3.7% among adults (corresponding to approximately 500,000 adults living with HIV [95% CI 452,860–546,866]). The prevalence was 5.0% among women and 2.3% among men in 2017-2018 (Table 6.A).
- The burden of adult HIV infection varied across regions. HIV prevalence among adults ranged from 1.5% in Far North region to 6.3% in South region (Table 6.A).

The Cameroon Population-based HIV Impact Assessment 2017-2018 (CAMPHIA) was a nationally representative, cross-sectional, population-based survey of households in Cameroon. Conducted between July 2017 and February 2018, the survey focused on measuring key biological endpoints to provide direct estimates of HIV risk and burden, and the effectiveness and population-level impact of HIV-related prevention, care, and treatment interventions implemented in the country.

The primary objectives of CAMPHIA were to estimate the national-level annual HIV incidence among adults (defined as those aged 15-64 years), and the subnational prevalence of viral load (VL) suppression (VLS) (HIV RNA less than 1,000 copies/mL) among HIV-positive adults. Secondary objectives of CAMPHIA were to measure national and regional adult HIV prevalence; national and regional distribution of CD4 counts; detection of antiretrovirals (ARVs) in blood; national prevalence of transmitted HIV drug resistance; national pediatric HIV prevalence; progress toward the “90-90-90” targets defined by the Joint United Nations Programme on HIV and AIDS (UNAIDS); and national prevalence of hepatitis B. The “90-90-90s” refer to targets for 2020 set by UNAIDS to achieve control of the HIV epidemic by 2030 and are defined as: 90% of all people living with HIV will know their HIV status; 90% of all people diagnosed with HIV will receive sustained antiretroviral therapy (ART); and 90% of all people receiving ART will have VLS. The survey also collected information on behaviors associated with HIV acquisition and transmission, common HIV comorbidities, and other health conditions.

CAMPHIA used a two-stage, stratified cluster sample design, in which census enumeration areas (EAs) [clusters] were selected in the first stage and households in the second stage. The sample was stratified by the 12 geographical regions within Cameroon, including separate stratifiers for Douala and Yaounde. The survey interviewed 11,623 households. In the households surveyed, 28,635 adults and 8,018 children (those aged 0-14 years) (5,718 children aged 0-9 years and 2,300 young adolescents [those aged 10-14 years]) were eligible to participate in the survey.

Altogether, 27,085 (95%) of the eligible adults were interviewed. Among those adults who were interviewed, 94.7% of men and 94.6% of women also had their blood drawn to determine HIV status. Among children aged 0-9 years, 88% of both boys and girls had their blood drawn to determine HIV status. Of the eligible young adolescents, 97% of boys and 96% of girls had their blood drawn. To obtain a national estimate of acute or chronic hepatitis B prevalence, hepatitis B testing was performed in a subset of 1,962 adults using a hepatitis B surface antigen (HBsAg) rapid diagnostic test, indicative of acute or chronic hepatitis B virus (HBV) infection.

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

## KEY FINDINGS

- The annual HIV incidence in Cameroon was 0.24% (95% confidence interval [CI]: 0.11%-0.37%) among adults (corresponding to approximately 31,000 new cases per annum) (Table 5.B).
- In Cameroon, HIV prevalence was 3.7% among adults (corresponding to approximately 500,000 adults living with HIV [95% CI: 452,860–546,866]). The prevalence was 5.0% among women and 2.3% among men in 2017-2018 (Table 6.A).
- The burden of adult HIV infection varied across regions. HIV prevalence among adults ranged from 1.5% in Far North Region to 6.3% in South Region (Table 6.A).

## UNAIDS 90-90-90 TARGETS

### Adults:

- Results of 90-90-90 goals: Based on self-report and ARV-detection data, it is estimated that in Cameroon:

### 90-90-90 target for adults (Table 10.B)

- **Diagnosed:** 55.6% (57.5% of HIV-positive women and 51.4% of HIV-positive men) were aware of their HIV-positive status.
- **On treatment:** Of those diagnosed, 93.1% were receiving ART (92.6% of women and 94.2% men).
- **Viral load suppression:** Of those on treatment, 80.1% had VLS (79.6% of women and 81.1% of men).

### Among all HIV-positive adults (Table 10.C)

- **Diagnosed:** 55.6% (57.5% of all HIV-positive women and 51.4% of all HIV-positive men) were aware of their HIV-positive status.
- **On treatment:** 51.7% of all the adults living with HIV in the country were receiving ART (53.3% of all HIV-positive women and 48.4% of all HIV-positive men).
- **Viral load suppression:** 41.4% of all the adults living with HIV in the country had VLS on treatment (42.4% of all HIV-positive women and 39.3% of all HIV-positive men).

## OTHER KEY FINDINGS AMONG ADULTS

- Among adults of reproductive age (ages 15-49 years), HIV prevalence was 3.4%, 4.8% among women and 2.0% among men (Table 6.B). By five-year age bands, HIV prevalence among adults ranged from 0.7% among older adolescents (ages 15-19 years) and 1.7% among young adults aged 20-24 years to a peak of 7.4% among adults aged 40-44 years. HIV prevalence among adults aged 50-54 years, 55-59 years and 60-64 years were 6.8%, 4.8%, and 4.4%, respectively (Table 6.C).
- HIV prevalence among men residing in urban and rural areas was lower (2.2% [95% CI: 1.9%-3.0%] and 2.5% [95% CI: 1.9%-2.6%], respectively) compared to that of women (5.5% [95% CI: 4.7%-6.2%] and 4.5% [95% CI: 3.8%-5.2%], respectively) (Table 6.A). HIV prevalence among women was higher than among men in all age groups, but significantly so among ages 15-29 and 35-49 years (with non-overlapping CIs—data not shown) (Table 6.C).

- By relationship or marital status, HIV prevalence was highest (11.4%) among widowed adults and lowest (0.4%) among those who said they never had sex (Table 6.A).
- Among adults, 59.3% reported that they had ever tested for HIV and received their results (65.9% of women and 52.5% of men), while HIV testing and receipt of results in the 12 months preceding the survey was only reported by 29.0% (31.3% of women and 26.6% of men) (Tables 7.A, 7.B, and 7.C).
- Among adults residing in urban areas, 69.0% reported that they had ever tested for HIV and received their results (76.4% of women and 61.8% of men), as compared to those residing in rural areas, of whom 48.4% reported that they had ever tested for HIV and received their results (54.6% of women and 41.9% of men) (Tables 7.A, 7.B, and 7.C).
- Among adults residing in urban areas, 35.4% (37.6% of women and 33.3% of men) reported HIV testing and receipt of results in the 12 months preceding the survey, as compared to those residing in rural areas, of whom 21.8% reported HIV testing and receipt of results in the 12 months preceding the survey (24.6% of women and 18.9% of men) (Tables 7.A, 7.B, and 7.C).
- The proportion of adults who had ever tested and received their results varied across regions, ranging from 24.0% in Far North Region to 76.5% in Douala. A similar pattern was observed for those who reported HIV testing and receipt of results in the 12 months preceding the survey (Table 7.C).
- The proportion of adults who had ever tested and received their results and those who reported HIV testing and receipt of results in the 12 months preceding the survey increased with the level of education and wealth index score. For instance, the prevalence of ever testing and receiving results was 25.7% among those with no education, and 77.4% among those with more than secondary education; while only 24.6% of those in the lowest wealth quintile, but 79.2% in the highest wealth quintile reported ever testing and receiving results (Table 7C).
- Among older adolescents (defined as those aged 15-19 years), 26.0% (33.9% of older adolescent girls and 18.4% of older adolescent boys) reported they had ever tested for HIV and received their results. Among young adults (those aged 20-24 years), 59.7% (73.7% of young women and 46.7% of young men) reported they had ever tested for HIV and received their results (Tables 7.A, 7.B, and 7.C).
- Based on self-reported data, among HIV-positive adults, 53.1% were unaware of their HIV-positive status (58.8% of men and 50.6% of women). Among all adults living with HIV, 42.8% reported being on ART (37.9% of men and 45.0% of women) (Tables 8.A, 8.B, and 8.C). However, ARV-detection data demonstrated that self-report was not always reliable, as 15.6% of those who reported that they were unaware of their HIV-positive status had detectable ARVs in their blood (16.1% among men and 15.3% among women), while approximately 3.7% of adults who reported that they were HIV-positive but not on ART also had detectable ARVs in their blood (though the denominator was small, so this should be interpreted with caution) (Tables 8.D, 8.E, and 8.F).
- Among HIV-positive adults aged 15-49 years, the proportion of adults with VLS was 40.9%, while the proportion of adults aged 15-64 years with VLS was 44.7% (42.5% among men and 45.6% among women) (Table 9.A).<sup>1</sup> Among older HIV-positive adults, the proportion of VLS

<sup>1</sup> Note, the prevalence of VLS was slightly higher than reported above in the 90-90-90 results because the estimate was based upon VLS measurements among all the adults who tested positive in CAMPHIA, regardless of whether they were known to be on treatment (by self-report or ARV detection). Thus, the estimates may have included individuals with a low VL measurement in the absence of treatment who are, nonetheless, at risk of progression until they are diagnosed and placed on ART.

was 61.1% among those aged 50-54 years (Table 9.B), and 61.3% among those aged 55-64 years (Table 9.C).

- There was some variation in VLS across regions, ranging from 27.6% in North Region to 62.9% in West Region (Table 9.A).
- The proportion of HIV-positive adults with VLS ranged from 21.7% in older adolescents aged 15-19 years to 61.6% in older adults aged 60-64 years (Table 9.B).
- Among adults who tested HIV positive in CAMPHIA but who reported an HIV-negative status with no detectable ARVs, 35.2% (33.1% of women and 39.4% of men) had CD4 counts less than 350 cells/microliter ( $\mu\text{L}$ ) and 15.1% (15.5% of women and 14.2% of men) had severe immunosuppression with CD4 counts less than 200 cells/ $\mu\text{L}$  (Table 11.B).
- Among HIV-positive adults who reported initiating ART less than 12 months prior to the survey, 94.0% (92.0% women and 100% men) reported still receiving ART (Table 11.C).
- Among HIV-positive adults who reported initiating ART more than 12 months prior to the survey, 97.3% (96.6% women and 99.3% men) reported still receiving ART. Among those who reported initiating ART 12 months or more prior to the survey with ARVs detectable in their blood, 100% reported they were still on ART. Among those who reported ART initiation more than 12 months before the survey without detectable ARVs in their blood, 75.2% reported they were still on ART (Table 11.D).
- Among women aged 15-49 years who gave birth within the past 12 months, 0.9% tested HIV positive during antenatal care (ANC) and received results, and 78.9% tested HIV negative during ANC and received results. Among women aged 15-49 years who gave birth within the 12 months before the survey, 1.3% already knew they were HIV positive. There was some variation across the regions with regard to women aged 15-49 years who gave birth within the past 12 months knowing their HIV status, ranging from 50.1% in Far North to 98.0% in Douala (Table 12.C).
- Among women aged 15-49 years who gave birth during the 12 months preceding the survey, 81.1% knew their HIV status (Table 12.C).
- Among HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, 91.3% reported to have received ARVs during pregnancy to reduce the risk of mother-to-child transmission (MTCT). (Note, this estimate was based upon a small denominator (26 women) and should be interpreted with caution.) (Table 12.D).
- Among women aged 15-49 years who gave birth in the three years preceding the survey, 81.0% were breastfeeding their infants at ages 0-1 month, as compared to 69.8% who were breastfeeding their infants aged 6-8 months, and 43.1% breastfeeding their children aged 12-17 months at the time of the survey (Table 12.B).
- Among HIV-positive women aged 15-49 years who gave birth in the three years preceding the survey, 15.9% never breastfed, 58.5% breastfed at some point but were not breastfeeding at the time of the survey, and 25.6% were breastfeeding at the time of the survey. Among HIV-negative women aged 15-49 years who gave birth in the three years preceding the survey, 1.6% never breastfed, 55.8% breastfed at some point but were not breastfeeding at the time of the survey, and 42.6% were breastfeeding at the time of the survey (Table 12.B).
- Among women aged 15-49 years who delivered in the three years preceding the survey, 88.9% attended at least one ANC visit for their most recent birth. There was some variation across regions concerning the ANC visit. In North, Far North, and Adamawa regions, only 68.0%, 75.5%, and 78.0%, respectively, of women aged 15-49 years who delivered in the three years



preceding the survey attended at least one ANC visit for their most recent birth. The percentage of women aged 15-49 years who delivered in the three years preceding the survey and attended at least one ANC visit for their most recent birth was lower in North and Far North than other regions (Table 12.A).

- The prevalence of HIV was 7.4% among women aged 15-64 years who reported having had two or more sexual partners in the 12 months preceding the survey, compared to 2.8% among their male counterparts. The prevalence of HIV in those who had one partner was estimated to be 4.8% among women and 2.9% among men. HIV prevalence among men who reported not having a sexual partner during the 12 months preceding the survey was lower (2.3%) than that of women reporting the same sexual behavior (9.0%) (Tables 15.A).
- Overall, 55.6% of men reported having been medically circumcised and 27.4% reported non-medical circumcision. Only 6.2% of men reported they were not circumcised. By age group, reported medical circumcision was higher at younger ages. Medical circumcision ranged from 63.0% among men aged 25-29 years to 30.6% among men aged 60-64 years. Coverage of medical circumcision varied by education with 20.4% of those with no education reporting medical circumcision compared to 71.5% of those with secondary school, second cycle, or higher. By wealth quintile, coverage of medical circumcision also varied with 25.0% of those in the lowest wealth quintile compared to 72.6% of those in the highest wealth quintile. Coverage of medical circumcision was also higher in urban areas (63.7%) than in rural areas (46.4%). By region, coverage of medical circumcision ranged from 26.7% in Far North to 70.0% in Douala (Table 15.E).
- Among self-reported HIV-positive adults, 27.3% had ever visited a tuberculosis (TB) clinic (34.7% of men compared to 24.4% of women). Among those who had ever visited a TB clinic, 45.8% were diagnosed with TB; and of those, 94.6% were treated for TB. Almost half (46.5%) of men who visited a TB clinic were diagnosed with TB (although this estimate is based upon a small denominator [n=45] and should be interpreted with caution). Among self-reported HIV-positive women who visited a TB clinic, 45.4% were diagnosed with TB, and of those 92.9% were treated for TB (Table 17.A).
- The prevalence of hepatitis B was 8.3% among adults (5.5% among women and 11.2% among men). The prevalence was 7.0% in urban and 9.8% rural areas. However, there were marked differences among geographical regions, with the highest prevalence in North (12.8%) and the lowest in North West (4.6%). The prevalence of hepatitis B among the HIV-negative and HIV-positive population was similar (8.3% and 8.4%, respectively) (Table 17.C).

## OTHER KEY FINDINGS AMONG YOUNG PEOPLE (AGES 15-24 YEARS)

- HIV prevalence in older adolescents was 0.7% (0.2% in boys, 1.2% in girls) and 1.7% in young adults (0.6% in young men, 2.9% in young women) (Table 6.C). This corresponds to approximately 57,000 HIV-positive young people in Cameroon.

**90-90-90 targets** among **all HIV-positive** young people, based upon self-report and ARV detection data (Table 10.C):

- **Diagnosed:** 20.7% were aware of their HIV-positive status.
- **On treatment:** 18.6% of all the young people living with HIV in Cameroon were receiving ART.



- **Viral load suppression on treatment:** 13.7% of all the HIV-positive young people in the country had received treatment and achieved VLS.
- Among ever-married or partnered older adolescent girls and young women (ages 15-24 years), 3.2% experienced physical violence by an intimate partner, 1.4% experienced sexual violence by an intimate partner, and 4.5% experienced either physical or sexual violence by an intimate partner in the 12 months preceding the survey. However, intimate partner violence (IPV) was likely under-reported in the face-to-face interviews in this survey; the prevalence estimates observed are low compared to previous data on IPV in Cameroon (Table 16.A).
- Among young people living in Cameroon, 18.1% reported having sex before the age of 15 years (20.8% among older adolescent boys and young men and 15.8% among older adolescent girls and young women). Among older adolescent girls, 20.6% reported sex before the age of 15 years, compared to 12.9% of young women (Table 13.A).
- Among sexually active young people, 73.4% of older adolescents (93.8% of older adolescent boys and 60.6% of older adolescent girls), compared to 62.3% of young adults (82.3% of young men and 46.1% of young women) reported having sex with a non-marital, non-cohabitating partner (Tables 15.B, 15.C, and 15.D).
- Among sexually active older adolescents, 56.1% (63.3% of older adolescent boys and 49.6% of older adolescent girls) reported using a condom the last time they had sex with a non-marital, non-cohabitating partner as compared to 43.5% (53.0% of men and 27.9% of women) of adults aged 25-29 years (Tables 15.B, 15.C, and 15.D).

## OTHER KEY FINDINGS AMONG CHILDREN

- The estimated prevalence of HIV among children in Cameroon was 0.2% (Table 6.C). This corresponds to approximately 22,500 HIV-positive children in Cameroon.

## GAPS AND UNMET NEEDS

- There has been considerable progress toward achievement of the second and third 90s of the UNAIDS 90-90-90 targets in adults (based on self-reported and/or detectable ARV data), with 93.1% of those diagnosed receiving ART, and 80.1% of those on ART with VLS. However, diagnosis is a persistent challenge, with only 55.6% of adults living with HIV having awareness of their HIV-positive status. Consequently, the overall prevalence of achieving VLS after receiving an HIV-positive diagnosis and receiving ART (based on self-report and ARV biomarker testing), among all the adults in Cameroon was low (41.4%). Therefore, identifying those living with HIV, but unaware of their status, and linking them to care is critical. The achievement of these targets is essential, not only to prevent HIV-related illness and AIDS-related deaths, but also to prevent transmission and the occurrence of new HIV infections.
- The considerable variation in prevalence of HIV infection and VLS across regions, age and sex, and other demographic groups highlights the need to focus interventions, and to rigorously evaluate and map their availability, accessibility, quality, and effectiveness in specific geographical areas and demographic groups.
- There are disparities by sex in prevalence of HIV infection, as well as coverage of care. The prevalence of HIV infection in the adult population was approximately two times higher among women (5.0%) than among men (2.3%).

- The low proportion of awareness (20.7%) and VLS on treatment among young adults living with HIV (13.7%) creates challenges to reducing the incidence of new infections in the future.

## PROGRAMMATIC RESPONSES OR RECOMMENDATIONS

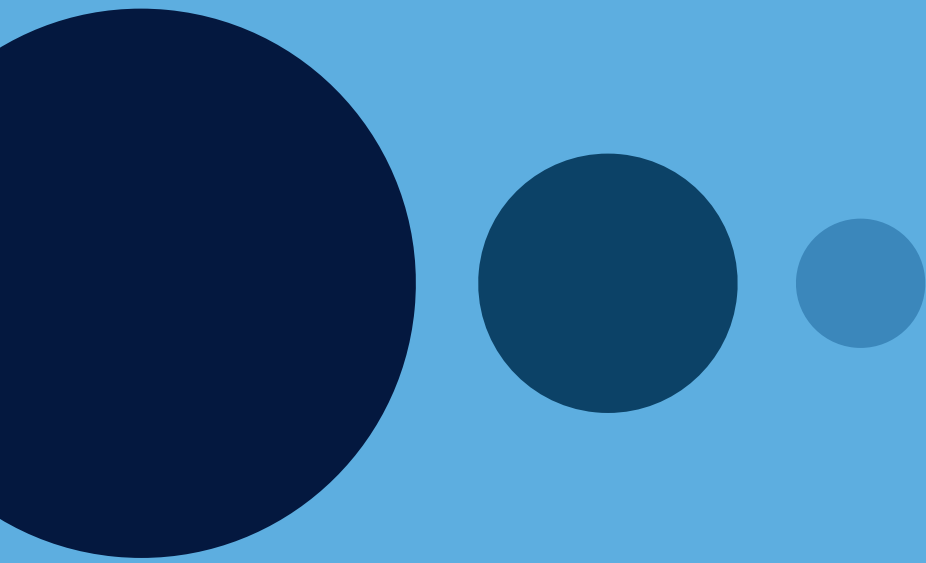
These findings highlight programmatic gaps and identify areas for intensified HIV response efforts in Cameroon. National policy changes and strategic prioritizations are needed to increase access and uptake of HIV services to achieve the UNAIDS 90-90-90 targets.

- HIV user fees are a barrier to prevention, care, and treatment and create a financial burden for people living with HIV. With support from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the Government of Cameroon made a policy decision in April 2019 to eliminate all fees for HIV services by January 2020.
- PEPFAR will expand its geographic coverage from four high-burden regions to all ten regions in Cameroon starting in October 2019. This rapid scale-up of the clinical program is aimed at increasing ART coverage for people living with HIV and achieving 90-90-90 targets in Cameroon by the end of 2021.
- HIV case identification is a key step in the clinical cascade; however, case finding is suboptimal among men, children, adolescent girls, and young women. To address these gaps, effective strategies including index testing and targeted testing should be scaled up and tailored to each subpopulation in order to identify people living with HIV and initiate them on ART.
- Gaps in ART coverage especially among older adolescents and young adults underscore the need for improved linkage to treatment and retention on ART. Same-day ART initiation, scale-up of differentiated service delivery models, and patient-centered care focused on improving quality of service delivery will address some of the challenges with linkage and retention.
- To address the low VLS, especially among young people, there is a need for increased diagnosis, linkage to treatment, and treatment adherence through a patient-centered care approach, intensified retention efforts, and enhanced patient education.

Implementation and scale-up of effective strategies to identify people living with HIV who are not aware of their status, initiate them on ART, and ensure a sustained high level of VLS will interrupt the transmission cycle and facilitate epidemic control.

## CONCLUSION

CAMPHIA 2017-2018 provided critical data on the primary outcomes of HIV incidence among adults and HIV prevalence among children. The results from CAMPHIA indicate that HIV continues to cause a significant burden of disease in Cameroon. Although there has been remarkable achievement in enrolling and treating those diagnosed, the major challenge remains diagnosis. A critical priority is to identify and link to care those living with HIV but unaware of their HIV status. The CAMPHIA team encourages public health staff, programmers, epidemiologists, and policy makers to examine the CAMPHIA data for their respective program areas and utilize the data to inform program planning.



# 1. INTRODUCTION

## 1.1 BACKGROUND

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

The Cameroon Population-based HIV Impact Assessment (CAMPHIA) was led by the Government of Cameroon under the Ministry of Health (MOH), Division of Health Operations Research (DROS) and National AIDS Control Commission, and through the National Institute of Statistics (INS). The survey was conducted with funding from PEPFAR and technical assistance through the US Centers for Disease Control and Prevention (CDC). The survey was implemented by INS and ICAP at Columbia University in collaboration with local partners, including the Centre Pasteur Cameroon, Global Health Systems Solutions, the National Early Infant Diagnosis Reference Laboratory/Mutengene, the National Public Health Lab, the Centre International de Référence Chantal Biya, and the Centre de Recherches sur les Maladies Emergentes, Re-Emergentes et la Médecine Nucleaire (CREMER).

## 1.2 OVERVIEW OF CAMPHIA 2017-2018

CAMPHIA, a household-based national survey, was conducted between July 2017 and February 2018 to measure the status of Cameroon's national HIV response. CAMPHIA offered home-based testing and counseling (HBTC) with return of results, and collected information about households and individuals' background, as well as the uptake of HIV care and treatment services. This survey is the first in Cameroon to estimate national HIV incidence and viral load (VL) suppression (VLS). The results provide information on national and regional progress toward control of the HIV epidemic.

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

With its focus on measuring key biological endpoints in a nationally representative sample of the population, CAMPHIA provides direct estimates of HIV-infection risk and burden, the effectiveness and population-level impact of HIV-related prevention, care, and treatment interventions implemented in the country, and Cameroon'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 Cameroon, to assess the coverage and impact of HIV services at the population level, and to characterize HIV-related risk behaviors using a nationally representative sample of adults (defined as participants aged 15-64 years in this survey unless otherwise indicated) and children (defined as participants aged 0-14 years).

#### *Primary Objectives*

- To estimate national-level annual HIV incidence among adults.
- To estimate the regional prevalence of VLS (defined as HIV RNA less than 1,000 copies/milliliter [mL] of plasma) among HIV-positive adults.

#### *Secondary Objectives*

- To estimate the national prevalence of HIV infection among children.
- To estimate the national and regional prevalence of HIV infection among adults.
- To estimate the uptake of HIV-related services (especially prevention of mother-to-child transmission [PMTCT]-related services) and exposure to HIV interventions.
- To estimate the prevalence of transmitted drug-resistance among HIV-positive children and adults.
- To estimate the distribution of CD4 counts among HIV-positive participants.
- To estimate prevalence of HIV-related risk behaviors, knowledge, and attitudes.
- To estimate behavioral and demographic determinants of HIV incidence and prevalence.
- To estimate national prevalence of hepatitis B.
- To estimate prevalence of HIV/HBV co-infection among HIV-positive individuals.



## 2. SURVEY DESIGN, METHODS, AND RESPONSE RATES

CAMPHIA was a nationally representative, cross-sectional, two-stage, population-based survey of households across Cameroon. Its target population corresponded to children (defined as those aged 0-14 years) and adults (defined as persons aged 15-64 years). The survey population excluded institutionalized children and adults.

## 2.1 SAMPLE FRAME AND DESIGN

CAMPHIA used a two-stage, stratified cluster sample design. The sampling frame was comprised of all households in the country, based upon 2015 Population Projections calculated from population to household ratio using the 2005 National Population and Housing Census data frame in collaboration with the INS. The sampling frame consisted of 18,020 EAs, containing 4,455,722 households and 22,179,707 persons, with an average number of households and persons per EA of 199 and 1,074 respectively. The first stage selected 489 enumeration areas (EAs) (clusters) using a probability proportional to size method. The 489 EAs were stratified by 12 geographical regions within Cameroon, including separate stratifiers for Douala and Yaounde. During the second stage, a sample of households was randomly selected within each EA, or cluster, using an equal probability method, where the actual number of households selected per cluster ranged from 25 to 30 (Table 2.1.A).

The sample size was calculated to provide a representative national estimate of HIV incidence among adults with a relative standard error (RSE) less than or equal to 0.37, as well as representative zonal estimates of VLS prevalence among HIV-positive adults with a maximum 95% CI of +/- 10.0% in high prevalence regions and maximum 95% confidence interval (CI) of +/- 21.0% in low prevalence regions. One-third of the households were randomly selected for inclusion of children, which was designed to provide a representative national estimate of pediatric HIV prevalence with a RSE less than or equal to 0.22%. The target sample size was 26,519 for adults and 7,057 for children.

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

| Distribution of sampled enumeration areas and households, by region, CAMPHIA 2017-18 |                   |       |       |            |       |        |
|--|-------------------|-------|-------|------------|-------|--------|
| Region   | Enumeration Areas |       |       | Households |       |        |
|  | Urban             | Rural | Total | Urban      | Rural | Total  |
| Adamawa  | 15                | 23    | 38    | 390        | 751   | 1,141  |
| Centre   | 13                | 24    | 37    | 416        | 919   | 1,335  |
| Douala   | 55                | 0     | 55    | 1,421      | 0     | 1,421  |
| East   | 11                | 19    | 30    | 301        | 755   | 1,056  |
| Far North  | 18                | 57    | 75    | 493        | 1,590 | 2,083  |
| Littoral   | 8                 | 4     | 12    | 208        | 207   | 415    |
| North  | 13                | 34    | 47    | 288        | 1,096 | 1,384  |
| North West   | 14                | 24    | 38    | 345        | 703   | 1,048  |
| South  | 11                | 20    | 31    | 327        | 547   | 874    |
| South West   | 14                | 20    | 34    | 310        | 549   | 859    |
| West   | 16                | 21    | 37    | 445        | 610   | 1,055  |
| Yaounde  | 53                | 0     | 53    | 1,469      | 0     | 1,469  |
| Total  | 241               | 246   | 487   | 6,413      | 7,727 | 14,140 |

Note: these are unweighted figures.

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



## 2.2 ELIGIBILITY CRITERIA, RECRUITMENT, AND CONSENT PROCEDURES

In CAMPHIA, the eligible survey population included individuals aged 0-64 years. The consent criteria are determined in each country—and it should be noted that the age categories for consent are different than the adult, adolescent, and child age definitions used for sampling and reporting purposes in this report. Sometimes, the age of majority crosses age brackets; therefore, the legal age of consent or age at which a minor is able to give consent may vary. In Cameroon, the consent criteria were as follows:

- Adults aged 21-64 years, living in the selected households and adult visitors of the same age who slept in the household the night before the survey, who were willing and able to provide verbal or written consent.
- Minors aged 10-20 years living in the selected households and visitors in the same age bracket who slept in the household the night before the survey, who were willing and able to provide verbal assent, and whose parents or guardians were willing and able to provide verbal permission for their participation.
- Children aged 0-9 years living in the selected households and visitors the same age who slept in the household the night before the survey, whose parents or guardians were willing and able to provide verbal consent for their participation.

An electronic informed consent form was administered using a tablet (Appendix G). At each stage of the consent process, consent was indicated by signing or making a mark on the consent form on the tablet and on a printed copy, which was retained by the participant. A designated head of household provided verbal consent for household members to participate in the survey, after which individual members were rostered during a household interview. Adults aged 21-64 years and emancipated minors (an emancipated minor is anyone below 21 years of age who is married or is free from any legally-competent representative as defined by law in Cameroon) then provided consent for an interview and for participation in the biomarker component of the survey, including HBTC, with return of HIV-testing results and CD4 counts during the household visit. Receipt of tests results was a requirement for participation in the biomarker component. If an individual did not want to receive his or her HIV test result, this was considered a refusal and the survey was concluded. Adults were also asked for consent to store their blood samples in a repository to perform additional tests in the future.

Minors aged 10-20 years were asked for assent to the interview and biomarker components after permission was granted by their parents or guardians. Parents provided consent for biomarker testing for children below the age of assent (ages 0-9 years). In both cases, if a parent or guardian did not want to receive his or her HIV test result, this was considered a refusal and the survey was concluded.

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

## 2.3 SURVEY IMPLEMENTATION

### *Training of Field and Laboratory Staff*

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

- Scientific objectives of the survey
- Survey design and methods

- Completion of survey forms
- Data collection
- Staff responsibilities
- Recruitment of participants
- Informed consent procedures, including human participants' protection, privacy, and confidentiality
- Blood collection for children and adults, including venipuncture and finger/heel stick
- Home-based HIV testing and counseling
- CD4 count measurement using point-of-care (POC) PIMA Analyzer
- Referral of participants to health and social services
- Management and transportation of blood specimens
- Biosafety
- Communication skills
- Protocol deviations, adverse events, and reporting of events

Laboratory staff were trained in specimen management, including sample processing, labeling, and quality assurance (QA). Central laboratory staff were trained in VL measurement, early infant diagnosis (EID), HIV confirmatory testing, and HIV recency testing using a limiting antigen (LAG) avidity enzyme immunoassay (EIA).

### ***Survey Staff***

Fieldwork started at the beginning of July 2017 and was completed in February 2018. More than 200 field staff (one national coordinator, three work zone coordinators, 10 regional statisticians, three work zone lab coordinators, 30 team leaders, 120 nurse counselor/interviewers, 16 community-mobilization coordinators, and 60 drivers) participated in data collection. Fieldwork was conducted by 30 locally-hired field teams composed of a team leader, four nurse counselor/interviewers and two drivers. Field teams included both male and female staff and members spoke the languages used in the areas to which they were deployed. The field teams were supervised by 30 team leaders, three work zone coordinators, and one national coordinator, and managed by central staff, who guided and oversaw data collection activities, performed quality checks, and provided technical support (Appendix D).

In addition, the laboratory staff was organized at different levels (central laboratory staff, regional field supervisors, onsite lab supervisors, satellite lab technicians, and satellite lab logisticians). Over 25 laboratory technicians processed samples and performed additional procedures for HIV-1 VL, infant virological HIV testing, and quality control (QC) and QA. National and international monitors periodically conducted direct observation of data collection activities in the field and in the laboratories to provide technical support and ensure quality.

### ***Community Sensitization and Mobilization***

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

### *Supervision*

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

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

### *Electronic monitoring system*

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

### *Questionnaire Data Collection*

Questionnaire and field laboratory data were collected on mobile tablet devices using an application programmed in Open Data Kit, an open-source mobile data collection application. The household interview collected information on household residents, assets, economic support, recent deaths, and orphans and vulnerable children (see Appendix E). The adult interview was administered to participants aged 15 years and older and included modules on demographic characteristics, sexual and reproductive health, marriage, male circumcision, sexual activity, HIV/acquired immune deficiency syndrome (AIDS) knowledge and attitudes, the HIV testing and treatment history, tuberculosis (TB) and other diseases, alcohol use, and gender norms (see Appendix F). Participants who self-reported their HIV-positive status were asked questions about their HIV care experience. Parents also answered questions about their children's (ages 0-14 years) health and participation in HBTC services as a part of the adult interview. In each household, one woman among those aged 15-64 years was also randomly selected to answer questions about her experiences with violence. Participants of any age who reported being victims of violence and minors who reported being victims of sexual exploitation were provided with referrals to social services. Female participants were interviewed by female staff, and male participants by male staff, whenever possible. The questionnaire was administered in French, English, and Fulfulde; versions of the questionnaires were reviewed and tested thoroughly for acceptability, feasibility, and flow of questions.

## **2.4 FIELD-BASED BIOMARKER TESTING**

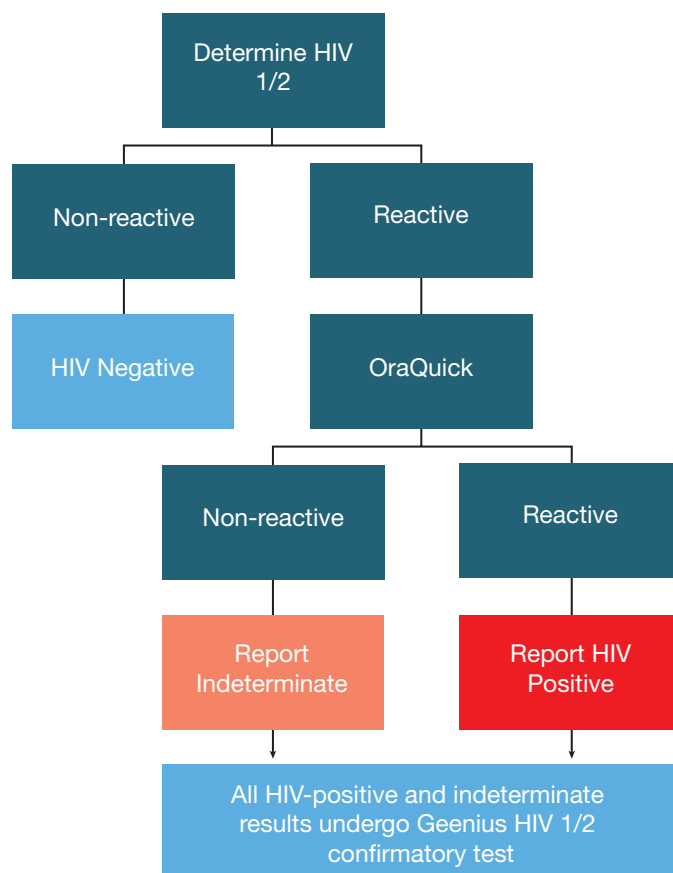
### *Blood Collection*

Blood was collected by trained and qualified survey staff from consenting participants: 14 mL of venous blood from adults aged 15-64 years, 5 mL from persons aged 2-14 years, and 1 mL of capillary blood from adults who either refused to give venous blood or had failed venous collection and children younger than 2 years of age, using finger-stick for children aged 6-23 months and heel-stick for children younger than 6 months of age.

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

#### *HIV Home-Based Testing and Counseling*

HIV HBTC was conducted in each household in accordance with national guidelines (Figure 2.4.A). As per these guidelines, the survey used a sequential rapid-testing algorithm in the field:



**Figure 2.4.A**  
Household-based  
HIV testing algorithm,  
CAMPRIA 2017-2018

Determine™ HIV-1/2 (Abbott Molecular Inc., Des Plaines, Illinois, United States) as a screening test, OraQuick™ (Orasure Technologies, Bethlehem, Pennsylvania, United States) as a confirmatory test. Individuals with a nonreactive result on the screening test were reported as HIV negative. Individuals with a reactive screening test underwent confirmatory testing. Those with reactive results on both the screening and confirmatory tests were classified as HIV positive. Individuals with a reactive screening test result, followed by a nonreactive confirmatory test result were classified as indeterminate and referred to go for follow-up testing at a facility within 4 weeks. All HIV-positive and indeterminate samples underwent confirmation testing using Geenius-HIV 1/2 Supplemental Assay (Bio-Rad Laboratories, Hercules, California, United States) at the satellite laboratory to determine a positive or negative result for the final survey data.

HIV-positive participants were referred to HIV care and treatment services at a health facility of their choice. For children and minors under the age of 21, results were returned to a parent or guardian (with the presence of the child where deemed appropriate by the parent). Participants with indeterminate results were advised to attend a facility within 4 weeks for repeated testing, as per national guidelines.

For participants who self-reported an HIV-positive status but tested HIV negative at the time of the survey, additional laboratory-based testing was conducted using HIV total nucleic acid (TNA) polymerase chain reaction (PCR) for confirmation of the status. In conjunction with DROS, survey staff revisited these participants and health providers to provide counseling and guidance on next steps to confirm these results, particularly for those on antiretroviral therapy (ART).

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

### ***Hepatitis B testing***

Testing for hepatitis B was conducted in each household for participants of all ages using a serological hepatitis B surface antigen (HbsAg) rapid diagnostic test, Determine HbsAg (Abbott Molecular Inc., Chicago, Illinois, United States, formerly Alere), which is indicative of acute or chronic HBV infection.

### ***Anthropometric Assessment***

Height and weight measurements were obtained for all children under the age of 5 years who tested HIV positive during HBTC. Criteria for referral services for malnutrition were based on growth standards published by World Health Organization (WHO) and national guidelines.

### ***CD4 Count Measurement***

All participants who tested HIV positive during HBTC, and a random sample of 2% of those who tested HIV negative, received a CD4 count measurement in the field by qualified survey staff. The measurement was performed using the Pima™ CD4 Analyzer (Abbott Molecular Inc., Chicago, Illinois, United States, formerly Alere).

## **2.5 LABORATORY-BASED BIOMARKER TESTING**

### ***Satellite and Central Laboratories***

Twelve fixed satellite laboratories for the survey were established in existing health facility laboratories, and two mobile labs were utilized. One central reference laboratory was chosen for more specialized tests. At each satellite laboratory, trained

technicians performed HIV confirmatory testing, retesting for QA, and processing of whole blood specimens into plasma aliquots and DBS cards for temporary storage at -20°C., and HIV confirmatory testing. For QA of the HIV rapid testing conducted in the field, the first 50 samples tested by each field tester and a random sample of 5.0% of specimens that tested HIV negative during HBTC were retested in the laboratory using the national HIV rapid-testing algorithm. All specimens that tested HIV positive during HBTC, and those that had confirmed positive rapid test results during QA, underwent confirmatory testing using the Geenius HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States). A positive Geenius result defined HIV-positive status for the survey.

All infants younger than 18 months of age who had a reactive Determine test during HBTC had their samples tested for EID using the Abbott m2000 Real-Time HIV-1 qualitative assay (Abbott Laboratories, Abbott Park, Illinois, United States). Central laboratory procedures included HIV VL testing, HIV TNA PCR for infant virological testing and for confirmation of status of those who self-reported an HIV-positive status but tested negative in HBTC, HIV recency testing, HIV drug resistance (HIVDR) testing, and long-term storage of samples at -80°C.

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

#### ***Viral Load Testing***

The HIV-1 VL (HIV RNA copies per mL) of confirmed HIV-positive participants was measured using the Abbott Real-time HIV-1 assay on the Abbott m2000 Real-time platform (Abbott Laboratories, Abbott Park, Illinois, United States). The open mode protocol for the Abbott Real-time HIV-1 Assay was used to measure VL from DBS specimens from children and adults with insufficient plasma volume.

Viral load results were returned by the result returning coordinator (RRC) within 8 to 10 weeks to the health facility chosen by each HIV-positive participant. Participants were provided with a referral form (escorted to the health facility if consented) during HBTC for subsequent retrieval of their results. Survey staff (RRC) also contacted each participant via mobile phones, informing them that their VL results were available at the chosen facility and further advising them to seek care and treatment.

#### ***Infant HIV Virological Testing***

HIV TNA PCR was conducted at the central lab using the Abbott RealTime HIV-1 qualitative assay on the Abbott m2000 Real-time platform (Abbott Laboratories, Abbott Park, Illinois, United States). Results were returned to a health facility selected by the child's parent or guardian within twelve weeks.

#### ***HIV Recent Infection Testing Algorithm***

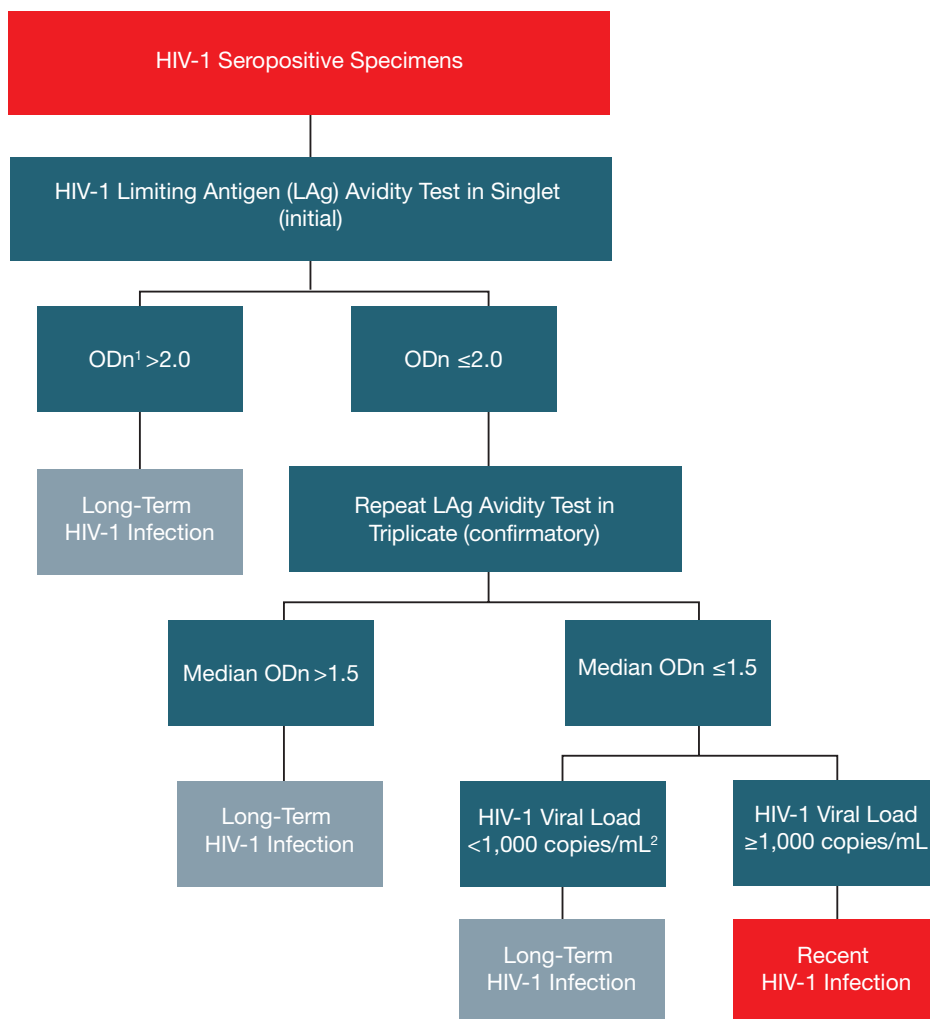
To distinguish recent from long-term HIV infections, in order to estimate incidence, the survey used two different laboratory-based testing algorithms. Each algorithm employed a combination of assays: 1) HIV-1 LAg Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) and VL (Figure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

Specimens with median normalized optical density (ODn)  $\leq 1.5$  using LAg avidity testing were classified as potential recent infections, and their VL results were assessed. Specimens with VL  $< 1,000$  copies/mL were classified as long-term infections, while those with VL  $\geq 1,000$  copies/mL were classified as recent infections (Figure 2.5.A). In the ARV-adjusted algorithm,

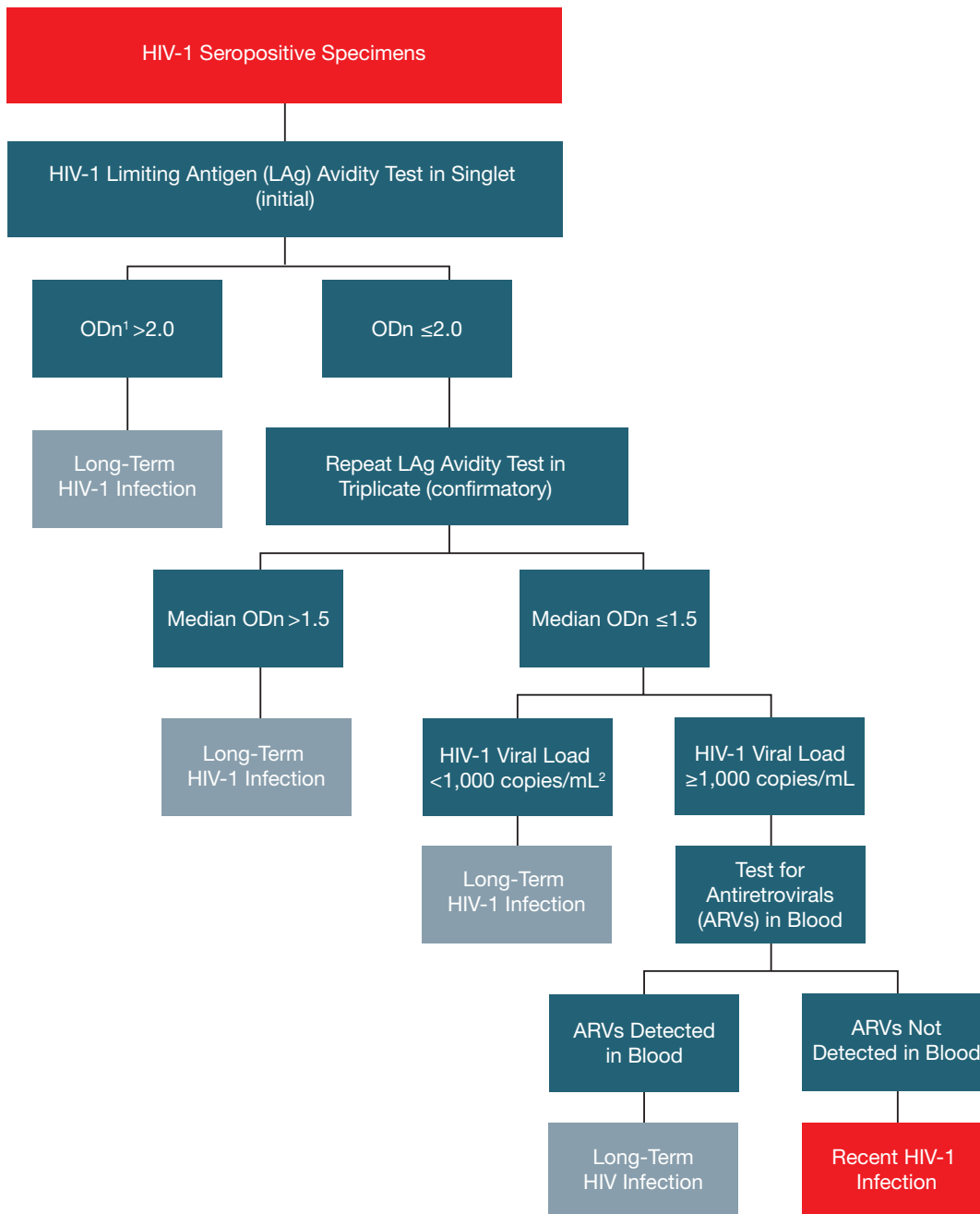
specimens with VL  $\geq 1,000$  copies/mL and with detectable ARVs were classified as long-term infections. Specimens with VL  $\geq 1,000$  copies/mL and without detectable ARVs were classified as recent infections (Figure 2.5.B).

**Figure 2.5.A**

HIV-1 recent infection testing algorithm, CAMPHIA 2017-2018



<sup>1</sup>ODn: normalized optical density; <sup>2</sup>mL: milliliter

**Figure 2.5.B**

HIV-1 recent infection testing algorithm adjusted for detectable antiretrovirals, CAMPHIA 2017-2018

<sup>1</sup>ODn: normalized optical density; <sup>2</sup>mL: milliliter



### *Detection of Antiretroviral Drug Resistance*

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

Specimens were tested at the Centre de Recherches sur les Maladies Emergentes, Re-Emergentes et la Medicine Nucleaire (CREMER) for drug resistance.

### *Detection of Antiretrovirals*

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

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

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

## **2.6 DATA PROCESSING AND ANALYSIS**

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

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

nonresponse-adjusted individual and blood weights to make the sum of each set of weights conform to national population totals by sex and five-year age groups.

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

Incidence estimates were based on the number of HIV infections identified as recent with the HIV-1 LAg Avidity plus VL 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 proportion false recent (PFR) = 0.00.

## 2.7 RESPONSE RATES

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

Individual interview RRs were calculated as the number of individuals who were interviewed divided by the number of individuals eligible to participate in the survey. Blood draw RRs for adults were calculated as the number of individuals who provided blood divided by the number of individuals who were interviewed. Blood draw RRs for children were calculated as the number of individuals who provided blood divided by the number of individuals eligible to participate in the survey.

Of the 14,140 selected households, 12,417 and 11,623 were occupied and interviewed, respectively. The overall household RR (unweighted) was 92.3%. After adjusting for differential sampling probabilities and nonresponse, the overall weighted household RR was 91.9% (Table 2.7.A).

A total of 28,635 adults (13,216 men and 15,419 women) were eligible to participate in the survey. Interview RRs were 93.3% for men and 95.7% for women. Among those adults who were interviewed, 94.7% of men and 94.6% of women also had their blood drawn (Table 2.7.B).

Children in one-third of the selected households were eligible for blood draw. Of the 5,718 eligible children aged 0-9 years, 87.8% of boys and 88.2% girls had their blood drawn. Of the 2,300 eligible children aged 10-14 years, 97.2% of boys and 96.5% of girls had their blood drawn (Table 2.7.B).

**Table 2.7.A Household response rates**

| Number of households selected, occupied, and interviewed and household response rates (unweighted and weighted), by residence, CAMPHIA 2017-2018 |           |       |        |
|--|-----------|-------|--------|
| Result   | Residence |       | Total  |
|  | Urban     | Rural |        |
| Household interviews   |           |       |        |
| Households selected  | 6,413     | 7,727 | 14,140 |
| Households occupied  | 5,739     | 6,678 | 12,417 |
| Households interviewed   | 5,199     | 6,424 | 11,623 |
| Household response rate <sup>1</sup> (unweighted)  | 90.2      | 94.1  | 92.3   |
| Household response rate <sup>1</sup> (weighted)  | 90.2      | 93.9  | 91.9   |

<sup>1</sup>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](http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf).

**Table 2.7.B Interview and blood draw response rates**

| Number of eligible individuals and response rates for individual interviews <sup>1</sup> and blood draws <sup>2</sup> (unweighted and weighted), by residence and sex, CAMPHIA 2017-2018 |           |        |       |        |       |        |
|--|-----------|--------|-------|--------|-------|--------|
| Result   | Residence |        |       |        | Total |        |
|  | Urban     |        | Rural |        |       |        |
|  | Male      | Female | Male  | Female | Male  | Female |
| Eligible individuals, ages 0-9 years   |           |        |       |        |       |        |
| Number of eligible individuals   | 973       | 943    | 1,903 | 1,899  | 2,876 | 2,842  |
| Blood draw response rate (unweighted)  | 84.4      | 82.5   | 91.5  | 93.0   | 89.1  | 89.5   |
| Blood draw response rate (weighted)  | 84.8      | 83.4   | 90.1  | 91.8   | 87.8  | 88.2   |
| Eligible individuals, ages 10-14 years   |           |        |       |        |       |        |
| Number of eligible individuals   | 443       | 445    | 723   | 689    | 1,166 | 1,134  |
| Interview response rate (unweighted)   | 93.2      | 93.0   | 95.2  | 97.1   | 94.4  | 95.5   |
| Interview response rate (weighted)   | 93.1      | 93.2   | 95.1  | 96.8   | 94.2  | 95.0   |
| Blood draw response rate (unweighted)  | 95.9      | 94.2   | 98.0  | 97.9   | 97.2  | 96.5   |
| Blood draw response rate (weighted)  | 96.0      | 94.1   | 97.4  | 97.5   | 96.7  | 95.8   |
| Eligible individuals, ages 15-24 years   |           |        |       |        |       |        |
| Number of eligible individuals   | 2,031     | 2,356  | 2,472 | 3,007  | 4,503 | 5,363  |
| Interview response rate (unweighted)   | 91.5      | 95.4   | 94.7  | 97.0   | 93.2  | 96.3   |
| Interview response rate (weighted)   | 91.7      | 95.2   | 94.2  | 97.2   | 92.9  | 96.2   |
| Blood draw response rate (unweighted)  | 95.0      | 94.5   | 97.6  | 97.1   | 96.5  | 96.0   |
| Blood draw response rate (weighted)  | 95.0      | 93.7   | 97.4  | 96.6   | 96.1  | 95.1   |

**Table 2.7.B Interview and blood draw response rates (continued)**

Number of eligible individuals and response rates for individual interviews<sup>1</sup> and blood draws<sup>2</sup> (unweighted and weighted), by residence and sex, CAMPHIA 2017-2018

| Result                                 | Residence |        |       |        | Total  |        |
|--|-----------|--------|-------|--------|--------|--------|
|  | Urban     |        | Rural |        |        |        |
|  | Male      | Female | Male  | Female | Male   | Female |
| Eligible individuals, ages 15-49 years |           |        |       |        |        |        |
| Number of eligible individuals         | 5,228     | 5,873  | 6,090 | 7,563  | 11,318 | 13,436 |
| Interview response rate (unweighted)   | 91.5      | 94.8   | 95.9  | 97.0   | 93.8   | 96.1   |
| Interview response rate (weighted)     | 91.2      | 94.7   | 95.0  | 96.9   | 93.0   | 95.7   |
| Blood draw response rate (unweighted)  | 92.9      | 93.3   | 97.3  | 97.1   | 95.3   | 95.5   |
| Blood draw response rate (weighted)    | 92.6      | 92.8   | 96.8  | 96.6   | 94.5   | 94.7   |
| Eligible individuals, ages 15-64 years |           |        |       |        |        |        |
| Number of eligible individuals         | 5,955     | 6,652  | 7,261 | 8,767  | 13,216 | 15,419 |
| Interview response rate (unweighted)   | 91.5      | 94.8   | 96.3  | 97.1   | 94.2   | 96.1   |
| Interview response rate (weighted)     | 91.3      | 94.6   | 95.5  | 96.9   | 93.3   | 95.7   |
| Blood draw response rate (unweighted)  | 93.1      | 93.1   | 97.4  | 97.2   | 95.5   | 95.5   |
| Blood draw response rate (weighted)    | 92.8      | 92.6   | 96.8  | 96.7   | 94.7   | 94.6   |
| Overall response rate (unweighted)     | 76.8      | 79.6   | 88.3  | 88.8   | 83.0   | 84.7   |

<sup>1</sup>Interview response rate = number of individuals interviewed/number of eligible individuals.

<sup>2</sup>Blood draw response rate = number of individuals who provided blood/number of individuals interviewed.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

## 2.8 REFERENCES

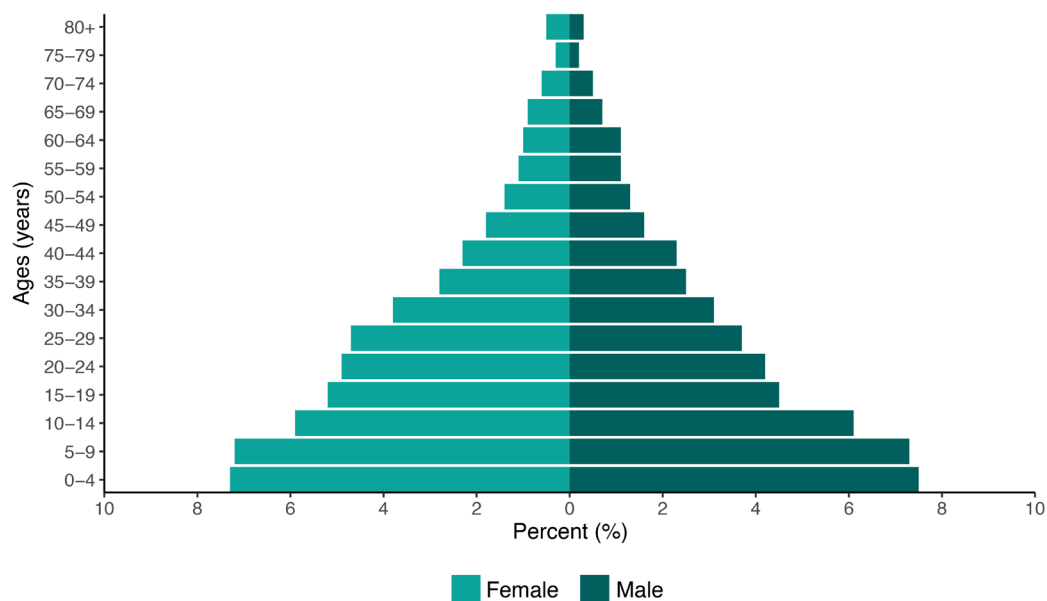
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### 3. SURVEY HOUSEHOLD CHARACTERISTICS

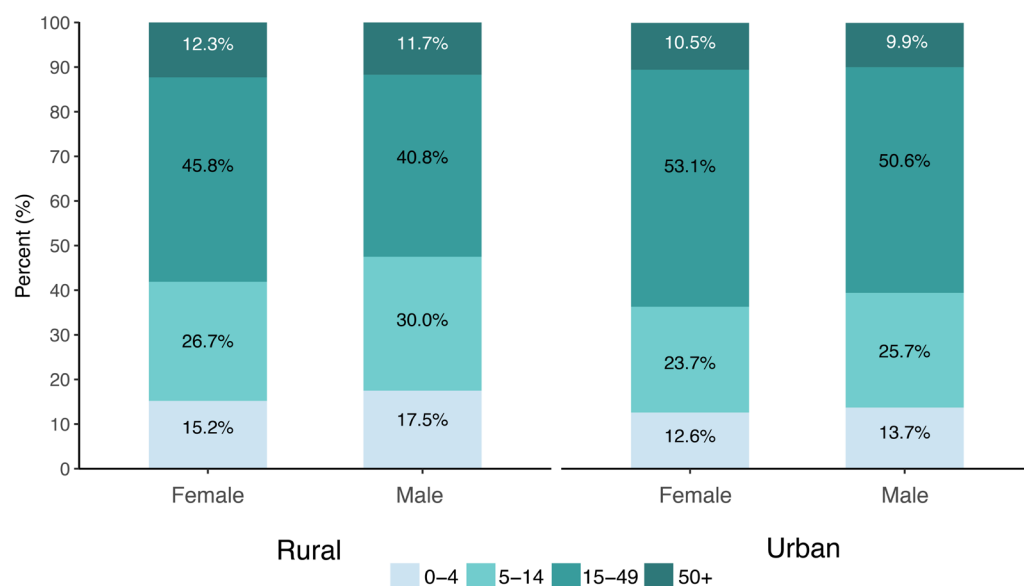


**Figure 3.A**  
Distribution of the de  
facto population by sex  
and age, CAMPHIA  
2017-2018



**Table 3.B** Distribution of de facto population

| Percent distribution of the de facto household population, by 5-year age groups and sex, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|--|---------|--------|---------|--------|---------|--------|
| Age  | Male    |        | Female  |        | Total   |        |
|  | Percent | Number | Percent | Number | Percent | Number |
| 0-4  | 7.5     | 4,273  | 7.3     | 4,117  | 14.8    | 8,390  |
| 5-9  | 7.3     | 4,259  | 7.2     | 4,116  | 14.6    | 8,375  |
| 10-14  | 6.1     | 3,389  | 5.9     | 3,313  | 12.0    | 6,702  |
| 15-19  | 4.5     | 2,417  | 5.2     | 2,823  | 9.7     | 5,240  |
| 20-24  | 4.2     | 2,111  | 4.9     | 2,547  | 9.1     | 4,658  |
| 25-29  | 3.7     | 1,874  | 4.7     | 2,474  | 8.4     | 4,348  |
| 30-34  | 3.1     | 1,599  | 3.8     | 1,948  | 7.0     | 3,547  |
| 35-39  | 2.5     | 1,321  | 2.8     | 1,498  | 5.3     | 2,819  |
| 40-44  | 2.3     | 1,182  | 2.3     | 1,214  | 4.6     | 2,396  |
| 45-49  | 1.6     | 849    | 1.8     | 956    | 3.4     | 1,805  |
| 50-54  | 1.3     | 677    | 1.4     | 780    | 2.7     | 1,457  |
| 55-59  | 1.1     | 629    | 1.1     | 633    | 2.2     | 1,262  |
| 60-64  | 1.1     | 592    | 1.0     | 574    | 2.1     | 1,166  |
| 65-69  | 0.7     | 392    | 0.9     | 512    | 1.6     | 904    |
| 70-74  | 0.5     | 301    | 0.6     | 381    | 1.1     | 682    |
| 75-79  | 0.2     | 153    | 0.3     | 188    | 0.6     | 341    |
| ≥80  | 0.3     | 184    | 0.5     | 277    | 0.8     | 461    |
| Total  | 48.1    | 26,202 | 51.9    | 28,351 | 100.0   | 54,553 |



**Figure 3.B**  
Household population  
by age, sex, and  
residence, CAMPHIA  
2017-2018

**Table 3.C De facto household population by age, sex, and residence**

| Percent distribution of the household population, by sex, age, and residence, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|---|---------|--------|---------|--------|---------|--------|
| Age (years)   | Urban   |        |         |        |         |        |
|   | Male    |        | Female  |        | Total   |        |
|   | Percent | Number | Percent | Number | Percent | Number |
| 0-4   | 13.7    | 1,457  | 12.6    | 1,421  | 13.2    | 2,878  |
| 5-14  | 25.7    | 2,749  | 23.7    | 2,684  | 24.7    | 5,433  |
| 15-49   | 50.6    | 5,244  | 53.1    | 5,883  | 51.9    | 11,127 |
| ≥50   | 9.9     | 1,042  | 10.5    | 1,189  | 10.2    | 2,231  |
| Total   | 100.0   | 10,492 | 100.0   | 11,177 | 100.0   | 21,669 |
| Age (years)   | Rural   |        |         |        |         |        |
|   | Male    |        | Female  |        | Total   |        |
|   | Percent | Number | Percent | Number | Percent | Number |
| 0-4   | 17.5    | 2,816  | 15.2    | 2,696  | 16.3    | 5,512  |
| 5-14  | 30.0    | 4,899  | 26.7    | 4,745  | 28.3    | 9,644  |
| 15-49   | 40.8    | 6,109  | 45.8    | 7,577  | 43.4    | 13,686 |
| ≥50   | 11.7    | 1,886  | 12.3    | 2,156  | 12.0    | 4,042  |
| Total   | 100.0   | 15,710 | 100.0   | 17,174 | 100.0   | 32,884 |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.



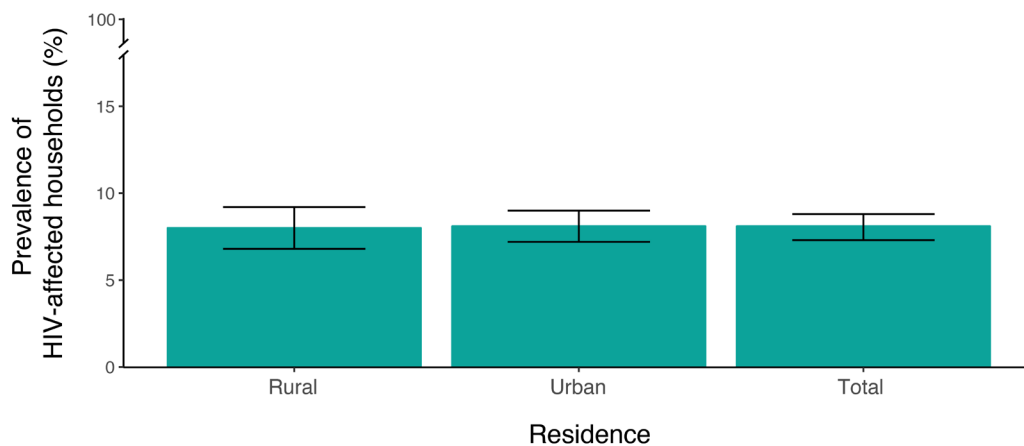
**Table 3.D Prevalence of HIV-affected households**

| Percentage of households with at least one HIV-positive household member, by residence, CAMPHIA 2017-2018 |         |        |
|---|---------|--------|
| Residence   | Percent | Number |
| Urban   | 8.1     | 4,741  |
| Rural   | 8.0     | 5,902  |
| Total   | 8.1     | 10,643 |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

**Figure 3.C**

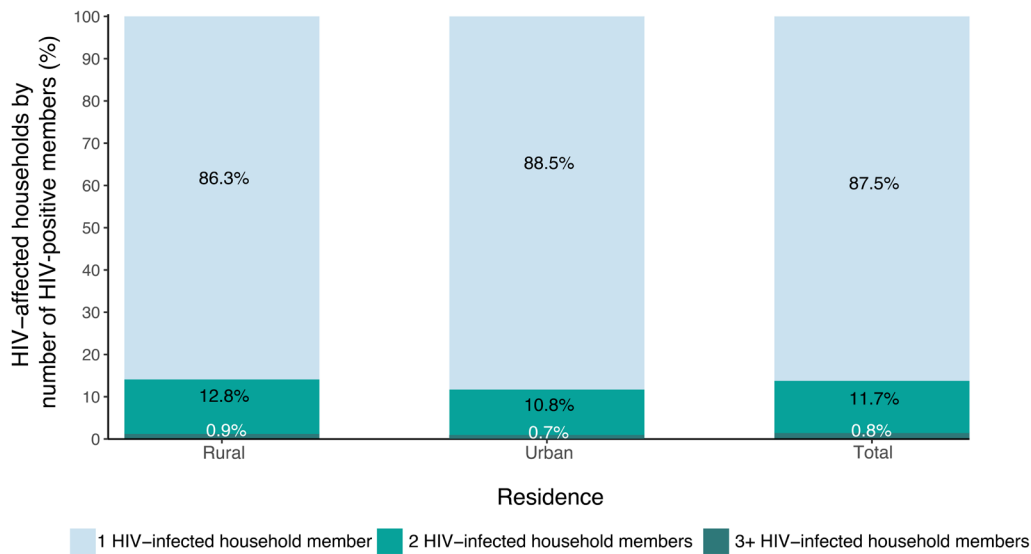
Prevalence of HIV-affected households by residence, CAMPHIA 2017-2018

**Table 3.E HIV-affected households by number of HIV-positive members**

Among households with at least one HIV-positive household member, percent distribution of households by number of HIV-positive household members, by residence, CAMPHIA 2017-2018

| Number of HIV-positive household members | Residence |        |         |        | Total   |        |
|--|-----------|--------|---------|--------|---------|--------|
|  | Urban     |        | Rural   |        |         |        |
|  | Percent   | Number | Percent | Number | Percent | Number |
| 1  | 88.5      | 354    | 86.3    | 403    | 87.5    | 757    |
| 2  | 10.8      | 46     | 12.8    | 57     | 11.7    | 103    |
| 3  | 0.7       | 4      | 0.8     | 5      | 0.8     | 9      |
| 4  | 0.0       | 0      | 0.1     | 1      | 0.0     | 1      |
| Total                                    | 100.0     | 404    | 100.0   | 466    | 100.0   | 870    |

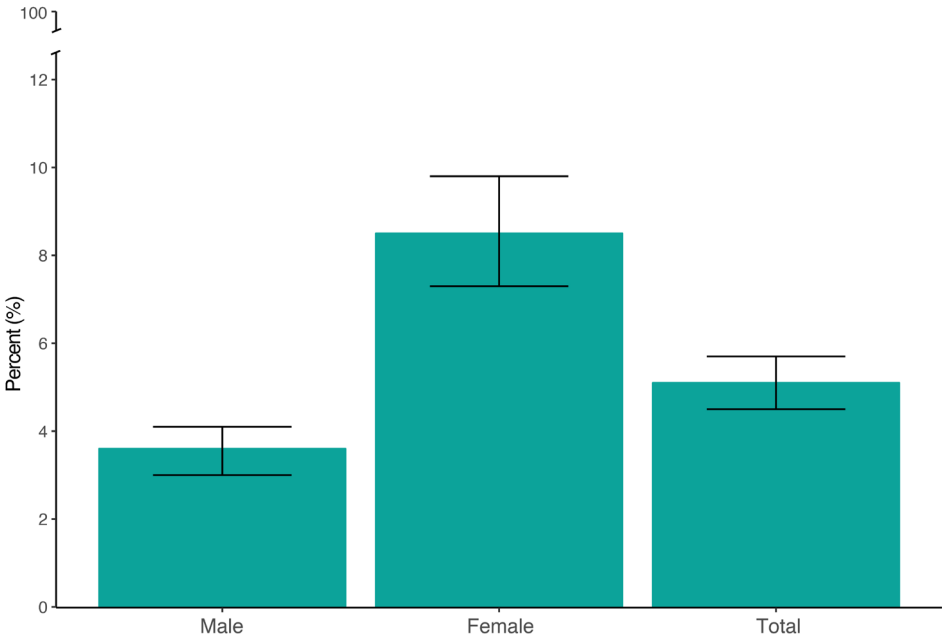
Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.



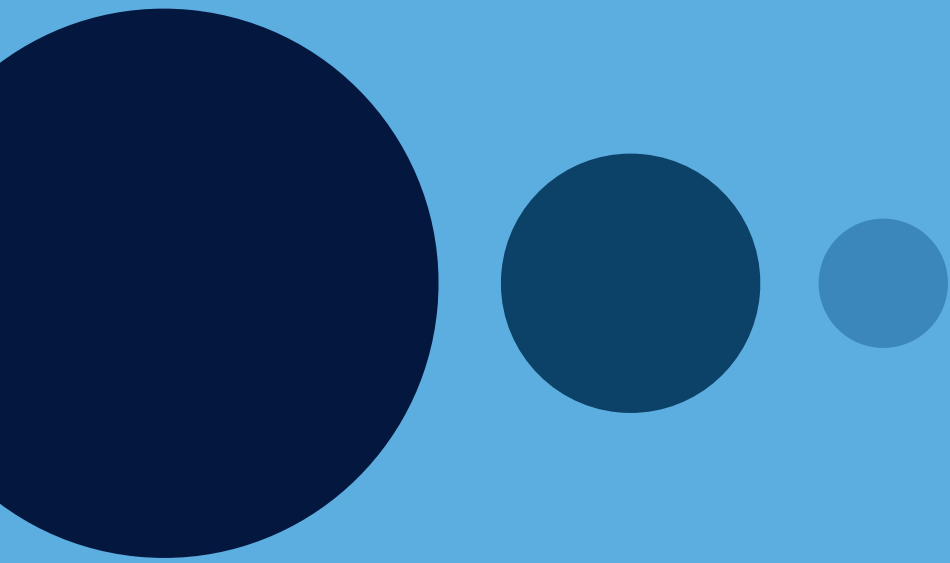
**Table 3.F Prevalence of households with an HIV-positive head of household**

| Percentage of households with an HIV-positive head of household, by sex of head of household, CAMPHIA 2017-2018 |         |        |
|---|---------|--------|
| Sex of head of household  | Percent | Number |
| Male  | 3.6     | 6,400  |
| Female  | 8.5     | 2,623  |
| Total   | 5.1     | 9,023  |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.



**Figure 3.E**  
Prevalence of  
households with an  
HIV-positive head  
of household by sex,  
CAMPHIA 2017-2018



## 4. SURVEY RESPONDENT CHARACTERISTICS

## 4.1 BACKGROUND

CAMPHIA assessed key indicators and outcomes for children (defined as those under the age of 15 years), young adolescents (those aged 10-14 years), and adults (defined as those aged 15-64 years). To provide context for these outcomes, this chapter summarizes the basic demographic and socioeconomic characteristics of survey respondents. Most key indicators in this report are stratified according to these characteristics.

## 4.2 RESULTS

The following tables present the demographic characteristics of CAMPHIA's respondents.

**Table 4.A Demographic characteristics of the adult population**

| Percent distribution of the adult population aged 15-64 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|---|---------|--------|---------|--------|---------|--------|
| Characteristic  | Male    |        | Female  |        | Total   |        |
|   | Percent | Number | Percent | Number | Percent | Number |
| <b>Residence</b>  |         |        |         |        |         |        |
| Total urban   | 53.6    | 5,451  | 51.3    | 6,308  | 52.4    | 11,759 |
| Douala and Yaounde  | 24.8    | 2,331  | 22.9    | 2,629  | 23.9    | 4,960  |
| Other urban   | 28.7    | 3,120  | 28.4    | 3,679  | 28.5    | 6,799  |
| Rural   | 46.4    | 6,995  | 48.7    | 8,510  | 47.6    | 15,505 |
| <b>Region</b>   |         |        |         |        |         |        |
| Adamawa   | 4.1     | 965    | 3.9     | 1,143  | 4.0     | 2,108  |
| Centre  | 10.1    | 1,286  | 9.4     | 1,383  | 9.8     | 2,669  |
| Douala  | 13.4    | 1,146  | 12.4    | 1,286  | 12.9    | 2,432  |
| East  | 5.6     | 944    | 5.7     | 1,100  | 5.6     | 2,044  |
| Far North   | 12.3    | 1,697  | 13.1    | 2,189  | 12.7    | 3,886  |
| Littoral  | 7.3     | 431    | 7.0     | 473    | 7.1     | 904    |
| North   | 7.9     | 1,526  | 8.2     | 1,836  | 8.1     | 3,362  |
| North West  | 6.4     | 797    | 7.7     | 1,140  | 7.1     | 1,937  |
| South   | 3.7     | 811    | 3.5     | 842    | 3.6     | 1,653  |
| South West  | 8.4     | 692    | 7.8     | 774    | 8.1     | 1,466  |
| West  | 9.5     | 966    | 10.9    | 1,309  | 10.2    | 2,275  |
| Yaounde   | 11.5    | 1,185  | 10.5    | 1,343  | 11.0    | 2,528  |
| <b>Marital status</b>   |         |        |         |        |         |        |
| Never married   | 45.7    | 5,103  | 29.8    | 4,084  | 37.6    | 9,187  |
| Ever had sex  | 27.5    | 3,037  | 18.1    | 2,433  | 22.7    | 5,470  |
| Never had sex   | 17.9    | 2,022  | 11.5    | 1,634  | 14.6    | 3,656  |
| Missing whether had sex   | (0.3)   | 44     | *       | 17     | 0.2     | 61     |
| Married or living together  | 46.0    | 6,232  | 53.5    | 8,212  | 49.8    | 14,444 |
| Divorced or separated   | 7.5     | 963    | 9.6     | 1,389  | 8.6     | 2,352  |
| Widowed   | 0.8     | 122    | 7.2     | 1,093  | 4.0     | 1,215  |

**Table 4.A Demographic characteristics of the adult population (continued)**

| Percent distribution of the adult population aged 15-64 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|---|---------|--------|---------|--------|---------|--------|
| Characteristic  | Male    |        | Female  |        | Total   |        |
|   | Percent | Number | Percent | Number | Percent | Number |
| <b>Type of union</b>  |         |        |         |        |         |        |
| In polygamous union   | 7.2     | 1,082  | 12.7    | 2,094  | 9.9     | 3,176  |
| Not in polygamous union   | 38.7    | 5,107  | 37.9    | 5,356  | 38.3    | 10,463 |
| Not currently in union  | 54.2    | 6,188  | 49.4    | 6,566  | 51.8    | 12,754 |
| <b>Education</b>  |         |        |         |        |         |        |
| None  | 8.5     | 1,482  | 18.3    | 3,597  | 13.5    | 5,079  |
| Primary   | 24.2    | 3,396  | 29.0    | 4,461  | 26.6    | 7,857  |
| Secondary first cycle   | 34.6    | 4,146  | 31.1    | 4,175  | 32.8    | 8,321  |
| Secondary second cycle or higher  | 32.7    | 3,393  | 21.6    | 2,557  | 27.0    | 5,950  |
| <b>Wealth quintile</b>  |         |        |         |        |         |        |
| Lowest  | 18.9    | 3,497  | 20.8    | 4,403  | 19.9    | 7,900  |
| Second  | 19.3    | 2,696  | 21.0    | 3,411  | 20.2    | 6,107  |
| Middle  | 21.9    | 2,407  | 20.4    | 2,676  | 21.2    | 5,083  |
| Fourth  | 19.9    | 2,028  | 18.0    | 2,177  | 18.9    | 4,205  |
| Highest   | 19.9    | 1,811  | 19.8    | 2,143  | 19.9    | 3,954  |
| <b>Religion</b>   |         |        |         |        |         |        |
| Catholic  | 39.1    | 4,473  | 40.3    | 5,382  | 39.7    | 9,855  |
| Protestant  | 23.0    | 2,906  | 24.2    | 3,623  | 23.6    | 6,529  |
| Muslim  | 19.3    | 2,846  | 18.6    | 3,325  | 18.9    | 6,171  |
| Animist   | 1.4     | 200    | 1.5     | 267    | 1.5     | 467    |
| Other Christian   | 6.3     | 744    | 6.6     | 913    | 6.5     | 1,657  |
| Other   | 3.9     | 442    | 5.2     | 732    | 4.6     | 1,174  |
| None  | 7.0     | 804    | 3.6     | 565    | 5.2     | 1,369  |
| <b>Ethnicity</b>  |         |        |         |        |         |        |
| Arabe-Choa/Peul/Haoussa   | 8.5     | 1,284  | 8.2     | 1,478  | 8.3     | 2,762  |
| Biu-Mandara   | 3.5     | 548    | 3.6     | 732    | 3.5     | 1,280  |
| Adamaoua-Oubangui   | 2.0     | 363    | 1.2     | 306    | 1.6     | 669    |
| Bantoide Sud-Ouest  | 2.4     | 237    | 2.2     | 228    | 2.3     | 465    |
| Grassfields Nord-Ouest  | 10.5    | 1,106  | 10.5    | 1,366  | 10.5    | 2,472  |
| Bamilike/Bamoun   | 25.6    | 2,328  | 27.8    | 2,988  | 26.8    | 5,316  |
| Cotier/Ngoe/Oroko   | 3.4     | 287    | 2.7     | 280    | 3.0     | 567    |
| Beti/Bassa/Mbam   | 18.2    | 2,319  | 17.4    | 2,559  | 17.8    | 4,878  |
| Kako/Maka   | 1.9     | 339    | 2.3     | 484    | 2.1     | 823    |
| Foreigner/Etranger  | 0.7     | 75     | 0.5     | 76     | 0.6     | 151    |
| No Tribe/Aucune   | *       | 1      | *       | 14     | *       | 15     |
| Other   | 23.3    | 3,545  | 23.5    | 4,281  | 23.4    | 7,826  |

**Table 4.A Demographic characteristics of the adult population (continued)**

| Percent distribution of the adult population aged 15-64 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|---|---------|--------|---------|--------|---------|--------|
| Characteristic  | Male    |        | Female  |        | Total   |        |
|   | Percent | Number | Percent | Number | Percent | Number |
| <b>Age</b>  |         |        |         |        |         |        |
| 15-19   | 19.7    | 2,210  | 18.5    | 2,708  | 19.1    | 4,918  |
| 20-24   | 17.0    | 1,988  | 15.7    | 2,458  | 16.3    | 4,446  |
| 25-29   | 14.5    | 1,759  | 13.9    | 2,375  | 14.2    | 4,134  |
| 30-34   | 12.4    | 1,509  | 13.6    | 1,863  | 13.0    | 3,372  |
| 35-39   | 9.6     | 1,243  | 10.8    | 1,434  | 10.2    | 2,677  |
| 40-44   | 8.3     | 1,107  | 8.8     | 1,161  | 8.6     | 2,268  |
| 45-49   | 6.1     | 805    | 6.2     | 908    | 6.1     | 1,713  |
| 50-54   | 5.1     | 644    | 5.4     | 746    | 5.3     | 1,390  |
| 55-59   | 3.9     | 610    | 3.9     | 614    | 3.9     | 1,224  |
| 60-64   | 3.2     | 571    | 3.3     | 551    | 3.2     | 1,122  |
| Total 15-24   | 36.8    | 4,198  | 34.1    | 5,166  | 35.4    | 9,364  |
| Total 15-49   | 87.8    | 10,621 | 87.4    | 12,907 | 87.6    | 23,528 |
| Total 15-64   | 100.0   | 12,446 | 100.0   | 14,818 | 100.0   | 27,264 |

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

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 4.B Demographic characteristics of the pediatric population**

| Percent distribution of the population aged 0-14 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|--|---------|--------|---------|--------|---------|--------|
| Characteristic   | Male    |        | Female  |        | Total   |        |
|  | Percent | Number | Percent | Number | Percent | Number |
| <b>Age</b>   |         |        |         |        |         |        |
| 0-17 months  | 11.0    | 401    | 10.6    | 366    | 10.8    | 767    |
| 18-59 months   | 27.0    | 991    | 27.3    | 997    | 27.2    | 1,988  |
| 5-9 years  | 32.9    | 1,421  | 33.1    | 1,410  | 33.0    | 2,831  |
| 10-14 years  | 29.1    | 1,101  | 29.0    | 1,083  | 29.0    | 2,184  |
| <b>Residence</b>   |         |        |         |        |         |        |
| Total urban  | 43.7    | 1,363  | 43.9    | 1,325  | 43.8    | 2,688  |
| Douala and Yaounde   | 15.8    | 448    | 17.1    | 454    | 16.4    | 902    |
| Other urban  | 27.9    | 915    | 26.8    | 871    | 27.4    | 1,786  |
| Rural  | 56.3    | 2,551  | 56.1    | 2,531  | 56.2    | 5,082  |
| <b>Region</b>  |         |        |         |        |         |        |
| Adamawa  | 4.5     | 350    | 4.9     | 369    | 4.7     | 719    |
| Centre   | 11.2    | 396    | 9.6     | 330    | 10.4    | 726    |
| Douala   | 8.0     | 208    | 9.1     | 224    | 8.6     | 432    |
| East   | 6.1     | 300    | 6.4     | 300    | 6.3     | 600    |
| Far North  | 17.5    | 709    | 18.2    | 713    | 17.8    | 1,422  |
| Littoral   | 6.7     | 111    | 6.0     | 102    | 6.3     | 213    |
| North  | 10.8    | 630    | 11.4    | 657    | 11.1    | 1,287  |
| North West   | 7.6     | 294    | 6.3     | 246    | 6.9     | 540    |
| South  | 3.1     | 200    | 4.1     | 230    | 3.6     | 430    |
| South West   | 5.3     | 150    | 5.5     | 148    | 5.4     | 298    |
| West   | 11.5    | 326    | 10.4    | 307    | 11.0    | 633    |
| Yaounde  | 7.7     | 240    | 8.0     | 230    | 7.9     | 470    |
| <b>Wealth quintile</b>   |         |        |         |        |         |        |
| Lowest   | 27.7    | 1,452  | 29.4    | 1,497  | 28.5    | 2,949  |
| Second   | 24.3    | 1,004  | 22.9    | 940    | 23.6    | 1,944  |
| Middle   | 19.2    | 646    | 18.8    | 612    | 19.0    | 1,258  |
| Fourth   | 16.0    | 467    | 14.6    | 429    | 15.3    | 896    |
| Highest  | 12.8    | 341    | 14.3    | 367    | 13.6    | 708    |
| Total 0-4  | 38.0    | 1,392  | 38.0    | 1,363  | 38.0    | 2,755  |
| Total 0-14   | 100.0   | 3,914  | 100.0   | 3,856  | 100.0   | 7,770  |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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



**Table 4.C Demographic characteristics of the adolescent population**

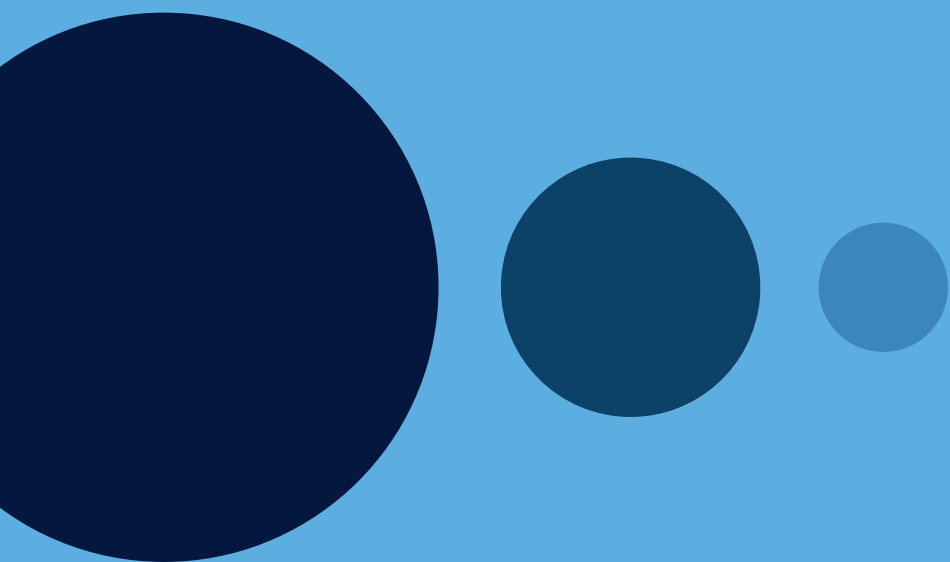
| Percent distribution of the population aged 10-14 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |         |        |         |        |         |        |
|---|---------|--------|---------|--------|---------|--------|
| Characteristic  | Male    |        | Female  |        | Total   |        |
|   | Percent | Number | Percent | Number | Percent | Number |
| <b>Residence</b>  |         |        |         |        |         |        |
| Total urban   | 47.2    | 413    | 48.8    | 414    | 48.0    | 827    |
| Douala and Yaounde  | 16.4    | 129    | 18.5    | 135    | 17.5    | 264    |
| Other urban   | 30.7    | 284    | 30.2    | 279    | 30.5    | 563    |
| Rural   | 52.8    | 688    | 51.2    | 669    | 52.0    | 1,357  |
| <b>Region</b>   |         |        |         |        |         |        |
| Adamawa   | 4.3     | 94     | 5.3     | 105    | 4.8     | 199    |
| Centre  | 9.7     | 103    | 8.9     | 92     | 9.3     | 195    |
| Douala  | 9.0     | 64     | 9.7     | 64     | 9.4     | 128    |
| East  | 6.9     | 95     | 7.6     | 100    | 7.2     | 195    |
| Far North   | 17.3    | 202    | 18.1    | 195    | 17.7    | 397    |
| Littoral  | (6.2)   | 32     | *       | 19     | 5.0     | 51     |
| North   | 9.2     | 155    | 10.4    | 172    | 9.8     | 327    |
| North West  | 7.6     | 84     | 6.8     | 70     | 7.2     | 154    |
| South   | 2.7     | 54     | 4.3     | 62     | 3.5     | 116    |
| South West  | (5.4)   | 41     | (5.3)   | 42     | 5.3     | 83     |
| West  | 14.2    | 112    | 11.0    | 91     | 12.6    | 203    |
| Yaounde   | 7.4     | 65     | 8.8     | 71     | 8.1     | 136    |
| <b>Education</b>  |         |        |         |        |         |        |
| Currently attending primary school  | 58.3    | 684    | 50.1    | 590    | 54.2    | 1,274  |
| Currently attending secondary school  | 31.9    | 304    | 33.2    | 285    | 32.6    | 589    |
| Not currently attending school  | 9.8     | 112    | 16.7    | 208    | 13.2    | 320    |
| Total, ages 10-14 years   | 100.0   | 1,101  | 100.0   | 1,083  | 100.0   | 2,184  |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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



## 5. HIV INCIDENCE

## 5.1 BACKGROUND

HIV incidence, the measure of new HIV infections in a population over time, provides important information on the status of the HIV epidemic. It can be used for effective targeted HIV prevention planning in groups that are most vulnerable to recent infection and to measure the impact of HIV prevention programs. This chapter presents annual estimates of HIV incidence among adults (defined as those aged 15-64 years in this survey) at the national level. For the purposes of this analysis, HIV incidence is expressed as the cumulative incidence or risk of new infections in a 12-month period, which is a close approximation to the instantaneous incidence rate. It is important to note that CAMPHIA was not powered to estimate incidence at the regional level or across different sub-groups.

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

Incidence estimation is based on recent/long-term classification using algorithms with limiting antigen (LAg) avidity.<sup>1,2,3</sup> The first testing algorithm (ie, 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 (ie, HIV-1 LAg avidity plus VL and ARV detection) uses the addition of ARV detection to exclude specimens with high VL while on treatment and, hence, limit misclassification as recent infections of persons who are on ART, but who may have drug resistance or poor treatment adherence.

## 5.2 RESULTS

These tables report HIV incidence in Cameroon at the time of the CAMPHIA survey.

**Table 5.A Annual HIV incidence using LAg/VL testing algorithm**

| Annual incidence of HIV among persons aged 15-49 and 15-64 years, by sex and age, using the limiting antigen (LAg) + viral load (VL) recent infection algorithm, CAMPHIA 2017-2018 |  |               |  |               |  |               |
|--|--|---------------|--|---------------|--|---------------|
| Age  | Male                                     |               | Female                                   |               | Total                                    |               |
|  | Percentage annual incidence <sup>1</sup> | 95% CI        | Percentage annual incidence <sup>1</sup> | 95% CI        | Percentage annual incidence <sup>1</sup> | 95% CI        |
| 15-24  | 0.07                                     | (0.00 – 0.21) | 0.64                                     | (0.12 – 1.15) | 0.35                                     | (0.08 – 0.61) |
| 25-34  | 0.13                                     | (0.00 – 0.40) | 0.28                                     | (0.00 – 0.55) | 0.21                                     | (0.02 – 0.39) |
| 35-49  | 0.04                                     | (0.00 – 0.17) | 0.34                                     | (0.00 – 0.72) | 0.19                                     | (0.00 – 0.40) |
| 15-49  | 0.08                                     | (0.00 – 0.18) | 0.44                                     | (0.18 – 0.69) | 0.26                                     | (0.12 – 0.40) |
| 15-64  | 0.09                                     | (0.00 – 0.19) | 0.45                                     | (0.20 – 0.69) | 0.27                                     | (0.14 – 0.41) |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 3.1: HIV incidence.

<sup>2</sup>95% CI (confidence interval) indicates the interval that is expected to include the true population parameter 95% of the time.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

**Table 5.B Annual HIV incidence using LAg/VL/ARV testing algorithm**

Annual incidence of HIV among persons aged 15-49 and 15-64 years, by sex and age, using the limiting antigen (LAg) + viral load (VL) + antiretroviral detection (ARVs) algorithm, CAMPHIA 2017-2018

| Age   | Male                                     |               | Female                                   |               | Total                                    |               |
|-------|--|---------------|--|---------------|--|---------------|
|       | Percentage annual incidence <sup>1</sup> | 95% CI        | Percentage annual incidence <sup>1</sup> | 95% CI        | Percentage annual incidence <sup>1</sup> | 95% CI        |
| 15-24 | 0.07                                     | (0.00 – 0.21) | 0.64                                     | (0.12 – 1.15) | 0.35                                     | (0.08 – 0.61) |
| 25-34 | 0.13                                     | (0.00 – 0.40) | 0.28                                     | (0.00 – 0.55) | 0.21                                     | (0.02 – 0.39) |
| 35-49 | 0.04                                     | (0.00 – 0.17) | 0.22                                     | (0.00 – 0.52) | 0.13                                     | (0.00 – 0.29) |
| 15-49 | 0.08                                     | (0.00 – 0.18) | 0.40                                     | (0.15 – 0.66) | 0.24                                     | (0.11 – 0.38) |
| 15-64 | 0.09                                     | (0.00 – 0.19) | 0.39                                     | (0.16 – 0.61) | 0.24                                     | (0.11 – 0.37) |

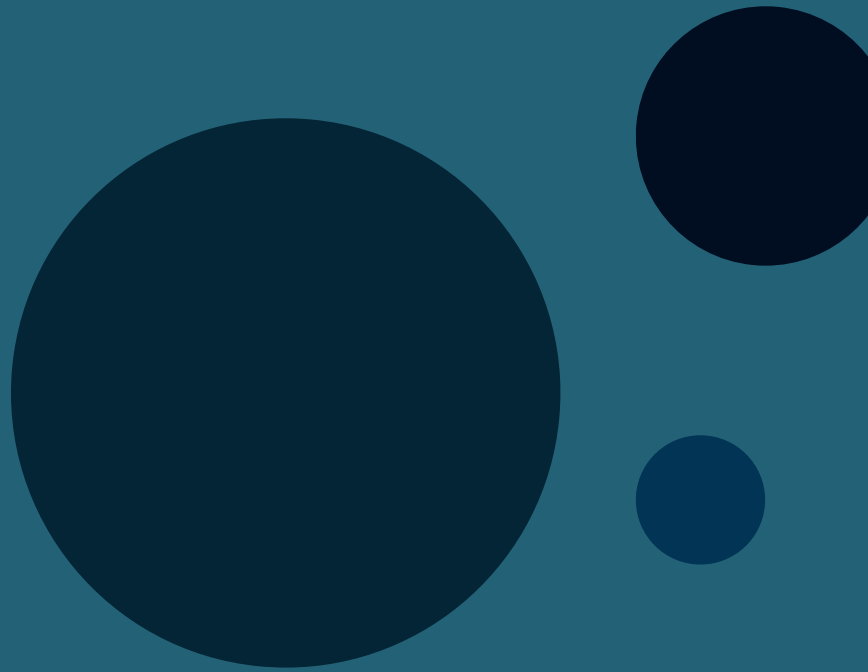
<sup>1</sup>Relates to Global AIDS Monitoring Indicator 3.1: HIV incidence.

<sup>2</sup>95% CI (confidence interval) indicates the interval that is expected to include the true population parameter 95% of the time.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

### 5.3 REFERENCES

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



## 6. HIV PREVALENCE

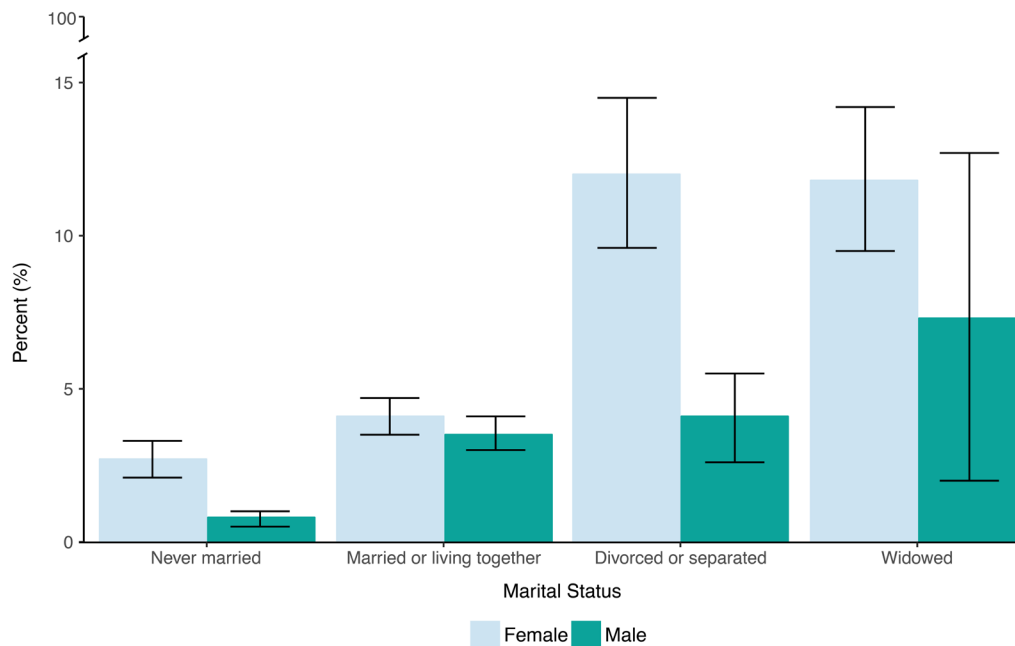
## 6.1 BACKGROUND

This chapter presents representative estimates of HIV prevalence among adults (defined as those aged 15-64 years) at the national and zonal level by selected demographic and behavioral characteristics. It also estimates of the number of people living with HIV in Cameroon. HIV prevalence testing was conducted in each household using a serological rapid diagnostic testing algorithm based on Cameroon's national guidelines, with laboratory confirmation of seropositive samples using a supplemental assay.

Appendix A describes the sample design and Appendix C provides estimates of sampling errors. Appendix B describes the PHIA HIV testing methodology.

## 6.2 RESULTS

The following tables and figures report HIV prevalence data in Cameroon at the time of the CAMPHIA survey.



**Figure 6.A**  
HIV prevalence by  
marital status: Ages  
15-64 years, CAMPHIA  
2017-2018

**Table 6.A HIV prevalence by demographic characteristics: Ages 15-64 years**

| Prevalence of HIV among persons aged 15-64 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |                         |        |                         |        |                         |        |
|--|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| Characteristic   | Male                    |        | Female                  |        | Total                   |        |
|  | Percentage HIV positive | Number | Percentage HIV positive | Number | Percentage HIV positive | Number |
| <b>Residence</b>   |                         |        |                         |        |                         |        |
| Total urban  | 2.2                     | 5,075  | 5.5                     | 5,871  | 3.8                     | 10,946 |
| Douala and Yaounde   | 2.1                     | 2,082  | 5.5                     | 2,353  | 3.8                     | 4,435  |
| Other urban  | 2.3                     | 2,993  | 5.4                     | 3,518  | 3.9                     | 6,511  |
| Rural  | 2.5                     | 6,812  | 4.5                     | 8,273  | 3.5                     | 15,085 |
| <b>Region</b>  |                         |        |                         |        |                         |        |
| Adamawa  | 3.0                     | 916    | 6.8                     | 1,081  | 4.9                     | 1,997  |
| Centre   | 3.5                     | 1,247  | 8.1                     | 1,342  | 5.8                     | 2,589  |
| Douala   | 1.6                     | 1,039  | 5.0                     | 1,166  | 3.3                     | 2,205  |
| East   | 3.9                     | 929    | 7.9                     | 1,080  | 5.9                     | 2,009  |
| Far North  | 1.3                     | 1,598  | 1.7                     | 2,058  | 1.5                     | 3,656  |
| Littoral   | 1.5                     | 428    | 4.6                     | 465    | 3.1                     | 893    |
| North  | 1.3                     | 1,496  | 1.9                     | 1,806  | 1.6                     | 3,302  |
| North West   | 2.9                     | 775    | 6.8                     | 1,094  | 5.1                     | 1,869  |
| South  | 3.0                     | 808    | 9.8                     | 840    | 6.3                     | 1,648  |
| South West   | 2.6                     | 649    | 4.7                     | 724    | 3.6                     | 1,373  |
| West   | 2.4                     | 959    | 2.9                     | 1,301  | 2.7                     | 2,260  |
| Yaounde  | 2.7                     | 1,043  | 6.2                     | 1,187  | 4.4                     | 2,230  |
| <b>Marital status</b>  |                         |        |                         |        |                         |        |
| Never married  | 0.8                     | 4,873  | 2.7                     | 3,903  | 1.5                     | 8,776  |
| Ever had sex   | 1.1                     | 2,899  | 4.1                     | 2,316  | 2.3                     | 5,215  |
| Never had sex  | 0.3                     | 1,939  | 0.5                     | 1,571  | 0.4                     | 3,510  |
| Missing whether had sex  | 3.0                     | (35)   | *                       | 16     | 2.2                     | 51     |
| Married or living together   | 3.5                     | 5,940  | 4.1                     | 7,840  | 3.8                     | 13,780 |
| Divorced or separated  | 4.1                     | 931    | 12.0                    | 1,319  | 8.6                     | 2,250  |
| Widowed  | 7.3                     | 120    | 11.8                    | 1,049  | 11.4                    | 1,169  |
| <b>Type of union</b>   |                         |        |                         |        |                         |        |
| In polygamous union  | 2.9                     | 1,048  | 3.3                     | 2,015  | 3.1                     | 3,063  |
| Not in polygamous union  | 3.6                     | 4,850  | 4.0                     | 5,100  | 3.8                     | 9,950  |
| Not currently in union   | 1.3                     | 5,924  | 6.0                     | 6,271  | 3.5                     | 12,195 |
| <b>Education</b>   |                         |        |                         |        |                         |        |
| None   | 1.3                     | 1,423  | 3.2                     | 3,443  | 2.6                     | 4,866  |
| Primary  | 3.2                     | 3,295  | 6.3                     | 4,318  | 5.0                     | 7,613  |
| Secondary first cycle  | 2.1                     | 3,991  | 5.6                     | 4,005  | 3.8                     | 7,996  |
| Secondary second cycle or higher   | 2.2                     | 3,151  | 3.8                     | 2,354  | 2.8                     | 5,505  |

**Table 6.A HIV prevalence by demographic characteristics: Ages 15-64 years** (continued)

| Prevalence of HIV among persons aged 15-64 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |                         |        |                         |        |                         |        |
|--|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| Characteristic   | Male                    |        | Female                  |        | Total                   |        |
|  | Percentage HIV positive | Number | Percentage HIV positive | Number | Percentage HIV positive | Number |
| <b>Wealth quintile</b>   |                         |        |                         |        |                         |        |
| Lowest   | 1.6                     | 3,420  | 2.8                     | 4,294  | 2.2                     | 7,714  |
| Second   | 2.8                     | 2,624  | 6.0                     | 3,303  | 4.5                     | 5,927  |
| Middle   | 2.1                     | 2,312  | 5.2                     | 2,559  | 3.6                     | 4,871  |
| Fourth   | 2.8                     | 1,878  | 5.6                     | 2,024  | 4.2                     | 3,902  |
| Highest  | 2.5                     | 1,646  | 5.6                     | 1,956  | 4.0                     | 3,602  |
| <b>Religion</b>  |                         |        |                         |        |                         |        |
| Catholic   | 2.5                     | 4,281  | 5.3                     | 5,136  | 3.9                     | 9,417  |
| Protestant   | 2.3                     | 2,796  | 5.7                     | 3,478  | 4.1                     | 6,274  |
| Muslim   | 1.8                     | 2,680  | 3.3                     | 3,123  | 2.5                     | 5,803  |
| Animist  | 3.9                     | 196    | 2.9                     | 262    | 3.4                     | 458    |
| Other Christian  | 2.0                     | 705    | 6.2                     | 879    | 4.2                     | 1,584  |
| Other  | 2.3                     | 424    | 5.8                     | 699    | 4.3                     | 1,123  |
| None   | 3.0                     | 782    | 3.7                     | 557    | 3.2                     | 1,339  |
| <b>Ethnicity</b>   |                         |        |                         |        |                         |        |
| Arabe-Choa/Peul/Haoussa  | 1.7                     | 1,180  | 3.2                     | 1,353  | 2.5                     | 2,533  |
| Biu-Mandara  | 1.1                     | 532    | 2.1                     | 714    | 1.7                     | 1,246  |
| Adamaoua-Oubangui  | 1.7                     | 357    | 6.1                     | 294    | 3.4                     | 651    |
| Bantoide Sud-Ouest   | 3.4                     | 221    | 5.6                     | 224    | 4.5                     | 445    |
| Grassfields Nord-Ouest   | 3.1                     | 1,067  | 7.1                     | 1,302  | 5.1                     | 2,369  |
| Bamilike/Bamoun  | 2.0                     | 2,223  | 3.7                     | 2,843  | 2.9                     | 5,066  |
| Cotier/Ngoe/Oroko  | 2.4                     | 263    | 5.4                     | 263    | 3.8                     | 526    |
| Beti/Bassa/Mbam  | 2.9                     | 2,211  | 8.2                     | 2,427  | 5.5                     | 4,638  |
| Kako/Maka  | 4.4                     | 337    | 11.6                    | 481    | 8.4                     | 818    |
| Foreigner/Etranger   | 1.6                     | 69     | 4.7                     | 69     | 3.0                     | 138    |
| No Tribe/Aucune  | *                       | 1      | *                       | 13     | *                       | 14     |
| Other  | 2.1                     | 3,416  | 3.5                     | 4,137  | 2.8                     | 7,553  |
| <b>Pregnancy status</b>  |                         |        |                         |        |                         |        |
| Currently pregnant   | NA                      | NA     | 3.4                     | 1,134  | NA                      | NA     |
| Not currently pregnant   | NA                      | NA     | 5.1                     | 12,790 | NA                      | NA     |
| Total 15-64  | 2.3                     | 11,887 | 5.0                     | 14,144 | 3.7                     | 26,031 |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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



**Table 6.B HIV prevalence by demographic characteristics: Ages 15-49 years**

| Prevalence of HIV among persons aged 15-49 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |                         |        |                         |        |                         |        |
|--|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| Characteristic   | Male                    |        | Female                  |        | Total                   |        |
|  | Percentage HIV positive | Number | Percentage HIV positive | Number | Percentage HIV positive | Number |
| <b>Residence</b>   |                         |        |                         |        |                         |        |
| Total urban  | 1.9                     | 4,444  | 5.2                     | 5,197  | 3.6                     | 9,641  |
| Douala and Yaounde   | 1.7                     | 1,855  | 5.2                     | 2,101  | 3.4                     | 3,956  |
| Other urban  | 2.1                     | 2,589  | 5.3                     | 3,096  | 3.7                     | 5,685  |
| Rural  | 2.1                     | 5,679  | 4.3                     | 7,124  | 3.3                     | 12,803 |
| <b>Region</b>  |                         |        |                         |        |                         |        |
| Adamawa  | 2.8                     | 804    | 7.0                     | 965    | 4.9                     | 1,769  |
| Centre   | 2.7                     | 1,036  | 7.4                     | 1,121  | 5.0                     | 2,157  |
| Douala   | 1.5                     | 910    | 4.8                     | 1,038  | 3.1                     | 1,948  |
| East   | 3.5                     | 793    | 7.5                     | 948    | 5.6                     | 1,741  |
| Far North  | 1.1                     | 1,329  | 1.6                     | 1,793  | 1.4                     | 3,122  |
| Littoral   | 1.6                     | 360    | 4.9                     | 405    | 3.3                     | 765    |
| North  | 1.4                     | 1,287  | 2.0                     | 1,642  | 1.7                     | 2,929  |
| North West   | 2.6                     | 658    | 6.6                     | 947    | 4.8                     | 1,605  |
| South  | 2.3                     | 671    | 8.5                     | 687    | 5.4                     | 1,358  |
| South West   | 2.4                     | 565    | 4.7                     | 629    | 3.5                     | 1,194  |
| West   | 2.0                     | 765    | 3.1                     | 1,083  | 2.6                     | 1,848  |
| Yaounde  | 2.0                     | 945    | 5.6                     | 1,063  | 3.7                     | 2,008  |
| <b>Marital status</b>  |                         |        |                         |        |                         |        |
| Never married  | 0.8                     | 4,816  | 2.6                     | 3,791  | 1.5                     | 8,607  |
| Ever had sex   | 1.1                     | 2,850  | 4.0                     | 2,204  | 2.2                     | 5,054  |
| Never had sex  | 0.3                     | 1,931  | 0.5                     | 1,571  | 0.4                     | 3,502  |
| Missing whether had sex  | (3.0)                   | 35     | *                       | 16     | 2.2                     | 51     |
| Married or living together   | 3.3                     | 4,500  | 4.1                     | 6,941  | 3.8                     | 11,441 |
| Divorced or separated  | 3.3                     | 742    | 12.4                    | 1,126  | 8.5                     | 1,868  |
| Widowed  | (10.3)                  | 45     | 15.0                    | 430    | 14.6                    | 475    |
| <b>Type of union</b>   |                         |        |                         |        |                         |        |
| In polygamous union  | 2.5                     | 692    | 3.2                     | 1,745  | 3.0                     | 2,437  |
| Not in polygamous union  | 3.4                     | 3,776  | 4.1                     | 4,539  | 3.8                     | 8,315  |
| Not currently in union   | 1.1                     | 5,603  | 5.5                     | 5,347  | 3.1                     | 10,950 |
| <b>Education</b>   |                         |        |                         |        |                         |        |
| None   | 0.9                     | 1,010  | 3.0                     | 2,783  | 2.4                     | 3,793  |
| Primary  | 3.0                     | 2,624  | 6.3                     | 3,512  | 4.8                     | 6,136  |
| Secondary first cycle  | 1.9                     | 3,608  | 5.3                     | 3,733  | 3.6                     | 7,341  |
| Secondary second cycle or higher   | 1.7                     | 2,861  | 3.6                     | 2,274  | 2.5                     | 5,135  |

**Table 6.B HIV prevalence by demographic characteristics: Ages 15-49 years (continued)**

| Prevalence of HIV among persons aged 15-49 years, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |                         |        |                         |        |                         |        |
|--|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| Characteristic   | Male                    |        | Female                  |        | Total                   |        |
|  | Percentage HIV positive | Number | Percentage HIV positive | Number | Percentage HIV positive | Number |
| <b>Wealth quintile</b>   |                         |        |                         |        |                         |        |
| Lowest   | 1.3                     | 2,824  | 3.0                     | 3,743  | 2.2                     | 6,567  |
| Second   | 2.6                     | 2,150  | 5.6                     | 2,765  | 4.2                     | 4,915  |
| Middle   | 1.7                     | 2,020  | 4.9                     | 2,213  | 3.2                     | 4,233  |
| Fourth   | 2.5                     | 1,668  | 4.9                     | 1,838  | 3.7                     | 3,506  |
| Highest  | 2.0                     | 1,455  | 5.6                     | 1,754  | 3.8                     | 3,209  |
| <b>Religion</b>  |                         |        |                         |        |                         |        |
| Catholic   | 2.0                     | 3,639  | 4.9                     | 4,412  | 3.5                     | 8,051  |
| Protestant   | 2.1                     | 2,371  | 5.5                     | 2,992  | 3.9                     | 5,363  |
| Muslim   | 1.7                     | 2,298  | 3.3                     | 2,807  | 2.5                     | 5,105  |
| Animist  | 4.8                     | 154    | 2.7                     | 225    | 3.7                     | 379    |
| Other Christian  | 1.6                     | 610    | 5.7                     | 786    | 3.8                     | 1,396  |
| Other  | 1.9                     | 375    | 5.6                     | 629    | 4.0                     | 1,004  |
| None   | 2.7                     | 658    | 4.4                     | 460    | 3.3                     | 1,118  |
| <b>Ethnicity</b>   |                         |        |                         |        |                         |        |
| Arabe-Choa/Peul/Haoussa  | 1.6                     | 1,016  | 3.2                     | 1,222  | 2.4                     | 2,238  |
| Biu-Mandara  | 1.0                     | 459    | 2.3                     | 616    | 1.7                     | 1,075  |
| Adamaoua-Oubangui  | 1.5                     | 318    | 6.5                     | 262    | 3.3                     | 580    |
| Bantoide Sud-Ouest   | 3.9                     | 192    | 5.3                     | 205    | 4.6                     | 397    |
| Grassfields Nord-Ouest   | 2.7                     | 928    | 6.8                     | 1,147  | 4.8                     | 2,075  |
| Bamilike/Bamoun  | 1.9                     | 1,885  | 3.6                     | 2,458  | 2.8                     | 4,343  |
| Cotier/Ngoe/Oroko  | 0.9                     | 223    | 5.5                     | 216    | 2.9                     | 439    |
| Beti/Bassa/Mbam  | 2.2                     | 1,832  | 7.6                     | 2,022  | 4.8                     | 3,854  |
| Kako/Maka  | 4.2                     | 291    | 11.4                    | 412    | 8.2                     | 703    |
| Foreigner/Etranger   | 0.0                     | 58     | 3.7                     | 64     | 1.8                     | 122    |
| No Tribe/Aucune  | *                       | 1      | *                       | 11     | *                       | 12     |
| Other  | 2.0                     | 2,911  | 3.4                     | 3,664  | 2.7                     | 6,575  |
| <b>Pregnancy status</b>  |                         |        |                         |        |                         |        |
| Currently pregnant   | NA                      | NA     | 3.5                     | 1,128  | NA                      | NA     |
| Not currently pregnant   | NA                      | NA     | 4.9                     | 10,975 | NA                      | NA     |
| Total 15-49  | 2.0                     | 10,123 | 4.8                     | 12,321 | 3.4                     | 22,444 |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

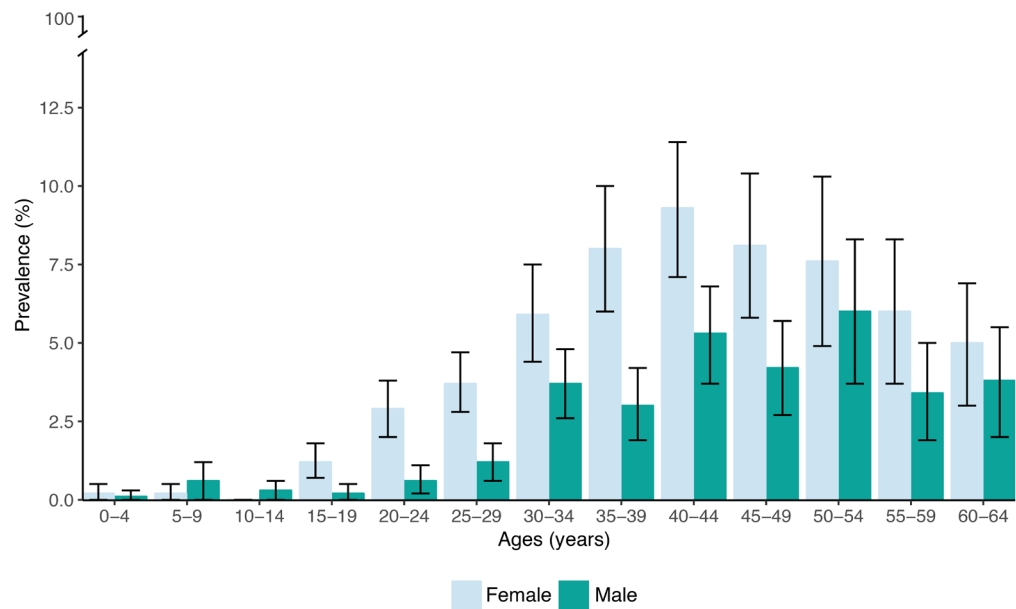
Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

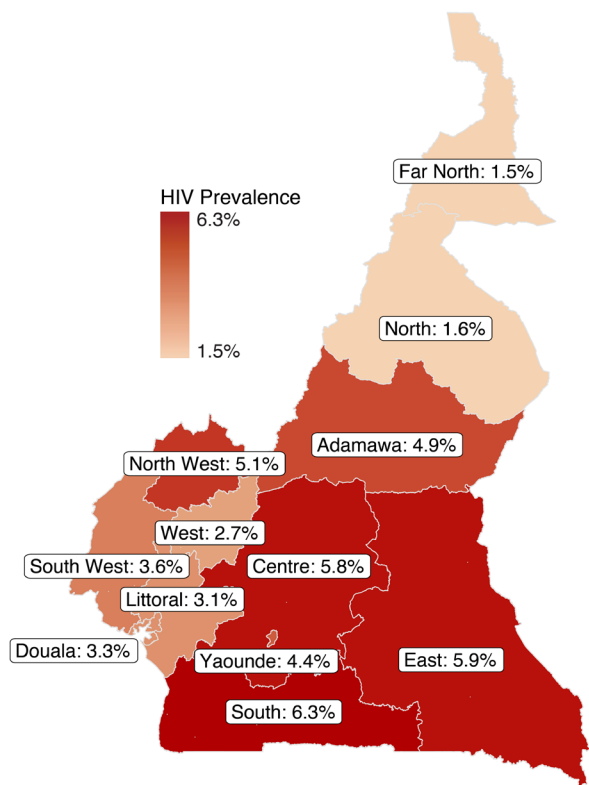
**Table 6.C HIV prevalence by age and sex**

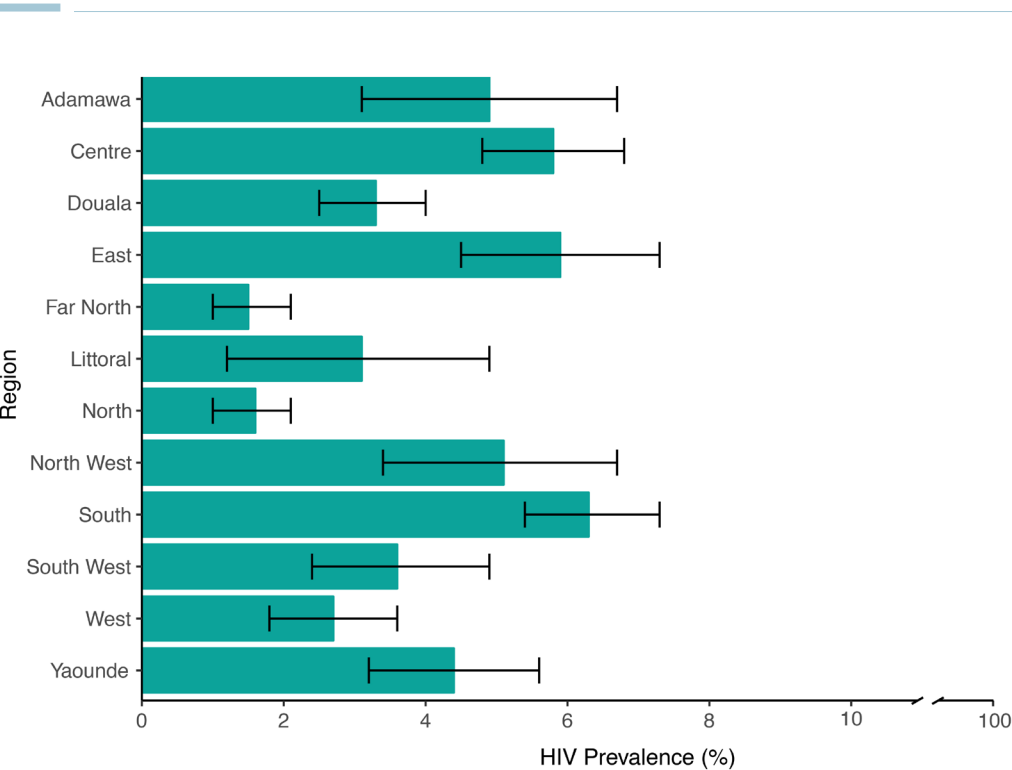
| Prevalence of HIV among persons aged 0-64 years, by sex and age, CAMPHIA 2017-2018 |                         |        |                         |        |                         |        |
|--|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| Age  | Male                    |        | Female                  |        | Total                   |        |
|  | Percentage HIV positive | Number | Percentage HIV positive | Number | Percentage HIV positive | Number |
| 0-17 months  | 0.0                     | 341    | 0.0                     | 316    | 0.0                     | 657    |
| 18-59 months   | 0.2                     | 896    | 0.2                     | 915    | 0.2                     | 1,811  |
| 5-9  | 0.6                     | 1,325  | 0.2                     | 1,313  | 0.4                     | 2,638  |
| 10-14  | 0.3                     | 1,070  | 0.0                     | 1,045  | 0.1                     | 2,115  |
| Total 0-4  | 0.1                     | 1,237  | 0.2                     | 1,231  | 0.1                     | 2,468  |
| Total 0-14   | 0.3                     | 3,632  | 0.1                     | 3,589  | 0.2                     | 7,221  |
| 15-19  | 0.2                     | 2,145  | 1.2                     | 2,620  | 0.7                     | 4,765  |
| 20-24  | 0.6                     | 1,904  | 2.9                     | 2,339  | 1.7                     | 4,243  |
| 25-29  | 1.2                     | 1,664  | 3.7                     | 2,259  | 2.5                     | 3,923  |
| 30-34  | 3.7                     | 1,415  | 5.9                     | 1,768  | 4.9                     | 3,183  |
| 35-39  | 3.0                     | 1,174  | 8.0                     | 1,363  | 5.7                     | 2,537  |
| 40-44  | 5.3                     | 1,056  | 9.3                     | 1,095  | 7.4                     | 2,151  |
| 45-49  | 4.2                     | 765    | 8.1                     | 877    | 6.2                     | 1,642  |
| 50-54  | 6.0                     | 618    | 7.6                     | 706    | 6.8                     | 1,324  |
| 55-59  | 3.4                     | 591    | 6.0                     | 584    | 4.8                     | 1,175  |
| 60-64  | 3.8                     | 555    | 5.0                     | 533    | 4.4                     | 1,088  |
| Total 15-24  | 0.4                     | 4,049  | 2.0                     | 4,959  | 1.2                     | 9,008  |
| Total 15-49  | 2.0                     | 10,123 | 4.8                     | 12,321 | 3.4                     | 22,444 |
| Total 15-64  | 2.3                     | 11,887 | 5.0                     | 14,144 | 3.7                     | 26,031 |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

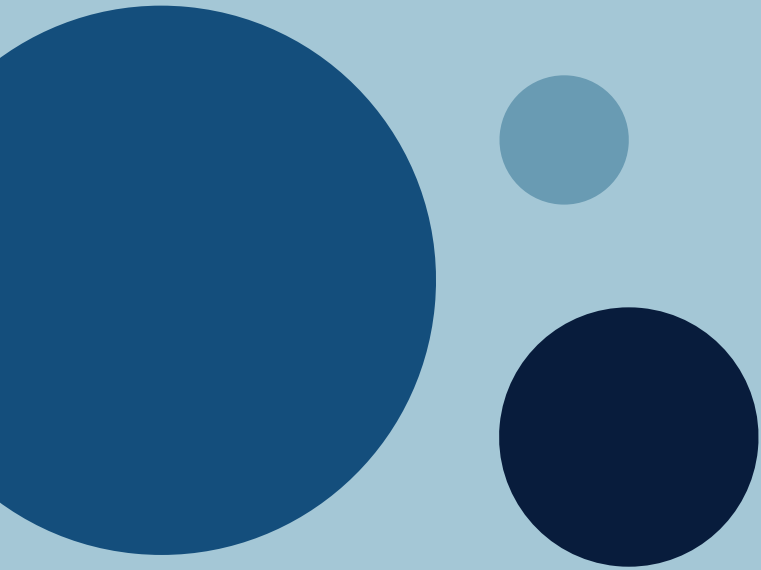


**Figure 6.C**  
HIV prevalence among adults, by region, CAMPHIA 2017-2018





**Figure 6.D**  
HIV prevalence among  
adults, by region,  
CAMPHIA 2017-2018



## 7. HIV TESTING

## 7.1 BACKGROUND

HIV testing is necessary for awareness of HIV status and is a critical component of HIV epidemic control targets. Awareness of HIV-positive status is the first step 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.

This section reports data on adult (defined as those aged 15-64 years) men and women, who reported ever receiving an HIV test and receiving the test results. Results on HIV testing in the last 12 months and receiving the test results are also presented to understand frequent or recent testing.

## 7.2 RESULTS

The following tables and figures show CAMPHIA's HIV testing results.

**Table 7.A Self-reported HIV testing: Men**

| Percentage of men aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |   |   |        |
|--|---|---|--------|
| Characteristic   | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Result of PHIA survey HIV test</b>  |   |   |        |
| HIV positive   | 76.7  | 29.3  | 283    |
| HIV negative   | 51.2  | 25.5  | 11434  |
| Not tested   | 64.9  | 44.4  | 550    |
| <b>Residence</b>   |   |   |        |
| Total urban  | 61.8  | 33.3  | 5369   |
| Douala and Yaounde   | 67.4  | 38.5  | 2296   |
| Other urban  | 56.9  | 28.7  | 3073   |
| Rural  | 41.9  | 18.9  | 6898   |
| <b>Region</b>  |   |   |        |
| Adamawa  | 44.2  | 23.0  | 947    |
| Centre   | 54.7  | 25.5  | 1270   |
| Douala   | 70.8  | 42.5  | 1126   |
| East   | 52.3  | 27.4  | 926    |
| Far North  | 21.7  | 9.6   | 1682   |
| Littoral   | 59.0  | 27.2  | 422    |
| North  | 22.4  | 9.1   | 1507   |
| North West   | 62.4  | 30.1  | 788    |
| South  | 63.0  | 29.9  | 804    |
| South West   | 61.3  | 28.1  | 679    |
| West   | 56.8  | 28.7  | 946    |
| Yaounde  | 63.4  | 33.9  | 1170   |

**Table 7.A Self-reported HIV testing: Men** (continued)

| Percentage of men aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |   |   |        |
|--|---|---|--------|
| Characteristic   | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Marital status</b>  |   |   |        |
| Never married  | 40.0  | 22.5  | 5032   |
| Ever had sex   | 54.4  | 31.3  | 3001   |
| Never had sex  | 17.4  | 8.9   | 1991   |
| Missing whether had sex  | 56.6  | 29.4  | (40)   |
| Married or living together   | 62.8  | 29.4  | 6148   |
| Divorced or separated  | 63.9  | 33.4  | 947    |
| Widowed  | 60.7  | 22.7  | 117    |
| <b>Type of union</b>   |   |   |        |
| In polygamous union  | 57.2  | 25.5  | 1063   |
| Not in polygamous union  | 63.9  | 30.1  | 5042   |
| Not currently in union   | 43.6  | 24.0  | 6096   |
| <b>Education</b>   |   |   |        |
| None   | 17.7  | 8.0   | 1447   |
| Primary  | 44.2  | 19.2  | 3337   |
| Secondary first cycle  | 47.2  | 23.3  | 4095   |
| Secondary second cycle or higher   | 73.0  | 40.0  | 3360   |
| <b>Wealth quintile</b>   |   |   |        |
| Lowest   | 19.8  | 7.0   | 3446   |
| Second   | 47.4  | 20.4  | 2655   |
| Middle   | 54.5  | 27.0  | 2369   |
| Fourth   | 64.2  | 34.4  | 2006   |
| Highest  | 74.7  | 42.8  | 1784   |
| <b>Religion</b>  |   |   |        |
| Catholic   | 57.5  | 29.5  | 4420   |
| Protestant   | 55.3  | 28.2  | 2865   |
| Muslim   | 40.2  | 21.6  | 2801   |
| Animist  | 38.7  | 18.2  | 197    |
| Other Christian  | 57.8  | 25.4  | 731    |
| Other  | 56.4  | 25.0  | 438    |
| None   | 44.4  | 21.5  | 788    |



**Table 7.A Self-reported HIV testing: Men (continued)**

| Percentage of men aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |   |   |        |
|--|---|---|--------|
| Characteristic   | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Ethnicity</b>   |   |   |        |
| Arabe-Choa/Peul/Haoussa  | 34.9  | 18.5  | 1259   |
| Biu-Mandara  | 20.8  | 10.9  | 541    |
| Adamaoua-Oubangui  | 48.5  | 23.8  | 353    |
| Bantoide Sud-Ouest   | 66.3  | 31.2  | 235    |
| Grassfields Nord-Ouest   | 64.6  | 30.3  | 1090   |
| Bamilike/Bamoun  | 64.1  | 33.7  | 2293   |
| Cotier/Ngoe/Oroko  | 60.6  | 31.5  | 282    |
| Beti/Bassa/Mbam  | 59.8  | 30.8  | 2292   |
| Kako/Maka  | 53.9  | 29.8  | 331    |
| Foreigner/Etranger   | 46.8  | 20.4  | 74     |
| No Tribe/Aucune  | *   | *   | 1      |
| Other  | 37.6  | 17.9  | 3503   |
| <b>Age</b>   |   |   |        |
| 15-19  | 18.4  | 10.2  | 2180   |
| 20-24  | 46.7  | 26.8  | 1964   |
| 25-29  | 65.9  | 37.3  | 1734   |
| 30-34  | 68.4  | 34.7  | 1496   |
| 35-39  | 67.0  | 34.8  | 1227   |
| 40-44  | 66.5  | 29.5  | 1091   |
| 45-49  | 62.5  | 28.7  | 794    |
| 50-54  | 62.7  | 24.6  | 631    |
| 55-59  | 58.2  | 22.9  | 595    |
| 60-64  | 49.2  | 17.1  | 555    |
| Total 15-24  | 31.5  | 17.9  | 4144   |
| Total 15-49  | 51.8  | 27.2  | 10486  |
| Total 15-64  | 52.5  | 26.6  | 12267  |

<sup>1</sup>Relates to PEPFAR HTS\_TST: Number of individuals who received HIV Testing Services (HTS) and received their test results.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 7.B Self-reported HIV testing: Women**

| Percentage of women aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |   |   |        |
|---|---|---|--------|
| Characteristic  | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Result of PHIA survey HIV test</b>   |   |   |        |
| HIV positive  | 82.9  | 32.0  | 666    |
| HIV negative  | 64.5  | 30.2  | 12873  |
| Not tested  | 75.3  | 49.6  | 650    |
| <b>Residence</b>  |   |   |        |
| Total urban   | 76.4  | 37.6  | 6158   |
| Douala and Yaounde  | 81.8  | 42.3  | 2592   |
| Other urban   | 72.0  | 33.7  | 3566   |
| Rural   | 54.6  | 24.6  | 8031   |
| <b>Region</b>   |   |   |        |
| Adamawa   | 51.1  | 20.7  | 1055   |
| Centre  | 75.5  | 34.2  | 1344   |
| Douala  | 82.5  | 43.4  | 1267   |
| East  | 62.3  | 30.9  | 1010   |
| Far North   | 26.2  | 9.9   | 2057   |
| Littoral  | 78.7  | 38.8  | 459    |
| North   | 31.0  | 11.1  | 1748   |
| North West  | 79.1  | 36.6  | 1112   |
| South   | 80.7  | 38.8  | 814    |
| South West  | 77.3  | 37.3  | 749    |
| West  | 72.2  | 34.1  | 1249   |
| Yaounde   | 81.1  | 41.1  | 1325   |
| <b>Marital status</b>   |   |   |        |
| Never married   | 52.6  | 28.6  | 4001   |
| Ever had sex  | 71.4  | 40.4  | 2376   |
| Never had sex   | 23.6  | 10.4  | 1609   |
| Missing whether had sex   | *   | *   | 16     |
| Married or living together  | 72.0  | 33.4  | 7775   |
| Divorced or separated   | 77.9  | 34.2  | 1345   |
| Widowed   | 60.2  | 22.9  | 1032   |
| <b>Type of union</b>  |   |   |        |
| In polygamous union   | 54.6  | 21.7  | 1937   |
| Not in polygamous union   | 74.8  | 35.7  | 5117   |
| Not currently in union  | 58.9  | 28.9  | 6378   |

**Table 7.B Self-reported HIV testing: Women (continued)**

| Percentage of women aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |   |   |        |
|---|---|---|--------|
| Characteristic  | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Education</b>  |   |   |        |
| None  | 29.6  | 10.7  | 3314   |
| Primary   | 67.0  | 26.0  | 4237   |
| Secondary first cycle   | 72.4  | 35.8  | 4077   |
| Secondary second cycle or higher  | 83.8  | 48.1  | 2542   |
| <b>Wealth quintile</b>  |   |   |        |
| Lowest  | 29.0  | 10.2  | 4108   |
| Second  | 64.9  | 26.8  | 3241   |
| Middle  | 73.3  | 36.1  | 2574   |
| Fourth  | 80.0  | 39.0  | 2146   |
| Highest   | 83.6  | 45.4  | 2114   |
| <b>Religion</b>   |   |   |        |
| Catholic  | 72.6  | 36.0  | 5215   |
| Protestant  | 69.4  | 32.5  | 3482   |
| Muslim  | 48.2  | 20.7  | 3105   |
| Animist   | 43.7  | 20.9  | 259    |
| Other Christian   | 72.5  | 33.4  | 884    |
| Other   | 73.4  | 35.3  | 709    |
| None  | 43.5  | 19.8  | 528    |
| <b>Ethnicity</b>  |   |   |        |
| Arabe-Choa/Peul/Haoussa   | 42.7  | 18.1  | 1357   |
| Biu-Mandara   | 21.7  | 9.6   | 691    |
| Adamaoua-Oubangui   | 51.0  | 21.1  | 284    |
| Bantoide Sud-Ouest  | 74.2  | 37.8  | 222    |
| Grassfields Nord-Ouest  | 82.4  | 40.0  | 1340   |
| Bamilike/Bamoun   | 77.4  | 37.7  | 2897   |
| Cotier/Ngoe/Oroko   | 81.4  | 42.9  | 276    |
| Beti/Bassa/Mbam   | 79.5  | 38.6  | 2499   |
| Kako/Maka   | 68.3  | 34.9  | 448    |
| Foreigner/Etranger  | 74.2  | 35.9  | 73     |
| No Tribe/Aucune   | *   | *   | 14     |
| Other   | 47.0  | 20.2  | 4067   |

**Table 7.B Self-reported HIV testing: Women** (continued)

| Percentage of women aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018  |   |   |        |
|--|---|---|--------|
| Characteristic   | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Age</b>   |   |   |        |
| 15-19  | 33.9  | 18.5  | 2623   |
| 20-24  | 73.7  | 40.9  | 2346   |
| 25-29  | 79.1  | 43.5  | 2284   |
| 30-34  | 81.3  | 38.7  | 1775   |
| 35-39  | 78.3  | 34.5  | 1379   |
| 40-44  | 72.5  | 26.0  | 1116   |
| 45-49  | 64.7  | 25.2  | 869    |
| 50-54  | 64.3  | 23.4  | 708    |
| 55-59  | 57.3  | 20.2  | 573    |
| 60-64  | 46.6  | 17.0  | 516    |
| Total 15-24  | 52.1  | 28.7  | 4969   |
| Total 15-49  | 67.1  | 32.8  | 12392  |
| Total 15-64  | 65.9  | 31.3  | 14189  |
| <sup>1</sup> Relates to PEPFAR HTS_TST: Number of individuals who received HIV Testing Services (HTS) and received their test results.<br>Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the <i>Sampling and Weighting Technical Report</i> , available on the PHIA website at <a href="https://phia-data.icap.columbia.edu/files">https://phia-data.icap.columbia.edu/files</a> .<br>The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.<br>Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk. |   |   |        |

**Table 7.C Self-reported HIV testing: Total**

| Percentage of persons aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |   |   |        |
|--|---|---|--------|
| Characteristic   | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
| <b>Result of PHIA survey HIV test</b>  |   |   |        |
| HIV positive   | 80.9  | 31.1  | 949    |
| HIV negative   | 57.8  | 27.8  | 24307  |
| Not tested   | 70.2  | 47.1  | 1200   |
| <b>Residence</b>   |   |   |        |
| Total urban  | 69.0  | 35.4  | 11527  |
| Douala and Yaounde   | 74.4  | 40.4  | 4888   |
| Other urban  | 64.5  | 31.2  | 6639   |
| Rural  | 48.4  | 21.8  | 14929  |

**Table 7.C Self-reported HIV testing: Total (continued)**

Percentage of persons aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
|----------------------------------|---|---|--------|
| <b>Region</b>                    |   |   |        |
| Adamawa                          | 47.5  | 21.9  | 2002   |
| Centre                           | 64.9  | 29.7  | 2614   |
| Douala                           | 76.5  | 42.9  | 2393   |
| East                             | 57.3  | 29.1  | 1936   |
| Far North                        | 24.0  | 9.8   | 3739   |
| Littoral                         | 68.8  | 33.0  | 881    |
| North                            | 26.8  | 10.1  | 3255   |
| North West                       | 71.7  | 33.7  | 1900   |
| South                            | 71.7  | 34.2  | 1618   |
| South West                       | 69.1  | 32.6  | 1428   |
| West                             | 65.1  | 31.6  | 2195   |
| Yaounde                          | 72.0  | 37.4  | 2495   |
| <b>Marital status</b>            |   |   |        |
| Never married                    | 45.1  | 25.0  | 9033   |
| Ever had sex                     | 61.3  | 34.9  | 5377   |
| Never had sex                    | 19.9  | 9.5   | 3600   |
| Missing whether had sex          | 46.8  | 24.0  | 56     |
| Married or living together       | 67.8  | 31.6  | 13923  |
| Divorced or separated            | 71.8  | 33.9  | 2292   |
| Widowed                          | 60.2  | 22.9  | 1149   |
| <b>Type of union</b>             |   |   |        |
| In polygamous union              | 55.6  | 23.1  | 3000   |
| Not in polygamous union          | 69.2  | 32.8  | 10159  |
| Not currently in union           | 50.8  | 26.3  | 12474  |
| <b>Education</b>                 |   |   |        |
| None                             | 25.7  | 9.8   | 4761   |
| Primary                          | 56.7  | 22.9  | 7574   |
| Secondary first cycle            | 59.3  | 29.3  | 8172   |
| Secondary second cycle or higher | 77.4  | 43.3  | 5902   |
| <b>Wealth quintile</b>           |   |   |        |
| Lowest                           | 24.6  | 8.6   | 7554   |
| Second                           | 56.6  | 23.8  | 5896   |
| Middle                           | 63.6  | 31.4  | 4943   |
| Fourth                           | 71.8  | 36.6  | 4152   |
| Highest                          | 79.2  | 44.1  | 3898   |

**Table 7.C Self-reported HIV testing: Total** (continued)

Percentage of persons aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
|-------------------------|---|---|--------|
| <b>Religion</b>         |   |   |        |
| Catholic                | 65.2  | 32.8  | 9635   |
| Protestant              | 62.6  | 30.4  | 6347   |
| Muslim                  | 44.1  | 21.1  | 5906   |
| Animist                 | 41.3  | 19.6  | 456    |
| Other Christian         | 65.3  | 29.5  | 1615   |
| Other                   | 66.2  | 30.9  | 1147   |
| None                    | 44.1  | 20.9  | 1316   |
| <b>Ethnicity</b>        |   |   |        |
| Arabe-Choa/Peul/Haoussa | 38.7  | 18.3  | 2616   |
| Biu-Mandara             | 21.2  | 10.3  | 1232   |
| Adamaoua-Oubangui       | 49.5  | 22.8  | 637    |
| Bantoide Sud-Ouest      | 70.0  | 34.3  | 457    |
| Grassfields Nord-Ouest  | 73.7  | 35.2  | 2430   |
| Bamilike/Bamoun         | 71.1  | 35.8  | 5190   |
| Cotier/Ngoe/Oroko       | 69.9  | 36.6  | 558    |
| Beti/Bassa/Mbam         | 69.5  | 34.7  | 4791   |
| Kako/Maka               | 61.8  | 32.6  | 779    |
| Foreigner/Etranger      | 58.9  | 27.3  | 147    |
| No Tribe/Aucune         | *   | *   | 15     |
| Other                   | 42.3  | 19.1  | 7570   |
| <b>Age</b>              |   |   |        |
| 15-19                   | 26.0  | 14.2  | 4803   |
| 20-24                   | 59.7  | 33.6  | 4310   |
| 25-29                   | 72.4  | 40.4  | 4018   |
| 30-34                   | 75.1  | 36.8  | 3271   |
| 35-39                   | 73.0  | 34.6  | 2606   |
| 40-44                   | 69.6  | 27.7  | 2207   |
| 45-49                   | 63.6  | 26.9  | 1663   |
| 50-54                   | 63.5  | 23.9  | 1339   |
| 55-59                   | 57.8  | 21.5  | 1168   |
| 60-64                   | 47.8  | 17.1  | 1071   |

**Table 7.C Self-reported HIV testing: Total (continued)**

Percentage of persons aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Percentage who ever received HIV testing and received results | Percentage who received HIV testing in the past 12 months and received results <sup>1</sup> | Number |
|----------------|---|---|--------|
| Total 15-24    | 41.5  | 23.2  | 9113   |
| Total 15-49    | 59.5  | 30.0  | 22878  |
| Total 15-64    | 59.3  | 29.0  | 26456  |

<sup>1</sup>Relates to PEPFAR HTS\_TST: Number of individuals who received HIV Testing Services (HTS) and received their test results.

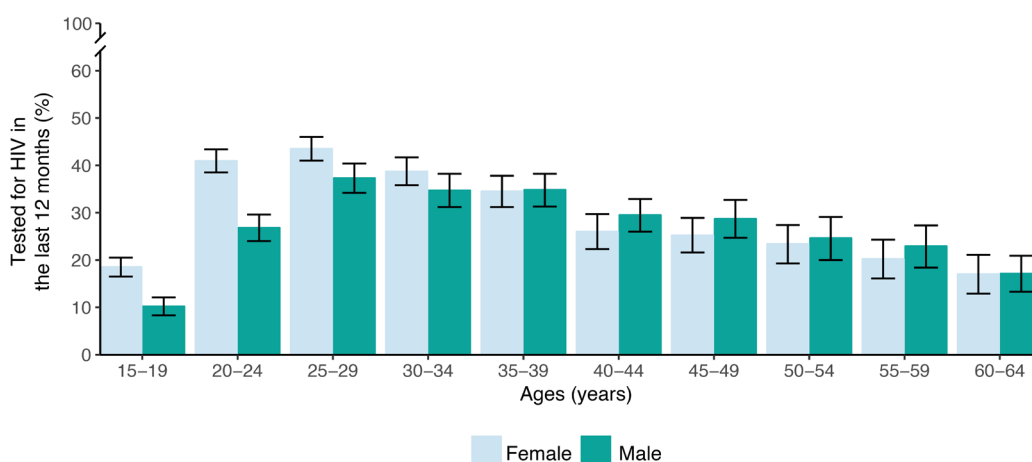
Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

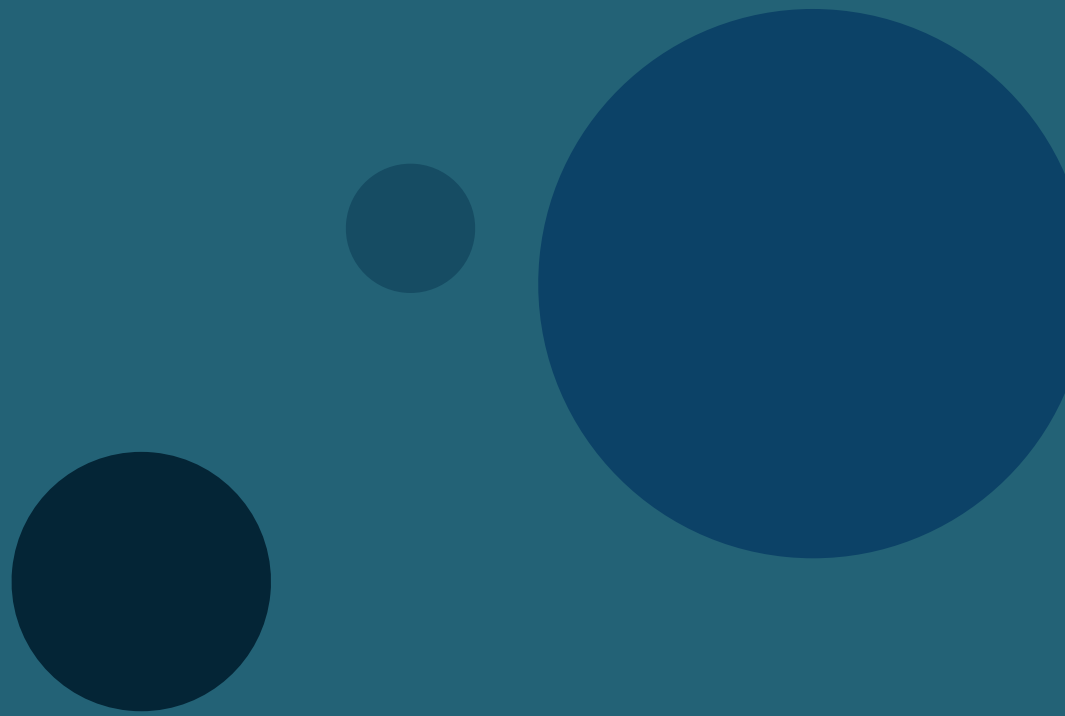
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

**Figure 7.A**

Proportion of adults who reported having received an HIV test in the 12 months before the survey, by age and sex, CAMPHIA





## 8. HIV DIAGNOSIS AND TREATMENT



## 8.1 BACKGROUND

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

CAMPHIA determined the presence of three ARVs (efavirenz, nevirapine, and lopinavir) in blood as markers of first- and second-line regimens prescribed in the country at the time of the survey.

## 8.2 RESULTS

The following tables and figures describe the uptake of ART in Cameroon at the time of the CAMPHIA survey.

**Table 8.A HIV treatment status: Men**

| Percent distribution of HIV-positive men aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018 |                       |                     |                     |         |        |
|---|-----------------------|---------------------|---------------------|---------|--------|
| Characteristic  | Unaware of HIV status | Aware of HIV status |                     | Total   | Number |
|   |                       | Not on ART          | On ART <sup>1</sup> |         |        |
| Residence   |                       |                     |                     |         |        |
| Total urban   | 58.4                  | 3.7                 | 37.9                | 100.0   | 119    |
| Douala and Yaounde  | (55.8)                | (3.3)               | (40.9)              | (100.0) | 42     |
| Other urban   | 60.4                  | 4.0                 | 35.7                | 100.0   | 77     |
| Rural   | 59.2                  | 3.0                 | 37.9                | 100.0   | 167    |
| Region  |                       |                     |                     |         |        |
| Adamawa   | (59.4)                | (8.1)               | (32.5)              | (100.0) | 31     |
| Centre  | (68.9)                | (7.3)               | (23.8)              | (100.0) | 40     |
| Douala  | *                     | *                   | *                   | *       | 16     |
| East  | (53.)9                | (3.0)               | (43.0)              | (100.0) | 38     |
| Far North   | *                     | *                   | *                   | *       | 20     |
| Littoral  | *                     | *                   | *                   | *       | 6      |
| North   | *                     | *                   | *                   | *       | 18     |
| North West  | *                     | *                   | *                   | *       | 23     |
| South   | (54.6)                | (3.9)               | (41.5)              | (100.0) | 27     |
| South West  | *                     | *                   | *                   | *       | 17     |
| West  | *                     | *                   | *                   | *       | 24     |
| Yaounde   | (56.9)                | (5.7)               | (37.4)              | (100.0) | 26     |

**Table 8.A HIV treatment status: Men (continued)**

Percent distribution of HIV-positive men aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Unaware of HIV status | Aware of HIV status |                     | Total   | Number |
|----------------------------------|-----------------------|---------------------|---------------------|---------|--------|
|                                  |                       | Not on ART          | On ART <sup>1</sup> |         |        |
| Marital status                   |                       |                     |                     |         |        |
| Never married                    | (73.1)                | (2.0)               | (24.9)              | 100.0   | 36     |
| Ever had sex                     | (75.7)                | (2.3)               | (22.0)              | 100.0   | 32     |
| Never had sex                    | *                     | *                   | *                   | *       | 4      |
| Missing whether had sex          | *                     | *                   | *                   | *       | 0      |
| Married or living together       | 57.6                  | 3.7                 | 38.8                | 100.0   | 201    |
| Divorced or separated            | (54.6)                | (3.6)               | (41.8)              | (100.0) | 38     |
| Widowed                          | *                     | *                   | *                   | *       | 11     |
| Type of union                    |                       |                     |                     |         |        |
| In polygamous union              | (73.4)                | (2.0)               | (24.5)              | (100.0) | 28     |
| Not in polygamous union          | 55.2                  | 3.5                 | 41.3                | 100.0   | 169    |
| Not currently in union           | 61.6                  | 2.5                 | 35.9                | 100.0   | 85     |
| Education                        |                       |                     |                     |         |        |
| None                             | *                     | *                   | *                   | *       | 21     |
| Primary                          | 58.1                  | 2.2                 | 39.7                | 100.0   | 106    |
| Secondary first cycle            | 66.0                  | 5.4                 | 28.6                | 100.0   | 94     |
| Secondary second cycle or higher | 50.0                  | 3.0                 | 47.0                | 100.0   | 65     |
| Wealth quintile                  |                       |                     |                     |         |        |
| Lowest                           | 72.4                  | 0.0                 | 27.6                | 100.0   | 62     |
| Second                           | 54.8                  | 5.3                 | 40.0                | 100.0   | 75     |
| Middle                           | 66.5                  | 3.3                 | 30.2                | 100.0   | 56     |
| Fourth                           | 56.3                  | 2.6                 | 41.2                | 100.0   | 57     |
| Highest                          | (50.7)                | (4.0)               | (45.3)              | (100.0) | 36     |
| Religion                         |                       |                     |                     |         |        |
| Catholic                         | 52.0                  | 3.7                 | 44.2                | 100.0   | 104    |
| Protestant                       | 62.3                  | 2.6                 | 35.1                | 100.0   | 76     |
| Muslim                           | 71.1                  | 5.0                 | 23.8                | 100.0   | 52     |
| Animist                          | *                     | *                   | *                   | *       | 8      |
| Other Christian                  | *                     | *                   | *                   | *       | 13     |
| Other                            | *                     | *                   | *                   | *       | 10     |
| None                             | *                     | *                   | *                   | *       | 23     |

**Table 8.A HIV treatment status: Men (continued)**

Percent distribution of HIV-positive men aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Unaware of HIV status | Aware of HIV status |                     | Total   | Number |
|-------------------------|-----------------------|---------------------|---------------------|---------|--------|
|                         |                       | Not on ART          | On ART <sup>1</sup> |         |        |
| Ethnicity               |                       |                     |                     |         |        |
| Arabe-Choa/Peul/Haoussa | *                     | *                   | *                   | *       | 21     |
| Biu-Mandara             | *                     | *                   | *                   | *       | 6      |
| Adamaoua-Oubangui       | *                     | *                   | *                   | *       | 12     |
| Bantoide Sud-Ouest      | *                     | *                   | *                   | *       | 6      |
| Grassfields Nord-Ouest  | (52.2)                | (2.2)               | (45.6)              | (100.0) | 33     |
| Bamilike/Bamoun         | (52.1)                | (0.8)               | (47.1)              | (100.0) | 48     |
| Cotier/Ngoe/Oroko       | *                     | *                   | *                   | *       | 7      |
| Beti/Bassa/Mbam         | 67.3                  | 1.4                 | 31.3                | 100.0   | 67     |
| Kako/Maka               | *                     | *                   | *                   | *       | 14     |
| Foreigner/Etranger      | *                     | *                   | *                   | *       | 1      |
| No Tribe/Aucune         | *                     | *                   | *                   | *       | 0      |
| Other                   | 54.9                  | 10.3                | 34.8                | 100.0   | 71     |
| Age                     |                       |                     |                     |         |        |
| 15-19                   | *                     | *                   | *                   | *       | 4      |
| 20-24                   | *                     | *                   | *                   | *       | 13     |
| 25-29                   | *                     | *                   | *                   | *       | 23     |
| 30-34                   | 65.5                  | 10.6                | 24.0                | 100.0   | 51     |
| 35-39                   | (55.6)                | (0.0)               | (44.4)              | (100.0) | 34     |
| 40-44                   | 46.7                  | 2.4                 | 50.8                | 100.0   | 52     |
| 45-49                   | (57.2)                | (2.7)               | (40.2)              | (100.0) | 34     |
| 50-54                   | (44.2)                | (0.0)               | (55.8)              | (100.0) | 34     |
| 55-59                   | *                     | *                   | *                   | *       | 18     |
| 60-64                   | *                     | *                   | *                   | *       | 23     |
| Total 15-24             | *                     | *                   | *                   | *       | 17     |
| Total 15-49             | 61.5                  | 3.7                 | 34.8                | 100.0   | 211    |
| Total 15-64             | 58.8                  | 3.3                 | 37.9                | 100.0   | 286    |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX\_CURR\_NAT / SUBNAT: Percentage of adults and children receiving antiretroviral therapy.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 8.B HIV treatment status: Women**

Percent distribution of HIV-positive women aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Unaware of HIV status | Aware of HIV status |                     | Total | Number |
|----------------------------------|-----------------------|---------------------|---------------------|-------|--------|
|                                  |                       | Not on ART          | On ART <sup>1</sup> |       |        |
| Residence                        |                       |                     |                     |       |        |
| Total urban                      | 48.1                  | 4.1                 | 47.8                | 100.0 | 327    |
| Douala and Yaounde               | 51.3                  | 4.4                 | 44.3                | 100.0 | 126    |
| Other urban                      | 45.5                  | 3.9                 | 50.6                | 100.0 | 201    |
| Rural                            | 53.8                  | 4.8                 | 41.5                | 100.0 | 351    |
| Region                           |                       |                     |                     |       |        |
| Adamawa                          | 66.3                  | 0.0                 | 33.7                | 100.0 | 67     |
| Centre                           | 51.8                  | 5.0                 | 43.2                | 100.0 | 101    |
| Douala                           | 54.7                  | 3.6                 | 41.7                | 100.0 | 57     |
| East                             | 46.4                  | 2.7                 | 50.9                | 100.0 | 85     |
| Far North                        | (57.9)                | (7.0)               | (35.1)              | 100.0 | 33     |
| Littoral                         | *                     | *                   | *                   | *     | 17     |
| North                            | (71.3)                | (4.9)               | (23.8)              | 100.0 | 33     |
| North West                       | 26.3                  | 3.2                 | 70.5                | 100.0 | 70     |
| South                            | 52.7                  | 4.9                 | 42.4                | 100.0 | 82     |
| South West                       | (52.2)                | (12.6)              | (35.1)              | 100.0 | 31     |
| West                             | (45.8)                | (3.3)               | (50.9)              | 100.0 | 33     |
| Yaounde                          | 48.1                  | 5.1                 | 46.8                | 100.0 | 69     |
| Marital status                   |                       |                     |                     |       |        |
| Never married                    | 63.6                  | 6.4                 | 30.0                | 100.0 | 104    |
| Ever had sex                     | 64.7                  | 6.0                 | 29.2                | 100.0 | 94     |
| Never had sex                    | *                     | *                   | *                   | *     | 10     |
| Missing whether had sex          | *                     | *                   | *                   | *     | 0      |
| Married or living together       | 53.4                  | 3.0                 | 43.6                | 100.0 | 304    |
| Divorced or separated            | 48.7                  | 3.2                 | 48.1                | 100.0 | 153    |
| Widowed                          | 33.4                  | 7.8                 | 58.8                | 100.0 | 115    |
| Type of union                    |                       |                     |                     |       |        |
| In polygamous union              | 51.1                  | 8.3                 | 40.6                | 100.0 | 55     |
| Not in polygamous union          | 55.7                  | 1.9                 | 42.4                | 100.0 | 203    |
| Not currently in union           | 48.4                  | 5.5                 | 46.1                | 100.0 | 372    |
| Education                        |                       |                     |                     |       |        |
| None                             | 65.3                  | 2.8                 | 31.9                | 100.0 | 97     |
| Primary                          | 49.0                  | 4.7                 | 46.3                | 100.0 | 265    |
| Secondary first cycle            | 48.9                  | 3.9                 | 47.2                | 100.0 | 226    |
| Secondary second cycle or higher | 47.6                  | 5.9                 | 46.5                | 100.0 | 89     |

**Table 8.B HIV treatment status: Women (continued)**

Percent distribution of HIV-positive women aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Unaware of HIV status | Aware of HIV status |                     | Total | Number |
|-------------------------|-----------------------|---------------------|---------------------|-------|--------|
|                         |                       | Not on ART          | On ART <sup>1</sup> |       |        |
| Wealth quintile         |                       |                     |                     |       |        |
| Lowest                  | 63.9                  | 3.9                 | 32.1                | 100.0 | 120    |
| Second                  | 48.7                  | 6.4                 | 44.9                | 100.0 | 202    |
| Middle                  | 43.7                  | 3.0                 | 53.3                | 100.0 | 138    |
| Fourth                  | 49.9                  | 3.5                 | 46.5                | 100.0 | 116    |
| Highest                 | 52.8                  | 4.4                 | 42.8                | 100.0 | 102    |
| Religion                |                       |                     |                     |       |        |
| Catholic                | 51.9                  | 2.9                 | 45.1                | 100.0 | 249    |
| Protestant              | 49.4                  | 4.0                 | 46.7                | 100.0 | 208    |
| Muslim                  | 64.4                  | 3.7                 | 31.9                | 100.0 | 105    |
| Animist                 | *                     | *                   | *                   | *     | 6      |
| Other Christian         | 37.1                  | 10.2                | 52.7                | 100.0 | 55     |
| Other                   | (46.1)                | (7.8)               | (46.1)              | 100.0 | 40     |
| None                    | *                     | *                   | *                   | *     | 14     |
| Ethnicity               |                       |                     |                     |       |        |
| Arabe-Choa/Peul/Haoussa | (68.3)                | (8.8)               | (22.9)              | 100.0 | 43     |
| Biu-Mandara             | *                     | *                   | *                   | *     | 14     |
| Adamaoua-Oubangui       | *                     | *                   | *                   | *     | 17     |
| Bantoide Sud-Ouest      | *                     | *                   | *                   | *     | 11     |
| Grassfields Nord-Ouest  | 37.1                  | 2.2                 | 60.7                | 100.0 | 88     |
| Bamilike/Bamoun         | 43.5                  | 4.1                 | 52.4                | 100.0 | 93     |
| Cotier/Ngoe/Oroko       | *                     | *                   | *                   | *     | 15     |
| Beti/Bassa/Mbam         | 51.9                  | 5.9                 | 42.2                | 100.0 | 194    |
| Kako/Maka               | 52.7                  | 3.7                 | 43.6                | 100.0 | 53     |
| Foreigner/Etranger      | *                     | *                   | *                   | *     | 5      |
| No Tribe/Aucune         | *                     | *                   | *                   | *     | 1      |
| Other                   | 56.3                  | 5.2                 | 38.5                | 100.0 | 144    |

**Table 8.B HIV treatment status: Women (continued)**

Percent distribution of HIV-positive women aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Unaware of HIV status | Aware of HIV status |         | Total | Number |
|----------------|-----------------------|---------------------|---------|-------|--------|
|                |                       | Not on ART          | On ART¹ |       |        |
| Age            |                       |                     |         |       |        |
| 15-19          | (92.2)                | (2.6)               | (5.2)   | 100.0 | 34     |
| 20-24          | 81.5                  | 2.6                 | 15.9    | 100.0 | 72     |
| 25-29          | 69.2                  | 3.6                 | 27.2    | 100.0 | 94     |
| 30-34          | 50.2                  | 6.9                 | 42.9    | 100.0 | 107    |
| 35-39          | 34.2                  | 6.4                 | 59.4    | 100.0 | 96     |
| 40-44          | 45.9                  | 2.7                 | 51.4    | 100.0 | 93     |
| 45-49          | 38.6                  | 6.9                 | 54.5    | 100.0 | 70     |
| 50-54          | 36.9                  | 0.1                 | 63.0    | 100.0 | 51     |
| 55-59          | (38.6)                | (4.6)               | (56.7)  | 100.0 | 32     |
| 60-64          | (47.3)                | (2.6)               | (50.1)  | 100.0 | 29     |
| Total 15-24    | 85.2                  | 2.6                 | 12.2    | 100.0 | 106    |
| Total 15-49    | 52.8                  | 4.9                 | 42.4    | 100.0 | 566    |
| Total 15-64    | 50.6                  | 4.4                 | 45.0    | 100.0 | 678    |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX\_CURR\_NAT / SUBNAT: Percentage of adults and children receiving antiretroviral therapy.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 8.C HIV treatment status: Total**

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic             | Unaware of HIV status | Aware of HIV status |                     | Total | Number |
|----------------------------|-----------------------|---------------------|---------------------|-------|--------|
|                            |                       | Not on ART          | On ART <sup>1</sup> |       |        |
| Residence                  |                       |                     |                     |       |        |
| Total urban                | 51.1                  | 4.0                 | 44.9                | 100.0 | 446    |
| Douala and Yaounde         | 52.6                  | 4.1                 | 43.3                | 100.0 | 168    |
| Other urban                | 49.9                  | 3.9                 | 46.2                | 100.0 | 278    |
| Rural                      | 55.6                  | 4.2                 | 40.3                | 100.0 | 518    |
| Region                     |                       |                     |                     |       |        |
| Adamawa                    | 64.1                  | 2.5                 | 33.4                | 100.0 | 98     |
| Centre                     | 57.0                  | 5.7                 | 37.4                | 100.0 | 141    |
| Douala                     | 54.6                  | 2.7                 | 42.7                | 100.0 | 73     |
| East                       | 48.8                  | 2.8                 | 48.4                | 100.0 | 123    |
| Far North                  | 70.5                  | 4.2                 | 25.3                | 100.0 | 53     |
| Littoral                   | *                     | *                   | *                   | *     | 23     |
| North                      | 70.0                  | 5.8                 | 24.2                | 100.0 | 51     |
| North West                 | 29.9                  | 3.3                 | 66.8                | 100.0 | 93     |
| South                      | 53.2                  | 4.6                 | 42.2                | 100.0 | 109    |
| South West                 | (51.8)                | (8.0)               | (40.1)              | 100.0 | 48     |
| West                       | 51.7                  | 1.9                 | 46.4                | 100.0 | 57     |
| Yaounde                    | 50.8                  | 5.3                 | 43.9                | 100.0 | 95     |
| Marital status             |                       |                     |                     |       |        |
| Never married              | 66.4                  | 5.1                 | 28.5                | 100.0 | 140    |
| Ever had sex               | 67.8                  | 5.0                 | 27.2                | 100.0 | 126    |
| Never had sex              | *                     | *                   | *                   | *     | 14     |
| Missing whether had sex    | *                     | *                   | *                   | *     | 0      |
| Married or living together | 55.1                  | 3.3                 | 41.6                | 100.0 | 505    |
| Divorced or separated      | 49.9                  | 3.3                 | 46.9                | 100.0 | 191    |
| Widowed                    | 33.1                  | 7.3                 | 59.6                | 100.0 | 126    |
| Type of union              |                       |                     |                     |       |        |
| In polygamous union        | 58.6                  | 6.2                 | 35.2                | 100.0 | 83     |
| Not in polygamous union    | 55.5                  | 2.6                 | 41.9                | 100.0 | 372    |
| Not currently in union     | 51.0                  | 4.9                 | 44.1                | 100.0 | 457    |
| Education                  |                       |                     |                     |       |        |
| No education               | 66.3                  | 2.4                 | 31.3                | 100.0 | 118    |
| Primary                    | 51.7                  | 4.0                 | 44.4                | 100.0 | 371    |
| Secondary                  | 53.8                  | 4.3                 | 41.9                | 100.0 | 320    |
| More than secondary        | 48.7                  | 4.6                 | 46.7                | 100.0 | 154    |

**Table 8.C HIV treatment status: Total** (continued)

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Unaware of HIV status | Aware of HIV status |                     | Total | Number |
|-------------------------|-----------------------|---------------------|---------------------|-------|--------|
|                         |                       | Not on ART          | On ART <sup>1</sup> |       |        |
| Wealth quintile         |                       |                     |                     |       |        |
| Lowest                  | 66.7                  | 2.7                 | 30.7                | 100.0 | 182    |
| Second                  | 50.5                  | 6.0                 | 43.5                | 100.0 | 277    |
| Middle                  | 50.5                  | 3.1                 | 46.4                | 100.0 | 194    |
| Fourth                  | 52.1                  | 3.2                 | 44.7                | 100.0 | 173    |
| Highest                 | 52.1                  | 4.3                 | 43.6                | 100.0 | 138    |
| Religion                |                       |                     |                     |       |        |
| Catholic                | 52.0                  | 3.2                 | 44.8                | 100.0 | 353    |
| Protestant              | 52.9                  | 3.6                 | 43.5                | 100.0 | 284    |
| Muslim                  | 66.7                  | 4.2                 | 29.1                | 100.0 | 157    |
| Animist                 | *                     | *                   | *                   | *     | 14     |
| Other Christian         | 44.7                  | 7.8                 | 47.5                | 100.0 | 68     |
| Other                   | 48.6                  | 8.6                 | 42.8                | 100.0 | 50     |
| None                    | (50.4)                | (3.1)               | (46.5)              | 100.0 | 37     |
| Ethnicity               |                       |                     |                     |       |        |
| Arabe-Choa/Peul/Haoussa | 74.0                  | 5.9                 | 20.1                | 100.0 | 64     |
| Biu-Mandara             | *                     | *                   | *                   | *     | 20     |
| Adamaoua-Oubangui       | (68.1)                | (0.0)               | (31.9)              | 100.0 | 29     |
| Bantoide Sud-Ouest      | *                     | *                   | *                   | *     | 17     |
| Grassfields Nord-Ouest  | 41.5                  | 2.2                 | 56.3                | 100.0 | 121    |
| Bamilike/Bamoun         | 46.4                  | 3.0                 | 50.6                | 100.0 | 141    |
| Cotier/Ngoe/Oroko       | *                     | *                   | *                   | *     | 22     |
| Beti/Bassa/Mbam         | 55.8                  | 4.8                 | 39.4                | 100.0 | 261    |
| Kako/Maka               | 56.7                  | 4.6                 | 38.7                | 100.0 | 67     |
| Foreigner/Etranger      | *                     | *                   | *                   | *     | 6      |
| No Tribe/Aucune         | *                     | *                   | *                   | *     | 1      |
| Other                   | 55.7                  | 7.1                 | 37.1                | 100.0 | 215    |



**Table 8.C HIV treatment status: Total** (continued)

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Unaware of HIV status | Aware of HIV status |                     | Total | Number |
|----------------|-----------------------|---------------------|---------------------|-------|--------|
|                |                       | Not on ART          | On ART <sup>1</sup> |       |        |
| Age            |                       |                     |                     |       |        |
| 15-19          | (86.4)                | (2.2)               | (11.3)              | 100.0 | 38     |
| 20-24          | 85.1                  | 2.1                 | 12.8                | 100.0 | 85     |
| 25-29          | 71.9                  | 2.7                 | 25.4                | 100.0 | 117    |
| 30-34          | 55.6                  | 8.2                 | 36.3                | 100.0 | 158    |
| 35-39          | 39.5                  | 4.8                 | 55.7                | 100.0 | 130    |
| 40-44          | 46.2                  | 2.6                 | 51.2                | 100.0 | 145    |
| 45-49          | 44.8                  | 5.5                 | 49.7                | 100.0 | 104    |
| 50-54          | 40.0                  | 0.0                 | 60.0                | 100.0 | 85     |
| 55-59          | 53.9                  | 4.8                 | 41.3                | 100.0 | 50     |
| 60-64          | 40.8                  | 3.1                 | 56.1                | 100.0 | 52     |
| Total 15-24    | 85.5                  | 2.1                 | 12.3                | 100.0 | 123    |
| Total 15-49    | 55.3                  | 4.5                 | 40.2                | 100.0 | 777    |
| Total 15-64    | 53.1                  | 4.1                 | 42.8                | 100.0 | 964    |

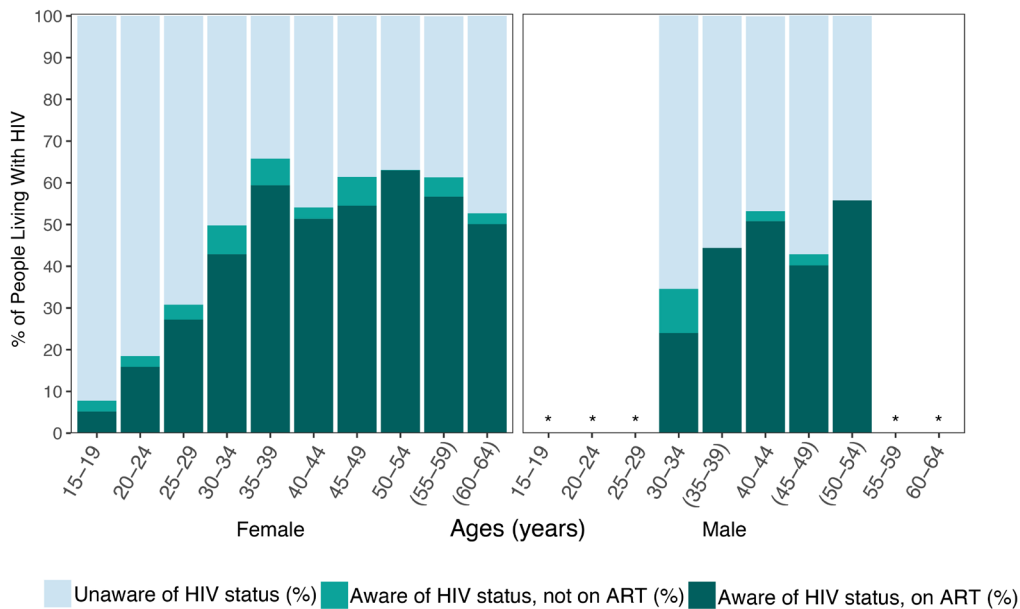
<sup>1</sup>Relates to Global AIDS Monitoring Indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX\_CURR\_NAT / SUBNAT: Percentage of adults and children receiving antiretroviral therapy.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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



\*Estimates with an asterisk are based on small number (a denominator of less than 25) and have been suppressed.

( ) Estimates for the age brackets in parentheses are based on a denominator between 25-49 and should be interpreted with caution.

**Table 8.D Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Men**

Percent distribution of HIV-positive men aged 15-64 years by presence of detectable ARVs versus self-reported HIV treatment status, CAMPHIA 2017-2018

| Characteristic                   | ARV status     |            | Total | Number |
|----------------------------------|----------------|------------|-------|--------|
|                                  | Not detectable | Detectable |       |        |
| Self-reported treatment status   |                |            |       |        |
| Not previously diagnosed         | 83.9           | 16.1       | 100.0 | 169    |
| Previously diagnosed, not on ART | *              | *          | *     | 10     |
| Previously diagnosed, on ART     | 11.7           | 88.3       | 100.0 | 106    |
| Total 15-24                      | *              | *          | *     | 17     |
| Total 15-49                      | 60.5           | 39.5       | 100.0 | 214    |
| Total 15-64                      | 56.1           | 43.9       | 100.0 | 288    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

**Table 8.E Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Women**

| Percent distribution of HIV-positive women aged 15-64 years by presence of detectable ARVs versus self-reported HIV treatment status, CAMPHIA 2017-2018 |                |            |       |        |
|---|----------------|------------|-------|--------|
| Characteristic  | ARV status     |            | Total | Number |
|   | Not detectable | Detectable |       |        |
| Self-reported treatment status  |                |            |       |        |
| Not previously diagnosed  | 84.7           | 15.3       | 100.0 | 361    |
| Previously diagnosed, not on ART  | (98.0)         | (2.0)      | 100.0 | 28     |
| Previously diagnosed, on ART  | 7.8            | 92.2       | 100.0 | 286    |
| Total 15-24   | 80.9           | 19.1       | 100.0 | 106    |
| Total 15-49   | 54.7           | 45.3       | 100.0 | 569    |
| Total 15-64   | 50.2           | 49.8       | 100.0 | 682    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

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

**Table 8.F Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Total**

| Percent distribution of HIV-positive adults aged 15-64 years by presence of detectable ARVs versus self-reported HIV treatment status, CAMPHIA 2017-2018 |                |            |       |        |
|--|----------------|------------|-------|--------|
| Characteristic   | ARV status     |            | Total | Number |
|  | Not detectable | Detectable |       |        |
| Self-reported treatment status   |                |            |       |        |
| Not previously diagnosed   | 84.4           | 15.6       | 100.0 | 530    |
| Previously diagnosed, not on ART   | (96.3)         | (3.7)      | 100.0 | 38     |
| Previously diagnosed, on ART   | 8.9            | 91.1       | 100.0 | 392    |
| Total 15-24  | 81.9           | 18.1       | 100.0 | 123    |
| Total 15-49  | 56.4           | 43.6       | 100.0 | 783    |
| Total 15-64  | 52.0           | 48.0       | 100.0 | 970    |

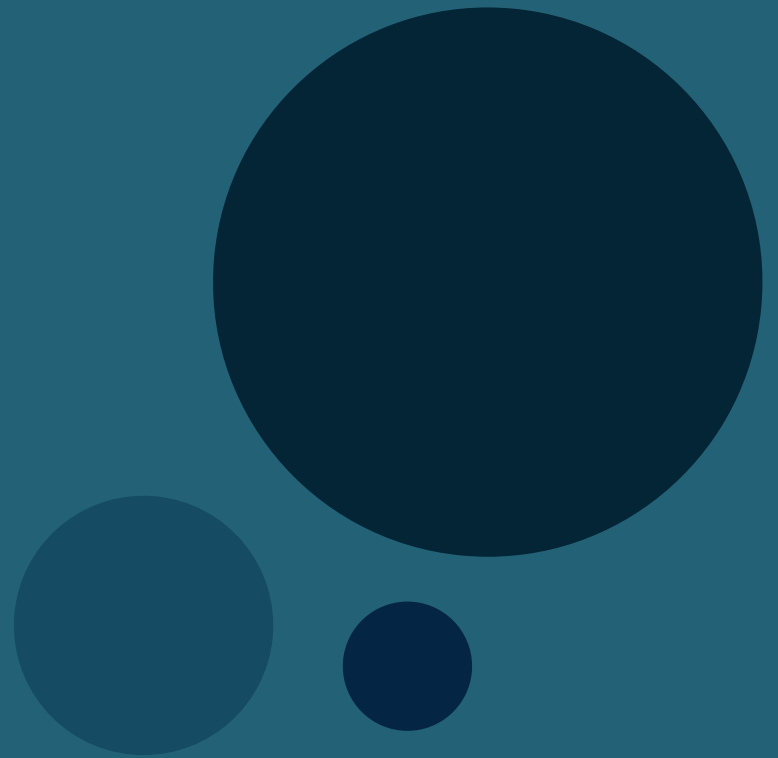
Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

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

### 8.3 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 June 4, 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 June 4, 2019.



## 9. VIRAL LOAD SUPPRESSION

## 9.1 BACKGROUND

Viral load suppression is a key indicator of treatment success in HIV-positive individuals. For the purposes of CAMPHIA, VLS is 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 age, sex, region, and other demographic characteristics.

## 9.2 RESULTS

The following tables and figures present VLS data of people on ART in Cameroon at the time of the CAMPHIA survey.

**Table 9.A Viral load suppression by demographic characteristics**

| Among HIV-positive persons aged 15-64 years, percentage with viral load suppression (< 1,000 copies/mL), by sex, self-reported diagnosis and treatment status, and selected demographic characteristics, CAMPHIA 2017-2018 |                                  |        |                                  |        |                                  |        |
|--|----------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
| Characteristic   | Male                             |        | Female                           |        | Total                            |        |
|  | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number |
| <b>Self-reported diagnosis and treatment status</b>  |                                  |        |                                  |        |                                  |        |
| Not previously diagnosed   | 18.3                             | 169    | 18.4                             | 363    | 18.4                             | 532    |
| Previously diagnosed, not on ART   | *                                | 10     | (11.5)                           | 28     | (10.8)                           | 38     |
| Previously diagnosed, on ART   | 82.1                             | 107    | 79.2                             | 287    | 80.0                             | 394    |
| Missing  | *                                | 4      | *                                | 12     | *                                | 16     |
| <b>Residence</b>   |                                  |        |                                  |        |                                  |        |
| Total urban  | 38.4                             | 121    | 46.3                             | 332    | 44.0                             | 453    |
| Douala and Yaounde   | (41.6)                           | 43     | 43.5                             | 129    | 43.0                             | 172    |
| Other urban  | 35.9                             | 78     | 48.6                             | 203    | 44.9                             | 281    |
| Rural  | 46.8                             | 169    | 44.8                             | 358    | 45.5                             | 527    |
| <b>Region</b>  |                                  |        |                                  |        |                                  |        |
| Adamawa  | (29.6)                           | 31     | 36.1                             | 67     | 34.1                             | 98     |
| Centre   | (40.0)                           | 42     | 45.1                             | 101    | 43.5                             | 143    |
| Douala   | *                                | 16     | 42.9                             | 58     | 45.1                             | 74     |
| East   | (39.1)                           | 38     | 48.4                             | 85     | 45.4                             | 123    |
| Far North  | *                                | 21     | (46.3)                           | 33     | 37.8                             | 54     |
| Littoral   | *                                | 6      | *                                | 17     | *                                | 23     |
| North  | *                                | 18     | (25.3)                           | 34     | 27.6                             | 52     |
| North West   | *                                | 23     | 62.1                             | 74     | 60.9                             | 97     |
| South  | (32.6)                           | 27     | 35.0                             | 84     | 34.4                             | 111    |
| South West   | *                                | 17     | (33.6)                           | 32     | (33.8)                           | 49     |
| West   | *                                | 24     | (65.9)                           | 34     | 62.9                             | 58     |
| Yaounde  | (34.4)                           | 27     | 44.1                             | 71     | 41.1                             | 98     |

**Table 9.A Viral load suppression by demographic characteristics** (continued)

Among HIV-positive persons aged 15–64 years, percentage with viral load suppression (< 1,000 copies/mL), by sex, self-reported diagnosis and treatment status, and selected demographic characteristics, CAMPHIA 2017–2018

| Characteristic                   | Male                             |        | Female                           |        | Total                            |        |
|----------------------------------|----------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                                  | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number |
| <b>Marital status</b>            |                                  |        |                                  |        |                                  |        |
| Never married                    | (36.9)                           | 37     | 32.5                             | 107    | 33.8                             | 144    |
| Ever had sex                     | (40.4)                           | 32     | 29.8                             | 97     | 32.7                             | 129    |
| Never had sex                    | *                                | 4      | *                                | 10     | *                                | 14     |
| Missing whether had sex          | *                                | 1      | *                                | 0      | *                                | 1      |
| Married or living together       | 41.5                             | 202    | 47.0                             | 308    | 44.7                             | 510    |
| Divorced or separated            | (50.3)                           | 40     | 39.6                             | 154    | 41.8                             | 194    |
| Widowed                          | *                                | 11     | 62.6                             | 119    | 62.7                             | 130    |
| <b>Type of union</b>             |                                  |        |                                  |        |                                  |        |
| In polygamous union              | (32.0)                           | 28     | 41.8                             | 55     | 38.5                             | 83     |
| Not in polygamous union          | 43.4                             | 170    | 48.1                             | 206    | 45.8                             | 376    |
| Not currently in union           | 44.9                             | 88     | 44.6                             | 380    | 44.6                             | 468    |
| <b>Education</b>                 |                                  |        |                                  |        |                                  |        |
| None                             | *                                | 22     | 45.5                             | 100    | 42.1                             | 122    |
| Primary                          | 42.3                             | 107    | 44.2                             | 270    | 43.6                             | 377    |
| Secondary first cycle            | 33.1                             | 95     | 47.1                             | 229    | 43.1                             | 324    |
| Secondary second cycle or higher | 55.5                             | 66     | 45.6                             | 90     | 50.2                             | 156    |
| <b>Wealth quintile</b>           |                                  |        |                                  |        |                                  |        |
| Lowest                           | 34.4                             | 63     | 29.9                             | 123    | 31.4                             | 186    |
| Second                           | 45.0                             | 75     | 49.8                             | 203    | 48.4                             | 278    |
| Middle                           | 32.4                             | 57     | 53.8                             | 143    | 47.5                             | 200    |
| Fourth                           | 44.0                             | 59     | 45.5                             | 118    | 45.0                             | 177    |
| Highest                          | (52.7)                           | 36     | 41.5                             | 103    | 44.9                             | 139    |
| <b>Religion</b>                  |                                  |        |                                  |        |                                  |        |
| Catholic                         | 52.0                             | 107    | 44.9                             | 255    | 47.1                             | 362    |
| Protestant                       | 30.0                             | 76     | 46.9                             | 211    | 42.3                             | 287    |
| Muslim                           | 29.5                             | 53     | 36.4                             | 105    | 34.0                             | 158    |
| Animist                          | *                                | 8      | *                                | 6      | *                                | 14     |
| Other Christian                  | *                                | 13     | 58.1                             | 57     | 55.9                             | 70     |
| Other                            | *                                | 10     | (46.9)                           | 40     | 45.1                             | 50     |
| None                             | *                                | 23     | *                                | 15     | (41.5)                           | 38     |

**Table 9.A Viral load suppression by demographic characteristics (continued)**

Among HIV-positive persons aged 15-64 years, percentage with viral load suppression (< 1,000 copies/mL), by sex, self-reported diagnosis and treatment status, and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Male                             |        | Female                           |        | Total                            |        |
|-------------------------|----------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                         | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number |
| <b>Ethnicity</b>        |                                  |        |                                  |        |                                  |        |
| Arabe-Choa/Peul/Haoussa | *                                | 22     | (35.3)                           | 43     | 26.4                             | 65     |
| Biu-Mandara             | *                                | 6      | *                                | 14     | *                                | 20     |
| Adamaoua-Oubangui       | *                                | 12     | *                                | 17     | (31.0)                           | 29     |
| Bantoide Sud-Ouest      | *                                | 6      | *                                | 11     | *                                | 17     |
| Grassfields Nord-Ouest  | (48.9)                           | 34     | 55.8                             | 91     | 53.8                             | 125    |
| Bamileke/Bamoun         | (61.8)                           | 48     | 59.3                             | 96     | 60.2                             | 144    |
| Cotier/Ngoe/Oroko       | *                                | 7      | *                                | 15     | *                                | 22     |
| Beti/Bassa/Mbam         | 39.4                             | 69     | 41.7                             | 196    | 41.1                             | 265    |
| Kako/Maka               | *                                | 14     | 47.4                             | 54     | 41.8                             | 68     |
| Foreigner/Etranger      | *                                | 1      | *                                | 5      | *                                | 6      |
| No Tribe/Aucune         | *                                | 0      | *                                | 1      | *                                | 1      |
| Other                   | 35.9                             | 71     | 33.2                             | 147    | 34.2                             | 218    |
| Total 15-24             | *                                | 17     | 22.5                             | 108    | 23.9                             | 125    |
| Total 15-49             | 38.0                             | 215    | 42.1                             | 577    | 40.9                             | 792    |
| Total 15-64             | 42.5                             | 290    | 45.6                             | 690    | 44.7                             | 980    |

<sup>1</sup>Relates to PEPFAR Indicator VL\_SUPPRESSION\_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 9.B Viral load suppression by age (5-year age groups)**

| Among HIV-positive persons aged 0-64 years, percentage with viral load suppression (< 1,000 copies/mL), by sex and age, CAMPHIA 2017-2018 |                                  |        |                                  |        |                                  |        |
|---|----------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
| Age   | Male                             |        | Female                           |        | Total                            |        |
|   | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number |
| 0-4   | *                                | 2      | *                                | 1      | *                                | 3      |
| 5-9   | *                                | 5      | *                                | 4      | *                                | 9      |
| 10-14   | *                                | 2      | *                                | 0      | *                                | 2      |
| 15-19   | *                                | 4      | (23.2)                           | 34     | (21.7)                           | 38     |
| 20-24   | *                                | 13     | 22.1                             | 74     | 24.9                             | 87     |
| 25-29   | *                                | 24     | 31.2                             | 95     | 32.3                             | 119    |
| 30-34   | 25.2                             | 52     | 37.5                             | 108    | 33.1                             | 160    |
| 35-39   | (44.8)                           | 34     | 52.3                             | 97     | 50.4                             | 131    |
| 40-44   | 51.5                             | 54     | 55.0                             | 97     | 53.8                             | 151    |
| 45-49   | (36.5)                           | 34     | 48.9                             | 72     | 44.8                             | 106    |
| 50-54   | (55.4)                           | 34     | 65.2                             | 52     | 61.1                             | 86     |
| 55-59   | *                                | 18     | (67.2)                           | 32     | 61.0                             | 50     |
| 60-64   | *                                | 23     | (56.9)                           | 29     | 61.6                             | 52     |
| Total 15-24   | *                                | 17     | 22.5                             | 108    | 23.9                             | 125    |
| Total 15-49   | 38.0                             | 215    | 42.1                             | 577    | 40.9                             | 792    |
| Total 15-64   | 42.5                             | 290    | 45.6                             | 690    | 44.7                             | 980    |

<sup>1</sup>Relates to PEPFAR Indicator VL\_SUPPRESSION\_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 9.C Viral load suppression by age (10-to-15-year age groups)**

| Among HIV-positive persons aged 0-64 years, percentage with viral load suppression (< 1,000 copies/mL), by sex and age, CAMPHIA 2017-2018 |                                  |        |                                  |        |                                  |        |
|---|----------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
| Age   | Male                             |        | Female                           |        | Total                            |        |
|   | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number | Percentage with VLS <sup>1</sup> | Number |
| 0-14  | *                                | 9      | *                                | 5      | *                                | 14     |
| 15-24   | *                                | 17     | 22.5                             | 108    | 23.9                             | 125    |
| 25-34   | 28.1                             | 76     | 35.0                             | 203    | 32.8                             | 279    |
| 35-44   | 48.8                             | 88     | 53.6                             | 194    | 52.2                             | 282    |
| 45-54   | 46.8                             | 68     | 56.2                             | 124    | 52.7                             | 192    |
| 55-64   | (58.6)                           | 41     | 62.9                             | 61     | 61.3                             | 102    |

<sup>1</sup>Relates to PEPFAR Indicator VL\_SUPPRESSION\_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

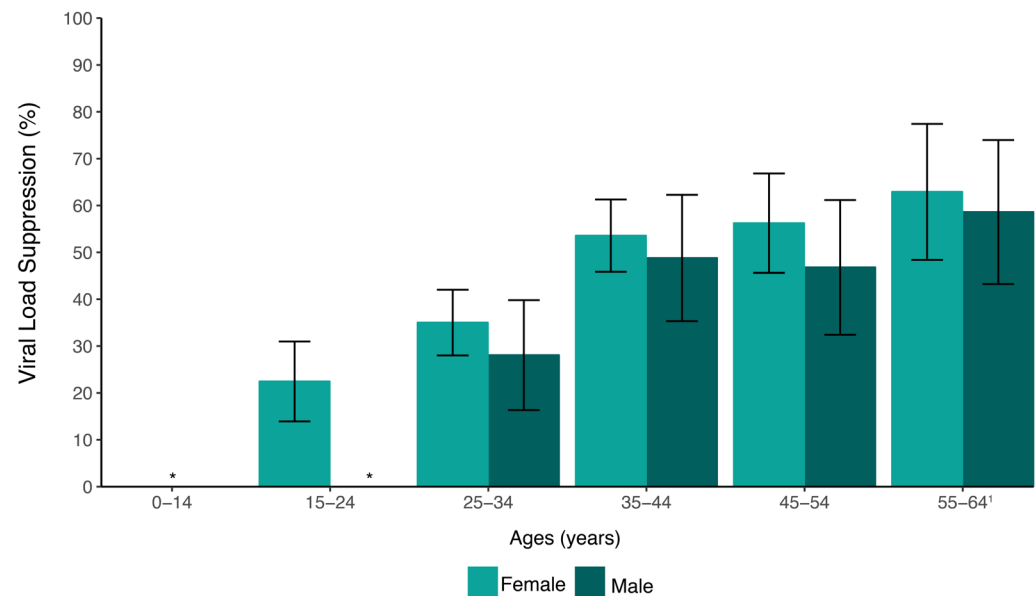
Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

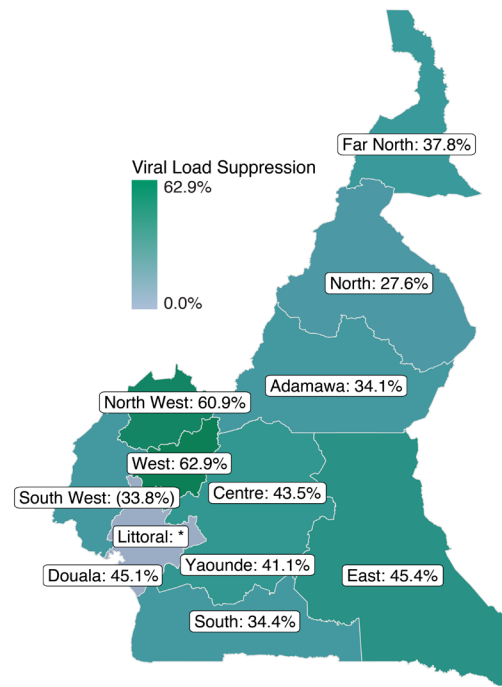


**Figure 9.A**  
Proportion of viral load suppression (<1,000 copies/mL) among people living with HIV, by age and sex, CAMPHIA 2017-2018

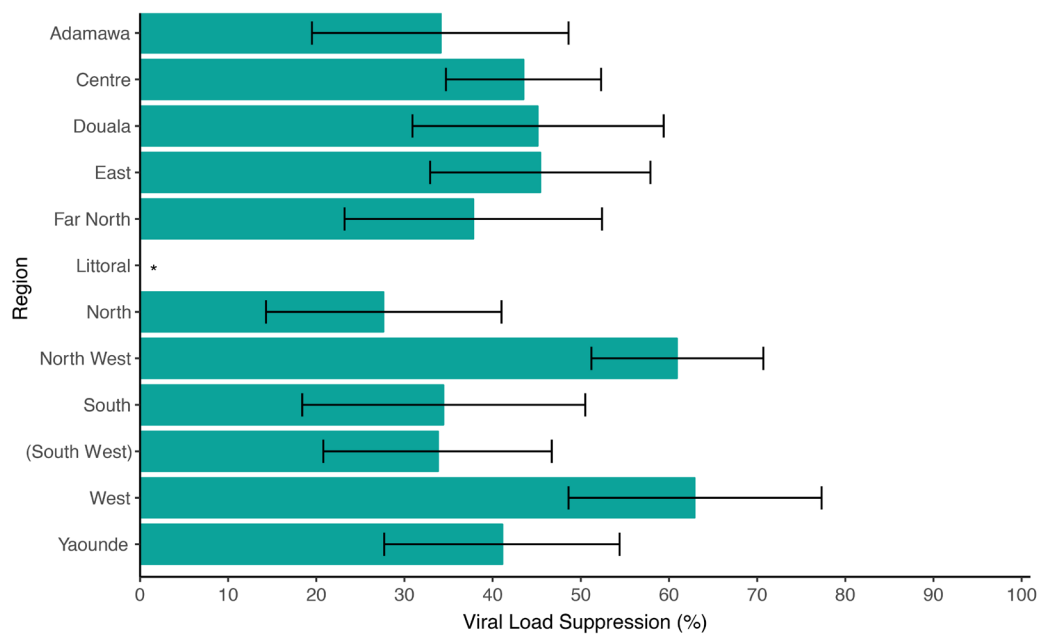


\*Estimates with an asterisk are based on small number (a denominator of less than 25) and have been suppressed.  
<sup>1</sup>The estimate among men aged 55-64 years is based on a denominator between 25-49 and should be interpreted with caution.

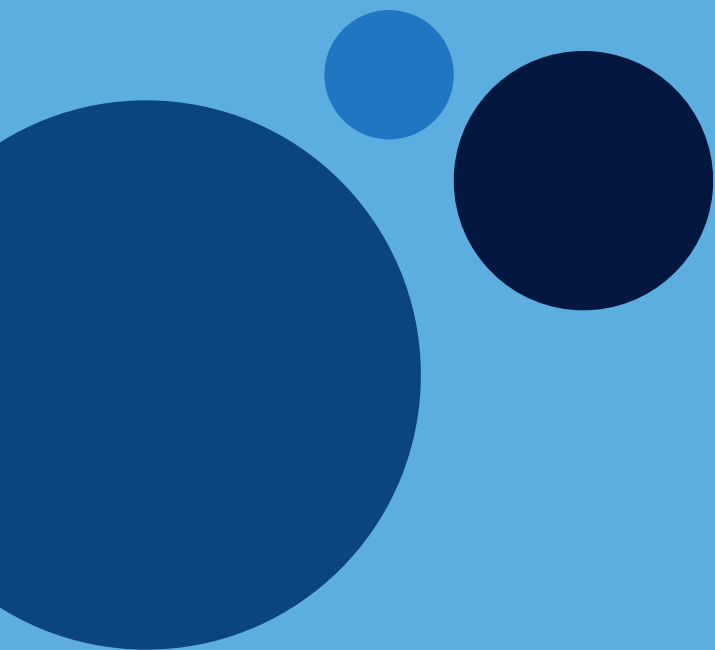
**Figure 9.B**  
Viral load suppression (<1,000 copies/mL) among HIV-positive adults by region, CAMPHIA 2017-2018



\*Estimates with an asterisk are based on small number (a denominator of less than 25) and have been suppressed.



\* Estimates with an asterisk are based on small number (a denominator of less than 25) and have been suppressed.



# 10. UNAIDS 90-90-90 TARGETS

## 10.1 BACKGROUND

In order to achieve HIV epidemic control, UNAIDS has set ambitious targets referred to as 90-90-90: By 2020, 90% of all people living with HIV will know their HIV status; 90% of all persons diagnosed with HIV will receive sustained ART; and 90% of all persons receiving ART will have VLS.<sup>1</sup>

The previous chapters on HIV testing and treatment provide results on coverage of HIV testing and treatment services. The chapter on VLS presents VLS among all HIV-positive individuals, irrespective of knowledge of status or ART use. This chapter presents the status of the 90-90-90 indicators, which indicate program performance, among adults (ages 15-64 years). Awareness of HIV-positive status, and receipt of treatment among those who are aware of their HIV-positive status, are indicators of access to services. VLS among those who know their HIV-positive status and are on treatment not only provides an indication of access to and retention in care, but also, when compared to VLS among all HIV-positive individuals in the country, provides a measure of program success. VLS among all HIV-positive individuals of 73% (90 x 90 x 90) or greater is a critical milestone for national testing and treatment services on the path to epidemic control.

The 90-90-90 results in this chapter are presented in three ways. First, Table 10.A uses only self-reported awareness and ART status. Adults are defined as ‘aware’ of their HIV-positive status if they reported an HIV-positive status before testing as part of the CAMPHIA survey. Adults were defined as ‘on treatment’ if they reported current ART use. The VLS prevalence estimates presented are among only those who reported receiving current ART.

Second, Table 10.B measures the 90-90-90 indicators using both self-reported and ARV biomarker data. In this table, ‘aware’ and ‘on treatment’ have been adjusted so that adults in whom ARVs were detected are classified as ‘aware’ and ‘on treatment’ even if they did not report it. Individuals are classified as ‘on treatment’ if they reported that they were taking ART or had detectable ARVs in their blood. The prevalence of VLS is reported for all of those classified as on treatment.

Finally, Table 10.C also shows the percentage of adults who were aware of their HIV-positive status (based upon self-report and detectable ARVs in blood); however, it also provides estimates of the prevalence of receiving treatment (again based on self-report and ARV biomarker data) among *all* the adults living with HIV in the country. Finally, it reports the prevalence among all adults living with HIV in Cameroon of achieving VLS after benefitting from HIV diagnosis and the receipt of ART.

It is important to note that in each of the 90-90-90 tables, individuals with VLS but who were not aware of their HIV-positive status or were not on ART, are excluded from the numerator for the third 90 (VLS among those on ART). It is for this reason that the prevalence of VLS in the overall 90-90-90 is sometimes slightly lower than the reported VLS prevalence in the preceding chapter (which may also have included VLS data from elite controllers—a small subset of people living with HIV whose immune systems are able to maintain VLS for a period of time without treatment). Thus, the overall 90-90-90 VLS estimates most accurately reflects what percentage of the adult population living with HIV have been reached and are benefitting from the national HIV program.

## 10.2 RESULTS

The following tables and figure describe progress towards the 90-90-90 targets in adults at the time of the CAMPHIA survey.

**Table 10.A Adult 90-90-90 (self-reported antiretroviral therapy (ART) status; conditional percentages)**

| 90-90-90 targets among people living with HIV aged 15-64 years, by sex and age, CAMPHIA 2017-2018 |  |        |  |        |  |        |
|---|--|--------|--|--------|--|--------|
| Age   | Male   |        | Female   |        | Total  |        |
|   | Diagnosed  |        | Diagnosed  |        | Diagnosed  |        |
|   | Percentage self-reported HIV positive  | Number | Percentage self-reported HIV positive  | Number | Percentage self-reported HIV positive  | Number |
| 15-24   | *  | 17     | 14.8   | 106    | 14.5   | 123    |
| 25-34   | 30.5   | 74     | 42.3   | 201    | 38.6   | 275    |
| 35-49   | 47.8   | 120    | 60.5   | 259    | 56.6   | 379    |
| 15-49   | 38.5   | 211    | 47.2   | 566    | 44.7   | 777    |
| 15-64   | 41.2   | 286    | 49.4   | 678    | 46.9   | 964    |
| Age   | On Treatment   |        | On Treatment   |        | On Treatment   |        |
|   | Among those self-reported as HIV-positive, percentage who reported current ART usage | Number | Among those self-reported as HIV-positive, percentage who reported current ART usage | Number | Among those self-reported as HIV-positive, percentage who reported current ART usage | Number |
|   | Among those self-reported as HIV-positive, percentage who reported current ART usage | Number | Among those self-reported as HIV-positive, percentage who reported current ART usage | Number | Among those self-reported as HIV-positive, percentage who reported current ART usage | Number |
| 15-24   | *  | 1      | *  | 18     | *  | 19     |
| 25-34   | *  | 22     | 86.8   | 83     | 83.9   | 105    |
| 35-49   | 96.3   | 56     | 91.5   | 152    | 92.7   | 208    |
| 15-49   | 90.4   | 79     | 89.7   | 253    | 89.9   | 332    |
| 15-64   | 92.0   | 117    | 91.1   | 315    | 91.3   | 432    |
| Age   | Viral Load Suppression (VLS)   |        | Viral Load Suppression (VLS)   |        | Viral Load Suppression (VLS)   |        |
|   | Among those who reported current ART usage percentage with VLS                       | Number | Among those who reported current ART usage percentage with VLS                       | Number | Among those who reported current ART usage percentage with VLS                       | Number |
|   | Among those who reported current ART usage percentage with VLS                       | Number | Among those who reported current ART usage percentage with VLS                       | Number | Among those who reported current ART usage percentage with VLS                       | Number |
| 15-24   | *  | 1      | *  | 14     | *  | 15     |
| 25-34   | *  | 16     | 62.6   | 73     | 64.4   | 89     |
| 35-49   | 81.7   | 54     | 82.8   | 141    | 82.5   | 195    |
| 15-49   | 76.5   | 71     | 77.3   | 228    | 77.1   | 299    |
| 15-64   | 82.1   | 107    | 79.2   | 287    | 80.0   | 394    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

**Table 10.B Adult 90-90-90 (self-reported antiretroviral therapy (ART) status and laboratory antiretroviral data; conditional percentages)**

| 90-90-90 targets among adults living with HIV aged 15-64 years, by sex and age, CAMPHIA 2017-2018 |   |        |   |        |   |        |
|---|---|--------|---|--------|---|--------|
| Age   | Male  |        | Female  |        | Total   |        |
|   | Diagnosed   |        | Diagnosed   |        | Diagnosed   |        |
|   | Percentage self-reported as HIV positive or with detectable ARVs <sup>1</sup>   | Number | Percentage self-reported as HIV positive or with detectable ARVs <sup>1</sup>   | Number | Percentage self-reported as HIV positive or with detectable ARVs <sup>1</sup>   | Number |
| 15-24   | *   | 17     | 22.3  | 107    | 20.7  | 124    |
| 25-34   | 37.1  | 75     | 51.1  | 203    | 46.7  | 278    |
| 35-49   | 61.2  | 122    | 65.8  | 262    | 64.4  | 384    |
| 15-49   | 48.5  | 214    | 54.0  | 572    | 52.4  | 786    |
| 15-64   | 51.4  | 289    | 57.5  | 685    | 55.6  | 974    |
| Age   | On Treatment Among Those Diagnosed  |        |   |        |   |        |
|   | Percentage with detectable ARVs or who -reported current ARV usage <sup>2</sup> | Number | Percentage with detectable ARVs or who -reported current ARV usage <sup>2</sup> | Number | Percentage with detectable ARVs or who -reported current ARV usage <sup>2</sup> | Number |
|   |   |        |   |        |   |        |
| 15-24   | *   | 2      | (88.5)  | 26     | (89.8)  | 28     |
| 25-34   | (82.5)  | 26     | 89.2  | 105    | 87.5  | 131    |
| 35-49   | 97.2  | 74     | 92.6  | 170    | 93.9  | 244    |
| 15-49   | 93.3  | 102    | 91.3  | 301    | 91.8  | 403    |
| 15-64   | 94.2  | 148    | 92.6  | 381    | 93.1  | 529    |
| Age   | Viral Load Suppression (VLS) Among Those on Treatment                           |        |   |        |   |        |
|   | Percentage with VLS <sup>3</sup>  | Number | Percentage with VLS <sup>3</sup>  | Number | Percentage with VLS <sup>3</sup>  | Number |
|   |   |        |   |        |   |        |
| 15-24   | *   | 2      | *   | 22     | *   | 24     |
| 25-34   | *   | 21     | 66.2  | 95     | 69.2  | 116    |
| 35-49   | 76.3  | 72     | 82.8  | 160    | 80.9  | 232    |
| 15-49   | 75.1  | 95     | 78.0  | 277    | 77.2  | 372    |
| 15-64   | 81.1  | 139    | 79.6  | 354    | 80.1  | 493    |

<sup>1</sup>Relates to Global AIDS Monitoring 2020 Indicator (GAM 2020) 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIAGNOSED\_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed);

<sup>2</sup>Relates to GAM 2020 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX\_CURR\_NAT / SUBNAT: Percentage of adults and children receiving antiretroviral therapy;

<sup>3</sup>Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads and PEPFAR Indicator VL\_SUPPRESSION\_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 10.C Adult 90-90-90 (self-reported antiretroviral therapy (ART) status and laboratory antiretroviral data; unconditional/overall percentages)**

| 90-90-90 targets among all adults living with HIV in Cameroon aged 15-64 years, by sex and age, CAMPHIA 2017-2018 |  |        |  |        |  |        |
|---|--|--------|--|--------|--|--------|
| Age   | Male   |        | Female   |        | Total  |        |
|   | Diagnosed  |        | Diagnosed  |        | Diagnosed  |        |
|   | Percentage self-reported HIV positive or with detectable ARVs <sup>1</sup>     | Number | Percentage self-reported as HIV positive or with detectable ARVs <sup>1</sup>  | Number | Percentage self-reported as HIV positive or with detectable ARVs <sup>1</sup>  | Number |
| 15-24   | *  | 17     | 22.3   | 107    | 20.7   | 124    |
| 25-34   | 37.1   | 75     | 51.1   | 203    | 46.7   | 278    |
| 35-49   | 61.2   | 122    | 65.8   | 262    | 64.4   | 384    |
| 15-49   | 48.5   | 214    | 54.0   | 572    | 52.4   | 786    |
| 15-64   | 51.4   | 289    | 57.5   | 685    | 55.6   | 974    |
| On Treatment Among All Adults Living with HIV   |  |        |  |        |  |        |
| Age   | Percentage with detectable ARVs or who reported current ARV usage <sup>2</sup> | Number | Percentage with detectable ARVs or who reported current ARV usage <sup>2</sup> | Number | Percentage with detectable ARVs or who reported current ARV usage <sup>2</sup> | Number |
| 15-24   | *  | 17     | 19.8   | 107    | 18.6   | 124    |
| 25-34   | 30.6   | 75     | 45.6   | 203    | 40.9   | 278    |
| 35-49   | 59.4   | 122    | 60.9   | 262    | 60.4   | 384    |
| 15-49   | 45.2   | 214    | 49.3   | 572    | 48.1   | 786    |
| 15-64   | 48.4   | 289    | 53.3   | 685    | 51.7   | 974    |
| Viral Load Suppression on Treatment Among All Adults Living with HIV  |  |        |  |        |  |        |
| Age   | Percentage with VLS <sup>3</sup>   | Number | Percentage with VLS <sup>3</sup>   | Number | Percentage with VLS <sup>3</sup>   | Number |
| 15-24   | *  | 17     | 16.6   | 107    | 13.7   | 124    |
| 25-34   | 24.1   | 75     | 30.2   | 203    | 28.3   | 278    |
| 35-49   | 45.4   | 122    | 50.4   | 262    | 48.9   | 384    |
| 15-49   | 33.9   | 214    | 38.5   | 572    | 37.1   | 786    |
| 15-64   | 39.3   | 289    | 42.4   | 685    | 41.4   | 974    |

<sup>1</sup>Relates to Global AIDS Monitoring 2020 Indicator (GAM 2020) 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIAGNOSED\_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed);

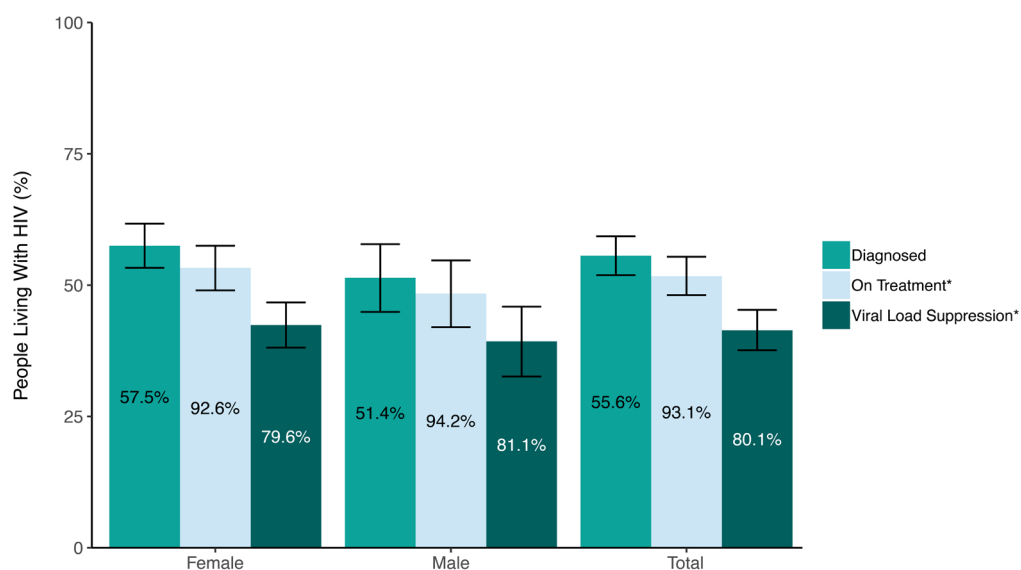
<sup>2</sup>Relates to GAM 2020 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX\_CURR\_NAT / SUBNAT: Percentage of adults and children receiving antiretroviral therapy;;

<sup>3</sup>Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads and PEPFAR Indicator VL\_SUPPRESSION\_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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



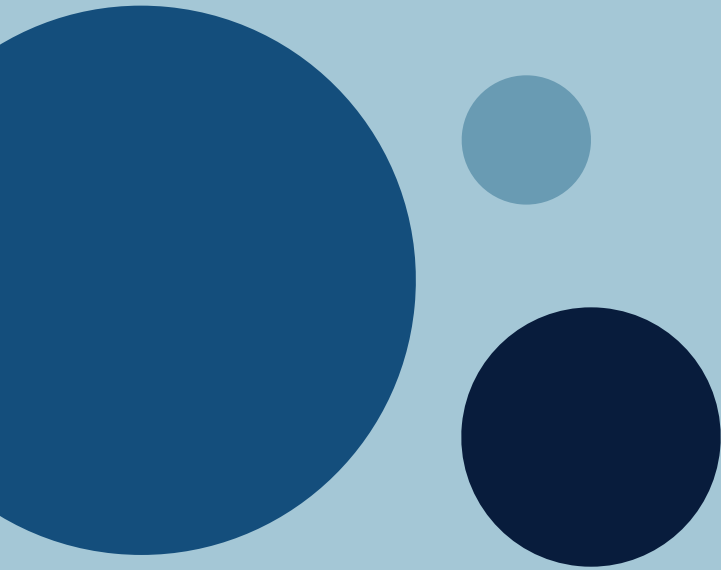
**Figure 10.A**  
Adult 90-90-90 (adjusted for laboratory antiretroviral data among adults aged 15-64 years), CAMPHIA 2017-2018

Note: In the antiretroviral (ARV)-adjusted 90-90-90, participants are classified as “aware” or “diagnosed” if they reported knowing their HIV-positive status before testing positive in CAMPHIA or had detectable ARVs in their blood. Participants are classified as “on treatment” if they reported that they were on treatment or if they had detectable ARVs in their blood.

### 10.3 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](http://www.unaids.org/sites/default/files/media_asset/90-90-90_en_0.pdf). Accessed September 02, 2019.





## 11. CLINICAL PERSPECTIVES ON PEOPLE LIVING WITH HIV

## 11.1 BACKGROUND

As countries implement treatment for all people living with HIV, ensuring a sustainable health system that is people-centered and innovative requires diligent monitoring and responsiveness.<sup>1</sup> Indicators such as CD4 count at diagnosis and retention on ART can provide evidence of program coverage, the ability to reach vulnerable populations, and quality of care. The distribution of CD4 counts also reflects population health, and the potential impact of HIV on mortality. Finally, the measurement of transmitted drug resistance allows optimization of national ART guidelines including second- and third-line therapies.

CAMPBIA provided a unique opportunity to gauge progress in the expansion of HIV clinical services in Cameroon, as well as identify gaps and future challenges.

CAMPBIA estimated the prevalence of transmitted resistance to ARVs using samples from HIV-positive participants who were identified as recent HIV infections using the ARV-adjusted recent infection testing algorithm.

## 11.2 RESULTS

The following tables and figure present data on the clinical characteristics of people living with HIV.

**Table 11.A Median CD4 count and prevalence of immunosuppression**

| Among HIV-positive adults aged 15-64 years, median (Q1, Q3) CD4 count and percentage with immunosuppression (< 500 cells/μL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, CAMPBIA 2017-2018 |                 |                           |        |                 |                           |        |                 |                           |        |
|---|-----------------|---------------------------|--------|-----------------|---------------------------|--------|-----------------|---------------------------|--------|
| Characteristic  | Male            |                           |        | Female          |                           |        | Total           |                           |        |
|   | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number |
| <b>Self-reported diagnosis and treatment status</b>   |                 |                           |        |                 |                           |        |                 |                           |        |
| Not previously diagnosed  | 392 (286, 540)  | 69.8                      | 168    | 474 (311, 660)  | 53.8                      | 359    | 436 (307, 626)  | 59.3                      | 527    |
| Previously diagnosed, not on ART  | *               | *                         | 10     | 407 (165, 581)  | (71.9)                    | 28     | 404 (166, 480)  | (75.3)                    | 38     |
| Previously diagnosed, on ART  | 505 (329, 682)  | 46.3                      | 107    | 509 (327, 713)  | 48.9                      | 287    | 508 (328, 696)  | 48.2                      | 394    |
| Missing   | *               | *                         | 4      | *               | *                         | 12     | *               | *                         | 16     |
| <b>Residence</b>  |                 |                           |        |                 |                           |        |                 |                           |        |
| Total urban   | 408 (280, 641)  | 63.1                      | 121    | 479 (327, 654)  | 53.7                      | 331    | 455 (312, 653)  | 56.5                      | 452    |
| Douala and Yaounde  | 379 (281, 648)  | (58.5)                    | 43     | 479 (297, 612)  | 54.5                      | 128    | 453 (303, 640)  | 55.6                      | 171    |
| Other urban   | 419 (277, 564)  | 66.7                      | 78     | 479 (348, 676)  | 53.1                      | 203    | 457 (326, 658)  | 57.1                      | 281    |
| Rural   | 440 (308, 617)  | 59.6                      | 168    | 493 (298, 717)  | 50.7                      | 355    | 470 (302, 683)  | 53.7                      | 523    |

**Table 11.A Median CD4 count and prevalence of immunosuppression (continued)**

Among HIV-positive adults aged 15-64 years, median (Q1, Q3) CD4 count and percentage with immunosuppression (< 500 cells/μL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Male            |                           |        | Female          |                           |        | Total           |                           |        |
|----------------------------------|-----------------|---------------------------|--------|-----------------|---------------------------|--------|-----------------|---------------------------|--------|
|                                  | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number |
| <b>Region</b>                    |                 |                           |        |                 |                           |        |                 |                           |        |
| Adamawa                          | 287 (194, 557)  | (67.0)                    | 31     | 494 (344, 723)  | 48.8                      | 65     | 461 (275, 693)  | 54.6                      | 96     |
| Centre                           | 418 (306, 639)  | (57.0)                    | 42     | 461 (333, 665)  | 56.2                      | 101    | 450 (315, 656)  | 56.4                      | 143    |
| Douala                           | *               | *                         | 16     | 481 (329, 600)  | 54.6                      | 58     | 465 (318, 620)  | 55.1                      | 74     |
| East                             | 405 (307, 487)  | (77.0)                    | 38     | 601 (313, 888)  | 41.2                      | 85     | 478 (313, 787)  | 52.6                      | 123    |
| Far North                        | *               | *                         | 21     | 386 (272, 720)  | (54.5)                    | 32     | 380 (259, 634)  | 65.8                      | 53     |
| Littoral                         | *               | *                         | 6      | *               | *                         | 17     | *               | *                         | 23     |
| North                            | *               | *                         | 17     | 504 (351, 725)  | (46.1)                    | 34     | 473 (355, 750)  | 50.8                      | 51     |
| North West                       | *               | *                         | 23     | 386 (280, 603)  | 63.7                      | 74     | 400 (288, 538)  | 65.9                      | 97     |
| South                            | 519 (420, 662)  | (38.1)                    | 27     | 507 (384, 769)  | 47.7                      | 84     | 517 (385, 735)  | 45.4                      | 111    |
| South West                       | *               | *                         | 17     | 479 (352, 601)  | (52.0)                    | 32     | 452 (343, 585)  | (58.5)                    | 49     |
| West                             | *               | *                         | 24     | 564 (257, 684)  | (41.3)                    | 34     | 507 (259, 677)  | 46.8                      | 58     |
| Yaounde                          | 403 (345, 623)  | (60.1)                    | 27     | 472 (270, 644)  | 54.3                      | 70     | 436 (276, 638)  | 56.1                      | 97     |
| <b>Marital status</b>            |                 |                           |        |                 |                           |        |                 |                           |        |
| Never married                    | 463 (295, 719)  | (52.9)                    | 36     | 498 (348, 671)  | 47.4                      | 104    | 495 (337, 673)  | 49.0                      | 140    |
| Ever had sex                     | 515 (374, 767)  | (46.6)                    | 32     | 499 (350, 671)  | 46.8                      | 94     | 501 (354, 677)  | 46.7                      | 126    |
| Never had sex                    | *               | *                         | 3      | *               | *                         | 10     | *               | *                         | 13     |
| Missing whether had sex          | *               | *                         | 1      | *               | *                         | 0      | *               | *                         | 1      |
| Married or living together       | 411 (298, 623)  | 63.7                      | 202    | 523 (328, 729)  | 46.8                      | 307    | 476 (311, 669)  | 53.8                      | 509    |
| Divorced or separated            | 371 (261, 570)  | (64.3)                    | 40     | 439 (258, 623)  | 61.6                      | 154    | 416 (260, 605)  | 62.2                      | 194    |
| Widowed                          | *               | *                         | 11     | 407 (306, 648)  | 59.0                      | 119    | 411 (312, 654)  | 57.3                      | 130    |
| <b>Type of union</b>             |                 |                           |        |                 |                           |        |                 |                           |        |
| In polygamous union              | 357 (337, 478)  | (76.5)                    | 28     | 421 (288, 686)  | 54.4                      | 54     | 411 (318, 643)  | 61.9                      | 82     |
| Not in polygamous union          | 421 (279, 645)  | 61.4                      | 170    | 515 (333, 702)  | 47.1                      | 206    | 477 (306, 658)  | 54.1                      | 376    |
| Not currently in union           | 441 (299, 626)  | 56.1                      | 87     | 448 (300, 652)  | 56.8                      | 377    | 448 (300, 652)  | 56.6                      | 464    |
| <b>Education</b>                 |                 |                           |        |                 |                           |        |                 |                           |        |
| None                             | *               | *                         | 22     | 479 (321, 743)  | 51.7                      | 99     | 478 (300, 707)  | 54.0                      | 121    |
| Primary                          | 404 (264, 626)  | 62.5                      | 106    | 465 (312, 684)  | 51.7                      | 269    | 444 (300, 668)  | 54.8                      | 375    |
| Secondary first cycle            | 424 (307, 607)  | 66.1                      | 95     | 499 (312, 694)  | 49.1                      | 228    | 482 (308, 657)  | 54.0                      | 323    |
| Secondary second cycle or higher | 453 (337, 656)  | 54.4                      | 66     | 409 (279, 587)  | 61.5                      | 89     | 443 (316, 640)  | 58.2                      | 155    |

**Table 11.A Median CD4 count and prevalence of immunosuppression (continued)**

| Among HIV-positive adults aged 15-64 years, median (Q1, Q3) CD4 count and percentage with immunosuppression (< 500 cells/μL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, CAMPHIA 2017-2018 |                 |                           |        |                 |                           |        |                 |                           |        |
|---|-----------------|---------------------------|--------|-----------------|---------------------------|--------|-----------------|---------------------------|--------|
| Characteristic  | Male            |                           |        | Female          |                           |        | Total           |                           |        |
|   | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number |
| <b>Wealth quintile</b>  |                 |                           |        |                 |                           |        |                 |                           |        |
| Lowest  | 402 (256, 525)  | 71.4                      | 62     | 402 (245, 652)  | 57.3                      | 121    | 402 (249, 625)  | 61.8                      | 183    |
| Second  | 424 (335, 607)  | 64.4                      | 75     | 499 (311, 727)  | 49.7                      | 202    | 479 (324, 715)  | 54.0                      | 277    |
| Middle  | 361 (240, 521)  | 71.4                      | 57     | 537 (336, 673)  | 43.9                      | 142    | 473 (295, 619)  | 52.1                      | 199    |
| Fourth  | 486 (311, 664)  | 50.1                      | 59     | 481 (326, 652)  | 54.9                      | 118    | 482 (322, 654)  | 53.2                      | 177    |
| Highest   | 453 (325, 655)  | (55.6)                    | 36     | 446 (318, 613)  | 58.8                      | 103    | 453 (320, 653)  | 57.8                      | 139    |
| <b>Religion</b>   |                 |                           |        |                 |                           |        |                 |                           |        |
| Catholic  | 447 (295, 641)  | 57.2                      | 107    | 484 (299, 677)  | 51.9                      | 254    | 479 (298, 667)  | 53.6                      | 361    |
| Protestant  | 392 (317, 585)  | 66.9                      | 76     | 476 (324, 655)  | 53.3                      | 211    | 444 (327, 654)  | 57.1                      | 287    |
| Muslim  | 332 (199, 509)  | 70.4                      | 53     | 437 (298, 729)  | 57.6                      | 104    | 414 (261, 644)  | 62.0                      | 157    |
| Animist   | *               | *                         | 7      | *               | *                         | 6      | *               | *                         | 13     |
| Other Christian   | *               | *                         | 13     | 521 (388, 714)  | 40.2                      | 57     | 521 (390, 665)  | 42.3                      | 70     |
| Other   | *               | *                         | 10     | 396 (301, 582)  | (57.3)                    | 39     | 400 (298, 634)  | (58.2)                    | 49     |
| None  | *               | *                         | 23     | *               | *                         | 14     | 451 (285, 671)  | (59.5)                    | 37     |
| <b>Ethnicity</b>  |                 |                           |        |                 |                           |        |                 |                           |        |
| Arabe-Choa/Peul/Haoussa   | *               | *                         | 22     | 495 (385, 784)  | (48.8)                    | 42     | 474 (252, 762)  | 57.3                      | 64     |
| Biu-Mandara   | *               | *                         | 6      | *               | *                         | 14     | *               | *                         | 20     |
| Adamaoua-Oubangui   | *               | *                         | 12     | *               | *                         | 17     | 434 (251, 601)  | (58.8)                    | 29     |
| Bantoide Sud-Ouest  | *               | *                         | 6      | *               | *                         | 11     | *               | *                         | 17     |
| Grassfields Nord-Ouest  | 421 (270, 546)  | (65.6)                    | 34     | 404 (280, 603)  | 58.6                      | 90     | 409 (282, 588)  | 60.7                      | 124    |
| Bamilike/Bamoun   | 492 (291, 669)  | (49.4)                    | 48     | 505 (311, 700)  | 49.1                      | 95     | 506 (300, 685)  | 49.2                      | 143    |
| Cotier/Ngoe/Oroko   | *               | *                         | 7      | *               | *                         | 15     | *               | *                         | 22     |
| Beti/Bassa/Mbam   | 443 (345, 673)  | 54.8                      | 69     | 481 (312, 683)  | 53.7                      | 196    | 477 (344, 683)  | 54.0                      | 265    |
| Kako/Maka   | *               | *                         | 14     | 497 (311, 892)  | 47.4                      | 54     | 443 (304, 657)  | 57.7                      | 68     |
| Foreigner/Etranger  | *               | *                         | 1      | *               | *                         | 5      | *               | *                         | 6      |
| No Tribe/Aucune   | *               | *                         | 0      | *               | *                         | 1      | *               | *                         | 1      |
| Other   | 398 (310, 513)  | 67.6                      | 70     | 496 (308, 713)  | 49.6                      | 146    | 434 (310, 669)  | 56.2                      | 216    |

**Table 11.A Median CD4 count and prevalence of immunosuppression (continued)**

Among HIV-positive adults aged 15-64 years, median (Q1, Q3) CD4 count and percentage with immunosuppression (< 500 cells/μL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Male            |                           |        | Female          |                           |        | Total           |                           |        |
|----------------|-----------------|---------------------------|--------|-----------------|---------------------------|--------|-----------------|---------------------------|--------|
|                | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number | Median (Q1, Q3) | Percentage < 500 cells/μL | Number |
| <b>Age</b>     |                 |                           |        |                 |                           |        |                 |                           |        |
| 15-19          | *               | *                         | 3      | 608 (479, 794)  | (22.3)                    | 33     | 507 (435, 763)  | (33.4)                    | 36     |
| 20-24          | *               | *                         | 13     | 515 (354, 656)  | 46.8                      | 74     | 535 (376, 728)  | 43.6                      | 87     |
| 25-29          | *               | *                         | 24     | 479 (275, 656)  | 55.2                      | 92     | 486 (301, 654)  | 51.6                      | 116    |
| 30-34          | 352 (274, 469)  | 77.3                      | 52     | 471 (224, 641)  | 55.1                      | 108    | 402 (266, 600)  | 63.0                      | 160    |
| 35-39          | 408 (264, 555)  | (61.6)                    | 34     | 422 (270, 656)  | 62.0                      | 97     | 421 (270, 655)  | 61.9                      | 131    |
| 40-44          | 504 (349, 666)  | 48.6                      | 54     | 451 (335, 614)  | 57.4                      | 97     | 457 (342, 652)  | 54.4                      | 151    |
| 45-49          | 380 (174, 518)  | (69.2)                    | 34     | 457 (268, 608)  | 55.3                      | 72     | 410 (253, 605)  | 59.9                      | 106    |
| 50-54          | 348 (180, 625)  | (61.7)                    | 34     | 551 (383, 896)  | 42.3                      | 52     | 463 (305, 661)  | 50.4                      | 86     |
| 55-59          | *               | *                         | 18     | 567 (381, 713)  | (40.1)                    | 32     | 494 (345, 701)  | 49.4                      | 50     |
| 60-64          | *               | *                         | 23     | 531 (302, 719)  | (44.7)                    | 29     | 447 (294, 682)  | 55.8                      | 52     |
| Total 15-24    | *               | *                         | 16     | 536 (379, 732)  | 38.8                      | 107    | 535 (387, 749)  | 40.4                      | 123    |
| Total 15-49    | 438 (311, 635)  | 60.3                      | 214    | 478 (305, 656)  | 54.4                      | 573    | 455 (308, 654)  | 56.1                      | 787    |
| Total 15-64    | 424 (299, 625)  | 61.4                      | 289    | 482 (311, 674)  | 52.4                      | 686    | 464 (309, 656)  | 55.2                      | 975    |

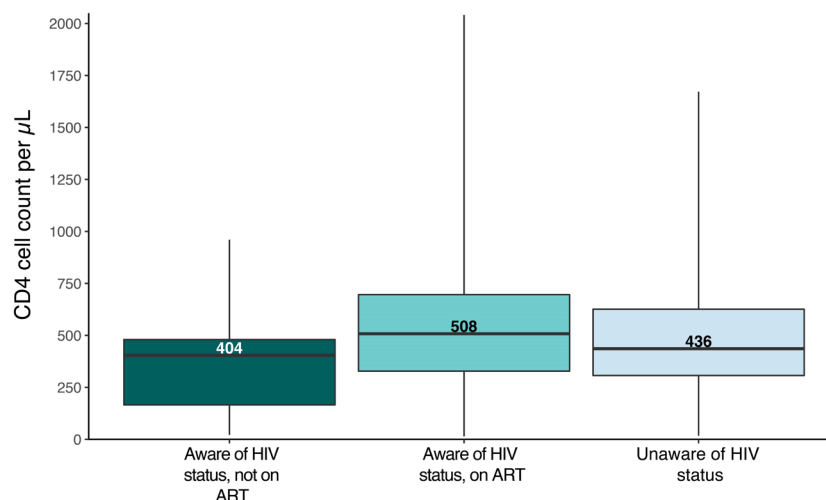
Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Figure 11.A**  
CD4 count distribution among people living with HIV by HIV diagnosis and ART status, CAMPHIA 2017-2018



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

**Table 11.B Late HIV diagnosis**

| Among adults aged 15-64 years who tested HIV positive in the PHIA survey but self-reported HIV negative with no detectable ARVs, percentage who had a CD4 cell count < 200 cells/μL and < 350 cells/μL, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |                           |                           |        |                           |                           |        |                           |                           |        |
|--|---------------------------|---------------------------|--------|---------------------------|---------------------------|--------|---------------------------|---------------------------|--------|
| Characteristic   | Male                      |                           |        | Female                    |                           |        | Total                     |                           |        |
|  | Percentage < 200 cells/μL | Percentage < 350 cells/μL | Number | Percentage < 200 cells/μL | Percentage < 350 cells/μL | Number | Percentage < 200 cells/μL | Percentage < 350 cells/μL | Number |
| <b>Residence</b>   |                           |                           |        |                           |                           |        |                           |                           |        |
| Total urban  | 16.7                      | 45.3                      | 58     | 14.4                      | 33.2                      | 136    | 15.1                      | 37.3                      | 194    |
| Douala and Yaounde   | *                         | *                         | 21     | 14.9                      | 35.2                      | 56     | 13.5                      | 37.9                      | 77     |
| Other urban  | (21.0)                    | (46.4)                    | 37     | 13.9                      | 31.5                      | 80     | 16.5                      | 36.9                      | 117    |
| Rural  | 11.3                      | 32.5                      | 82     | 16.8                      | 32.8                      | 165    | 15.0                      | 32.7                      | 247    |
| <b>Region</b>  |                           |                           |        |                           |                           |        |                           |                           |        |
| Adamawa  | *                         | *                         | 20     | (11.2)                    | (38.3)                    | 41     | 16.1                      | 44.0                      | 61     |
| Centre   | *                         | *                         | 22     | (18.5)                    | (34.1)                    | 45     | 13.7                      | 39.8                      | 67     |
| Douala   | *                         | *                         | 7      | *                         | *                         | 24     | (11.9)                    | (43.4)                    | 31     |
| East   | *                         | *                         | 16     | 5.3                       | 24.0                      | 38     | 11.9                      | 30.4                      | 54     |
| Far North  | *                         | *                         | 15     | *                         | *                         | 18     | (19.0)                    | (37.3)                    | 33     |
| Littoral   | *                         | *                         | 3      | *                         | *                         | 9      | *                         | *                         | 12     |
| North  | *                         | *                         | 9      | *                         | *                         | 19     | (8.7)                     | (16.9)                    | 28     |
| North West   | *                         | *                         | 6      | *                         | *                         | 18     | *                         | *                         | 24     |
| South  | *                         | *                         | 13     | (3.8)                     | (17.4)                    | 36     | (3.9)                     | (15.0)                    | 49     |
| South West   | *                         | *                         | 7      | *                         | *                         | 13     | *                         | *                         | 20     |
| West   | *                         | *                         | 8      | *                         | *                         | 8      | *                         | *                         | 16     |
| Yaounde  | *                         | *                         | 14     | (18.0)                    | (35.1)                    | 32     | (15.0)                    | (33.2)                    | 46     |
| <b>Marital status</b>  |                           |                           |        |                           |                           |        |                           |                           |        |
| Never married  | *                         | *                         | 23     | 13.7                      | 25.0                      | 53     | 10.9                      | 24.7                      | 76     |
| Ever had sex   | *                         | *                         | 21     | 14.1                      | 24.9                      | 50     | 11.4                      | 22.9                      | 71     |
| Never had sex  | *                         | *                         | 2      | *                         | *                         | 3      | *                         | *                         | 5      |
| Missing whether had sex  | *                         | *                         | 0      | *                         | *                         | 0      | *                         | *                         | 0      |
| Married or living together   | 18.9                      | 45.7                      | 94     | 11.3                      | 30.3                      | 147    | 14.7                      | 37.1                      | 241    |
| Divorced or separated  | *                         | *                         | 18     | 19.9                      | 35.6                      | 69     | 16.5                      | 34.6                      | 87     |
| Widowed  | *                         | *                         | 5      | (27.8)                    | (58.3)                    | 31     | (26.7)                    | (54.8)                    | 36     |
| <b>Type of union</b>   |                           |                           |        |                           |                           |        |                           |                           |        |
| In polygamous union  | *                         | *                         | 15     | (9.3)                     | (39.3)                    | 29     | (5.5)                     | (45.0)                    | 44     |
| Not in polygamous union  | 22.9                      | 45.1                      | 77     | 14.3                      | 25.3                      | 98     | 18.6                      | 35.1                      | 175    |
| Not currently in union   | (4.2)                     | (26.1)                    | 46     | 19.0                      | 35.5                      | 153    | 15.6                      | 33.3                      | 199    |

**Table 11.B Late HIV diagnosis** (continued)

| Among adults aged 15-64 years who tested HIV positive in the PHIA survey but self-reported HIV negative with no detectable ARVs, percentage who had a CD4 cell count < 200 cells/μL and < 350 cells/μL, by sex and selected demographic characteristics, CAMPHIA 2017-2018 |                           |                           |        |                           |                           |        |                           |                           |        |
|--|---------------------------|---------------------------|--------|---------------------------|---------------------------|--------|---------------------------|---------------------------|--------|
| Characteristic   | Male                      |                           |        | Female                    |                           |        | Total                     |                           |        |
|  | Percentage < 200 cells/μL | Percentage < 350 cells/μL | Number | Percentage < 200 cells/μL | Percentage < 350 cells/μL | Number | Percentage < 200 cells/μL | Percentage < 350 cells/μL | Number |
| <b>Education</b>   |                           |                           |        |                           |                           |        |                           |                           |        |
| None   | *                         | *                         | 13     | 13.3                      | 32.8                      | 53     | 16.2                      | 39.2                      | 66     |
| Primary  | 15.2                      | 37.8                      | 51     | 14.2                      | 33.2                      | 116    | 14.5                      | 34.6                      | 167    |
| Secondary first cycle  | 10.5                      | 35.1                      | 50     | 16.1                      | 29.5                      | 96     | 14.1                      | 31.5                      | 146    |
| Secondary second cycle or higher   | (14.6)                    | (40.3)                    | 26     | (19.5)                    | (41.1)                    | 36     | 17.1                      | 40.7                      | 62     |
| <b>Wealth quintile</b>   |                           |                           |        |                           |                           |        |                           |                           |        |
| Lowest   | (17.6)                    | (28.5)                    | 39     | 13.3                      | 38.2                      | 71     | 14.7                      | 34.9                      | 110    |
| Second   | (12.6)                    | (40.3)                    | 33     | 11.6                      | 30.3                      | 80     | 11.9                      | 33.2                      | 113    |
| Middle   | (19.1)                    | (44.3)                    | 28     | 17.6                      | 32.5                      | 58     | 18.2                      | 37.1                      | 86     |
| Fourth   | (3.6)                     | (36.1)                    | 26     | 13.9                      | 30.4                      | 53     | 9.9                       | 32.7                      | 79     |
| Highest  | *                         | *                         | 14     | (20.7)                    | (34.9)                    | 39     | 20.7                      | 38.2                      | 53     |
| <b>Religion</b>  |                           |                           |        |                           |                           |        |                           |                           |        |
| Catholic   | (14.6)                    | (40.4)                    | 47     | 20.4                      | 34.8                      | 109    | 18.7                      | 36.5                      | 156    |
| Protestant   | (4.4)                     | (38.5)                    | 34     | 11.7                      | 28.2                      | 85     | 9.3                       | 31.5                      | 119    |
| Muslim   | (29.1)                    | (53.3)                    | 32     | 14.7                      | 37.1                      | 62     | 19.9                      | 42.9                      | 94     |
| Animist  | *                         | *                         | 3      | *                         | *                         | 1      | *                         | *                         | 4      |
| Other Christian  | *                         | *                         | 7      | *                         | *                         | 21     | (1.1)                     | (19.6)                    | 28     |
| Other  | *                         | *                         | 5      | *                         | *                         | 17     | *                         | *                         | 22     |
| None   | *                         | *                         | 12     | *                         | *                         | 6      | *                         | *                         | 18     |
| <b>Ethnicity</b>   |                           |                           |        |                           |                           |        |                           |                           |        |
| Arabe-Choa/Peul/Haoussa  | *                         | *                         | 18     | *                         | *                         | 24     | (20.6)                    | (35.9)                    | 42     |
| Biu-Mandara  | *                         | *                         | 3      | *                         | *                         | 8      | *                         | *                         | 11     |
| Adamaoua-Oubangui  | *                         | *                         | 6      | *                         | *                         | 12     | *                         | *                         | 18     |
| Bantoide Sud-Ouest   | *                         | *                         | 1      | *                         | *                         | 5      | *                         | *                         | 6      |
| Grassfields Nord-Ouest   | *                         | *                         | 12     | (22.3)                    | (43.3)                    | 28     | (20.9)                    | (36.8)                    | 40     |
| Bamilike/Bamoun  | *                         | *                         | 17     | (32.5)                    | (50.0)                    | 28     | (20.1)                    | (46.1)                    | 45     |
| Cotier/Ngoe/Oroko  | *                         | *                         | 5      | *                         | *                         | 4      | *                         | *                         | 9      |
| Beti/Bassa/Mbam  | (3.5)                     | (36.0)                    | 36     | 14.3                      | 24.2                      | 86     | 11.0                      | 27.8                      | 122    |
| Kako/Maka  | *                         | *                         | 8      | (0.0)                     | (35.5)                    | 25     | (10.4)                    | (38.3)                    | 33     |
| Foreigner/Etranger   | *                         | *                         | 1      | *                         | *                         | 4      | *                         | *                         | 5      |
| No Tribe/Aucune  | *                         | *                         | 0      | *                         | *                         | 1      | *                         | *                         | 1      |
| Other  | (11.1)                    | (35.6)                    | 33     | 9.4                       | 34.1                      | 76     | 9.9                       | 34.6                      | 109    |

**Table 11.B Late HIV diagnosis (continued)**

**Among adults aged 15-64 years who tested HIV positive in the PHIA survey but self-reported HIV negative with no detectable ARVs, percentage who had a CD4 cell count < 200 cells/ $\mu$ L and < 350 cells/ $\mu$ L, by sex and selected demographic characteristics, CAMPHIA 2017-2018**

| Characteristic | Male                                  |                                       |        | Female                                |                                       |        | Total                                 |                                       |        |
|----------------|---------------------------------------|---------------------------------------|--------|---------------------------------------|---------------------------------------|--------|---------------------------------------|---------------------------------------|--------|
|                | Percentage<br>< 200 cells/<br>$\mu$ L | Percentage<br>< 350 cells/<br>$\mu$ L | Number | Percentage<br>< 200 cells/<br>$\mu$ L | Percentage<br>< 350 cells/<br>$\mu$ L | Number | Percentage<br>< 200 cells/<br>$\mu$ L | Percentage<br>< 350 cells/<br>$\mu$ L | Number |
| <b>Age</b>     |                                       |                                       |        |                                       |                                       |        |                                       |                                       |        |
| 15-19          | *                                     | *                                     | 2      | (2.2)                                 | (13.5)                                | 27     | (3.3)                                 | (21.3)                                | 29     |
| 20-24          | *                                     | *                                     | 12     | 6.6                                   | 19.5                                  | 53     | 6.1                                   | 15.9                                  | 65     |
| 25-29          | *                                     | *                                     | 18     | 15.8                                  | 41.1                                  | 50     | 12.4                                  | 31.4                                  | 68     |
| 30-34          | (12.1)                                | (52.5)                                | 31     | (28.8)                                | (37.1)                                | 46     | 21.6                                  | 43.7                                  | 77     |
| 35-39          | *                                     | *                                     | 15     | (33.3)                                | (56.0)                                | 31     | (25.7)                                | (50.6)                                | 46     |
| 40-44          | *                                     | *                                     | 19     | (7.6)                                 | (27.9)                                | 37     | 6.0                                   | 29.8                                  | 56     |
| 45-49          | *                                     | *                                     | 14     | *                                     | *                                     | 24     | (18.7)                                | (31.7)                                | 38     |
| 50-54          | *                                     | *                                     | 16     | *                                     | *                                     | 15     | (30.3)                                | (43.1)                                | 31     |
| 55-59          | *                                     | *                                     | 9      | *                                     | *                                     | 8      | *                                     | *                                     | 17     |
| 60-64          | *                                     | *                                     | 4      | *                                     | *                                     | 10     | *                                     | *                                     | 14     |
| Total 15-24    | *                                     | *                                     | 14     | 5.1                                   | 17.4                                  | 80     | 5.3                                   | 17.6                                  | 94     |
| Total 15-49    | 10.6                                  | 34.9                                  | 111    | 16.0                                  | 32.6                                  | 268    | 14.3                                  | 33.3                                  | 379    |
| Total 15-64    | 14.2                                  | 39.4                                  | 140    | 15.5                                  | 33.1                                  | 301    | 15.1                                  | 35.2                                  | 441    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 11.C Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy LESS THAN 12 months before the survey**

**Among HIV-positive adults aged 15-64 years who reported initiating ART less than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018**

| Characteristic                     | Male                                 |        | Female                               |        | Total                                |        |
|------------------------------------|--------------------------------------|--------|--------------------------------------|--------|--------------------------------------|--------|
|                                    | Percentage<br>still receiving<br>ART | Number | Percentage<br>still receiving<br>ART | Number | Percentage<br>still receiving<br>ART | Number |
| <b>Presence of detectable ARVs</b> |                                      |        |                                      |        |                                      |        |
| Detectable                         | *                                    | 22     | 100.0                                | 62     | 100.0                                | 84     |
| Not detectable                     | *                                    | 3      | *                                    | 6      | *                                    | 9      |
| <b>Residence</b>                   |                                      |        |                                      |        |                                      |        |
| Total urban                        | *                                    | 8      | (89.5)                               | 39     | (91.4)                               | 47     |
| Douala and Yaounde                 | *                                    | 3      | *                                    | 17     | *                                    | 20     |
| Other urban                        | *                                    | 5      | *                                    | 22     | (90.3)                               | 27     |
| Rural                              | *                                    | 17     | (96.7)                               | 29     | (97.9)                               | 46     |



**Table 11.C Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy LESS THAN 12 months before the survey** (continued)

Among HIV-positive adults aged 15-64 years who reported initiating ART less than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Male                           |        | Female                         |        | Total                          |        |
|----------------------------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                                  | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Region</b>                    |                                |        |                                |        |                                |        |
| Adamawa                          | *                              | 1      | *                              | 6      | *                              | 7      |
| Centre                           | *                              | 2      | *                              | 10     | *                              | 12     |
| Douala                           | *                              | 1      | *                              | 7      | *                              | 8      |
| East                             | *                              | 3      | *                              | 6      | *                              | 9      |
| Far North                        | *                              | 0      | *                              | 2      | *                              | 2      |
| Littoral                         | *                              | 0      | *                              | 2      | *                              | 2      |
| North                            | *                              | 1      | *                              | 2      | *                              | 3      |
| North West                       | *                              | 5      | *                              | 8      | *                              | 13     |
| South                            | *                              | 4      | *                              | 9      | *                              | 13     |
| South West                       | *                              | 2      | *                              | 4      | *                              | 6      |
| West                             | *                              | 4      | *                              | 2      | *                              | 6      |
| Yaounde                          | *                              | 2      | *                              | 10     | *                              | 12     |
| <b>Marital status</b>            |                                |        |                                |        |                                |        |
| Never married                    | *                              | 4      | *                              | 9      | *                              | 13     |
| Ever had sex                     | *                              | 4      | *                              | 7      | *                              | 11     |
| Never had sex                    | *                              | 0      | *                              | 2      | *                              | 2      |
| Missing whether had sex          | *                              | 0      | *                              | 0      | *                              | 0      |
| Married or living together       | *                              | 18     | (90.0)                         | 26     | (93.4)                         | 44     |
| Divorced or separated            | *                              | 2      | *                              | 18     | *                              | 20     |
| Widowed                          | *                              | 1      | *                              | 15     | *                              | 16     |
| <b>Type of union</b>             |                                |        |                                |        |                                |        |
| In polygamous union              | *                              | 2      | *                              | 4      | *                              | 6      |
| Not in polygamous union          | *                              | 15     | *                              | 15     | (100.0)                        | 30     |
| Not currently in union           | *                              | 7      | (93.4)                         | 42     | (94.5)                         | 49     |
| <b>Education</b>                 |                                |        |                                |        |                                |        |
| None                             | *                              | 1      | *                              | 9      | *                              | 10     |
| Primary                          | *                              | 11     | (97.0)                         | 27     | (97.8)                         | 38     |
| Secondary first cycle            | *                              | 7      | *                              | 22     | (82.9)                         | 29     |
| Secondary second cycle or higher | *                              | 6      | *                              | 9      | *                              | 15     |

**Table 11.C Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy LESS THAN 12 months before the survey (continued)**

Among HIV-positive adults aged 15-64 years who reported initiating ART less than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Male                           |        | Female                         |        | Total                          |        |
|-------------------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                         | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Wealth quintile</b>  |                                |        |                                |        |                                |        |
| Lowest                  | *                              | 3      | *                              | 12     | *                              | 15     |
| Second                  | *                              | 8      | *                              | 22     | (88.3)                         | 30     |
| Middle                  | *                              | 5      | *                              | 9      | *                              | 14     |
| Fourth                  | *                              | 7      | *                              | 12     | *                              | 19     |
| Highest                 | *                              | 2      | *                              | 13     | *                              | 15     |
| <b>Religion</b>         |                                |        |                                |        |                                |        |
| Catholic                | *                              | 4      | *                              | 23     | (93.8)                         | 27     |
| Protestant              | *                              | 11     | (96.0)                         | 25     | (97.1)                         | 36     |
| Muslim                  | *                              | 6      | *                              | 8      | *                              | 14     |
| Animist                 | *                              | 1      | *                              | 2      | *                              | 3      |
| Other Christian         | *                              | 0      | *                              | 4      | *                              | 4      |
| Other                   | *                              | 0      | *                              | 6      | *                              | 6      |
| None                    | *                              | 3      | *                              | 0      | *                              | 3      |
| <b>Ethnicity</b>        |                                |        |                                |        |                                |        |
| Arabe-Choa/Peul/Haoussa | *                              | 0      | *                              | 2      | *                              | 2      |
| Biu-Mandara             | *                              | 0      | *                              | 2      | *                              | 2      |
| Adamaoua-Oubangui       | *                              | 2      | *                              | 1      | *                              | 3      |
| Bantoide Sud-Ouest      | *                              | 1      | *                              | 1      | *                              | 2      |
| Grassfields Nord-Ouest  | *                              | 6      | *                              | 11     | *                              | 17     |
| Bamilike/Bamoun         | *                              | 6      | *                              | 10     | *                              | 16     |
| Cotier/Ngoe/Oroko       | *                              | 0      | *                              | 1      | *                              | 1      |
| Beti/Bassa/Mbam         | *                              | 5      | *                              | 24     | (90.5)                         | 29     |
| Kako/Maka               | *                              | 0      | *                              | 5      | *                              | 5      |
| Foreigner/Etranger      | *                              | 0      | *                              | 0      | *                              | 0      |
| No Tribe/Aucune         | *                              | 0      | *                              | 0      | *                              | 0      |
| Other                   | *                              | 5      | *                              | 11     | *                              | 16     |

**Table 11.C Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy LESS THAN 12 months before the survey** (continued)

Among HIV-positive adults aged 15-64 years who reported initiating ART less than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Male                           |        | Female                         |        | Total                          |        |
|----------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Age</b>     |                                |        |                                |        |                                |        |
| 15-19          | *                              | 0      | *                              | 1      | *                              | 1      |
| 20-24          | *                              | 0      | *                              | 4      | *                              | 4      |
| 25-29          | *                              | 2      | *                              | 9      | *                              | 11     |
| 30-34          | *                              | 5      | *                              | 11     | *                              | 16     |
| 35-39          | *                              | 5      | *                              | 17     | *                              | 22     |
| 40-44          | *                              | 4      | *                              | 7      | *                              | 11     |
| 45-49          | *                              | 3      | *                              | 6      | *                              | 9      |
| 50-54          | *                              | 1      | *                              | 2      | *                              | 3      |
| 55-59          | *                              | 1      | *                              | 9      | *                              | 10     |
| 60-64          | *                              | 4      | *                              | 2      | *                              | 6      |
| Total 15-24    | *                              | 0      | *                              | 5      | *                              | 5      |
| Total 15-49    | *                              | 19     | 90.1                           | 55     | 92.7                           | 74     |
| Total 15-64    | (100.0)                        | 25     | 92.0                           | 68     | 94.0                           | 93     |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 11.D Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy MORE THAN 12 months before the survey**

Among HIV-positive adults aged 15-64 years who reported initiating ART more than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                     | Male                           |        | Female                         |        | Total                          |        |
|------------------------------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                                    | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Presence of detectable ARVs</b> |                                |        |                                |        |                                |        |
| Detectable                         | 100.0                          | 70     | 100.0                          | 191    | 100.0                          | 261    |
| Not detectable                     | *                              | 8      | (71.9)                         | 28     | (75.2)                         | 36     |
| <b>Residence</b>                   |                                |        |                                |        |                                |        |
| Total urban                        | (98.7)                         | 39     | 97.1                           | 115    | 97.5                           | 154    |
| Douala and Yaounde                 | *                              | 14     | (97.5)                         | 38     | 98.2                           | 52     |
| Other urban                        | (97.7)                         | 25     | 96.9                           | 77     | 97.1                           | 102    |
| Rural                              | (100.0)                        | 40     | 95.8                           | 105    | 97.0                           | 145    |

**Table 11.D Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy MORE THAN 12 months before the survey (continued)**

Among HIV-positive adults aged 15-64 years who reported initiating ART more than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Male                           |        | Female                         |        | Total                          |        |
|----------------------------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                                  | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Region</b>                    |                                |        |                                |        |                                |        |
| Adamawa                          | *                              | 9      | *                              | 11     | *                              | 20     |
| Centre                           | *                              | 9      | (97.5)                         | 32     | (96.7)                         | 41     |
| Douala                           | *                              | 7      | *                              | 17     | *                              | 24     |
| East                             | *                              | 11     | (100.0)                        | 34     | (100.0)                        | 45     |
| Far North                        | *                              | 3      | *                              | 9      | *                              | 12     |
| Littoral                         | *                              | 3      | *                              | 4      | *                              | 7      |
| North                            | *                              | 3      | *                              | 5      | *                              | 8      |
| North West                       | *                              | 9      | (98.8)                         | 40     | (99.0)                         | 49     |
| South                            | *                              | 8      | *                              | 23     | (96.9)                         | 31     |
| South West                       | *                              | 5      | *                              | 10     | *                              | 15     |
| West                             | *                              | 5      | *                              | 14     | *                              | 19     |
| Yaounde                          | *                              | 7      | *                              | 21     | (100.0)                        | 28     |
| <b>Marital status</b>            |                                |        |                                |        |                                |        |
| Never married                    | *                              | 4      | *                              | 24     | (90.9)                         | 28     |
| Ever had sex                     | *                              | 3      | *                              | 22     | (92.5)                         | 25     |
| Never had sex                    | *                              | 1      | *                              | 2      | *                              | 3      |
| Missing whether had sex          | *                              | 0      | *                              | 0      | *                              | 0      |
| Married or living together       | 99.1                           | 57     | 97.3                           | 86     | 98.0                           | 143    |
| Divorced or separated            | *                              | 13     | 97.5                           | 57     | 98.0                           | 70     |
| Widowed                          | *                              | 5      | 97.7                           | 52     | 97.9                           | 57     |
| <b>Type of union</b>             |                                |        |                                |        |                                |        |
| In polygamous union              | *                              | 5      | *                              | 13     | *                              | 18     |
| Not in polygamous union          | 99.0                           | 52     | 98.0                           | 61     | 98.5                           | 113    |
| Not currently in union           | *                              | 22     | 96.0                           | 133    | 96.6                           | 155    |
| <b>Education</b>                 |                                |        |                                |        |                                |        |
| None                             | *                              | 6      | *                              | 20     | (96.7)                         | 26     |
| Primary                          | (100.0)                        | 25     | 97.5                           | 88     | 98.1                           | 113    |
| Secondary first cycle            | *                              | 24     | 95.7                           | 78     | 96.0                           | 102    |
| Secondary second cycle or higher | *                              | 24     | (96.8)                         | 34     | 98.3                           | 58     |

**Table 11.D Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy MORE THAN 12 months before the survey** (continued)

Among HIV-positive adults aged 15-64 years who reported initiating ART more than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Male                           |        | Female                         |        | Total                          |        |
|-------------------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                         | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Wealth quintile</b>  |                                |        |                                |        |                                |        |
| Lowest                  | *                              | 13     | *                              | 24     | (95.0)                         | 37     |
| Second                  | *                              | 17     | 95.7                           | 69     | 96.6                           | 86     |
| Middle                  | *                              | 16     | 97.7                           | 52     | 97.3                           | 68     |
| Fourth                  | *                              | 19     | (100.0)                        | 39     | 100.0                          | 58     |
| Highest                 | *                              | 14     | (94.5)                         | 36     | 96.4                           | 50     |
| <b>Religion</b>         |                                |        |                                |        |                                |        |
| Catholic                | (98.8)                         | 37     | 100.0                          | 81     | 99.6                           | 118    |
| Protestant              | *                              | 19     | 94.4                           | 70     | 95.3                           | 89     |
| Muslim                  | *                              | 7      | *                              | 22     | (100.0)                        | 29     |
| Animist                 | *                              | 2      | *                              | 3      | *                              | 5      |
| Other Christian         | *                              | 5      | (89.8)                         | 26     | (91.6)                         | 31     |
| Other                   | *                              | 3      | *                              | 11     | *                              | 14     |
| None                    | *                              | 6      | *                              | 6      | *                              | 12     |
| <b>Ethnicity</b>        |                                |        |                                |        |                                |        |
| Arabe-Choa/Peul/Haoussa | *                              | 3      | *                              | 8      | *                              | 11     |
| Biu-Mandara             | *                              | 3      | *                              | 2      | *                              | 5      |
| Adamaoua-Oubangui       | *                              | 3      | *                              | 2      | *                              | 5      |
| Bantoide Sud-Ouest      | *                              | 3      | *                              | 4      | *                              | 7      |
| Grassfields Nord-Ouest  | *                              | 12     | (99.0)                         | 44     | 99.2                           | 56     |
| Bamilike/Bamoun         | *                              | 15     | (97.7)                         | 38     | 98.4                           | 53     |
| Cotier/Ngoe/Oroko       | *                              | 1      | *                              | 8      | *                              | 9      |
| Beti/Bassa/Mbam         | *                              | 18     | 100.0                          | 58     | 100.0                          | 76     |
| Kako/Maka               | *                              | 4      | *                              | 18     | *                              | 22     |
| Foreigner/Etranger      | *                              | 0      | *                              | 1      | *                              | 1      |
| No Tribe/Aucune         | *                              | 0      | *                              | 0      | *                              | 0      |
| Other                   | *                              | 17     | (86.2)                         | 37     | 89.5                           | 54     |

**Table 11.D Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy MORE THAN 12 months before the survey** (continued)

Among HIV-positive adults aged 15-64 years who reported initiating ART more than 12 months before the survey, percentage who reported still receiving ART, by sex and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Male                           |        | Female                         |        | Total                          |        |
|----------------|--------------------------------|--------|--------------------------------|--------|--------------------------------|--------|
|                | Percentage still receiving ART | Number | Percentage still receiving ART | Number | Percentage still receiving ART | Number |
| <b>Age</b>     |                                |        |                                |        |                                |        |
| 15-19          | *                              | 1      | *                              | 2      | *                              | 3      |
| 20-24          | *                              | 0      | *                              | 10     | *                              | 10     |
| 25-29          | *                              | 2      | *                              | 18     | *                              | 20     |
| 30-34          | *                              | 6      | (92.0)                         | 36     | (92.9)                         | 42     |
| 35-39          | *                              | 9      | (100.0)                        | 38     | (100.0)                        | 47     |
| 40-44          | *                              | 17     | (96.9)                         | 39     | 98.0                           | 56     |
| 45-49          | *                              | 14     | (98.3)                         | 34     | (98.7)                         | 48     |
| 50-54          | *                              | 16     | (100.0)                        | 25     | (100.0)                        | 41     |
| 55-59          | *                              | 2      | *                              | 7      | *                              | 9      |
| 60-64          | *                              | 12     | *                              | 11     | *                              | 23     |
| Total 15-24    | *                              | 1      | *                              | 12     | *                              | 13     |
| Total 15-49    | (100.0)                        | 49     | 95.7                           | 177    | 96.7                           | 226    |
| Total 15-64    | 99.3                           | 79     | 96.6                           | 220    | 97.3                           | 299    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 11.E Resistance to antiretrovirals (ARVs)**

Among adults aged 15-64 years who were recently infected with HIV, percentage with resistance to ARVs, by class of ARV resistance, CAMPHIA 2017-2018

|  | Percent | Number | DR Mutations Detected <sup>1</sup>  |
|--|---------|--------|-------------------------------------|
| Successfully amplified <sup>2</sup>                    | 86.4    | 19     |                                     |
| Any  | 15.8    | 3      | K101KE, K103KN, K103N, M184V, M46MI |
| Nucleoside reverse transcriptase inhibitor (NRTI)      | 5.3     | 1      | M184V                               |
| Non-nucleoside reverse transcriptase inhibitor (NNRTI) | 10.5    | 2      | K101KE, K103KN, K103N               |
| Protease inhibitor (PI)                                | 5.3     | 1      | M46MI                               |
| NRTI & NNRTI   | 5.3     | 1      | K103N, M184V                        |
| NRTI, NNRTI & PI                                       | 0.0     | 0      |                                     |

<sup>1</sup>Based on Stanford Database for HIV Drug Resistance Mutation <https://hivdb.stanford.edu/assets/media/resistance-mutation-handout-feb2019.b0204a57.pdf>

<sup>2</sup>Unweighted figures, from a total of 22 cases.

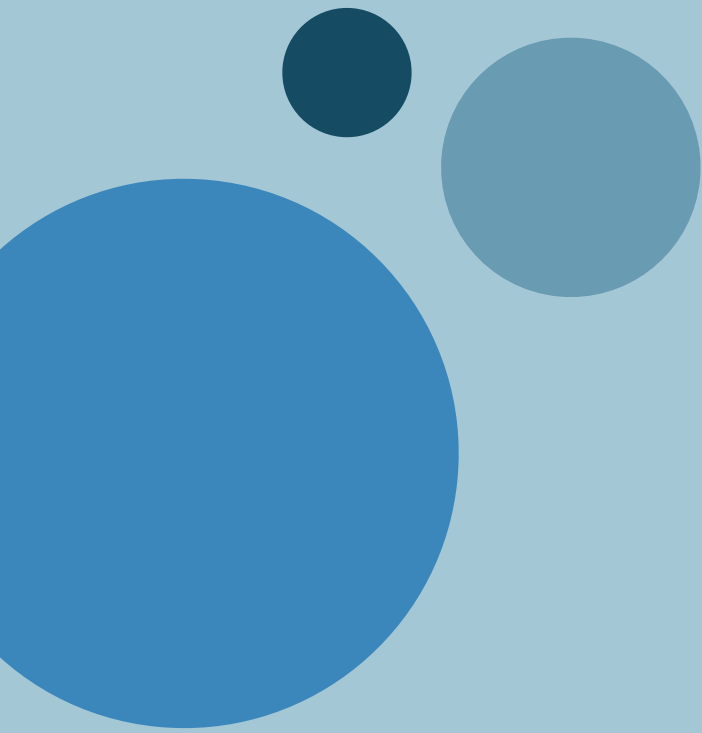
**Table 11.F HIV subtype**

| Percent distribution of HIV-positive adults aged 15-64 years who underwent genotyping, by HIV subtype, CAMPHIA 2017-2018 |         |        |
|--|---------|--------|
|  | Total   |        |
|  | Percent | Number |
| Subtype A  | 7.6     | 6      |
| Subtype B  | 0.0     | 0      |
| Subtype C  | 0.0     | 0      |
| Subtype D  | 0.0     | 0      |
| Subtype F  | 2.5     | 2      |
| Subtype G  | 6.3     | 5      |
| Subtype H  | 1.3     | 1      |
| Subtype J  | 2.5     | 2      |
| HIV-1 O group  | 1.3     | 1      |
| Recombinant  | 78.5    | 62     |
| Total  | 100.0   | 79     |

Unweighted figures.

### 11.3 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 September 2, 2019.



## 12. PREVENTION OF MOTHER-TO-CHILD TRANSMISSION



## 12.1 BACKGROUND

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

To prevent MTCT, WHO recommends a comprehensive four-pronged approach including: (1) primary prevention of HIV infection among women of childbearing age (henceforth referred to in this chapter as women); (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.<sup>2</sup>

## 12.2 RESULTS

The following tables present data on antenatal care (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.

**Table 12.A Antenatal care**

| Among women aged 15-49 years who delivered in the three years preceding the survey, percentage who attended at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, CAMPHIA 2017-2018 |  |        |
|---|--|--------|
| Characteristic  | Percentage who attended at least one ANC visit | Number |
| <b>Residence</b>  |  |        |
| Total urban   | 96.4   | 1,596  |
| Douala and Yaounde  | 97.8   | 621    |
| Other urban   | 95.4   | 975    |
| Rural   | 82.7   | 2,777  |
| <b>Region</b>   |  |        |
| Adamawa   | 78.0   | 370    |
| Centre  | 94.2   | 414    |
| Douala  | 98.1   | 287    |
| East  | 86.2   | 362    |
| Far North   | 75.5   | 731    |
| Littoral  | 97.0   | 142    |
| North   | 68.0   | 667    |
| North West  | 96.7   | 304    |
| South   | 95.1   | 269    |
| South West  | 97.2   | 186    |
| West  | 96.5   | 307    |
| Yaounde   | 97.6   | 334    |

**Table 12.A Antenatal care** (continued)

| Among women aged 15-49 years who delivered in the three years preceding the survey, percentage who attended at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, CAMPHIA 2017-2018 |  |        |
|---|--|--------|
| Characteristic  | Percentage who attended at least one ANC visit | Number |
| <b>Marital status</b>   |  |        |
| Never married   | 96.0   | 522    |
| Married or living together  | 88.0   | 3,426  |
| Divorced or separated   | 87.1   | 341    |
| Widowed   | 83.5   | 68     |
| <b>Type of union</b>  |  |        |
| In polygamous union   | 77.1   | 790    |
| Not in polygamous union   | 90.2   | 2,351  |
| Not currently in union  | 92.0   | 931    |
| <b>Education</b>  |  |        |
| None  | 69.3   | 1,116  |
| Primary   | 87.7   | 1,393  |
| Secondary first cycle   | 96.1   | 1,204  |
| Secondary second cycle or higher  | 99.2   | 650    |
| <b>Wealth quintile</b>  |  |        |
| Lowest  | 70.4   | 1,554  |
| Second  | 89.8   | 1,021  |
| Middle  | 96.8   | 713    |
| Fourth  | 97.4   | 585    |
| Highest   | 99.0   | 493    |
| <b>Religion</b>   |  |        |
| Catholic  | 92.7   | 1,492  |
| Protestant  | 90.3   | 1,048  |
| Muslim  | 83.0   | 1,103  |
| Animist   | 67.6   | 91     |
| Other Christian   | 92.5   | 263    |
| Other   | 94.5   | 217    |
| None  | 71.6   | 157    |
| <b>Ethnicity</b>  |  |        |
| Arabe-Choa/Peul/Haoussa   | 81.4   | 521    |
| Biu-Mandara   | 66.4   | 253    |
| Adamaoua-Oubangui   | 75.9   | 93     |
| Bantoide Sud-Ouest  | (97.0)   | 47     |
| Grassfields Nord-Ouest  | 98.0   | 358    |
| Bamilike/Bamoun   | 98.0   | 751    |
| Cotier/Ngoe/Oroko   | 97.7   | 66     |
| Beti/Bassa/Mbam   | 94.8   | 706    |

**Table 12.A Antenatal care** (continued)

| Among women aged 15-49 years who delivered in the three years preceding the survey, percentage who attended at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, CAMPHIA 2017-2018   |  |        |
|---|--|--------|
| Characteristic  | Percentage who attended at least one ANC visit | Number |
| <b>Ethnicity</b>  |  |        |
| Kako/Maka   | 82.4   | 153    |
| Foreigner/Etranger  | *  | 23     |
| No Tribe/Aucune   | *  | 3      |
| Other   | 79.7   | 1,394  |
| <b>Age</b>  |  |        |
| 15-19   | 87.6   | 447    |
| 20-24   | 89.8   | 1,135  |
| 25-29   | 87.9   | 1,238  |
| 30-34   | 89.2   | 860    |
| 35-39   | 90.7   | 492    |
| 40-44   | 88.0   | 165    |
| 45-49   | (81.4)   | 36     |
| Total 15-24   | 89.2   | 1,582  |
| Total 15-49   | 88.9   | 4,373  |
| Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the <i>Sampling and Weighting Technical Report</i> , available on the PHIA website at <a href="https://phia-data.icap.columbia.edu/files">https://phia-data.icap.columbia.edu/files</a> . |  |        |
| The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.  |  |        |
| Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.   |  |        |
| Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.   |  |        |

**Table 12.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, by child's age and mother's HIV status, CAMPHIA 2017-2018 |                 |   |                         |       |        |
|--|-----------------|---|-------------------------|-------|--------|
| Characteristic   | Never breastfed | Ever breastfed, but not currently breastfeeding | Currently breastfeeding | Total | Number |
| <b>Child's age (months)</b>  |                 |   |                         |       |        |
| 0-1  | 2.2             | 16.8  | 81.0                    | 100.0 | 297    |
| 2-3  | 0.7             | 21.5  | 77.8                    | 100.0 | 283    |
| 4-5  | 2.4             | 19.4  | 78.2                    | 100.0 | 256    |
| 6-8  | 2.0             | 28.3  | 69.8                    | 100.0 | 391    |
| 9-11   | 2.9             | 30.3  | 66.7                    | 100.0 | 388    |
| 12-17  | 1.6             | 55.3  | 43.1                    | 100.0 | 792    |
| 18-23  | 2.2             | 82.9  | 14.9                    | 100.0 | 605    |
| 24-36  | 2.7             | 90.7  | 6.6                     | 100.0 | 1,042  |

**Table 12.B Breastfeeding status by child's age and mother's HIV status (continued)**

| Percent distribution of last-born children born to women aged 15-49 years in the three years preceding the survey by breastfeeding status, by child's age and mother's HIV status, CAMPHIA 2017-2018 |                 |   |                         |       |        |
|--|-----------------|---|-------------------------|-------|--------|
| Characteristic   | Never breastfed | Ever breastfed, but not currently breastfeeding | Currently breastfeeding | Total | Number |
| <b>Result of mother's PHIA survey HIV test</b>   |                 |   |                         |       |        |
| HIV positive   | 15.9            | 58.5  | 25.6                    | 100.0 | 136    |
| HIV negative   | 1.6             | 55.8  | 42.6                    | 100.0 | 4,006  |
| Not tested   | 1.6             | 51.1  | 47.3                    | 100.0 | 194    |
| Total  | 2.1             | 55.6  | 42.3                    | 100.0 | 4,336  |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

**Table 12.C Prevention of mother-to-child transmission, known HIV status**

Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care (ANC) and received their results or who already knew they were HIV positive, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic     | Tested for HIV during<br>ANC and received results |                                       | Percentage who<br>already knew they<br>were HIV positive | Total percentage<br>with known HIV<br>status <sup>1</sup> | Number of women<br>who gave birth<br>within the past<br>12 months |
|--------------------|---|---------------------------------------|--|---|---|
|                    | Percentage who<br>tested HIV positive             | Percentage who<br>tested HIV negative |  |   |   |
| Residence          |   |                                       |  |   |   |
| Total urban        | 0.8   | 88.9                                  | 1.2  | 91.0  | 569   |
| Douala and Yaounde | 0.6   | 95.7                                  | 0.4  | 96.8  | 227   |
| Other urban        | 1.0   | 83.9                                  | 1.9  | 86.7  | 342   |
| Rural              | 0.9   | 69.2                                  | 1.3  | 71.4  | 794   |
| Region             |   |                                       |  |   |   |
| Adamawa            | 2.7   | 65.0                                  | 1.2  | 68.9  | 88  |
| Centre             | 0.5   | 86.6                                  | 3.3  | 90.4  | 139   |
| Douala             | 1.3   | 96.0                                  | 0.7  | 98.0  | 107   |
| East               | 1.0   | 72.1                                  | 2.0  | 75.2  | 121   |
| Far North          | 0.0   | 48.6                                  | 1.9  | 50.5  | 207   |
| Littoral           | (0.0)   | (85.1)                                | (1.5)  | (86.6)  | 46  |
| North              | 0.0   | 52.2                                  | 0.9  | 53.2  | 154   |
| North West         | 1.5   | 86.6                                  | 1.7  | 89.8  | 132   |
| South              | 0.0   | 82.6                                  | 1.0  | 83.6  | 82  |
| South West         | 0.0   | 85.2                                  | 0.3  | 85.5  | 63  |
| West               | 4.1   | 89.3                                  | 0.0  | 93.4  | 104   |
| Yaounde            | 0.0   | 95.5                                  | 0.0  | 95.5  | 120   |

**Table 12.C Prevention of mother-to-child transmission, known HIV status** (continued)

| Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care (ANC) and received their results or who already knew they were HIV positive, by selected demographic characteristics, CAMPHIA 2017-2018 |  |                                    |  |   |  |
|---|--|------------------------------------|--|---|--|
| Characteristic  | Tested for HIV during ANC and received results |                                    | Percentage who already knew they were HIV positive | Total percentage with known HIV status <sup>1</sup> | Number of women who gave birth within the past 12 months |
|   | Percentage who tested HIV positive             | Percentage who tested HIV negative |  |   |  |
| Type of union   |  |                                    |  |   |  |
| In polygamous union   | 0.0  | 61.3                               | 1.9  | 63.3  | 188  |
| Not in polygamous union   | 1.1  | 80.8                               | 0.7  | 82.5  | 777  |
| Not currently in union  | 1.1  | 81.1                               | 2.6  | 84.9  | 303  |
| Marital status  |  |                                    |  |   |  |
| Never married   | 0.5  | 84.8                               | 1.4  | 86.8  | 200  |
| Married or living together  | 0.8  | 78.2                               | 0.9  | 79.9  | 1,055  |
| Divorced or separated   | 2.6  | 73.4                               | 5.6  | 81.6  | 87   |
| Widowed   | *  | *                                  | *  | *   | 16   |
| Education   |  |                                    |  |   |  |
| None  | 1.1  | 44.0                               | 0.5  | 45.6  | 245  |
| Primary   | 1.1  | 70.6                               | 2.3  | 74.0  | 400  |
| Secondary first cycle   | 1.1  | 87.0                               | 1.2  | 89.2  | 447  |
| Secondary second cycle or higher  | 0.2  | 96.9                               | 0.7  | 97.8  | 270  |
| Wealth quintile   |  |                                    |  |   |  |
| Lowest  | 1.2  | 48.2                               | 1.3  | 50.7  | 382  |
| Second  | 0.0  | 74.5                               | 2.4  | 76.9  | 327  |
| Middle  | 0.0  | 88.5                               | 0.4  | 88.9  | 238  |
| Fourth  | 2.5  | 90.3                               | 0.6  | 93.4  | 220  |
| Highest   | 0.8  | 93.5                               | 1.5  | 95.8  | 195  |
| Religion  |  |                                    |  |   |  |
| Catholic  | 0.5  | 84.6                               | 1.8  | 86.8  | 505  |
| Protestant  | 2.1  | 80.7                               | 1.2  | 84.0  | 341  |
| Muslim  | 0.8  | 62.6                               | 0.5  | 63.9  | 307  |
| Animist   | *  | *                                  | *  | *   | 21   |
| Other Christian   | 0.0  | 83.6                               | 1.7  | 85.3  | 87   |
| Other   | 0.0  | 86.7                               | 0.7  | 87.5  | 71   |
| None  | (0.0)  | (72.1)                             | (0.0)  | (72.1)  | 31   |
| Ethnicity   |  |                                    |  |   |  |
| Arabe-Choa/Peul/Haoussa   | 1.7  | 63.9                               | 0.0  | 65.6  | 136  |
| Biu-Mandara   | 0.0  | 49.9                               | 0.0  | 49.9  | 50   |
| Adamaoua-Oubangui   | (2.6)  | (59.3)                             | (0.0)  | (62.0)  | 27   |
| Bantoide Sud-Ouest  | *  | *                                  | *  | *   | 17   |

**Table 12.C Prevention of mother-to-child transmission, known HIV status** (continued)

Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care (ANC) and received their results or who already knew they were HIV positive, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic         | Tested for HIV during<br>ANC and received results |                                       | Percentage who<br>already knew they<br>were HIV positive | Total percentage<br>with known HIV<br>status <sup>1</sup> | Number of women<br>who gave birth<br>within the past<br>12 months |
|------------------------|---|---------------------------------------|--|---|---|
|                        | Percentage who<br>tested HIV positive             | Percentage who<br>tested HIV negative |  |   |   |
| Grassfields Nord-Ouest | 1.3   | 84.7                                  | 2.6  | 88.6  | 143   |
| Bamilike/Bamoun        | 1.4   | 92.6                                  | 0.6  | 94.5  | 273   |
| Cotier/Ngoe/Oroko      | (0.0)   | (92.1)                                | (0.0)  | (92.1)  | 25  |
| Beti/Bassa/Mbam        | 0.3   | 88.5                                  | 2.3  | 91.1  | 228   |
| Kako/Maka              | (3.5)   | (82.1)                                | (0.0)  | (85.6)  | 42  |
| Foreigner/Etranger     | *   | *                                     | *  | *   | 10  |
| No Tribe/Aucune        | *   | *                                     | *  | *   | 0   |
| Other                  | 0.2   | 61.2                                  | 1.9  | 63.3  | 412   |
| <b>Age</b>             |   |                                       |  |   |   |
| 15-19                  | 1.5   | 69.2                                  | 0.0  | 70.6  | 180   |
| 20-24                  | 0.7   | 76.8                                  | 0.3  | 77.8  | 389   |
| 25-29                  | 0.2   | 84.1                                  | 1.0  | 85.3  | 378   |
| 30-34                  | 1.9   | 82.3                                  | 2.7  | 86.9  | 238   |
| 35-39                  | 0.6   | 80.0                                  | 1.5  | 82.1  | 134   |
| 40-44                  | (0.0)   | (69.0)                                | (7.4)  | (76.5)  | 37  |
| 45-49                  | *   | *                                     | *  | *   | 7   |
| Total 15-24            | 0.9   | 74.4                                  | 0.2  | 75.5  | 569   |
| Total 15-49            | 0.9   | 79.0                                  | 1.3  | 81.1  | 1,363   |

<sup>1</sup>Relates to PEPFAR PMTCT\_STAT\_NAT / SUBNAT: Percentage of pregnant women with known HIV status. Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 12.D Prevention of mother-to-child transmission, HIV-positive pregnant women who received antiretrovirals**

Among HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who received antiretrovirals (ARVs) during pregnancy to reduce the risk of mother-to-child transmission, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Percentage who were already on ARVs prior to pregnancy | Percentage who were newly initiated on ARVs during pregnancy or labor and delivery | Total percentage who received ARVs <sup>1</sup> | Number of HIV-positive women who gave birth within the prior 12 months |
|----------------------------------|--|--|---|--|
| <b>Residence</b>                 |  |  |   |  |
| Total urban                      | *  | *  | *   | 12   |
| Douala and Yaounde               | *  | *  | *   | 2  |
| Other urban                      | *  | *  | *   | 10   |
| Rural                            | *  | *  | *   | 14   |
| <b>Region</b>                    |  |  |   |  |
| Adamawa                          | *  | *  | *   | 3  |
| Centre                           | *  | *  | *   | 4  |
| Douala                           | *  | *  | *   | 2  |
| East                             | *  | *  | *   | 3  |
| Far North                        | *  | *  | *   | 3  |
| Littoral                         | *  | *  | *   | 1  |
| North                            | *  | *  | *   | 2  |
| North West                       | *  | *  | *   | 4  |
| South                            | *  | *  | *   | 1  |
| South West                       | *  | *  | *   | 1  |
| West                             | *  | *  | *   | 2  |
| Yaounde                          | *  | *  | *   | 0  |
| <b>Marital status</b>            |  |  |   |  |
| Never married                    | *  | *  | *   | 5  |
| Married or living together       | *  | *  | *   | 15   |
| Divorced or separated            | *  | *  | *   | 6  |
| Widowed                          | *  | *  | *   | 0  |
| <b>Type of union</b>             |  |  |   |  |
| In polygamous union              | *  | *  | *   | 2  |
| Not in polygamous union          | *  | *  | *   | 12   |
| Not currently in union           | *  | *  | *   | 11   |
| <b>Education</b>                 |  |  |   |  |
| None                             | *  | *  | *   | 3  |
| Primary                          | *  | *  | *   | 12   |
| Secondary first cycle            | *  | *  | *   | 9  |
| Secondary second cycle or higher | *  | *  | *   | 2  |

**Table 12.D Prevention of mother-to-child transmission, HIV-positive pregnant women who received antiretrovirals (ARVs) during pregnancy to reduce the risk of mother-to-child transmission, by selected demographic characteristics, CAMPHIA 2017-2018**  
(continued)

| Among HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who received antiretrovirals (ARVs) during pregnancy to reduce the risk of mother-to-child transmission, by selected demographic characteristics, CAMPHIA 2017-2018 |  |  |   |  |
|---|--|--|---|--|
| Characteristic  | Percentage who were already on ARVs prior to pregnancy | Percentage who were newly initiated on ARVs during pregnancy or labor and delivery | Total percentage who received ARVs <sup>1</sup> | Number of HIV-positive women who gave birth within the prior 12 months |
| <b>Wealth quintile</b>  |  |  |   |  |
| Lowest  | *  | *  | *   | 9  |
| Second  | *  | *  | *   | 6  |
| Middle  | *  | *  | *   | 1  |
| Fourth  | *  | *  | *   | 6  |
| Highest   | *  | *  | *   | 4  |
| <b>Religion</b>   |  |  |   |  |
| Catholic  | *  | *  | *   | 10   |
| Protestant  | *  | *  | *   | 11   |
| Muslim  | *  | *  | *   | 3  |
| Animist   | *  | *  | *   | 0  |
| Other Christian   | *  | *  | *   | 1  |
| Other   | *  | *  | *   | 1  |
| None  | *  | *  | *   | 0  |
| <b>Ethnicity</b>  |  |  |   |  |
| Arabe-Choja/Peul/Haoussa  | *  | *  | *   | 1  |
| Biu-Mandara   | *  | *  | *   | 0  |
| Adamaoua-Oubangui   | *  | *  | *   | 1  |
| Bantoide Sud-Ouest  | *  | *  | *   | 0  |
| Grassfields Nord-Ouest  | *  | *  | *   | 5  |
| Bamilike/Bamoun   | *  | *  | *   | 4  |
| Cotier/Ngoe/Oroko   | *  | *  | *   | 0  |
| Beti/Bassa/Mbam   | *  | *  | *   | 5  |
| Kako/Maka   | *  | *  | *   | 1  |
| Foreigner/Etranger  | *  | *  | *   | 0  |
| No Tribe/Aucune   | *  | *  | *   | 0  |
| Other   | *  | *  | *   | 9  |



**Table 12.D Prevention of mother-to-child transmission, HIV-positive pregnant women who received antiretrovirals (continued)**

**Among HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who received antiretrovirals (ARVs) during pregnancy to reduce the risk of mother-to-child transmission, by selected demographic characteristics, CAMPHIA 2017-2018**

| Characteristic | Percentage who were already on ARVs prior to pregnancy | Percentage who were newly initiated on ARVs during pregnancy or labor and delivery | Total percentage who received ARVs <sup>1</sup> | Number of HIV-positive women who gave birth within the prior 12 months |
|----------------|--|--|---|--|
| <b>Age</b>     |  |  |   |  |
| 15-19          | *  | *  | *   | 2  |
| 20-24          | *  | *  | *   | 5  |
| 25-29          | *  | *  | *   | 6  |
| 30-34          | *  | *  | *   | 8  |
| 35-39          | *  | *  | *   | 3  |
| 40-44          | *  | *  | *   | 2  |
| 45-49          | *  | *  | *   | 0  |
| Total 15-24    | *  | *  | *   | <b>7</b>   |
| Total 15-49    | (50.5)   | (40.9)   | (91.3)  | 26   |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 2020 2.3: Preventing mother-to-child transmission of HIV.  
 Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>  
 Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.  
 Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

**Table 12.E Mother-to-child transmission of HIV**

**Among infants born in the last 17 months to HIV-positive women aged 15-49 years, percentage exposed to HIV and percentage confirmed positive for HIV infection, by mother's self-reported antiretroviral (ARV) and breastfeeding status, CAMPHIA 2017-2018**

| Characteristic   | Percentage of infants confirmed HIV positive <sup>1</sup> | Number of infants born to HIV-positive women <sup>2</sup> |
|--|---|---|
| <b>Mother's self-reported ARV status</b>                       |   |   |
| Mother unaware of HIV status during pregnancy                  | *   | 6   |
| Already on ARVs at first antenatal visit                       | *   | 3   |
| Newly initiated on ARVs during pregnancy or labor and delivery | *   | 4   |
| Did not receive ARVs during pregnancy                          | *   | 1   |
| Missing self-reported ARV status during pregnancy              | *   | 9   |
| <b>Mother's self-reported breastfeeding status</b>             |   |   |
| Ever breastfed the infant                                      | *   | 18  |
| Never breastfed the infant                                     | *   | 3   |
| Missing breastfeeding status                                   | *   | 2   |
| Total 0-11 months  | *   | 17  |
| Total 0-17 months  | *   | 23  |

<sup>1</sup>Relates to GAM 2.2 Mother-to-child transmission of HIV; <sup>2</sup>Includes only infants who were tested for HIV during the PHIA survey.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

### 12.3 REFERENCES

1. De Cock KM, Fowler MG, Mercier E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. *JAMA*, 2000, 283:1175–1182. doi:10.1001/jama.283.9.1175.
2. World Health Organization. *Towards the elimination of mother-to-child transmission of HIV: report of a WHO technical consultation*. Geneva: World Health Organization; 2011. [http://apps.who.int/iris/bitstream/handle/10665/44638/9789241501910\\_eng.pdf;jsessionid=CD35DAE3C3D00349A9B149BCFF9262C4?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/44638/9789241501910_eng.pdf;jsessionid=CD35DAE3C3D00349A9B149BCFF9262C4?sequence=1). Accessed September 2, 2019.



## 13. YOUNG PEOPLE

## 13.1 BACKGROUND

One-third of the population of sub-Saharan Africa is between the ages of 10-24 years.<sup>1</sup> Young people (the population including both older adolescents aged 15-19 years and young adults aged 20-24) are more likely to engage in risky sexual behaviors than older adults and have less frequent contact with the healthcare system. Control of HIV in this demographic is critical for long-term epidemic control but is also particularly challenging.

## 13.2 RESULTS

Table 13.A shows the prevalence of early sexual debut before 15 years of age among young men and women, by marital status, region, and socio-demographic characteristics.

Figure 13.A reports on the 90-90-90 targets for young people.

**Table 13.A Sex before the age of 15 years**

| Percentage of young people (male and female) aged 15–24 years who reported they had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, CAMPHIA 2017-2018 |  |        |  |        |  |        |
|---|--|--------|--|--------|--|--------|
| Characteristic  | Male                                       |        | Female                                     |        | Total                                      |        |
|   | Percentage who had sex before age 15 years | Number | Percentage who had sex before age 15 years | Number | Percentage who had sex before age 15 years | Number |
| <b>Residence</b>  |  |        |  |        |  |        |
| Total urban   | 20.2                                       | 1,037  | 10.5                                       | 1,420  | 15.2                                       | 2,457  |
| Douala and Yaounde  | 20.1                                       | 460    | 6.6  | 580    | 13.4                                       | 1,040  |
| Other urban   | 20.3                                       | 577    | 13.4                                       | 840    | 16.7                                       | 1,417  |
| Rural   | 21.5                                       | 1,207  | 21.0                                       | 2,007  | 21.2                                       | 3,214  |
| <b>Region</b>   |  |        |  |        |  |        |
| Adamawa   | 16.5                                       | 169    | 20.6                                       | 281    | 18.6                                       | 450    |
| Centre  | 25.1                                       | 288    | 16.6                                       | 340    | 21.0                                       | 628    |
| Douala  | 19.2                                       | 197    | 5.2  | 274    | 12.0                                       | 471    |
| East  | 29.0                                       | 217    | 36.9                                       | 337    | 33.3                                       | 554    |
| Far North   | 15.4                                       | 176    | 18.3                                       | 415    | 17.3                                       | 591    |
| Littoral  | 21.3                                       | 73     | 9.6  | 97     | 15.1                                       | 170    |
| North   | 18.0                                       | 176    | 23.9                                       | 386    | 21.7                                       | 562    |
| North West  | 17.3                                       | 171    | 17.1                                       | 288    | 17.2                                       | 459    |
| South   | 28.7                                       | 181    | 22.3                                       | 215    | 25.4                                       | 396    |
| South West  | 21.4                                       | 137    | 10.8                                       | 198    | 15.6                                       | 335    |
| West  | 16.8                                       | 196    | 12.5                                       | 290    | 14.5                                       | 486    |
| Yaounde   | 20.9                                       | 263    | 8.2  | 306    | 14.8                                       | 569    |

**Table 13.A Sex before the age of 15 years** (continued)

| Percentage of young people (male and female) aged 15–24 years who reported they had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, CAMPHIA 2017-2018 |  |        |  |        |  |        |
|---|--|--------|--|--------|--|--------|
| Characteristic  | Male                                       |        | Female                                     |        | Total                                      |        |
|   | Percentage who had sex before age 15 years | Number | Percentage who had sex before age 15 years | Number | Percentage who had sex before age 15 years | Number |
| <b>Marital status</b>   |  |        |  |        |  |        |
| Never married   | 21.1                                       | 1,728  | 10.8                                       | 1,373  | 16.9                                       | 3,101  |
| Married or living together  | 17.5                                       | 358    | 20.3                                       | 1,757  | 19.8                                       | 2,115  |
| Divorced or separated   | 24.0                                       | 152    | 18.5                                       | 273    | 20.9                                       | 425    |
| Widowed   | *  | 1      | *  | 14     | *  | 15     |
| <b>Type of union</b>  |  |        |  |        |  |        |
| In polygamous union   | (22.0)                                     | 36     | 28.0                                       | 348    | 27.2                                       | 384    |
| Not in polygamous union   | 17.2                                       | 319    | 18.9                                       | 1,240  | 18.5                                       | 1,559  |
| Not currently in union  | 21.3                                       | 1,881  | 12.0                                       | 1,660  | 17.3                                       | 3,541  |
| <b>Education</b>  |  |        |  |        |  |        |
| None  | 11.3                                       | 76     | 28.2                                       | 556    | 25.4                                       | 632    |
| Primary   | 22.6                                       | 355    | 30.3                                       | 800    | 27.5                                       | 1,155  |
| Secondary first cycle   | 27.2                                       | 979    | 14.6                                       | 1,223  | 20.6                                       | 2,202  |
| Secondary second cycle or higher  | 14.7                                       | 833    | 2.8  | 844    | 9.3  | 1,677  |
| <b>Wealth quintile</b>  |  |        |  |        |  |        |
| Lowest  | 23.6                                       | 479    | 27.2                                       | 912    | 25.8                                       | 1,391  |
| Second  | 21.5                                       | 459    | 21.9                                       | 833    | 21.7                                       | 1,292  |
| Middle  | 20.6                                       | 523    | 16.3                                       | 664    | 18.4                                       | 1,187  |
| Fourth  | 21.6                                       | 446    | 8.3  | 542    | 15.0                                       | 988    |
| Highest   | 17.3                                       | 337    | 4.6  | 472    | 10.6                                       | 809    |
| <b>Religion</b>   |  |        |  |        |  |        |
| Catholic  | 19.9                                       | 926    | 11.0                                       | 1,261  | 15.3                                       | 2,187  |
| Protestant  | 20.2                                       | 547    | 16.3                                       | 849    | 18.0                                       | 1,396  |
| Muslim  | 19.2                                       | 400    | 23.7                                       | 800    | 21.9                                       | 1,200  |
| Animist   | *  | 24     | (24.6)                                     | 40     | 27.5                                       | 64     |
| Other Christian   | 25.5                                       | 132    | 16.8                                       | 219    | 20.6                                       | 351    |
| Other   | 25.6                                       | 99     | 17.2                                       | 177    | 20.7                                       | 276    |
| None  | 24.6                                       | 114    | 16.5                                       | 77     | 22.2                                       | 191    |

**Table 13.A Sex before the age of 15 years (continued)**

Percentage of young people (male and female) aged 15–24 years who reported they had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, CAMPHIA 2017–2018

| Characteristic          | Male                                       |        | Female                                     |        | Total                                      |        |
|-------------------------|--|--------|--|--------|--|--------|
|                         | Percentage who had sex before age 15 years | Number | Percentage who had sex before age 15 years | Number | Percentage who had sex before age 15 years | Number |
| <b>Ethnicity</b>        |  |        |  |        |  |        |
| Arabe-Choa/Peul/Haoussa | 20.2                                       | 159    | 23.1                                       | 365    | 22.0                                       | 524    |
| Biu-Mandara             | 9.3  | 65     | 16.3                                       | 130    | 13.5                                       | 195    |
| Adamaoua-Oubangui       | 21.9                                       | 65     | 27.3                                       | 83     | 24.5                                       | 148    |
| Bantoide Sud-Ouest      | (14.4)                                     | 45     | 11.1                                       | 55     | 12.8                                       | 100    |
| Grassfields Nord-Ouest  | 17.6                                       | 213    | 14.1                                       | 331    | 15.7                                       | 544    |
| Bamileke/Bamoun         | 16.2                                       | 441    | 7.1  | 629    | 11.3                                       | 1,070  |
| Cotier/Ngoe/Oroko       | 26.9                                       | 55     | 6.1  | 73     | 16.2                                       | 128    |
| Beti/Bassa/Mbam         | 25.9                                       | 558    | 16.1                                       | 616    | 21.3                                       | 1,174  |
| Kako/Maka               | 37.0                                       | 77     | 39.4                                       | 155    | 38.5                                       | 232    |
| Foreigner/Etranger      | *  | 11     | *  | 19     | (17.2)                                     | 30     |
| No Tribe/Aucune         | *  | 0      | *  | 2      | *  | 2      |
| Other                   | 21.4                                       | 553    | 19.7                                       | 961    | 20.4                                       | 1,514  |
| <b>Age</b>              |  |        |  |        |  |        |
| 15-19                   | 30.3                                       | 752    | 20.6                                       | 1,260  | 24.8                                       | 2,012  |
| 20-24                   | 16.1                                       | 1,492  | 12.9                                       | 2,167  | 14.4                                       | 3,659  |
| Total 15-24             | 20.8                                       | 2,244  | 15.8                                       | 3,427  | 18.1                                       | 5,671  |

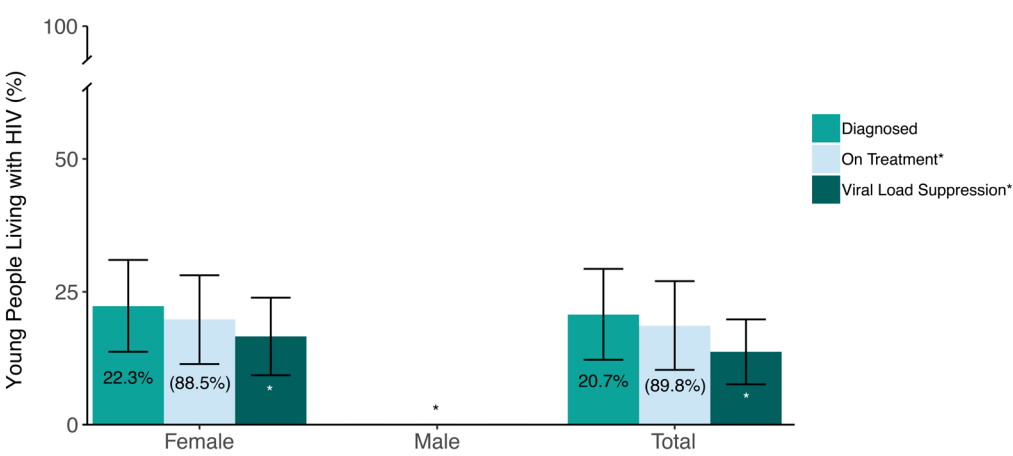
Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

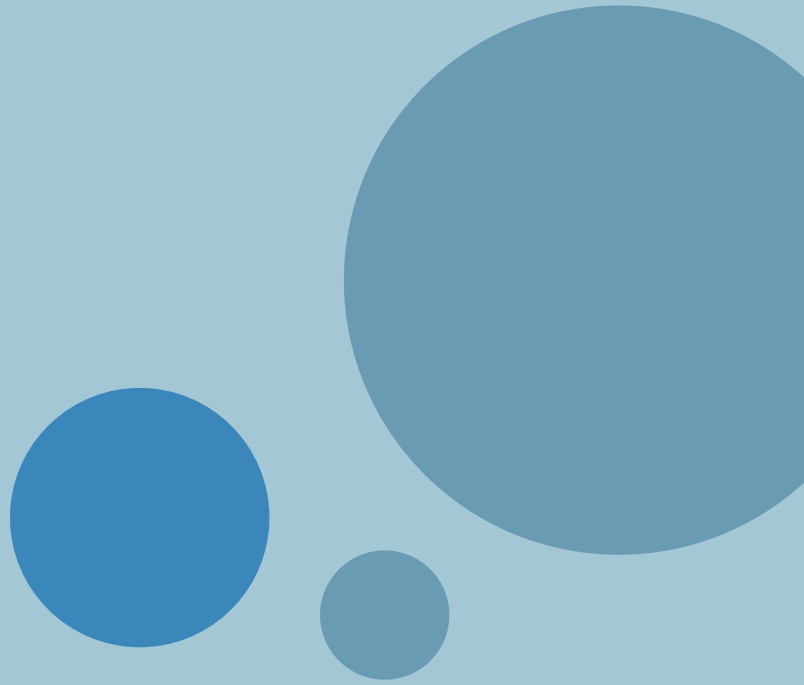
**Figure 13.A**  
Young people 90-90-90 (based on self-report and laboratory ARV-adjusted data among young people aged 15-24 years), CAMPHIA 2017-2018



Note: In the antiretroviral (ARV)-adjusted 90-90-90, participants are classified as “aware” or “diagnosed” if they reported knowing their HIV-positive status before testing positive in CAMPHIA or had detectable ARVs in their blood. Participants are classified as “on treatment” if they reported that they were on treatment or if they had detectable ARVs in their blood.  
\*Estimates with an asterisk are based on small number (a denominator of less than 25) and have been suppressed.  
( ) Estimates in parentheses are based on a denominator between 25-49 and should be interpreted with caution.

13.3 REFERENCES

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## 14. CHILDREN



## 14.1 BACKGROUND

It is essential that children have accurate information about HIV prevention in order to protect themselves as they become sexually active. CAMPHIA administered a questionnaire to young adolescents aged 10-14 years in order to assess their knowledge of HIV prevention. The survey asked young adolescents whether they had heard of HIV, and then whether they agreed or disagreed with both accurate and inaccurate statements about HIV prevention.

Note: In other PHIA, this chapter would present estimates of HIV prevalence in children (those aged 0-14 years), estimates of children living with HIV, and VLS among children, which are critical for meeting the needs of pediatric HIV treatment; planning for HIV prevention, care and treatment services for children; evaluating PMTCT programs; and addressing specific needs of children. Such estimates are most commonly derived indirectly from clinic-based data or epidemiologic models. In Cameroon, CAMPHIA attempted to provide direct measurements of these estimates among children. However, aside from HIV prevalence (0.2%; 0.3% in boys and 0.1% in girls, Table 6.C), the number of children living with HIV identified in CAMPHIA (14) was too small to make reliable estimates.

## 14.2 RESULTS

Table 14.A reports the percentage of adolescent boys and girls in Cameroon who had heard of HIV. Tables 14.B, 14.C, and 14.D presents HIV prevention knowledge among adolescent girls and boys, disaggregated by whether they lived in rural or urban settings, by region, and socio-economic status (wealth quintile).

**Table 14.A Young adolescents: HIV knowledge**

| Percentage of young adolescents aged 10-14 years who have heard of HIV, by gender, CAMPHIA 2017-2018  |                                  |        |
|---|----------------------------------|--------|
| Characteristic  | Percentage who have heard of HIV | Number |
| <b>Gender</b>   |                                  |        |
| Boys  | 55.8                             | 1,101  |
| Girls   | 55.7                             | 1,083  |
| Total 10-14   | 55.8                             | 2,184  |
| Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the <i>Sampling and Weighting Technical Report</i> , available on the PHIA website at <a href="https://phia-data.icap.columbia.edu/files">https://phia-data.icap.columbia.edu/files</a> . |                                  |        |

**Table 14.B Young adolescents: Knowledge about HIV prevention: Boys**

Among young adolescent boys aged 10-14 years who had heard of HIV, percentage who correctly identified ways of preventing the sexual transmission of HIV and rejected major misconceptions about HIV transmission, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic     | Percentage who correctly answered the questions:                   |   |  |  |   |   |   |  |                                    | Number |
|--------------------|--|---|--|--|---|---|---|--|------------------------------------|--------|
|                    | Can a person reduce their chance of getting HIV by not having sex? | Can a person reduce their chance of getting HIV by using condoms when having sex? | Can a healthy-looking person have HIV or AIDS? | Can a mother with HIV or AIDS pass HIV to her unborn baby? | Are there medicines that people with HIV or AIDS can take to help them live longer? | Can male circumcision help prevent HIV infection? | If people with HIV take ARVs, are they less likely to spread the virus to other people? | Can ARVs rid HIV from an HIV-positive person's body? | Percent who answered ALL correctly |        |
| Residence          |  |   |  |  |   |   |   |  |                                    |        |
| Total urban        | 69.2   | 65.2  | 63.0   | 75.7   | 71.8  | 17.8  | 40.6  | 54.6   | 3.5                                | 280    |
| Douala and Yaounde | 71.3   | 65.6  | 68.2   | 81.1   | 77.4  | 16.7  | 40.9  | 54.1   | 4.3                                | 105    |
| Other urban        | 67.8   | 64.9  | 59.4   | 72.0   | 67.8  | 18.5  | 40.4  | 54.9   | 2.9                                | 175    |
| Rural              | 59.8   | 50.5  | 43.8   | 51.3   | 55.2  | 22.8  | 35.6  | 42.3   | 1.8                                | 266    |
| Region             |  |   |  |  |   |   |   |  |                                    |        |
| Adamawa            | (69.5)   | (64.3)  | (40.5)   | (61.5)   | (49.1)  | (12.7)  | (26.1)  | (50.1)   | (0.0)                              | 27     |
| Centre             | 73.8   | 66.6  | 61.0   | 75.0   | 73.1  | 22.9  | 38.4  | 62.4   | 7.6                                | 71     |
| Douala             | 67.4   | 65.4  | 63.3   | 78.8   | 75.5  | 15.6  | 37.6  | 50.7   | 3.0                                | 50     |
| East               | (55.4)   | (58.2)  | (58.2)   | (59.8)   | (62.5)  | (11.2)  | (47.0)  | (35.1)   | (0.0)                              | 40     |
| Far North          | 50.2   | 52.5  | 42.8   | 39.8   | 31.1  | 9.8   | 31.5  | 30.9   | 0.0                                | 64     |
| Littoral           | *  | *   | *  | *  | *   | *   | *   | *  | *                                  | 22     |
| North              | (59.8)   | (44.8)  | (53.6)   | (49.1)   | (46.9)  | (35.1)  | (42.9)  | (43.5)   | (5.8)                              | 36     |
| North West         | (74.3)   | (65.4)  | (43.7)   | (68.7)   | (75.3)  | (22.3)  | (38.5)  | (47.1)   | (4.0)                              | 46     |
| South              | (59.7)   | (61.5)  | (52.9)   | (79.8)   | (79.2)  | (19.1)  | (37.0)  | (26.8)   | 0.0                                | 34     |
| South West         | *  | *   | *  | *  | *   | *   | *   | *  | *                                  | 21     |
| West               | 60.3   | 53.9  | 44.2   | 50.4   | 59.5  | 23.0  | 41.9  | 53.4   | 1.7                                | 80     |
| Yaounde            | 75.6   | 65.9  | 73.7   | 83.7   | 79.5  | 18.0  | 44.4  | 57.9   | 5.8                                | 55     |
| Wealth quintile    |  |   |  |  |   |   |   |  |                                    |        |
| Lowest             | 55.8   | 42.2  | 33.3   | 41.7   | 49.6  | 11.5  | 32.7  | 32.5   | 0.0                                | 102    |
| Second             | 59.9   | 55.3  | 42.6   | 55.2   | 49.3  | 26.3  | 34.9  | 41.2   | 2.9                                | 137    |
| Middle             | 63.8   | 60.5  | 56.7   | 65.4   | 72.5  | 22.9  | 36.9  | 51.2   | 3.0                                | 124    |
| Fourth             | 63.6   | 59.8  | 62.9   | 76.4   | 73.0  | 17.9  | 44.3  | 53.0   | 2.6                                | 95     |
| Highest            | 80.6   | 71.6  | 72.9   | 81.3   | 75.3  | 17.5  | 42.6  | 64.4   | 4.4                                | 87     |
| Total 10-14        | 65.2   | 58.9  | 54.8   | 65.3   | 64.7  | 19.9  | 38.5  | 49.3   | 2.8                                | 546    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 14.C Young adolescents: Knowledge about HIV prevention: Girls**

Among young adolescent girls aged 10-14 years who had heard of HIV, percentage who correctly identified ways of preventing the sexual transmission of HIV and rejected major misconceptions about HIV transmission, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic     | Percentage who correctly answered the questions:                   |   |  |  |   |   |   |  |                                    | Number |
|--------------------|--|---|--|--|---|---|---|--|------------------------------------|--------|
|                    | Can a person reduce their chance of getting HIV by not having sex? | Can a person reduce their chance of getting HIV by using condoms when having sex? | Can a healthy-looking person have HIV or AIDS? | Can a mother with HIV or AIDS pass HIV to her unborn baby? | Are there medicines that people with HIV or AIDS can take to help them live longer? | Can male circumcision help prevent HIV infection? | If people with HIV take ARVs, are they less likely to spread the virus to other people? | Can ARVs rid HIV from an HIV-positive person's body? | Percent who answered ALL correctly |        |
| Residence          |  |   |  |  |   |   |   |  |                                    |        |
| Total urban        | 61.1   | 56.5  | 59.5   | 69.8   | 67.9  | 16.4  | 38.9  | 51.9   | 3.4                                | 287    |
| Douala and Yaounde | 67.0   | 61.9  | 65.5   | 75.4   | 73.9  | 18.7  | 42.2  | 58.4   | 4.9                                | 121    |
| Other urban        | 55.7   | 51.5  | 54.0   | 64.6   | 62.4  | 14.4  | 35.8  | 46.0   | 1.9                                | 166    |
| Rural              | 56.5   | 44.4  | 41.2   | 54.0   | 59.8  | 17.0  | 37.0  | 40.4   | 1.0                                | 233    |
| Region             |  |   |  |  |   |   |   |  |                                    |        |
| Adamawa            | (64.1)   | (47.9)  | (39.0)   | (57.1)   | (55.0)  | (7.4)   | (25.6)  | (21.0)   | (0.0)                              | 36     |
| Centre             | 63.8   | 62.2  | 53.5   | 70.6   | 67.1  | 21.8  | 41.6  | 56.3   | 0.0                                | 56     |
| Douala             | 69.0   | 69.0  | 70.2   | 77.2   | 80.8  | 20.0  | 44.4  | 52.7   | 4.6                                | 60     |
| East               | (57.1)   | (47.0)  | (52.3)   | (61.6)   | (68.0)  | (16.0)  | (35.1)  | (34.7)   | 5.5                                | 45     |
| Far North          | (46.7)   | (39.9)  | (41.1)   | (51.0)   | (50.7)  | (11.8)  | (38.0)  | (20.6)   | 0.0                                | 42     |
| Littoral           | *  | *   | *  | *  | *   | *   | *   | *  | *                                  | 12     |
| North              | (48.0)   | (46.7)  | (32.8)   | (63.8)   | (47.2)  | (17.3)  | (29.2)  | (35.0)   | (0.0)                              | 33     |
| North West         | 67.1   | 34.9  | 52.4   | 64.2   | 79.5  | 18.1  | 48.8  | 50.7   | 2.8                                | 52     |
| South              | (40.5)   | (42.5)  | (29.9)   | (73.8)   | (69.0)  | (7.8)   | (40.5)  | (49.6)   | (0.0)                              | 34     |
| South West         | (59.2)   | (43.1)  | (56.5)   | (56.7)   | (79.1)  | (20.3)  | (35.6)  | (40.6)   | (0.0)                              | 30     |
| West               | 57.0   | 49.9  | 42.8   | 49.1   | 47.9  | 14.0  | 30.4  | 51.9   | 3.1                                | 59     |
| Yaounde            | 64.7   | 53.8  | 60.0   | 73.3   | 65.9  | 17.1  | 39.5  | 64.9   | 5.3                                | 61     |
| Wealth quintile    |  |   |  |  |   |   |   |  |                                    |        |
| Lowest             | 48.5   | 37.8  | 30.2   | 45.2   | 42.5  | 12.6  | 30.4  | 32.6   | 0.0                                | 80     |
| Second             | 52.1   | 46.9  | 44.9   | 55.9   | 68.6  | 15.7  | 39.7  | 38.9   | 2.2                                | 137    |
| Middle             | 57.3   | 45.1  | 44.3   | 65.9   | 64.6  | 15.0  | 41.1  | 47.4   | 0.0                                | 111    |
| Fourth             | 67.2   | 62.5  | 64.6   | 66.3   | 62.9  | 19.5  | 34.0  | 51.2   | 4.9                                | 95     |
| Highest            | 66.1   | 60.4  | 67.8   | 76.4   | 73.7  | 18.3  | 41.5  | 60.0   | 4.0                                | 97     |
| Total 10-14        | 59.4   | 52.1  | 52.8   | 64.0   | 65.0  | 16.6  | 38.2  | 47.7   | 2.5                                | 520    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

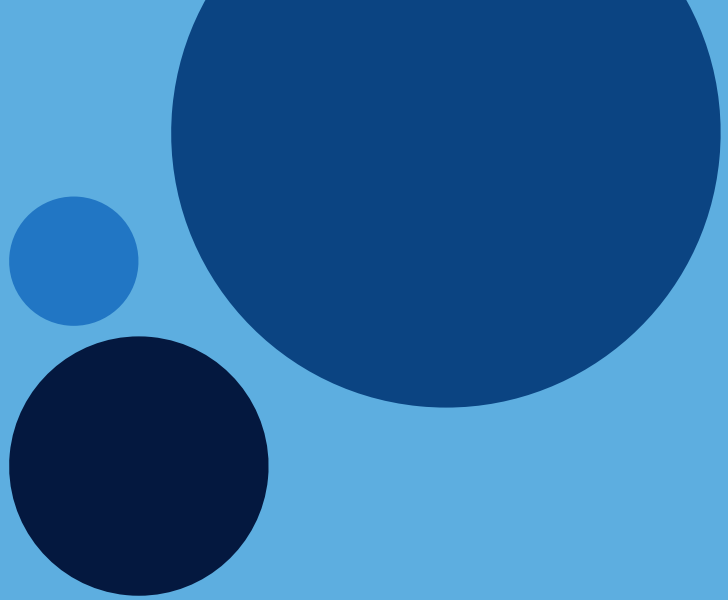
**Table 14.D Young adolescents: Knowledge about HIV prevention: Total**

| Among young adolescents aged 10-14 years who had heard of HIV, percentage who correctly identified ways of preventing the sexual transmission of HIV and rejected major misconceptions about HIV transmission, by selected demographic characteristics, CAMPHIA 2017-2018 |  |   |  |  |   |   |   |  |                                    |        |
|---|--|---|--|--|---|---|---|--|------------------------------------|--------|
| Percentage who correctly answered the questions:  |  |   |  |  |   |   |   |  |                                    |        |
| Characteristic  | Can a person reduce their chance of getting HIV by not having sex? | Can a person reduce their chance of getting HIV by using condoms when having sex? | Can a healthy-looking person have HIV or AIDS? | Can a mother with HIV or AIDS pass HIV to her unborn baby? | Are there medicines that people with HIV or AIDS can take to help them live longer? | Can male circumcision help prevent HIV infection? | If people with HIV take ARVs, are they less likely to spread the virus to other people? | Can ARVs rid HIV from an HIV-positive person's body? | Percent who answered ALL correctly | Number |
| <b>Residence</b>  |  |   |  |  |   |   |   |  |                                    |        |
| Total urban   | 65.0   | 60.7  | 61.2   | 72.6   | 69.8  | 17.1  | 39.7  | 53.2   | 3.4                                | 567    |
| Douala and Yaounde  | 68.9   | 63.6  | 66.7   | 77.9   | 75.4  | 17.8  | 41.6  | 56.5   | 4.7                                | 226    |
| Other urban   | 61.8   | 58.3  | 56.8   | 68.4   | 65.2  | 16.5  | 38.2  | 50.5   | 2.4                                | 341    |
| Rural   | 58.3   | 47.7  | 42.7   | 52.5   | 57.3  | 20.2  | 36.3  | 41.5   | 1.4                                | 499    |
| <b>Region</b>   |  |   |  |  |   |   |   |  |                                    |        |
| Adamawa   | 66.5   | 55.2  | 39.6   | 59.1   | 52.4  | 9.8   | 25.8  | 34.0   | 0.0                                | 63     |
| Centre  | 69.4   | 64.6  | 57.6   | 73.1   | 70.4  | 22.4  | 39.8  | 59.7   | 4.2                                | 127    |
| Douala  | 68.3   | 67.4  | 67.2   | 77.9   | 78.5  | 18.1  | 41.5  | 51.8   | 3.9                                | 110    |
| East  | 56.3   | 52.3  | 55.1   | 60.8   | 65.4  | 13.7  | 40.7  | 34.8   | 2.9                                | 85     |
| Far North   | 48.7   | 47.2  | 42.1   | 44.5   | 39.4  | 10.6  | 34.2  | 26.6   | 0.0                                | 106    |
| Littoral  | (53.3)   | (54.7)  | (47.3)   | (60.5)   | (51.5)  | (26.4)  | (28.3)  | (46.3)   | (0.0)                              | 34     |
| North   | 54.1   | 45.7  | 43.6   | 56.1   | 47.0  | 26.5  | 36.3  | 39.4   | 3.0                                | 69     |
| North West  | 70.4   | 48.7  | 48.5   | 66.2   | 77.6  | 20.0  | 44.2  | 49.1   | 3.4                                | 98     |
| South   | 49.0   | 50.9  | 40.0   | 76.5   | 73.5  | 12.8  | 38.9  | 39.5   | 0.0                                | 68     |
| South West  | 63.9   | 47.0  | 66.7   | 63.8   | 77.0  | 18.3  | 37.4  | 46.9   | 0.0                                | 51     |
| West  | 58.9   | 52.2  | 43.6   | 49.9   | 54.6  | 19.2  | 37.1  | 52.8   | 2.3                                | 139    |
| Yaounde   | 69.6   | 59.2  | 66.2   | 78.0   | 72.0  | 17.5  | 41.7  | 61.7   | 5.5                                | 116    |
| <b>Wealth quintile</b>  |  |   |  |  |   |   |   |  |                                    |        |
| Lowest  | 52.7   | 40.3  | 32.0   | 43.2   | 46.6  | 11.9  | 31.7  | 32.6   | 0.0                                | 182    |
| Second  | 56.0   | 51.1  | 43.7   | 55.6   | 58.9  | 21.0  | 37.3  | 40.1   | 2.6                                | 274    |
| Middle  | 60.7   | 53.1  | 50.8   | 65.6   | 68.7  | 19.1  | 38.9  | 49.3   | 1.6                                | 235    |
| Fourth  | 65.4   | 61.1  | 63.7   | 71.2   | 67.8  | 18.7  | 39.0  | 52.1   | 3.8                                | 190    |
| Highest   | 72.9   | 65.6  | 70.2   | 78.7   | 74.4  | 17.9  | 42.0  | 62.1   | 4.2                                | 184    |
| Total 10-14   | 62.3   | 55.5  | 53.8   | 64.6   | 64.8  | 18.3  | 38.3  | 48.5   | 2.6                                | 1,066  |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

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



## 15. HIV RISK FACTORS

## 15.1 BACKGROUND

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

Since 2007, WHO and UNAIDS have recommended voluntary medical male circumcision as a cost-effective strategy to reduce male acquisition of HIV. To inform voluntary medical male circumcision programs, men aged 15-64 years were asked if they had been medically or traditionally circumcised.

## 15.2 RESULTS

The following tables present CAMPHIA's data on HIV risk factors in Cameroon.

**Table 15.A HIV prevalence by sexual behavior**

| Prevalence of HIV among adults aged 15-64 years, by sex and sexual behavior characteristics, CAMPHIA 2017-2018 |                         |        |                         |        |                         |        |
|--|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| Characteristic   | Male                    |        | Female                  |        | Total                   |        |
|  | Percentage HIV positive | Number | Percentage HIV positive | Number | Percentage HIV positive | Number |
| <b>Age at first sexual intercourse</b>   |                         |        |                         |        |                         |        |
| <15  | 2.5                     | 1,095  | 6.6                     | 2,011  | 4.8                     | 3,106  |
| 15-19  | 2.7                     | 5,175  | 5.6                     | 8,302  | 4.4                     | 13,477 |
| 20-24  | 3.4                     | 2,297  | 4.4                     | 1,328  | 3.8                     | 3,625  |
| ≥25  | 2.3                     | 811    | 1.8                     | 156    | 2.2                     | 967    |
| <b>Number of sexual partners in the past 12 months</b>   |                         |        |                         |        |                         |        |
| 0  | 2.3                     | 1,179  | 9.0                     | 2,034  | 6.4                     | 3,213  |
| 1  | 2.9                     | 5,766  | 4.8                     | 9,669  | 4.0                     | 15,435 |
| ≥2   | 2.8                     | 2,720  | 7.4                     | 598    | 3.6                     | 3,318  |
| <b>Condom use at last sexual intercourse in the past 12 months</b>   |                         |        |                         |        |                         |        |
| Used condom  | 2.9                     | 1,594  | 6.6                     | 1,292  | 4.4                     | 2,886  |
| Did not use condom   | 2.9                     | 6,049  | 4.6                     | 8,685  | 3.8                     | 14,734 |
| No sexual intercourse in the past 12 months  | 2.3                     | 1,179  | 9.0                     | 2,034  | 6.4                     | 3,213  |
| Total 15-24  | 0.4                     | 4,049  | 2.0                     | 4,959  | 1.2                     | 9,008  |
| Total 15-49  | 2.0                     | 10,123 | 4.8                     | 12,321 | 3.4                     | 22,444 |
| Total 15-64  | 2.3                     | 11,887 | 5.0                     | 14,144 | 3.7                     | 26,031 |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

**Table 15.B Condom use at last sex with a non-marital, non-cohabitating partner: Men**

Among men aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Among men who reported having sex in the prior 12 months   |        | Among men who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                       |        |
|----------------------------------|--|--------|---|--------|
|                                  | Percentage who reported having sex with a non-marital, non-cohabitating partner during that period | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Residence</b>                 |  |        |   |        |
| Total urban                      | 53.8   | 3,897  | 55.7  | 1,697  |
| Douala and Yaounde               | 59.2   | 1,756  | 57.0  | 871    |
| Other urban                      | 48.7   | 2,141  | 54.2  | 826    |
| Rural                            | 38.4   | 4,982  | 45.1  | 1,452  |
| <b>Region</b>                    |  |        |   |        |
| Adamawa                          | 37.4   | 668    | 64.3  | 178    |
| Centre                           | 58.6   | 963    | 51.0  | 439    |
| Douala                           | 54.7   | 882    | 55.3  | 399    |
| East                             | 46.7   | 695    | 47.3  | 244    |
| Far North                        | 19.0   | 1,073  | 41.5  | 159    |
| Littoral                         | 48.7   | 327    | 55.8  | 140    |
| North                            | 18.0   | 1,031  | 38.5  | 152    |
| North West                       | 48.1   | 546    | 52.2  | 212    |
| South                            | 58.0   | 617    | 42.9  | 286    |
| South West                       | 52.1   | 523    | 32.8  | 218    |
| West                             | 42.6   | 680    | 61.2  | 250    |
| Yaounde                          | 64.8   | 874    | 58.8  | 472    |
| <b>Marital status</b>            |  |        |   |        |
| Never married                    | 92.3   | 2,264  | 59.8  | 1,774  |
| Married or living together       | 19.2   | 5,879  | 42.7  | 859    |
| Divorced or separated            | 87.5   | 674    | 35.2  | 470    |
| Widowed                          | (79.0)   | 44     | (14.4)  | 32     |
| <b>Type of union</b>             |  |        |   |        |
| In polygamous union              | 29.4   | 1,040  | 32.2  | 199    |
| Not in polygamous union          | 17.0   | 4,813  | 46.4  | 650    |
| Not currently in union           | 91.2   | 2,982  | 54.7  | 2,276  |
| <b>Education</b>                 |  |        |   |        |
| None                             | 11.3   | 1,125  | 26.2  | 90     |
| Primary                          | 31.6   | 2,495  | 34.5  | 634    |
| Secondary first cycle            | 52.0   | 2,679  | 51.5  | 1,128  |
| Secondary second cycle or higher | 61.9   | 2,559  | 59.8  | 1,292  |

**Table 15.B Condom use at last sex with a non-marital, non-cohabitating partner: Men (continued)**

Among men aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Among men who reported having sex in the prior 12 months   |        | Among men who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                       |        |
|-------------------------|--|--------|---|--------|
|                         | Percentage who reported having sex with a non-marital, non-cohabitating partner during that period | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Wealth quintile</b>  |  |        |   |        |
| Lowest                  | 20.2   | 2,419  | 30.0  | 421    |
| Second                  | 41.0   | 1,933  | 44.1  | 652    |
| Middle                  | 53.7   | 1,665  | 53.5  | 724    |
| Fourth                  | 56.4   | 1,492  | 54.7  | 696    |
| Highest                 | 57.2   | 1,365  | 58.8  | 655    |
| <b>Religion</b>         |  |        |   |        |
| Catholic                | 54.0   | 3,235  | 54.0  | 1,382  |
| Protestant              | 47.0   | 2,122  | 49.0  | 773    |
| Muslim                  | 30.6   | 1,940  | 50.9  | 443    |
| Animist                 | 27.4   | 152    | (36.2)  | 34     |
| Other Christian         | 47.3   | 529    | 50.2  | 193    |
| Other                   | 49.4   | 311    | 47.9  | 120    |
| None                    | 47.3   | 570    | 50.1  | 196    |
| <b>Ethnicity</b>        |  |        |   |        |
| Arabe-Choa/Peul/Haoussa | 24.3   | 838    | 43.7  | 152    |
| Biu-Mandara             | 26.3   | 323    | 44.9  | 69     |
| Adamaoua-Oubangui       | 40.8   | 269    | 47.2  | 77     |
| Bantoide Sud-Ouest      | 52.6   | 188    | 34.2  | 84     |
| Grassfields Nord-Ouest  | 50.1   | 779    | 46.9  | 312    |
| Bamilike/Bamoun         | 49.3   | 1,726  | 61.1  | 740    |
| Cotier/Ngoe/Oroko       | 55.6   | 211    | 44.7  | 95     |
| Beti/Bassa/Mbam         | 65.5   | 1,783  | 49.2  | 906    |
| Kako/Maka               | 44.2   | 244    | 40.1  | 84     |
| Foreigner/Etranger      | 42.7   | 51     | *   | 20     |
| No Tribe/Aucune         | *  | 1      | *   | 1      |
| Other                   | 33.9   | 2,459  | 51.2  | 607    |



**Table 15.B Condom use at last sex with a non-marital, non-cohabitating partner: Men (continued)**

Among men aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic | Among men who reported having sex in the prior 12 months   |        | Among men who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                       |        |
|----------------|--|--------|---|--------|
|                | Percentage who reported having sex with a non-marital, non-cohabitating partner during that period | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Age</b>     |  |        |   |        |
| 15-19          | 93.8   | 563    | 63.3  | 462    |
| 20-24          | 82.3   | 1,263  | 62.4  | 822    |
| 25-29          | 60.0   | 1,424  | 53.0  | 650    |
| 30-34          | 41.2   | 1,315  | 45.0  | 402    |
| 35-39          | 32.2   | 1,117  | 39.3  | 279    |
| 40-44          | 25.5   | 983    | 41.4  | 192    |
| 45-49          | 19.2   | 703    | 34.2  | 120    |
| 50-54          | 23.8   | 557    | 22.7  | 113    |
| 55-59          | 16.0   | 504    | 24.6  | 62     |
| 60-64          | 11.9   | 450    | (22.3)  | 47     |
| Total 15-24    | 85.8   | 1,826  | 62.7  | 1,284  |
| Total 15-49    | 51.4   | 7,368  | 53.5  | 2,927  |
| Total 15-64    | 46.7   | 8,879  | 51.6  | 3,149  |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 2020 3.18: Condom use at last high-risk sex.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 15.C Condom use at last sex with a non-marital, non-cohabitating partner: Women**

Among women aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018.

| Characteristic                   | Among women who reported having sex in the prior 12 months   |        | Among women who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                     |        |
|----------------------------------|--|--------|---|--------|
|                                  | Percentage who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Residence</b>                 |  |        |   |        |
| Total urban                      | 37.7   | 4,452  | 37.2  | 1,511  |
| Douala and Yaounde               | 45.3   | 1,935  | 40.7  | 806    |
| Other urban                      | 31.3   | 2,517  | 33.2  | 705    |
| Rural                            | 21.6   | 6,300  | 30.2  | 1,148  |
| <b>Region</b>                    |  |        |   |        |
| Adamawa                          | 14.4   | 841    | 30.8  | 99     |
| Centre                           | 36.4   | 980    | 34.7  | 335    |
| Douala                           | 44.5   | 975    | 41.2  | 402    |
| East                             | 25.1   | 840    | 27.6  | 197    |
| Far North                        | 6.6  | 1,495  | 30.6  | 95     |
| Littoral                         | 32.1   | 365    | 40.8  | 132    |
| North                            | 8.2  | 1,418  | 17.2  | 98     |
| North West                       | 33.9   | 746    | 34.5  | 229    |
| South                            | 40.4   | 653    | 21.5  | 231    |
| South West                       | 41.6   | 556    | 21.4  | 205    |
| West                             | 26.0   | 923    | 40.3  | 232    |
| Yaounde                          | 46.3   | 960    | 40.0  | 404    |
| <b>Marital status</b>            |  |        |   |        |
| Never married                    | 82.7   | 1,919  | 43.9  | 1,425  |
| Married or living together       | 6.4  | 7,717  | 22.6  | 403    |
| Divorced or separated            | 84.4   | 837    | 24.2  | 644    |
| Widowed                          | 74.1   | 251    | 16.8  | 172    |
| <b>Type of union</b>             |  |        |   |        |
| In polygamous union              | 4.9  | 1,956  | 19.5  | 67     |
| Not in polygamous union          | 5.9  | 5,052  | 23.2  | 249    |
| Not currently in union           | 82.5   | 3,007  | 36.7  | 2,241  |
| <b>Education</b>                 |  |        |   |        |
| None                             | 6.2  | 2,722  | 14.4  | 144    |
| Primary                          | 20.3   | 3,280  | 17.8  | 584    |
| Secondary first cycle            | 38.4   | 2,853  | 38.2  | 1,029  |
| Secondary second cycle or higher | 50.6   | 1,884  | 42.6  | 898    |

**Table 15.C Condom use at last sex with a non-marital, non-cohabitating partner: Women (continued)**

Among women aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018.

| Characteristic          | Among women who reported having sex in the prior 12 months   |        | Among women who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                     |        |
|-------------------------|--|--------|---|--------|
|                         | Percentage who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Wealth quintile</b>  |  |        |   |        |
| Lowest                  | 10.6   | 3,227  | 19.1  | 319    |
| Second                  | 28.0   | 2,485  | 25.3  | 614    |
| Middle                  | 34.0   | 1,886  | 36.9  | 586    |
| Fourth                  | 38.1   | 1,593  | 39.4  | 543    |
| Highest                 | 39.9   | 1,554  | 40.4  | 597    |
| <b>Religion</b>         |  |        |   |        |
| Catholic                | 38.6   | 3,905  | 38.2  | 1,315  |
| Protestant              | 31.7   | 2,603  | 32.9  | 733    |
| Muslim                  | 9.9  | 2,473  | 26.5  | 207    |
| Animist                 | 12.1   | 201    | *   | 17     |
| Other Christian         | 32.5   | 631    | 30.3  | 173    |
| Other                   | 33.0   | 519    | 23.0  | 152    |
| None                    | 17.6   | 413    | 38.5  | 57     |
| <b>Ethnicity</b>        |  |        |   |        |
| Arabe-Choa/Peul/Haoussa | 6.1  | 1,116  | 26.1  | 58     |
| Biu-Mandara             | 9.6  | 510    | (33.8)  | 48     |
| Adamaoua-Oubangui       | 15.9   | 240    | (39.1)  | 35     |
| Bantoide Sud-Ouest      | 44.9   | 161    | 29.3  | 66     |
| Grassfields Nord-Ouest  | 35.4   | 921    | 30.3  | 302    |
| Bamilike/Bamoun         | 33.1   | 2,181  | 40.7  | 691    |
| Cotier/Ngoe/Oroko       | 50.1   | 207    | 29.7  | 92     |
| Beti/Bassa/Mbam         | 45.5   | 1,861  | 35.3  | 749    |
| Kako/Maka               | 39.1   | 373    | 24.7  | 121    |
| Foreigner/Etranger      | 21.2   | 59     | *   | 7      |
| No Tribe/Aucune         | *  | 8      | *   | 0      |
| Other                   | 19.4   | 3,099  | 30.6  | 487    |

**Table 15.C Condom use at last sex with a non-marital, non-cohabitating partner: Women (continued)**

Among women aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018.

| Characteristic | Among women who reported having sex in the prior 12 months   |        | Among women who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                     |        |
|----------------|--|--------|---|--------|
|                | Percentage who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Age</b>     |  |        |   |        |
| 15-19          | 60.6   | 1,135  | 49.6  | 581    |
| 20-24          | 46.1   | 2,042  | 44.0  | 732    |
| 25-29          | 29.7   | 2,127  | 27.9  | 485    |
| 30-34          | 20.6   | 1,656  | 22.9  | 278    |
| 35-39          | 19.4   | 1,231  | 25.3  | 193    |
| 40-44          | 18.8   | 949    | 19.6  | 158    |
| 45-49          | 18.2   | 667    | 22.5  | 110    |
| 50-54          | 15.2   | 459    | 11.1  | 66     |
| 55-59          | 11.1   | 311    | (13.3)  | 36     |
| 60-64          | 12.6   | 175    | *   | 20     |
| Total 15-24    | 51.4   | 3,177  | 46.5  | 1,313  |
| Total 15-49    | 31.3   | 9,807  | 35.7  | 2,537  |
| Total 15-64    | 29.8   | 10,752 | 34.7  | 2,659  |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 2020 3.18: Condom use at last high-risk sex.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 15.D Condom use at last sex with a non-marital, non-cohabitating partner: Total**

Among adults aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018.

| Characteristic                   | Among adults who reported having sex in the prior 12 months  |        | Among adults who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                    |        |
|----------------------------------|--|--------|---|--------|
|                                  | Percentage who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Residence</b>                 |  |        |   |        |
| Total urban                      | 45.7   | 8,349  | 47.7  | 3,208  |
| Douala and Yaounde               | 52.4   | 3,691  | 49.9  | 1,677  |
| Other urban                      | 39.8   | 4,658  | 45.1  | 1,531  |
| Rural                            | 29.4   | 11,282 | 39.0  | 2,600  |
| <b>Region</b>                    |  |        |   |        |
| Adamawa                          | 25.8   | 1,509  | 54.4  | 277    |
| Centre                           | 48.0   | 1,943  | 44.6  | 774    |
| Douala                           | 49.7   | 1,857  | 48.9  | 801    |
| East                             | 35.4   | 1,535  | 39.3  | 441    |
| Far North                        | 12.1   | 2,568  | 38.0  | 254    |
| Littoral                         | 40.4   | 692    | 49.4  | 272    |
| North                            | 12.5   | 2,449  | 30.5  | 250    |
| North West                       | 40.3   | 1,292  | 43.6  | 441    |
| South                            | 49.0   | 1,270  | 33.2  | 517    |
| South West                       | 47.0   | 1,079  | 27.7  | 423    |
| West                             | 33.3   | 1,603  | 51.8  | 482    |
| Yaounde                          | 55.8   | 1,834  | 51.0  | 876    |
| <b>Marital status</b>            |  |        |   |        |
| Never married                    | 88.3   | 4,183  | 53.2  | 3,199  |
| Married or living together       | 12.2   | 13,596 | 36.7  | 1,262  |
| Divorced or separated            | 85.9   | 1,511  | 29.2  | 1,114  |
| Widowed                          | 74.8   | 295    | 16.5  | 204    |
| <b>Type of union</b>             |  |        |   |        |
| In polygamous union              | 14.1   | 2,996  | 29.5  | 266    |
| Not in polygamous union          | 11.6   | 9,865  | 40.3  | 899    |
| Not currently in union           | 87.2   | 5,989  | 46.4  | 4,517  |
| <b>Education</b>                 |  |        |   |        |
| None                             | 7.8  | 3,847  | 19.7  | 234    |
| Primary                          | 25.3   | 5,775  | 26.7  | 1,218  |
| Secondary first cycle            | 45.1   | 5,532  | 45.5  | 2,157  |
| Secondary second cycle or higher | 57.3   | 4,443  | 53.3  | 2,190  |

**Table 15.D Condom use at last sex with a non-marital, non-cohabitating partner: Total (continued)**

Among adults aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018.

| Characteristic          | Among adults who reported having sex in the prior 12 months  |        | Among adults who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                    |        |
|-------------------------|--|--------|---|--------|
|                         | Percentage who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Wealth quintile</b>  |  |        |   |        |
| Lowest                  | 14.8   | 5,646  | 25.4  | 740    |
| Second                  | 34.0   | 4,418  | 35.4  | 1,266  |
| Middle                  | 43.8   | 3,551  | 46.6  | 1,310  |
| Fourth                  | 47.6   | 3,085  | 48.5  | 1,239  |
| Highest                 | 48.6   | 2,919  | 50.8  | 1,252  |
| <b>Religion</b>         |  |        |   |        |
| Catholic                | 46.0   | 7,140  | 46.8  | 2,697  |
| Protestant              | 39.0   | 4,725  | 41.6  | 1,506  |
| Muslim                  | 19.7   | 4,413  | 44.2  | 650    |
| Animist                 | 19.3   | 353    | 32.5  | 51     |
| Other Christian         | 39.8   | 1,160  | 41.4  | 366    |
| Other                   | 39.9   | 830    | 35.4  | 272    |
| None                    | 36.6   | 983    | 47.9  | 253    |
| <b>Ethnicity</b>        |  |        |   |        |
| Arabe-Choa/Peul/Haoussa | 14.4   | 1,954  | 39.4  | 210    |
| Biu-Mandara             | 16.6   | 833    | 41.0  | 117    |
| Adamaoua-Oubangui       | 30.9   | 509    | 45.3  | 112    |
| Bantoide Sud-Ouest      | 49.1   | 349    | 32.2  | 150    |
| Grassfields Nord-Ouest  | 42.8   | 1,700  | 39.6  | 614    |
| Bamilike/Bamoun         | 40.7   | 3,907  | 52.0  | 1,431  |
| Cotier/Ngoe/Oroko       | 53.1   | 418    | 37.9  | 187    |
| Beti/Bassa/Mbam         | 55.8   | 3,644  | 43.2  | 1,655  |
| Kako/Maka               | 41.3   | 617    | 31.3  | 205    |
| Foreigner/Etranger      | 32.2   | 110    | (47.9)  | 27     |
| No Tribe/Aucune         | *  | 9      | *   | 1      |
| Other                   | 26.3   | 5,558  | 42.7  | 1,094  |

**Table 15.D Condom use at last sex with a non-marital, non-cohabitating partner: Total (continued)**

Among adults aged 15-64 years who reported having sex in the 12 months before the survey, percentage who reported having a non-marital, non-cohabitating partner during that period; among those who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, CAMPHIA 2017-2018.

| Characteristic | Among adults who reported having sex in the prior 12 months  |        | Among adults who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months                    |        |
|----------------|--|--------|---|--------|
|                | Percentage who reported having sex with a non-marital, non-cohabitating partner in the prior 12 months | Number | Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner <sup>1</sup> | Number |
| <b>Age</b>     |  |        |   |        |
| 15-19          | 73.4   | 1,698  | 56.1  | 1,043  |
| 20-24          | 62.3   | 3,305  | 54.5  | 1,554  |
| 25-29          | 44.2   | 3,551  | 43.5  | 1,135  |
| 30-34          | 30.1   | 2,971  | 36.3  | 680    |
| 35-39          | 25.5   | 2,348  | 33.4  | 472    |
| 40-44          | 22.2   | 1,932  | 31.7  | 350    |
| 45-49          | 18.7   | 1,370  | 28.8  | 230    |
| 50-54          | 20.1   | 1,016  | 18.9  | 179    |
| 55-59          | 14.1   | 815    | 20.9  | 98     |
| 60-64          | 12.1   | 625    | 16.4  | 67     |
| Total 15-24    | 66.1   | 5,003  | 55.2  | 2,597  |
| Total 15-49    | 40.7   | 17,175 | 45.8  | 5,464  |
| Total 15-64    | 37.9   | 19,631 | 44.4  | 5,808  |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 2020 3.18: Condom use at last high-risk sex.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 15.E Male circumcision**

Percent distribution of men aged 15-64 years by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                 | Circumcised <sup>1</sup> |                          | Uncircumcised | Unknown | Total | Number |
|--------------------------------|--------------------------|--------------------------|---------------|---------|-------|--------|
|                                | Medical circumcision     | Non-medical circumcision |               |         |       |        |
| Result of PHIA survey HIV test |                          |                          |               |         |       |        |
| HIV positive                   | 54.2                     | 33.3                     | 3.0           | 9.5     | 100.0 | 290    |
| HIV negative                   | 55.5                     | 27.4                     | 6.3           | 10.7    | 100.0 | 11,597 |
| Not tested                     | 59.2                     | 24.8                     | 4.4           | 11.5    | 100.0 | 559    |

**Table 15.E Male circumcision (continued)**

| Percent distribution of men aged 15-64 years by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018 |                          |                          |               |         |       |        |
|--|--------------------------|--------------------------|---------------|---------|-------|--------|
| Characteristic   | Circumcised <sup>1</sup> |                          | Uncircumcised | Unknown | Total | Number |
|  | Medical circumcision     | Non-medical circumcision |               |         |       |        |
| Residence  |                          |                          |               |         |       |        |
| Total urban  | 63.7                     | 19.9                     | 2.4           | 14.0    | 100.0 | 5,451  |
| Douala and Yaounde   | 68.7                     | 14.5                     | 2.6           | 14.3    | 100.0 | 2,331  |
| Other urban  | 59.4                     | 24.6                     | 2.1           | 13.8    | 100.0 | 3,120  |
| Rural  | 46.4                     | 36.1                     | 10.5          | 7.0     | 100.0 | 6,995  |
| Region   |                          |                          |               |         |       |        |
| Adamawa  | 35.1                     | 59.4                     | 3.3           | 2.2     | 100.0 | 965    |
| Centre   | 64.2                     | 25.8                     | 1.0           | 9.0     | 100.0 | 1,286  |
| Douala   | 70.0                     | 13.7                     | 2.4           | 14.0    | 100.0 | 1,146  |
| East   | 40.0                     | 52.7                     | 1.2           | 6.1     | 100.0 | 944    |
| Far North  | 26.7                     | 44.3                     | 28.2          | 0.8     | 100.0 | 1,697  |
| Littoral   | 67.3                     | 17.0                     | 1.0           | 14.8    | 100.0 | 431    |
| North  | 30.1                     | 50.9                     | 18.3          | 0.7     | 100.0 | 1,526  |
| North West   | 64.0                     | 16.9                     | 1.0           | 18.1    | 100.0 | 797    |
| South  | 58.9                     | 31.2                     | 1.0           | 8.9     | 100.0 | 811    |
| South West   | 65.3                     | 15.1                     | 1.0           | 18.6    | 100.0 | 692    |
| West   | 65.2                     | 17.4                     | 0.3           | 17.2    | 100.0 | 966    |
| Yaounde  | 67.1                     | 15.3                     | 2.9           | 14.6    | 100.0 | 1,185  |
| Marital status   |                          |                          |               |         |       |        |
| Never married  | 62.8                     | 18.0                     | 7.1           | 12.0    | 100.0 | 5,103  |
| Ever had sex   | 68.4                     | 16.8                     | 2.9           | 11.9    | 100.0 | 3,037  |
| Never had sex  | 54.1                     | 19.8                     | 13.7          | 12.4    | 100.0 | 2,022  |
| Missing whether had sex  | (69.7)                   | (24.8)                   | (1.1)         | (4.3)   | 100.0 | 44     |
| Married or living together   | 48.3                     | 36.5                     | 5.8           | 9.5     | 100.0 | 6,232  |
| Divorced or separated  | 58.1                     | 28.2                     | 3.2           | 10.6    | 100.0 | 963    |
| Widowed  | 43.7                     | 44.5                     | 2.6           | 9.2     | 100.0 | 122    |
| Type of union  |                          |                          |               |         |       |        |
| In polygamous union  | 37.2                     | 49.1                     | 7.4           | 6.3     | 100.0 | 1,082  |
| Not in polygamous union  | 50.3                     | 34.1                     | 5.5           | 10.1    | 100.0 | 5,107  |
| Not currently in union   | 61.9                     | 19.8                     | 6.5           | 11.8    | 100.0 | 6,188  |
| Education  |                          |                          |               |         |       |        |
| None   | 20.4                     | 62.7                     | 13.6          | 3.3     | 100.0 | 1,482  |
| Primary  | 41.4                     | 39.9                     | 8.2           | 10.6    | 100.0 | 3,396  |
| Secondary first cycle  | 59.3                     | 22.4                     | 6.8           | 11.5    | 100.0 | 4,146  |
| Secondary second cycle or higher   | 71.5                     | 14.4                     | 2.2           | 11.9    | 100.0 | 3,393  |



**Table 15.E Male circumcision (continued)**

Percent distribution of men aged 15-64 years by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Circumcised <sup>1</sup> |                             | Uncircumcised | Unknown | Total | Number |
|-------------------------|--------------------------|-----------------------------|---------------|---------|-------|--------|
|                         | Medical<br>circumcision  | Non-medical<br>circumcision |               |         |       |        |
| Wealth quintile         |                          |                             |               |         |       |        |
| Lowest                  | 25.0                     | 48.5                        | 23.8          | 2.8     | 100.0 | 3,497  |
| Second                  | 51.6                     | 36.4                        | 2.9           | 9.1     | 100.0 | 2,696  |
| Middle                  | 60.8                     | 23.1                        | 2.3           | 13.8    | 100.0 | 2,407  |
| Fourth                  | 66.1                     | 17.2                        | 1.9           | 14.7    | 100.0 | 2,028  |
| Highest                 | 72.6                     | 13.7                        | 1.0           | 12.7    | 100.0 | 1,811  |
| Religion                |                          |                             |               |         |       |        |
| Catholic                | 63.0                     | 19.5                        | 5.0           | 12.5    | 100.0 | 4,473  |
| Protestant              | 58.7                     | 23.4                        | 7.2           | 10.8    | 100.0 | 2,906  |
| Muslim                  | 39.1                     | 54.5                        | 2.1           | 4.3     | 100.0 | 2,846  |
| Animist                 | 37.1                     | 27.4                        | 28.3          | 7.3     | 100.0 | 200    |
| Other Christian         | 60.0                     | 19.6                        | 7.6           | 12.8    | 100.0 | 744    |
| Other                   | 58.5                     | 24.8                        | 5.1           | 11.7    | 100.0 | 442    |
| None                    | 48.1                     | 19.7                        | 15.3          | 16.9    | 100.0 | 804    |
| Ethnicity               |                          |                             |               |         |       |        |
| Arabe-Choa/Peul/Haoussa | 34.1                     | 59.0                        | 3.3           | 3.6     | 100.0 | 1,284  |
| Biu-Mandara             | 26.4                     | 39.3                        | 33.0          | 1.3     | 100.0 | 548    |
| Adamaoua-Oubangui       | 33.1                     | 52.3                        | 6.5           | 8.1     | 100.0 | 363    |
| Bantoide Sud-Ouest      | 77.4                     | 15.4                        | 1.1           | 6.1     | 100.0 | 237    |
| Grassfields Nord-Ouest  | 67.9                     | 13.9                        | 0.9           | 17.3    | 100.0 | 1,106  |
| Bamilike/Bamoun         | 67.7                     | 13.1                        | 0.2           | 18.9    | 100.0 | 2,328  |
| Cotier/Ngoe/Oroko       | 67.5                     | 16.3                        | 0.0           | 16.2    | 100.0 | 287    |
| Beti/Bassa/Mbam         | 68.6                     | 22.5                        | 0.5           | 8.4     | 100.0 | 2,319  |
| Kako/Maka               | 41.2                     | 51.7                        | 1.0           | 6.1     | 100.0 | 339    |
| Foreigner/Etranger      | 58.2                     | 23.0                        | 2.6           | 16.2    | 100.0 | 75     |
| No Tribe/Aucune         | *                        | *                           | *             | *       | *     | 1      |
| Other                   | 38.1                     | 38.8                        | 18.4          | 4.7     | 100.0 | 3,545  |

**Table 15.E Male circumcision (continued)**

Percent distribution of men aged 15-64 years by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, CAMPHIA 2017-2018

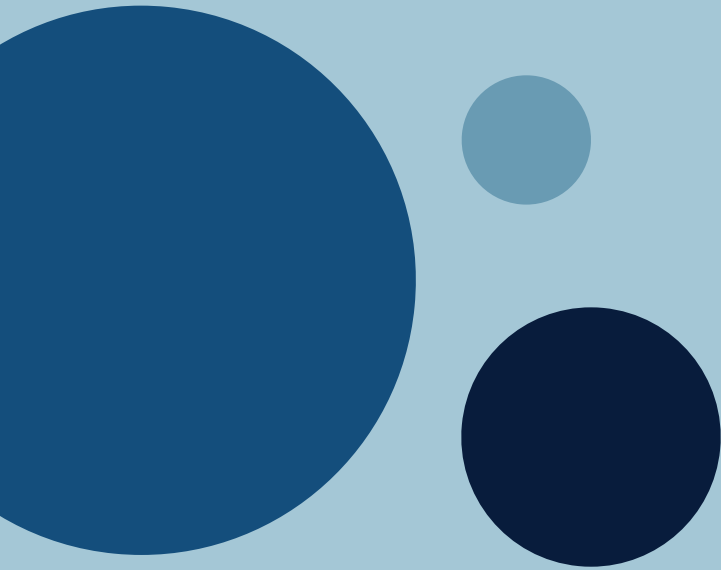
| Characteristic | Circumcised <sup>1</sup> |                             | Uncircumcised | Unknown | Total | Number |
|----------------|--------------------------|-----------------------------|---------------|---------|-------|--------|
|                | Medical<br>circumcision  | Non-medical<br>circumcision |               |         |       |        |
| Age            |                          |                             |               |         |       |        |
| 15-19          | 57.9                     | 19.3                        | 9.8           | 13.0    | 100.0 | 2,210  |
| 20-24          | 61.7                     | 19.9                        | 6.6           | 11.7    | 100.0 | 1,988  |
| 25-29          | 63.0                     | 21.2                        | 5.0           | 10.9    | 100.0 | 1,759  |
| 30-34          | 59.3                     | 25.8                        | 4.4           | 10.6    | 100.0 | 1,509  |
| 35-39          | 56.0                     | 29.8                        | 4.9           | 9.2     | 100.0 | 1,243  |
| 40-44          | 52.7                     | 33.0                        | 5.0           | 9.3     | 100.0 | 1,107  |
| 45-49          | 45.8                     | 39.8                        | 4.3           | 10.1    | 100.0 | 805    |
| 50-54          | 41.4                     | 43.9                        | 4.1           | 10.6    | 100.0 | 644    |
| 55-59          | 38.5                     | 48.5                        | 6.6           | 6.4     | 100.0 | 610    |
| 60-64          | 30.6                     | 55.3                        | 6.3           | 7.8     | 100.0 | 571    |
| Total 15-24    | 59.7                     | 19.6                        | 8.4           | 12.4    | 100.0 | 4,198  |
| Total 15-49    | 58.1                     | 24.5                        | 6.3           | 11.1    | 100.0 | 10,621 |
| Total 15-64    | 55.6                     | 27.4                        | 6.2           | 10.8    | 100.0 | 12,446 |

<sup>1</sup>Relates to Global AIDS Monitoring Indicator 2020 3.16: Prevalence of male circumcision and PEPFAR VMMC\_TOTALCIRC NAT / SUBNAT: Total number of men ever circumcised. Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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



## 16. INTIMATE PARTNER VIOLENCE

## 16.1 BACKGROUND

In the *World Report on Violence and Health*, WHO defined violence as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation.”<sup>1,2</sup>

Intimate partner violence (IPV) is defined as physical violence, sexual violence, stalking, and psychological aggression (including coercive tactics) by a current or former intimate partner (ie, spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner).<sup>3</sup> Exposure to IPV has been implicated in increased risk of a woman contracting HIV, through mechanisms such as forced sex with an HIV-positive partner, an increase in risky sexual behaviors, and reduced ability to negotiate forms of safe sex (eg, condom use).<sup>4</sup> Data from CAMPHIA will fill gaps in information on subnational prevalence estimates and demographic characteristics of women who experienced different forms of IPV. This chapter provides data on the nature of violence in this population, which can assist in the development of violence prevention programs.

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

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

## 16.2 RESULTS

The following table presents CAMPHIA survey data on intimate partner violence. Note, IPV was likely under-reported in the survey; the prevalence estimates observed were low compared to previous data on IPV in Cameroon.

**Table 16.A Prevalence of recent intimate partner violence**

| Among ever-married or partnered women aged 15-64 years, percentage who experienced physical or sexual violence from an intimate partner in the 12 months before the survey, by woman’s HIV status and selected demographic characteristics, CAMPHIA 2017-2018 |                                |                              |                              |  |   |
|---|--------------------------------|------------------------------|------------------------------|--|---|
| Characteristic  | Physical violence <sup>1</sup> | Sexual violence <sup>2</sup> | Physical and sexual violence | Physical or sexual violence <sup>3</sup> | Number of ever-married or partnered women |
| <b>Result of PHIA survey HIV test</b>   |                                |                              |                              |  |   |
| HIV positive  | 1.5                            | 0.3                          | 0.0                          | 1.9                                      | 359                                       |
| HIV negative  | 1.8                            | 0.8                          | 0.1                          | 2.5                                      | 5,685                                     |
| Not tested  | 1.9                            | 0.2                          | 0.0                          | 1.9                                      | 331                                       |

**Table 16.A Prevalence of recent intimate partner violence** (continued)

| Among ever-married or partnered women aged 15-64 years, percentage who experienced physical or sexual violence from an intimate partner in the 12 months before the survey, by woman's HIV status and selected demographic characteristics, CAMPHIA 2017-2018 |                                |                              |                              |  |   |
|---|--------------------------------|------------------------------|------------------------------|--|---|
| Characteristic  | Physical violence <sup>1</sup> | Sexual violence <sup>2</sup> | Physical and sexual violence | Physical or sexual violence <sup>3</sup> | Number of ever-married or partnered women |
| <b>Residence</b>  |                                |                              |                              |  |   |
| Total urban   | 1.7                            | 1.1                          | 0.0                          | 2.7                                      | 2,494                                     |
| Douala and Yaounde  | 1.6                            | 1.4                          | 0.0                          | 3.0                                      | 984                                       |
| Other urban   | 1.8                            | 0.8                          | 0.1                          | 2.5                                      | 1,510                                     |
| Rural   | 1.9                            | 0.5                          | 0.1                          | 2.2                                      | 3,881                                     |
| <b>Region</b>   |                                |                              |                              |  |   |
| Adamawa   | 0.8                            | 0.4                          | 0.0                          | 1.2                                      | 572                                       |
| Centre  | 3.6                            | 0.4                          | 0.0                          | 3.8                                      | 625                                       |
| Douala  | 1.2                            | 1.8                          | 0.0                          | 3.1                                      | 492                                       |
| East  | 1.4                            | 0.7                          | 0.4                          | 1.7                                      | 538                                       |
| Far North   | 1.0                            | 0.2                          | 0.0                          | 1.2                                      | 1,043                                     |
| Littoral  | 1.5                            | 0.0                          | 0.0                          | 1.5                                      | 213                                       |
| North   | 0.4                            | 0.1                          | 0.0                          | 0.5                                      | 814                                       |
| North West  | 2.3                            | 3.1                          | 0.0                          | 5.5                                      | 417                                       |
| South   | 3.7                            | 1.3                          | 0.2                          | 4.8                                      | 426                                       |
| South West  | 4.5                            | 0.2                          | 0.0                          | 4.7                                      | 291                                       |
| West  | 0.6                            | 0.3                          | 0.1                          | 0.8                                      | 452                                       |
| Yaounde   | 2.0                            | 1.0                          | 0.0                          | 2.9                                      | 492                                       |
| <b>Marital status</b>   |                                |                              |                              |  |   |
| Never married   | *                              | *                            | *                            | *  | 0   |
| Married or living together  | 2.0                            | 0.6                          | 0.1                          | 2.5                                      | 5,047                                     |
| Divorced or separated   | 1.9                            | 1.9                          | 0.0                          | 3.8                                      | 741                                       |
| Widowed   | 0.3                            | 0.0                          | 0.0                          | 0.3                                      | 572                                       |
| <b>Type of union</b>  |                                |                              |                              |  |   |
| In polygamous union   | 1.3                            | 0.3                          | 0.1                          | 1.4                                      | 943                                       |
| Not in polygamous union   | 1.9                            | 0.6                          | 0.0                          | 2.5                                      | 3,629                                     |
| Not currently in union  | 1.2                            | 1.1                          | 0.0                          | 2.3                                      | 1,313                                     |
| <b>Education</b>  |                                |                              |                              |  |   |
| None  | 0.5                            | 0.2                          | 0.0                          | 0.7                                      | 1,805                                     |
| Primary   | 1.6                            | 0.5                          | 0.0                          | 2.1                                      | 2,225                                     |
| Secondary first cycle   | 2.8                            | 0.7                          | 0.0                          | 3.4                                      | 1,550                                     |
| Secondary second cycle or higher  | 2.3                            | 2.1                          | 0.2                          | 4.3                                      | 781                                       |

**Table 16.A Prevalence of recent intimate partner violence** (continued)

Among ever-married or partnered women aged 15-64 years, percentage who experienced physical or sexual violence from an intimate partner in the 12 months before the survey, by woman's HIV status and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic          | Physical violence <sup>1</sup> | Sexual violence <sup>2</sup> | Physical and sexual violence | Physical or sexual violence <sup>3</sup> | Number of ever-married or partnered women |
|-------------------------|--------------------------------|------------------------------|------------------------------|--|---|
| <b>Wealth quintile</b>  |                                |                              |                              |  |   |
| Lowest                  | 1.1                            | 0.3                          | 0.0                          | 1.4                                      | 2,068                                     |
| Second                  | 1.9                            | 0.4                          | 0.0                          | 2.2                                      | 1,530                                     |
| Middle                  | 2.2                            | 0.7                          | 0.0                          | 2.9                                      | 1,078                                     |
| Fourth                  | 1.9                            | 1.2                          | 0.1                          | 3.0                                      | 924                                       |
| Highest                 | 1.9                            | 1.5                          | 0.2                          | 3.2                                      | 772                                       |
| <b>Religion</b>         |                                |                              |                              |  |   |
| Catholic                | 1.8                            | 0.9                          | 0.1                          | 2.5                                      | 2,125                                     |
| Protestant              | 1.9                            | 0.4                          | 0.0                          | 2.3                                      | 1,596                                     |
| Muslim                  | 0.5                            | 0.8                          | 0.0                          | 1.3                                      | 1,568                                     |
| Animist                 | 0.8                            | 0.0                          | 0.0                          | 0.8                                      | 132                                       |
| Other Christian         | 3.9                            | 1.2                          | 0.0                          | 5.1                                      | 413                                       |
| Other                   | 5.3                            | 1.5                          | 0.0                          | 6.7                                      | 311                                       |
| None                    | 0.2                            | 0.0                          | 0.0                          | 0.2                                      | 226                                       |
| <b>Ethnicity</b>        |                                |                              |                              |  |   |
| Arabe-Choa/Peul/Haoussa | 0.9                            | 0.5                          | 0.0                          | 1.3                                      | 752                                       |
| Biu-Mandara             | 0.0                            | 0.3                          | 0.0                          | 0.3                                      | 336                                       |
| Adamaoua-Oubangui       | 0.3                            | 0.0                          | 0.0                          | 0.3                                      | 159                                       |
| Bantoide Sud-Ouest      | 0.0                            | 0.8                          | 0.0                          | 0.9                                      | 81  |
| Grassfields Nord-Ouest  | 3.2                            | 2.8                          | 0.0                          | 6.1                                      | 533                                       |
| Bamilike/Bamoun         | 1.0                            | 0.6                          | 0.0                          | 1.6                                      | 1,124                                     |
| Cotier/Ngoe/Oroko       | 5.8                            | 1.1                          | 1.1                          | 5.8                                      | 111                                       |
| Beti/Bassa/Mbam         | 2.6                            | 0.8                          | 0.1                          | 3.2                                      | 1,100                                     |
| Kako/Maka               | 0.7                            | 0.5                          | 0.0                          | 1.1                                      | 228                                       |
| Foreigner/Etranger      | (1.8)                          | (0.0)                        | (0.0)                        | (1.8)                                    | 41  |
| No Tribe/Aucune         | *                              | *                            | *                            | *  | 5   |
| Other                   | 2.1                            | 0.2                          | 0.0                          | 2.3                                      | 1,896                                     |

**Table 16.A Prevalence of recent intimate partner violence (continued)**

| Among ever-married or partnered women aged 15-64 years, percentage who experienced physical or sexual violence from an intimate partner in the 12 months before the survey, by woman's HIV status and selected demographic characteristics, CAMPHIA 2017-2018 |                                |                              |                              |  |   |
|---|--------------------------------|------------------------------|------------------------------|--|---|
| Characteristic  | Physical violence <sup>1</sup> | Sexual violence <sup>2</sup> | Physical and sexual violence | Physical or sexual violence <sup>3</sup> | Number of ever-married or partnered women |
| <b>Age</b>  |                                |                              |                              |  |   |
| 15-19   | 2.8                            | 0.9                          | 0.1                          | 3.6                                      | 353                                       |
| 20-24   | 3.4                            | 1.6                          | 0.1                          | 4.9                                      | 960                                       |
| 25-29   | 2.2                            | 0.5                          | 0.0                          | 2.7                                      | 1,258                                     |
| 30-34   | 2.1                            | 1.0                          | 0.0                          | 3.1                                      | 1,049                                     |
| 35-39   | 2.8                            | 0.5                          | 0.2                          | 3.1                                      | 770                                       |
| 40-44   | 0.2                            | 0.2                          | 0.0                          | 0.5                                      | 579                                       |
| 45-49   | 0.4                            | 1.6                          | 0.0                          | 2.0                                      | 456                                       |
| 50-54   | 0.6                            | 0.2                          | 0.0                          | 0.9                                      | 372                                       |
| 55-59   | 0.5                            | 0.0                          | 0.0                          | 0.5                                      | 310                                       |
| 60-64   | 0.0                            | 0.0                          | 0.0                          | 0.0                                      | 268                                       |
| Total 15-24   | 3.2                            | 1.4                          | 0.1                          | 4.5                                      | 1,313                                     |
| Total 15-49   | 2.0                            | 0.9                          | 0.1                          | 2.8                                      | 5,425                                     |
| Total 15-64   | 1.8                            | 0.7                          | 0.0                          | 2.5                                      | 6,375                                     |

<sup>1</sup>Physical violence was defined as being punched, kicked, whipped, beaten, slapped, pushed, shoved, choked, smothered, drowned or burned. It also included having an object thrown at oneself or being hurt or threatened with a knife, gun or other weapon.

<sup>2</sup>Sexual violence was defined as being physically forced to have sex.

<sup>3</sup>Relates to Global AIDS Monitoring indicator 2020 4.3: Prevalence of recent intimate partner violence.

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

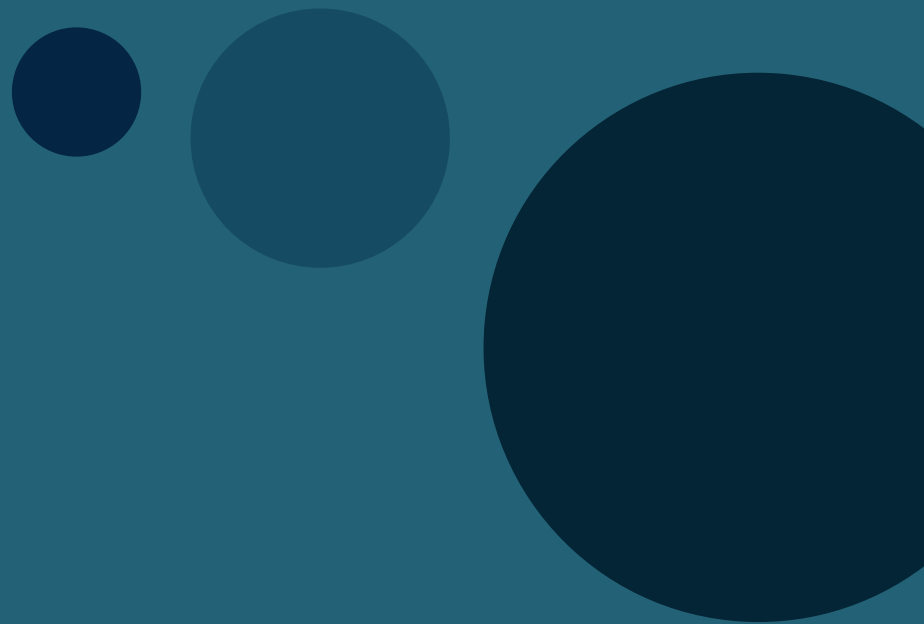
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

## 16.3 REFERENCES

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# 17. TUBERCULOSIS AND HEPATITIS B



## 17.1 BACKGROUND

People living with HIV are at risk for acquiring other diseases, including TB and hepatitis B. TB is the leading cause of death for people living with HIV 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. A UNAIDS model estimates there were 6,000 TB-related deaths among HIV-positive persons in Cameroon in 2017.<sup>1</sup> This chapter describes the TB clinical care cascade for HIV-positive individuals: received care at a TB clinic, TB diagnoses among those receiving care, and treatment among those diagnosed with TB.

HIV and HBV have similar transmission routes and concurrent infection with both viruses often results in more rapid progression of hepatitis B to cirrhosis and higher liver-disease mortality. CAMPHIA 2017-2018 provides population-based hepatitis B prevalence among HIV-positive individuals, which can support actionable policy recommendations for screening and treatment. It may also potentially provide an estimate of the impact of national hepatitis B vaccination programs. This chapter describes the prevalence of hepatitis B in individuals aged 15 to 64 years, by province, sex, age, and socioeconomic and demographic characteristics.

## 17.2 RESULTS

The following tables report CAMPHIA's findings on other diseases associated with HIV.

**Table 17.A Tuberculosis clinic attendance and services among HIV-positive adults**

| Among self-reported HIV-positive adults aged 15-64 years, percentage who ever visited a TB clinic; among those who had ever visited a TB clinic, percentage who were diagnosed for TB; and among those diagnosed with TB, percentage who were treated for TB, by sex, CAMPHIA 2017-2018 |   |        |   |        |   |        |
|---|---|--------|---|--------|---|--------|
| Characteristic  | Among HIV-positive persons              |        | Among HIV-positive persons who ever visited a TB clinic |        | Among HIV-positive persons who were diagnosed with TB |        |
|   | Percentage who ever visited a TB clinic | Number | Percentage who were diagnosed with TB                   | Number | Percentage who were treated for TB                    | Number |
| <b>Sex</b>  |   |        |   |        |   |        |
| Male  | 34.7                                    | 126    | (46.5)  | 45     | *   | 24     |
| Female  | 24.4                                    | 332    | 45.4  | 82     | (92.9)  | 38     |
| Total 15-64   | 27.3                                    | 458    | 45.8  | 127    | 94.6  | 62     |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 17.B TB clinic attendance and services in the population**

| Among persons aged 0-64 years, percentage who ever visited a TB clinic; among those who had ever visited a TB clinic, percentage who were diagnosed for TB and percentage who were treated for TB, by result of PHIA survey HIV test, and selected demographic characteristics, CAMPHIA 2017-2018 |   |        |  |        |                                 |        |
|---|---|--------|--|--------|---------------------------------|--------|
| Characteristic  | Percentage who ever visited a TB clinic | Number | Among persons who ever visited a TB clinic |        | Among persons diagnosed with TB |        |
|   |   |        | Percentage who were diagnosed with TB      | Number | Percentage treated for TB       | Number |
| Result of PHIA survey HIV test  |   |        |  |        |                                 |        |
| HIV positive  | 16.8                                    | 159    | 42.5                                       | 72     | 94.1                            | 67     |
| HIV negative  | 2.5                                     | 976    | 29.4                                       | 312    | 92.2                            | 286    |
| Not tested  | 4.8                                     | 115    | *  | 18     | *                               | 17     |
| Sex   |   |        |  |        |                                 |        |
| Male  | 3.2                                     | 631    | 34.1                                       | 243    | 94.5                            | 229    |
| Female  | 2.8                                     | 619    | 24.5                                       | 159    | 89.9                            | 141    |
| Residence   |   |        |  |        |                                 |        |
| Total urban   | 3.8                                     | 689    | 28.6                                       | 202    | 94.3                            | 189    |
| Douala and Yaounde  | 4.3                                     | 305    | 33.1                                       | 100    | 94.1                            | 93     |
| Other urban   | 3.5                                     | 384    | 24.4                                       | 102    | 94.7                            | 96     |
| Rural   | 2.2                                     | 561    | 31.0                                       | 200    | 90.1                            | 181    |
| Region  |   |        |  |        |                                 |        |
| Adamawa   | 3.7                                     | 99     | (20.2)                                     | 25     | *                               | 24     |
| Centre  | 2.7                                     | 128    | 42.7                                       | 50     | (96.4)                          | 49     |
| Douala  | 4.6                                     | 161    | 35.5                                       | 60     | 93.4                            | 55     |
| East  | 3.1                                     | 100    | (43.2)                                     | 47     | (95.3)                          | 44     |
| Far North   | 1.9                                     | 119    | (18.4)                                     | 26     | *                               | 22     |
| Littoral  | (2.7)                                   | 40     | *  | 8      | *                               | 6      |
| North   | 1.6                                     | 95     | (28.5)                                     | 28     | *                               | 24     |
| North West  | 3.5                                     | 102    | *  | 19     | *                               | 16     |
| South   | 3.6                                     | 96     | (48.0)                                     | 47     | (94.9)                          | 44     |
| South West  | 3.6                                     | 75     | *  | 22     | *                               | 20     |
| West  | 2.5                                     | 91     | (27.5)                                     | 30     | (94.1)                          | 28     |
| Yaounde   | 3.9                                     | 144    | (29.9)                                     | 40     | (95.2)                          | 38     |
| Marital status  |   |        |  |        |                                 |        |
| Never married   | 3.0                                     | 254    | 27.5                                       | 74     | 89.2                            | 65     |
| Ever had sex  | 3.7                                     | 189    | 30.1                                       | 61     | 87.1                            | 52     |
| Never had sex   | 1.8                                     | 63     | *  | 13     | *                               | 13     |
| Missing whether had sex   | *                                       | 2      | *  | 0      | *                               | 0      |
| Married or living together  | 5.7                                     | 716    | 31.4                                       | 240    | 95.3                            | 228    |
| Divorced or separated   | 6.6                                     | 154    | (28.5)                                     | 47     | (91.7)                          | 44     |

**Table 17.B TB clinic attendance and services in the population (continued)**

Among persons aged 0-64 years, percentage who ever visited a TB clinic; among those who had ever visited a TB clinic, percentage who were diagnosed for TB and percentage who were treated for TB, by result of PHIA survey HIV test, and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                   | Percentage who ever visited a TB clinic | Number | Among persons who ever visited a TB clinic |        | Among persons diagnosed with TB |        |
|----------------------------------|---|--------|--|--------|---------------------------------|--------|
|                                  |   |        | Percentage who were diagnosed with TB      | Number | Percentage treated for TB       | Number |
| Type of union                    |   |        |  |        |                                 |        |
| In polygamous union              | 4.4                                     | 122    | (36.8)                                     | 44     | (94.4)                          | 41     |
| Not in polygamous union          | 6.0                                     | 556    | 30.7                                       | 185    | 95.2                            | 176    |
| Not currently in union           | 4.0                                     | 501    | 29.6                                       | 158    | 88.5                            | 138    |
| Education                        |   |        |  |        |                                 |        |
| None                             | 3.6                                     | 146    | (26.4)                                     | 42     | (93.0)                          | 39     |
| Primary                          | 4.7                                     | 350    | 34.6                                       | 124    | 91.9                            | 113    |
| Secondary first cycle            | 4.8                                     | 389    | 33.9                                       | 143    | 93.3                            | 132    |
| Secondary second cycle or higher | 5.7                                     | 331    | 25.4                                       | 88     | 91.9                            | 81     |
| Wealth quintile                  |   |        |  |        |                                 |        |
| Lowest                           | 1.2                                     | 194    | 33.9                                       | 72     | 82.2                            | 61     |
| Second                           | 3.1                                     | 294    | 31.0                                       | 107    | 96.0                            | 103    |
| Middle                           | 3.2                                     | 266    | 29.4                                       | 87     | 91.3                            | 80     |
| Fourth                           | 3.4                                     | 236    | 28.8                                       | 66     | 94.6                            | 61     |
| Highest                          | 4.6                                     | 260    | 27.1                                       | 70     | 94.0                            | 65     |
| Religion                         |   |        |  |        |                                 |        |
| Catholic                         | 4.7                                     | 451    | 30.5                                       | 144    | 92.9                            | 134    |
| Protestant                       | 4.6                                     | 284    | 29.0                                       | 95     | 89.4                            | 85     |
| Muslim                           | 4.7                                     | 257    | 28.5                                       | 77     | 91.4                            | 71     |
| Animist                          | *                                       | 19     | *  | 5      | *                               | 5      |
| Other Christian                  | 6.3                                     | 94     | (31.2)                                     | 29     | (97.0)                          | 28     |
| Other                            | 5.5                                     | 54     | *  | 22     | *                               | 19     |
| None                             | 4.8                                     | 56     | *  | 24     | *                               | 22     |
| Ethnicity                        |   |        |  |        |                                 |        |
| Arabe-Choa/Peul/Haoussa          | 5.4                                     | 126    | (30.0)                                     | 39     | (92.8)                          | 36     |
| Biu-Mandara                      | (2.5)                                   | 29     | *  | 9      | *                               | 7      |
| Adamaoua-Oubangui                | *                                       | 19     | *  | 6      | *                               | 5      |
| Bantoide Sud-Ouest               | *                                       | 23     | *  | 4      | *                               | 4      |
| Grassfields Nord-Ouest           | 5.4                                     | 130    | (21.9)                                     | 29     | (89.8)                          | 26     |
| Bamileke/Bamoun                  | 4.7                                     | 248    | 33.1                                       | 83     | 94.2                            | 77     |
| Cotier/Ngoe/Oroko                | (7.5)                                   | 41     | *  | 14     | *                               | 11     |
| Beti/Bassa/Mbam                  | 5.7                                     | 273    | 38.1                                       | 110    | 94.0                            | 105    |
| Kako/Maka                        | (4.3)                                   | 31     | *  | 15     | *                               | 15     |
| Foreigner/Etranger               | *                                       | 5      | *  | 1      | no match                        | 1      |
| No Tribe/Aucune                  | *                                       | 0      | *  | 0      | *                               | 0      |
| Other                            | 4.0                                     | 293    | 26.2                                       | 88     | 92.0                            | 79     |

**Table 17.B TB clinic attendance and services in the population (continued)**

Among persons aged 0-64 years, percentage who ever visited a TB clinic; among those who had ever visited a TB clinic, percentage who were diagnosed for TB and percentage who were treated for TB, by result of PHIA survey HIV test, and selected demographic characteristics, CAMPHIA 2017-2018

| Characteristic                  | Percentage who ever visited a TB clinic | Number | Among persons who ever visited a TB clinic |        | Among persons diagnosed with TB |        |
|---------------------------------|---|--------|--|--------|---------------------------------|--------|
|                                 |   |        | Percentage who were diagnosed with TB      | Number | Percentage treated for TB       | Number |
| Pregnancy status                |   |        |  |        |                                 |        |
| Currently pregnant <sup>1</sup> | (4.1)                                   | 47     | *  | 11     | *                               | 9      |
| Not currently pregnant          | 4.6                                     | 551    | 25.3                                       | 145    | 90.1                            | 129    |
| Age                             |   |        |  |        |                                 |        |
| 0-4                             | *                                       | 11     | *  | 2      | *                               | 2      |
| 5-9                             | *                                       | 11     | *  | 2      | *                               | 2      |
| 10-14                           | *                                       | 9      | *  | 0      | *                               | 0      |
| 15-19                           | 1.5                                     | 66     | *  | 17     | *                               | 15     |
| 20-24                           | 3.1                                     | 129    | (22.7)                                     | 27     | *                               | 22     |
| 25-29                           | 3.7                                     | 135    | 26.3                                       | (36)   | (91.1)                          | 31     |
| 30-34                           | 5.3                                     | 167    | 29.3                                       | 52     | (92.6)                          | 48     |
| 35-39                           | 6.8                                     | 165    | 35.7                                       | 60     | 93.8                            | 57     |
| 40-44                           | 7.6                                     | 156    | 36.8                                       | 66     | 95.3                            | 63     |
| 45-49                           | 7.8                                     | 128    | (29.6)                                     | 43     | (94.2)                          | 40     |
| 50-54                           | 8.8                                     | 103    | (34.8)                                     | 36     | (95.8)                          | 34     |
| 55-59                           | 8.0                                     | 92     | (30.6)                                     | 31     | (89.0)                          | 27     |
| 60-64                           | 7.5                                     | 78     | (34.9)                                     | 30     | (95.9)                          | 29     |
| Total 15-24                     | 2.2                                     | 195    | (22.0)                                     | 44     | (84.0)                          | 37     |
| Total 15-49                     | 4.4                                     | 946    | 29.8                                       | 301    | 92.1                            | 276    |
| Total 15-64                     | 4.8                                     | 1,219  | 30.6                                       | 398    | 92.5                            | 366    |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

**Table 17.C Hepatitis B prevalence**

| Prevalence of hepatitis B among adults ages 15-64 years, by sex, result of PHIA survey HIV test, and selected demographic characteristics, CAMPHIA 2017-2018 |            |        |            |        |            |        |
|--|------------|--------|------------|--------|------------|--------|
| Characteristic   | Male       |        | Female     |        | Total      |        |
|  | Percentage | Number | Percentage | Number | Percentage | Number |
| <b>Result of PHIA survey HIV test</b>  |            |        |            |        |            |        |
| HIV positive   | 9.5        | 289    | 7.9        | 683    | 8.4        | 972    |
| HIV negative   | 11.3       | 448    | 5.4        | 542    | 8.3        | 990    |
| Not tested   | *          | 0      | *          | 0      | *          | 0      |
| <b>Residence</b>   |            |        |            |        |            |        |
| Total urban  | 10.6       | 312    | 3.4        | 532    | 7.0        | 844    |
| Douala and Yaounde   | 10.5       | 111    | 3.7        | 212    | 6.9        | 323    |
| Other urban  | 10.7       | 201    | 3.1        | 320    | 7.0        | 521    |
| Rural  | 11.9       | 425    | 7.7        | 693    | 9.8        | 1,118  |
| <b>Region</b>  |            |        |            |        |            |        |
| Adamawa  | 9.2        | 63     | 7.4        | 118    | 8.3        | 181    |
| Centre   | 6.5        | 92     | 7.3        | 152    | 6.8        | 244    |
| Douala   | 14.0       | 51     | 2.5        | 102    | 8.1        | 153    |
| East   | 17.3       | 72     | 8.7        | 131    | 12.6       | 203    |
| Far North  | 10.7       | 93     | 7.9        | 114    | 9.4        | 207    |
| Littoral   | *          | 19     | (3.4)      | 43     | 8.2        | 62     |
| North  | 18.9       | 83     | 4.2        | 98     | 12.8       | 181    |
| North West   | 4.3        | 50     | 4.8        | 111    | 4.6        | 161    |
| South  | 16.3       | 57     | 3.9        | 112    | 10.9       | 169    |
| South West   | (11.7)     | 38     | 0.5        | 53     | 6.0        | 91     |
| West   | 6.9        | 59     | 10.1       | 81     | 8.7        | 140    |
| Yaounde  | 5.9        | 60     | 5.1        | 110    | 5.5        | 170    |
| <b>Marital status</b>  |            |        |            |        |            |        |
| Never married  | 12.8       | 245    | 3.2        | 261    | 9.1        | 506    |
| Ever had sex   | 11.7       | 154    | 3.5        | 193    | 8.3        | 347    |
| Never had sex  | 14.4       | 89     | 2.3        | 67     | 10.4       | 156    |
| Missing whether had sex  | *          | 2      | *          | 1      | *          | 3      |
| Married or living together   | 10.6       | 407    | 6.5        | 619    | 8.3        | 1,026  |
| Divorced or separated  | 6.2        | 66     | 7.7        | 196    | 7.1        | 262    |
| Widowed  | *          | 19     | 5.6        | 145    | 4.5        | 164    |
| <b>Type of union</b>   |            |        |            |        |            |        |
| In polygamous union  | 10.0       | 64     | 5.6        | 126    | 7.2        | 190    |
| Not in polygamous union  | 11.0       | 337    | 6.9        | 411    | 8.9        | 748    |
| Not currently in union   | 11.7       | 330    | 4.4        | 602    | 8.4        | 932    |

**Table 17.C Hepatitis B prevalence** (continued)

| Prevalence of hepatitis B among adults ages 15-64 years, by sex, result of PHIA survey HIV test, and selected demographic characteristics, CAMPHIA 2017-2018 |            |        |            |        |            |        |
|--|------------|--------|------------|--------|------------|--------|
| Characteristic   | Male       |        | Female     |        | Total      |        |
|  | Percentage | Number | Percentage | Number | Percentage | Number |
| <b>Education</b>   |            |        |            |        |            |        |
| None   | 7.2        | 73     | 7.0        | 240    | 7.1        | 313    |
| Primary  | 15.1       | 242    | 6.6        | 422    | 10.8       | 664    |
| Secondary first cycle  | 11.7       | 237    | 4.1        | 371    | 8.0        | 608    |
| Secondary second cycle or higher   | 8.2        | 185    | 5.0        | 191    | 6.7        | 376    |
| <b>Wealth quintile</b>   |            |        |            |        |            |        |
| Lowest   | 13.2       | 205    | 8.4        | 294    | 10.7       | 499    |
| Second   | 18.9       | 172    | 6.6        | 338    | 12.7       | 510    |
| Middle   | 6.3        | 141    | 4.5        | 239    | 5.3        | 380    |
| Fourth   | 4.5        | 141    | 5.4        | 183    | 4.8        | 324    |
| Highest  | 14.4       | 77     | 2.7        | 171    | 7.6        | 248    |
| <b>Religion</b>  |            |        |            |        |            |        |
| Catholic   | 14.1       | 264    | 6.8        | 450    | 10.1       | 714    |
| Protestant   | 8.2        | 180    | 3.3        | 325    | 5.7        | 505    |
| Muslim   | 6.4        | 171    | 4.4        | 238    | 5.5        | 409    |
| Animist  | *          | 13     | *          | 18     | (20.9)     | 31     |
| Other Christian  | (19.2)     | 41     | 4.4        | 82     | 13.2       | 123    |
| Other  | *          | 23     | 4.3        | 68     | 4.2        | 91     |
| None   | (14.1)     | 45     | (9.4)      | 43     | 11.7       | 88     |
| <b>Ethnicity</b>   |            |        |            |        |            |        |
| Arabe-Choa/Peul/Haoussa  | 12.3       | 71     | 3.6        | 104    | 8.0        | 175    |
| Biu-Mandara  | *          | 24     | (3.5)      | 48     | 10.5       | 72     |
| Adamaoua-Oubangui  | (5.5)      | 27     | (1.8)      | 36     | 3.8        | 63     |
| Bantoide Sud-Ouest   | *          | 12     | *          | 16     | (21.5)     | 28     |
| Grassfields Nord-Ouest   | 2.8        | 71     | 2.2        | 138    | 2.5        | 209    |
| Bamilike/Bamoun  | 10.9       | 134    | 5.1        | 200    | 7.9        | 334    |
| Cotier/Ngoe/Oroko  | *          | 12     | (0.0)      | 29     | (8.7)      | 41     |
| Beti/Bassa/Mbam  | 10.4       | 146    | 8.6        | 286    | 9.4        | 432    |
| Kako/Maka  | (11.9)     | 25     | 7.1        | 74     | 8.9        | 99     |
| Foreigner/Etranger   | *          | 3      | *          | 8      | *          | 11     |
| No Tribe/Aucune  | *          | 0      | *          | 1      | *          | 1      |
| Other  | 10.8       | 211    | 8.1        | 285    | 9.6        | 496    |

**Table 17.C Hepatitis B prevalence** (continued)

| Prevalence of hepatitis B among adults ages 15-64 years, by sex, result of PHIA survey HIV test, and selected demographic characteristics, CAMPHIA 2017-2018 |            |        |            |        |            |        |
|--|------------|--------|------------|--------|------------|--------|
| Characteristic   | Male       |        | Female     |        | Total      |        |
|  | Percentage | Number | Percentage | Number | Percentage | Number |
| <b>Pregnancy status</b>  |            |        |            |        |            |        |
| Currently pregnant <sup>1</sup>  | NA         | NA     | 10.9       | 82     | NA         | NA     |
| Not currently pregnant   | NA         | NA     | 5.2        | 1,122  | NA         | NA     |
| <b>Age</b>   |            |        |            |        |            |        |
| 15-19  | 16.1       | 90     | 3.2        | 147    | 9.8        | 237    |
| 20-24  | 7.6        | 101    | 6.2        | 164    | 6.9        | 265    |
| 25-29  | 8.0        | 82     | 6.8        | 186    | 7.4        | 268    |
| 30-34  | 20.4       | 96     | 8.6        | 178    | 14.1       | 274    |
| 35-39  | 16.3       | 81     | 8.4        | 141    | 12.0       | 222    |
| 40-44  | 8.9        | 94     | 7.4        | 144    | 8.1        | 238    |
| 45-49  | 6.8        | 65     | 0.4        | 98     | 3.5        | 163    |
| 50-54  | 4.0        | 51     | 0.7        | 74     | 2.3        | 125    |
| 55-59  | (3.0)      | 38     | (6.3)      | 46     | 4.6        | 84     |
| 60-64  | (0.8)      | 39     | (0.3)      | 47     | 0.5        | 86     |
| Total 15-24  | 12.2       | 191    | 4.6        | 311    | 8.4        | 502    |
| Total 15-49  | 12.4       | 609    | 6.0        | 1,058  | 9.2        | 1,667  |
| Total 15-64  | 11.2       | 737    | 5.5        | 1,225  | 8.3        | 1,962  |

Weighted estimates: For a detailed explanation of the sampling and weighting processes, see the *Sampling and Weighting Technical Report*, available on the PHIA website at <https://phia-data.icap.columbia.edu/files>.

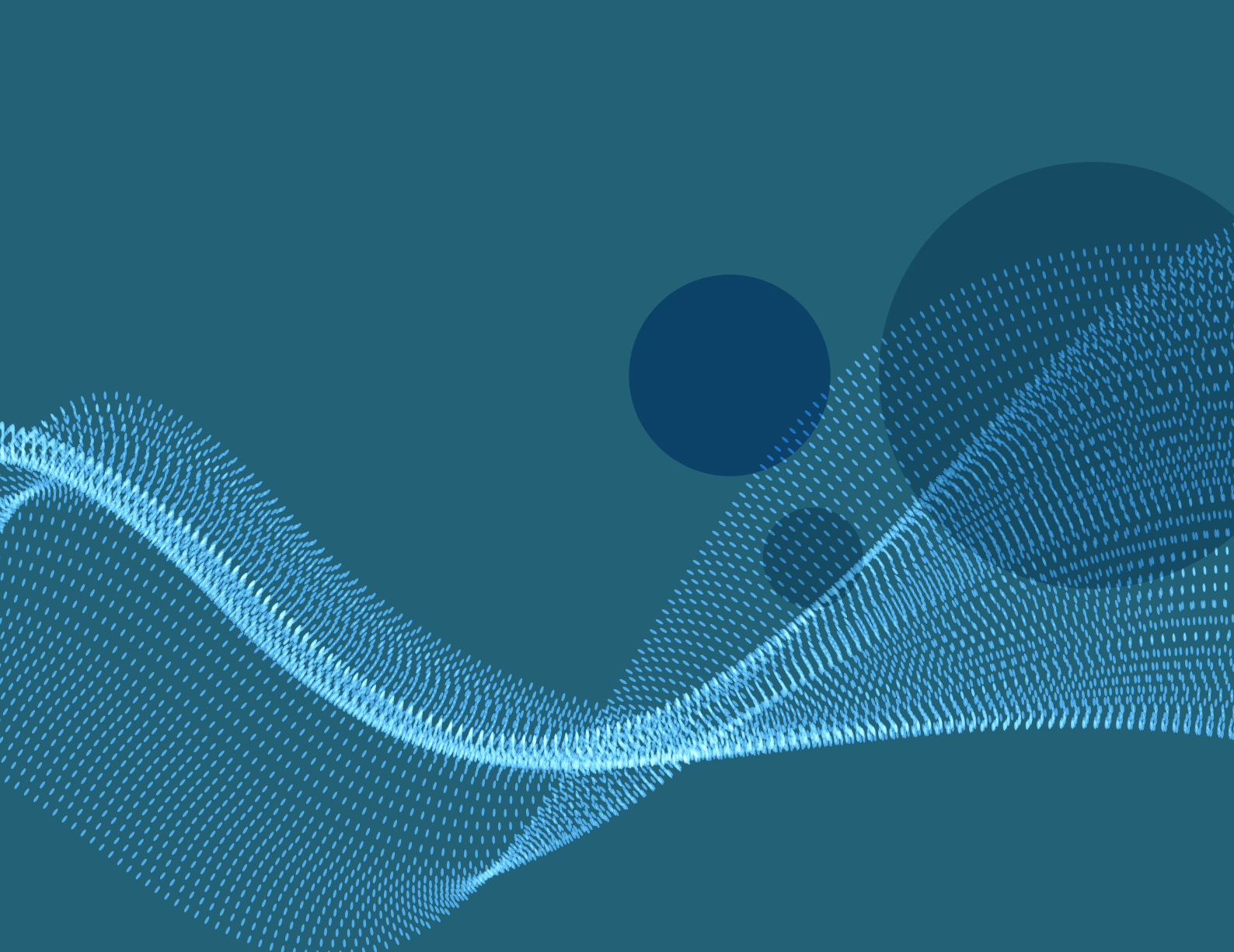
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

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

### 17.3 REFERENCES

1. Joint United Nations Programme on HIV/AIDS. *UNAIDS data tables*, 2017. <http://aidsinfo.unaids.org/>. Accessed March 29, 2019.



# APPENDICES



## APPENDIX A SAMPLE DESIGN AND WEIGHTING

Appendix A provides a high-level overview of sampling and weighting procedures for CAMPHIA 2017-2018. In-depth details are provided in the *CAMPHIA Technical Report*, which may be found online at <https://phia-data.icap.columbia.edu/files>.

### A.1 SAMPLE DESIGN

#### Overview

The sample design for CAMPHIA 2017-2018 is a stratified multistage probability sample design, with strata defined by the 12 regions of the country, first-stage sampling units defined by EAs within strata, second-stage sampling units defined by households within EAs, and finally eligible persons within households. Within each region, the first-stage sampling units (also referred to as primary sampling units [PSUs]) were selected with probabilities proportionate to the number of households in the PSU based on the 2005 Cameroon Population and Housing Census. The allocation of the sample PSUs to the 12 regions was made in a manner designed to achieve specified precision levels for (1) a national estimate of the HIV incidence rate and (2) regional estimates of VLS.

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

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 one-third of the sampled households were included in the study for data collection.

#### Population of Inference

The population of inference for CAMPHIA 2017-2018 is comprised of the de facto household population. The de facto population is comprised of individuals who were present in households (ie, slept in the household) on the night prior to the household interview. In contrast, the *de jure* population is comprised of individuals who are usual residents of the household, irrespective of whether or not they slept in the household on the night prior to the household interview.

#### Precision Specifications and Assumptions

The following specifications were used to develop the sample design for CAMPHIA 2017-2018.

- The RSE of the national estimate of annual HIV incidence among persons aged 15-49 years should be 40% or less.
- For the high-prevalence regions (ie, regions with HIV prevalence of 5% or higher), 95% confidence interval bounds should be  $\pm 0.10$  or less for estimates of VLS among all HIV-positive adults aged 15-49 years.
- A total overall sample size (including adults aged 15-49 years, adults aged 50-64 years and children aged 0-14) should yield approximately 35,000 analyzable blood draws.

The following assumptions were used to develop the sample design for CAMPHIA 2017-2018:

- An overall HIV prevalence rate of 0.043 (4.3%) for adults aged 15-49 years that varies by region (Table A.1.A). Source: 2014 UNAIDS Estimate
- An annual national HIV incidence rate for adults aged 15-49 years of  $P_a = 0.0038$  (0.38%). Source: 2014 UNAIDS Estimate
- A mean duration of recent infections (MDRI) of 130 days, yielding an annualization rate of  $365/130 = 2.8077$ . Hence, the estimated incidence rate for MDRI = 130 days is  $P_m = 0.0037/2.8077 = 0.0013$  (0.13%).
- Viral load suppression among HIV-positive adults aged 15-49 years in each region of  $P_{vh} = 0.50$  (50%). This is a conservative assumption because it will overstate the actual variance of VLS.
- A sample size of 25 occupied households per sampled cluster (PSU) in urban areas, and an expected average of 30 occupied sampled households per sampled cluster (PSU) in rural areas
- An intra-cluster correlation (ICC) of 0.05 for HIV prevalence and VLS. The ICC provides an average measure of the homogeneity of responses within the first-stage sampling units.
- An occupancy rate of 95.45% for sampled dwellings. Note that this is not included in the calculation of the overall survey response rate, but it does determine the initial numbers of dwelling units to be sampled. Source: 2014 Cameroon Multiple Indicator Cluster Survey (MICS)
- An overall household response rate of 99.6% among occupied households. Source: 2014 Cameroon MICS

- The average number of persons aged 15-49 years per household is 1.99. Source: 2014 Cameroon MICS
- The percentage of children in households who are aged 0-14 years is 44.3%. Source: 2014 Cameroon MICS
- The percentage of persons in households who are aged 50 years or older is 8.0%. Source: 2014 Cameroon MICS
- Among eligible individuals aged 15-64 years in households completing the household roster, a biomarker response rate of 83.1%. Source: Conservative assumption derived from the 2014 Cameroon MICS and 2011 Demographic and Health Survey.
- Among the eligible children aged 0-14 years in households designated for child data collection, a biomarker response rate of 78.1%. This value is the corresponding biomarker response rate for adults minus 5%.

### **Selection of the Primary Sampling Units**

The PSUs for CAMPHIA 2017-2018 are defined to be the EAs created for the 2005 Cameroon Population and Housing Census. The sampling frame consisted of approximately 18,000 EAs containing an estimated 4.5 million households and 22.2 million persons.

A stratified sample of 490 EAs was selected from the final EA sampling frame in accordance with the sample allocation given in Table A.1.A. Twenty-two strata were specified for sampling purposes consisting of the two cities of Yaounde and Douala (which are predominantly urban) plus the urban and rural areas of the 10 administrative regions of Cameroon (resulting in a total of 22 sampling strata). The EA samples were selected systematically and with probabilities proportionate to a measure of size (MOS) equal to the number of households in the EA based on the 2005 Population and Housing Census. Within each stratum, the EAs in the sampling frame were sorted by division (department), subdivision (arrondissement) within division, and finally by EA code within subdivision. This sorting of the EAs prior to sample selection induces an implicit geographic stratification. To select the sample from a particular stratum, the cumulative MOS was determined for each EA in the ordered list of EAs, and the sample selections were designated using a sampling interval equal to the total MOS of the EAs in the stratum divided by the number of EAs to be selected and a random starting point. The resulting sample has the property that the probability of selecting an EA within a particular stratum is proportional to the MOS of the EA in the stratum.

Details regarding EA segmentation may be found in the *CAMPHIA Technical Report* (<https://phia-data.icap.columbia.edu/files>).

### **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 CAMPHIA 2017-2018 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 *CAMPHIA Technical Report*: <https://phia-data.icap.columbia.edu/files>.

To maintain uniform workloads within the EAs that were fielded for data collection, a fixed sample size of 26 dwelling units per urban EA and 31 dwelling units per rural EA was specified for the CAMPHIA. Based on an assumed occupancy rate of 95.5%, the specified sample sizes were expected to yield about 25 and 30 households per urban and rural EAs, respectively. Such a design will produce self-weighting (ie, equal probability) samples of households within each sampling stratum only if the numbers of listed dwelling units for the EAs in the stratum are proportional to the corresponding MOS used to select the EAs. However, because the MOS used to select EAs was based on 2005 census data, there were appreciable differences between the MOS and actual listing counts for many of the sampled EAs. As a result, the fixed-sample-size-per-EA design originally proposed for CAMPHIA would have led to extremely large design effects due to unequal weighting within strata. To reduce the impact of the unequal weighting on sampling precision, the specified sample sizes of 26 (in urban EAs) or 31 (in rural EAs) were either doubled, tripled, or quadrupled, depending on the magnitude of the difference between the listing count and MOS. To offset the increased sampled sizes, the numbers of dwelling units/households to be sampled from the remaining EAs were reduced accordingly. The EA sample sizes were doubled in 36 EAs, tripled in six EAs, and quadrupled in four EAs, and the resulting design effects were less than 1.33 for all strata, and no greater than 1.10 for the majority of strata.

The *CAMPHIA Technical Report* <https://phia-data.icap.columbia.edu/files> provides an in-depth description of the equal probability sample design, as well as a detailed summary of the results of the household selection.

**Table A.1.A. Allocation of sample clusters (EAs) and dwelling units and projected sample sizes (number of respondents) by stratum**

| Region code | Stratum (Region) <sup>1,2</sup> | Estimated HIV prevalence <sup>3</sup> | Sample clusters (EAs) | Target dwelling units sampled | Expected households <sup>4</sup> | Projected number of respondents <sup>5</sup> |             |                         |
|-------------|---------------------------------|---------------------------------------|-----------------------|-------------------------------|----------------------------------|--|-------------|-------------------------|
|             |                                 |                                       |                       |                               |                                  | 15-49 years                                  | 50-64 years | 0-14 years <sup>6</sup> |
| 1           | Adamaoua                        | 5.7                                   | 38                    | 1,116                         | 1,065                            | 1,853  | 320         | 557                     |
| 2           | Centre                          | 6.8                                   | 37                    | 1,095                         | 1,045                            | 1,573  | 314         | 547                     |
| 3           | Douala                          | 5.1                                   | 55                    | 1,446                         | 1,380                            | 2,579  | 415         | 722                     |
| 4           | Est                             | 7.0                                   | 30                    | 885                           | 845                              | 1,593  | 254         | 442                     |
| 5           | Extrême-Nord                    | 1.3                                   | 76                    | 2,294                         | 2,190                            | 3,883  | 659         | 1,146                   |
| 6           | Littoral                        | 4.3                                   | 12                    | 335                           | 320                              | 536  | 96          | 167                     |
| 7           | Nord                            | 2.7                                   | 47                    | 1,409                         | 1,345                            | 2,445  | 404         | 704                     |
| 8           | Nord-Ouest                      | 7.0                                   | 38                    | 1,121                         | 1,070                            | 1,557  | 322         | 560                     |
| 9           | Ouest                           | 3.1                                   | 37                    | 1,079                         | 1,030                            | 1,172  | 310         | 539                     |
| 10          | Sud                             | 8.0                                   | 31                    | 917                           | 875                              | 1,384  | 263         | 458                     |
| 11          | Sud-Ouest                       | 6.3                                   | 34                    | 995                           | 950                              | 1,696  | 286         | 497                     |
| 12          | Yaounde                         | 7.0                                   | 55                    | 1,451                         | 1,385                            | 2,220  | 416         | 725                     |
| TOTAL       |                                 | 4.8                                   | 490                   | 14,143                        | 13,500                           | 22,493                                       | 4,060       | 7,065                   |

<sup>1</sup>The cities of Yaounde and Douala are defined to be separate regions for CAMPHIA.

<sup>2</sup>The region of Centre excludes Yaounde, and the region of Littoral excludes Douala.

<sup>3</sup>Source: 2011 Cameroon Demographic and Health Survey (CDHS).

<sup>4</sup>Assumes occupancy rate of 95.5%.

<sup>5</sup>Entries are projected counts based on the assumptions used to develop the sample design.

<sup>6</sup>Children 0-14 years of age in a random one-third subsample of households.

### Selection of Individuals

The selection of individuals for CAMPHIA 2017-2018 involved the following steps: (1) compiling a list of all individuals known to reside in the household or who slept in the household during the night prior to data collection; (2) identifying those rostered individuals who are eligible for data collection; and (3) selecting for the study those individuals meeting the age and residency requirements of the study. However, only those individuals who slept in the household the night before the household interview (ie, the de facto population) were retained for subsequent weighting and analysis.

The *CAMPHIA Technical Report* (<https://phia-data.icap.columbia.edu/files>) provides a brief description of the process for listing and selecting individuals for participation in CAMPHIA 2017-2018, and also presents detailed summaries of the distributions of eligible individuals and participants in individual interviews and HIV testing by strata and age.

## A.2 WEIGHTING

### Overview

In general, the purpose of weighting survey data from a complex sample design is to (1) compensate for variable probabilities of selection, (2) account for differential nonresponse rates within relevant subsets of the sample, and (3) adjust for possible under-coverage of certain population groups. Weighting is accomplished by assigning an appropriate sampling weight to each responding sampled unit (eg, a household or person), and using that weight to calculate weighted estimates from the sample. The critical component of the sampling weight is the base weight which is defined 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 CAMPHIA 2017-2018, nonresponse can occur at different stages of data collection, for example, (1) before the enumeration of individuals in the household, (2) after household enumeration and selection of persons but before completion of the individual interview, and (3) after completion of the interview but before collection of a viable blood sample.

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

### Methods

The overall weighting approach for CAMPHIA 2017-2018 includes several steps. Methods and results for each of the steps below are detailed in the *CAMPHIA Technical Report* (<https://phia-data.icap.columbia.edu/files>).

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

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

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

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

**Calculation of person-level interview weights:** Once the household weights are determined, they are used to calculate the individual base weights. The individual base weights are then adjusted for nonresponse among the eligible individuals, with a final adjustment for the individual weights to compensate for under-coverage in the sampling process by post-stratifying (ie, weighting up) to 2017 population projections.

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

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

## APPENDIX B HIV TESTING METHODOLOGY

### B.1 SPECIMEN COLLECTION AND HANDLING

Blood was collected by qualified survey staff from consenting participants: 14 milliliters (mL) of venous blood was collected from adults aged 15–64 years, 5 mL from children aged 2–14 years, and 1 mL of capillary from adults who either refused to give venous blood or had failed venous collection and children younger than 2 years of age, using finger-stick for children aged 6–23 months and heel-stick for infants under 6 months of age.

Blood samples were labeled with a unique barcoded participant identification number and stored in temperature-controlled cooler boxes. At the end of each day, samples were transported to a satellite laboratory for registration in a laboratory information management system, processing into plasma and DBS, and storage at -20°C within 24 hours of blood collection. Approximately weekly, samples were transported to Centre Pasteur de Cameroun (CPC) for additional testing and to the National Public Health Laboratory of Cameroon for long-term storage at -80°C.

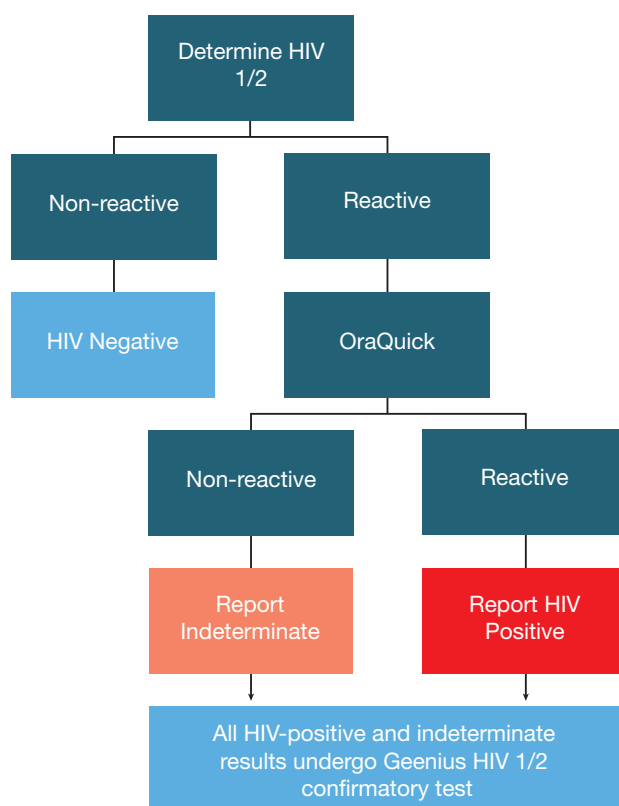
### B.2 HOUSEHOLD-BASED PROCEDURES

#### *HIV Rapid Testing*

HIV rapid testing was conducted in each household in accordance with Cameroon's national guidelines (Figure B.2.A). HIV-positive and HIV-indeterminate samples underwent additional testing at a satellite laboratory, as described in Section B.3. For participants who self-reported an HIV-positive status, but tested HIV negative during the survey, additional testing was conducted at CPC, as described in Section B.3. For children younger than 18 months of age, only the initial rapid test was performed. If the test was reactive, the sample underwent additional testing at CPC, as described in Section B.3.

**Figure B.2.A**

Household-based HIV testing algorithm, ages 18 months and older, CAMPHIA 2017-2018



### **CD4 Testing**

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

### **Counseling, Referral to Care, and Active Linkage to Care**

Pre- and post-test counseling were conducted in each household in accordance with Cameroon's national guidelines. For participants aged 18 years or older, results were communicated directly to the participant. For participants aged 15-17 years, results were communicated to the participant and the parent/guardian together, while for participants less than the age of 15 years, results were communicated directly to the parent or guardian. All participants who consented to HIV testing were asked to share contact information and to select a referral health facility prior to testing. Participants with an HIV-positive test result were referred to HIV care and treatment at the health facility of their choice, while participants with an HIV-indeterminate test result were advised to seek repeated testing at the health facility of their choice in four weeks. Further, HIV-positive participants were asked to consent to be contacted by qualified healthcare personnel, in order to facilitate active linkage to HIV care and treatment in Cameroon's healthcare system.

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

### **Quality Assurance and Control**

To assure the quality of the performance of field staff conducting HIV testing, proficiency testing, using a panel of blinded HIV-positive and HIV-negative dried tube specimens, was evaluated twice during the course of field work. Additionally, sample re-testing was conducted at a satellite lab for (1) the first 50 samples tested by each field staff member, (2) a random sample of 5% of HIV-negative specimens, and (3) all HIV-indeterminate specimens.

A limitation of the survey is the potential limitation of rapid tests to detect HIV antibodies among people in the serological window of infection, in HIV-infected patients on ART or in some HIV-infected infants. Participants in these two categories were not expected to be a significant source of bias. However, it is possible that this study did not identify all HIV-exposed infants who would need further PCR testing to verify HIV status. Although the survey used the methodology commonly practiced at the time, in a recent programmatic update, WHO concluded that the use of rapid tests to establish HIV-exposure status may be unreliable in HIV-infected infants.<sup>1</sup>

## **B.3 LABORATORY-BASED PROCEDURES**

Twelve survey satellite laboratories were established in existing health facility laboratories across the country, and two mobile labs moved with the teams in particularly remote areas. One central laboratory was established at CPC in Yaounde.

### **Geenius Testing**

All HIV-positive samples, as well as samples with discrepant or indeterminate results, were tested using the Geenius™ HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States) (Figure B.3.A). Testing was conducted at CPC in accordance with the manufacturer's protocol.

### **HIV TNA PCR**

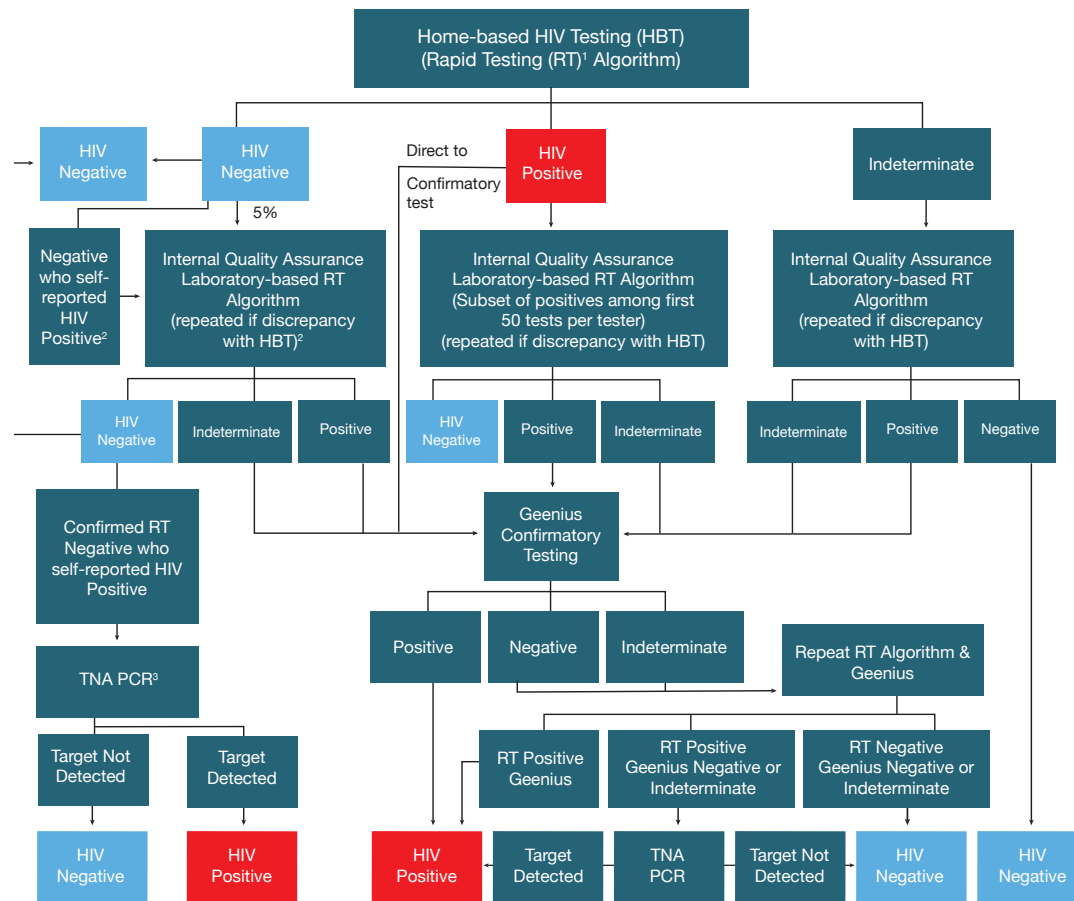
HIV TNA PCR was conducted for children younger than 18 months of age who had a reactive HIV test result during household-based testing (Figure B.3.A). Additionally, HIV TNA PCR was evaluated for participants who self-reported an HIV-positive status, but tested HIV negative during the survey, as well as for samples that were HIV positive by the rapid testing algorithm, but were HIV negative or indeterminate by Geenius testing (Figure B.3.B). HIV TNA PCR was conducted at the central lab using the Abbott RealTime HIV-1 qualitative assay (Abbott Molecular, Wiesbaden, Germany) on the Abbott m2000 Real-time platform (Abbott Laboratories, Abbott Park, Illinois, United States) in accordance with the manufacturer's protocol.

### **Classification of Final HIV Status**

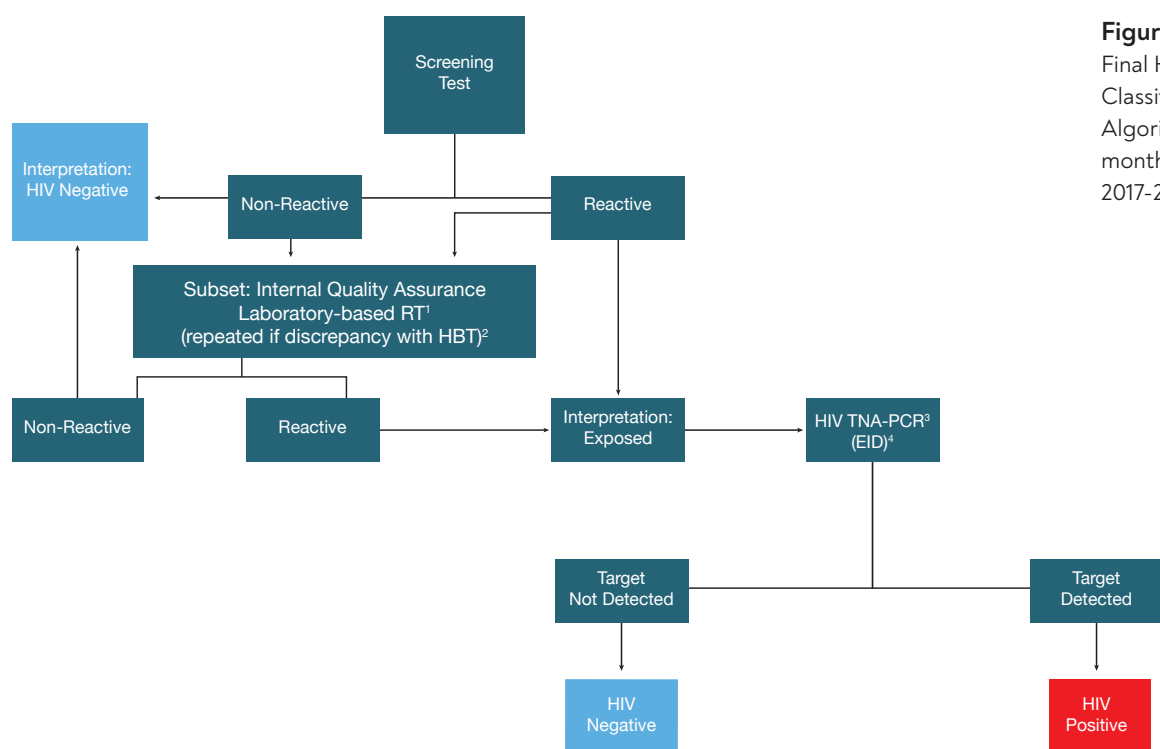
For participants aged 18 months or older, the algorithm for classification of final HIV status included results from HIV rapid testing, Geenius testing, and HIV TNA PCR (Figure B.3.A). For participants younger than 18 months of age, the algorithm for classification of final HIV status included results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

**Figure B.3.A**

Final HIV Status  
Classification  
Algorithm (≥18  
months), CAMPHIA  
2017-2018



<sup>1</sup>RT: rapid test; <sup>2</sup>HBT: home-based testing; <sup>3</sup>TNA PCR: total nucleic acid polymerase chain reaction



<sup>1</sup>RT: rapid test; <sup>2</sup>HBT: home-based testing; <sup>3</sup>TNA PCR: total acid polymerase chain reaction; <sup>4</sup>EID: early infant diagnosis

### Viral Load Testing

The HIV-1 VL (HIV RNA copies per mL) of confirmed HIV-positive participants was measured using the AbbotReal-time HIV-1 assay on the Abbott m2000 System (Abbott Molecular Inc., Chicago, Illinois, United States). HIV-1 VL (RNA copies per mL) was then measured using the Abbott m2000rt. The open-mode protocol for the Abbott RealTime HIV-1 assay was used to measure VL from DBS samples from children and from adults with insufficient volume of plasma.

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

### HIV Recency Testing

Estimation of HIV incidence was based on the classification of confirmed HIV-positive cases as recent or long-term HIV infections. The survey used two laboratory-based testing algorithms to estimate incidence. The first estimate used an algorithm that employed a combination of the HIV-1 LAg avidity enzyme immunoassay (Sedia Biosciences Corporation, Portland, Oregon, United States) and VL results (Figure B.3.C). ARV detection results were added to that algorithm for the second estimate (Figure B.3.D). The HIV recent infection testing algorithms were applied to repository specimens from all confirmed HIV-positive participants aged 18 months and older.

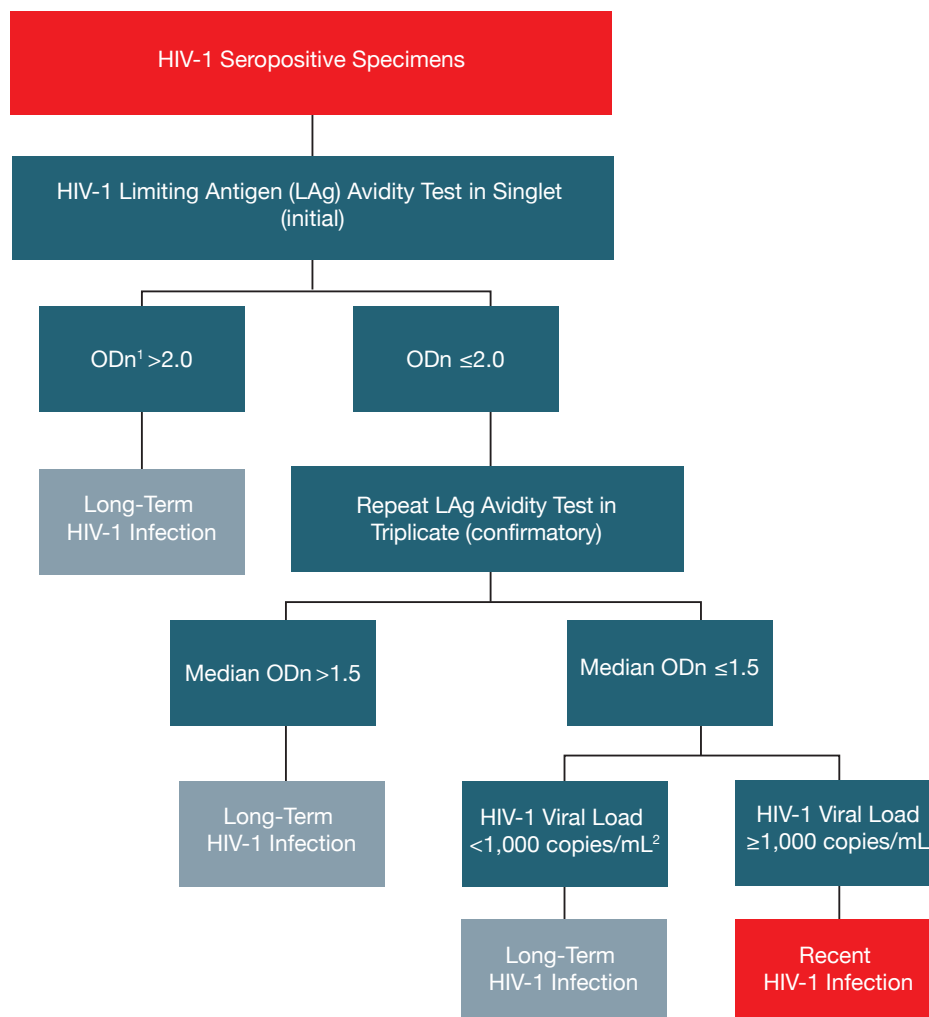
LAG testing was performed twice, with an initial screening test followed by a confirmatory process: Specimens with a normalized optical density (ODn) > 2.0 during initial testing were classified as long-term infections, while those with ODn ≤ 2.0 underwent further testing of the specimen in triplicate. Specimens with median ODn > 1.5 in confirmatory testing were classified as long-term infections. Specimens with median ODn < 0.4 were retested using the HIV diagnostic testing algorithm to confirm HIV-1 seropositivity, and samples identified as HIV-1 seronegative were excluded from the total number of HIV positives and incorporated into the total number of negative specimens for incidence estimation.



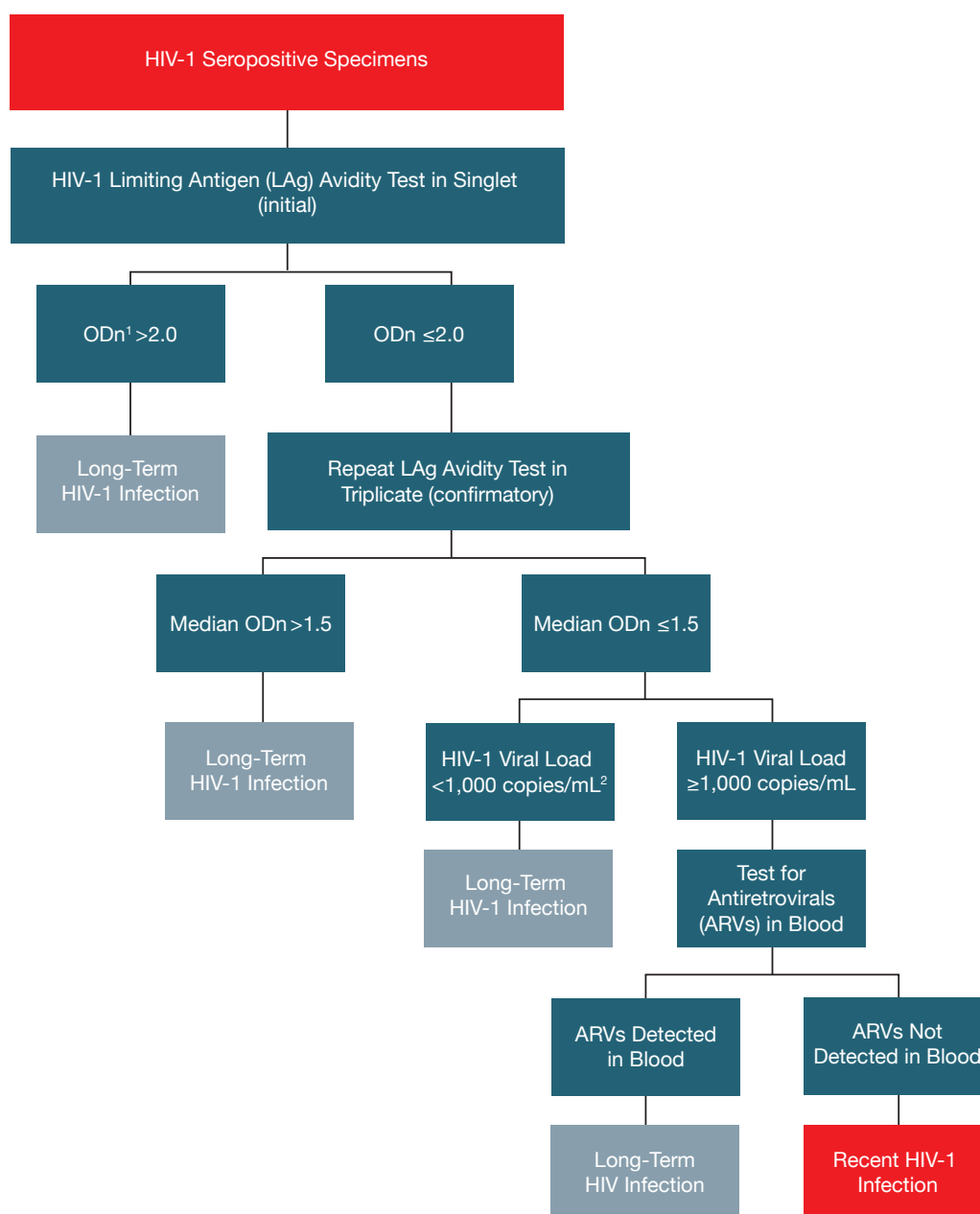
Specimens with median ODn  $\leq 1.5$  were classified as potential HIV-recent infections, and their VL results were assessed. For the first incidence testing algorithm, specimens with VL  $< 1,000$  copies/mL were classified as long-term infections, while those with VL  $\geq 1,000$  copies/mL were classified as recent infections. For the updated incidence algorithm, those classified as recent infections by the first algorithm were reclassified using ARV detection data. Those specimens in which efavirenz, lopinavir, and nevirapine were detected were classified as long-term infections and those in which no ARVs were detected remained classified as recent infections.

**Figure B.3.C**

HIV-1 Recent Infection  
Testing Algorithm  
(LAg/VL algorithm),  
CAMPHIA 2017-2018



¹ODn: normalized optical density; ²mL: milliliter

**Figure B.3.D**

HIV-1 recent infection testing algorithm (LAg/VL/ARV algorithm), CAMPRIA 2017-2018

<sup>1</sup>ODn: normalized optical density; <sup>2</sup>mL: milliliter

### HIV Incidence Estimation

Incidence estimates were obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays. Weighted counts for HIV-negative persons (N); HIV-positive persons (P); numbers tested on the LAg assay (Q); and numbers HIV recent (R) are provided for use in incidence calculations or UNAIDS Spectrum models (Tables B.3.A, B.3.B). Incidence estimates were calculated using the following parameters: mean duration recent infection (MDRI) = 130 days (95% CI: 118-142 days); proportion false recent (PFR) = 0.00; time cutoff (T) = 1 year. In-depth details are provided in the *CAMPRIA Technical Report*, which may be found online at [\[https://phia-data.icap.columbia.edu/files\]](https://phia-data.icap.columbia.edu/files).

**Table B.3.A Annual HIV incidence auxiliary data: N, P, Q, R, (LAg/VL<sup>1</sup> algorithm)**

| Annual incidence of HIV among persons aged 15-49 and 15-64 years, by sex and age, CAMPHIA 2017-2018 |                                      |                                      |   |                                    |                                      |                                      |   |                                    |                                      |                                      |   |                                    |
|---|--------------------------------------|--------------------------------------|---|------------------------------------|--------------------------------------|--------------------------------------|---|------------------------------------|--------------------------------------|--------------------------------------|---|------------------------------------|
| Age   | Male                                 |                                      |   |                                    | Female                               |                                      |   |                                    | Total                                |                                      |   |                                    |
|   | Number HIV negative <sup>2</sup> (N) | Number HIV positive <sup>2</sup> (P) | Number tested on LAg assay <sup>2</sup> (Q) | Number HIV recent <sup>2</sup> (R) | Number HIV negative <sup>2</sup> (N) | Number HIV positive <sup>2</sup> (P) | Number tested on LAg assay <sup>2</sup> (Q) | Number HIV recent <sup>2</sup> (R) | Number HIV negative <sup>1</sup> (N) | Number HIV positive <sup>2</sup> (P) | Number tested on LAg assay <sup>2</sup> (Q) | Number HIV recent <sup>2</sup> (R) |
| 15-24   | 4,031.96                             | 17.04                                | 17.04                                       | 1.03                               | 4,860.15                             | 98.85                                | 98.85                                       | 11.06                              | 8,900.58                             | 107.42                               | 107.42                                      | 11.03                              |
| 25-34   | 3,006.33                             | 72.67                                | 72.67                                       | 1.43                               | 3,832.84                             | 194.16                               | 194.16                                      | 3.76                               | 6,848.28                             | 257.72                               | 257.72                                      | 5.02                               |
| 35-49   | 2,872.15                             | 122.85                               | 122.85                                      | 0.43                               | 3,053.28                             | 281.72                               | 281.72                                      | 3.67                               | 5,925.65                             | 404.35                               | 404.35                                      | 4.09                               |
| 15-49   | 9,917.90                             | 205.10                               | 205.10                                      | 2.92                               | 11,731.36                            | 589.64                               | 589.64                                      | 18.35                              | 21,674.50                            | 769.50                               | 769.50                                      | 20.16                              |
| 15-64   | 11,609.00                            | 278.00                               | 277.30                                      | 3.85                               | 13,437.71                            | 706.29                               | 706.29                                      | 21.49                              | 25,070.20                            | 960.80                               | 960.06                                      | 24.28                              |

<sup>1</sup>LAg/VL: limiting antigen/viral load.<sup>2</sup>Weighted number.

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

**Table B.3.B Annual HIV incidence auxiliary data: N, P, Q, R (LAg/VL/ARV<sup>1</sup> algorithm)**

| Annual incidence of HIV among persons aged 15-49 and 15-64 years, by sex and age, using LAg/VL/ARVs algorithm, by sex and age, CAMPHIA 2017-2018 |                                      |                                      |   |                                    |                                      |                                      |   |                                    |                                      |                                      |   |                                    |
|--|--------------------------------------|--------------------------------------|---|------------------------------------|--------------------------------------|--------------------------------------|---|------------------------------------|--------------------------------------|--------------------------------------|---|------------------------------------|
| Age  | Male                                 |                                      |   |                                    | Female                               |                                      |   |                                    | Total                                |                                      |   |                                    |
|  | Number HIV negative <sup>2</sup> (N) | Number HIV positive <sup>2</sup> (P) | Number tested on LAg assay <sup>2</sup> (Q) | Number HIV recent <sup>2</sup> (R) | Number HIV negative <sup>2</sup> (N) | Number HIV positive <sup>2</sup> (P) | Number tested on LAg assay <sup>2</sup> (Q) | Number HIV recent <sup>2</sup> (R) | Number HIV negative <sup>2</sup> (N) | Number HIV positive <sup>2</sup> (P) | Number tested on LAg assay <sup>2</sup> (Q) | Number HIV recent <sup>2</sup> (R) |
| 15-24  | 4,031.96                             | 17.04                                | 17.04                                       | 1.03                               | 4,860.15                             | 98.85                                | 98.85                                       | 11.06                              | 8,900.58                             | 107.42                               | 107.42                                      | 11.03                              |
| 25-34  | 3,006.33                             | 72.67                                | 72.67                                       | 1.43                               | 3,832.84                             | 194.16                               | 194.16                                      | 3.76                               | 6,848.28                             | 257.72                               | 257.72                                      | 5.02                               |
| 35-49  | 2,872.15                             | 122.85                               | 122.85                                      | 0.43                               | 3,053.28                             | 281.72                               | 281.72                                      | 2.39                               | 5,925.65                             | 404.35                               | 404.35                                      | 2.81                               |
| 15-49  | 9,917.90                             | 205.10                               | 205.10                                      | 2.92                               | 11,731.36                            | 589.64                               | 589.64                                      | 16.95                              | 21,674.50                            | 769.50                               | 769.50                                      | 18.88                              |
| 15-64  | 11,609.00                            | 278.00                               | 277.30                                      | 3.85                               | 13,437.71                            | 706.29                               | 706.29                                      | 18.51                              | 25,070.20                            | 960.80                               | 960.06                                      | 21.49                              |

<sup>1</sup>LAg/VL/ARV: Limiting antigen/viral load/antiretroviral.<sup>2</sup>Weighted number.

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

### **Detection of Antiretrovirals**

To understand recent exposure to ARVs and hence level of ART coverage, samples from all confirmed HIV-positive participants were evaluated for the presence of selected ARVs, using high-resolution liquid chromatography coupled with tandem mass spectrometry to detect ARVs from DBS specimens.<sup>2</sup> Three ARVs, two non-nucleoside reverse transcriptase inhibitors, efavirenz and nevirapine, and one protease inhibitor, lopinavir, were used as markers for both first- and second-line regimens, based on the Cameroon's national treatment guidelines. The ARVs were selected based on their long half-lives, allowing for longer window period from drug exposure to detection.

To qualitatively detect ARVs, a single DBS was eluted, and chromatographic separation carried out on a Luna 5 µm column (110 Å, 50 x 2 mm) (Phenomenex, Torrance, California, United States). Each ARV was detected using an API 4000 LC/MS/MS instrument (Applied Biosystems, Foster City, California, United States). Internal standards and in-house quality control cut-off samples, including negative controls, were utilized in each run. This qualitative method used a limit of detection of 0.02 µg/mL for each ARV, with a signal-to-noise ratio of at least 5:1 for all ARVs. Samples with concentrations above 0.02 µg/mL were considered positive for each ARV.

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

### **Genotyping for Detection of Antiretroviral Drug Resistance and HIV Subtyping**

To determine the extent of transmitted HIV-1 drug resistance mutations among participants in CAMPHIA, samples from confirmed HIV-positive participants younger than 18 months of age and HIV-positive participants aged 18 months or older, who were classified as recent infections, as well as an equal or greater number who were classified as long-term infections, were evaluated using a TaqMan® Single Nucleotide Polymorphisms Genotyping Assay (Applied Biosystems) to identify mutations within the HIV-1 polymerase (*pol*) gene region, which encodes amino acid substitutions known to be responsible for resistance to specific ARVs.

Viral RNA or TNA from plasma or DBS was extracted using the NucliSENS® easyMAG® (bioMérieux, Marcy-L'Etoile, France) platform. The HIV *pol* gene was amplified by one-step RT-PCR, which was followed by nested PCR. Sequencing of the approximately one-kilobase amplicons was performed on the ABI 3730 DNA Analyzer (Applied Biosystems).<sup>3,4,5</sup>

The customized RECall software program was used to edit raw sequences and generate consensus sequences.<sup>6</sup> Mutations in the protease and reverse transcriptase genes were classified as potentially associated with drug resistance, according to the Stanford University HIV Drug Resistance Database.<sup>7</sup> Sequences with >98% homology were flagged for potential cross-contamination or possible epidemiological links. Internal quality assurance measures and in-house quality control standards were included in each run to validate results. The assay's sensitivity was established at 1,000 copies/mL for plasma and DBS.<sup>8</sup> Sequences were also analyzed for potential cross-contamination by phylogenetic analysis from code 6 of the protease gene to code 251 of the reverse transcriptase gene.

Subtyping of each sample was performed using the REGA HIV-1 & 2 Automated Subtyping Tool.<sup>9,10</sup> This BioAfrica viral subtyping tool is designed to use phylogenetic methods in order to identify the HIV-1 subtype of a specific sequence. The sequence is analyzed for recombination using boot-scanning methods.

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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 (eg, misinterpretation of an HIV test result) and data management (eg, transcription errors in data entry). While CAMPHIA 2017-2018 implemented numerous quality assurance and control measures to minimize non-sampling errors, these errors are impossible to avoid and difficult to evaluate statistically.

In contrast, sampling errors can be evaluated statistically. The sample of respondents selected for CAMPHIA 2017-2018 is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

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

CAMPHIA 2017-2018 utilized a multi-stage stratified sample design, which requires complex calculations to obtain sampling errors. Specifically, a variant of the jackknife repeated replication method was implemented in SAS (SAS Institute Inc. Cary, North Carolina, United States) to estimate variance for proportions (eg, HIV prevalence), rates (eg, annual HIV incidence), and counts (eg, numbers of people living with HIV). Each replication considers all but one cluster in the calculation of the estimates. Pseudo-independent replications are thus created. In CAMPHIA 2017-2018, a jackknife replicate is created by randomly deleting one cluster from each variance-estimation stratum and retaining all of the clusters in the remaining strata. A total of 240 variance-estimation strata were created by pairing (or occasionally tripling) the sample clusters in the systematic order in which they had been selected. Hence, 240 replications were created. The variance of a sample-based statistic,  $y$ , is calculated as follows:

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

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

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

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

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

Sampling errors for selected variables from CAMPHIA 2017-2018 are presented in Tables C.1 through C.8, and sampling errors for all survey estimates may be found online at <https://phia.icap.columbia.edu/resources/>. For each variable, sampling error tables include the weighted estimate, unweighted denominator, standard error, design effect, and lower and upper 95 percent confidence limits.

**Table C.1 Sampling errors: Annual HIV incidence by age, CAMPHIA 2017-2018**

| Age (years) | Weighted estimate (%) | Design effect | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------|-----------------------|---------------|----------------------------|----------------------------|
| TOTAL       |                       |               |                            |                            |
| 15-24       | 0.35                  | 1.79          | 0.08                       | 0.61                       |
| 25-34       | 0.21                  | 1.12          | 0.02                       | 0.39                       |
| 35-49       | 0.13                  | 1.05          | 0.00                       | 0.29                       |
| 15-49       | 0.24                  | 1.48          | 0.11                       | 0.38                       |
| 15-64       | 0.24                  | 1.57          | 0.11                       | 0.37                       |
| MALE        |                       |               |                            |                            |
| 15-24       | 0.07                  | 1.02          | 0.00                       | 0.21                       |
| 25-34       | 0.13                  | 1.47          | 0.00                       | 0.40                       |
| 35-49       | 0.04                  | 0.42          | 0.00                       | 0.17                       |
| 15-49       | 0.08                  | 1.16          | 0.00                       | 0.18                       |
| 15-64       | 0.09                  | 1.11          | 0.00                       | 0.19                       |
| FEMALE      |                       |               |                            |                            |
| 15-24       | 0.64                  | 2.10          | 0.12                       | 1.15                       |
| 25-34       | 0.28                  | 1.00          | 0.00                       | 0.55                       |
| 35-49       | 0.22                  | 1.17          | 0.00                       | 0.52                       |
| 15-49       | 0.40                  | 1.68          | 0.15                       | 0.66                       |
| 15-64       | 0.39                  | 1.67          | 0.16                       | 0.61                       |

**Table C.2 Sampling errors: HIV prevalence by age, CAMPHIA 2017-2018**

| Age          | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|--------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| TOTAL        |                       |                   |                    |                            |                            |
| 0-17 months  | 0.0                   | 657               | 0.0                | 0.0                        | 0.0                        |
| 18-59 months | 0.2                   | 1,811             | 0.1                | 0.0                        | 0.5                        |
| 5-9          | 0.4                   | 2,638             | 0.2                | 0.0                        | 0.8                        |
| 10-14        | 0.1                   | 2,115             | 0.1                | 0.0                        | 0.3                        |
| Total 0-4    | 0.1                   | 2,468             | 0.1                | 0.0                        | 0.3                        |
| Total 0-14   | 0.2                   | 7,221             | 0.1                | 0.1                        | 0.4                        |
| 15-19        | 0.7                   | 4,765             | 0.2                | 0.4                        | 1.0                        |
| 20-24        | 1.7                   | 4,243             | 0.2                | 1.3                        | 2.2                        |
| 25-29        | 2.5                   | 3,923             | 0.3                | 1.9                        | 3.1                        |
| 30-34        | 4.9                   | 3,183             | 0.4                | 4.0                        | 5.8                        |
| 35-39        | 5.7                   | 2,537             | 0.6                | 4.4                        | 7.0                        |
| 40-44        | 7.4                   | 2,151             | 0.7                | 6.0                        | 8.7                        |
| 45-49        | 6.2                   | 1,642             | 0.7                | 4.7                        | 7.7                        |
| 50-54        | 6.8                   | 1,324             | 0.8                | 5.1                        | 8.5                        |
| 55-59        | 4.8                   | 1,175             | 0.7                | 3.4                        | 6.1                        |
| 60-64        | 4.4                   | 1,088             | 0.7                | 3.0                        | 5.7                        |
| Total 15-24  | 1.2                   | 9,008             | 0.1                | 0.9                        | 1.5                        |

**Table C.2 Sampling errors: HIV prevalence by age, CAMPHIA 2017-2018** (continued)

| Age          | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|--------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| Total 15-49  | 3.4                   | 22,444            | 0.2                | 3.1                        | 3.8                        |
| Total 15-64  | 3.7                   | 26,031            | 0.2                | 3.3                        | 4.0                        |
| MALE         |                       |                   |                    |                            |                            |
| 0-17 months  | 0.0                   | 341               | 0.0                | 0.0                        | 0.0                        |
| 18-59 months | 0.2                   | 896               | 0.1                | 0.0                        | 0.4                        |
| 5-9          | 0.6                   | 1,325             | 0.3                | 0.0                        | 1.2                        |
| 10-14        | 0.3                   | 1,070             | 0.2                | 0.0                        | 0.6                        |
| Total 0-4    | 0.1                   | 1,237             | 0.1                | 0.0                        | 0.3                        |
| Total 0-14   | 0.3                   | 3,632             | 0.1                | 0.1                        | 0.5                        |
| 15-19        | 0.2                   | 2,145             | 0.1                | 0.0                        | 0.5                        |
| 20-24        | 0.6                   | 1,904             | 0.2                | 0.2                        | 1.1                        |
| 25-29        | 1.2                   | 1,664             | 0.3                | 0.6                        | 1.8                        |
| 30-34        | 3.7                   | 1,415             | 0.5                | 2.6                        | 4.8                        |
| 35-39        | 3.0                   | 1,174             | 0.6                | 1.9                        | 4.2                        |
| 40-44        | 5.3                   | 1,056             | 0.8                | 3.7                        | 6.8                        |
| 45-49        | 4.2                   | 765               | 0.7                | 2.7                        | 5.7                        |
| 50-54        | 6.0                   | 618               | 1.1                | 3.7                        | 8.3                        |
| 55-59        | 3.4                   | 591               | 0.7                | 1.9                        | 5.0                        |
| 60-64        | 3.8                   | 555               | 0.9                | 2.0                        | 5.5                        |
| Total 15-24  | 0.4                   | 4,049             | 0.1                | 0.2                        | 0.7                        |
| Total 15-49  | 2.0                   | 10,123            | 0.2                | 1.7                        | 2.3                        |
| Total 15-64  | 2.3                   | 11,887            | 0.2                | 2.0                        | 2.7                        |
| FEMALE       |                       |                   |                    |                            |                            |
| 0-17 months  | 0.0                   | 316               | 0.0                | 0.0                        | 0.0                        |
| 18-59 months | 0.2                   | 915               | 0.2                | 0.0                        | 0.7                        |
| 5-9          | 0.2                   | 1,313             | 0.1                | 0.0                        | 0.5                        |
| 10-14        | 0.0                   | 1,045             | 0.0                | 0.0                        | 0.0                        |
| Total 0-4    | 0.2                   | 1,231             | 0.2                | 0.0                        | 0.5                        |
| Total 0-14   | 0.1                   | 3,589             | 0.1                | 0.0                        | 0.3                        |
| 15-19        | 1.2                   | 2,620             | 0.3                | 0.7                        | 1.8                        |
| 20-24        | 2.9                   | 2,339             | 0.4                | 2.0                        | 3.8                        |
| 25-29        | 3.7                   | 2,259             | 0.5                | 2.8                        | 4.7                        |
| 30-34        | 5.9                   | 1,768             | 0.7                | 4.4                        | 7.5                        |
| 35-39        | 8.0                   | 1,363             | 1.0                | 6.0                        | 10.0                       |
| 40-44        | 9.3                   | 1,095             | 1.0                | 7.1                        | 11.4                       |
| 45-49        | 8.1                   | 877               | 1.1                | 5.8                        | 10.4                       |
| 50-54        | 7.6                   | 706               | 1.3                | 4.9                        | 10.3                       |
| 55-59        | 6.0                   | 584               | 1.1                | 3.7                        | 8.3                        |
| 60-64        | 5.0                   | 533               | 0.9                | 3.0                        | 6.9                        |
| Total 15-24  | 2.0                   | 4,959             | 0.2                | 1.5                        | 2.5                        |
| Total 15-49  | 4.8                   | 12,321            | 0.3                | 4.2                        | 5.3                        |
| Total 15-64  | 5.0                   | 14,144            | 0.3                | 4.5                        | 5.5                        |



**Table C.3 Sampling errors: HIV prevalence by residence and region, ages 15-64 years, CAMPHIA 2017-2018**

| Characteristic    | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| TOTAL             |                       |                   |                    |                            |                            |
| <b>Residence</b>  |                       |                   |                    |                            |                            |
| Total Urban       | 3.8                   | 10,946            | 0.2                | 3.4                        | 4.3                        |
| Douala or Yaounde | 3.8                   | 4,435             | 0.3                | 3.1                        | 4.5                        |
| Other urban       | 3.9                   | 6,511             | 0.3                | 3.3                        | 4.4                        |
| Rural             | 3.5                   | 15,085            | 0.3                | 3.0                        | 4.1                        |
| <b>Region</b>     |                       |                   |                    |                            |                            |
| Adamawa           | 4.9                   | 1,997             | 0.9                | 3.1                        | 6.7                        |
| Centre            | 5.8                   | 2,589             | 0.5                | 4.8                        | 6.8                        |
| Douala            | 3.3                   | 2,205             | 0.4                | 2.5                        | 4.0                        |
| East              | 5.9                   | 2,009             | 0.7                | 4.5                        | 7.3                        |
| Far North         | 1.5                   | 3,656             | 0.3                | 1.0                        | 2.1                        |
| Littoral          | 3.1                   | 893               | 0.9                | 1.2                        | 4.9                        |
| North             | 1.6                   | 3,302             | 0.3                | 1.0                        | 2.1                        |
| North West        | 5.1                   | 1,869             | 0.8                | 3.4                        | 6.7                        |
| South             | 6.3                   | 1,648             | 0.5                | 5.4                        | 7.3                        |
| South West        | 3.6                   | 1,373             | 0.6                | 2.4                        | 4.9                        |
| West              | 2.7                   | 2,260             | 0.5                | 1.8                        | 3.6                        |
| Yaounde           | 4.4                   | 2,230             | 0.6                | 3.2                        | 5.6                        |
| MALE              |                       |                   |                    |                            |                            |
| <b>Residence</b>  |                       |                   |                    |                            |                            |
| Total Urban       | 2.2                   | 5,075             | 0.2                | 1.9                        | 2.6                        |
| Douala or Yaounde | 2.1                   | 2,082             | 0.3                | 1.5                        | 2.7                        |
| Other urban       | 2.3                   | 2,993             | 0.2                | 1.9                        | 2.8                        |
| Rural             | 2.5                   | 6,812             | 0.3                | 1.9                        | 3.0                        |
| <b>Region</b>     |                       |                   |                    |                            |                            |
| Adamawa           | 3.0                   | 916               | 0.7                | 1.5                        | 4.6                        |
| Centre            | 3.5                   | 1,247             | 0.6                | 2.4                        | 4.7                        |
| Douala            | 1.6                   | 1,039             | 0.4                | 0.8                        | 2.5                        |
| East              | 3.9                   | 929               | 0.6                | 2.7                        | 5.0                        |
| Far North         | 1.3                   | 1,598             | 0.3                | 0.7                        | 2.0                        |
| Littoral          | 1.5                   | 428               | 0.5                | 0.5                        | 2.6                        |
| North             | 1.3                   | 1,496             | 0.3                | 0.6                        | 1.9                        |
| North West        | 2.9                   | 775               | 0.7                | 1.5                        | 4.3                        |
| South             | 3.0                   | 808               | 0.8                | 1.3                        | 4.7                        |
| South West        | 2.6                   | 649               | 0.6                | 1.3                        | 3.9                        |
| West              | 2.4                   | 959               | 0.7                | 1.0                        | 3.8                        |
| Yaounde           | 2.7                   | 1,043             | 0.4                | 1.8                        | 3.5                        |

**Table C.3 Sampling errors: HIV prevalence by residence and region, ages 15-64 years, CAMPHIA 2017-2018**  
(continued)

| Characteristic    | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| FEMALE            |                       |                   |                    |                            |                            |
| <b>Residence</b>  |                       |                   |                    |                            |                            |
| Total Urban       | 5.5                   | 5,871             | 0.4                | 4.7                        | 6.2                        |
| Douala or Yaounde | 5.5                   | 2,353             | 0.6                | 4.3                        | 6.8                        |
| Other urban       | 5.4                   | 3,518             | 0.4                | 4.5                        | 6.3                        |
| Rural             | 4.5                   | 8,273             | 0.3                | 3.8                        | 5.2                        |
| <b>Region</b>     |                       |                   |                    |                            |                            |
| Adamawa           | 6.8                   | 1,081             | 1.0                | 4.8                        | 8.9                        |
| Centre            | 8.1                   | 1,342             | 0.6                | 6.8                        | 9.4                        |
| Douala            | 5.0                   | 1,166             | 0.6                | 3.8                        | 6.2                        |
| East              | 7.9                   | 1,080             | 1.0                | 5.8                        | 10.0                       |
| Far North         | 1.7                   | 2,058             | 0.3                | 1.0                        | 2.4                        |
| Littoral          | 4.6                   | 465               | 1.3                | 2.0                        | 7.2                        |
| North             | 1.9                   | 1,806             | 0.4                | 1.1                        | 2.7                        |
| North West        | 6.8                   | 1,094             | 1.2                | 4.2                        | 9.3                        |
| South             | 9.8                   | 840               | 0.9                | 7.8                        | 11.7                       |
| South West        | 4.7                   | 724               | 0.8                | 3.0                        | 6.4                        |
| West              | 2.9                   | 1,301             | 0.4                | 2.0                        | 3.9                        |
| Yaounde           | 6.2                   | 1,187             | 1.1                | 4.0                        | 8.4                        |

**Table C.4 Sampling errors: Viral load suppression by age, CAMPHIA 2017-2018**

| Age (years) | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| TOTAL       |                       |                   |                    |                            |                            |
| 0-14        | *                     | 14                | 10.7               | 0.0                        | 42.8                       |
| 15-24       | 23.9                  | 125               | 4.3                | 14.9                       | 32.8                       |
| 25-34       | 32.8                  | 279               | 3.1                | 26.4                       | 39.3                       |
| 35-44       | 52.2                  | 282               | 3.2                | 45.6                       | 58.8                       |
| 45-54       | 52.7                  | 192               | 3.9                | 44.7                       | 60.8                       |
| 55-64       | 61.3                  | 102               | 5.4                | 50.3                       | 72.3                       |
| Total 15-24 | 23.9                  | 125               | 4.3                | 14.9                       | 32.8                       |
| Total 15-49 | 40.9                  | 792               | 2.1                | 36.5                       | 45.3                       |
| Total 15-64 | 44.7                  | 980               | 1.9                | 40.7                       | 48.7                       |

**Table C.4 Sampling errors: Viral load suppression by age, CAMPHIA 2017-2018**

| Age (years) | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| MALE        |                       |                   |                    |                            |                            |
| 0-14        | *                     | 9                 | 11.3               | 0.0                        | 38.6                       |
| 15-24       | *                     | 17                | 13.9               | 1.7                        | 59.1                       |
| 25-34       | 28.1                  | 76                | 5.7                | 16.3                       | 39.8                       |
| 35-44       | 48.8                  | 88                | 6.5                | 35.3                       | 62.3                       |
| 45-54       | 46.8                  | 68                | 7.0                | 32.4                       | 61.2                       |
| 55-64       | (58.6)                | 41                | 7.5                | 43.2                       | 74.0                       |
| Total 15-24 | *                     | 17                | 13.9               | 1.7                        | 59.1                       |
| Total 15-49 | 38.0                  | 215               | 4.3                | 29.1                       | 47.0                       |
| Total 15-64 | 42.5                  | 290               | 3.8                | 34.8                       | 50.3                       |
| FEMALE      |                       |                   |                    |                            |                            |
| 0-14        | *                     | 5                 | 36.5               | 0.0                        | 100.0                      |
| 15-24       | 22.5                  | 108               | 4.1                | 13.9                       | 31.0                       |
| 25-34       | 35.0                  | 203               | 3.4                | 28.0                       | 42.0                       |
| 35-44       | 53.6                  | 194               | 3.7                | 45.9                       | 61.3                       |
| 45-54       | 56.2                  | 124               | 5.1                | 45.6                       | 66.8                       |
| 55-64       | 62.9                  | 61                | 7.0                | 48.4                       | 77.4                       |
| Total 15-24 | 22.5                  | 108               | 4.1                | 13.9                       | 31.0                       |
| Total 15-49 | 42.1                  | 577               | 2.2                | 37.6                       | 46.5                       |
| Total 15-64 | 45.6                  | 690               | 2.1                | 41.3                       | 50.0                       |

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.  
 Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

**Table C.5 Sampling errors: Viral load suppression by residence and region, ages 15-64 years, CAMPHIA 2017-2018**

| Characteristic    | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| TOTAL             |                       |                   |                    |                            |                            |
| <b>Residence</b>  |                       |                   |                    |                            |                            |
| Total Urban       | 44.0                  | 453               | 2.9                | 38.0                       | 50.0                       |
| Douala or Yaounde | 43.0                  | 172               | 4.6                | 33.4                       | 52.5                       |
| Other urban       | 44.9                  | 281               | 3.7                | 37.2                       | 52.6                       |
| Rural             | 45.5                  | 527               | 2.5                | 40.4                       | 50.5                       |
| <b>Region</b>     |                       |                   |                    |                            |                            |
| Adamawa           | 34.1                  | 98                | 7.1                | 19.5                       | 48.6                       |
| Centre            | 43.5                  | 143               | 4.3                | 34.7                       | 52.3                       |
| Douala            | 45.1                  | 74                | 6.9                | 30.9                       | 59.4                       |
| East              | 45.4                  | 123               | 6.1                | 32.9                       | 57.9                       |
| Far North         | 37.8                  | 54                | 7.1                | 23.2                       | 52.4                       |
| Littoral          | *                     | 23                | 2.1                | 50.6                       | 59.4                       |
| North             | 27.6                  | 52                | 6.5                | 14.3                       | 41.0                       |

**Table C.5 Sampling errors: Viral load suppression by residence and region, ages 15-64 years, CAMPHIA 2017-2018**  
(continued)

| Characteristic    | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|-------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| North West        | 60.9                  | 97                | 4.7                | 51.2                       | 70.7                       |
| South             | 34.4                  | 111               | 7.8                | 18.4                       | 50.5                       |
| South West        | 33.8                  | 49                | 6.3                | 20.8                       | 46.7                       |
| West              | 62.9                  | 58                | 7.0                | 48.6                       | 77.3                       |
| Yaounde           | 41.1                  | 98                | 6.5                | 27.7                       | 54.4                       |
| MALE              |                       |                   |                    |                            |                            |
| <b>Residence</b>  |                       |                   |                    |                            |                            |
| Total Urban       | 38.4                  | 121               | 5.3                | 27.6                       | 49.2                       |
| Douala or Yaounde | 41.6                  | 43                | 9.1                | 22.8                       | 60.4                       |
| Other urban       | 35.9                  | 78                | 6.0                | 23.6                       | 48.2                       |
| Rural             | 46.8                  | 169               | 4.9                | 36.7                       | 56.9                       |
| <b>Region</b>     |                       |                   |                    |                            |                            |
| Adamawa           | 29.6                  | 31                | 12.6               | 3.5                        | 55.6                       |
| Centre            | 40.0                  | 42                | 5.7                | 28.2                       | 51.7                       |
| Douala            | 51.8*                 | 16                | 15.0               | 20.9                       | 82.7                       |
| East              | 39.1                  | 38                | 11.0               | 16.5                       | 61.7                       |
| Far North         | 25.8*                 | 21                | 10.4               | 4.4                        | 47.2                       |
| Littoral          | 79.3*                 | 6                 | 14.5               | 49.5                       | 100.0                      |
| North             | 31.1*                 | 18                | 8.8                | 13.3                       | 49.4                       |
| North West        | 57.4*                 | 23                | 10.7               | 35.3                       | 79.6                       |
| South             | 32.6                  | 27                | 9.3                | 13.4                       | 51.9                       |
| South West        | 32.6*                 | 17                | 9.3                | 14.8                       | 53.3                       |
| West              | 58.8*                 | 24                | 9.5                | 39.1                       | 78.1                       |
| Yaounde           | 34.4                  | 27                | 11.1               | 11.6                       | 57.2                       |
| FEMALE            |                       |                   |                    |                            |                            |
| <b>Residence</b>  |                       |                   |                    |                            |                            |
| Total Urban       | 46.3                  | 332               | 3.2                | 39.7                       | 52.9                       |
| Douala or Yaounde | 43.5                  | 129               | 4.6                | 34.0                       | 53.0                       |
| Other urban       | 48.6                  | 203               | 4.5                | 39.4                       | 57.9                       |
| Rural             | 44.8                  | 358               | 2.6                | 39.5                       | 50.1                       |
| <b>Region</b>     |                       |                   |                    |                            |                            |
| Adamawa           | 36.1                  | 67                | 5.9                | 24.0                       | 48.2                       |
| Centre            | 45.1                  | 101               | 5.2                | 34.3                       | 55.9                       |
| Douala            | 42.9                  | 58                | 7.3                | 27.9                       | 57.9                       |
| East              | 48.4                  | 85                | 6.0                | 36.1                       | 60.7                       |
| Far North         | 46.3                  | 33                | 7.7                | 30.3                       | 62.2                       |
| Littoral          | *                     | 17                | 4.0                | 38.5                       | 55.1                       |
| North             | 25.3                  | 34                | 6.5                | 12.0                       | 38.7                       |
| North West        | 62.1                  | 74                | 6.4                | 49.0                       | 75.3                       |
| South             | 35.0                  | 84                | 8.9                | 16.7                       | 53.4                       |

**Table C.5 Sampling errors: Viral load suppression by residence and region, ages 15-64 years, CAMPHIA 2017-2018**  
(continued)

| Characteristic | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|----------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| South West     | 33.6                  | 32                | 8.6                | 15.9                       | 51.2                       |
| West           | 65.9                  | 34                | 10.1               | 45.1                       | 86.7                       |
| Yaounde        | 44.1                  | 71                | 5.9                | 32.0                       | 56.1                       |

**Table C.6 Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), CAMPHIA 2017-2018**

| Age (years)            | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|------------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| TOTAL                  |                       |                   |                    |                            |                            |
| Diagnosed              |                       |                   |                    |                            |                            |
| 15-24                  | 20.7                  | 124               | 4.1                | 12.2                       | 29.3                       |
| 25-34                  | 46.7                  | 278               | 3.1                | 40.3                       | 53.1                       |
| 35-49                  | 64.4                  | 384               | 2.5                | 59.1                       | 69.6                       |
| 15-49                  | 52.4                  | 786               | 1.9                | 48.5                       | 56.3                       |
| 15-64                  | 55.6                  | 974               | 1.8                | 51.9                       | 59.3                       |
| On Treatment           |                       |                   |                    |                            |                            |
| 15-24                  | (89.8)                | 28                | 4.4                | 80.7                       | 98.9                       |
| 25-34                  | 87.5                  | 131               | 3.5                | 80.4                       | 94.6                       |
| 35-49                  | 93.9                  | 244               | 1.7                | 90.4                       | 97.4                       |
| 15-49                  | 91.8                  | 403               | 1.7                | 88.3                       | 95.3                       |
| 15-64                  | 93.1                  | 529               | 1.4                | 90.3                       | 95.8                       |
| Viral Load Suppression |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 24                | 11.5               | 50.0                       | 97.2                       |
| 25-34                  | 69.2                  | 116               | 5.3                | 58.3                       | 80.1                       |
| 35-49                  | 80.9                  | 232               | 3.2                | 74.4                       | 87.3                       |
| 15-49                  | 77.2                  | 372               | 3.0                | 70.9                       | 83.5                       |
| 15-64                  | 80.1                  | 493               | 2.5                | 75.0                       | 85.1                       |
| MALE                   |                       |                   |                    |                            |                            |
| Diagnosed              |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 17                | 12.0               | 0.0                        | 38.3                       |
| 25-34                  | 37.1                  | 75                | 6.0                | 24.7                       | 49.5                       |
| 35-49                  | 61.2                  | 122               | 5.1                | 50.6                       | 71.7                       |
| 15-49                  | 48.5                  | 214               | 3.7                | 40.9                       | 56.0                       |
| 15-64                  | 51.4                  | 289               | 3.1                | 44.9                       | 57.8                       |
| On Treatment           |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 2                 | 0.0                | 100.0                      | 100.0                      |
| 25-34                  | (82.5)                | 26                | 7.2                | 67.6                       | 97.3                       |
| 35-49                  | 97.2                  | 74                | 2.2                | 92.7                       | 100.0                      |

**Table C.6 Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), CAMPHIA 2017-2018**  
(continued)

| Age (years)            | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|------------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| 15-49                  | 93.3                  | 102               | 2.6                | 88.0                       | 98.5                       |
| 15-64                  | 94.2                  | 148               | 2.0                | 90.1                       | 98.3                       |
| Viral Load Suppression |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 2                 | 6.1                | 0.0                        | 18.1                       |
| 25-34                  | *                     | 21                | 9.2                | 59.8                       | 97.7                       |
| 35-49                  | 76.3                  | 72                | 6.0                | 64.0                       | 88.7                       |
| 15-49                  | 75.1                  | 95                | 5.5                | 63.8                       | 86.3                       |
| 15-64                  | 81.1                  | 139               | 4.0                | 72.8                       | 89.4                       |
| FEMALE                 |                       |                   |                    |                            |                            |
| Diagnosed              |                       |                   |                    |                            |                            |
| 15-24                  | 22.3                  | 107               | 4.2                | 13.7                       | 31.0                       |
| 25-34                  | 51.1                  | 203               | 3.5                | 43.9                       | 58.3                       |
| 35-49                  | 65.8                  | 262               | 3.2                | 59.3                       | 72.3                       |
| 15-49                  | 54.0                  | 572               | 2.1                | 49.7                       | 58.4                       |
| 15-64                  | 57.5                  | 685               | 2.0                | 53.3                       | 61.7                       |
| On Treatment           |                       |                   |                    |                            |                            |
| 15-24                  | (88.5)                | 26                | 4.9                | 78.4                       | 98.5                       |
| 25-34                  | 89.2                  | 105               | 3.9                | 81.2                       | 97.1                       |
| 35-49                  | 92.6                  | 170               | 2.2                | 88.0                       | 97.1                       |
| 15-49                  | 91.3                  | 301               | 2.1                | 86.9                       | 95.6                       |
| 15-64                  | 92.6                  | 381               | 1.7                | 89.0                       | 96.2                       |
| Viral Load Suppression |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 22                | 7.2                | 69.1                       | 98.7                       |
| 25-34                  | 66.2                  | 95                | 5.9                | 54.1                       | 78.3                       |
| 35-49                  | 82.8                  | 160               | 3.3                | 76.1                       | 89.5                       |
| 15-49                  | 78.0                  | 277               | 3.2                | 71.5                       | 84.5                       |
| 15-64                  | 79.6                  | 354               | 2.7                | 74.0                       | 85.3                       |

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

Estimates based on a very small denominator (less than 25) have been suppressed with an asterisk.

**Table C.7 Sampling errors: ARV-adjusted 90-90-90 by age (unconditional percentages), CAMPHIA 2017-2018**

| Age (years)            | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|------------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| TOTAL                  |                       |                   |                    |                            |                            |
| Diagnosed              |                       |                   |                    |                            |                            |
| 15-24                  | 20.7                  | 124               | 4.1                | 12.2                       | 29.3                       |
| 25-34                  | 46.7                  | 278               | 3.1                | 40.3                       | 53.1                       |
| 35-49                  | 64.4                  | 384               | 2.5                | 59.1                       | 69.6                       |
| 15-49                  | 52.4                  | 786               | 1.9                | 48.5                       | 56.3                       |
| 15-64                  | 55.6                  | 974               | 1.8                | 51.9                       | 59.3                       |
| On Treatment           |                       |                   |                    |                            |                            |
| 15-24                  | 18.6                  | 124               | 4.1                | 10.3                       | 27.0                       |
| 25-34                  | 40.9                  | 278               | 3.2                | 34.3                       | 47.4                       |
| 35-49                  | 60.4                  | 384               | 2.5                | 55.2                       | 65.7                       |
| 15-49                  | 48.1                  | 786               | 1.8                | 44.4                       | 51.8                       |
| 15-64                  | 51.7                  | 974               | 1.8                | 48.1                       | 55.4                       |
| Viral Load Suppression |                       |                   |                    |                            |                            |
| 15-24                  | 13.7                  | 124               | 3.0                | 7.6                        | 19.8                       |
| 25-34                  | 28.3                  | 278               | 3.0                | 22.0                       | 34.5                       |
| 35-49                  | 48.9                  | 384               | 2.8                | 43.0                       | 54.7                       |
| 15-49                  | 37.1                  | 786               | 2.0                | 33.0                       | 41.3                       |
| 15-64                  | 41.4                  | 974               | 1.9                | 37.6                       | 45.3                       |
| MALE                   |                       |                   |                    |                            |                            |
| Diagnosed              |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 17                | 12.0               | 0.0                        | 38.3                       |
| 25-34                  | 37.1                  | 75                | 6.0                | 24.7                       | 49.5                       |
| 35-49                  | 61.2                  | 122               | 5.1                | 50.6                       | 71.7                       |
| 15-49                  | 48.5                  | 214               | 3.7                | 40.9                       | 56.0                       |
| 15-64                  | 51.4                  | 289               | 3.1                | 44.9                       | 57.8                       |
| On Treatment           |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 17                | 12.0               | 0.0                        | 38.3                       |
| 25-34                  | 30.6                  | 75                | 5.7                | 18.8                       | 42.4                       |
| 35-49                  | 59.4                  | 122               | 5.1                | 48.9                       | 70.0                       |
| 15-49                  | 45.2                  | 214               | 3.5                | 38.0                       | 52.4                       |
| 15-64                  | 48.4                  | 289               | 3.1                | 42.0                       | 54.7                       |
| Viral Load Suppression |                       |                   |                    |                            |                            |
| 15-24                  | *                     | 17                | 0.8                | 0.0                        | 2.4                        |
| 25-34                  | 24.1                  | 75                | 5.6                | 12.7                       | 35.5                       |
| 35-49                  | 45.4                  | 122               | 5.6                | 33.7                       | 57.0                       |
| 15-49                  | 33.9                  | 214               | 3.6                | 26.4                       | 41.4                       |
| 15-64                  | 39.3                  | 289               | 3.2                | 32.6                       | 45.9                       |

**Table C.7 Sampling errors: ARV-adjusted 90-90-90 by age (unconditional percentages), CAMPHIA 2017-2018**  
(continued)

| Age (years)            | Weighted estimate (%) | Unweighted number | Standard error (%) | Lower confidence limit (%) | Upper confidence limit (%) |
|------------------------|-----------------------|-------------------|--------------------|----------------------------|----------------------------|
| FEMALE                 |                       |                   |                    |                            |                            |
| Diagnosed              |                       |                   |                    |                            |                            |
| 15-24                  | 22.3                  | 107               | 4.2                | 13.7                       | 31.0                       |
| 25-34                  | 51.1                  | 203               | 3.5                | 43.9                       | 58.3                       |
| 35-49                  | 65.8                  | 262               | 3.2                | 59.3                       | 72.3                       |
| 15-49                  | 54.0                  | 572               | 2.1                | 49.7                       | 58.4                       |
| 15-64                  | 57.5                  | 685               | 2.0                | 53.3                       | 61.7                       |
| On Treatment           |                       |                   |                    |                            |                            |
| 15-24                  | 19.8                  | 107               | 4.1                | 11.4                       | 28.1                       |
| 25-34                  | 45.6                  | 203               | 3.6                | 38.2                       | 52.9                       |
| 35-49                  | 60.9                  | 262               | 3.1                | 54.6                       | 67.2                       |
| 15-49                  | 49.3                  | 572               | 2.1                | 45.1                       | 53.6                       |
| 15-64                  | 53.3                  | 685               | 2.1                | 49.0                       | 57.5                       |
| Viral Load Suppression |                       |                   |                    |                            |                            |
| 15-24                  | 16.6                  | 107               | 3.6                | 9.3                        | 23.9                       |
| 25-34                  | 30.2                  | 203               | 3.3                | 23.4                       | 36.9                       |
| 35-49                  | 50.4                  | 262               | 3.3                | 43.5                       | 57.3                       |
| 15-49                  | 38.5                  | 572               | 2.2                | 34.0                       | 42.9                       |
| 15-64                  | 42.4                  | 685               | 2.1                | 38.1                       | 46.7                       |

**Table C.8 Sampling errors: Number of new infections annually among adults (ages 15-64 years) and number of adults living with HIV, CAMPHIA 2017-2018**

|                                   | Weighted estimate | Standard error | Lower confidence limit | Upper confidence limit |
|-----------------------------------|-------------------|----------------|------------------------|------------------------|
| Number of new infections annually | 31,376            | 8,274          | 14,301                 | 48,451                 |
| Number of adults living with HIV  | 499,863           | 22,822         | 452,860                | 546,866                |



## APPENDIX D SURVEY PERSONNEL

| Name                             | Organization                          |
|----------------------------------|---------------------------------------|
| Anne-Cecile Zoung- Kanyi Bissek  | Ministry of Health                    |
| Calixte Ida Penda                | Ministry of Health                    |
| Cyprien Nde                      | Ministry of Health                    |
| Edith Michele Temgoua            | Ministry of Health                    |
| Felicite Naah                    | Ministry of Health                    |
| Florence Zeh Kakanou             | Ministry of Health                    |
| Gildas Nguemkam                  | Ministry of Health                    |
| Guy Ewos                         | Ministry of Health                    |
| Jerome Ateudjieu                 | Ministry of Health                    |
| Martial Fabou                    | Ministry of Health                    |
| Onambany Benjamin                | Ministry of Health                    |
| Andrea Low                       | ICAP at Columbia University- New York |
| David Hoos                       | ICAP at Columbia University- New York |
| Elizabeth Gummerson              | ICAP at Columbia University- New York |
| Elizabeth Radin                  | ICAP at Columbia University- New York |
| Hannah Chung                     | ICAP at Columbia University- New York |
| Jessica Justman                  | ICAP at Columbia University- New York |
| Katherine Johnson                | ICAP at Columbia University- New York |
| Kiwon Lee                        | ICAP at Columbia University- New York |
| Mansoor Farahani                 | ICAP at Columbia University- New York |
| Melissa Metz                     | ICAP at Columbia University- New York |
| Natasha McLeod                   | ICAP at Columbia University- New York |
| Natazia Fistrovic                | ICAP at Columbia University- New York |
| Neena Philip                     | ICAP at Columbia University- New York |
| Noelle Esquire                   | ICAP at Columbia University- New York |
| Oren Mayer                       | ICAP at Columbia University- New York |
| Rita Sondengam                   | ICAP at Columbia University- New York |
| Sally Findley                    | ICAP at Columbia University- New York |
| Stephen Delgado                  | ICAP at Columbia University- New York |
| Steven Wynn                      | ICAP at Columbia University- New York |
| Suzue Saito                      | ICAP at Columbia University- New York |
| Theo Smart                       | ICAP at Columbia University- New York |
| Yen Pottinger                    | ICAP at Columbia University- New York |
| Denis Ako-Arrey                  | ICAP at Columbia University- Cameroon |
| Denis Etaba Ongunene             | ICAP at Columbia University- Cameroon |
| Djoumessi Fonkou Paul Barthelemy | ICAP at Columbia University- Cameroon |
| Ebogo Mesmey Bertrand            | ICAP at Columbia University- Cameroon |
| Francois Ateba Ndongo            | ICAP at Columbia University- Cameroon |

| Name                       | Organization                              |
|----------------------------|---|
| Jacob Kuh                  | ICAP at Columbia University- Cameroon     |
| Jean Gustave Epoupa Epoupa | ICAP at Columbia University- Cameroon     |
| Julius Atia Iseli          | ICAP at Columbia University- Cameroon     |
| Leba Edwige Flore          | ICAP at Columbia University- Cameroon     |
| Marie Paule Ngogang        | ICAP at Columbia University- Cameroon     |
| Marie Prudence Onabel      | ICAP at Columbia University- Cameroon     |
| Mirabel Tebi               | ICAP at Columbia University- Cameroon     |
| Peter Tebon Teboh          | ICAP at Columbia University- Cameroon     |
| Onguene Joseph             | ICAP at Columbia University- Cameroon     |
| Rafiatou Ntiantie          | ICAP at Columbia University- Cameroon     |
| Tangang Akamangwa          | ICAP at Columbia University- Cameroon     |
| Thomas Vukugah             | ICAP at Columbia University- Cameroon     |
| Wilfried Ihinaga           | ICAP at Columbia University- Cameroon     |
| Blanche Pitt               | ICAP at Columbia University- South Africa |
| Bright Phiri               | ICAP at Columbia University- South Africa |
| Charles Wentzl             | ICAP at Columbia University- South Africa |
| Herbert Longwe             | ICAP at Columbia University- South Africa |
| Oliver Murangandi          | ICAP at Columbia University- South Africa |
| Pule Mphole                | ICAP at Columbia University- South Africa |
| Takura Kupamupindi         | ICAP at Columbia University- South Africa |
| Bharat Parekh              | CDC Atlanta                               |
| Carin Molchan              | CDC Atlanta                               |
| Daniel Yavo                | CDC Atlanta                               |
| Drew Voetsch               | CDC Atlanta                               |
| Edith Nyangoma             | CDC Atlanta                               |
| Ernest Yufenyuy            | CDC Atlanta                               |
| Hetal Patel                | CDC Atlanta                               |
| Katie Lupoli               | CDC Atlanta                               |
| Katina Pappas-Deluca       | CDC Atlanta                               |
| Keisha Jackson             | CDC Atlanta                               |
| Kristin Brown              | CDC Atlanta                               |
| Laura Porter               | CDC Atlanta                               |
| Megan Bronson              | CDC Atlanta                               |
| Nikhil Kothegal            | CDC Atlanta                               |
| Paul Stupp                 | CDC Atlanta                               |
| Stephane Bodika            | CDC Atlanta                               |
| Steve Kinchen              | CDC Atlanta                               |
| Steve McCracken            | CDC Atlanta                               |
| William Levine             | CDC Atlanta                               |
| Wolfgang Hladik            | CDC Atlanta                               |

| Name                        | Organization                                     |
|-----------------------------|--|
| Alex Cox                    | CDC Cameroon                                     |
| Christopher Murrill         | CDC Cameroon                                     |
| Edgar Monterroso            | CDC Cameroon                                     |
| Emmanuel Chia Ziawi         | CDC Cameroon                                     |
| Joseph Jembia Mosoko        | CDC Cameroon                                     |
| Judith Shang                | CDC Cameroon                                     |
| Laura Eno                   | CDC Cameroon                                     |
| Nwando Diallo               | CDC Cameroon                                     |
| Omotayo Bolu                | CDC Cameroon                                     |
| Rachel McCullough Sanden    | CDC Cameroon                                     |
| Rachel Weber                | CDC Cameroon                                     |
| Sarah Guagliardo            | CDC Cameroon                                     |
| Terence Asong Ngulefac      | CDC Cameroon                                     |
| Dzossa Anaclet Désiré       | National AIDS Control Committee (NACC), Cameroon |
| Jean Bosco Nfetam Elat      | National AIDS Control Committee (NACC), Cameroon |
| Jean De Dieu Anoumbissi     | National AIDS Control Committee (NACC), Cameroon |
| Raoul Anderson Fodjo Toukam | National AIDS Control Committee (NACC), Cameroon |
| Serge Clotaire Billong      | National AIDS Control Committee (NACC), Cameroon |
| Wounang Sonfack Romain      | National AIDS Control Committee (NACC), Cameroon |
| Dzossa Anaclet Désiré       | National Institute of Statistics (NIS), Cameroon |
| Guy She Etoundi             | National Institute of Statistics (NIS), Cameroon |
| Joseph Tedou                | National Institute of Statistics (NIS), Cameroon |
| Paul Roger Libite           | National Institute of Statistics (NIS), Cameroon |
| Wounang Sonfack Romain      | National Institute of Statistics (NIS), Cameroon |

## APPENDIX E HOUSEHOLD QUESTIONNAIRE

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

## HOUSEHOLD SCHEDULE

☐

TICK HERE IF CONTINUATION SHEET USED

**CODES FOR COLUMN 3: RELATIONSHIP  
TO HOUSEHOLD HEAD****2A)** Just to make sure I have a complete listing,  
are there any other persons such as small  
children or infants that we have not listed?YES ☐ NO ☐**2B)** Are there any other people such as  
domestic servants, lodgers, or friends who may  
not be members of your household who usually  
live here?YES ☐ NO ☐**2C)** Are there any guests or temporary visitors  
staying here, or anyone else who stayed here  
last night who we have not seen?YES ☐ NO ☐ADD TO  
SCHEDULE ←

01 = HEAD  
 02 = WIFE/HUSBAND/  
 PARTNER  
 03 = SON OR DAUGHTER  
 04 = SON-IN-LAW/  
 DAUGHTER-IN-LAW  
 05 = GRANDCHILD  
 06 = PARENT  
 07 = PARENT-IN-LAW  
 08 = BROTHER/SISTER

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

| HOUSEHOLD SCHEDULE (continued) |  |                                   |   |                                   |   |  |  |  |  |  |
|--------------------------------|--|-----------------------------------|---|-----------------------------------|---|--|--|--|--|--|
| IF (NAME) IS 0-20 YEARS        |  |                                   |   |                                   |   |  |  |  |  |  |
| LINE NO.                       | SPECIAL CASE MINOR STATUS  | ORPHAN STATUS/PARENT OR GUARDIAN  |   |                                   |   | IF (NAME) IS 0-14 YEARS  |  |  |  |  |
|                                | Is (NAME) a Special Case Minor?<br><br>Meets at least ONE of the following:<br><br>1. Married<br><br>2. Has a child<br><br>3. Does not have a parent/guardian<br><br>4. Lives apart from parent/guardian | Is (NAME)'s natural mother alive? | Does (NAME)'s natural mother usually live in this household or was a guest last night?<br><br>IF YES:<br>RECORD MOTHER'S LINE NUMBER.<br><br>IF NO:<br>RECORD FEMALE GUARDIAN'S LINE NUMBER OR '00' IF FEMALE PARENT OR GUARDIAN NOT PRESENT IN HH. | Is (NAME)'s natural father alive? | Does (NAME)'s natural father usually live in this household or was a guest last night?<br><br>IF YES:<br>RECORD FATHER'S LINE NUMBER.<br><br>IF NO:<br>RECORD MALE GUARDIAN'S LINE NUMBER OR '00' IF MALE PARENT OR GUARDIAN NOT PRESENT IN HH. | RECORD LINE NUMBER OF PARENT/GUARDIAN WHO WILL FILL OUT CHILDREN'S MODULE FOR (NAME) | DO NOT READ:<br><br>Is (NAME) eligible for survey? |  |  |  |
| (1)                            | (9)  | (10)                              | (11)  | (12)                              | (13)  | (14)   | (15)   |  |  |  |
| 1                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 2                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 3                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 4                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 5                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 6                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 7                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 8                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 9                              | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |
| 10                             | Y N DK   | Y N DK<br>↓<br>12                 |   | Y N DK<br>↓<br>14                 |   |  | Y N  |  |  |  |

| HOUSEHOLD SCHEDULE                                |                         |
|---|-------------------------|
| TOTAL ELIGIBLE MALES (15-64 YEARS)                | <div></div> <div></div> |
| TOTAL ELIGIBLE FEMALES (15-64 YEARS)              | <div></div> <div></div> |
| TOTAL ELIGIBLE EARLY ADOLESCENTS (10 TO 14 YEARS) | <div></div> <div></div> |
| TOTAL ELIGIBLE CHILDREN (0 MONTHS TO 9 YEARS)     | <div></div> <div></div> |

| HOUSEHOLD SCHEDULE (continued) |   |   |  |  |  |   |      |
|--------------------------------|---|---|--|--|--|---|------|
| LINE NO.                       | IF (NAME) is 21+  |   | IF (NAME) is 0-20 years                                      |  |  |   |      |
|                                | SICK PERSON   | SICKNESS AND DEATH OF BIOLOGICAL PARENTS  | MOTHER DEAD OR SICK  | FATHER DEAD OR SICK  |  |   |      |
|                                | CHECK COLUMNS 7 AND 8, IF UNDER 21 → 17   | CHECK COLUMN 10, IF COLUMN 10 'N' OR 'DK' → 19  | CHECK COLUMN 12, IF COLUMN 12 'N' OR 'DK' → 21               |  |  |   |      |
|                                | IF 21 YEARS OR MORE:  | IF COLUMN 10 'Y':   | IF COLUMN 12 'Y':  |  |  |   |      |
|                                | Has (NAME) been very sick for at least 3 months during the past 12 months, that is (NAME) was too sick to work or do normal activities? | Has (NAME)'s natural mother been very sick for at least 3 months during the past 12 months, that is she was too sick to work or do normal activities? | IF MOTHER SICK: Does (NAME)'s natural mother have HIV/AIDS?* | Has (NAME)'s natural father been very sick for at least 3 months during the past 12 months, that is he was too sick to work or do normal activities? | IF FATHER SICK: Does (NAME)'s natural father have HIV/AIDS?* | IF CHILD'S NATURAL FATHER HAS DIED (COLUMN 12'N') OR BEEN SICK (COLUMN 20 'Y'), SELECT Y. |      |
| (1)                            | (16)  | (17)  | (18)   | (19)   | (20)   | (21)  | (22) |
| 1                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 2                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 3                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 4                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 5                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 6                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 7                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 8                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 9                              | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |
| 10                             | Y N DK  | Y N-DK<br>↓<br>19   | Y N DK   | Y N-DK<br>↓<br>21  | Y N DK   | Y N   | Y N  |



[illegible]

| NO.   | QUESTIONS AND INSTRUCTIONS  | CODING CATEGORIES   | SKIP  |  |  |  |  |
|---|---|---|---|--|--|--|--|
| <b>SUPPORT FOR ORPHANS AND VULNERABLE CHILDREN/MINORS</b> |   |   |   |  |  |  |  |
| 101   | DO NOT READ: CHECK COLUMN 7 IN THE HOUSEHOLD SCHEDULE.<br><br><b>ANY CHILD AGE 0-20 YEARS?</b>  | NUMBER OF CHILDREN 0-20 YRS: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr></table> |   |  |  |  |  |
|   |   |   |   |  |  |  |  |
| 102   | DO NOT READ: CHECK COLUMN 16 IN THE HOUSEHOLD SCHEDULE.<br><br><b>ANY SICK ADULT AGE 21+ YEARS?</b>   | YES _____ 1<br>NO _____ 2   | YES →105<br>Q101 NONE →114                      |  |  |  |  |
| 103   | DO NOT READ: CHECK COLUMN 21 IN THE HOUSEHOLD SCHEDULE.<br><br><b>ANY CHILD WHOSE MOTHER HAS DIED OR IS VERY SICK?</b>  | YES _____ 1<br>NO _____ 2   | YES →105  |  |  |  |  |
| 104   | DO NOT READ: CHECK COLUMN 22 IN THE HOUSEHOLD SCHEDULE.<br><br><b>ANY CHILD WHOSE FATHER HAS DIED OR IS VERY SICK?</b>  | YES _____ 1<br>NO _____ 2   | NO →114   |  |  |  |  |
| 105   | <b>Record names, line numbers, and ages of all children 0-20 who are identified in columns 16, 21, and 22 as having a sick adult in their household or having a mother and/or father who has died or has been very sick.</b>  |   |   |  |  |  |  |
|   |   | child (1)   | child (2)                                       |  |  |  |  |
|   | NAME  | _____   | _____   |  |  |  |  |
|   | LINE NUMBER (FROM COLUMN 1)   | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr></table>                              |   |  | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr></table> |  |  |
|   |   |   |   |  |  |  |  |
|   |   |   |   |  |  |  |  |
|   | AGE (FROM COLUMN 7)   | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr></table>                              |   |  | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr></table> |  |  |
|   |   |   |   |  |  |  |  |
|   |   |   |   |  |  |  |  |
|   | <b>INTERVIEWER SAY: "I would like to ask you about any formal, organized help or support for children that your household may have received for which you did not have to pay. By formal, organized support, I mean help provided by someone working for a program. This program could be government, private, religious, charity, or community-based."</b> |   |   |  |  |  |  |
| 106   | Now I would like to ask you about the support your household received for <b>(NAME)</b> .<br><br>In the last 12 months, has your household received any medical support for <b>(NAME)</b> , such as medical care, supplies, or medicine, for which you did not have to pay?   | YES _____ 1<br>NO _____ 2<br>DON'T KNOW _____ 8   | YES _____ 1<br>NO _____ 2<br>DON'T KNOW _____ 8 |  |  |  |  |

| NO.   | QUESTIONS AND INSTRUCTIONS  | CODING CATEGORIES  |  | SKIP   |
|---|---|--|--|--|
| SUPPORT FOR ORPHANS AND VULNERABLE CHILDREN/MINORS (continued)                                |   |  |  |  |
| 107   | In the last 12 months, has your household received any emotional or psychological support for <b>(NAME)</b> , such as companionship, counseling from a trained counselor, or spiritual support, which you received at home and for which you did not have to pay? | YES_____1<br>NO _____2<br>DON'T KNOW ____8   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   |
| 109   | In the last 12 months, has your household received any material support for <b>(NAME)</b> , such as clothing, food, or financial support, for which you did not have to pay?  | YES_____1<br>NO _____2<br>DON'T KNOW ____8   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   |
| 111   | In the last 12 months, has your household received any social support for <b>(NAME)</b> such as help in household work, training for a caregiver, or legal services, for which you did not have to pay?   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   | YES_____1<br>NO _____2<br>DON'T KNOW ____8   |
| 113   | In the last 12 months, has your household received any support for <b>(NAME)</b> 's schooling, such as allowance, free admission, books, or supplies, for which you did not have to pay?  | SKIP IF CHILD<br><5 YEARS<br>YES_____1<br>NO, DID NOT<br>RECEIVE<br>SUPPORT_____2<br>NO, CHILD DOES<br>NOT ATTEND<br>SCHOOL_____3<br>DON'T<br>KNOW_____8 | SKIP IF CHILD<br><5 YEARS<br>YES_____1<br>NO, DID NOT<br>RECEIVE<br>SUPPORT_____2<br>NO, CHILD DOES<br>NOT ATTEND<br>SCHOOL_____3<br>DON'T<br>KNOW_____8 | SKIP IF CHILD<br><5 YEARS<br>YES_____1<br>NO, DID NOT<br>RECEIVE<br>SUPPORT_____2<br>NO, CHILD DOES<br>NOT ATTEND<br>SCHOOL_____3<br>DON'T<br>KNOW_____8 |
| CONTINUE TO NEXT CHILD IF OTHER CHILDREN WHOSE MOTHER AND/OR FATHER HAS DIED OR IS VERY SICK. |   |  |  |  |

**MATRIX END**

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

IF THERE IS ANOTHER CHILD 0-20 YEARS IN THE HOUSEHOLD WHO HAS BEEN IDENTIFIED IN COLUMN 17 AS HAVING A MOTHER/FATHER WHO HAS DIED OR IS VERY SICK BESIDES **(NAME)** → CONTINUE TO 106 AND ASK ABOUT THE NEXT CHILD.

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

☐

TICK IF CONTINUATION SHEET REQUIRED.

IF NO OTHER CHILDREN, CONTINUE HOUSEHOLD INTERVIEW.

| NO.  | QUESTIONS AND INSTRUCTIONS  | CODING CATEGORIES   | SKIP  |
|--|---|---|---|
| <b>HOUSEHOLD DEATHS</b>  |   |   |   |
| 114  | Now I would like to ask you more questions about your household. Has any usual resident of your household died since January 1, 2014? | YES _____ 1<br>NO _____ 2<br>DON'T KNOW _____ 8   | No → 201  |
| 115  | How many usual household residents died since January 1, 2014?  | NUMBER OF DEATHS <input type="text"/> <input type="text"/><br><br>DON'T KNOW _____ 88   |   |
| ASK 116-120 AS APPROPRIATE FOR EACH PERSON WHO DIED. IF THERE WERE MORE THAN 3 DEATHS USE ADDITIONAL QUESTIONNAIRES. |   |   |   |
| 116  | What was the name of the person who died (most recently/before him/her)?  | NAME 1 <sup>ST</sup> DEATH _____  | NAME 2 <sup>ND</sup> DEATH _____  |
|  |   | NAME 3 <sup>RD</sup> DEATH _____  |   |
| 117  | When did <b>(NAME)</b> die? Please give your best guess.  | DAY <input type="text"/> <input type="text"/><br><br>MONTH <input type="text"/> <input type="text"/><br><br>YEAR <input type="text"/> <input type="text"/><br><br>DON'T KNOW<br>DAY = -8<br>DON't KNOW<br>MONTH = -8<br>DON't KNOW<br>YEAR = -8 | DAY <input type="text"/> <input type="text"/><br><br>MONTH <input type="text"/> <input type="text"/><br><br>YEAR <input type="text"/> <input type="text"/><br><br>DON'T KNOW<br>DAY = -8<br>DON't KNOW<br>MONTH = -8<br>DON't KNOW<br>YEAR = -8 |
|  |   | DAY <input type="text"/> <input type="text"/><br><br>MONTH <input type="text"/> <input type="text"/><br><br>YEAR <input type="text"/> <input type="text"/><br><br>DON'T KNOW<br>DAY = -8<br>DON't KNOW<br>MONTH = -8<br>DON't KNOW<br>YEAR = -8 | DAY <input type="text"/> <input type="text"/><br><br>MONTH <input type="text"/> <input type="text"/><br><br>YEAR <input type="text"/> <input type="text"/><br><br>DON'T KNOW<br>DAY = -8<br>DON't KNOW<br>MONTH = -8<br>DON't KNOW<br>YEAR = -8 |
| 118  | Was <b>(NAME)</b> male or female?   | MALE _____ 1<br>FEMALE _____ 2<br>DON'T KNOW _____ 8<br><br>CURRENT DATE><br>DATE OF DEATH 1 ><br>JANUARY 1, 2014   | MALE _____ 1<br>FEMALE _____ 2<br>DON'T KNOW _____ 8<br><br>CURRENT DATE><br>DATE OF DEATH 1 ><br>JANUARY 1, 2014   |
|  |   | MALE _____ 1<br>FEMALE _____ 2<br>DON'T KNOW _____ 8<br><br>CURRENT DATE><br>DATE OF DEATH 1 ><br>JANUARY 1, 2014   | MALE _____ 1<br>FEMALE _____ 2<br>DON'T KNOW _____ 8<br><br>CURRENT DATE><br>DATE OF DEATH 1 ><br>JANUARY 1, 2014   |

| NO.   | QUESTIONS AND INSTRUCTIONS  | CODING CATEGORIES  |   |            | SKIP                                      |
|---|---|--|---|------------|---|
| <b>HOUSEHOLD DEATHS (continued)</b>   |   |  |   |            |   |
| 119   | How old was <b>(NAME)</b> when (he/she) died?   | DAY  | <input type="text"/> <input type="text"/> | DAY        | <input type="text"/> <input type="text"/> |
|   | RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN 1 YEAR, AND COMPLETED YEARS IF 1 YEAR OR MORE.                                      | MONTH  | <input type="text"/> <input type="text"/> | MONTH      | <input type="text"/> <input type="text"/> |
|   |   | YEAR   | <input type="text"/> <input type="text"/> | YEAR       | <input type="text"/> <input type="text"/> |
|   |   | DON'T KNOW   | __88                                      | DON'T KNOW | __88                                      |
| 120   | IF FEMALE DEATH AGED 15-49 YEARS:<br>"Was <b>(NAME)</b> pregnant when she died or had she been pregnant within 3 months before she died?" | YES  | _____1                                    | NO         | _____2                                    |
|   |   | DON'T KNOW   | _____8                                    |            |   |
| CONTINUE TO NEXT DEATH ACCORDING UP TO THE NUMBER REPORTED FROM 115.                |   |  |   |            |   |
|   | <input type="checkbox"/>  | TICK IF CONTINUATION SHEET REQUIRED.   |   |            |   |
| <b>HOUSEHOLD CHARACTERISTICS</b>  |   |  |   |            |   |
| INTERVIEWER SAY: "Now I would like to ask you more questions about your household." |   |  |   |            |   |
| 201   | What is the <u>main</u> source of drinking water for members of your household?   | <b>PIPED WATER</b><br>PIPED INTO DWELLING _____11<br>PIPED TO YARD/PLOT _____12<br>PUBLIC TAP/STANDPIPE _____13<br>TUBE WELL OR BOREHOLE _____21<br><br><b>DUG WELL</b><br>PROTECTED WELL _____31<br>UNPROTECTED WELL _____32<br><br><b>WATER FROM SPRING</b><br>PROTECTED SPRING _____41<br>UNPROTECTED SPRING _____42<br>RAINWATER _____51<br>TANKER TRUCK _____61<br>CART WITH SMALL TANK _____71<br>SURFACE WATER (RIVER/DAM/LAKE/ POND/STREAM/CANAL) _____81<br>BOTTLED WATER _____91<br>OTHER _____96<br>(SPECIFY) _____ |   |            |   |
| 202   | Do you do anything to the water to make it safer to drink?  | YES  | _____1                                    | NO, DK     | → 204                                     |
|   |   | NO   | _____2                                    |            |   |
|   |   | DON'T KNOW   | _____8                                    |            |   |

| NO.  | QUESTIONS AND INSTRUCTIONS   | CODING CATEGORIES   | SKIP                     |
|--|--|---|--------------------------|
| <b>HOUSEHOLD CHARACTERISTICS (continued)</b>                   |  |   |                          |
| 203  | What do you do to make your water safe for drinking?                   | BOILING _____ 1<br>FILTRATION (CHARCOAL FILTER) _____ 2<br>SEDIMENTATION _____ 3<br>DISINFECTION (WATERGUARD, CHLORINE) _____ 4<br>USE BOTTLED WATER _____ 5<br>OTHER _____ 96<br>(SPECIFY) _____   |                          |
| 204  | What kind of toilet facility do members of your household usually use? | FLUSH OR POUR FLUSH TOILET _____ 11<br>TRADITIONAL PIT LATRINE _____ 21<br>VENTILATED IMPROVED PIT LATRINE (VIP) _____ 22<br>NO FACILITY/BUSH/FIELD _____ 61<br>OTHER _____ 96<br>(SPECIFY) _____   | NO FACILITY, OTHER → 207 |
| 205  | Do you share this toilet facility with other households?               | YES _____ 1<br>NO _____ 2   | NO → 207                 |
| 206  | How many households use this toilet facility?                          | NO. OF HOUSEHOLD IF LESS THAN 10 _____<br>10 OR MORE HOUSEHOLDS _____ 96<br>DON'T KNOW _____ 98   |                          |
| PREFACE BEFORE QUESTIONS 207-211:<br>Does your household have: |  |   |                          |
| 207  | Electricity?   | YES _____ 1<br>NO _____ 2   |                          |
| 208  | A radio  | YES _____ 1<br>NO _____ 2   |                          |
| 209  | A television?  | YES _____ 1<br>NO _____ 2   |                          |
| 210  | A telephone/mobile telephone   | YES _____ 1<br>NO _____ 2   |                          |
| 211  | A refrigerator   | YES _____ 1<br>NO _____ 2   |                          |
| 212  | What type of fuel does your household mainly use for cooking?          | ELECTRICITY _____ 1<br>LPG / NATURAL GAS _____ 2<br>BIOGAS _____ 3<br>PARAFFIN / KEROSENE _____ 4<br>COAL, LIGNITE _____ 5<br>CHARCOAL FROM WOOD _____ 6<br>FIREWOOD / STRAW _____ 7<br>DUNG _____ 8<br>NO FOOD COOKED IN HOUSEHOLD _____ 95<br>OTHER _____ 96<br>(SPECIFY) _____ |                          |

| NO.  | QUESTIONS AND INSTRUCTIONS                                     | CODING CATEGORIES   | SKIP |
|--|--|---|------|
| <b>HOUSEHOLD CHARACTERISTICS (continued)</b> |  |   |      |
| 213  | MAIN MATERIAL OF FLOOR<br><br>RECORD OBSERVATION.              | <b>NATURAL FLOOR</b><br>EARTH / SAND _____ 11<br><br><b>RUDIMENTARY FLOOR</b><br>WOOD PLANKS _____ 21<br><br><b>FINISHED FLOOR</b><br>PARQUET OR POLISHED WOOD _____ 31<br>CERAMIC TILES _____ 33<br>CEMENT/TERAZO _____ 34<br>CARPET _____ 35<br>OTHER _____ 96<br>(SPECIFY) _____   |      |
| 214  | MAIN MATERIAL OF THE ROOF<br><br>RECORD OBSERVATION.           | <b>NATURAL ROOFING</b><br>THATCH/PALM LEAF _____ 12<br>DUNG / MUD _____ 13<br><br><b>RUDIMENTARY ROOFING</b><br>CORRUGATED IRON/ALUMINUM SHEET _____ 21<br><br><b>FINISHED ROOFING</b><br>ASBESTOS SHEET _____ 31<br>CONCRETE _____ 32<br>TILES _____ 33<br>OTHER _____ 96<br>(SPECIFY) _____   |      |
| 215  | MAIN MATERIAL OF THE EXTERIOR WALLS<br><br>RECORD OBSERVATION. | <b>NATURAL WALLS</b><br>CANE/PALM/TRUNKS _____ 12<br>DUNG / MUD _____ 13<br><br><b>RUDIMENTARY WALLS</b><br>BAMBOO WITH MUD _____ 21<br>STONE WITH MUD _____ 22<br>PLYWOOD/CARDBOARD _____ 23<br>REUSED WOOD _____ 25<br><br><b>FINISHED WALLS</b><br>CEMENT _____ 31<br>STONE WITH LIME/CEMENT _____ 32<br>BRICKS _____ 33<br>CEMENT BLOCKS _____ 34<br>WOOD PLANKS/SHINGLES _____ 35<br>OTHER _____ 96<br>(SPECIFY) _____ |      |

| NO.   | QUESTIONS AND INSTRUCTIONS   | CODING CATEGORIES   | SKIP  |
|---|--|---|---|
| <b>HOUSEHOLD CHARACTERISTICS (continued)</b>                                |  |   |   |
| 216   | How many rooms are used for sleeping?  | NUMBER OF ROOMS:  | <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div> |
| PREFACE BEFORE QUESTIONS 217-220:<br>Does any member of your household own: |  |   |   |
| 217   | A bicycle?   | YES _____ 1<br>NO _____ 2   |   |
| 218   | A motorcycle or motor scooter?   | YES _____ 1<br>NO _____ 2   |   |
| 219   | A car or truck?  | YES _____ 1<br>NO _____ 2   |   |
| 220   | A boat with a motor?   | YES _____ 1<br>NO _____ 2   |   |
| PREFACE BEFORE QUESTIONS 221-225:<br>Does any member of your household own: |  |   |   |
| 221   | Cows?  | YES _____ 1<br>NO _____ 2   |   |
| 222   | Goats/Sheep?   | YES _____ 1<br>NO _____ 2   |   |
| 223   | Poultry (e.g., ducks, chickens)?   | YES _____ 1<br>NO _____ 2   |   |
| 224   | Dogs?  | YES _____ 1<br>NO _____ 2   |   |
| 225   | Other animals (camels, horses, donkeys)?   | YES _____ 1<br>NO _____ 2   |   |
| <b>MALARIA &amp; FOOD SECURITY</b>  |  |   |   |
| 226   | Does your household have any mosquito nets that can be used while sleeping?          | YES _____ 1<br>NO _____ 2<br>DON'T KNOW _____ 8<br>REFUSED _____ 9        | NO, DK, REFUSED<br>→ 229  |
| 227   | May I please see the mosquito nets you use?  | NUMBER OF HANGING NETS _____<br>REFUSED _____ -9                          |   |
|   | COUNT THE NUMBER OF NETS HANGING OVER BEDS OR SLEEPING AREAS                         |   |   |
| 228   | Who slept under these nets last night? SELECT INDIVIDUALS FROM THE HOUSEHOLD ROSTER. | LIST HOUSEHOLD ROSTER NAMES FOR INTERVIEWER TO SELECT<br>REFUSED _____ -9 |   |



| NO.   | QUESTIONS AND INSTRUCTIONS   | CODING CATEGORIES   | SKIP                                 |
|---|--|---|--------------------------------------|
| <b>MALARIA &amp; FOOD SECURITY (continued)</b>                      |  |   |                                      |
| 229   | In the past 4 weeks, did you or any household member go to sleep at night hungry because there was not enough food?                      | YES _____ 1<br>NO _____ 2<br>DON'T KNOW _____ 8   | NO, DK → 301                         |
| 230   | How often did this happen in the past 4 weeks?   | RARELY (1-2 TIMES) _____ 1<br>SOMETIMES (3-10 TIMES) _____ 2<br>OFTEN (MORE THAN 10 TIMES) _____ 3  |                                      |
| <b>ECONOMIC SUPPORT</b>   |  |   |                                      |
| Now I will ask you questions on economic support you have received. |  |   |                                      |
| 301   | Has your household received any of the following forms of external economic support in the last 12 months?<br><br>SELECT ALL THAT APPLY. | NOTHING _____ A<br>CASH TRANSFER (E.G. PENSIONS, DISABILITY GRANTS, CHILD GRANT) _____ B<br>ASSISTANCE FOR SCHOOL FEES _____ C<br>MATERIAL SUPPORT FOR EDUCATION (E.G. UNIFORMS, SCHOOL BOOKS, EDUCATION, TUITION SUPPORT, BURSARIES) _____ D<br>INCOME GENERATION SUPPORT IN CASH OR KIND (E.G. AGRICULTURAL INPUTS) _____ E<br>FOOD ASSISTANCE PROVIDED AT THE HOUSEHOLD OR EXTERNAL INSTITUTION _____ F<br>MATERIAL OR FINANCIAL SUPPORT FOR SHELTER _____ G<br>SOCIAL PENSION _____ H<br>OTHER _____ X<br>(SPECIFY) _____<br>DON'T KNOW _____ Z | NOTHING, DON'T KNOW → END OF SECTION |

---

**END OF HOUSEHOLD INTERVIEW****INTERVIEWER SAYS: "This is the end of the household survey. Thank you very much for your time and for your responses."**

---

**END TIME**

---

**END**    RECORD THE END TIME.

HOUR:

|  |  |
|--|--|
|  |  |
|--|--|

USE 24 HOUR TIME.

MINUTES:

|  |  |
|--|--|
|  |  |
|--|--|

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

---

**INTERVIEWER OBSERVATIONS:****TO BE COMPLETED AFTER THE INTERVIEW:**

COMMENTS ABOUT RESPONDENT:

COMMENTS ABOUT SPECIFIC QUESTIONS:

GENERAL QUESTIONS:

## APPENDIX F ADULT QUESTIONNAIRE

| NO.   | QUESTIONS  | CODING CATEGORIES  | SKIPS/FILTERS |
|---|--|--|---------------|
| <b>MODULE 1: RESPONDENT BACKGROUND</b>  |  |  |               |
| L1  | In which language(s) would you prefer to answer this survey?<br><br>SELECT MAX 2 | ENGLISH = A<br>FRENCH = B<br>FUFULDE = C<br>EWONDO = D<br>PIDGIN = D<br>ARABIC = E<br>OTHER = F<br>SPECIFY: _____  |               |
| L2  | LANGUAGE OF QUESTIONNAIRE  | ENGLISH = 1<br>FRENCH = 2<br>FULFULDE = 3<br>PIDGIN WITH ENGLISH = 4   |               |
| L3  | LANGUAGE OF INTERVIEW  | ENGLISH = 1<br>FRENCH = 2<br>FUFULDE = 3<br>EWONDO = 4<br>PIDGIN = 5<br>ARABIC = 6<br>OTHER = 7<br>SPECIFY: _____  |               |
| L4  | VERBAL TRANSLATION USED  | YES = 1<br>NO = 2  |               |
| <b>Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."</b> |  |  |               |
| 101   | IS THE RESPONDENT MALE OR FEMALE?  | MALE = 1<br>FEMALE = 2   |               |
| 102   | What is your ethnic group/tribe?   | ARABES-CHOA/PEULH/HAOUSSA = 1<br>BIU-MANDARA = 2<br>ADAMAOUA-OUBANGUI = 3<br>BANTOÏDE SUD-OUEST = 4<br>GRASSFIELDS = 5<br>BAMILIKE/BAMOUN = 6<br>CÔTIER/NGOE/OROKO = 7<br>BETI/BASSA/MBAM = 8<br>KAKO/MEKA/PYGMÉ = 9<br>FOREIGNER = 10<br>NO TRIBE = 11<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |               |
| 103   | What is your religion?   | CATHOLIC = 1<br>PROTESTANT = 2<br>MUSLIM = 3<br>ANIMIST = 4<br>OTHER CHRISTIAN = 5<br>OTHER RELIGION = 96<br>SPECIFY: _____<br>NO RELIGION = 6<br>DON'T KNOW = -8<br>REFUSED = -9  |               |

| NO. | QUESTIONS   | CODING CATEGORIES  | SKIPS/FILTERS        |
|-----|---|--|----------------------|
| 104 | Have you ever attended school?                    | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED →108 |
| 105 | Are you enrolled in school?                       | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |                      |
| 106 | What is the highest year of school you attended?  | MOINS 1 AN/LESS THAN 1 YR = 0<br>PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>SUPERIOR 1E ANNEE/HIGHER ED 1ST YEAR = 15<br>SUPERIOR 2E ANNEE/HIGHER ED 2ND YEAR = 16<br>SUPERIOR 3E ANNEE/HIGHER ED 3RD YEAR = 17<br>SUPERIOR 4E ANNEE OU PLUS/HIGHER ED 4TH YEAR OR MORE = 18<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/ REFUSED = -9 | DK, REFUSED →108     |
| 107 | What is the highest year of school you completed? | MOINS 1 AN/LESS THAN 1 YR = 0<br>PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>SUPERIOR 1E ANNEE/HIGHER ED 1ST YEAR = 15<br>SUPERIOR 2E ANNEE/HIGHER ED 2ND YEAR = 16<br>SUPERIOR 3E ANNEE/HIGHER ED 3RD YEAR = 17<br>SUPERIOR 4E ANNEE OU PLUS/HIGHER ED 4TH YEAR OR MORE = 18<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/ REFUSED = -9 |                      |

| NO.  | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS   |
|--|---|---|---|
| 108  | Have you done any work in the last 12 months for which you received cash or goods as payment?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → END OF SECTION                        |
| 109  | Have you done any work in the last seven days for which you received cash or goods as payment?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| <b>MODULE 2: MARRIAGE</b>  |   |   |   |
| <b>Interviewer says: "Now I would like to ask you about your current and previous relationships and/or marriages."</b> |   |   |   |
| 201  | Have you ever been married or lived together with a [man/woman] as if married?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → NEXT MODULE                           |
| 202  | What is your marital status now: are you married, living together with someone as if married, widowed, divorced, or separated?                                    | MARRIED = 1<br>LIVING TOGETHER = 2<br>WIDOWED = 3<br>DIVORCED = 4<br>SEPARATED = 5<br>DON'T KNOW = -8<br>REFUSED = -9 | WIDOWED, DIVORCED, SEPARATED, DK, REFUSED → NEXT MODULE |
| <b>Interviewer says: "The next several questions are about your current husband, wife, or partner(s)."</b>             |   |   |   |
| 203  | Altogether, how many wives or live-in partners do you have?   | NUMBER OF WIVES OR LIVE-IN PARTNERS ____<br>DON'T KNOW = -8<br>REFUSED = -9   | DK, REFUSED → NEXT MODULE<br>SKIP IF FEMALE             |
| 204  | The Household Schedule listed [count] household members as your wives/partners. Please review the list below and tell me if it is correct.                        | YES = 1<br>NO = 2   | YES → 207<br>SKIP IF FEMALE                             |
| 205  | Is [NAME] your wife/partner?  | YES = 1<br>NO = 2   | SKIP IF FEMALE  |
| 206  | Does [NAME] live in the household?  | YES = 1<br>NO = 2   | SKIP IF FEMALE  |
| 207  | Do you have additional wives/partner(s) that live with you here in this household?  | YES = 1<br>NO = 2   | SKIP IF FEMALE<br>NO → 210                              |
| 208  | How many additional wives/partners(s) live with you here?   | NUMBER OF WIVES OR LIVE-IN PARTNERS --  | SKIP IF FEMALE  |
| 209  | Please enter the name of your wife/partner that lives with you here.  | NAME OF WIFE/PARTNER ____<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF FEMALE  |
| 210  | How many wives or live-in partners do you have who live elsewhere?<br><br>This would include wives or partners that you stay with or support in other households. | NUMBER OF ADDITIONAL WIFE(S)/PARTNERS ____<br>DON'T KNOW = -8<br>REFUSED = -9   | SKIP IF FEMALE  |
| 211  | Is your husband or partner living with you now or is he staying elsewhere?  | LIVING TOGETHER = 1<br>STAYING ELSEWHERE = 2<br>DON'T KNOW = -8<br>REFUSE TO ANSWER = -9                              | STAYING ELSEWHERE, DK, REFUSED → 215<br>SKIP IF MALE    |

| NO. | QUESTIONS  | CODING CATEGORIES   | SKIPS/FILTERS  |
|-----|--|---|--|
| 212 | The household schedule listed [NAME OF HUSBAND/PARTNER] as your husband/partner who is living here. Is that correct? | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9                            | YES, DK, REF → 215<br><br>SKIP IF MALE               |
| 213 | Please select the husband/partner that lives with you.   | [LIST OF PERSONS ON HH ROSTER]<br>NOT LISTED IN HOUSEHOLD = 96                  | LISTED → 215<br><br>SKIP IF MALE                     |
| 214 | Please enter the name of your husband/partner that lives with you.   | NAME OF HUSBAND/PARTNER ____<br>DON'T KNOW = -8<br>REFUSED = -9                 | SKIP IF MALE   |
| 215 | Does your husband or partner have other wives or does he live with other women as if married?                        | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSE TO ANSWER = -9                   | NO, DK, REFUSED →<br>NEXT MODULE<br><br>SKIP IF MALE |
| 216 | Including yourself, in total, how many wives or partners does your husband or partner stay with or support?          | NUMBER OF WIVES OR PARTNERS _ _<br><br>DON'T KNOW = -8<br>REFUSE TO ANSWER = -9 | SKIP IF MALE   |

### MODULE 3: REPRODUCTION

**Interviewer says: "Now I would like to ask you questions about your pregnancies and your children." MALE → 341**

|     |   |  |                             |
|-----|---|--|-----------------------------|
| 301 | How many times have you been pregnant including a current pregnancy?<br><br>CODE '00' IF NONE.  | NUMBER OF TIME(S) ____<br>DON'T KNOW = -8<br>REFUSED = -9  | NONE(00), DK, REFUSED → 341 |
| 302 | Have you ever had a pregnancy that resulted in a live birth?<br><br>A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement. | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9       | NO, DK, REFUSED → 340       |
| 303 | How many live births have you had since the 1st of January, 2014?<br>CODE '00' IF NONE.   | NUMBER OF CHILDREN ____<br>DON'T KNOW = -8<br>REFUSED = -9 | NONE(0), DK, REFUSED → 341  |

**Interviewer says: "Now I would like to ask you some questions about the last pregnancy that resulted in a live birth in the last 3 years (since January 1, 2014)."**

|     |   |  |  |
|-----|---|--|--|
| 304 | Did your last pregnancy result in live birth to twins or more?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9 | NO, DK, REFUSED → 306                          |
| 305 | What is the name of the [INSERT ORDER OF BIRTH] born child from that pregnancy that resulted in a live birth?<br><br>IF THE CHILD WAS NOT NAMED BEFORE DEATH, INPUT BIRTH 1 | NAME ____  | WILL BE REPEATED FOR EACH MULTIPLE BIRTH → 307 |
| 306 | What is the name of the child from your last pregnancy that resulted in a live birth?<br><br>IF THE CHILD (CHILDREN) WAS NOT NAMED BEFORE DEATH, INPUT BIRTH 1.             | NAME ____  |  |

| NO.  | QUESTIONS  | CODING CATEGORIES  | SKIPS/FILTERS   |
|--|--|--|---|
| 307  | When you were pregnant with [NAME], did you visit a health facility for antenatal care?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 309<br>DK, REFUSED → 309  |
| 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 = 1<br>COULD NOT TAKE TIME OFF WORK/TOO BUSY = 2<br>COULD NOT AFFORD TO PAY FOR THE VISIT = 3<br>DID NOT TRUST THE CLINIC STAFF = 4<br>RECEIVED CARE AT HOME = 5<br>DID NOT WANT AN HIV TEST DONE = 6<br>HUSBAND/FAMILY WOULD NOT LET ME GO = 7<br>USED TRADITIONAL BIRTH ATTENDANT/HEALER = 8<br>COST OF TRANSPORT = 9<br>RELIGIOUS REASONS = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |   |
| <b>Interviewer says: "I will now be asking you questions on HIV testing. Please remember that your responses will be kept confidential and will not be shared with anyone else."</b> |  |  |   |
| 309  | Have you ever tested for HIV before your pregnancy with [NAME]?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED → 312   |
| 310  | Did you test positive for HIV before your pregnancy with [NAME]?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED → 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<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 318<br>NO, DK, REFUSED → 316<br><br>ELECTRONIC AID IF<br>DON'T KNOW |
| 312  | During any of your visits to the antenatal care clinic when you were pregnant with [NAME], were you offered an HIV test?                                   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |   |
| 313  | Were you tested for HIV during any of your antenatal care clinic visits when you were pregnant with [NAME]?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 315<br>DK, REFUSED → 318  |

| NO. | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS  |
|-----|---|---|--|
| 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<br>DID NOT RECEIVE PERMISSION FROM HUSBAND/WIFE/PARTNER//FAMILY = 2<br>AFRAID OTHERS WOULD KNOW ABOUT TEST RESULTS = 3<br>DID NOT NEED TEST/LOW RISK = 4<br>THE TEST WAS NOT AVAILABLE IN THE HEALTH FACILITY = 5<br>THE HEALTH PERSONNEL DID NOT PROPOSE I TAKE A TEST = 6<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | ALL → 318  |
| 315 | What was the result of your last HIV test during your pregnancy with [NAME]?              | POSITIVE = 1<br>NEGATIVE = 2<br>UNKNOWN/INDETERMINATE = 3<br>DID NOT RECEIVE RESULTS = 4<br>DON'T KNOW = -8<br>REFUSED = -9   | POSITIVE → 316<br>ELSE → 318                                       |
| 316 | Did you EVER take ARVs during your pregnancy with [NAME] to stop [NAME] from getting HIV? | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → 318<br>DK, REFUSED → 318<br><br>ELECTRONIC AID IF DON'T KNOW |
| 317 | What was the main reason you did not take ARVs while you were pregnant with [NAME]?       | WAS NOT PRESCRIBED = 1<br>I FELT HEALTHY/NOT SICK = 2<br>COST OF MEDICATIONS = 3<br>COST OF TRANSPORT = 4<br>RELIGIOUS REASONS = 5<br>WAS TAKING TRADITIONAL MEDICATIONS = 6<br>MEDICATIONS OUT OF STOCK = 7<br>DID NOT WANT PEOPLE TO KNOW HIV STATUS = 8<br>DID NOT RECEIVE PERMISSION FROM HUSBAND/WIFE/PARTNER//FAMILY = 9<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9                 |  |
| 318 | When you were pregnant with [NAME], were you offered a test for Hepatitis B?              | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 319 | When you were pregnant with [NAME], were you tested for Hepatitis B?                      | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → 322  |
| 320 | Did you test positive for Hepatitis B during your pregnancy with [NAME]?                  | YES = 1<br>NO = 2<br>DID NOT GET RESULT = 3<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, NO RESULT, DK, REFUSED → 322                                   |



| NO. | QUESTIONS  | CODING CATEGORIES  | SKIPS/FILTERS  |
|-----|--|--|--|
| 321 | Did you get treatment for Hepatitis B during your pregnancy with [NAME]? | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |  |
| 322 | Where did you give birth to [NAME]?                                      | AT HOME = 1<br>AT A HEALTH FACILITY = 2<br>IN TRANSIT = 3<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9   | HOME, TRANSIT, OTH, DK, REFUSED → 329  |
| 323 | Were you offered an HIV test during labor?                               | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |  |
| 324 | Did you test for HIV during labor?                                       | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED → 329<br>SKIP IF HIV POSITIVE                                      |
| 325 | What was the result of that test?  | POSITIVE = 1<br>NEGATIVE = 2<br>UNKNOWN/INDETERMINATE = 3<br>DID NOT RECEIVE RESULTS = 4<br>DON'T KNOW = -8<br>REFUSED = -9  | NEG, UNK/INDET, NO RESULTS, DK, REFUSED → 329<br>SKIP IF HIV POSITIVE              |
| 326 | During labor, were you offered ARVs to protect [NAME] against HIV?       | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | SKIP IF ALREADY ON ARVS.   |
| 327 | During labor, did you take ARVs to protect [NAME] against HIV?           | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED → 329<br>ELECTRONIC AID IF DON'T KNOW.<br>SKIP IF ALREADY ON ARVS. |
| 328 | Did you continue to take the ARVs after delivery?                        | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |  |
| 329 | When did you give birth to [NAME]? Please give your best guess.          | DAY __ __<br>DON'T KNOW DAY = -8<br>REFUSED DAY = -9<br><br>MONTH __ __<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR __ __ __<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9 |  |

| NO.   | QUESTIONS  | CODING CATEGORIES   | SKIPS/FILTERS  |
|---|--|---|--|
| 330   | Is [NAME] still alive?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES, DK, REFUSED → 333<br><br>IF MULTIPLE BIRTH ASK<br>330 -- 339 FOR EACH<br>CHILD. |
| 331   | How old was [NAME] when he/she died?<br><br>KEY '0' IF CHILD WAS LESS THAN ONE YEAR OLD.   | YEARS ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9   | >0, DK, REFUSED<br>→ 335   |
| 332   | How old was [NAME] in months when he/she died?<br><br>KEY '0' IF CHILD WAS LESS THAN ONE MONTH OLD.  | MONTHS ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9  | ALL → 335  |
| 333   | Is [NAME] living with you?   | YES = 1<br>NO = 2   | NO → 335   |
| 334   | RECORD HOUSEHOLD LINE<br>NUMBER OF CHILD<br><br>RECORD '00' IF CHILD NOT LISTED<br>IN HOUSEHOLD  | HOUSEHOLD LINE NUMBER ____  |  |
| 335   | Did you ever breastfeed [NAME]?  | YES = 1<br>NO, NEVER BREASTFED = 2<br>NO, CHILD NOT ALIVE = 3<br>DON'T KNOW = -8<br>REFUSED = -9              | NO, NOT ALIVE, DK,<br>REFUSED → 339  |
| 336   | For how long did you breastfeed [NAME]?<br><br>ONLY ONE OPTION MAY BE<br>SELECTED. FOR EXAMPLE,<br>ANSWER ONLY IN WEEKS OR IN<br>MONTHS.<br><br>CODE '00' IF LESS THAN 1 WEEK.         | WEEKS ____<br>MONTHS ____<br>STILL BREASTFEEDING = 96<br>DON'T KNOW = -8<br>REFUSED = -9                      |  |
| 337   | Some people exclusively breastfeed their baby and some people mix breastmilk feedings with other liquids. What kind of breastfeeding method did you use when your baby was 0-6 months? | EXCLUSIVE = 1<br>MIXED METHOD (BREASTMILK AND FORMULA OR OTHER LIQUID) = 2<br>DON'T KNOW = -8<br>REFUSED = -9 |  |
| 338   | Did you continue taking ARVs while you were breastfeeding [NAME]?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF ONLY ONE TIME<br>MED.<br>SKIP IF HIV NEGATIVE.<br>SKIP IF NOT TAKING<br>ARVS |
| 339   | Thank you for the information regarding [NAME].<br><br>DID THE RESPONDENT HAVE<br>MORE THAN ONE CHILD (I.E.<br>TWINS, TRIPLETS)?   | YES = 1<br>NO = 2   | YES → RETURN TO 330<br>FOR MULTIPLES   |
| Interviewer says: "I will now ask about current pregnancies." |  |   |  |

| NO.  | QUESTIONS  | CODING CATEGORIES   | SKIPS/FILTERS  |
|--|--|---|--|
| 340  | Are you pregnant now?  | YES = 1<br>NO = 2<br>DON'T KNOW/UNSURE = -8<br>REFUSED = -9   | YES → END OF MODULE                                  |
| <b>Interviewer says: "I will now ask you about family planning."</b>   |  |   |  |
| 341  | Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?          | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → END OF MODULE                      |
| 342  | Which method are you or your partner using?<br><br>SELECT ALL THAT APPLY.  | FEMALE STERILIZATION = A<br>MALE STERILIZATION = B<br>PILL = C<br>IUD/"COIL" = D<br>INJECTIONS = E<br>IMPLANT = F<br>MALE CONDOM = G<br>FEMALE CONDOM = H<br>RHYTHM/NATURAL METHODS = I<br>WITHDRAWAL = J<br>NOT HAVING SEX = K<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z |  |
| <b>MODULE 4: CHILDREN</b>  |  |   |  |
| <b>HOUSEHOLD SCHEDULE NOTED THAT [NAME OF RESPONDENT] WILL FILL OUT THE CHILDREN'S MODULE FOR [NUMBER OF CHILDREN] CHILD/CHILDREN.</b>   |  |   |  |
| <b>Interviewer says: "I am going to ask you a number of questions about your child/children regarding their health and where they get their health services. I will begin with your youngest child."</b> |  |   |  |
| <b>[LIST OF CHILDREN &lt;=14 YEARS ASSIGNED TO NAME]</b>   |  |   |  |
| 401  | Now I am going to ask you questions for [NAME].  |   |  |
| 402  | How old is [NAME] in years?<br>IF [NAME] IS LESS THAN 1 YEAR OLD, KEY 0 HERE AND KEY AGE IN MONTHS ON NEXT SCREEN. | AGE IN YEARS _____  | IF 402 >= 1 & 402 <= 5 → 404<br><br>IF 402 > 5 → 405 |
| 403  | How old is [NAME] in months?   | AGE IN MONTHS ____  | → 405  |
| 404  | You said that [NAME] was [KIDAGEY]. How many months over [KIDAGEY] is [CHILD*]?                                    | MONTHS SINCE LAST BIRTHDAY ____   |  |
| 405  | Is [NAME] a boy or girl?   | BOY = 1<br>GIRL = 2<br>REFUSED = -9   |  |
| 406  | Is [NAME] enrolled in school?  | YES = 1<br>NO, CURRENTLY NOT IN SCHOOL = 2<br>NO, TOO YOUNG TO BE IN SCHOOL = 3<br>DON'T KNOW = -8<br>REFUSED = -9  | TOO YOUNG, REFUSED → 411                             |

| NO. | QUESTIONS   | CODING CATEGORIES  | SKIPS/FILTERS   |
|-----|---|--|---|
| 407 | What is the highest level of school [NAME] has attended: nursery, primary or secondary?   | NURSERY = 0<br>PRIMARY = 1<br>SECONDARY = 2<br>NEVER ATTENDED SCHOOL = 3<br>DON'T KNOW = -8<br>REFUSED = -9  | IF 406 = NO, CURRENTLY NOT IN SCHOOL, DK → 409<br>NURSERY → 411 |
| 408 | What school year is [NAME] in now?  | MOINS 1 AN/LESS THAN 1 YR = 0<br>PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/ REFUSED = -9 |   |
| 409 | Was [NAME] enrolled in school during the previous school year?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO<br>DK, REFUSED → 411   |
| 410 | What year was [NAME] in during the previous school year?  | MOINS 1 AN/LESS THAN 1 YR = 0<br>PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/ REFUSED = -9 |   |
| 411 | Now we are going to ask you some questions about [NAME's] health. Some of them may sound sensitive, but the information is important for their health.                          |  | IF 405 IS GIRL → 414  |
| 412 | Is [NAME] circumcised?<br><br>Circumcision is the complete removal of the foreskin from the penis. I have a picture to show you what a completely circumcised penis looks like. | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO<br>DK, REFUSED → 414<br><br>ELECTRONIC AID IF DON'T KNOW.    |

| NO. | QUESTIONS  | CODING CATEGORIES   | SKIPS/FILTERS   |
|-----|--|---|---|
| 413 | Who circumcised [NAME]?  | DOCTOR, CLINICAL OFFICER, OR NURSE = 1<br>TRADITIONAL PRACTITIONER /<br>CIRCUMCISER = 2<br>MIDWIFE = 3<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSE TO ANSWER = -9  |   |
| 414 | Has [NAME] ever been tested for HIV?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → 416<br>DK, REFUSED → 433                              |
| 415 | Why has [NAME] never been tested for HIV?<br><br>SELECT ALL THAT APPLY.  | DON'T KNOW WHERE TO TEST = A<br>TEST COSTS TOO MUCH = B<br>TRANSPORT COSTS TOO MUCH = C<br>TOO FAR AWAY = D<br>AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS = E<br>DON'T NEED TEST/LOW RISK = F<br>DID NOT RECEIVE PERMISSION FROM HUSBAND/WIFE/PARTNER /FAMILY = G<br>AFRAID WIFE/HUSBAND/PARTNER/FAMILY WILL KNOW RESULTS = H<br>DON'T WANT TO KNOW CHILD HAS HIV = I<br>CANNOT GET TREATMENT FOR HIV = J<br>TEST KITS NOT AVAILABLE = K<br>RELIGIOUS REASONS = L<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z | ALL → 433   |
| 416 | What month and year was [NAME]'s last HIV test done?   | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9   | DATE RESTRAINTS   |
| 417 | What was [NAME]'s last HIV test result?  | POSITIVE = 1<br>NEGATIVE = 2<br>UNKNOWN/INDETERMINATE = 3<br>DID NOT RECEIVE RESULTS = 4<br>DON'T KNOW = -8<br>REFUSED = -9   | IF NEG, UNK/INDET,<br>DID NOT RECEIVE, DK,<br>REFUSED → 433 |
| 418 | What was the month and year of [NAME]'s first HIV positive test result?<br>Please give your best guess.<br><br>This will be the very first HIV positive test result that you have received.<br><br>PROBE TO VERIFY DATE. | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9   |   |
| 419 | Has [NAME] ever received any HIV-related care from a doctor, clinical officer or nurse from a health facility?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → 421 DK, REFUSED → 424                                 |

| NO. | QUESTIONS   | CODING CATEGORIES  | SKIPS/FILTERS                                 |
|-----|---|--|---|
| 420 | What is the main reason why [NAME] has never seen a doctor, clinical officer, or nurse for HIV-related care?                    | FACILITY IS TOO FAR AWAY = 1<br>I DON'T KNOW WHERE TO GET HIV MEDICAL CARE FOR CHILD = 2<br>COST OF CARE = 3<br>COST OF TRANSPORT = 4<br>IF THE CHILD DOES NOT SEEM SICK, HE/SHE DOES NOT NEED CARE = 5<br>I FEAR PEOPLE WILL KNOW THAT CHILD HAS HIV IF I TAKE HIM/HER TO A CLINIC = 6<br>RELIGIOUS REASONS = 7<br>CHILD IS TAKING TRADITIONAL MEDICINE = 8<br>I DO NOT BELIEVE THE CHILD HAS A DISEASE = 9<br>DO NOT TRUST THE STAFF/QUALITY OF CARE = 10<br>I DO NOT FEEL WE ARE RESPECTED BY THE STAFF = 11<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9                 | ALL → 424                                     |
| 421 | What month and year did [NAME] first see a doctor, clinical officer or nurse for HIV medical care?<br><br>PROBE TO VERIFY DATE. | MONTH _____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR _____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9  |   |
| 422 | What month and year did [NAME] last see a doctor, clinical officer or nurse for HIV medical care?                               | MONTH _____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br>YEAR _____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9  | IF <7 MONTHS, DK, REFUSED, MISSING DATE → 424 |
| 423 | What is the main reason for [NAME] not seeing a doctor, clinical officer or nurse for HIV medical care for more than 6 months?  | FACILITY IS TOO FAR AWAY = 1<br>I DON'T KNOW WHERE TO GET HIV MEDICAL CARE FOR CHILD = 2<br>COST OF CARE = 3<br>COST OF TRANSPORT = 4<br>IF THE CHILD DOES NOT SEEM SICK, HE/SHE DOES NOT NEED CARE = 5<br>I FEAR PEOPLE WILL KNOW THAT CHILD HAS HIV IF I TAKE HIM/HER TO A CLINIC = 6<br>RELIGIOUS REASONS = 7<br>CHILD IS TAKING TRADITIONAL MEDICINE = 8<br>NO APPOINTMENT SCHEDULED//MISSED MOST RECENT APPOINTMENT = 9<br>DO NOT TRUST THE STAFF/QUALITY OF CARE = 10<br>I DO NOT FEEL WE ARE RESPECTED BY THE STAFF = 11<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |   |

| NO. | QUESTIONS   | CODING CATEGORIES  | SKIPS/FILTERS  |
|-----|---|--|--|
| 424 | Has [NAME] ever had a CD4 count test?<br>The CD4 count tells you how sick you are with HIV and if you need to take ARVs or other HIV medications. | YES = 1<br>NO = 2<br>STILL DON'T UNDERSTAND WHAT A CD4 TEST IS = 3<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DON'T UNDERSTAND, DK, REFUSED → 426<br><br>NO, DON'T UNDERSTAND, DK, REFUSED & NEVER IN HIV CARE → 433 |
| 425 | What month and year was [NAME] last tested for his/her CD4 count?   | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9  | NEVER IN HIV CARE → 433  |
| 426 | Has [NAME] ever taken ARVs? ARVs are antiretroviral medications that treat his/her HIV infection.   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 428<br>DK, REFUSED → 432<br><br>ELECTRONIC AID IF DON'T KNOW   |
| 427 | What is the main reason [NAME] has never taken ARVs?  | CHILD IS NOT ELIGIBLE FOR TREATMENT=1<br>HEALTH CARE PROVIDER DID NOT PRESCRIBE = 2<br>HIV MEDICINES NOT AVAILABLE = 3<br>DO NOT THINK CHILD NEEDS IT, HE/SHE IS NOT SICK = 4<br>COST OF MEDICATIONS = 5<br>COST OF TRANSPORT = 6<br>RELIGIOUS REASONS = 7<br>CHILD IS TAKING TRADITIONAL MEDICATIONS = 8<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | ALL → 432  |
| 428 | What month and year did [NAME] first start taking ARVs?<br>PROBE TO VERIFY DATE.  | MONTH = ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR = ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9  |  |
| 429 | Is [NAME] currently taking ARVs?<br><br>By currently, I mean that [NAME] may have missed some doses but [NAME] is still taking ARVs.              | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 3040<br>DK, REFUSED → 432  |

| NO. | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS                |
|-----|---|---|------------------------------|
| 430 | Can you tell me the main reason why [NAME] is not currently taking ARVs?  | I HAVE TROUBLE GIVING CHILD A TABLET EVERYDAY = 1<br>CHILD HAD SIDE EFFECTS/RASH = 2<br>FACILITY/PHARMACY TOO FAR AWAY TO GET MEDICATION REGULARLY = 3<br>COST OF MEDICATIONS = 4<br>COST OF TRANSPORT = 5<br>CHILD IS HEALTHY/, HE/SHE IS NOT SICK = 6<br>FACILITY WAS OUT OF STOCK = 7<br>RELIGIOUS REASONS = 8<br>CHILD IS TAKING TRADITIONAL MEDICATIONS = 9<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | ALL → 432                    |
| 431 | People sometimes forget to take all their ARVs every day. In the last 30 days, how many days has [NAME] missed taking any ARV pills? CODE '00' IF NONE.   | DAYS ____<br>DON'T KNOW = -8<br>REFUSED = -9  |                              |
| 432 | Is [NAME] currently taking Bactrim or cotrimoxazole?<br><br>Bactrim or cotrimoxazole is a medicine that treats different illnesses, but is also 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.<br><br>By currently, I mean that [NAME] may have missed some doses but is still taking Bactrim or cotrimoxazole. | YES = 1<br>NO = 2<br>I STILL DON'T UNDERSTAND WHAT BACTRIM/COTRIMOXAZOLE IS = 3<br>DON'T KNOW IF CHILD IS TAKING = -8<br>REFUSED = -9   | ELECTRONIC AID IF DON'T KNOW |
| 433 | Has [NAME] ever visited a clinic for tuberculosis for TB diagnosis or treatment?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → 434        |
| 434 | Was [NAME] tested for HIV at the TB clinic?   | YES = 1<br>NO, WAS NOT TESTED FOR HIV = 2<br>NO, WAS ALREADY HIV POSITIVE = 3<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF 414 = NO             |
| 435 | Have you ever been told by a doctor, clinical officer or nurse that [NAME] had TB?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → 439        |
| 436 | What month and year did a doctor, clinical officer or nurse diagnose [NAME] with TB?<br><br>RECORD THE MOST RECENT TIME IF DIAGNOSED WITH TB MORE THAN ONCE.  | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9   |                              |



| NO.                                | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS                                       |
|------------------------------------|---|---|---|
| 437                                | Was [NAME] ever treated for TB?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → 439                               |
| 438                                | Is [NAME] currently on treatment for TB?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → 439   |
| 439                                | The last time [NAME] was treated for TB, did [NAME] complete at least 6 months of treatment?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| 440                                | Has your child been vaccinated for Hepatitis B?<br><br>ASK IF CHILD'S VACCINATION CARD IS AVAILABLE.  | YES=1<br>NO=2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → 442                               |
| 441                                | How many doses of Hepatitis B vaccination has your child received?  | 0 DOSES = 0<br>1 DOSE = 1<br>2 DOSES = 2<br>3+ DOSES = 3<br>DON'T KNOW = -8<br>REFUSED = -9   |   |
| 442                                | TICK WHETHER HEPATITIS B VACCINATION WAS CONFIRMED VIA VACCINATION CARD OR PARENT RECALL  | CONFIRMED WITH VACCINATION CARD = 1<br>CONFIRMED VIA PARENT RECALL = 2<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |   |
| 443                                | Thank you for the information about [NAME].<br><br>DOES THE RESPONDENT HAVE ANOTHER CHILD AGED 0-14 YEARS?  |   | YES → RETURN TO 401                                 |
| <b>MODULE 5: MALE CIRCUMCISION</b> |   |   |   |
|                                    | <b>Interviewer says: "I will be asking a few questions about circumcision. Circumcision is the complete removal of the foreskin from the penis. I have a picture to show you what a completely circumcised penis looks like."</b> |   | ELECTRONIC AID IF DON'T KNOW.<br><br>SKIP IF FEMALE |
| 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<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = 9   | YES → 503<br>DK, REFUSED → NEXT MODULE              |
| 502                                | Are you planning to get circumcised?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | ALL → NEXT MODULE                                   |
| 503                                | How old were you when you were circumcised? Please give your best guess.<br><br>IF LESS THAN ONE YEAR, CODE '00'.   | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9  |   |

| NO. | QUESTIONS                 | CODING CATEGORIES   | SKIPS/FILTERS |
|-----|---------------------------|---|---------------|
| 504 | Who did the circumcision? | DOCTOR, CLINICAL OFFICER, OR NURSE = 1<br>TRADITIONAL PRACTITIONER /<br>CIRCUMCISER = 2<br>MIDWIFE = 3<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |               |

## MODULE 6: SEXUAL ACTIVITY

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

**Let me assure you again that your answers are completely confidential and will not be shared with anyone. If there are questions that you do not want to answer, we can go to the next question.”**

|     |   |   |  |
|-----|---|---|--|
| 601 | Have you ever had sex?<br><br>Sex can be when a penis enters a vagina, when a penis enters an anus, or when a person puts his/her mouth on the penis or vagina of another person.   | YES = 1<br>NO = 2<br>DK = -8<br>REFUSED = -9  | REFUSED, NO →<br>NEXT MODULE           |
| 602 | What types of sex have you had?<br><br>SELECT ALL THAT APPLY.<br><br>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. | NEVER HAD SEX = A<br>VAGINAL = B<br>ANAL = C<br>ORAL = D<br>DON'T KNOW = Y<br>REFUSED = Z | NEVER, DK, REFUSED<br>→ NEXT MODULE    |
| 603 | How old were you when you had vaginal sex for the very first time?  | AGE IN YEARS _ _<br>DON'T KNOW = -8<br>REFUSED = -9                                       | SKIP IF NEVER HAD<br>VAGINAL SEX       |
| 604 | How old were you when you had anal sex for the very first time?   | AGE IN YEARS _ _<br>DON'T KNOW = -8<br>REFUSED = -9                                       | SKIP IF NEVER HAD<br>ANAL SEX          |
| 605 | People often have sex with different people over their lifetime. In total, with how many different people have you had sex in your lifetime? Please give your best guess.<br><br>IF NUMBER OF PARTNERS IS GREATER THAN 100, WRITE '100'.          | NUMBER OF SEXUAL PARTNERS IN LIFETIME<br>_ _ _<br><br>DON'T KNOW = -8<br>REFUSED = -9     |  |
| 606 | 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?<br><br>IF NONE CODE '00'.<br><br>IF NUMBER OF PARTNERS IS GREATER THAN 100, WRITE '100'.        | NUMBER OF SEXUAL PARTNERS IN LAST 12 MONTHS _ _ _<br><br>DON'T KNOW = -8<br>REFUSED = -9  | IF 00 PARTNERS IN LAST 12 MONTHS → 701 |

| NO.  | QUESTIONS   | CODING CATEGORIES  |  | SKIPS/FILTERS  |
|--|---|--|--|--|
| Interviewer says: “Now I would like to ask you some questions about the people you have had sex with in the last 12 months. Let me assure you again that your answers are completely confidential and will not be told to your sexual partner or anyone else. I will first ask you about the most recent person you had sex with.” |   |  |  |  |
| ASK ONLY ABOUT THE LAST 3 PERSONS THE PARTICIPANT HAS HAD SEX WITH.  |   |  |  |  |
| 607  | Does the person you had sex with live in this household?  | YES = 1<br>NO = 2<br><br>NO→ 609   | YES = 1<br>NO = 2<br><br>NO→ 609   | YES = 1<br>NO = 2<br><br>NO→ 609   |
| 608  | Please select the <b>name</b> below from the household membership list. Please identify the person you had sex with.  | [LIST]<br>ALL→ 610   | [LIST]<br>ALL→ 610   | [LIST]<br>ALL→ 610   |
| 609  | 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<br><br>___ ___  | INITIALS<br><br>___ ___  | INITIALS<br><br>___ ___  |
| 610  | What is your relationship with (INITIALS)?  | HUSBAND/WIFE = 1<br>LIVE-IN PARTNER = 2<br>PARTNER, NOT LIVING WITH RESPONDENT = 3<br>EX-WIFE/HUSBAND/EX-PARTNER = 4<br>FRIEND/ACQUAINTANCE = 5<br>SEX WORKER = 6<br>SEX WORKER CLIENT =7<br>STRANGER = 8<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | HUSBAND/WIFE = 1<br>LIVE-IN PARTNER = 2<br>PARTNER, NOT LIVING WITH RESPONDENT = 3<br>EX-WIFE/HUSBAND/EX-PARTNER = 4<br>FRIEND/ACQUAINTANCE = 5<br>SEX WORKER = 6<br>SEX WORKER CLIENT =7<br>STRANGER = 8<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | HUSBAND/WIFE = 1<br>LIVE-IN PARTNER = 2<br>PARTNER, NOT LIVING WITH RESPONDENT = 3<br>EX-WIFE/HUSBAND/EX-PARTNER = 4<br>FRIEND/ACQUAINTANCE = 5<br>SEX WORKER = 6<br>SEX WORKER CLIENT =7<br>STRANGER = 8<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |
| 611  | Is (INITIALS) male or female?   | MALE = 1<br>FEMALE = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | MALE = 1<br>FEMALE = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | MALE = 1<br>FEMALE = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |
| 612  | How old is (INITIALS)? Please give your best guess.   | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9   | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9   | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9   |
| 613  | The last time you had sex with (INITIALS) was a condom used?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |
| 614  | 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<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9<br><br>SKIP IF SEX WORKER OR CLIENT   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9<br><br>SKIP IF SEX WORKER OR CLIENT   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9<br><br>SKIP IF SEX WORKER OR CLIENT   |

| NO. | QUESTIONS   | CODING CATEGORIES  |  | SKIPS/FILTERS  |
|-----|---|--|--|--|
| 615 | In the last 12 months, have you had sex with (INITIALS) because (INITIALS) provided you with, or you expected that (INITIALS) would provide you with gifts, help you to pay for things or help you in other ways? | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9<br><br>NO, DK, REFUSED → 617<br><br>SKIP IF SEX WORKER OR CLIENT  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9<br><br>NO, DK, REFUSED → 617<br><br>SKIP IF SEX WORKER OR CLIENT  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9<br><br>NO, DK, REFUSED → 617<br><br>SKIP IF SEX WORKER OR CLIENT  |
| 616 | In the last 12 months, what have you received from (INITIALS)?<br><br>SELECT ALL THAT APPLY.  | DID NOT RECEIVE ANYTHING = A<br>MONEY = B<br>FOOD = C<br>SCHOOL FEES = D<br>EMPLOYMENT = E<br>GIFTS/FAVORS = F<br>TRANSPORT = G<br>SHELTER/RENT = H<br>PROTECTION = I<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z<br><br>SKIP IF SPOUSE, LIVE-IN PARTNER, SEX WORKER OR CLIENT | DID NOT RECEIVE ANYTHING = A<br>MONEY = B<br>FOOD = C<br>SCHOOL FEES = D<br>EMPLOYMENT = E<br>GIFTS/FAVORS = F<br>TRANSPORT = G<br>SHELTER/RENT = H<br>PROTECTION = I<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z<br><br>SKIP IF SPOUSE, LIVE-IN PARTNER, SEX WORKER OR CLIENT | DID NOT RECEIVE ANYTHING = A<br>MONEY = B<br>FOOD = C<br>SCHOOL FEES = D<br>EMPLOYMENT = E<br>GIFTS/FAVORS = F<br>TRANSPORT = G<br>SHELTER/RENT = H<br>PROTECTION = I<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z<br><br>SKIP IF SPOUSE, LIVE-IN PARTNER, SEX WORKER OR CLIENT |
| 617 | Do you expect to have sex with (INITIALS) again?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |
| 618 | Does (INITIALS) know your HIV status? HIV status could mean you are HIV negative or HIV positive.   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |
| 619 | What is the HIV status of (INITIALS)?<br><br>READ RESPONSES ALOUD   | I THINK HE/SHE IS POSITIVE = 1<br>HE/SHE TOLD ME HE/SHE IS POSITIVE = 2<br>HE/SHE IS POSITIVE, TESTED TOGETHER = 3<br>I THINK HE/SHE IS NEGATIVE = 4<br>HE/SHE TOLD ME HE/SHE IS NEGATIVE = 5<br>HE/SHE IS NEGATIVE, TESTED TOGETHER = 6<br>DON'T KNOW STATUS = 7<br>REFUSED = -9                  | I THINK HE/SHE IS POSITIVE = 1<br>HE/SHE TOLD ME HE/SHE IS POSITIVE = 2<br>HE/SHE IS POSITIVE, TESTED TOGETHER = 3<br>I THINK HE/SHE IS NEGATIVE = 4<br>HE/SHE TOLD ME HE/SHE IS NEGATIVE = 5<br>HE/SHE IS NEGATIVE, TESTED TOGETHER = 6<br>DON'T KNOW STATUS = 7<br>REFUSED = -9                  | I THINK HE/SHE IS POSITIVE = 1<br>HE/SHE TOLD ME HE/SHE IS POSITIVE = 2<br>HE/SHE IS POSITIVE, TESTED TOGETHER = 3<br>I THINK HE/SHE IS NEGATIVE = 4<br>HE/SHE TOLD ME HE/SHE IS NEGATIVE = 5<br>HE/SHE IS NEGATIVE, TESTED TOGETHER = 6<br>DON'T KNOW STATUS = 7<br>REFUSED = -9                  |

| NO.  | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS  |
|--|---|---|--|
| 620  | I will now ask you about the person you have had sex with previous to (INITIALS). | REPEATS STARTING AT 607 FOR UP TO 2 ADDITIONAL PARTNERS   |  |
| <b>MODULE 7: HIV TESTING</b>   |   |   |  |
| <b>Interviewer says: "I would now like to ask you some questions about HIV testing."</b> |   |   |  |
| 701  | Have you ever tested for HIV?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → 703<br>DK, REFUSED → NEXT MODULE<br><br>CONSTRAINT IF REPORTED TESTING |
| 702  | Why have you never been tested for HIV?<br><br>SELECT ALL THAT APPLY.             | DON'T KNOW WHERE TO TEST = A<br>TEST COSTS TOO MUCH = B<br>TRANSPORT COSTS TOO MUCH = C<br>TOO FAR AWAY = D<br>AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS = E<br>DON'T NEED TEST/LOW RISK = F<br>DID NOT RECEIVE PERMISSION FROM HUSBAND/WIFE/PARTNER/FAMILY = G<br>AFRAID HUSBAND/WIFE/PARTNER/FAMILY WILL KNOW RESULTS = H<br>DON'T WANT TO KNOW I HAVE HIV = I<br>CANNOT GET TREATMENT FOR HIV = J<br>TEST KITS NOT AVAILABLE = K<br>RELIGIOUS REASONS = L<br>DON'T CARE IF I HAVE HIV = M<br>I'M AFRAID OF MY HIV TEST RESULT = N<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z | ALL -> NEXT MODULE   |
| 703  | What month and year was your last HIV test?                                       | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9   |  |
| 704  | Where was the last test done?   | VOLUNTARY COUNSELING & TESTING (VCT)<br>FACILITY = 1<br>MOBILE VCT = 2<br>AT HOME = 3<br>HEALTH CLINIC / FACILITY = 4<br>HOSPITAL OUTPATIENT CLINIC = 5<br>TB CLINIC = 6<br>STI CLINIC = 7<br>HOSPITAL INPATIENT WARDS = 8<br>BLOOD DONATING CENTER = 9<br>ANC CLINIC = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9   |  |

| NO.   | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS   |
|---|---|---|---|
| 705   | What was the result of that HIV test?   | POSITIVE = 1<br>NEGATIVE = 2<br>UNCERTAIN/INDETERMINATE = 3<br>DID NOT RECEIVE THE RESULT = 4<br>DON'T KNOW = -8<br>REFUSED = -9                            | NEGATIVE, UNCERTAIN,<br>DID NOT RECEIVE,<br>DK, REFUSED → NEXT<br>MODULE<br><br>ADD CONSTRAINT<br>FOR WOMEN WHO<br>ANSWERED POSITIVE IN<br>REPRO MODULE |
| 706   | What was the month and year of your first HIV positive test result? Please give your best guess.<br><br>This will be the very first HIV positive test result that you have received.<br><br>PROBE TO VERIFY DATE. | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9                                     |   |
| 707   | Of the following people, who have you told that you are HIV positive?<br><br>CHECK ALL THAT APPLY.  | NO ONE = A<br>HUSBAND/WIFE/SEX PARTNER = B<br>DOCTOR = C<br>FRIEND = D<br>FAMILY MEMBER = E<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z |   |
| Interviewer says: "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<br>NO, NO NEED TO HIDE = 2<br>NO, DID NOT ATTEND HEALTH FACILITY IN LAST 12 MONTHS = 3<br>DON'T KNOW = -8<br>REFUSED = -9                           |   |
| 709   | In the last 12 months, have you been denied health services including dental care, because of your HIV status?  | YES = 1<br>NO = 2<br>NO ONE KNOWS MY STATUS = 3<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| <b>MODULE 8: HIV STATUS, CARE AND TREATMENT</b>   |   |   |   |
| Interviewer says: "Now I'm going to ask you more about your experience with HIV support, care and treatment." |   |   | NOT HIV POSITIVE → NEXT MODULE  |
| 801   | After learning you had HIV, have you ever received HIV medical care from a doctor, clinical officer or nurse?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → 803<br>DK, REFUSED → NEXT<br>MODULE   |

| NO. | QUESTIONS  | CODING CATEGORIES   | SKIPS/FILTERS                   |
|-----|--|---|---------------------------------|
| 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 = 1<br>I DON'T KNOW WHERE TO GET HIV MEDICAL CARE = 2<br>COST OF CARE = 3<br>COST OF TRANSPORT = 4<br>I DO NOT NEED IT/I FEEL HEALTHY/NOT SICK = 5<br>I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC = 6<br>RELIGIOUS REASONS = 7<br>I'M TAKING TRADITIONAL MEDICINE= 8<br>DO NOT TRUST THE STAFF/QUALITY OF CARE = 9<br>I DO NOT FEEL RESPECTED BY THE STAFF = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9   | ALL → NEXT MODULE               |
| 803 | What month and year did you first see a doctor, clinical officer or nurse for HIV medical care?<br><br>PROBE TO VERIFY DATE. | MONTH ____ ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____ ____ ____ ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9   |                                 |
| 804 | What month and year did you last see a doctor, clinical officer or nurse for HIV medical care?<br><br>PROBE TO VERIFY DATE.  | MONTH ____ ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____ ____ ____ ____<br>DON'T KNOW YEAR = -8<br>REFUSED = -9  | IF <7 MONTHS, DK, REFUSED → 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 = 1<br>I DON'T KNOW WHERE TO GET HIV MEDICAL CARE = 2<br>COST OF CARE = 3<br>COST OF TRANSPORT = 4<br>I DO NOT NEED IT/I FEEL HEALTHY/NOT SICK = 5<br>I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC = 6<br>RELIGIOUS REASONS = 7<br>I'M TAKING TRADITIONAL MEDICINE= 8<br>NO APPOINTMENT SCHEDULED/DID NOT MISS MOST RECENT APPOINTMENT = 9<br>DO NOT TRUST THE STAFF/QUALITY OF CARE = 10<br>I DO NOT FEEL RESPECTED BY THE STAFF = 11<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |                                 |

| NO. | QUESTIONS  | CODING CATEGORIES  | SKIPS/FILTERS  |
|-----|--|--|--|
| 806 | Have you ever had a CD4 count test?<br><br>The CD4 count tells you how sick you are with HIV and if you need to take ARVs or other HIV medications.                | YES = 1<br>NO = 2<br>STILL DON'T UNDERSTAND WHAT A CD4 TEST IS = 3<br>DON'T KNOW/REMEMBER = -8<br>REFUSED = -9   | NO, DON'T UNDERSTAND, DK, REFUSED → 808<br><br>NO, DK, REFUSED & NEVER IN HIV CARE → END OF MODULE |
| 807 | What month and year were you last tested for your CD4 count?   | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9  | NEVER IN HIV CARE → END OF MODULE  |
| 808 | Have you ever taken ARVs, that is, antiretroviral medications to treat HIV infection?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 810<br><br>DK, REFUSED → NEXT MODULE   |
| 809 | What is the main reason you have never taken ARVs?   | NOT ELIGIBLE FOR TREATMENT=1<br>HEALTH CARE PROVIDER DID NOT PRESCRIBE = 2<br>HIV MEDICINES NOT AVAILABLE = 3<br>I FEEL HEALTHY/NOT SICK = 4<br>COST OF MEDICATIONS = 5<br>COST OF TRANSPORT = 6<br>RELIGIOUS REASONS = 7<br>TAKING TRADITIONAL MEDICATIONS = 8<br>NOT ATTENDING HIV CLINIC = 9<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | ALL → NEXT MODULE  |
| 810 | What month and year did you first start taking ARVs?<br><br>PROBE TO VERIFY DATE.  | MONTH ____<br>DON'T KNOW MONTH = -8<br>REFUSED MONTH = -9<br><br>YEAR ____<br>DON'T KNOW YEAR = -8<br>REFUSED YEAR = -9  |  |
| 811 | Are you currently taking ARVs, that is, antiretroviral medications?<br><br>By currently, I mean that you may have missed some doses but you are still taking ARVs. | YES = 1<br>NO=2<br>DON'T KNOW = -8<br>REFUSED = -9   | YES → 813<br>DK, REFUSED → NEXT MODULE   |



| NO.  | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS                   |
|--|---|---|---------------------------------|
| 812  | Can you tell me the main reason why you are not currently taking ARVs?  | HAVE TROUBLE TAKING A TABLET EVERYDAY = 1<br>I HAD SIDE EFFECTS = 2<br>FACILITY TOO FAR AWAY FOR ME TO GET MEDICINE REGULARLY = 3<br>COST OF MEDICATIONS = 4<br>COST OF TRANSPORT = 5<br>I FEEL HEALTHY/NOT SICK = 6<br>FACILITY WAS OUT OF STOCK = 7<br>RELIGIOUS REASONS = 8<br>TAKING TRADITIONAL MEDICATIONS = 9<br>PEOPLE WOULD SEE MY ARVS AND KNOW MY STATUS = 10<br>OTHER=96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | ALL → NEXT 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? | NUMBER OF DAYS _____<br>DON'T KNOW = -8<br>REFUSED = -9   |                                 |
|  | CODE '00' IF NONE.  |   |                                 |
| 814  | When you have ARV pills at home, what are the main reasons that you forget or do not take your ARV pills every day?                           | I HAVE TROUBLE TAKING A TABLET EVERYDAY = 1<br>I HAD SIDE EFFECTS/RASH = 2<br>DO NOT NEED IT WHEN I DO NOT FEEL SICK = 3<br>MY SCHEDULE CONFLICTS WITH THE TIMES I'M SUPPOSED TO TAKE PILLS = 4<br>I DON'T HAVE ENOUGH PRIVACY TO TAKE EVERY DAY = 5<br>I JUST FORGET = 6<br>OTHER=96<br>SPECIFY: _____<br>DK = -8<br>REFUSED = -9  |                                 |
| <b>MODULE 9: TUBERCULOSIS AND OTHER HEALTH ISSUES</b>                    |   |   |                                 |
| <b>Interviewer says: "Now we will ask you about tuberculosis or TB."</b> |   |   |                                 |
| 901  | Have you ever visited a clinic for TB diagnosis or treatment?   | YES = 1<br>NO=2<br>DON'T KNOW = -8<br>REFUSED = -9  |                                 |
| 902  | Have you ever been told by a doctor, clinical officer or nurse that you had TB?   | YES = 1<br>NO=2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → END OF MODULE |
| 903  | Were you ever treated for TB?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → END OF MODULE |
| 904  | Are you currently on treatment for TB?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES → END OF MODULE             |

| NO.   | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS   |
|---|---|---|---|
| 905   | The last time you were treated for TB, did you complete at least 6 months of treatment?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| MODULE 10: GENDER NORMS   |   |   |   |
| Interviewer says: “Now I would like to ask you question on attitudes and decision-making in your home.”   |   |   |   |
| 1001  | Who usually makes decisions about health care for yourself: you, your (husband/wife/partner), you and your (husband/wife/partner) together, or someone else?  | I DO = 1<br>HUSBAND/WIFE/PARTNER = 2<br>WE BOTH DO = 3<br>SOMEONE ELSE = 4<br>DON'T KNOW = -8<br>REFUSED = -9 | SKIP IF NOT MARRIED/<br>LIVING TOGETHER   |
| 1002  | Who generally decides about how the money you receive is spent: you, your (husband/wife/partner), you and your (husband/wife/partner) together, or someone else?  | I DO = 1<br>HUSBAND/WIFE/PARTNER = 2<br>WE BOTH DO = 3<br>SOMEONE ELSE = 4<br>DON'T KNOW = -8<br>REFUSED = -9 | SKIP IF NOT MARRIED/<br>LIVING TOGETHER   |
| MODULE 11: VIOLENCE   |   |   |   |
| Interviewer says: “You have been randomly selected to be asked questions on other important aspects of a person’s life. I know that some of these questions are very personal. However, your answers are important for helping to understand the condition of men and women in Cameroon. Let me assure you that your answers are completely confidential and will not be told to anyone and no one in your household will know that you were asked these questions. |   |   | ADULT OR ADOLESCENT<br>VIOLENCE MODULE<br>ASKED OF 1 FEMALE<br>PER HOUSEHOLD, 13+<br>YEARS (CHILD FLAGGED<br>HOUSEHOLDS) OR<br>15+ YEARS (NON<br>CHILD-FLAGGED<br>HOUSEHOLDS) |
| When I ask about sex, I mean vaginal, anal, oral sex or the insertion of an object into your vagina or anus. Vaginal sex is when a penis enters a vagina. Anal sex is when a penis enters an anus (butt). Oral sex is when a partner puts his/her mouth on his/her partner’s penis or vagina.   |   |   |   |
| You may answer these questions about people in your past or people who are still near you, including someone you know, a family member, or your husband or partner.”  |   |   |   |
| 1101  | How many times has anyone ever touched you in a sexual way without your permission, but did not try and force you to have sex?<br><br>Touching in a sexual way without permission includes fondling, pinching, grabbing, or touching you on or around your sexual body parts.<br><br>CODE ‘00’ IF NONE. | NUMBER OF TIMES ____<br>DON'T KNOW = -8<br>REFUSED = -9   | NONE(0), DK,<br>REFUSED→ 1103   |
| 1102  | How old were you the first time someone touched you without your permission?  | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| 1103  | How many times in your life has anyone tried to make you have sex against your will but did not succeed? This includes someone using harassment, threats, tricks, or physical force.<br><br>CODE ‘00’ IF NONE.  | NUMBER OF TIMES ____<br>DON'T KNOW = -8<br>REFUSED = -9   | NONE(0), DK,<br>REFUSED→ 1105   |

| NO.  | QUESTIONS   | CODING CATEGORIES  | SKIPS/FILTERS                  |
|------|---|--|--------------------------------|
| 1104 | How old were you the first time someone tried to make you have sex against your will but did not succeed?   | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9   |                                |
| 1105 | How many times in your life have you been physically forced to have sex?<br><br>CODE '00' IF NONE.  | NUMBER OF TIMES ____<br>DON'T KNOW = -8<br>REFUSED = -9  | NONE(0), DK,<br>REFUSED → 1109 |
| 1106 | How old were you the first time someone physically forced you to have sex?  | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9   |                                |
| 1107 | In the last 12 months, did someone physically force you to have sex?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED → 1109         |
| 1108 | In the last 12 months, did a partner physically force you to have sex?<br><br>By partner, I mean a live-in partner or husband.  | YES = 1<br>NO, DID NOT FORCE = 2<br>NO, DID NOT HAVE A LIVE-IN PARTNER IN THE LAST 12 MONTHS = 3<br>DON'T KNOW = -8<br>REFUSED = -9                |                                |
| 1109 | How many times in your life has someone pressured you to have sex through harassment, threats and tricks and did succeed?<br><br>CODE '00' IF NONE.<br><br>Being pressured can include being worn down by someone who repeatedly asks for sex, feeling pressured by being lied to, being told promises that were untrue, having someone threaten to end a relationship or spread rumors or sexual pressure due to someone using their influence or authority. | NUMBER OF TIMES ____<br>DON'T KNOW = -8<br>REFUSED = -9  | NONE(0), DK,<br>REFUSED → 1113 |
| 1110 | How old were you the first time someone pressured you to have sex and did succeed?  | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9   |                                |
| 1111 | In the last 12 months, did someone pressure you to have sex and did succeed?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED → 1113         |
| 1112 | In the last 12 months, did a partner pressure you to have sex and did succeed?<br><br>By partner, I mean a live-in partner or husband.  | YES = 1<br>NO, DID NOT PRESSURE AND SUCCEED = 2<br>NO, DID NOT HAVE A LIVE-IN PARTNER IN THE LAST 12 MONTHS = 3<br>DON'T KNOW = -8<br>REFUSED = -9 |                                |

| NO.  | QUESTIONS   | CODING CATEGORIES   | SKIPS/FILTERS  |
|------|---|---|--|
| 1113 | <p>After any of these unwanted sexual experiences, did you try to seek help or services from any of the following?</p> <p>SELECT ALL THAT APPLY.<br/>READ RESPONSES ALOUD.</p>  | <p>I DID NOT TRY TO SEEK HELP = A<br/>HEALTHCARE PROFESSIONAL = B<br/>POLICE OR OTHER SECURITY PERSONNEL = C<br/>SOCIAL WORKER, COUNSELOR OR NON-GOVERNMENTAL ORGANIZATION = D<br/>RELIGIOUS LEADER = E<br/>FAMILY = F<br/>FRIEND = G<br/>COMMUNITY LEADER = H<br/>OTHER = X<br/>SPECIFY: _____<br/>DON'T KNOW = Y<br/>REFUSED = Z</p>  | <p>DID NOT TRY TO SEEK HELP → 1114<br/>ELSE → 1115</p> <p>SKIP IF NEVER EXPERIENCED.</p> |
| 1114 | <p>What was the main reason that you did not try to seek help or services?</p>  | <p>DID NOT KNOW SERVICES WERE AVAILABLE = 1<br/>SERVICES NOT AVAILABLE = 2<br/>AFRAID OF GETTING IN TROUBLE = 3<br/>ASHAMED FOR SELF/FAMILY = 4<br/>COULD NOT AFFORD SERVICES = 5<br/>DID NOT THINK IT WAS A PROBLEM = 6<br/>FELT IT WAS MY FAULT = 7<br/>AFRAID OF BEING ABANDONED = 8<br/>DID NOT NEED/WANT SERVICES = 9<br/>AFRAID OF MAKING SITUATION WORSE = 10<br/>FEAR OF THE NEGATIVE REACTION OF SERVICE PROVIDERS = 11<br/>OTHER = 96<br/>SPECIFY: _____<br/>DON'T KNOW = -8<br/>REFUSED = -9</p> |  |
| 1115 | <p>Has anyone ever done any of these things to you:</p> <p>Punched, kicked, whipped, or beat you with an object<br/>Slapped you, threw something at you that could hurt you, pushed you or shoved you<br/>Choked smothered, tried to drown you, or burned you intentionally<br/>Used or threatened you with a knife, gun or other weapon?</p> | <p>YES = 1<br/>NO = 2<br/>DON'T KNOW = -8<br/>REFUSED = -9</p>  | <p>NO, DK, REFUSED → 1121</p>  |
| 1116 | <p>How old were you the first time one of these things happened to you?</p>   | <p>AGE IN YEARS ____<br/>DON'T KNOW = -8<br/>REFUSED = -9</p>   |  |
| 1117 | <p>In the last 12 months, how many times did someone:</p> <p>Punch, kick, whip, or beat you with an object<br/>Slap you, throw something at you that could hurt you, push you or shove you<br/>Choke smother, try to drown you, or burn you intentionally<br/>Use or threaten you with a knife, gun or other weapon?</p>                      | <p>ZERO = 1<br/>ONCE = 2<br/>2-4 TIMES = 3<br/>5+ TIMES = 4<br/>DON'T KNOW = -8<br/>REFUSED = -9</p>  |  |

| NO.                                   | QUESTIONS  | CODING CATEGORIES  | SKIPS/FILTERS  |
|---------------------------------------|--|--|--|
| 1118                                  | In the last 12 months, did a partner do any of these things to you?<br><br>By partner, I mean a live-in partner or husband.  | YES =1<br>NO, PARTNER DID NOT = 2<br>NO, DID NOT HAVE A LIVE-IN PARTNER IN THE LAST 12 MONTHS = 3<br>DON'T KNOW = -8<br>REFUSED = -9   |  |
| <b>SERVICES FOR PHYSICAL VIOLENCE</b> |  |  |  |
| 1119                                  | Thinking about all these experiences that we just discussed, whether someone has done the following:<br>Punched, kicked whipped or beat you with an object<br>Slapped you, threw something at you that could hurt you, pushed you or shoved you<br>Choked, smothered, tried to drown you or burned you intentionally<br>Used or threatened you with a knife, gun or other weapon<br><br>Did you try to seek help or services for any of these incidents from any of the following?<br><br>SELECT ALL THAT APPLY. | I DID NOT TRY TO SEEK HELP = A<br>HEALTHCARE PROFESSIONAL = B<br>POLICE OR OTHER SECURITY PERSONNEL = C<br>SOCIAL WORKER, COUNSELOR OR NON-GOVERNMENTAL ORGANIZATION = D<br>RELIGIOUS LEADER = E<br>FAMILY = F<br>FRIEND = G<br>COMMUNITY LEADER = H<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z   | DID NOT TRY TO SEEK HELP → 1120<br>ELSE → 1121         |
| 1120                                  | What was the main reason that you did not try to seek help or services?  | DID NOT KNOW SERVICES WERE AVAILABLE = 1<br>SERVICES NOT AVAILABLE = 2<br>AFRAID OF GETTING IN TROUBLE = 3<br>ASHAMED FOR SELF/FAMILY = 4<br>COULD NOT AFFORD SERVICES = 5<br>DID NOT THINK IT WAS A PROBLEM = 6<br>FELT IT WAS MY FAULT = 7<br>AFRAID OF BEING ABANDONED = 8<br>DID NOT NEED/WANT SERVICES = 9<br>AFRAID OF MAKING SITUATION WORSE = 10<br>FEAR OF THE NEGATIVE REACTION OF SERVICE PROVIDERS=11<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |  |
| 1121                                  |  |  | SKIP IF NEVER EXPERIENCED PHYSICAL OR SEXUAL VIOLENCE. |
| 1122                                  |  |  | SKIP IF >=21 YEARS OLD<br><br>SKIP IF NEVER SOLD SEX   |

## APPENDIX G ADOLESCENT QUESTIONNAIRE

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

| NO.  | QUESTIONS  | CODING CATEGORIES   | SKIPS                    |
|--|--|---|--------------------------|
| <b>MODULE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS</b> |  |   |                          |
| 101  | IS THE RESPONDENT MALE OR FEMALE?  | MALE = 1<br>FEMALE = 2  |                          |
| 102  | How old were you at your last birthday?                                      | AGE IN COMPLETED YEARS __ __<br>DON'T KNOW AGE = -8<br>REFUSED = -9   |                          |
| 103  | Are you enrolled in school?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK,<br>REFUSED → 109 |
| 104  | During the last school week, did you miss any school days for any reason?    | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK,<br>REFUSED → 106 |
| 105  | Why did you miss school?   | I HAVE BEEN SICK = 1<br>I DON'T FEEL SAFE TRAVELING TO SCHOOL = 2<br>I DON'T FEEL SAFE WHILE IN SCHOOL = 3<br>I DON'T LIKE SCHOOL = 4<br>I HAVE TO LOOK AFTER MY FAMILY = 5<br>THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL = 6<br>SCHOOL IS TOO FAR AWAY = 7<br>I HAVE TO WORK = 8<br>I HAVE A CHILD OR I AM PREGNANT (GIRLS ONLY) = 9<br>I MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |                          |
| 106  | What is the highest level of school you have attended: primary or secondary? | PRIMARY = 1<br>SECONDARY = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |                          |
| 107  | What school year are you in now?   | PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/ REFUSED = -9   |                          |

| NO. | QUESTIONS  | CODING CATEGORIES   | SKIPS                           |
|-----|--|---|---------------------------------|
| 108 | What class/form were you in last year?   | PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/ REFUSED = -9   | ALL → END OF MODULE             |
| 109 | Why do you NOT go to school?   | I HAVE BEEN SICK = 1<br>I DON'T FEEL SAFE TRAVELING TO SCHOOL = 2<br>I DON'T FEEL SAFE WHILE IN SCHOOL = 3<br>I DON'T LIKE SCHOOL = 4<br>I HAVE TO LOOK AFTER MY FAMILY = 5<br>THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL = 6<br>SCHOOL IS TOO FAR AWAY = 7<br>I HAVE TO WORK = 8<br>I HAVE A CHILD OR I AM PREGNANT (GIRLS ONLY) = 9<br>I MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |                                 |
| 110 | Have you ever attended school?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → END OF 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 = 1<br>1 YEAR OR LONGER = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |                                 |
| 112 | What is the highest class/form that you have completed?  | MOINS 1 AN/LESS THAN 1 YR = 0<br>PRESCOLAIRE/PRESCHOOL = 1<br>SIL/GDE SECT/CLASS 1 = 2<br>CP/CPS/CLASS 2 = 3<br>CE1/CLASS 3 = 4<br>CE2/CLASS 4 = 5<br>CM1/CLASS 5 = 6<br>CM2/CLASS 6/7 = 7<br>6È/1ÈRE A.T/FORM 1 = 8<br>5È/2È A.T/FORM 2 = 9<br>4È/3È A.T/FORM 3 = 10<br>3È/4È A.T/FORM 4 = 11<br>2NDE G OU T/FORM 5 = 12<br>1ERE G OU T/LOWER 6 = 13<br>TERMINALE G OU T/UPPER 6 = 14<br>NE SAIS PAS/ DON'T KNOW = -8<br>REFUSE/REFUSED = -9   |                                 |

| NO.   | QUESTIONS  | CODING CATEGORIES  | SKIPS   |
|---|--|--|---|
| <b>MODULE 2: HIV PREVENTION INTERVENTIONS</b>   |  |  |   |
| <b>Interviewer says: "Now I would like to ask you some questions about what you know about health."</b> |  |  |   |
| 201   | Have you ever heard of HIV?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK,<br>REFUSED → 205  |
| 202   | From where have you heard about HIV?<br><br>PROBE: Anywhere else?<br><br>RECORD ALL MENTIONED                                  | SCHOOLS/TEACHERS = A<br>PARENTS/GUARDIAN/FAMILY = B<br>FRIENDS = C<br>RELIGIOUS LEADERS = D<br>INTERNET = E<br>MOBILE PHONE = F<br>HEALTH PROVIDERS/DOCTORS/NURSES/<br>CLINICAL OFFICERS = G<br>TELEVISION/FILM = H<br>RADIO = I<br>COMMUNITY HEALTH WORKERS = J<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z |   |
| 203   | Have you ever discussed HIV with your parents or guardian?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |   |
| 204   | Have you taken part in any of the following HIV prevention programs?<br><br>READ RESPONSES ALOUD.<br><br>SELECT ALL THAT APPLY | NONE = A<br>HEALTH EDUCATION IN SCHOOL = B<br>PEER EDUCATION PROGRAMS = C<br>ADOLESCENT RADIO PROGRAM - HIV PREVENTION BY CHANTAL BIYA FOUNDATION = D<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z  | "DON'T KNOW",<br>"REFUSED" CANNOT<br>BE SELECTED<br>WITH ANY OTHER<br>CATEGORY. |
| 205   | Do you know what a condom is?  | YES = 1<br>NO = 2<br>REFUSED = -9  | NO, REFUSED → END<br>OF MODULE  |
| 206   | Do you know where to get a condom?   | YES = 1<br>NO = 2<br>REFUSED = -9  | NO, REFUSED → 210   |
| 207   | Where can a person go to get a condom?<br><br>SELECT ALL THAT APPLY  | CLINIC/HOSPITAL = A<br>KIOSK/SHOP = B<br>PHARMACY = C<br>LOCAL FREE DISPENSER = D<br>FRIENDS/PEERS = E<br>BOYFRIEND/GIRLFRIEND = F<br>FAMILY MEMBER/HOUSEHOLD = G<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z  |   |



| NO.  | QUESTIONS  | CODING CATEGORIES   | SKIPS   |
|--|--|---|---|
| 208  | If you wanted to, could you yourself get a condom?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | YES, DK, REFUSED<br>→ 210   |
| 209  | Why is it not easy for you to get a condom?<br><br>SELECT ALL THAT APPLY.  | TOO FAR = A<br>COSTS TOO MUCH = B<br>DO NOT WANT OTHERS TO KNOW = C<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z |   |
| 210  | Have you ever seen a male condom demonstration?<br><br>By a condom demonstration, I mean someone like a nurse, peer educator, or another trained adult showed you how a male condom is correctly used.   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| <b>MODULE 3: SEXUAL BEHAVIOR</b>   |  |   |   |
| Interviewer says: "The next questions ask about sexual behavior. There is no right or wrong answer. Your responses will not be publicly linked to you in any way or shared with anyone, including your parents." |  |   |   |
| <b>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.</b>                       |  |   |   |
| 301  | Do you know what having sex is?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | AGE <13 & RESPONSE = NO, DK, REFUSED<br>→ 501 (module 5)  |
| 302  | Have you ever had vaginal, anal or oral sex?<br><br>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.<br><br>SELECT ALL THAT APPLY. | NEVER HAD SEX = A<br>VAGINAL = B<br>ANAL = C<br>ORAL = D<br>DON'T KNOW = Y<br>REFUSED = Z   | NEVER, DK, REFUSED<br>→ 318<br><br>"NEVER", "DON'T KNOW", "REFUSED" CANNOT BE SELECTED WITH ANY OTHER CATEGORY. |
| 303  | How old were you when you had sex for the first time?<br><br>(Instructions for Interviewer: If needed, probe with Year and Month that adolescent remembers. Then help participant remember his/her age at that time.)  | AGE IN YEARS __ __<br><br>DON'T KNOW = -8<br>REFUSED = -9   |   |
| 304  | The first time you had sex, was it because you wanted to or because you were forced?   | WANTED TO = 1<br>FORCED = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | WANTED, DK, REFUSED → 306   |

| NO. | QUESTIONS   | CODING CATEGORIES   | SKIPS                                    |
|-----|---|---|--|
| 305 | 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<br>PRESSURED = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | ALL → 307                                |
| 306 | What was the main reason that you had sex for the first time?   | IT JUST HAPPENED = 1<br>MY FRIENDS PRESSURED ME TO HAVE SEX = 2<br>TO SHOW MY LOVE/TO FEEL LOVED = 3<br>I WANTED TO HAVE SEX = 4<br>MY BOYFRIEND/GIRLFRIEND WANTED TO HAVE SEX = 5<br>FOR MONEY / GIFTS = 6<br>I WANTED TO HAVE A BABY = 7<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |  |
| 307 | How old was the person you first had sex with? Please give your best guess.   | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 308 | The first time you had sex, was a condom used?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF DON'T KNOW WHAT CONDOM IS        |
| 309 | In total, how many different people have you had sex with? Please give your best guess.   | NUMBER OF PARTNERS ____<br>DON'T KNOW = -8<br>REFUSED = -9  | CONSTRAINT CANNOT BE '0'.                |
| 310 | The last time you had sex, was a condom used?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF DON'T KNOW WHAT CONDOM IS        |
| 311 | How often do you use a condom during sex?   | ALWAYS = 1<br>SOMETIMES = 2<br>NEVER = 3<br>DON'T REMEMBER = 4<br>DON'T KNOW = -8<br>REFUSED = -9   | SKIP IF DON'T KNOW WHAT CONDOM IS        |
| 312 | Can you ask your most recent partner to use a condom?   | ALWAYS = 1<br>SOMETIMES = 2<br>NEVER = 3<br>DON'T REMEMBER = 4<br>DON'T KNOW = -8<br>REFUSED = -9   | NEVER, DON'T REMEMBER, DK, REFUSED → 314 |
| 313 | When you ask your partner to use a condom, do they use one?   | ALWAYS = 1<br>SOMETIMES = 2<br>NEVER = 3<br>DON'T REMEMBER = 4<br>DON'T KNOW = -8<br>REFUSED = -9   |  |

| NO.   | QUESTIONS   | CODING CATEGORIES   | SKIPS                            |
|---|---|---|----------------------------------|
| 314   | If you use a condom, is your partner okay with it?  | ALWAYS = 1<br>SOMETIMES = 2<br>NEVER = 3<br>DON'T REMEMBER = 4<br>DON'T KNOW = -8<br>REFUSED = -9 |                                  |
| 315   | 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<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK,<br>REFUSED → 317         |
| 316   | What age was the oldest partner who promised these things for you? You can give your best guess.  | AGE IN YEARS ____<br>DON'T KNOW = -8<br>REFUSED = -9  |                                  |
| 317   | Have you ever been pregnant?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | GIRLS ONLY.                      |
| 318   | Have you ever talked with a parent or guardian about sex?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |                                  |
| <b>MODULE 4: SOCIAL NORMS, INTENTION TO ABSTAIN, SELF-EFFICACY AND ASSERTIVENESS</b>          |   |   |                                  |
| <b>Interviewer says: "Now I would like to ask you some questions about the social norms."</b> |   |   |                                  |
| 401   | Do you think all, many, some, a few, or none of your friends are having sex?  | ALL = 1<br>MOST = 2<br>SOME = 3<br>A FEW = 4<br>NONE = 5<br>DON'T KNOW = -8<br>REFUSED = -9       | SKIP IF 301 = NO, DK,<br>REFUSED |
| 402   | Do you feel pressured by your boyfriend/girlfriend to have sex?   | YES = 1<br>NO = 2<br>DON'T HAVE BOYFRIEND/GIRLFRIEND = 3<br>DON'T KNOW = -8<br>REFUSED = -9       | SKIP IF 301 = NO, DK,<br>REFUSED |
| 403   | Do you feel pressured by your friends to have sex?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF 301 = NO, DK,<br>REFUSED |
| 404   | 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<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF 301 = NO, DK,<br>REFUSED |

| NO.   | QUESTIONS  | CODING CATEGORIES   | SKIPS   |
|---|--|---|---|
| <b>MODULE 5: HIV RISK PERCEPTION</b>  |  |   | SKIP TO NEXT MODULE IF NEVER HEARD OF HIV (201 = NO, DK, REF)   |
| 501   | How likely do you think it is for you to get HIV?  | VERY LIKELY = 1<br>SOMEWHAT LIKELY = 2<br>NOT LIKELY = 3<br>I ALREADY HAVE HIV = 4<br>DON'T KNOW = -8<br>REFUSED = -9   | NOT LIKELY → 503<br><br>I HAVE HIV, DK, REFUSED → END OF MODULE |
| 502   | What is the main reason you think you are likely to get HIV?   | I HAVE HAD SEX WITHOUT A CONDOM = 1<br>I HAVE OR HAD MANY BOY/GIRL FRIENDS = 2<br>I HAVE HAD BLOOD TRANSFUSIONS = 3<br>MY MOTHER/FATHER/CLOSE RELATIVE HAS HIV = 4<br>I DON'T TRUST MY BOY/GIRLFRIEND = 5<br>I AM SICK = 6<br>MY BOY/GIRL FRIEND IS SICK OR HAS DIED = 7<br>I DESERVE IT/I AM A BAD PERSON = 8<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | ALL → NEXT MODULE   |
| 503   | What is the main reason you think you are not likely to get HIV?   | I AM ABSTINENT = 1<br>I WILL WAIT UNTIL MARRIAGE TO HAVE SEX = 2<br>I ALWAYS USE CONDOMS = 3<br>I TRUST MY PARTNER = 4<br>I HAVE ONLY ONE PARTNER = 5<br>I GO TO CHURCH = 6<br>I AM A GOOD PERSON = 7<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| <b>MODULE 6: HIV KNOWLEDGE</b>  |  |   |   |
| Interviewer says: "Now I would like to ask you some questions about what you know about some things related to health." |  |   | SKIP TO NEXT MODULE IF 201 = NO, DK, REF                        |
| 601   | What are the different ways to spread/transmit HIV?<br><br>DO NOT READ RESPONSES.<br><br>SELECT ALL THAT APPLY | SEX = A<br>UNPROTECTED SEX WITHOUT A CONDOM OR PROTECTION = B<br>RAPE = C<br>DELIVERY OR BREASTFEEDING FROM HIV+ MOTHER = D<br>USING WORN OUT (UNSTERILIZED) BLADES OR NEEDLES = E<br>UNSAFE BLOOD TRANSFUSION = F<br>OPEN WOUND EXPOSURE = G<br>GOING TO THE BARBERSHOP = H<br>DRESSING PROVOCATIVELY = I<br>OTHER = X<br>PLEASE SPECIFY _____<br>DON'T KNOW = Y<br>REFUSED = Z  | DK or REFUSED → 604   |
| 602   | Can a person reduce their chance of getting HIV by not having sex?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |   |

| NO.   | QUESTIONS   | CODING CATEGORIES   | SKIPS                                    |
|---|---|---|--|
| 603   | Can a person reduce their chance of getting HIV by using condoms when having sex?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 604   | Can a healthy-looking person have HIV or AIDS?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 605   | Can a mother with HIV or AIDS pass HIV to her unborn baby?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 606   | Are there medicines that people with HIV or AIDS can take to help them live longer?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 606   | Can male circumcision help prevent HIV infection?<br><br>Circumcision is the removal of the foreskin from a penis.<br><br>SHOW A REALISTIC, COLOR DRAWING TO CLARIFY.                             | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 607   | If people with HIV take ARVs, are they less likely to spread the virus to other people?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 608   | Can ARVs rid HIV from an HIV-positive person's body?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| <b>MODULE 7: HIV TESTING</b>  |   |   |  |
| <b>Interviewer says: "I would now like to ask you some questions about HIV testing. Again, I would like to reassure you that all your answers are confidential and we will not be sharing your answers with anyone else. If you don't understand a question, please feel free to ask me any questions and I will help clarify."</b> |   |   | SKIP TO NEXT MODULE IF 201 = NO, DK, REF |
| 701   | To what extent do you agree with the following statement: Everyone should get tested for HIV.<br><br>Do you strongly agree, agree, disagree, or strongly disagree?                                | STRONGLY AGREE = 1<br>AGREE = 2<br>DISAGREE = 3<br>STRONGLY DISAGREE = 4<br>DON'T KNOW = -8<br>REFUSED = -9 |  |
| 702   | To what extent do you agree with the following statement: Only persons who think they might have HIV should get an HIV test.<br><br>Do you strongly agree, agree, disagree, or strongly disagree? | STRONGLY AGREE = 1<br>AGREE = 2<br>DISAGREE = 3<br>STRONGLY DISAGREE = 4<br>DON'T KNOW = -8<br>REFUSED = -9 |  |
| 703   | Have you ever been tested for HIV?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED<br>→ END OF MODULE       |

| NO.  | QUESTIONS   | CODING CATEGORIES   | SKIPS  |
|--|---|---|--|
| 704  | When you took your HIV test, did someone give you pre- or post-counseling and talk with you about the importance of the HIV test? | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 705  | Did you receive the results of any of your HIV tests?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED<br>→ END OF MODULE   |
| 706  | What was the result of that HIV test?   | HIV POSITIVE = 1<br>HIV NEGATIVE = 2<br>UNCERTAIN/INDETERMINATE = 3<br>DON'T KNOW = -8<br>REFUSED = -9  | DK, REFUSED → END OF MODULE  |
| 707  | Who knows about your HIV test result?   | NOBODY = A<br>PARENT / GUARDIAN = B<br>OTHER FAMILY MEMBER = C<br>FRIEND = D<br>OTHER = E<br>SPECIFY _____<br>DON'T KNOW = -8<br>REFUSED = -9 |  |
| 708  | Are you currently on treatment for HIV?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | SKIP IF 706 = HIV NEGATIVE, uncertain/indeterminate  |
| <b>MODULE 8: HIV STIGMA</b>  |   |   |  |
| Interviewer says: "Now I would like to ask you some more questions about HIV."   |   |   | SKIP TO NEXT MODULE IF 201=NO, DK, REFUSED OR 501 = ALREADY HAVE HIV OR 706 = HIV POSITIVE |
| 801  | Would you be willing to share food with someone who has HIV?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 802  | Would you be friends with someone who has HIV?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| 803  | Would you be comfortable to have a teacher who has HIV?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  |  |
| <b>MODULE 9: ALCOHOL AND DRUGS</b>   |   |   |  |
| Interviewer says: "I would like to ask you some questions about alcohol and drugs or substances that you may have taken that were not given to you by a doctor. Your answers will not be told to anyone, even your parents." |   |   |  |

| NO.                                | QUESTIONS  | CODING CATEGORIES  | SKIPS                              |
|------------------------------------|--|--|------------------------------------|
| 901                                | Have you ever drunk alcohol, for example beer, palm wine, or whiskey in a sachet?<br><br>SHOW GRAPHIC OF COMMON ALCOHOLIC BEVERAGES. | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED<br>→ 903           |
| 902                                | During the past 1 month, on how many days did you have at least one drink containing alcohol?  | NUMBER OF DAYS ____<br>DON'T KNOW = -8<br>REFUSED = -9   | MAX = 31                           |
| 903                                | Have you ever tried drugs?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED<br>→ END OF MODULE |
| 904                                | What drugs have you ever tried?<br><br>DO NOT READ RESPONSES.<br><br>PROBE FOR MULTIPLE RESPONSES.                                   | MARIJUANA/CANNABIS = A<br>SOLVENTS = B<br>AMPHETAMINE TABLETS = C<br>METHAMPHETAMINE = D<br>BARBITUATES = E<br>COCAINE = F<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z |                                    |
| <b>MODULE 10: PARENTAL SUPPORT</b> |  |  |                                    |
| 1001                               | How often are you comfortable to share your problems or worries with your parents?   | ALWAYS = 1<br>MOST OF THE TIME = 2<br>SOMETIMES = 3<br>RARELY = 4<br>NEVER = 5<br>DON'T KNOW = -8<br>REFUSED = -9  |                                    |
| 1002                               | How often are your parents concerned or interested in your problems or worries?  | ALWAYS = 1<br>MOST OF THE TIME = 2<br>SOMETIMES = 3<br>RARELY = 4<br>NEVER = 5<br>DON'T KNOW = -8<br>REFUSED = -9  |                                    |
| 1003                               | Do your parents/guardians really know what you were doing with your free time when you were not at school or work?                   | ALWAYS = 1<br>MOST OF THE TIME = 2<br>SOMETIMES = 3<br>RARELY = 4<br>NEVER = 5<br>DON'T KNOW = -8<br>REFUSED = -9  |                                    |

| NO.                        | QUESTIONS  | CODING CATEGORIES  | SKIPS   |
|----------------------------|--|--|---|
| <b>MODULE 11: VIOLENCE</b> |  |  |   |
|                            | Interviewer says: “Now I would like to ask you questions about some other important aspects of a person’s life. I know that some of these questions are very personal. However, your answers are important for helping to understand the condition of children in Cameroon. Let me assure you that your answers are completely confidential and will not be told to anyone.” |  | ADULT OR ADOLESCENT VIOLENCE MODULE ASKED OF 1 FEMALE PER HOUSEHOLD, 13+ YEARS (CHILD FLAGGED HOUSEHOLDS) OR 15+ YEARS (NON CHILD-FLAGGED HOUSEHOLDS) |
| 1101                       | Has anyone ever done any of these things to you:<br><br>Punched, kicked, whipped, or beat you with an object<br>Choked smothered, tried to drown you, or burned you intentionally<br>Used or threatened you with a knife, gun or other weapon?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |   |
| 1102                       | Has anyone ever touched you in a sexual way without your permission, but did not try and force you to have sex?<br><br>Touching in a sexual way without permission includes fondling, pinching, grabbing, or touching you on or around your sexual body parts.   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   | NO, DK, REFUSED<br>→ 1104   |
| 1103                       | The first time this happened, what was your relationship to the person who did this? If it was more than one person, what was your relationship with the person you knew the best?   | BOYFRIEND/GIRLFRIEND/SPOUSE = 1<br>RELATIVE/FAMILY MEMBER = 2<br>CLASSMATE/SCHOOLMATE = 3<br>TEACHER = 4<br>POLICE/SECURITY OFFICER/MILITARY = 5<br>EMPLOYER = 6<br>NEIGHBOR = 7<br>COMMUNITY/RELIGIOUS LEADER = 8<br>FRIEND = 9<br>STRANGER = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 |   |
| 1104                       | Has anyone ever tried to make you have sex against your will but did not succeed?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |   |
|                            | Interviewer says: “You said before that you had been pressured or forced to have sex. I’m going to ask you again about these topics.”  |  | DISPLAY INSTRUCTION IF 304 = FORCED   |
| 1105                       | Has anyone ever pressured you to have sex, through harassment, threats or tricks and did succeed?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9   |   |



| NO.  | QUESTIONS  | CODING CATEGORIES   | SKIPS   |
|------|--|---|---|
| 1106 | Has anyone ever physically forced you to have sex and did succeed?   | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | 1105 = NO, DK, REFUSED<br>AND 1106 = NO, DK, REFUSED → 1108   |
| 1107 | The first time you were pressured or forced to have sex, what was your relationship to the person who did this?  | BOYFRIEND/GIRLFRIEND/SPOUSE = 1<br>RELATIVE/FAMILY MEMBER = 2<br>CLASSMATE/SCHOOLMATE = 3<br>TEACHER = 4<br>POLICE/SECURITY OFFICER/MILITARY = 5<br>EMPLOYER = 6<br>NEIGHBOR = 7<br>COMMUNITY/RELIGIOUS LEADER = 8<br>FRIEND = 9<br>STRANGER = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9  |   |
| 1108 | After any of these unwanted sexual experiences, did you try to seek professional help or services from any of the following?<br><br>SELECT ALL THAT APPLY. | I DID NOT TRY TO SEEK HELP = A<br>HEALTHCARE PROFESSIONAL = B<br>POLICE OR OTHER SECURITY PERSONNEL = C<br>SOCIAL WORKER, COUNSELOR OR NGO = D<br>RELIGIOUS LEADER = E<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z  | ALL EXCEPT I DID NOT TRY TO SEEK HELP → 1110<br><br>SKIP IF NO UNWANTED SEXUAL EXPERIENCES (1102 = NO, DK, REFUSED & 1104 = NO, DK, REFUSED & 1105 = NO, DK, REFUSED, & 1106 = NO, DK, REFUSED) |
| 1109 | What was the main reason that you did not try to seek professional help or services?   | DID NOT KNOW SERVICES WERE AVAILABLE = 1<br>SERVICES NOT AVAILABLE = 2<br>AFRAID OF GETTING IN TROUBLE = 3<br>ASHAMED FOR SELF/FAMILY = 4<br>COULD NOT AFFORD SERVICES = 5<br>DID NOT THINK IT WAS A PROBLEM = 6<br>FELT IT WAS MY FAULT = 7<br>AFRAID OF BEING ABANDONED = 8<br>DID NOT NEED/WANT SERVICES = 9<br>SERVICES WERE NOT YOUTH-FRIENDLY = 10<br>OTHER = 96<br>SPECIFY: _____<br>DON'T KNOW = -8<br>REFUSED = -9 | SKIP IF NO UNWANTED SEXUAL EXPERIENCES  |
| 1110 | After any of these unwanted sexual experiences, did you tell anyone about it?  | YES = 1<br>NO = 2<br>DON'T KNOW = -8<br>REFUSED = -9  | NO, DK, REFUSED → END OF MODULE<br><br>SKIP IF NO UNWANTED SEXUAL EXPERIENCES   |

| NO.  | QUESTIONS   | CODING CATEGORIES  | SKIPS  |
|------|---|--|--|
| 1111 | Which of the following describes who you told about any of these unwanted sexual experience?<br><br>READ RESPONSES ALOUD.<br><br>SELECT ALL THAT APPLY i  | PARENT/GUARDIAN = A<br>SIBLING = B<br>TEACHER = C<br>FRIEND/CLASSMATE = D<br>OTHER FAMILY MEMBER = E<br>RELIGIOUS LEADER = F<br>OTHER = X<br>SPECIFY: _____<br>DON'T KNOW = Y<br>REFUSED = Z | SKIP IF NO UNWANTED SEXUAL EXPERIENCES                 |
|      | Interviewer says: "Thank you for sharing your personal experiences with me. I know it may have been difficult for you to talk about your experiences with me. If you would like to talk further about these experiences, I can refer you to a place that can provide you with help."<br><br>PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS. |  | SKIP IF NEVER EXPERIENCED SEXUAL OR PHYSICAL VIOLENCE. |

## APPENDIX H SURVEY CONSENT FORMS

### Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)

#### Interviewer reads:

#### What language do you prefer for our discussion today?

\_\_\_English

\_\_\_French

\_\_\_Fulfulde

Hello, my name is \_\_\_\_\_. I would like to invite you to take part in this research study about HIV in Cameroon. The Ministry of Public Health (MoPH) is leading this survey and is conducting it with the United States Centers for Disease Control and Prevention and ICAP at Columbia University and the National Institute of Statistics.

#### Purpose of survey

This survey will help us know how many people in Cameroon have HIV and need health services. It will also tell us about people's risk for getting HIV. We plan to ask about 14,000 households to join this survey. If you join, your taking part will help the MoPH make health services better in the country.

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

This survey will include: a household interview, individual interviews, and HIV tests. Some of those taking part may also be tested for Hepatitis B. In the household interview, we would like to ask you some questions about the people who live here and some of the things you have or own. The household interview will take up to 30 minutes.

After the household interview, we will invite you and others living in your household to take part in individual interviews. We will also offer an HIV test and related tests after the interview. We will ask each person to give permission to take part before joining the survey.

#### Right to refuse or withdraw

You do not have to take part in the survey. 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.

#### Risks and Benefits

The risks to taking part in the household interview are small. You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any question. We will do everything we can to keep your information private. We cannot guarantee total confidentiality. If you take part, you and your household members will get free testing for HIV in your home. In addition, some people may be tested for Hepatitis B. The information you provide will also be used to improve the health of Cameroonians. Your responses will help us develop more effective programs to fight HIV and other diseases in Cameroon.

There is no cost to you for being part of the survey. You will not be paid.

## Confidentiality and Access to Your Health Information

What we talk about will be kept private, even from your family, and will not be shown to anyone outside of the survey team. Your answers to the questions will be identified only by a number and not your name. Your name will not appear on any survey results that we share with MoPH or in data analysis. The survey information we collect during the survey will not be released outside of the survey groups listed unless there is an issue of safety.

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

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

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a person taking part in a survey. These include the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center and Westat (a statistical survey research organization).
- The U.S. Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person in this survey
- Study staff and study monitors

[READ FROM HERE]

Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey. 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 Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

**[READ THIS STATEMENT]**

If you have any questions about your rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH) using the following addresses:

[INDICATE ADDRESS OF POC]

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

Prof Anne Bissek Zoung-Kanyi

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: minsantedros@yahoo.com

**Do you want to ask me anything about the survey?**

**Verbal Consent Statement**

I have read this form and/or someone has read it to me. Any questions that I had have been answered satisfactorily. I agree to take part in the household interview. I know that after choosing to be in the interview, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

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      Then please state the following statement:

***"I agree to take part in the household interview"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to take part in the household interview" [IF NO, STOP]***

Printed name of head of household \_\_\_\_\_

Signature of person obtaining consent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

**Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPRIA)****Interviewer reads:****[IF PARTICIPANT HAS BEEN THROUGH HOUSEHOLD CONSENT]**

Hello, my name is\_\_\_\_\_.

**Survey Procedures**

If you join us for this portion of the survey, we will ask you questions about your health, whether you have had any experience with HIV services, and your behavior. The interview will take about 40 minutes.

After the interview, we will offer you an HIV test. We will ask you for consent for the blood draw and HIV test after the interview. The testing and counseling session will also take about 40 minutes.

**Right to refuse or withdraw**

You do not have to take part in this interview, 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.

**Confidentiality and access to your health information**

We will do everything we can to keep your taking part in the survey private.

*You can contact MoPH Division of Health Operations Research (DROS) and Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) should you have any questions or concerns.*

[INDICATE ADDRESS OF POC]

Survey:

**Prof Anne Bissek Zoung-Kanyi**

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: minsantedros@yahoo.com

IRB:

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

**→ GO TO PERMISSION STATEMENT****[IF PARTICIPANT HAS NOT BEEN THROUGH HOUSEHOLD CONSENT]**

**What language do you prefer for our discussion today?**

☐ English

☐ French

☐ Fulfulde

Hello, my name is \_\_\_\_\_. We are doing a research study throughout Cameroon to learn more about HIV in the country. The Ministry of Public Health (MoPH) is leading this survey and is conducting it with the United States Centers for Disease Control and Prevention, ICAP at Columbia University, and the National Institute of Statistics.

## **Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPRIA)**

### **Purpose of the survey**

This survey will help us know how many people in Cameroon have HIV and need health services. It will also tell us about people's risk for getting HIV. We plan to ask about 33,000 men, women, and children from about 14,000 households throughout Cameroon to take part in this survey. If you join, your taking part will help the Ministry of Public Health (MoPH) make health services better in the country.

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

### **Survey Procedures**

If you join this survey, we will ask you questions about your age, whether you have had any experience with HIV services, and your behavior. The interview will take about 40 minutes.

After the interview, we will offer you HIV testing and may also offer Hepatitis B testing. We will ask you for consent for the blood draw and talk to you about your results. The testing and counseling session will take about 40 minutes. You may agree to the interview without agreeing to give your blood.

### **Right to refuse or withdraw**

You do not have to take part in the survey. 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.

### **Risks and benefits**

The risks in being in the survey are small. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality. You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any question. If you take part, you will be offered free testing for HIV in your own home. The information you provide will also be used to improve the health of Cameroonians. Your responses will help us develop more effective programs to fight HIV and other diseases in Cameroon.

There is no cost to you for being part of the survey. You should also know that you will not be paid.

### **Confidentiality, Privacy and Access to Your Health Information**

What we talk about will be kept private, even from your family, and will not be shown to anyone outside of the survey team. Your answers to the questions will be identified only by a number and not your name. Your name will not appear on any survey results that we share with MoPH, publish or present at scientific meetings. The information we collect during the survey will not be released outside of the survey groups listed unless there is an issue of safety.



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

The following individuals and/or agencies will be able to look at your 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 rights as a person in a study. These the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (statistical survey research organization)
- The United States. Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this survey
- Study staff and study monitors

[READ FROM HERE]

Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey. 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 Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

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Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

**[READ THIS STATEMENT]**

If you have any questions about your rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Cameroon National Ethics Committee for Research on Human Subjects (CNERSH)

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[Prof Anne Bissek Zoung-Kanyi](#)

Ministry of Public Health, MoPH Division of Health Operations Research (DROS)

Address: Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: [minsantedros@yahoo.com](mailto:minsantedros@yahoo.com)

## Do you want to ask me anything about the survey?

### Verbal Consent Statement

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I agree to take part in the individual interview. I know that after choosing to be in the individual interview, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

1. Do you agree to take part in the individual interview? 'YES' means that you agree to do the interview. "NO" means that you will NOT do the interview.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I agree to take part in the individual interview"***

\_\_\_\_\_ No      Then please state the following statement:

***"I do not wish to take part in the individual interview"***

2. **FUTURE RESEARCH:** It is possible that you may be eligible to take part in future studies related to health in Cameroon. We are asking for your permission to contact you in the next two years if such an opportunity occurs. If we contact you, we will give you details about the new study and ask you to sign a separate consent form at that time. You may decide at that time that you do not want to take part in that study. If you do not wish to be contacted about future studies, it does not affect your involvement in this study.

Do you agree to be contacted about future studies, 'YES' means that you agree to be contacted about future studies. "NO" means that you do NOT want to be contacted about future studies.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I agree to be contacted for future studies"***

\_\_\_\_\_ No      Then please state the following statement

***"I do not wish to be contacted for future studies"***

Printed name of participant \_\_\_\_\_

Participant ID number \_\_\_\_\_

Signature of person obtaining consent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

## **Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

Now I would like to ask you to let your son(s)/daughter(s) take part in the survey. Your child's participation will help the Ministry of Public Health make HIV services for children and families better.

### **[IF PARENT/GUARDIAN HAS BEEN THROUGH CONSENT PROCESS FOR BLOOD DRAW]**

#### **Survey Procedures**

If you agree, the following will happen, as described in your own consent:

- **[IF CHILD IS 2 YEARS TO 9 YEARS OLD]** To do the HIV test in your home, a trained nurse or lab technician will take about 6 mL (a little more than a teaspoonful) of blood from your child's arm or a few drops of blood from your child's finger
- **[IF CHILD IS 0-23 MONTHS OLD]** A trained nurse or lab technician 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 decide to discuss them with him/her
- If your child has HIV, he/she will get a CD4 test and receive the results today.
- His/her blood will be sent to a laboratory to measure his/her viral load and the results will be returned to your preferred health facility in about 10-12 weeks.
- We will give you a referral form so you and your child can consult with a doctor or nurse regarding his/her HIV test, CD4 count, and viral load results
- We will ask for your permission to store your child's leftover blood for future research tests

### **[FOR CHILDREN less than or equal to 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 was exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood, it just confirms that he/she has been exposed to HIV. We would then send your child's blood to a lab for a special test to determine if he/she is infected with HIV. If you provide us with the name of a health facility, we can send the result there in about 10-12 weeks. We will also contact you to inform you that the results have been sent to the facility, if you provide us with your contact information.

### **[FOR CHILDREN 0-5 YEARS ONLY]**

If your child has HIV, we will also measure your child's weight and height to measure your child's growth and monitor their health. We will also measure weight and height for some children without HIV. The field team will tell you the results and you can go to your health facility to talk about the results.

#### **Right to refuse and to withdraw**

Your child may stop participation at any time. This will not affect your child's healthcare in any way.

#### **Risks**

The risks of taking part in the survey are small. For the blood draw, the risks include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. You may learn that your child is infected with HIV. Learning that your child has HIV may cause emotional discomfort. You will receive counseling on how to disclose the result to your child and how to cope with learning that your child has HIV. We will do everything we can to keep your child's test results private but we cannot guarantee total confidentiality.

## Benefits

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. If your child has HIV, you will learn where to take your child for treatment. [IF LESS THAN 18 MONTHS OLD] If your infant is shown to be exposed to HIV, you will learn where to go to find out if he/she is infected with HIV and where to get treatment. If you already know that your child is HIV-positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child's taking part in this research could help us learn more about children and HIV in Cameroon and how HIV prevention and treatment programs are working.

## Confidentiality and Access to Your Child's Health Information

We will do everything we can to keep your child's participation in the survey private. The information we collect from your child will not be released outside of the study partners we have mentioned during your consent unless there is an issue of safety. You can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Ministry of Public Health (MoPH) should you have any questions or concerns.

## → GO TO CONSENT STATEMENT

### [IF PARENT/GUARDIAN HAS NOT BEEN THROUGH CONSENT PROCESS FOR BLOOD DRAW]

Interviewer reads:

**What language do you prefer for our discussion today?**

\_\_\_English

\_\_\_French

\_\_\_Fulfulde

## Purpose of the survey

This research study/survey will help us learn more about the health of children in Cameroon We plan to ask thousands of children like yours to join this survey. We would like to invite your child to join the survey too. Your child's taking part will help the MoPH make HIV services better.

## Survey Procedures

### [FOR CHILDREN 2 YEARS TO 9 YEARS OLD]

If you agree to allow your child to take part in the survey, a trained nurse or lab technician will take a small amount or about 6 mL (a little more than a teaspoonful) 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.

### [FOR CHILDREN LESS THAN OR EQUAL TO 23 MONTHS OLD]

If your child is 0-23 months old, we will take a few drops (about 1 mL) from your child's finger or heel for the HIV test.

**[For children ages 0-18 months only]**

The body makes antibodies to fight HIV. Antibodies from a mother with HIV can enter the baby's blood during pregnancy. The test we perform on your child today will let us know if your child is exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood. It just confirms that he/she has been exposed to HIV. We will need to send your child's blood to a lab for a special test to confirm if he/she has the HIV infection. If you provide us with the name of a health facility, we can send the result there in about 10-12 weeks from now. We will also contact you to inform you that the results have been sent to the facility, if you provide us with your contact information. You will be able to talk to a doctor or nurse at the facility about the test result.

We will give you the results today and provide counseling about the results 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 counseling session will take about 40 minutes.

**[For children 0-5 years]**

If your child has HIV, we will also measure your child's weight and height to measure your child's growth. We will also measure weight and height for some children without HIV. The results will be returned to you and you will be able to talk to a doctor or nurse at the facility about the result.

If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and give you the result today. CD4 cells are the part of your immune system that fights HIV infection and other diseases. We will also test the CD4 level of some children without HIV. We will also send his/her blood to a laboratory to measure his/her viral load which is the amount of HIV in the blood. If you provide us with the name of a health facility, we can send your child's viral load results there about 10-12 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 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.

**Storage of specimens**

We would like to ask your permission to store your child's leftover blood for future research tests. These tests may be about HIV or other health issues important for the health of Cameroonians such as nutrition or immunization. This sample will be stored for an indefinite amount of time but your child's name will be on the sample for only three years. We will attempt to tell you about any test results during the three year period that are important for your child's health. Your child's leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's leftover blood samples after survey-related testing has been completed.

**Right to refuse or withdraw**

It is your decision about whether you will allow your child to take part 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 healthcare in any way.

## Risks

The risks of taking part in the survey are small. For the blood draw, the risks include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. You may learn that your child is infected with HIV. Learning that your child has HIV may cause emotional discomfort. You will receive counseling on how to disclose the result to your child and how to cope with learning that your child has HIV. We will do everything we can to keep your child's test results private but we cannot guarantee total confidentiality.

## Benefits

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. Some children who take part will test HIV positive. If this happens to your child, the benefit is that you will learn his/her HIV status and will learn where to take your child for life-saving treatment which is provided by the Ministry of Public Health for free. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child's taking part in this research could help us learn more about children and HIV in Cameroon and how HIV prevention and treatment programs are working.

## Costs for being in the survey

There is no cost to you for your child being in the survey. You and your child will not be paid for your child to be 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 unless there is an issue of safety.

[INTERVIEWER: INDICATE INFORMATION SHEET TO THE PARTICIPANT – 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 a person taking part in a study. These include Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey research organization)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your child's rights as a person taking part in this survey
- Study staff and study monitors

## [READ ALOUD]

Your permission to allow us to use and share your child's name and contact information with the groups above will expire three years after the end of the survey. 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 the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE POC]

[Prof Lazare Kaptue](#)

Cameroon National Ethics Committee for Research on Human Subjects (CNERSH)  
Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon  
Phone: +237 243674339  
Email: cnethique\_minsante@yahoo.fr

[READ ALOUD]

If you have any questions about your child's rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon  
Phone: +237 243674339  
Email: cnethique\_minsante@yahoo.fr

[Prof Anne Bissek Zoung-Kanyi](#)

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon  
Phone: +237 243234579  
Email: minsantedros@yahoo.com

Do you want to ask me anything about your child's taking part in the survey?

### Verbal Consent Statement

I have read this form, and/or someone has read it to me. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time. I have been offered a copy of this consent form.

1. Do you agree that your child give blood for HIV and related testing? 'YES' means that you give your permission to have the nurse or lab technician 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      Then please state the following statement:

***"I agree for my child to give blood for HIV and related testing"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish for my child to take part in blood testing today"***

(If agrees for child to take part in blood draw 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 blood samples to be stored for future research. 'NO' means that your child's blood samples will NOT be stored for future research.

\_\_\_\_ Yes      Then please state the following statement:

**"I agree to have my child's leftover blood stored for future research"**

\_\_\_\_ No      Then please state the following statement:

**"I do not wish to have my child's leftover blood stored for future research"**

Printed name of parent/guardian \_\_\_\_\_

Parent/guardian ID number \_\_\_\_\_ (If applicable. If not applicable check here \_\_)

Signature of person obtaining consent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Child's name (print) \_\_\_\_\_

Child's participant ID number \_\_\_\_\_



Permission for Interview and Blood Draw from Parents or Guardians for Minors ages 10-20 years

### **Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

#### **[IF PARENT/GUARDIAN HAS BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]**

Now I would like to ask you to give us permission to invite your son/daughter to take part in this survey. Your child/teenager's participation will help the Ministry of Public Health (MoPH) make health services for children and young people better in Cameroon.

### **Survey Procedures**

If you and your child/teenager agree, the following will happen, as described in your own consent:

- We will ask questions on HIV and your child/teenager's behaviors (about 40 minutes) in private. Your child/teenager's answers will not be shared with you.
- We will do an HIV test in your home. A trained nurse or lab technician will take about 6 mL (a little more than a teaspoonful) for children ages 10 to 14 years, and 14 mL (a little less than a tablespoonful) for children ages 15-20 of blood from your child's arm or a few drops of blood from your child's finger.
- [10-14] We will discuss the results with you. We can discuss the results with you and your child together, if you so choose.
- [15-20] We will return the results of the HIV and some of the related tests to you or your child today.
- If your child has HIV, he/she will get a CD4 test and the results will be available today. If your child is 15 or older and HIV+, he/she will also get a Hepatitis B test and may receive a referral today.
- We will send his/her blood to a laboratory to measure his/her viral load and the results will be returned to your preferred health facility in about 10-12 weeks.
- We will give you and your child/teenager a referral form so you and your child/teenager can consult with a doctor or nurse regarding his/her HIV test, CD4 count, Hepatitis B and viral load results.
- If your child/teenager is HIV negative, he/she may be randomly selected for CD4 testing and for Hepatitis B testing. 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.
- We will ask for your permission to store your child's leftover blood for future research tests
- **[For parents/guardians of children ages 15-20 only]** It is also possible that your child may be eligible to take part in future studies related to health in Cameroon. We will also ask permission to contact them through you in the next two years if such an opportunity occurs.

### **Right to refuse and to withdraw**

Your child/teenager may stop participation at any time. Your child/teenager can refuse to answer any question. This will not affect your child/teenager's healthcare in any way.

## Risks

The risks to your child/teenager of taking part in the survey are small. For the blood draw, the risks include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. You might learn that he/she has HIV. Learning that he/she has HIV may cause them to feel worried. We will talk to you/ them and help you with this. We will do everything we can to keep your child's information private. However, we can't promise complete confidentiality.

## Benefits

The main benefit for your child to be in the survey is the chance to learn more about his/her health today, including if they have HIV. Your child's taking part in this research could also help us learn more about how to improve the health of children in Cameroon.

## Confidentiality and Access to Your Child's Health Information

The information we collect from your child will not be released outside of the study partners we have mentioned unless there is an issue of safety. You can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH) and should you have any questions or concerns.

## → GO TO PERMISSION STATEMENT

## [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

☐ French

☐ Fulfulde

## **Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

This survey will help us know how many people in Cameroon have HIV and need health services. It will also tell us about people's risk for getting HIV. We plan to ask about 33,000 men, women, and children from about 14,000 households throughout Cameroon to take part in this survey. If you join, your taking part will help the MoPH make health services better in the country.

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 agree to allow us to invite your child/teenager to take part in the survey, we will ask your child/teenager 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/teenager'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 you and your child/teenager agree, a trained nurse or lab technician will take blood from your child's arm. They will take about 6 mL (a little more than a teaspoonful) for children ages 10-14, and 14 mL (a little less than a tablespoonful) for children ages 15-20. They will use the blood 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 provide counseling about the results and how to share them with your child if you so choose. If your child/teenager is 15 or older, we can test and counsel your child directly with your permission. If you give permission, the results would go directly to your older child rather than to you. If you do not give permission, your child's test results will come to you even if he/she is 15 years or older. The entire testing and counseling session will take about 40 minutes.

If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and conduct a Hepatitis B test if the child is over 15. We will provide CD4 test results and, if needed, a Hepatitis B referral today. CD4 cells are the part of the body's immune system that fights infections and other diseases. We will also test the CD4 level in some children without HIV. We may also do Hepatitis B testing in some randomly selected HIV-negative children who are 15 or older.

We will also send his/her blood to a laboratory to measure his/her viral load which is the amount of HIV in the blood. If you provide us with the name of a health facility, we can send your child's viral load results there in about 10-12 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 and Hepatitis B. 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 parents/guardians of children ages 15-20 only]** It is also possible that your child may be eligible to take part in future studies related to health in Cameroon. We will also ask permission to contact them through you in the next two years if such an opportunity occurs.

### **Storage of specimens**

We would like to ask your permission to store your child/teenager's leftover blood for future research tests. These tests may be about HIV or other health issues important for the health of Cameroonians. This sample will be stored for an indefinite amount of time but your child/teenager's name will be on the sample for three years. We will attempt to tell you about any test results during the three year period that are important for your child/teenager's health. Your child/teenager's leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's leftover blood samples after survey-related testing has been completed.

### **Right to refuse or withdraw**

It is your decision about whether you will allow us to invite your child/teenager to take part in the survey. Your child/teenager may stop taking part at any time. If your child/teenager 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, your child will be able to test for HIV, Hepatitis B, 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 healthcare in any way.

### **Risks**

The risks to your child of taking part in the survey are small. For the blood draw, the risks include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. You and your child/teenager may learn that they have HIV. Learning that they have HIV may cause some emotional discomfort. We will provide counseling to you/them on how to cope with learning that they have HIV. We will do everything we can to keep your child/teenager's information private. We cannot guarantee complete confidentiality.

### **Benefits**

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. If your child tests HIV-positive and/or gets a referral for Hepatitis B you will learn where to take your child for life-saving treatment, which is provided by the Ministry of Public Health. If you already know that your child is HIV-positive and he/she is on treatment, the CD4 and viral load tests can help your child/teenager's doctor or nurse judge how well the treatment is working. Your child's taking part in this research could help us learn more about children's health in Cameroon.

There is no cost to you for your child being in the survey. You and your child will not be paid to be in the survey.

### **Confidentiality and Access to Your Health Information**

We will do everything we can to keep your child/teenager's taking part in the survey private. The information we collect from your child/teenager will be identified by a number and not by your name or your child/teenager's name. Your name and your child/teenager's name will not appear when we share survey results. The information we collect from your child/teenager will not be released outside of the study partners listed unless there is an issue of safety.

**[INTERVIEWER: INDICATE THE INFORMATION SHEET TO THE PARTICIPANT- 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 a person. These include the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey research organization)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your child's rights as a person in this survey
- Study staff and study monitors

[READ ALOUD]

Your permission to allow us to use and share your child's name and contact information with the groups above will expire three years after the end of the survey. 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 the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

READ ALOUD]

If you have any questions about your child's rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

[Prof Anne Bissek Zoung-Kanyi](#)

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: minsantedros@yahoo.com

Do you want to ask me anything about your child's taking part in the survey?

### Verbal Permission Statement

I have read this form, and/or someone has read it to me. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time.

I have been offered a copy of this permission form.

2. 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 will NOT give permission for us to ask your child to be interviewed.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I give permission to the study team to ask my child to take part in the interview"***

\_\_\_\_\_ No      Then please state the following statement:

***"I do not wish for the study team to ask my child to take part in the interview"***

(If permission given proceed to the next question)

3. Do you agree for us to ask your child to give blood for HIV testing, and related testing and, if your child is over 15, to ask for Hepatitis B testing? 'YES' means that you give your permission for us to ask your child to have the nurse or lab technician collect a sample of your child's blood for HIV testing and related testing for ages 10-20, and, if your child is 15 or older, for Hepatitis B testing as well. 'NO' means that we will NOT ask your child to give blood for HIV testing and related testing, if the child is between 10 and 20, or for additional Hepatitis B testing if your child is aged 15-20.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I give permission for the study team to ask my child to give blood for HIV and related testing and Hepatitis B testing for my child ages 15-20"***

\_\_\_\_\_ No      Then please state the following statement:

***"I do not wish for the study team to ask my child to give blood for HIV and related testing and Hepatitis B testing for my child ages 15-20" [IF NO, GO TO #5. Only for children ages 15-20]***

(If permission given, proceed to the next question)

**4 [ONLY FOR PARENTS OF CHILDREN AGES 15 – 20]** For the test results available today, survey staff can give test results to you so that you can inform your older teenager. Alternatively, national testing policy allows older teenagers to receive their own results. If you feel he/she is sufficiently mature, survey staff can give the results directly to him/her with appropriate counseling. Either way, it is important for him/her to know his/her own test results. Do you agree to have your older teenager receive his or her own results confidentially? 'YES' means that you give your permission for us to give test results and counseling directly to your older teenager. 'NO' means that we give test results to you and you will be responsible for giving the results to him/her.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I give permission for the study team to provide counseling and give my child his/her tests results"***

\_\_\_\_No      Then please state the following statement:

***"I do not wish for the study team to give my child's results back to my child, I will receive the results and I will be responsible for giving the results to him/her"***

5. 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      Then please state the following statement:

***"I give permission for the study team to ask my child to have his/her leftover blood stored for future research"***

\_\_\_\_No      Then please state the following statement:

***"I do not wish for the study team to ask my child to have his/her leftover blood stored for future research"***

6. [ONLY FOR PARENTS OF CHILDREN AGES 15 – 20] Do you agree for us to contact your child in the next two years to take part in future studies related to health in Cameroon? 'YES' means that you agree your child be contacted in the future if a study opportunity arises. 'NO' means that you will NOT your child to be contacted about future studies.

\_\_\_\_Yes      Then please state the following statement:

***"I give permission for the study team to contact my child about taking part in future studies"***

\_\_\_\_No      Then please state the following statement:

***"I do not wish for the study team to contact my child about taking part in future studies"***

Printed name of parent/guardian\_\_\_\_\_

Parent/guardian ID number\_\_\_\_\_ (If applicable. If not applicable check here \_\_)

Signature of person obtaining permission\_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining permission\_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Child's name (print) \_\_\_\_\_

Child's participant ID number \_\_\_\_\_

Consent for Blood Draw (Adults 21-64 years and Special Case Minors 15-20 years)

**Study title: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**[Interviewer introduces Laboratory Technician or Nurse if not drawing the blood]**

My colleague is \_\_\_\_\_, who is a nurse or lab technician trained in drawing blood. He/she will also be providing you with information about testing options in this survey.

As a part of this survey, we are giving those taking part an opportunity to learn about their HIV status. We are also asking people if we can use their blood later in the laboratory for future testing.

**Blood draw and HIV testing procedures**

If you agree to the HIV testing and blood draw, we will take a small amount or about 14 mL (a little less than a table-spoonful) of blood from your arm. If it is not possible to take blood from your arm, then we will try to take a few drops of blood from your finger. We will give you the results and provide counseling today. The testing and counseling session will take about 40 minutes.

If you test positive for HIV, you will get a Hepatitis B test and you may receive a referral today. We will also measure the amount of CD4 cells in your blood which measures how well your body is fighting HIV infections and other diseases. We will also test the CD4 of some people without HIV. You will get your CD4 result today. We will also send your blood to a laboratory to measure your viral load which measures the amount of HIV in your blood. We will send your viral load result to a health facility in about 10-12 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 and viral load test results and your health.

We will also do other additional tests related to HIV. Also, whether you are HIV+ or HIV-, you may be randomly selected for Hepatitis B testing.

If we have test results that might help guide 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 store your leftover blood for future research tests. These tests may be about health issues important in Cameroon. This will help improve the health of Cameroonians. This sample will be stored for an indefinite amount of time but your name will only be on the sample for three years. We will attempt to tell you about any test results during the three year period that are important to your health. Your leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your blood samples, we will destroy your leftover blood samples after survey-related testing has been completed.

**Right to refuse or to withdraw**

You do not have to give blood and you are free to change your mind even after you have started the blood draw. If you decide not to take part, it will not affect your healthcare in any way.



## Risks

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 contact the study staff. You may learn that you are infected with HIV. Learning that you have HIV can cause some emotional discomfort. You will receive counselling on how to cope with learning that you are HIV positive. We will also tell you where you can go for care and treatment, which is provided by the Ministry of Public Health for free. We will do everything we can to keep your test results private, but we cannot guarantee total confidentiality.

## Benefits

The main benefit for you to be in the survey is the chance to learn more about your health today. If you test HIV negative and/or Hepatitis B negative, you will learn about what you can do to stay HIV and Hepatitis B negative. If you test HIV-positive and/or Hepatitis B positive, you will learn your HIV status and Hepatitis B status and where to go for treatment. If you already know that you are HIV-positive and you are on HIV treatment, the CD4 and viral load tests can help your nurse or doctor judge how well your treatment is working. Your taking part in this survey could help us learn more about HIV in Cameroon and how HIV prevention and treatment programs are working.

## Confidentiality, Privacy, and Access to Your Health Information

The blood we collect from you will be identified by a number and not by your name. This means that besides you, no one else will be able to know your test results except the people working on the survey. The information we collect during the survey will not be released outside of the survey groups listed unless there is an issue of safety.

## [INTERVIEWER: PROVIDE THE FOLLOWING INFORMATION SHEET TO THE PARTICIPANT- DO NOT READ ALOUD]

The following individuals and/or agencies will be able to look at your 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 rights as a person taking part in a survey. These include the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey research organization)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this survey
- Study staff and study monitors

## [READ FROM HERE]

Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey. 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 Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

## [INDICATE ADDRESS OF POC]

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

**[READ THIS STATEMENT]**

If you have any questions about your rights as a persons taking part in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

**Prof Anne Bissek Zoung-Kanyi**

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: minsantedros@yahoo.com

Do you want to ask me anything about:

- Taking your blood for HIV or Hepatitis B testing?
- Testing in the laboratory?
- Storage of blood for future research testing?

**Verbal Consent Statement**

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

7. Do you agree to give blood for HIV, Hepatitis B 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      Then please state the following statement:

***"I agree to give blood for HIV, hepatitis B testing and related testing"***

\_\_\_\_\_No      Then please state the following statement:

***"I do not wish to take part in blood testing today"***

(If agrees to blood testing proceed to next question)

8. 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      Then please state the following statement:

***"I agree to have my leftover blood stored for future research"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to have my leftover blood stored for future research"***

Printed name of participant \_\_\_\_\_

Participant ID number \_\_\_\_\_

Signature of person obtaining consent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Assent to Interview (Minors ages 15-20 years)

**Study title: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**Interviewer reads:**

**What language do you prefer for our discussion today?**

\_\_\_English

\_\_\_French

\_\_\_Fulfulde

Hello. My name is \_\_\_\_\_. We are doing a research study throughout Cameroon to learn more about HIV in the country. [IF NOT SPECIAL CASE MINOR] We have talked to your parent/guardian and they said it was okay to invite you take part in a research study.

**Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**Purpose of the survey**

This survey will help us learn more about the health of young people in Cameroon. It will also tell us about young people's risk for getting HIV. We plan to ask thousands of young people to take part in this survey. A survey is a way to learn new information about something by interviewing and testing many people. If you join, your taking part will help the Ministry of Public Health make health services better in the country.

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 agree to join, we will ask you questions about your age, your knowledge about HIV, and your behavior. We will ask you to answer these question without having others present. The interview will take about 40 minutes.

After the interview, we will offer you an HIV test. We will ask you for consent for the blood draw and HIV test and talk to you about your results. The testing and counseling session will take about 40 minutes.

**Right to refuse or withdraw**

You do not have to take part in the survey. 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 and nobody will get upset with you.

**Risks and benefits**

The risks in being in the survey are small. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality. You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any question. If you take part, you will get free testing for HIV in your own home. Taking part in this research will help us learn more about HIV in Cameroon. Your taking part is important.

There is no cost to you for being part of the survey. You should also know that you will not be paid.

## Confidentiality, Privacy and Access to Your Health Information

We will do everything we can to keep your taking part in the survey and your answers private. We will not tell your family about any of your responses. Your name and signed assent form will be kept separate from your answers to the questions, which will only be identified by a number. Your name will not appear on any survey results. Only people working on the survey will have access to the data during the survey.

The following individuals and/or agencies will be able to look at your research records:

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

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

[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 Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

[READ STATEMENT BELOW]

If you have any questions about your rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

**Prof Lazare Kaptue**

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

**Prof Anne Bissek Zoung-Kanyi**

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: minsantedros@yahoo.com

**Do you want to ask me anything about the survey?****Verbal Assent Statement**

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I agree to take part in the individual interview. I have been offered a copy of this assent form.

**Verbal Assent Statement**

1. Do you agree to take part in the individual interview? 'YES' means that you agree to do the interview. 'NO' means that you will NOT do the interview.

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to take part in the individual interview"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to take part in the individual interview"***

2. FUTURE RESEARCH: It is possible that you may be eligible to take part in future studies related to health in Cameroon. We are asking for your permission to contact you in the next two years if such an opportunity occurs. If we contact you, we will give you details about the new study and ask you to sign a separate assent form at that time. You may decide at that time that you do not want to take part in that study.

If you do not wish to be contacted about future studies, it does not affect your involvement in this study. 'YES' means that you agree to be contacted in the future if a study opportunity arises. 'NO' means that you will NOT be contacted about future studies.

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to be contacted about future studies"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to be contacted about future studies"***

Printed name of participant \_\_\_\_\_

Participant ID number \_\_\_\_\_

Printed name of parent/guardian \_\_\_\_\_

Signature of person obtaining assent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining assent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Assent to Interview (Minors ages 10-14 years)

**Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**Interviewer reads:**

**What language do you prefer to use for this discussion?**

\_\_\_ English

\_\_\_ French

\_\_\_ Fulfulde

Hello. My name is \_\_\_\_\_. We have talked to your parents/guardian and they said it was okay to invite you to take part in a research survey. Surveys help us learn new things.

This form talks about our survey and the choice that you have to take part in it. We want you to ask us any questions that you have. You can ask questions any time.

**Why are we doing this survey?**

We are doing this survey to help us learn more about the health of young people in Cameroon. We plan to ask thousands of children to join this survey. A survey is a way to learn about something by interviewing and testing many people. We would like to invite you to join this survey.

This form might have some words that you may not have heard before. Please ask us to explain anything that you do not understand.

**What would happen if I join this survey?**

If you decide to join the survey, here is what would happen:

- We will ask you questions about your age, what you know about HIV, and some of your behaviors.
- The interview will take place in private here in your house or an area around your house. We will not tell your parents about any of your answers.
- The interview will take about 30 minutes.
- After we ask you the questions, we will also ask you if it is okay to take some of your blood to test for HIV and to store it for future studies.

**Could bad things happen if I join this survey?**

You may feel uncomfortable answering some of the questions we will ask. You can refuse to answer any question or stop the interview at any time. We will do everything we can to keep your information private.

**Could the survey help me?**

You will help figure out ways to help young people and learn more about health in Cameroon. Your taking part is important.

**What else should I know about this survey?**

If you don't want to be in the survey, you don't have to be. Nobody will get upset with you if you do not want to join the survey.

It is also OK to say 'yes' and change your mind later to say 'no'. If you want to stop, please tell us.

We will not tell other people that you are in this survey and will not share information about you to anyone who does not work in the survey study. Any information about you will have a number on it instead of your name.

The following individuals and/or agencies will be able to look at your research records:

- Study staff and study monitors
- Staff members from groups that protect your rights to ensure that we are protecting your rights

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 Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

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Phone: +237 243674339

Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

### **[READ THIS STATEMENT]**

If you have any questions about your rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Ministry of Public Health (MoPH):

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Phone: +237 243234579

Email: [minsantedros@yahoo.com](mailto:minsantedros@yahoo.com)

You should also know that you will not be paid to be in the study. You can ask questions any time. Ask us any questions you have. Take the time you need to make your choice.

**Do you want to ask me anything?**



**Verbal Consent Statement**

I have read this form, and/or someone has read it to me. Any questions that I had have been answered. I know that after choosing to be in this survey, I may stop at any time. My taking part is voluntary. I have been offered a copy of this assent form.

2. Do you agree to take part in the individual interview? 'YES' means that you agree to do the interview. 'NO' means that you will NOT do the interview.

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to take part in the individual interview"***

\_\_\_\_ No      Then please state the following statement:

**"I do not wish to take part in the individual interview"**

Printed name of child \_\_\_\_\_

Child's participant ID number \_\_\_\_\_

Printed name of parent/guardian \_\_\_\_\_

Signature of person obtaining assent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining assent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

## Assent to Blood Draw (Minors ages 10-14 years)

### Study title: Cameroon Population-based HIV Impact Assessment (CAMPHIA)

[IF A NEW INTERVIEWER]: Hello, my name is \_\_\_\_\_. I will give you information about blood testing in this survey.

As a part of this survey, we are giving people a chance to learn if they have HIV. We are also asking people if we can keep some of their blood for future testing.

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

### What would happen if I agree to get blood testing?

If you agree to testing, here is what would happen:

- We will use a needle to take about a teaspoon (6 mL) of your blood from your arm. If it's not possible to take blood from your arm, then we will try to take a few drops of blood from your finger. Then we will test your blood for HIV here in your home.
- It will take about 40 minutes to do the test and to talk to you and your parents/guardians about the results.
- If you have HIV, we will do another test here at home on the blood we have already collected to measure some cells in your blood that fight HIV and other infections. We will also measure these cells from some young people without HIV
- If you test positive for HIV, we will send your blood to a laboratory to measure the amount of HIV in your blood. We will ask you if we can use some of your blood for future testing. These tests may be about HIV or other health issues important for Cameroon. This sample will be stored for an indefinite amount of time but your name will be on it for only three years. We will try to tell you and your parents/guardians about any test results during this period that are important to your health. Your leftover blood will not be sold. If you do not agree to future storage and testing of your blood, we will destroy your blood after survey-related testing has finished.

### Could bad things happen if I agree to blood testing?

The needle may hurt when it is put into and taken out of your arm. This pain will go away quickly. Sometimes the needle can leave a bruise on the skin. You might bleed a little or feel a little dizzy afterwards. Rarely, an infection might occur where the needle enters the skin. And sometimes we may have to stick you with the needle more than one time in order to get the right amount of blood. We will do our best to make it hurt as little as possible. You may learn that you have HIV and/or Hepatitis B. Learning that you have HIV and/or Hepatitis B may cause you to feel worried or upset. We will talk to you and your parents/guardian and help you with this. We will do everything we can to keep your information private.

### Could getting tested for HIV help me?

If you do not have HIV, you can learn about what you can do to stay that way. If you have HIV, we will tell you and your parent/guardian where to get help or treatment. If you already know you have HIV and are on HIV treatment, the tests may help your doctor/nurse judge how well your treatment is working. We also hope to learn something from this survey to help other children in Cameroon.

There is no cost to you or your parent/guardian for you being in the survey. You and your parent/guardian will not be paid for you to be in the survey.

**What else should I know about this survey?**

If you do not want to get a blood test, you do not have to. Nobody will get upset. You can say 'yes' and change your mind later to say 'no'. If you want to stop, please tell us.

We will not tell other people that you are in this survey and will not share information about you to anyone who does not work on the survey. Any information about you will have a number on it instead of your name.

We will not share your results with anyone else besides you and your parent/guardian. We will give your results to your parent/guardian and they will decide on the best time to tell you about your test results. If your parent or guardian wants to tell you about your test results today, we will talk with you about any questions or worries that you might have about the results.

The following individuals and/or agencies will be able to look at your survey records:

- Survey staff and survey monitors
- Staff members from groups that protect your rights to ensure that we are protecting your rights

**Do you want to ask me anything?****Verbal Assent**

I have read this form, and/or someone has read it to me. Any questions that I had have been answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this assent form.

1. Do you agree to give blood for HIV, testing and related testing? 'YES' means that you agree to give blood for HIV testing and related testing. 'NO' means that you will NOT give blood for HIV testing and related testing.

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to give blood for HIV and related testing"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to take part in blood testing today"***

(If agrees to blood testing and related testing, proceed to the next question)

2. If you agree to give your blood for future testing? 'YES' means that you agree to have your blood stored for future research. 'NO' means that your blood will NOT be stored for future research.

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to have my leftover blood stored for future research"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to have my leftover blood stored for future research"***

Printed name of child \_\_\_\_\_

Child's participant ID number \_\_\_\_\_

Printed name of parent/guardian \_\_\_\_\_

Signature of person obtaining assent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining assent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Assent to Blood Draw (Minors ages 15-20 years)

**Study title: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**[Interviewer introduces Laboratory Technician or Nurse if not drawing the blood]**

My colleague is \_\_\_\_\_, who is a nurse or lab technician trained in drawing blood. He/she will also be providing you with information about testing options in this survey.

As a part of this survey, we are giving those that take part an opportunity to learn about their HIV status. We are also asking people if we can use their blood later in the laboratory for future testing.

**Blood draw and HIV testing procedures**

If you agree to the blood draw and HIV testing, we will take about 14 mL (a little less than a tablespoonful) 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. Depending on whether your parent has given permission for you to receive the results of your blood test directly, we will give either you or your parent or guardian the results and provide counseling today. The testing and counseling session will take about 40 minutes.

If you test positive for HIV, you will get a Hepatitis B test and you or your parent/guardian may receive a referral today. We will also measure the amount of CD4 cells in your blood which measures how well your body can fight HIV infections and other diseases. You or your parent/guardian will get your CD4 result today. We will also send your blood to a laboratory to measure your viral load which measures the amount of HIV in your blood. We will send your viral load result to a health facility in about ten to twelve weeks from now. We will give you or your parent/guardian a referral form and information so that you can consult a nurse or doctor to learn more about your test results and your health.

We will also do other additional tests related to HIV. Also, whether you are HIV positive or HIV negative, you may be randomly selected for Hepatitis B testing. If we have test results that might help guide your care or treatment, we will contact you or your parent/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 store your leftover blood for future health research studies in Cameroon. The findings from these studies will help improve the health status of Cameroonians. This sample will be stored for an indefinite amount of time but your name will only be on the sample for three years. Your leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your blood samples, we will destroy your blood samples after survey-related testing has been completed.

**Right to refuse or to withdraw**

You do not have to give blood and you are free to change your mind even after you have started the blood draw. If you don't want to give blood, please tell us. If you decide not to take part, it will not affect your healthcare in any way.

## Risks

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 contact the study staff. You may learn that you are infected with HIV. Learning that you have HIV can cause some emotional distress. You will receive counselling on how to cope with learning that you are HIV positive. We will also tell you where you can go for care and treatment, which is provided by the Ministry of Public Health for free. We will do everything we can to keep your test results private, but we cannot guarantee total confidentiality.

## Benefits

The main benefit for you to be in the survey is the chance to learn more about your health today. If you test HIV negative, you will learn about what you can do to stay HIV negative. If you test HIV positive, you will learn your HIV and Hepatitis B status and where to go for treatment. If you already know that you are HIV-positive and you are on HIV treatment, the CD4 and viral load tests can help your nurse or doctor judge how well your treatment is working. In addition, if you are one of a small group of people randomly selected to be tested for Hepatitis B, you will learn information about your Hepatitis B status and, if necessary, be referred for follow-up testing and care. Your taking part in this research could help us learn more about HIV and Hepatitis B in Cameroon and how HIV prevention and treatment programs are working. Your taking part is important.

## Confidentiality, Privacy and Access to Your Health Information

The blood we collect from you will be identified by a number and not by your name. This means that besides you, no one else will be able to know your test results except the people working on the survey. The information we collect during the survey will not be released outside of the survey groups listed unless there is an issue of safety.

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

The following individuals and/or agencies will be able to look at your 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 rights as a person. These include the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey research organization)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person in this survey
- Study staff and study monitors

### [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 Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Ministry of Public Health (MoPH):

[INDICATE POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: cnethique\_minsante@yahoo.fr

### [READ THIS STATEMENT]

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[Prof Anne Bissek Zoung-Kanyi](#)

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: minsantedros@yahoo.com

Do you want to ask me anything about:

- Taking your blood for HIV testing?
- Testing in the laboratory?
- Storage of blood for future research testing?

### Verbal Assent statement

I have read this form, and/or someone has read it to me. Any questions that I had have been answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this assent form.

9. Do you agree to give blood for HIV, Hepatitis B testing and related testing? 'YES' means that you agree to give blood for HIV testing and related testing. 'NO' means that you will NOT give blood for HIV testing and related testing.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I agree to give blood for HIV, hepatitis B testing and related testing"***

\_\_\_\_\_ No      Then please state the following statement:

***"I do not wish to take part in blood testing today"***

(If agrees to blood testing proceed to next question)

10. 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      Then please state the following statement:

***"I agree to have my leftover blood stored for future research"***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to have my leftover blood stored for future research"***

Printed name of participant \_\_\_\_\_

Participant ID number \_\_\_\_\_

Printed name of parent/guardian \_\_\_\_\_

Signature of person obtaining assent \_\_\_\_\_      Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining assent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_



Parental Consent/Permission for Interview and Blood Draw from Parents or Guardians for Minors ages 0-20 years

**Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**Interviewer reads:**

What language do you prefer for our discussion today?

\_\_\_ English

\_\_\_ French

\_\_\_ Fulfulde

**Title of Survey: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

This survey will help us know how many people in Cameroon have HIV and need health services. It will also tell us about people's risk for getting HIV. We plan to ask about 33,000 men, women, and children from about 14,000 households throughout Cameroon to take part in this survey. If you join, your taking part will help the Ministry of Public Health (MoPH) make health services better in the country.

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.

We are going to ask your permission to allow your children to take part in the research. For children who are under 10 years of age, we only ask for your permission. For children over 10 years of age, we ask both for your permission and for your child's assent before proceeding. The procedures are slightly different depending on your child's age. I will describe them to you in detail now.

**Interview Procedures ages 10-20**

If you agree to allow us to invite your child/teenager ages 10-20 to take part in the survey, we will ask your child/teenager 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/teenager'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 your child is 15-20 years]** It is also possible that your child may be eligible to take part in future studies related to health in Cameroon. We will also ask permission to contact them through you in the next two years if such an opportunity occurs.

**Blood Procedures ages 0-20**

- **[IF CHILD IS 0-23MONTHS OLD]** A trained nurse or lab technician will take a few drops (about 1 mL) from your child's finger or heel for the HIV test.
- **[IF CHILD IS 2 TO 9 YEARS OLD]** To do the HIV test, a trained nurse or lab technician will take about 6 mL (a little more than a teaspoonful) of blood from your child's arm or a few drops of blood from your child's finger.
- **[IF CHILD/TEENAGER IS 10-20 YEARS OLD]** If you and your child/teenager agree, trained nurse or lab technician will take about 6 mL (for children ages 10-14) and 14 mL (a little less than a tablespoonful) for children ages 15-20 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 provide counseling about the results and how to share them with your child if you so choose. If your child/teenager is 15 or older, we can test and counsel your child directly with your permission. If you give permission, the results would go directly to your older child rather than to you. If you do not give permission, your child's test results will come to you even if he/she is 15 years or older. The entire testing and counseling session will take about 40 minutes.
- **[If your child is less than or equal to 18 months]** we will conduct another test. 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 was exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood. It just confirms that he/she has been exposed to HIV. We will need to send your child's blood to a lab for a special test to determine if he/she has the HIV infection. If you provide us with the name of a health facility, we can send the result there in about 10-12 weeks from now. We will also contact you to inform you that the results have been sent to the facility, if you provide us with your contact information. You will be able to talk to a doctor or nurse at the facility about the test result.
- If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and, if your child is over 15, we will conduct a Hepatitis B test. We will provide CD4 test results and, if needed, a Hepatitis B referral today. CD4 cells are the part of the body's immune system that fights infections and other diseases. We will also test the CD4 level in some children without HIV. We may also do Hepatitis B testing in some randomly selected HIV-negative children who are 15 or older.
- We will also send his/her blood to a laboratory to measure his/her viral load which is the amount of HIV in the blood. If you provide us with the name of a health facility, we can send your child's viral load results there in about 10-12 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 and Hepatitis B for children 15+. 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.
- **[If your child is 0-5 years and has HIV]**, we will also measure your child's weight and height to measure your child's growth and monitor their health. We will also measure weight and height for some children without HIV. The results will be returned to you and you will be able to talk to a doctor or nurse at the facility about the result.

### Storage of specimens

We would like to ask your permission to store your child/teenager's leftover blood for future research tests. These tests may be about HIV or other health issues important for the health of Cameroonians. This sample will be stored for an indefinite amount of time but your child/teenager's name will be on the sample for three years. We will attempt to tell you about any test results during the three year period that are important for your child/teenager's health. Your child/teenager's leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.

### Right to refuse or withdraw

It is your decision about whether you will allow your child ages 0-9 to take part or allow us to invite your child/teenager ages 10-20 to take part in the survey. Your child/teenager may stop taking part at any time. If your child/teenager ages 10-20 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, your child will be able to test for HIV, Hepatitis B, 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 healthcare in any way.

## Risks

The risks to your child of taking part in the survey are small. For the blood draw, the risks include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. You and your child/teenager may learn that they have HIV. Learning that they have HIV may cause some emotional discomfort. We will provide counseling to you/them on how to cope with learning that they have HIV. We will do everything we can to keep your child/teenager's information private. We cannot guarantee complete confidentiality.

## Benefits

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. If your child tests HIV positive and/or gets a referral for Hepatitis B if they are 15-20 years, you will learn where to take your child for life-saving treatment, which is provided by the Ministry of Public Health. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child/teenager's doctor or nurse judge how well the treatment is working. Your child's taking part in this research could help us learn more about children's health in Cameroon.

There is no cost to you for your child being in the survey. You and your child will not be paid to be in the survey.

## Confidentiality and Access to Your Health Information

We will do everything we can to keep your child/teenager's taking part in the survey private. The information we collect from your child/teenager will be identified by a number and not by your name or your child/teenager's name. Your name and your child/teenager's name will not appear when we share survey results. The information we collect from your child/teenager will not be released outside of the study partners listed unless there is an issue of safety.

## [INTERVIEWER: INDICATE THE INFORMATION SHEET TO THE PARTICIPANT- 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 a person. These include the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey research organization)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your child's rights as a person in this survey
- Study staff and study monitors

## [READ ALOUD]

Your permission to allow us to use and share your child's name and contact information with the groups above will expire three years after the end of the survey. 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 the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and the Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

[READ ALOUD]

If you have any questions about your child's rights as a person in this survey, you can contact the Cameroon National Ethics Committee for Research on Human Subjects (CNERSH) and Ministry of Public Health (MoPH):

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

[Prof Anne Bissek Zoung-Kanyi](#)

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: [minsantedros@yahoo.com](mailto:minsantedros@yahoo.com)

Do you want to ask me anything about your child's taking part in the survey?

### Verbal Consent/Permission Statement

I have read this form, and/or someone has read it to me. Any questions I had have been answered satisfactorily. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time.

***I have been offered a copy of this consent/permission form.***

11. **[FOR PARENTS OF CHILDREN AGES 10-20]** Do you agree for us to ask your eligible child/children ages 10-20 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 will NOT give permission for us to ask your child to be interviewed.

\_\_\_\_ Yes      Then please state the following statement:

***"I give permission to the study team to ask my eligible child/children ages 10-20 to take part in the interview."***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish for the study team to ask my eligible child/children ages 10-20 to take part in the interview."***

(IF 'NO' STOP)

12. Do you agree that your eligible child/children ages 0-9 give blood for HIV testing and related testing and for us to ask your eligible child/children ages 10-20 to give blood for HIV and related testing and Hepatitis B testing for children ages 15-20? 'YES' means that you give your permission/consent for us to collect a sample of blood from your eligible child/children ages 0-9 or for us to ask your eligible child/children ages 10-20 to have the nurse or lab technician collect a sample of their blood for HIV testing and related testing and Hepatitis B testing for children ages 15-20. 'NO' means that we will NOT collect a sample of blood from your eligible children ages 0-9 or ask your eligible child/children ages 10-20 to give blood for HIV testing and related testing and Hepatitis B testing for children ages 15-20.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I agree for my eligible child/children ages 0-9 to give blood for HIV and related testing and for the study team to ask my eligible child/children ages 10-20 to give blood for HIV related testing, and for the study team to ask my eligible child/children ages 15-20 to give blood for HIV, hepatitis B testing and related testing."***

\_\_\_\_\_ No      Then please state the following statement:

***"I do not wish for my child to take part in blood testing today"***

(If permission not given, proceed to question #5)

13. [ONLY FOR PARENTS OF CHILDREN AGES 15 – 20] For the test results available today, survey staff can give test results to you so that you can inform your older eligible teenager(s). Alternatively, national testing policy allows older teenagers to receive their own results. If you feel he/she is sufficiently mature, survey staff can give the results directly to him/her with appropriate counseling. Either way, it is important for him/her to know his/her own test results. 'YES' means that you give your permission for us to give test results and counseling directly to your eligible child/children ages 15-20. 'NO' means that we give test results to you and not to your eligible child/children ages 15-20 and you will be responsible for giving the results to them.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I give permission for the study team to provide counseling and give my eligible child/children tests results to them"***

\_\_\_\_\_ No      Then please state the following statement:

***"I do not wish for the study team to give my eligible child/children ages 15-20 tests results back to them, I will receive the results and I will be responsible for giving the results to my eligible child/children"***

14. Do you agree that your eligible child/children ages 0-9 leftover blood be stored for future research and for us to ask your eligible child/children ages 10-20 to have his/her leftover blood stored for future research? 'YES' means that you give permission/consent for us to store your eligible child/children ages 0-9 leftover blood samples for future research or for us to ask your eligible child/children ages 10-20 to store his/her blood samples for future research. 'NO' means that you do NOT give us permission/consent to store your eligible child/children ages 0-9 leftover blood samples for future research or to ask your eligible child/children ages 10-20 to store his/her blood samples for future research.

\_\_\_\_\_ Yes      Then please state the following statement:

***"I agree for the study team to have the leftover blood of my eligible child/children ages 0-9 stored for future research and for the study team to ask my eligible child/children ages 10-20 to have his/her leftover blood stored for future research."***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish to have the leftover blood of my child/children ages 0-9 stored for future research or for the study team to ask my eligible child/children ages 10-20 to have their leftover blood stored for future research."***

15. **[FOR PARENTS OF CHILDREN AGES 15-20]** Do you agree for us to contact your eligible child/children ages 15-20 in the next two years to take part in future studies related to health in Cameroon? 'YES' means that you agree your eligible child/children be contacted in the future if a study opportunity arises. 'NO' means that you will NOT your eligible child/children to be contacted about future studies.

\_\_\_\_ Yes      Then please state the following statement:

***"I give permission for the study team to contact my eligible child/children ages 15-20 about taking part in future studies."***

\_\_\_\_ No      Then please state the following statement:

***"I do not wish for the study team to contact my eligible child/children ages 15-20 about taking part in future studies."***

Printed name of parent/guardian \_\_\_\_\_

Parent/guardian ID number \_\_\_\_\_ (If applicable. If not applicable check here \_\_)

Signature of person obtaining consent/permission \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent/permission \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Child/Children's name(s) (print) \_\_\_\_\_

\_\_\_\_\_

Child/Children's participant ID number (s) \_\_\_\_\_

\_\_\_\_\_

Consent to Share Contact Information for Active Linkage to Care of Participants, 21-64 years and special case minors 15-20

**Study title: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**What language do you prefer for our discussion today?**

☐ English

☐ French

☐ Fulfulde

**Purpose of consent**

You had a positive HIV test today. We have provided you with a referral form to bring to a health clinic and seek HIV treatment and care. We would like to help you in accessing the health care that you need. If you agree, we may be able to provide your contact information and HIV test results to health care workers from the Ministry of Public Health (MoPH) or to a partner that the MoPH works with. This health care worker may contact you to talk to you about HIV and help you go for HIV care. Anyone who is provided with your details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

**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 may provide your name, phone number (if you provided it to us) and your address to those health care providers to provide you with support. The health care worker can contact you by SMS, phone, or in person.

**What about confidentiality?**

Your HIV test results and your contact information will not be shared with any other parties aside from what was specified in the other consent forms, and with this support organization. They will also do their utmost to maintain your confidentiality. However, we cannot guarantee complete confidentiality.

**What are the potential risks?**

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

**What are the potential benefits?**

A health care worker will assist you in accessing the health care that you need.

### Who should you contact if you have questions?

If you change your mind or have any questions or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

Phone: +237 243674339

Email: [cnethique\\_minsante@yahoo.fr](mailto:cnethique_minsante@yahoo.fr)

[READ STATEMENT BELOW]

If you have any questions about your rights as a person in this survey, you can contact either of the following persons:

[INDICATE ADDRESS OF POC]

[Prof Lazare Kaptue](#)

Address: CNERSH: Located at Hygiene Mobile, Yaounde, Center Region, Cameroon

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[Prof Anne Bissek Zoung-Kanyi](#)

Address: MoPH Division of Health Operations Research (DROS): Located at Hygiene Mobil, Rue Rudolph Manga Bell, Yaounde, Center Region, Cameroon

Phone: +237 243234579

Email: [minsantedros@yahoo.com](mailto:minsantedros@yahoo.com)

### Consent Statement

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

*Do you agree to allow us to share your contact information with the MoPH or a partner that MoPH works with who can help you go to a clinic to receive HIV treatment? 'Yes' means that you agree to allow us share your contact information with the MoPH or a partner that the MoPH works with. 'No' means that you do NOT agree to allow us to share your contact information with the MoPH or a partner that the MoPH works with.*

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to allow my contact information to be shared with the MoPH or a partner that the MoPH works with, to help me go to a clinic to receive HIV treatment, care and support"***

\_\_\_\_ No      Then please state the following statement:

***"I DO NOT agree to allow my contact information to be shared with the MoPH or a partner that the MoPH works with, to help me go to a clinic to receive HIV treatment, care and support"***



1. If yes, do you agree to be contacted by?

SMS      ☐ Yes      ☐ No

Phone call   ☐ Yes      ☐ No

In person   ☐ Yes      ☐ No

Participant ID number \_\_\_\_\_

Signature of person obtaining consent \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_

Consent to Share Contact Information for Active Linkage to Care of Participants, parents of children 0-20years

**Study title: Cameroon Population-based HIV Impact Assessment (CAMPHIA)**

**What language do you prefer for our discussion today?**

☐ English

☐ French

☐ Fulfulde

**Purpose of consent**

Your child had a positive HIV test today. We have provided you with a referral form so that you and your child can take to a health clinic and seek HIV treatment and care. We would like to help you and your child in accessing the health care that your child needs. If you agree, we might be able to provide your contact information and your child's HIV results to health care workers from the Ministry of Public Health (MoPH) or a partner that the MoPH works with. This counselor may 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 may provide your name, phone number (if you provided it to us) and your address to those health care workers to provide you with support. The health care worker can contact you by SMS, phone, or in person.

**What about confidentiality?**

Your HIV test results and your contact information will not be shared with any other parties aside from what was specified in the other consent forms, and with this support organization. They will also do their utmost to maintain your confidentiality. However, we cannot guarantee complete confidentiality.

**What are the potential risks?**

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

**What are the potential benefits?**

A health care worker will assist you in accessing the health care needed by your child.

**Who should you contact if you have questions?**

If you change your mind or have any questions or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

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Phone: +237 243234579

Email: [minsantedros@yahoo.com](mailto:minsantedros@yahoo.com)

### Consent Statement

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

*Do you agree to allow us to share your child's contact information with MoPH or a partner that MoPH work with who can help you and your child go to a clinic to receive HIV treatment, care and support? Yes' means that you agree to allow us share your child's contact information with the MoPH or a partner that the MoPH works with. 'No' means that you do NOT agree to allow us to share your child's contact information with the MoPH or a partner that the MoPH works with.*

\_\_\_\_ Yes      Then please state the following statement:

***"I agree to allow my child's contact information to be shared with the MoPH or a partner that the MoPH works with, to help me and my child go to a clinic to receive HIV treatment, care, and support"***

\_\_\_\_ No      Then please state the following statement:

***"I DO NOT agree to allow my child's contact information to be shared with the MoPH or a partner that the MoPH works with, to help me and my child go to a clinic to receive HIV treatment, care, and support"***

2. If yes, do you agree to be contacted by?

SMS      ☐ Yes      ☐ No

Phone call   ☐ Yes      ☐ No

In person   ☐ Yes      ☐ No

Parent/guardian's Participant ID number \_\_\_\_\_

Child's Participant ID number \_\_\_\_\_

Signature of person obtaining consent \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Survey staff ID number \_\_\_\_\_







## Cameroon Population-based HIV Impact Assessment CAMPHIA 2017-2018

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