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FACTORS ASSOCIATED WITH PRIOR TESTING AMONG HIV-POSITIVE ADULTS IN SUB-SAHARAN AFRICA

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Factors Associated with Prior Testing among HIV-Positive Adults in Sub-Saharan Africa

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Preface

The Demographic and Health Surveys (DHS) Program is one of the principal sources of international data on fertility, family planning, maternal and child health, nutrition, mortality, environmental health, HIV/AIDS, malaria, and provision of health services.

One of the objectives of The DHS Program is to provide policymakers and program managers in low- and middle-income countries with easily accessible data on levels and trends for a wide range of health and demographic indicators. DHS Comparative Reports provide such information, usually for a large number of countries in each report. These reports are largely descriptive, without multivariate methods, but when possible they include confidence intervals and/or statistical tests.

The topics in the DHS Comparative Reports series are selected by The DHS Program in consultation with the U.S. Agency for International Development.

It is hoped that the DHS Comparative Reports will be useful to researchers, policymakers, and survey specialists, particularly those engaged in work in low- and middle-income countries.

Sunita Kishor

Director, The DHS Program

Abstract

With evidence on the benefits of the early diagnosis of HIV and the initiation of antiretroviral therapy (ART) mounting, HIV testing is a primary entry point for the prevention of HIV transmission. In sub-Saharan Africa, the scale-up of affordable and readily available HIV testing and treatment has allowed the region to make notable progress in the prevention of HIV/AIDS. UNAIDS has recently proposed a set of ambitious targets that, if achieved, are predicted to end the AIDS epidemic by 2030. The targets, known as 90-90-90, call for 90 percent of all people living with HIV (PLHIV) to know their status, 90 percent of those to receive antiretroviral therapy (ART), and 90 percent of ART recipients to achieve viral suppression.

This report focuses on the "first 90" in the 90-90-90 target, and seeks to answer four main questions. First, how does testing uptake vary by serological status, sex, and country? Second, what proportion of PLHIV are estimated to know their status, and how does this vary by sex, country, timing of the survey, and size of the epidemic? Third, what is the role of maternal care in HIV testing uptake among HIV-positive women? And fourth, what background and behavioral characteristics are associated with ever being tested for HIV among PLHIV?

This report analyzes data from Demographic and Health Surveys and AIDS Indicator Surveys fielded since 2006 in 15 sub-Saharan African countries where voluntary serological testing was conducted: Cameroon, Congo (Brazzaville), Ethiopia, Gabon, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. In the countries studied, we find that between 23 percent and 71 percent of PLHIV are estimated to know their status; on average across countries, after adjusting for ART coverage, 51 percent of PLHIV are estimated to know their status. The results reflect encouraging progress, but the achievement is far short of the 90 percent goal set by UNAIDS for 2020. Several gaps in HIV testing coverage still exist, particularly among adolescents, rural residents, and the poorest. While the need continues to target demographic groups at greatest risk of HIV, additional interventions focused on reaching the most socially vulnerable populations are essential.

Abbreviations

AIS	AIDS Indicator Surveys
ANC	antenatal care
ART	antiretroviral therapy
CDC	U.S. Centers for Disease Control and Prevention
DHS	Demographic and Health Surveys
ELISA	enzyme-linked immunoassay
HCT	HIV counseling and testing
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission
STI	sexually transmitted infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	U.S. Agency for International Development
WHO	World Health Organization

1. Background and Objectives

In 2015, UNAIDS estimated 1.9 million new HIV infections annually among individuals age 15 and older. Of the estimated 36.7 million [34.0 million-39.8 million][1] people living with HIV (PLHIV) worldwide, 25.5 million [23.0 million-28.3 million] are living in sub-Saharan Africa, which globally is the region hardest hit by the epidemic (UNAIDS 2016b).

The spread of affordable and readily available HIV tests and antiretroviral therapy (ART) in sub-Saharan Africa has had a major impact on HIV prevention efforts. Individuals who know their status are less likely to engage in HIV-related risk behaviors (Fonner et al. 2012), and early ART for a person living with HIV can lead to a suppressed viral load, thereby reducing the risk of HIV transmission (UNAIDS 2014a). The number of AIDS-related deaths globally has fallen by 26 percent since 2010, from an estimated 1.5 million in 2010 to 1.1 million in 2015, an outcome directly related to the rapid increase in the number of people on ART (UNAIDS 2016d).

Given the importance of testing and treatment to HIV prevention efforts, in 2014, UNAIDS proposed a series of ambitious targets known as 90-90-90: by 2020, 90 percent of all PLHIV will know their status, 90 percent of people diagnosed with HIV will receive ART, and 90 percent of people receiving ART will have viral suppression. UNAIDS predicts that achievement of these targets by 2020 will enable the world to end the AIDS epidemic by 2030, creating profound health and economic benefits (UNAIDS 2014a). This report focuses on the "first 90": HIV testing uptake and estimated knowledge of status among PLHIV in sub-Saharan Africa, and the factors associated with uptake among this population, by country.

1.1. Background

The evolution of HIV treatment guidelines

Before antiretroviral therapy (ART) was readily available, treatment guidelines drafted by the World Health Organization (WHO) used a conservative definition of treatment eligibility, including a required minimum CD4 cell-count threshold. As the availability of ART was scaled-up in the early 2000s and the effectiveness and multiple benefits of ART became better understood, the public health case for early initiation of ART strengthened considerably and the number and size of treatment programs increased (WHO 2015a). HIV treatment can prevent HIV-related illness, avert AIDS-related deaths, and prevent further transmission through viral suppression (UNAIDS 2014a). This transmission prevention potential influenced revisions to the WHO treatment guidelines and resulted in the recommendation of ART initiation for all people with diagnosed HIV infection, without the requirement of a prior CD4 test, also known as universal eligibility. Specific changes in the 2015 guidelines include recommended initiation of ART, regardless of CD4 cell count, and further recommendations on the use of oral pre-exposure prophylaxis among all populations at considerable risk of acquiring HIV (WHO 2015b).

Universal eligibility for ART means that more people will start ART earlier than in previous years. As this expansion occurs, programs must continue to respond to the needs of all patients. The revised 2015 WHO recommendations to improve the quality and efficiency of services to PLHIV covers three areas: (1) the differentiated care framework to address the diverse needs of PLHIV; (2) alternative strategies for community delivery of ART to accommodate the growing number of people on ART; and (3) principles for improving the quality of care and providing people-centered care.

[1] Confidence intervals are given in brackets following estimates.

Prior research on factors influencing HIV testing in sub-Saharan Africa

HIV testing uptake is not uniform across countries or communities in sub-Saharan Africa. Various sociodemographic and sexual risk factors have been associated with uptake of HIV testing. Studies conducted in the region have identified several variables that may influence an individual's decision to seek or participate in HIV testing; these factors often include sex, residence, and education level. A 2013 analysis of HIV testing uptake in sub-Saharan Africa found that in 23 of 29 countries, fewer men than women had ever been tested for HIV (Staveteig et al. 2013). The study found that a likely contributor to this discrepancy is the critical gateway to HIV testing and counseling that antenatal care (ANC) visits and other maternal health services provide for pregnant women, often through integrated opt-out provider-initiated testing and counseling.

Higher percentages of urban residents, compared with rural residents, in sub-Saharan Africa report ever having been tested for HIV. Factors such as accessibility of HIV testing services may play a role in these urban-rural disparities. The main reason for never having used facility-based testing and counseling services, as reported by participants in a Malawi study, was the distance to the testing center (Helleringer et al. 2009). Routine testing in hospitals and other health care facilities has significantly increased uptake and case finding among attendees of these facilities, but cost and convenience issues often limit the use of health care facilities among the lower socioeconomic strata in sub-Saharan countries. Residents of these lower income households were significantly less likely to have ever used facility-based HIV testing services, compared to the rest of the population in Malawi (Helleringer et al. 2009).

Education and knowledge also affect the likelihood of testing. Men and women who have attained secondary school or higher education are more likely to have ever been tested for HIV, compared with women with no education or women who have attended primary school only (Staveteig et al. 2013). Knowledge of HIV is related to the likelihood of having ever been tested; however, reverse causality is a distinct possibility. For example, inaccurate knowledge about HIV and ART was associated with non-use of HIV testing services in Tanzania. Participants in that study with a lower level of HIV knowledge were less likely to participate in the uptake of HIV testing; comparable outcomes were found among participants with poor ART knowledge. Uptake of HIV testing services was highest among participants with past HIV testing experience, compared to participants who never previously used testing services (South et al. 2013).

Participation in high-risk sexual behavior and personal health concerns can also be motivating factors for testing, with concerns about ill health being more prominent among individuals that presented with a late seropositive diagnosis (Wanyenze et al. 2011). A study in Malawi found that participants with multiple sex partners over the last three years and participants who presented with recent symptoms of sexually transmitted infections (STIs) were more likely to participate in home-based testing and counseling (Helleringer et al. 2009). Similarly, a study in Zimbabwe found that the proportion of women tested for HIV was higher among women who reported more sexual partners. For men, higher odds of testing were noted only among men who had two lifetime sexual partners, compared with one lifetime sexual partner. Men in Zimbabwe who reported having an STI in the past 12 months were more likely to have been tested (Takarinda et al. 2016). A cross-national study found higher levels of testing among HIV-positive adults (Staveteig et al. 2013).

HIV testing and treatment initiatives in sub-Saharan Africa

To increase HIV testing and treatment, several countries, including the 15 that this report focuses on,[2] have implemented initiatives with varying degrees of success. An estimated 60 percent [56%-65%] of PLHIV globally know their HIV status, and only 46 percent [43%-50%] of PLHIV are receiving ART, which makes

[2] Cameroon, Congo (Brazzaville), Ethiopia, Gabon, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

scaling-up access to testing and treatment services a major priority (UNAIDS 2016d). Finding effective, efficient ways to achieve scale-up has been an on-going challenge.

One approach has been through the integration of prevention of mother-to-child transmission (PMTCT) programs with maternal and child health services. Rwanda, for example, began adopting a more family-centered approach in 2003. The approach included strategies designed to reach partners and other family members of pregnant women with HIV testing services. Methods that proved especially successful included strongly emphasizing counseling to encourage HIV testing, increasing the number of personnel at clinics when ANC services are being provided, adopting measures to streamline patient flows, cutting wait times, and assuring confidentiality. Uptake of HIV testing and PMTCT services among pregnant women rose to above 90 percent at the 18 clinics that implemented the new approaches, and, by 2009, more than 80 percent of male partners were also taking HIV tests, compared with 16 percent in 2003 (WHO 2015a). The incorporation of male partners of pregnant women attending ANC visits for HIV testing has also been highly encouraged in Swaziland, with official recommendations incorporated into the 2006 national HIV testing and counseling guidelines.

Another successful and innovative PMTCT initiative, the Mother-Baby Pack, originated in Lesotho. Local health-care workers often found that pregnant women living with HIV were unable to make repeated trips to health facilities during and after pregnancy, mainly for reasons related to location and cost. To overcome this challenge, they would put medicines in plain brown envelopes for the women to take home and use throughout the duration of their pregnancy. In 2007, the Government of Lesotho included the minimum packs, as they were called at the time, in their national PMTCT strategy (Lesotho Ministry of Health 2012). The Mother-Baby Pack co-packages medications for use starting from 14 weeks of pregnancy until six weeks after the birth of the infant. To reduce potential stigma or involuntary disclosure, all women receiving ANC are provided one of three different types of packages: (1) for pregnant women who are HIV-negative, (2) for pregnant women who are HIV-positive and on prophylaxis, and (3) for pregnant women who are HIV-positive and on ART. A twelve-month implementation of the initiative was also planned and launched in Cameroon and Zambia in 2010, but due to concerns regarding quality service delivery and a growing need to assess community readiness, distribution of the packs ended early (UNICEF 2011).

Mass testing campaigns have helped increase uptake among people who do not typically use healthcare services; this strategy has been particularly common in East African countries. Often, these campaigns use community-based testing, which is effective in reaching large numbers of first-time testers and diagnosing PLHIV at earlier stages of the disease. Ethiopia has implemented The Millennium AIDS Campaign as an innovative scale-up strategy, and the country has experienced a major increase in testing. In the pre-ART era, fewer than half a million people were tested per year in the country; however, when the campaign began in 2006, that number increased to three million (Seyoum et al. 2009). Community health campaigns in Uganda aim to achieve universal testing across a community by removing significant barriers and offering rapid HIV testing. These campaigns offer HIV testing within broader service delivery, such as hypertension screening for adults and deworming of young children, and thereby normalizing HIV testing as a part of routine health care. Testing locations are also decentralized to minimize travel costs and waiting time, and community members are encouraged to attend, regardless of their perceived risk. Community health campaigns have been successful in identifying people who previously reported no prior testing (Chamie et al. 2014). Similar initiatives have been rolled out in Kenya, Namibia, Rwanda, and Zimbabwe (Embassy of the United States, Windhoek Namibia 2008; National AIDS and STI Control Programme (NASCOP) 2008; Rwanda Ministry of Health 2014; Takarinda et al. 2016).

Additional community-based interventions targeting hard-to-reach populations that have proved effective include mobile testing sites and home-based testing and counseling. While Kenya has experienced an increase in availability of stand-alone HIV counseling and testing (HCT) centers, the services remained

concentrated in urban areas, and, in 2007, only 36 percent of adults age 15-49 reported having been tested for HIV and received their results.

To extend testing coverage to population groups with limited access to existing services, new delivery models have been developed. These new models put an emphasis on delivering services to rural and hard-to-reach populations. This is accomplished through various mobile approaches using trucks, vans, tents, and existing community facilities, such as empty school rooms and churches. A 2010 study found that use of mobile HCT approaches resulted in greater uptake of HCT services in Kenya, with more than three times as many clients accessing HCT through mobile approaches than at stand-alone sites. The addition of community-site mobile HCT services was also found to be more cost effective than stand-alone sites (Grabbe et al. 2010). Kenya has also implemented home-based testing and counseling, along with Malawi, Mozambique, Tanzania, and Uganda. Members of households in the lowest income quartile in Malawi are significantly less likely to have ever used facility-based HCT services than the rest of the population. Providing home-based testing and counseling has the potential to drastically reduce existing socioeconomic gradients in HCT uptake and to help alleviate the impact of AIDS on the most vulnerable households (Helleringer et al. 2009).

The incorporation of ambitious national targets has acted as a motivational strategy in countries such as Rwanda and Kenya; however, as these countries strive to achieve massive increases in HIV-related services in a relatively short time period, they also recognize that improvements in quality of care and health systems are equally important. Ethiopia, Mozambique, and Namibia have also made this a priority, and these countries have begun incorporating this aspect into their health-sector initiatives. One of Namibia's four primary health objectives, as described in the country's 2010 National Strategic Framework for HIV and AIDS, is health system strengthening to guarantee that the health system is capable of providing equitable, affordable, and high quality services, particularly to disadvantaged and marginalized populations in the country (WHO 2011). In Mozambique, a severe shortage of trained human resources and healthcare infrastructure inhibited early progress. In 2003, the government attempted to address these needs through the development of the National Health Sector Strategic Plan to Combat Sexually Transmitted Infections and HIV/AIDS for 2004–2008. The document addressed the existing problems by including plans to train 2,000 intermediate-level healthcare professionals and, with the anticipation of a massive increase in ART coverage, developed a new national drug management and logistics system (WHO 2005).

Overall, countries have been working with international partners to rapidly scale-up testing and treatment, but these services are part of a broader imperative to invest in strengthening and expanding health systems and infrastructure.

1.2. Study Objectives

HIV testing is an entry point for efforts to reduce morbidity and mortality among PLHIV and prevent the transmission of HIV. In light of the recent 90-90-90 targets, the present study seeks to answer four main questions for 15 sub-Saharan Africa countries studied. First, how does testing uptake vary by serological status, sex, and country? Second, what proportion of the PLHIV population is estimated to know their status? How does knowledge vary by HIV prevalence and date of the survey? Third, what is the role of maternal care in HIV testing uptake among HIV-positive women? Fourth, what background and behavioral characteristics are associated with ever being tested for HIV among PLHIV?

2. Methods and Data

2.1. HIV Serological Status and Prior Testing

Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) are nationally representative, cross-sectional surveys conducted in countries worldwide. They are primarily funded by the U.S. Agency for International Development (USAID) and implemented with technical assistance from The DHS Program at ICF International. Surveys gather both individual and household interviews, as well as a number of biomarkers about health and wellbeing.

In standard DHS and AIS surveys, respondents who say they have heard of HIV are asked, *"I don't want to know the results, but have you ever been tested for HIV?"* In earlier surveys, the term *AIDS virus* was used in place of HIV. If the respondent answers yes, they are asked a few subsequent questions—timing, place of test, and, in some cases, whether testing was voluntary or required—and then asked *"I don't want to know the results, but did you get the results of the test?"* (ICF International 2011, 2016).

In three surveys—Malawi 2010, Uganda 2011, and Namibia 2013—respondents who said they had ever been tested for HIV were subsequently asked about the results. In Namibia, the question was phrased as "*Have you ever been tested to see if you have HIV?*" In Malawi and Uganda, the term *AIDS virus* was used in place of HIV. If respondents answered yes, after intermediary questions on timing and location of the test, they were asked "*Did you get the results of the test?"*[3]

Additionally, in the DHS and AIS surveys, respondents to the Woman's Questionnaire who have given birth in the two years before the survey are also asked separate but similar questions about HIV testing in the context of ANC and delivery services. If they were tested at any of these points in time they are skipped out of the question on ever testing, and instead proceed to questions about timing and receipt of results.

The results of questions about ever testing and about testing during ANC and delivery described above are used to produce the two main indicators in this report: *ever tested* and *tested in the last 12 months*. As is standard for these indicators, the respondent must have received the results of the last test to be considered as having been tested. Respondents are asked additional questions about counseling before and after the test, but because these questions may be country-specific and subject to recall bias, we exclude questions about counseling and focus only on whether tested and received the results of the last test.

Later on in the survey, after questions about past testing, in some DHS and in all AIS surveys, respondents are asked for consent to be anonymously tested for HIV. HIV testing undertaken during the survey process is separate from, and subsequent to, the self-reports of prior HIV testing in the questionnaire. It is possible, therefore, for respondents to be both HIV-positive and never tested for HIV; in other words, to have no knowledge of their HIV status at the time of the survey.

HIV testing protocol in DHS and AIS surveys undergoes an ethical review by the host country, by ICF International, and—for surveys receiving PEPFAR funding—by the U.S. Centers for Disease Control and Prevention (CDC). After a participant consents to be tested, interviewers or a medical staff member accompanying the interviewers collects blood drops from a finger prick on filter paper. The collection, storage, and testing of these dried blood spot samples follow strict procedures to ensure quality and

[3] Responses to questions about the prior test result among PLHIV in Uganda and Malawi have been analyzed elsewhere (Fishel, Barrère, and Kishor 2014).

reliability of the testing.[4] Each filter paper has a unique bar code that can be linked to the questionnaire to allow for analysis of HIV status by respondents' background characteristics, but the bar code does not allow the results of the HIV test to be identified with the name or location of a specific individual.

It sometimes happens that the Western blot results for a few samples are indeterminate; in such cases, the additional lab HIV testing algorithm used cannot definitively classify a sample as positive or negative. This happens in generally five or fewer cases per country. We exclude these respondents from the numerator and denominator of our sample, on the grounds that the objectives of this analysis require individuals to have a positive or negative classification. The number of indeterminates is too small to produce reliable estimates about this group, and, in fact, it is too low for their exclusion to influence the overall results. The difference is negligible, but occasionally our estimates of HIV prevalence differ by one-tenth of one percent from those presented online and in main DHS reports, which, as a general rule, group indeterminate results together with negatives.

2.2. Weighting and Significance Testing

DHS and AIS surveys typically use a two-stage cluster sampling design to reach households and, ultimately, individuals, as described in the DHS Sampling and Household Listing Manual (ICF International 2012). Individual male and female HIV weights were applied to the data to adjust for nonresponse and to restore representativeness of the sample. Significance tests and confidence intervals presented in this report use complex survey commands in Stata, which adjust for sampling weights, stratification, and intra-cluster correlation. This report is primarily descriptive and does not conduct multivariate statistical tests, but 95 percent confidence intervals around most estimates are shown. When these confidence interval ranges (or, on charts, confidence bars) do not overlap, the difference is statistically significant at the $p<.05$ level; occasionally, bars can overlap, but the estimates are still statistically significantly different from each other. For that reason, statements of statistical significance in the text about figures for which only a confidence interval is shown were checked using logistic regressions with complex survey weights.

Chapter 5 and the first three appendix tables show the composition of the HIV-positive and HIV-negative adult population by key characteristics. If sampling design aspects of the survey design could be ignored, tests of the null hypothesis that the HIV-positive and HIV-negative populations have the same composition on a categorical covariate could be done with a chi-square statistic. Since chi-square does not allow for complex survey adjustments, the tests of the null hypothesis that there is no association between the covariate and HIV status in this report are based instead on multinomial logit regressions, with the covariate as the outcome and HIV status as the independent variable. Our inferences are based on the *p*-values of the F statistics produced from these regressions.

2.3. Country Selection

This report covers countries in sub-Saharan Africa with a DHS or AIS survey conducted in 2006 or after that included HIV serological testing. We include only the most recent survey from a country if that survey included at least 100 men and 100 women who were classified as HIV-positive, according to the survey

[4] The blood spots are dried overnight, packaged, and transported to a laboratory for testing. Although the standard DHS HIV testing protocol has recently changed, for the surveys included in this analysis, the following protocol was followed. In the laboratory, the samples were tested using an initial ELISA test, and then all positive samples and 5 to 10 percent of negative samples were retested with a second ELISA. For those tests with discordant results on the two ELISA tests, another test, usually a Western blot, was used to determine the result. As external quality control, all positive samples and a random sample of about 3 to 5 percent of the negative samples were sent to another lab not associated with the survey, and the testing protocol was repeated. The results from the independent lab were checked against the results of the main laboratory.

blood test, regardless of the overall HIV prevalence measured in the survey. Fifteen countries had surveys that qualified for inclusion.

Table 2.1 shows the response rate, HIV prevalence, and sample size of HIV-positive adults for the surveys included in this report. Consent for HIV testing in the DHS or AIS survey ranged from 85.1 percent in Zimbabwe to 99.6 percent in Rwanda. We also show the weighted number of HIV-positive and HIV-negative adults in each survey.

Table 2.1. Response rate and HIV prevalence

Adults age 15-49						
Survey	**Number interviewed and eligible for serological testing[a]**	**Consented to testing[a] (%)**	**Tested, valid results[b]**	**HIV prevalence[b] (%)**	**Number[b] HIV-positive**	**Number[b] HIV-negative**
Cameroon 2011	13,914	97.0	13,500	4.3	584	12,917
Congo (Brazzaville) 2009	12,413	97.6	12,109	3.2	382	11,726
Ethiopia 2011	29,383	93.5	27,254	1.5	400	26,854
Gabon 2012	10,640	97.7	10,444	4.1	426	10,018
Kenya 2008-09	7,501	90.3	6,707	6.3	421	6,286
Lesotho 2014	6,044	97.0	5,819	24.7	1,435	4,384
Malawi 2010	14,716	93.2	13,586	10.6	1,442	12,144
Mozambique 2009	9,806	92.1	9,061	11.5	1,039	8,022
Namibia 2013	8,613	88.8	7,731	14.0	1,085	6,646
Rwanda 2014-15	12,362	99.6	12,302	3.0	365	11,937
Swaziland 2006-07	9,143	89.5	8,187	25.9	2,119	6,068
Tanzania 2011-12	19,319	92.4	17,745	5.1	908	16,837
Uganda 2011	19,866	98.5	19,556	7.3	1,436	18,120
Zambia 2013-14	29,941	93.4	27,859	13.3	3,704	24,155
Zimbabwe 2010-11	16,275	85.1	13,563	15.2	2,064	11,499
Women age 15-49						
Survey	**Number interviewed and eligible for serological testing[a]**	**Consented to testing[a] (%)**	**Tested, valid results[b]**	**HIV prevalence[b] (%)**	**Number[b] HIV-positive**	**Number[b] HIV-negative**
Cameroon 2011	7,462	97.2	7,219	5.6	402	6,817
Congo (Brazzaville) 2009	6,550	97.0	6,437	4.1	266	6,172
Ethiopia 2011	16,515	94.2	14,685	1.9	273	14,412
Gabon 2012	5,645	97.8	5,459	5.8	317	5,142
Kenya 2008-09	4,245	90.4	3,641	8.0	291	3,350
Lesotho 2014	3,418	97.9	3,173	29.7	942	2,230
Malawi 2010	7,911	94.4	7,090	12.9	913	6,177
Mozambique 2009	5,647	92.3	5,229	13.1	687	4,543
Namibia 2013	4,663	90.5	4,051	16.9	683	3,367
Rwanda 2014-15	6,777	99.6	6,752	3.6	244	6,507
Swaziland 2006-07	4,987	91.9	4,424	31.1	1,378	3,046
Tanzania 2011-12	10,967	94.4	9,756	6.2	601	9,156
Uganda 2011	11,148	98.7	10,883	8.3	907	9,976
Zambia 2013-14	16,411	94.3	14,719	15.1	2,216	12,503
Zimbabwe 2010-11	9,171	87.1	7,313	17.7	1,295	6,018

(Continues)

Table 2.1—*Continued*

Men age 15-49						
Survey	**Number interviewed and eligible for serological testing[a]**	**Consented to testing[a] (%)**	**Tested, valid results[b]**	**HIV prevalence[b] (%)**	**Number[b] HIV-positive**	**Number[b] HIV-negative**
Cameroon 2011	6,452	96.8	6,281	2.9	181	6,100
Congo (Brazzaville) 2009	5,863	98.3	5,671	2.1	117	5,555
Ethiopia 2011	12,868	92.7	12,569	1.0	127	12,442
Gabon 2012	4,995	97.5	4,985	2.2	109	4,876
Kenya 2008-09	3,256	90.0	3,066	4.3	130	2,936
Lesotho 2014	2,626	95.8	2,646	18.6	493	2,154
Malawi 2010	6,805	91.8	6,496	8.1	529	5,967
Mozambique 2009	4,159	91.7	3,832	9.2	352	3,479
Namibia 2013	3,950	86.8	3,680	10.9	401	3,279
Rwanda 2014-15	5,585	99.6	5,551	2.2	121	5,430
Swaziland 2006-07	4,156	86.7	3,763	19.7	741	3,022
Tanzania 2011-12	8,352	89.8	7,989	3.8	308	7,681
Uganda 2011	8,718	98.2	8,673	6.1	529	8,144
Zambia 2013-14	13,530	92.3	13,140	11.3	1,487	11,652
Zimbabwe 2010-11	7,104	82.5	6,250	12.3	769	5,481

[a] Number interviewed and eligible and percentage consenting are unweighted.
[b] Weighted with HIV sample weights.

2.4. Estimated Knowledge of HIV Status; Adjustments Using Antiretroviral Therapy Coverage

Estimating self-knowledge of HIV status is difficult, particularly among PLHIV. When HIV-positive individuals are asked directly about the results of their most recent test, the data suggest substantial underreporting (Fishel, Barrère, and Kishor 2014). For this reason, an indirect measure of self-knowledge can be an appropriate proxy.

The proxy for knowledge of HIV status among PLHIV in this analysis is based on self-reported information on prior HIV testing. Individuals who report never having been tested or having not received results of the most recent test are assumed not to know their HIV status. At the same time, individuals who were tested and received the result in the past 12 months are highly likely to know their current status. The percentage of PLHIV who are estimated to know their status, therefore, can be considered to range from a lower bound equal to the percentage of respondents who have been tested and received their test result in the past 12 months to an upper bound equal to the percentage of respondents who have ever been tested and received their test result. For these reasons, we compute "*people living with HIV who are estimated to know their status*" as the midpoint of this range between the percentage of adults ever tested and the percentage tested in the past 12 months. It is equivalent to the UNAIDS indicator *"people living with HIV who know their status"* used for survey data until 2015 (UNAIDS 2014b, 2015). We prefer the addition of the word "estimated" as actual knowledge of HIV status among respondents is unobserved.

To add precision, the estimate can be adjusted for ART coverage among PLHIV. Specifically, ART coverage can be an alternate lower bound to testing in the past 12 months because everyone on ART can be assumed to know they are HIV-positive. If the percentage of adults on ART is higher than the percentage tested in the past 12 months, ART coverage is substituted as the low bound and the midpoint estimate is recalculated to produce "*people living with HIV who are estimated to know their status (adjusted)*." Our *adjusted* indicator is equivalent to the *revised* definition of *"people living with HIV who know their status"* first used by UNAIDS in 2015 and officially introduced in 2016 (UNAIDS 2015, 2016c).

None of the 15 surveys in this analysis included a biomarker for ART use. Instead, the data source on ART coverage for countries surveyed in 2010 and after is the UNAIDS AIDSinfo website, with the indicator *"coverage of people receiving ART"* from the year of the survey fieldwork (UNAIDS 2016a). If survey fieldwork spanned two years, the estimate for ART coverage in the earlier year was used. Unpublished UNAIDS estimates of ART coverage from previous years were obtained through personal correspondence.[5] Note that estimates of ART coverage are for the entire adult population ages 15 and older, while survey analysis of PLHIV pertains only to adults age 15-49.

2.5. Covariates Examined

The 10 covariates examined in this report reflect background characteristics that are associated with risk of HIV infection and with access to services, as well as behavioral characteristics and symptoms that elevate the risk of HIV infection and which may prompt individuals to seek out testing. The covariates are sex, place of residence, age group, marital status, educational attainment, wealth quintile, lifetime number of sex partners, self-reported STI symptoms in the past year, whether gave birth in the past two years (women), and whether paid anyone in exchange for sexual intercourse in the past year (men).

Most covariates are self-explanatory, but a few deserve additional explanation. The term "*married*" includes both individuals who are married and those who are living with a partner as if married. "*Wealth quintile"* is based on principal components analysis of assets, amenities, and services at the household level and divided into quintiles of the household population. It is relative within surveys but not across countries; wealthier households may still be categorized as *poor* on an absolute basis. "*Self-reported STI symptoms"* applies to respondents who say they had a sexually transmitted infection or symptoms of an STI (a bad-smelling, abnormal discharge from the vagina or penis or a genital sore or ulcer) in the 12 months preceding the survey.

2.6. Limitations

While DHS and AIS survey data are high quality, this analysis has a few caveats. First, as discussed earlier, some non-standardization exists between survey rounds. The question on having been tested for HIV differs slightly; in early surveys, women and men were asked if they had ever been tested for the "AIDS virus," and in later surveys they are asked if they have ever been tested for "HIV." In three surveys—Malawi, Namibia, and Uganda—the question about HIV testing is not preceded with the phrase "*I don't want to know the results*"; PLHIV who did not want to reveal their status may have been more inclined to state that they had never been tested. Questions on testing during ANC differ slightly across surveys.

Second, this is a descriptive report of trends; multivariate tests of significance were not conducted. Patterns found in one dimension of HIV testing uptake, such as age, are almost inexorably linked to other factors, such as marital status and number of lifetime sexual partners. Third, national HIV testing and treatment programs have changed rapidly since the earliest survey in this study was conducted in 2006. Estimates from earlier surveys, Swaziland in particular, may not be representative of the situation today. Fourth, supplemental data on ART coverage from UNAIDS is useful for estimating the population of PLHIV who know their status, but it is drawn from other data sources that may not align perfectly with a nationally representative household survey. In particular, our estimates of ever and recently tested are limited to adults age 15-49, while ART coverage is measured among people ages 15 and older; coverage may be different among adults over age 50.

Fifth, while population surveys have become important sources of HIV prevalence estimates, it is important to note that these estimates may include biases resulting from absence or refusal to participate or testing

[5] Dr. Mary Mahy, e-mail message to first author, April 16, 2016.

error resulting in false positivity. In general, the higher the non-response, the greater the likelihood that the survey data may be inaccurate. Separating non-response resulting from absence and refusal is important in analyzing the effects of non-response on biomarker estimates. The 2015 UNAIDS/WHO guidelines on monitoring HIV impact using population-based surveys states that a non-response rate greater than 25 percent is considered high, and the collected characteristics that may be related to non-response should be further assessed, with all related calculations included in the final survey report (UNAIDS 2015). As Table 2.1 shows, the consent rate for HIV testing ranged from 85.1 percent in Zimbabwe to 99.6 percent in Rwanda; results should be interpreted with caution but are not close to the UNAIDS/WHO level said to be of concern (75 percent). An analysis of detailed lab results from 20 DHS and AIS surveys by Fishel and Garrett (2016) indicates that it is likely that testing error associated with false positivity on the ELISA tests in the HIV testing algorithm is present to some degree in many of the surveys analyzed. The magnitude of bias associated with testing error could not be measured by this analysis; however, in many surveys, this bias is likely to fall within the bounds of the confidence interval for the HIV prevalence estimate.

While refusal to be tested may be more common among those who have previously tested positive for HIV, the magnitude of refusal bias in HIV prevalence surveys appears to depend on the study protocol. It has been found that bias is greater when post-test counseling and the return of HIV test results is a prerequisite of study participation (Reniers et al. 2009), which it is not in DHS and AIS surveys. Overall, population-based surveys, such as DHS and AIS, have been found to provide reliable, nationally representative direct estimates of HIV seroprevalence in countries with generalized epidemics. HIV prevalence data from population-based surveys can be useful in understanding the size and spread of the epidemic and in adjusting estimates from sentinel surveillance (Mishra et al. 2008).

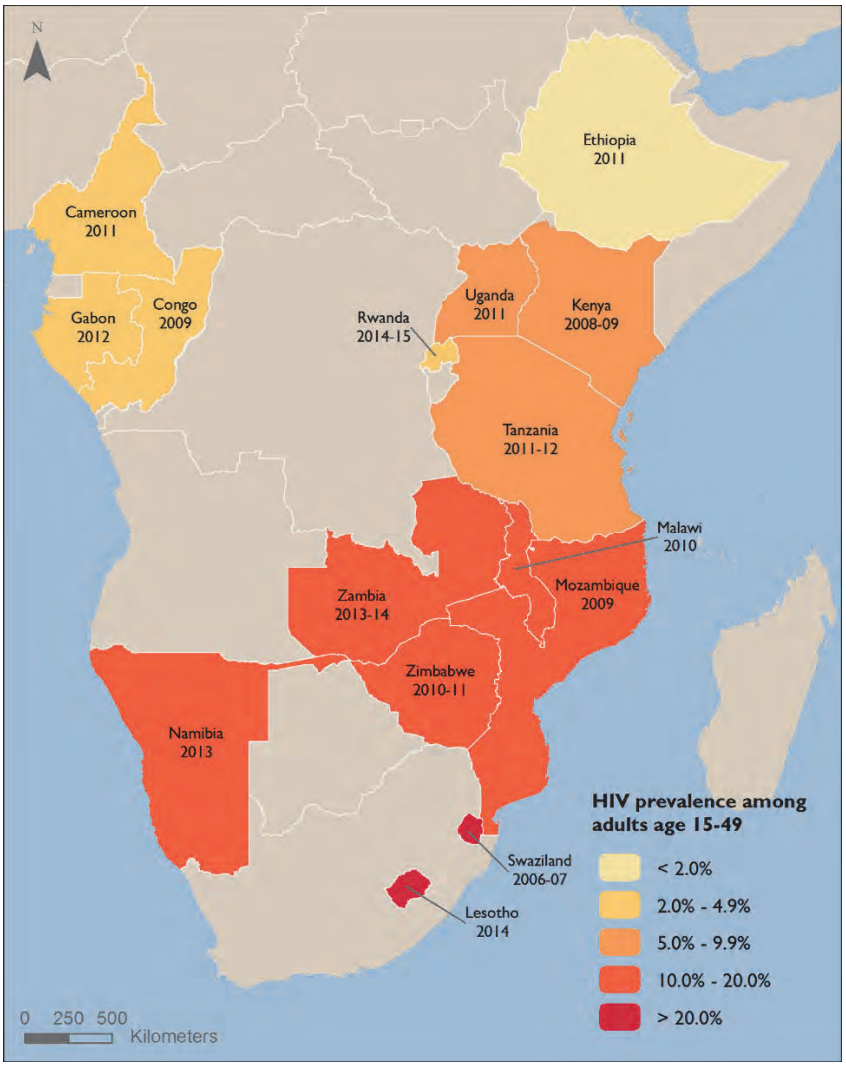
3. HIV Prevalence and Testing Uptake

This chapter examines the overall HIV prevalence in the 15 countries included in the report. It also examines recent HIV testing by HIV serological status, ART coverage, and, using UNAIDS guidelines, the percentage of PLHIV estimated to know their HIV status. We present the percentage of PLHIV who know where to get an HIV test among PLHIV who have never been tested for HIV.

3.1. HIV Prevalence in Focal Countries

Figure 3.1 shows the national HIV prevalence among adults age 15-49 in the 15 countries under study, at the time of their most recent survey. Table 2.1 lists the prevalence in percentages. Prevalence is highest in countries in Southern Africa, with more than 24 percent of adults infected with HIV in Swaziland and Lesotho and more than 10 percent infected in the five other countries under study in this region—Malawi, Mozambique, Namibia, Zambia, and Zimbabwe. Countries in East Africa have more moderate prevalence, ranging from 1.5 percent in Ethiopia to 7.3 percent in Uganda. The three countries in Central and Western Africa—Gabon, Cameroon, and Congo (Brazzaville)—all have a prevalence of 4.3 percent or less.

Figure 3.1. HIV prevalence in focal countries



3.2. Uptake of HIV Testing by Serological Status

Table 3.1 presents HIV testing in the past 12 months and ever tested by HIV serological status for adults, women, and men. Unadjusted logistic regressions (not shown here) indicate that, with two exceptions for men (Gabon 2012 and Congo (Brazzaville) 2009), having ever been tested for HIV is statistically significantly higher among HIV-positive individuals than among HIV-negative individuals in all surveys. The magnitude of the difference tends to range between 10 to 20 percentage points. Having been tested in the past 12 months is also higher among HIV-positive individuals, compared with those who are HIV-negative, but the magnitude of the difference is not as great and the relationship is not as consistently significant. Individuals who tested HIV-positive at an earlier date are unlikely to keep testing repeatedly.

In Cameroon, Kenya, Mozambique, and Swaziland—countries that differ widely in HIV prevalence—both ever and recent testing are significantly higher among PLHIV. In only one country do we see HIV-positive individuals significantly less likely to test have tested recently than individuals who are HIV-negative. In Lesotho, specifically, where HIV prevalence is 29.7 percent among women, HIV-positive women are less likely to have recently tested for HIV, compared with women who are HIV-negative. While this difference in recent testing could potentially be a cause for concern, it may also indicate individuals who have already been identified as HIV-positive more than a year before the survey and see no need to retest.

As discussed earlier, survey respondents typically are not asked what their test result was, and questions about testing are prefaced with the phrase, *"I don't want to know the result."* In three countries, however—Malawi, Namibia, and Uganda—individuals were asked about their test result, and questions about testing were not prefaced in this way. The difference in wording is subtle, but PLHIV who were aware of their status in the surveys in these three countries may have been less inclined to state that they had previously been tested.

In most countries, women are substantially more likely than men to have ever tested for HIV, regardless of serological status. Except for Ethiopia and Rwanda, where women and men are tested at nearly equal levels, the percentage of women who have ever tested for HIV is 5 to 21 percentage points higher than for men.

Gender patterns are not as evident for HIV testing in the past 12 months. In five countries—Gabon, Lesotho, Mozambique, Swaziland, and Zimbabwe—both HIV-positive and HIV-negative women are noticeably more likely than men to have recently tested for HIV than their male counterparts (8 percentage points or higher). Men appear to be more likely to have recently tested, compared with women in only one country, Rwanda, where 45 percent of HIV-positive men recently tested, compared with 37 percent of HIV-positive women.

Table 3.1. Uptake of HIV testing, by serological status and sex

Among women and men age 15-49, percentage tested in the past 12 months and percentage ever tested for HIV[a] by serological status

	Adults (%)				Women (%)				Men (%)			
	HIV-positive	95% CI	HIV-negative	95% CI	HIV-positive	95% CI	HIV-negative	95% CI	HIV-positive	95% CI	HIV-negative	95% CI
Percentage tested in the past 12 months												
Cameroon 2011	30.6	[26.5,34.7]	21.0	[19.8,22.1]	30.2	[25.4,35.0]	21.9	[20.4,23.4]	31.6	[24.2,39.0]	19.9	[18.5,21.4]
Congo (Brazzaville) 2009	12.9	[8.4,17.5]	7.6	[6.9,8.3]	14.1	[7.9,20.2]	8.3	[7.2,9.4]	10.3	[3.3,17.3]	6.8	[5.9,7.8]
Ethiopia 2011	29.3	[22.8,35.7]	20.4	[18.8,22.0]	29.4	[20.2,38.7]	20.0	[18.2,21.7]	28.9	[18.3,39.5]	20.9	[19.1,22.7]
Gabon 2012	31.9	[26.3,37.5]	27.1	[25.4,28.7]	34.8	[28.0,41.6]	31.5	[29.4,33.7]	23.5	[12.2,34.8]	22.3	[20.1,24.5]
Kenya 2008-09	37.3	[30.2,44.5]	25.5	[23.6,27.5]	38.2	[30.0,46.4]	28.6	[25.7,31.5]	35.4	[25.3,45.6]	22.0	[18.9,25.1]
Lesotho 2014	48.5	[45.4,51.6]	47.7	[45.7,49.7]	51.2	[47.3,55.0]	59.8	[57.2,62.3]	43.4	[37.3,49.5]	35.2	[32.4,38.0]
Malawi 2010[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	30.8	[24.0,37.6]	31.6	[29.6,33.5]
Mozambique 2009	19.0	[15.9,22.0]	12.7	[11.3,14.2]	21.8	[18.2,25.3]	16.2	[14.2,18.1]	13.6	[9.4,17.9]	8.2	[6.9,9.6]
Namibia 2013	47.6	[43.6,51.6]	43.4	[41.7,45.2]	47.9	[43.0,52.8]	49.4	[47.2,51.5]	47.2	[40.0,54.4]	37.3	[35.0,39.7]
Rwanda 2014-15	39.3	[33.9,44.8]	37.3	[36.3,38.3]	36.5	[29.9,43.2]	37.9	[36.6,39.1]	45.1	[35.6,54.5]	36.6	[35.1,38.0]
Swaziland 2006-07	23.2	[21.4,25.1]	13.0	[12.0,14.1]	26.8	[24.2,29.3]	19.5	[17.9,21.1]	16.7	[13.6,19.7]	6.5	[5.5,7.6]
Tanzania 2011-12	33.5	[29.2,37.7]	28.3	[27.0,29.7]	34.3	[29.2,39.4]	30.0	[28.4,31.7]	31.8	[25.7,37.9]	26.3	[24.8,27.9]
Uganda 2011[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	26.5	[22.3,30.8]	22.8	[21.4,24.3]
Zambia 2013-14	43.8	[41.5,46.1]	41.8	[40.8,42.9]	45.1	[42.3,47.9]	46.5	[45.1,48.0]	41.8	[38.6,45.0]	36.8	[35.5,38.1]
Zimbabwe 2010-11	32.4	[30.1,34.8]	27.6	[26.2,29.1]	35.3	[32.6,38.0]	34.5	[32.8,36.1]	27.6	[23.7,31.5]	20.1	[18.1,22.1]
Percentage ever tested												
Cameroon 2011	67.7	[63.3,72.1]	44.8	[43.3,46.3]	69.4	[64.6,74.3]	50.0	[48.2,51.9]	63.9	[55.8,72.0]	38.9	[37.1,40.7]
Congo (Brazzaville) 2009	30.9	[24.4,37.4]	20.0	[18.9,21.0]	35.2	[26.3,44.1]	22.2	[20.6,23.8]	21.1	[12.7,29.6]	17.5	[16.2,18.9]
Ethiopia 2011	71.8	[63.9,79.7]	36.4	[34.3,38.6]	72.5	[63.2,81.7]	35.3	[32.8,37.8]	70.3	[59.8,80.8]	37.8	[35.6,39.9]
Gabon 2012	72.1	[65.3,78.9]	57.5	[55.9,59.2]	76.5	[69.3,83.7]	67.1	[64.7,69.6]	59.4	[46.9,71.9]	47.4	[45.0,49.7]
Kenya 2008-09	68.9	[63.5,74.3]	48.7	[45.8,51.6]	73.5	[67.1,79.9]	56.5	[53.2,59.7]	58.6	[47.8,69.4]	39.9	[35.9,43.8]
Lesotho 2014	85.0	[82.8,87.3]	70.6	[68.9,72.3]	91.1	[89.2,93.0]	79.7	[77.6,81.8]	73.4	[68.3,78.4]	61.2	[58.4,64.0]
Malawi 2010	74.4	[71.6,77.3]	60.9	[59.5,62.3]	81.0	[77.8,84.1]	70.6	[69.0,72.2]	63.1	[57.5,68.7]	50.9	[48.9,52.8]
Mozambique 2009	38.7	[34.6,42.9]	24.5	[22.2,26.8]	43.2	[38.6,47.8]	31.3	[28.4,34.2]	30.1	[23.8,36.3]	15.6	[13.6,17.6]
Namibia 2013	88.5	[86.5,90.6]	67.9	[66.4,69.4]	92.8	[90.7,94.9]	77.3	[75.5,79.1]	81.2	[76.7,85.7]	58.3	[56.0,60.5]
Rwanda 2014-15	94.6	[92.2,96.9]	79.9	[79.1,80.7]	95.9	[93.5,98.3]	82.2	[81.2,83.2]	91.8	[86.7,96.8]	77.2	[75.9,78.4]
Swaziland 2006-07	38.7	[36.5,40.9]	22.6	[21.2,23.9]	44.0	[41.3,46.7]	31.9	[30.1,33.6]	28.8	[25.1,32.5]	13.2	[11.7,14.7]
Tanzania 2011-12	69.2	[65.4,73.0]	55.0	[53.5,56.5]	73.4	[69.3,77.6]	61.8	[60.1,63.6]	60.9	[53.7,68.1]	46.9	[45.1,48.7]
Uganda 2011	69.5	[66.4,72.5]	55.5	[54.0,57.0]	76.5	[73.3,79.8]	64.8	[63.1,66.6]	57.3	[52.3,62.4]	44.0	[42.3,45.8]
Zambia 2013-14	81.7	[80.0,83.4]	67.9	[67.0,68.9]	88.0	[86.3,89.7]	76.9	[75.8,78.0]	72.3	[69.3,75.3]	58.3	[57.0,59.7]
Zimbabwe 2010-11	63.7	[61.5,65.8]	45.6	[44.0,47.1]	71.0	[68.6,73.4]	55.9	[54.2,57.7]	51.4	[47.4,55.3]	34.2	[32.0,36.4]

[a] Here and throughout the report, "tested" means tested and received results of the last test.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

3.3. Estimated Knowledge of HIV Status and Where to Get Tested

Table 3.2 lists three components used to calculate estimated knowledge of HIV status among PLHIV: (1) tested for HIV in the past 12 months, (2) ART coverage, and (3) ever tested for HIV, along with the percentage of PLHIV who are estimated to know their HIV status, both adjusted for ART coverage and unadjusted. By design, the adjusted estimates are similar to the unadjusted estimates. The largest difference between estimated knowledge due to adjustment is in Ethiopia, where half of HIV-positive adults were estimated to be on ART at the time of the survey; this increases estimated knowledge of HIV status from 51 percent to 57 percent. In Malawi and Uganda, where an issue with the questionnaires prevented the surveys from accurately measuring testing in the past 12 months among all women, only the adjusted numbers that provide estimates of knowledge of one's own status are available.

Table 3.2. ART coverage and estimated knowledge of HIV status

	Percentage of HIV-positive adults age 15-49				
	Tested in past 12 months	On ART[a]	Ever tested	Estimated to know their HIV status[b]	Estimated to know their HIV status, adjusted[c]
Cameroon 2011	30.6	17.8	67.7	49.2	49.2
Congo (Brazzaville) 2009	12.9	16.0	30.9	21.9	23.4
Ethiopia 2011	29.3	41.1	71.8	50.6	56.4
Gabon 2012	31.9	33.1	72.1	52.0	52.6
Kenya 2008-09	37.3	21.2	68.9	53.1	53.1
Lesotho 2014	48.5	35.8	85.0	66.8	66.8
Malawi 2010	[d]	25.7	74.4	[d]	50.1
Mozambique 2009	19.0	12.8	38.7	28.9	28.9
Namibia 2013	47.6	48.1	88.5	68.1	68.3
Rwanda 2014-15	39.3	46.9	94.6	67.0	70.8
Swaziland 2006-07	23.2	10.6	38.7	31.0	31.0
Tanzania 2011-12	33.5	18.7	69.2	51.4	51.4
Uganda 2011	[d]	25.2	69.5	[d]	47.3
Zambia 2013-14	43.8	52.3	81.7	62.8	67.0
Zimbabwe 2010-11	32.4	26.7	63.7	48.1	48.1

[a] Data on antiretroviral therapy (ART) coverage is from independent UNAIDS estimates for adults ages 15 and over. See text for details.
[b] *Estimated to know their HIV status* is computed as the midpoint between the percentage tested during the past 12 months and the percentage ever tested.
[c] *Estimated to know their HIV status, adjusted* uses ART coverage as an alternate lower bound for knowledge of HIV status. If ART coverage is higher than the percentage tested in the past 12 months, then it is substituted as the lower bound for taking the midpoint with ever tested to estimate knowledge of HIV status.
[d] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

The percentage of PLHIV tested in the past 12 months ranges from 13 percent in Congo (Brazzaville) to 49 percent in Lesotho. The percentage of PLHIV ever tested ranges from 31 percent in Congo (Brazzaville) to 95 percent in Rwanda. In all, Congo (Brazzaville), Mozambique, and Swaziland report the lowest percentages of recent and ever tested among the countries under study. Less than a quarter of PLHIV in each country have recently tested, and less than 40 percent have ever been tested. Lesotho, Namibia, Rwanda, and Zambia report the highest levels of recent and ever tested, with ever tested each above 80 percent. In several countries, there is wide variation in the percentage recently and ever tested; in seven countries, the percentage of PLHIV who were recently tested is less than half of the percentage ever tested.

ART coverage estimated for the year of survey fieldwork ranges from 11 percent in Swaziland to 52 percent in Zambia. In eight countries, fewer than one-quarter of PLHIV were on ART at the approximate time the survey was conducted. Three of the four countries with the highest levels of recent and ever tested also report the highest percentage of adults on ART (Namibia, Rwanda, and Zambia: each 47 percent or greater). In Ethiopia, which fell mid-range for ever and recently tested, 41 percent of PLHIV were on ART.

The adjusted percentage of adults estimated to know their HIV status ranges from 23 percent in Congo (Brazzaville) to 71 percent in Rwanda (Table 3.2 and Map 3.2). In 9 of 15 countries, more than one-half of adults are estimated to know their HIV-positive status. Even so, none of the countries under study have achieved the 90 percent target set by UNAIDS for 2020; the closest to that goal are four countries where estimated (adjusted) knowledge is just above two-thirds: Rwanda, Namibia, Zambia, and Lesotho.

Figure 3.2. Estimated knowledge of HIV status (adjusted) among PLHIV

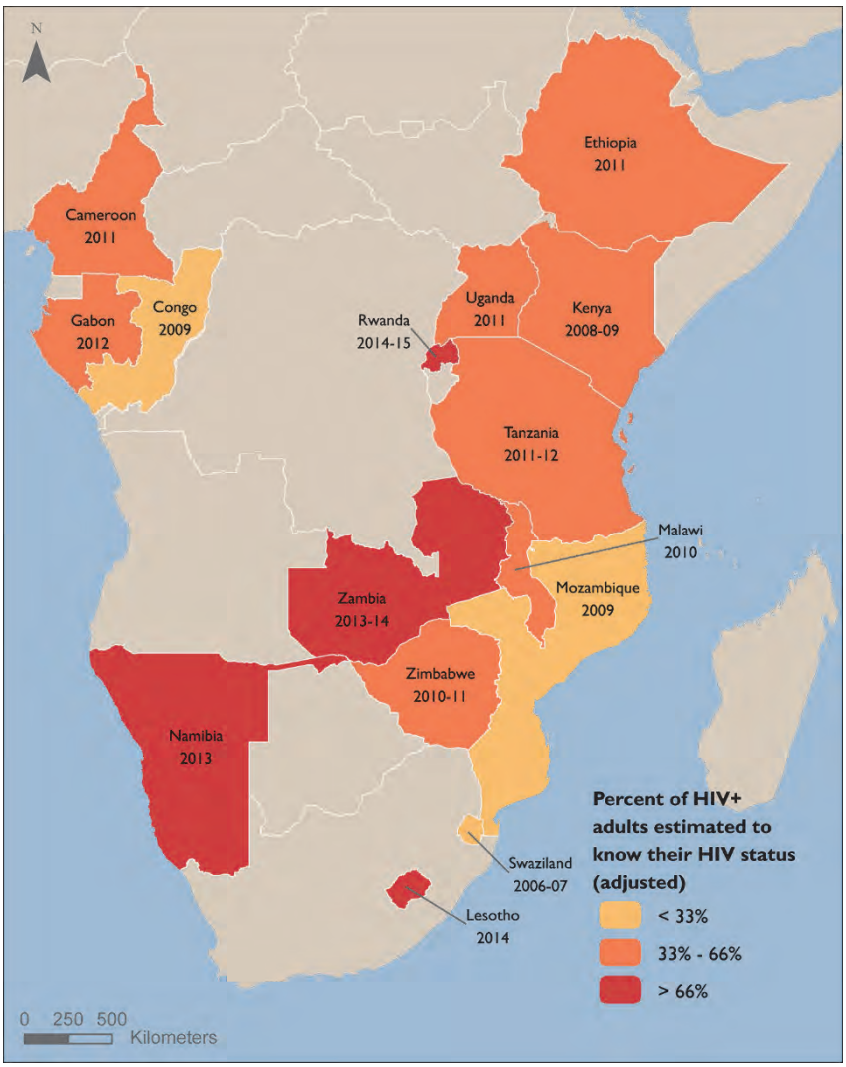
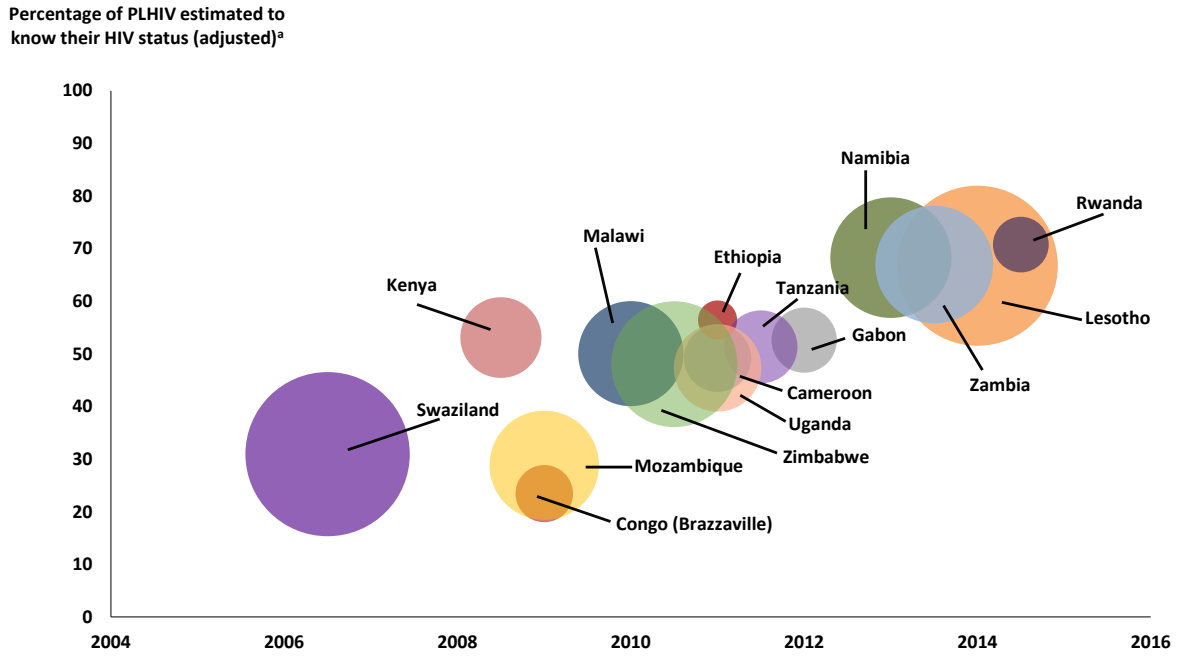


Figure 3.3 shows the percentage of PLHIV who are estimated to know their HIV status (adjusted), compared to the HIV prevalence by the year of survey. The pattern most evident in Figure 3.3 is the relationship between the year in which the survey was conducted and the percentage of PLHIV estimated to know their status (adjusted). The four countries where HIV-positive adults are estimated to have the highest knowledge of their status are also the four countries with surveys in 2013 and after; a similar cluster forms around countries surveyed in 2010-2012. This pattern is evidence of the rapidity of changes in HIV testing and treatment.

In contrast, no specific pattern is apparent in the adjusted percentage of adults estimated to know their HIV-positive status by prevalence, shown in Figure 3.3. Three of the four countries with highest knowledge also have relatively high prevalence (Namibia, Zambia, and Lesotho). In Malawi and Zimbabwe (HIV prevalence of 10.6 and 15.2 percent, respectively), estimated knowledge is reduced to about one-half. The estimate for Mozambique and Swaziland is most troubling; each of these countries has a relatively high prevalence (Swaziland, 25.9 percent; Mozambique, 11.5 percent), but less than a third of PLHIV are estimated to know their HIV-positive status. An important caveat is that these surveys are among the oldest included in the study. Among countries of lower prevalence, Rwanda stands out, with the highest estimate of status-awareness in contrast to a relatively low HIV prevalence (3.0 percent).

Figure 3.3. Percentage of PLHIV who are estimated to know their HIV status (adjusted) by year and HIV prevalence



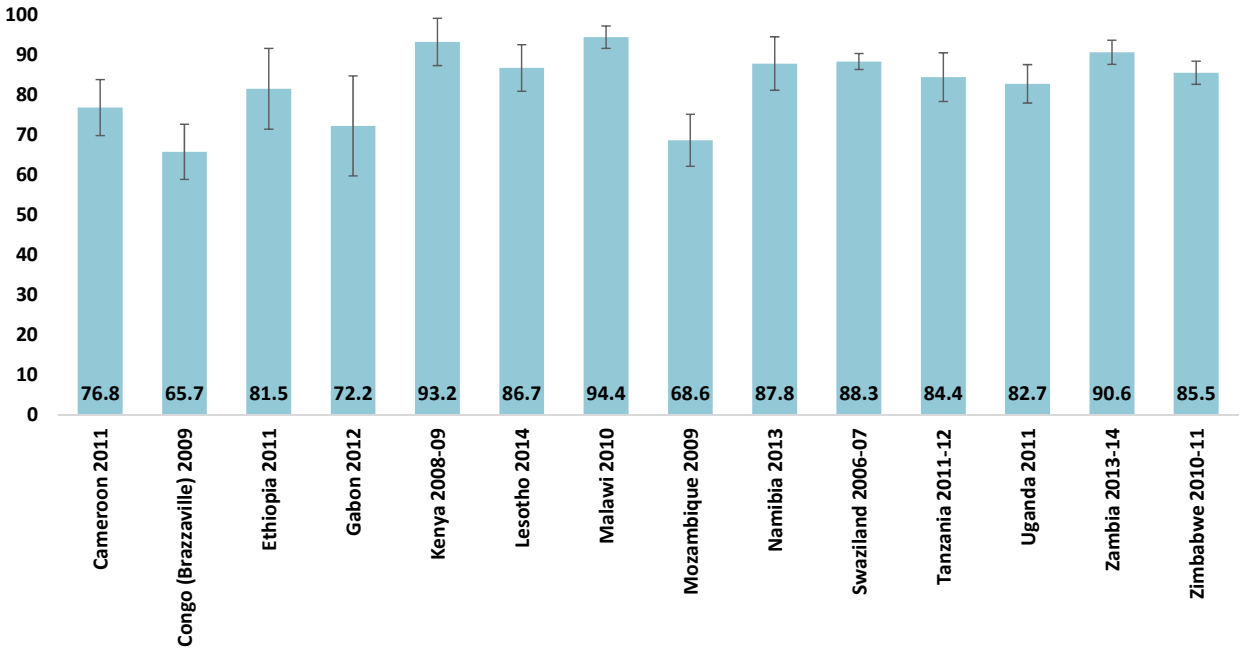
Bubble size = HIV prevalence among adults 15-49
[a] See Table 3.2 for information about this measure

Critical to awareness of one's HIV status is knowing where to get an HIV test. Figure 3.4 presents, among PLHIV who report no testing prior to the survey, the percentage who know a place where they can be tested (in this case, testing is considered to have occurred, even if respondents did not receive the result of their most recent test—never tested for HIV or tested and did not receive the result of the last HIV test. Rwanda lacked a large enough sample of PLHIV who had never been tested, and, therefore, it was removed from the figure. In the remaining 14 countries under study, between 66 and 94 percent of PLHIV who have never been tested reported they know a place where they can be tested for HIV. Countries with a higher HIV prevalence also reported high levels of knowledge on where to obtain HIV testing; except Mozambique,

where knowledge of where to get an HIV test is greater than 80 percent among the southern African countries. Congo (Brazzaville) and Mozambique are the only two countries where knowledge of where to get tested is less than 70 percent (66 and 69 percent, respectively). In three countries, more than 90 percent of PLHIV report knowing where to get a test: Zambia (91 percent), Kenya (93 percent), and Malawi (94 percent). While 100 percent knowledge of where to be tested remains a goal for all countries, the existence of a population of PLHIV who know a place where they can get tested, but have not been tested, suggests other barriers at play. In some cases, these adults may not perceive themselves to be at risk of having HIV, but a qualitative study in South Africa found that barriers to being tested include stigma around HIV testing and fear of knowledge of one's status (Strauss, Rhodes, and George 2015).

Figure 3.4. Knowledge of where to get tested

Among PLHIV age 15-49 who have never been tested for HIV, percentage who know where to get a test



Notes: Bars indicate 95 percent confidence intervals.
Rwanda had fewer than 25 unweighted cases of HIV-positive adults never tested and therefore was removed.

4. Testing Uptake During Pregnancy and Birth Among HIV-positive Women

4.1. Receipt of ANC and Uptake of HIV Testing During ANC

This chapter examines HIV testing among HIV-positive women during ANC, an important point at which women may access HIV testing, be counseled about HIV, and have the chance to prevent mother-to-child transmission of HIV. Staveteig, et al. (2013) found that HIV testing during ANC was a major source of prior testing among women. DHS surveys ask women who have given birth in the past two years about their receipt of ANC and of HIV tests during their recent pregnancy.

Table 4.1 lists the percentages of HIV-positive women with a birth in the two years preceding the survey, by receipt of ANC and the receipt of HIV testing during ANC. In the majority of countries, less than 10 percent of HIV-positive women did not receive ANC during their most recent pregnancy—that is, in 11 of 15 countries, more than 90 percent of HIV-positive women received ANC. For the remaining four countries (Congo [Brazzaville], Ethiopia, Mozambique, and Zimbabwe), Ethiopia stands out; more than one-quarter of the HIV-positive women did not receive ANC, thereby missing a potential for HIV testing and an opportunity to prevent transmission to their child.[6]

Among HIV-positive women who received ANC, more than two-thirds were tested for HIV in 12 of the 15 countries. About one-half of HIV-positive women were tested during ANC in Mozambique (49 percent) and Swaziland (52 percent); slightly more than one-quarter of HIV-positive women were tested in Congo (Brazzaville) (27 percent).

The percentage of women not tested for HIV during ANC may speak to the degree to which HIV testing is fully integrated as a component of ANC services in countries. For example, in Gabon, Swaziland, and Tanzania, although receipt of ANC is virtually universal among HIV-positive women, a relatively high percentage are not being HIV tested (Gabon, 26 percent; Swaziland, 45 percent, and Tanzania, 21 percent). The gap is greatest in Congo (Brazzaville), where 89 percent of HIV-positive women get ANC, but 56 percent are not tested. Four of the countries reporting the highest receipt of ANC also reported the highest levels of HIV testing during ANC. Specifically, in Malawi, Rwanda, Namibia, and Zambia, 97 percent or more of HIV-positive women received ANC, and 87 percent or more were tested during ANC.

[6] This estimate is based on fewer than 50 unweighted cases, but it is consistent with the low use of antenatal care reported in the 2011 Ethiopia DHS, which found that 57 percent of women who have recently given birth nationwide and 23 percent of women who have recently given birth in urban areas did not receive any antenatal care (Central Statistical Agency/Ethiopia and ICF International 2012).

Table 4.1. HIV testing among HIV-positive women during ANC

	Among HIV-positive women age 15-49 who gave birth in the two years preceding the survey, percentage who:					
		Received ANC and:				
	Did not receive ANC[a]	Tested during ANC[b]	Not tested during ANC	Missing	Total	Number of HIV-positive women who gave birth in past 2 years
Cameroon 2011	4.2	77.2	18.0	0.7	100.0	87
Congo (Brazzaville) 2009	11.0	27.2	55.5	6.3	100.0	57
Ethiopia 2011	(25.7)	(66.7)	(7.6)	(0.0)	100.0	42
Gabon 2012	1.0	72.5	26.2	0.3	100.0	92
Kenya 2008-09	5.4	76.8	17.8	0.0	100.0	81
Lesotho 2014	9.0	83.2	7.8	0.0	100.0	165
Malawi 2010	0.4	86.9	12.7	0.0	100.0	234
Mozambique 2009	14.9	48.8	33.7	2.6	100.0	182
Namibia 2013	2.8	92.4	4.8	0.0	100.0	147
Rwanda 2014-15	0.0	91.9	8.1	0.0	100.0	52
Swaziland 2006-07	2.3	52.4	45.3	0.0	100.0	371
Tanzania 2011-12	1.0	78.4	20.6	0.0	100.0	135
Uganda 2011	3.6	66.7	28.9	0.7	100.0	242
Zambia 2013-14	1.3	91.9	6.9	0.0	100.0	489
Zimbabwe 2010-11	11.7	72.9	15.1	0.2	100.0	273

Figures in parentheses are based on 25-49 unweighted cases.

[a] Did not have any ANC visits, answered “don’t know” when asked about the number of ANC visits, or were missing on this variable.

[b] “Tested” indicates tested during ANC and received results. Testing at time of delivery only is excluded.

4.2. Uptake at Birth, after Birth

Table 4.2 lists ever tested among HIV-positive women by whether or not they have given birth and by the timing of their last birth. For all countries except Ethiopia, the percentage of HIV-positive women who have given birth are more likely to have been ever tested for HIV than women who have never given birth. In most countries, the difference ranged between 15 and 25 percentage points. The difference is greatest in Gabon; the percentage ever tested among women who have given birth two or more years ago was more than twice as high, and the percentage ever tested among women who have given birth within the past two years was nearly three times as high as that among women who have never given birth. Results from Congo (Brazzaville) are equally striking: only 3 percent of HIV-positive women who have never given birth have been tested.

These data underline the importance of HIV testing during ANC as a means to reach women, and potentially their partners. Findings also highlight a disparity in HIV testing because women who do not access the health care system for ANC may be at a disadvantage. Women who cannot or chose not to have children or women who are outside of childbearing age may still be at risk for HIV, but they may be less targeted for HIV testing. Women who cannot access ANC for any reason, including for example, cost, distance, or permission, may also be less likely to have ever been tested for HIV.

With only two exceptions—Lesotho and Uganda—the percentage of HIV-positive women who gave birth in the past two years appears to have been more likely to have ever tested than women who gave birth more than two years ago. In four countries, the difference was small; however, in eight countries, the difference ranged between 8 and 17 percentage points.

These data may indicate that in the years preceding these surveys, HIV testing during ANC has been increasing or is becoming a more standard component of ANC. Staveteig et al (2013) examined trends in HIV testing uptake and found that HIV testing during ANC had increased since 2003 at a rate faster than the increase in ANC coverage.

Table 4.2. HIV testing among HIV-positive women, by date of last birth

	Percentage ever tested[a] among HIV-positive women							
	Never given birth	Gave birth 2 or more years ago	Gave birth in past 2 years[b]	All HIV-positive women	Never given birth	Gave birth 2 or more years ago	Gave birth in past 2 years[b]	All HIV-positive women
Country and year	%	%	%	%	n	n	n	n
Cameroon 2011	53.5	68.6	82.8	69.4	59	256	87	402
Congo (Brazzaville) 2009	(2.9)	42.7	36.5	35.2	41	167	57	266
Ethiopia 2011	77.3	71.1	(73.8)	72.5	42	189	42	273
Gabon 2012	(31.1)	78.3	91.1	76.5	37	189	92	317
Kenya 2008-09	(49.3)	70.7	86.5	73.5	22	188	81	291
Lesotho 2014	70.3	94.6	93.5	91.1	128	650	165	942
Malawi 2010	61.3	78.7	92.6	81.0	70	609	234	913
Mozambique 2009	36.4	40.3	53.1	43.2	94	411	182	687
Namibia 2013	75.9	93.8	96.0	92.8	56	480	147	683
Rwanda 2014-15	*	96.8	98.4	95.9	24	169	52	244
Swaziland 2006-07	31.7	40.8	57.7	44.0	197	810	371	1,378
Tanzania 2011-12	61.2	71.6	85.3	73.4	71	394	135	601
Uganda 2011	53.8	81.6	74.6	76.5	104	560	242	907
Zambia 2013-14	68.2	90.0	92.9	88.0	274	1,453	489	2,216
Zimbabwe 2010-11	52.9	71.0	79.2	71.0	127	896	273	1295

An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Here and elsewhere, “tested” means tested and received results of the last test.
[b] Women who gave birth in the past two years are also counted as ever tested if they reported having been tested and received results during or after antenatal care, whether or not it was the most recent test.

5. HIV Testing Uptake Among PLHIV

This chapter examines the background characteristics of PLHIV by country. For each background characteristic (sex, residence, age group, education, marital status, wealth, number of lifetime sex partners, whether reported STI symptoms in the past year, whether given birth in the past two years (women), and whether paid for sex in the past year (men) we quantify differences in the likelihood of having ever been tested and received results of the last test.

5.1. Characteristics of the Population of PLHIV

Table 5.1 shows the background characteristics of PLHIV by country. Asterisks indicate statistical significance of the pseudo chi-squared statistic described in the methods section: the difference in composition of the HIV-positive, compared to the HIV-negative adult population. In other words, we test the null hypothesis that the characteristic is distributed independently of HIV status.

The composition of PLHIV reflects both the characteristics of the population in each country, as well as the nature of the epidemic. Women comprise the majority of adults in most countries, and they are both socially (gender inequality, violence, power) and biologically more vulnerable (during heterosexual transmission) to STIs and HIV than men are; therefore, we would expect PLHIV to be majority female in sub-Saharan Africa. Even so, the sex composition of PLHIV also reflects differences in risk behavior, age structure, and relative survival.

According to Table 5.1, as expected, the HIV-positive reproductive age population is predominantly female in every country. In every country except Zambia, more than 6 in 10 reproductive age adults with HIV are women; women comprise three-fourths of the adult HIV-positive population in Gabon. In all 15 countries in this study, the distribution of PLHIV by sex is statistically significantly different from that of the HIV-negative adult population (shown in Appendix Table A.1).

In Cameroon, Congo (Brazzaville), Ethiopia, Gabon, Namibia, and Zambia, the majority of PLHIV live in urban areas. Of those six countries, four—Cameroon, Congo (Brazzaville), Gabon, and Namibia—are the only countries where the majority of the adult population is urban. Zambia's adult population is nearly split evenly into rural and urban areas; the majority of Ethiopians live in rural areas, but the HIV epidemic is concentrated in urban centers. In most countries, compared to their HIV-negative counterparts, PLHIV are significantly more likely to reside in urban areas.

The pseudo chi-square statistic shown in Table 5.1 does not reflect any particular direction of significance, but the vast majority of PLHIV—more than 90 percent in many countries and more than 95 percent in a few countries—are age 20 and older, and the difference in age composition is statistically significantly different from the HIV-negative population.

The majority of PLHIV in every country except Namibia and Swaziland are currently married. In most countries, at least one in five PLHIV are living without a partner, but were formerly married. This is a higher than the proportion of formerly married among the HIV-negative population in every country, typically by a factor of at least three, and likely reflects both the higher age of PLHIV, as well as a number of individuals whose spouses may have died due to HIV-related causes. The composition of marital status between the adult HIV-positive and HIV-negative population is statistically significant in every country.

Table 5.1. Characteristics of PLHIV, by country

Background characteristic	Cameroon 2011	Congo (Brazzaville) 2009	Ethiopia 2011	Gabon 2012	Kenya 2008-09	Lesotho 2014	Malawi 2010	Mozambique 2009	Namibia 2013	Rwanda 2014-15	Swaziland 2006-07	Tanzania 2011-12	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
	Among HIV-positive adults ages 15-49, percentage distribution of each characteristic and whether the distribution is statistically significantly different from the HIV-negative population														
Sex	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Male	31.1	30.6	31.7	25.6	31.0	34.3	36.7	33.9	37.0	33.1	35.0	33.9	36.8	40.2	37.2
Female	68.9	69.4	68.3	74.4	69.0	65.7	63.3	66.1	63.0	66.9	65.0	66.1	63.2	59.8	62.8
Place of residence	**		***			***	***	***		***	***	***	***	***	**
Urban	60.6	66.8	66.6	88.2	28.3	42.8	33.5	46.4	53.6	41.7	33.3	37.7	24.3	63.4	33.7
Rural	39.4	33.2	33.4	11.8	71.7	57.2	66.5	53.6	46.4	58.3	66.7	62.3	75.7	36.6	66.3
Age group	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15-19	6.7	8.7	2.0	5.0	6.2	5.0	6.0	8.3	3.5	4.2	6.6	4.7	7.3	7.8	5.8
20-29	31.6	31.9	33.0	29.4	36.0	31.4	26.7	39.0	22.2	26.5	43.5	27.0	29.8	28.2	28.4
30-39	39.3	30.6	45.9	39.9	35.1	38.7	42.9	35.1	45.3	33.6	34.0	39.6	38.1	38.4	41.9
40-49	22.4	28.7	19.1	25.7	22.7	24.9	24.5	17.6	29.0	35.7	15.9	28.8	24.8	25.6	24.0
Marital status	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Never married	15.6	26.1	8.2	19.2	15.1	21.0	7.8	10.2	45.7	18.9	38.8	13.4	11.4	19.3	11.7
Currently married	63.7	52.7	58.1	60.8	54.7	57.0	68.1	64.8	41.8	58.0	45.9	60.2	61.4	61.0	62.5
Formerly married	20.7	21.2	33.7	20.0	30.2	22.0	24.2	25.1	12.5	23.1	15.3	26.4	27.2	19.7	25.7
Education	***		**	**		***	***	**	***	**	***	***	***	**	***
No education	8.7	3.8	31.8	2.5	5.7	5.0	13.7	17.1	9.0	15.2	10.9	12.9	12.8	5.7	1.6
Primary	37.9	20.9	46.1	22.7	62.7	46.4	58.3	63.3	30.8	65.8	35.0	73.7	63.2	40.6	30.3
Secondary+	53.4	75.3	22.2	74.8	31.6	48.6	28.0	19.5	60.2	19.0	54.1	13.4	24.0	53.7	68.1
Wealth quintile	***		***			***	***	***	***	***		***	**	***	***
Poorest	7.2	17.0	4.1	15.2	11.7	12.9	11.0	9.4	19.8	18.6	15.8	13.0	14.7	9.7	18.8
Poorer	16.7	23.3	5.5	21.8	18.8	14.2	14.6	12.4	27.3	13.3	17.4	13.8	16.1	12.3	18.3
Middle	19.2	18.3	8.9	23.7	15.5	18.9	17.5	15.1	25.8	19.9	19.3	18.0	17.8	17.3	21.6
Richer	26.6	19.6	14.1	23.8	23.8	28.2	20.4	27.7	20.5	11.1	23.4	21.6	22.9	30.5	22.3
Richest	30.3	21.6	67.3	15.5	30.2	25.7	36.4	35.3	6.6	37.1	24.1	33.7	28.4	30.2	19.0
Lifetime number of sex partners	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0	2.4	5.6	3.2	2.0	2.4	2.6	2.3	1.2	1.7	4.3	3.1	3.2	3.8	5.0	4.8
1-2	20.9	10.8	64.6	8.5	37.4	35.8	46.3	44.6	33.9	62.0	35.9	38.8	32.6	39.5	50.4
3-4	27.1	25.6	16.8	19.7	34.7	26.6	31.2	26.5	34.0	22.7	29.2	27.7	30.6	30.3	20.3
5+	44.9	51.8	13.3	55.4	20.0	33.0	18.2	19.8	24.7	10.9	27.0	28.4	28.7	24.1	21.3
DK/Missing	4.7	6.3	2.0	14.4	5.6	2.0	2.0	8.0	5.6	0.0	4.8	1.9	4.3	1.0	3.2

(Continues)

Table 5.1—*Continued*

Background characteristic	Cameroon 2011	Congo (Brazzaville) 2009	Ethiopia 2011	Gabon 2012	Kenya 2008-09	Lesotho 2014	Malawi 2010	Mozambique 2009	Namibia 2013	Rwanda 2014-15	Swaziland 2006-07	Tanzania 2011-12	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
	Among HIV-positive adults ages 15-49, percentage distribution of each characteristic and whether the distribution is statistically significantly different from the HIV-negative population														
Self-reported STI symptoms in the past year	***			***	*	***	***	***	***	***	***	***	***	***	***
Yes	17.0	23.4	6.7	22.5	9.7	16.9	18.1	9.9	11.3	18.5	18.3	13.6	42.4	8.4	14.6
No/DK/Missing	83.0	76.6	93.3	77.5	90.3	83.1	81.9	90.1	88.7	81.5	81.7	86.4	57.6	91.6	85.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NUMBER	584	382	400	426	421	1,435	1,442	1,039	1,085	365	2,119	908	1,436	3,704	2,064
WOMEN: Gave birth in the past 2 years	***	**	**			**	***	***				***	***	***	***
Yes	21.6	21.6	15.5	28.9	27.9	17.5	25.7	26.4	21.6	21.2	26.9	22.5	26.7	22.1	21.0
No	78.4	78.4	84.5	71.1	72.1	82.5	74.3	73.6	78.4	78.8	73.1	77.5	73.3	77.9	79.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NUMBER	402	266	273	317	291	942	913	687	683	244	1,378	601	907	2,216	1,295
MEN: Paid sex in the past year	***			***		***	***	***		***			***	***	***	***
Yes	63.4	24.8	74.8	24.5	69.8	50.8	79.4	65.4	28.4	46.6		68.6	65.6	70.0	71.6
No	36.6	75.2	25.2	75.5	30.2	49.2	20.6	34.6	71.6	53.4		31.4	34.4	30.0	28.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
NUMBER	181	117	127	109	130	493	529	352	401	121		308	529	1,487	769

Note: ***=p<.01, **=p<.05, *=p<.10
DK = don't know
No data were collected on paid sex in the past year in the 2006-07 Swaziland Demographic and Health Survey.

The educational attainment of PLHIV is heterogeneous across countries. In 7 of 15 countries, the majority of PLHIV have attained secondary schooling or above, but this largely echoes the overall educational attainment of the adult population. PLHIV are disproportionately richer than the HIV-negative population, over representing the top wealth quintile in every country except two, Gabon and Namibia. In Cameroon, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, and Zambia at least 3 in 10 PLHIV are in the top wealth quintile; Ethiopia is an outlier, with about two-thirds of PLHIV in the wealthiest quintile.

The next row of Table 5.1, the lifetime number of sexual partners reported by PLHIV, is divided into groups of 0, 1-2, 3-4, 5+, and *don't know or missing* (DK/missing); the latter category reflects respondents who say they have lost count and those who are unwilling to state a number. In some countries—Rwanda, Tanzania, and Zambia—the DK/missing category is negligible, but in other countries it can be 5 percent or even as much as 14 percent of PLHIV in Gabon.

As expected, PLHIV report higher numbers of lifetime sexual partners than their HIV-negative counterparts. PLHIV are disproportionately likely to have had 3-4 or 5+ sexual partners in their lifetime. In fact, one striking aspect about the distribution of lifetime sex partners shown in Table 5.1 is the proportion of PLHIV who say they have never had sex, ranging from 1 percent in Mozambique 6 six percent in Congo (Brazzaville). While the possibility of misreporting cannot be ruled out, this finding suggests a number of adults who may have contracted HIV through non-sexual modes of transmission, for example, through injections or young adults who contracted HIV from mother-to-child transmission.

The percentage of PLHIV who self-reported STI symptoms in the past year ranges from 7 percent in Ethiopia to more than 40 percent in Uganda. Two additional characteristics, shown at the bottom of the table, apply to a single sex: whether women gave birth in the past two years and whether men paid for sex in the past year. Generally between 20 and 27 percent of HIV-positive women have given birth in the past two years; Ethiopia and Lesotho are below that range, at 16 and 18 percent, respectively, and Kenya and Gabon slightly exceed it, at 28 and 29 percent, respectively.

Among the 14 of 15 countries where men were asked about paid sex (all except Swaziland), between 25 and 80 percent of HIV-positive men reported having paid someone in exchange for sex in the past year. In Congo (Brazzaville), Gabon, and Namibia, fewer than 30 percent reported paying for sex. In Ethiopia, Malawi, Zambia, and Zimbabwe, at least 70 percent of HIV-positive men reported paying for sex in the past year. In all 14 countries, more HIV-positive men reported having paid for sex in the past year than their negative counterparts, and in 10 countries, the difference was statistically significant.

5.2. Factors Associated with Prior Testing

This section explores the extent to which having ever been tested and received results differs by background characteristics of PLHIV described in the previous sections. Charts have error bars that indicate a 95 percent confidence interval around the point estimate. Because "estimated knowledge" is a population-wide average, confidence intervals are unknown. Testing in the past 12 months would be rare among people who had previously known their status, and this characteristic, in turn, is unobservable. For these reasons the focus of this chapter is on the proportion of PLHIV *ever tested*. Appendix Tables A.2 and A.3 provide supplementary information about testing in the past 12 months and estimated knowledge of HIV status by background characteristic, disaggregated by sex.

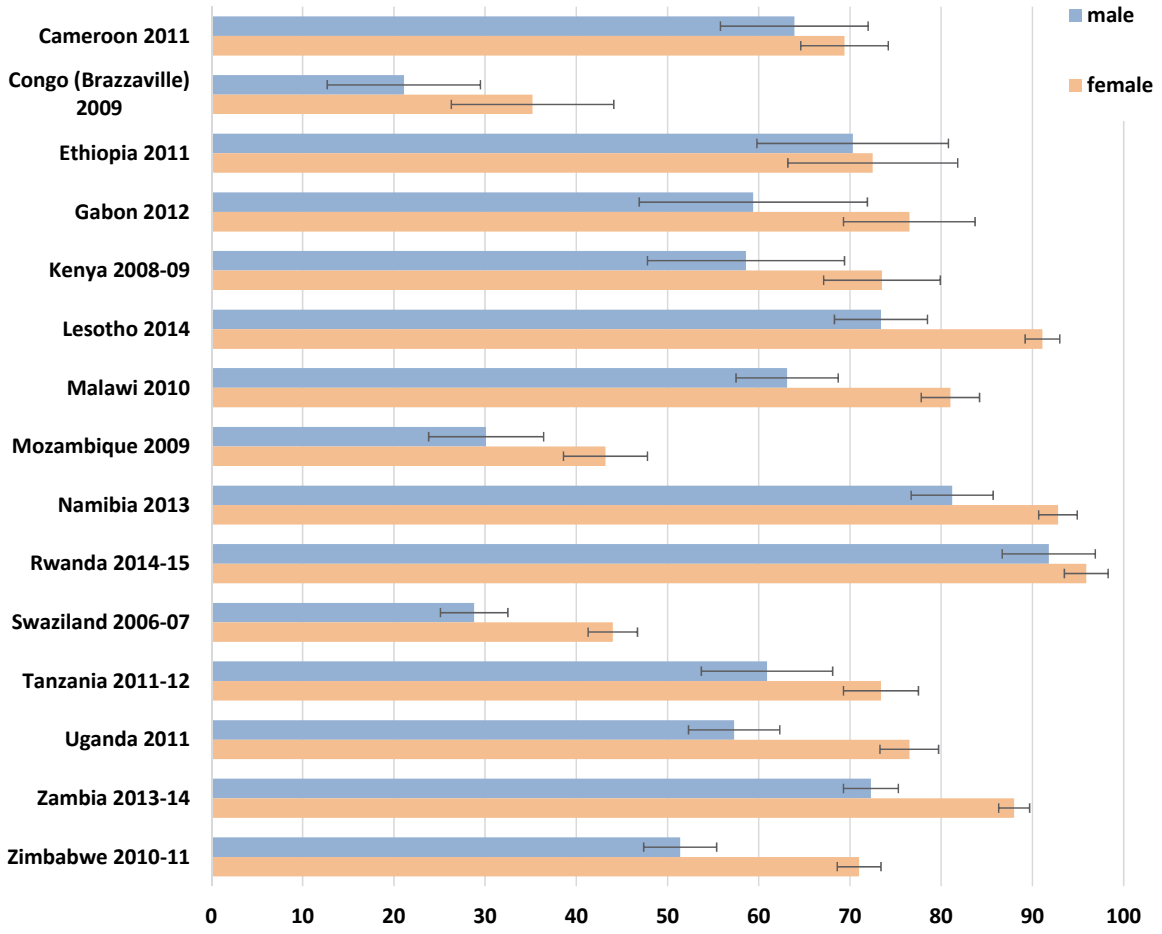
The "first 90" category of the UNAIDS 90-90-90 target, described earlier, is for 90 percent of HIV-positive individuals to know their status. To the extent that seroconversion may have happened after the last test, this implies that achieving exactly 90 percent ever tested is insufficient. As discussed in Chapter 3, no country has achieved estimated knowledge among PLHIV of 90 percent. Even if we use the 90 percent benchmark for ever tested, Figure 5.1 indicates that the only countries that have achieved 90 percent ever

tested among PLHIV are Rwanda among men and women, Lesotho among women only, and Namibia among women only.

As shown in Figure 5.1, HIV testing appears to be higher among women than men in every country studied, by an average of about 13 percentage points. The gap is widest, and—according to unadjusted logistic regressions not shown here—statistically significant, in 11 of 15 countries: Gabon, Kenya, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

Figure 5.1. HIV testing among PLHIV, by sex

Among HIV-positive men and women age 15-49, percentage who have ever been tested for HIV



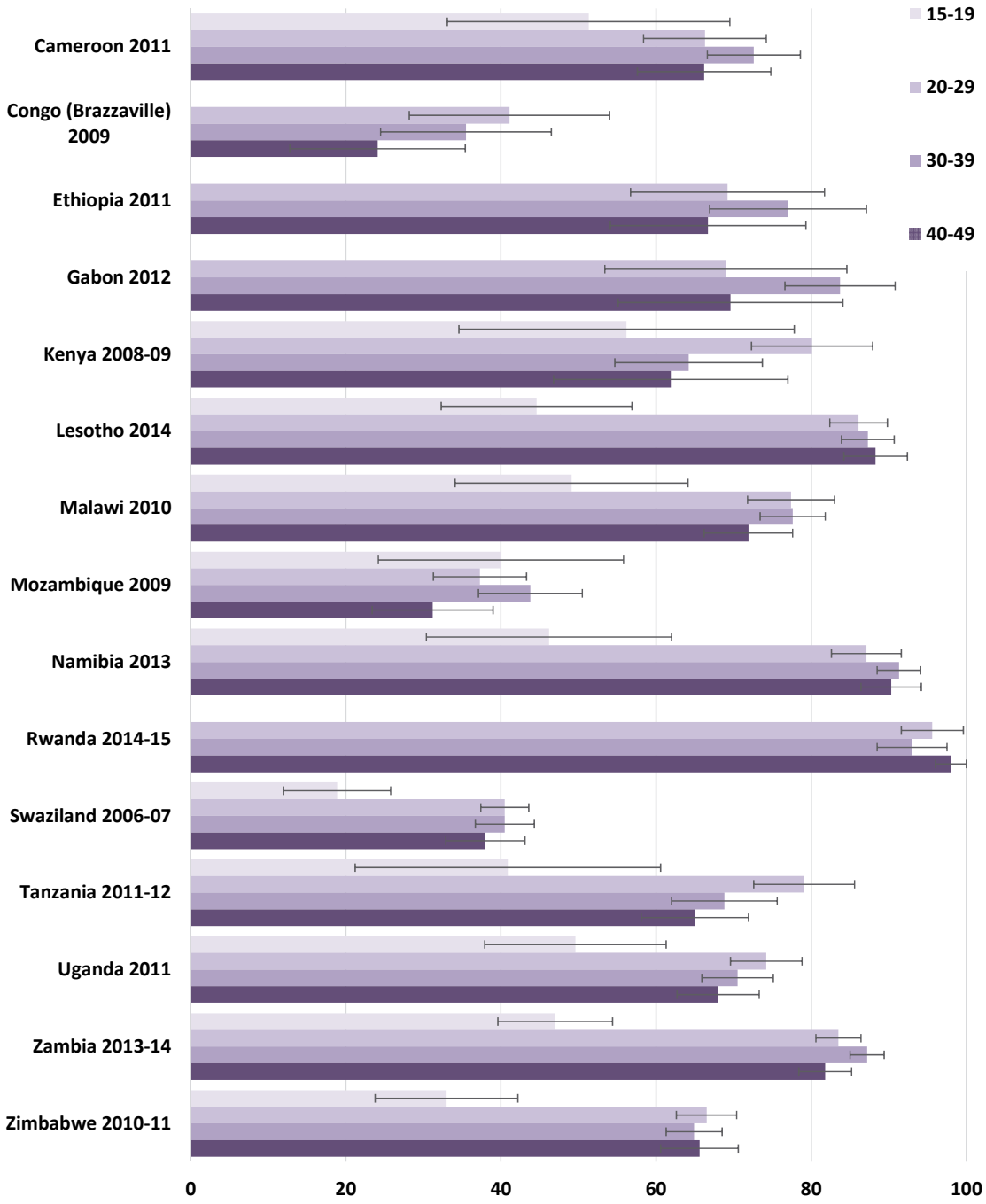
Note: Bars indicate 95 percent confidence intervals.

Figure 5.2 shows the testing uptake by age group among PLHIV. Most countries appear to have achieved parity in testing among the top three age groups: 20–29, 30–39, and 40–49; however, late adolescents, ages 15-19, who are HIV-positive typically are much less likely to have ever been tested for HIV. In some cases, they appear to be half as likely to have ever been tested as the next age group, ages 20–29. While the possibility exists that these young adults were tested at very young ages and either do not remember it or do not think it meets the reporting threshold, the reported disparity in ever testing, combined with the vulnerability of young adolescents to HIV transmission, is an overall cause for concern. In eight countries, unadjusted regressions (not shown here) indicate that HIV-positive late adolescents age 15-19 are significantly less likely to have ever been tested than any other age group: Lesotho, Malawi, Namibia,

Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. In four additional countries, the sample size of HIV-positive late adolescents ages 15–19 is insufficient to reliably measure testing among this age group. In the three remaining countries—Cameroon, Kenya, and Mozambique—a small sample size creates wide confidence intervals for testing uptake among late adolescents ages 15-19.

Figure 5.2. HIV testing among PLHIV, by age group

Among HIV-positive adults age 15-49 in each age group, percentage who have ever been tested for HIV

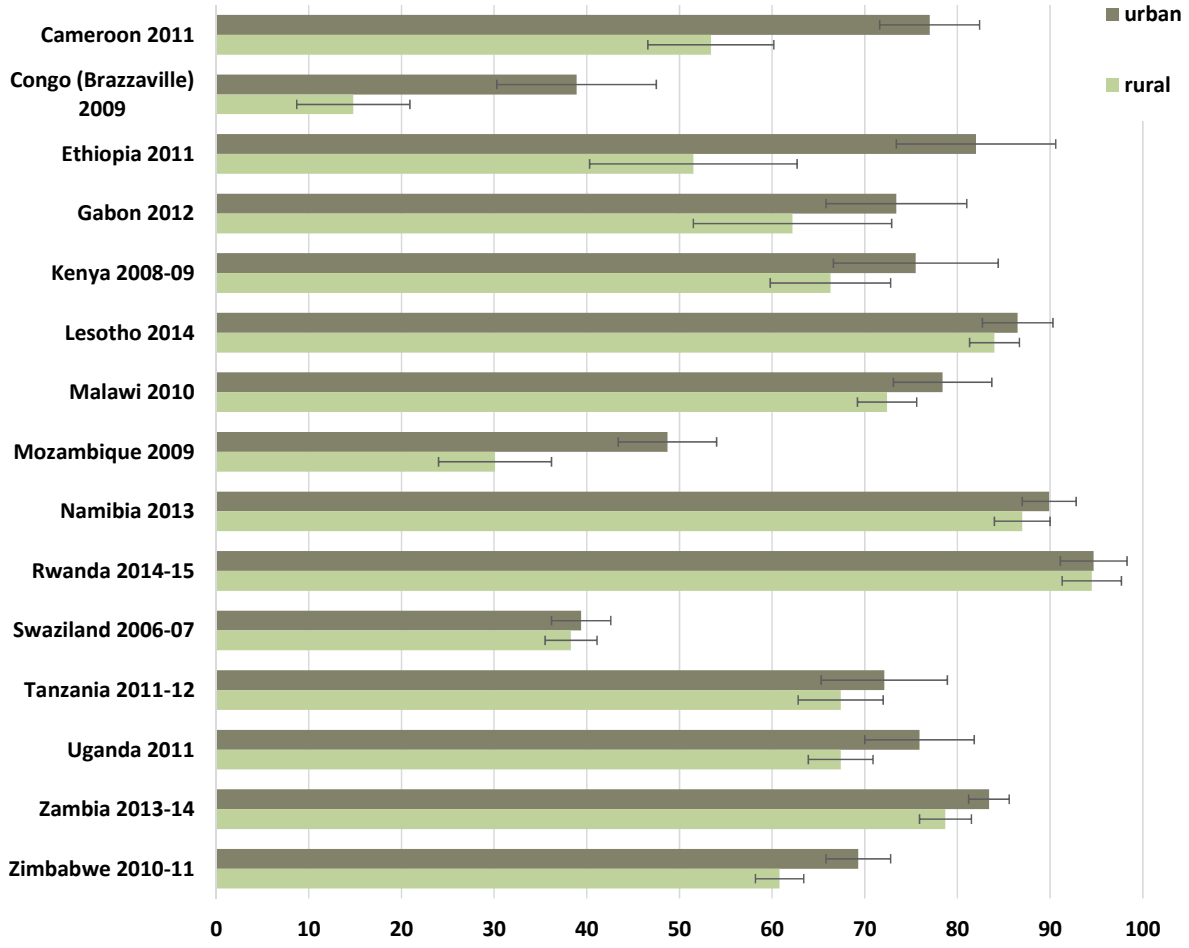


Note: Bars indicate 95 percent confidence intervals. Results based on fewer than 25 unweighted cases have been removed.

Area of residence affects access to testing services. Figure 5.3 shows testing uptake by place of residence—either urban or rural—which indicates that in every country, HIV-positive urban residents appear to be more likely to have ever been tested than HIV-positive rural residents. In seven countries, unadjusted logistic regressions show that the difference is statistically significant: Cameroon, Congo (Brazzaville), Ethiopia, Mozambique, Uganda, Zambia, and Zimbabwe. Notably, the three countries with the highest levels of testing overall—Lesotho, Namibia, and Rwanda—seem to have achieved near parity in testing uptake between urban and rural PLHIV.

Figure 5.3. HIV testing among PLHIV, by place of residence

Among HIV-positive adults age 15-49 in each area of residence, percentage who have ever been tested for HIV

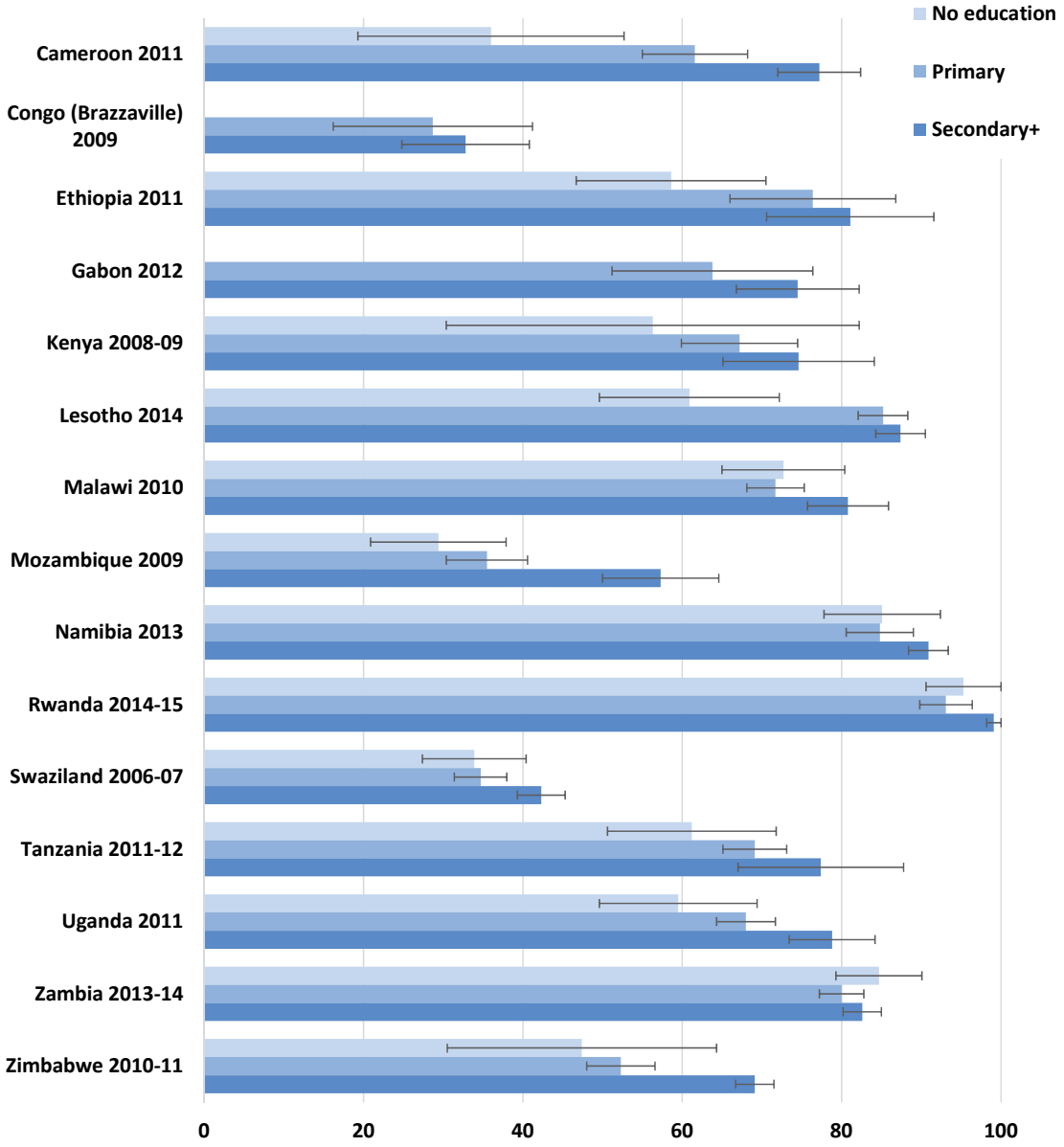


Note: Bars indicate 95 percent confidence intervals.

Figure 5.4 shows testing uptake by educational attainment of PLHIV. In every country except Zambia, testing uptake seems to be highest among PLHIV who have attained secondary education and above. In Zambia, testing uptake appears to be highest among PLHIV with no education, but the difference is not statistically significant. Gabon and Congo (Brazzaville) had too few PLHIV without education to include that category. In Cameroon, Mozambique, Swaziland, Uganda, and Zimbabwe, the difference between testing uptake among PLHIV with secondary education and above, compared to their counterparts, is statistically significant.

Figure 5.4. HIV testing among PLHIV, by education

Among HIV-positive adults age 15-49 with each level of education, percentage who have ever been tested for HIV



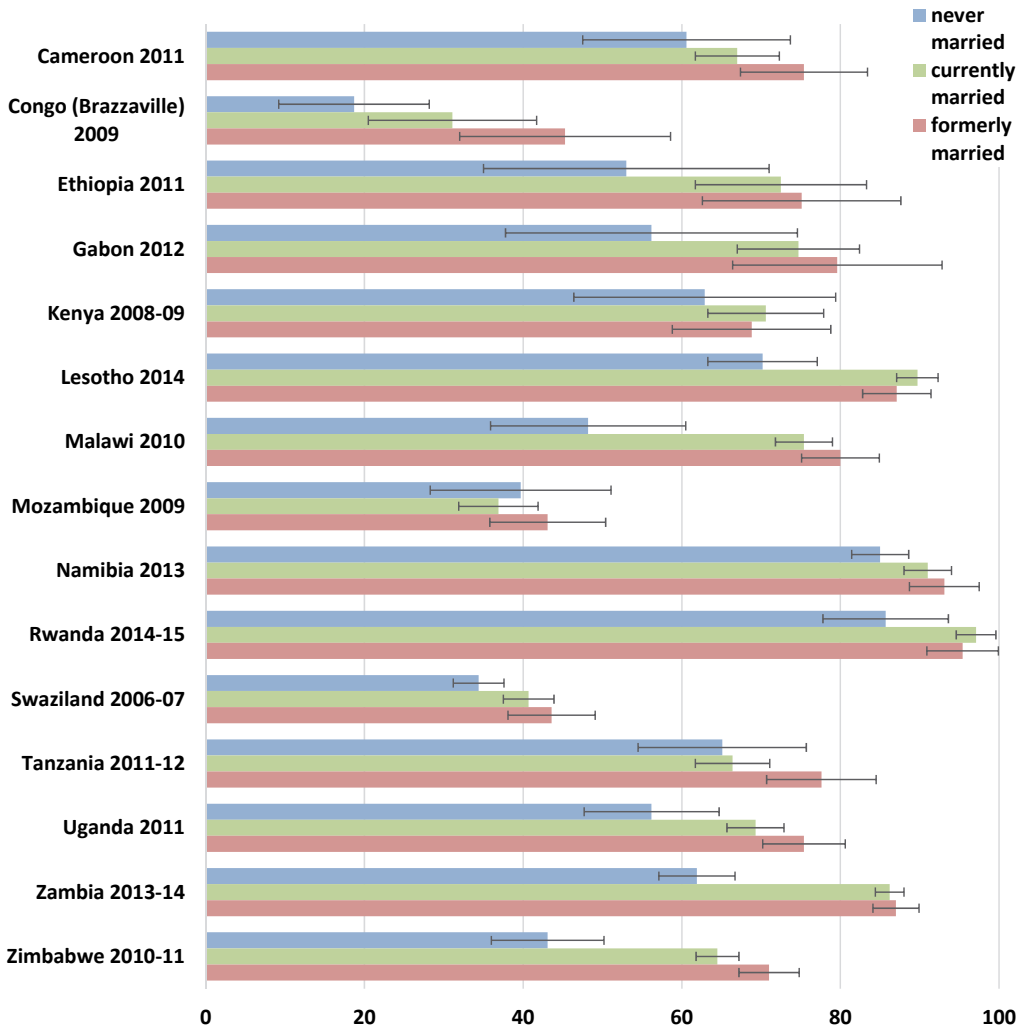
Note: Bars indicate 95 percent confidence intervals. Results based on fewer than 25 unweighted cases have been removed.

Joining into a marital union may be a time when couples decide to get tested together, or when they are encouraged to get tested. Because marriage is the customary context for childbearing in most of sub-Saharan Africa, we might also expect that more adults, especially women, would be tested if they have been married for some time. Additionally, marital status is also related to age. Testing uptake among PLHIV by marital status is shown in Figure 5.5. With the exception of Mozambique, currently and formerly married PLHIV are descriptively more likely to have ever been tested than their never-married counterparts. In Lesotho, Malawi, Namibia, Rwanda, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe, unadjusted logistic regressions indicate that the difference in testing uptake between never married PLHIV and currently or formerly married PLHIV is statistically significant. In Cameroon, Congo (Brazzaville), and

Gabon, never married PLHIV are significantly less likely than the formerly married to have been ever tested.

Figure 5.5. HIV testing among PLHIV, by marital status

Among HIV-positive adults age 15-49 with each marital status, percentage who have ever been tested for HIV

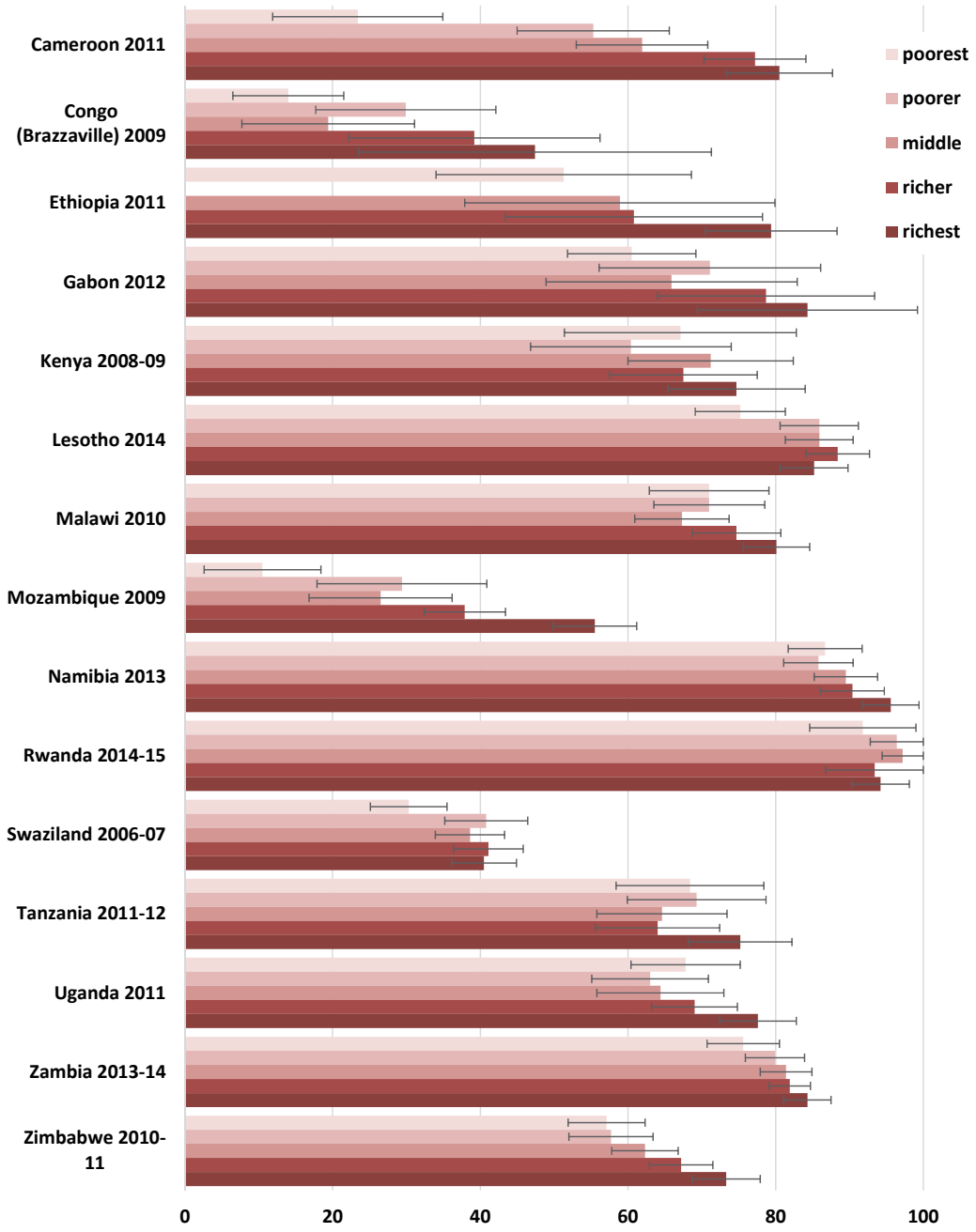


Note: Bars indicate 95 percent confidence intervals. Married means married or living with a partner as if married.

Figure 5.6 shows the relationship between wealth quintiles and having ever been tested among PLHIV. The survey in Ethiopia had insufficient cases of PLHIV in the second (poorer) quintile to make estimates. Overall, the relationship between wealth and testing uptake varies greatly across countries. The general trend is toward higher uptake among wealthier PLHIV, but exact levels tend to be uneven. Cameroon, Zambia, and Zimbabwe are the only three countries with a strictly monotonic relationship between wealth quintile and testing uptake; Congo (Brazzaville), Ethiopia, and Mozambique also exhibit distinct differentials in uptake by wealth quintile. In other countries, such as Swaziland, the top four quintiles are nearly indistinguishable, and the main difference in testing uptake appears to be between the poorest PLHIV and all other groups.

Figure 5.6. HIV testing among PLHIV, by wealth quintile

Among HIV-positive adults age 15-49 in each wealth quintile, percentage who have ever been tested for HIV



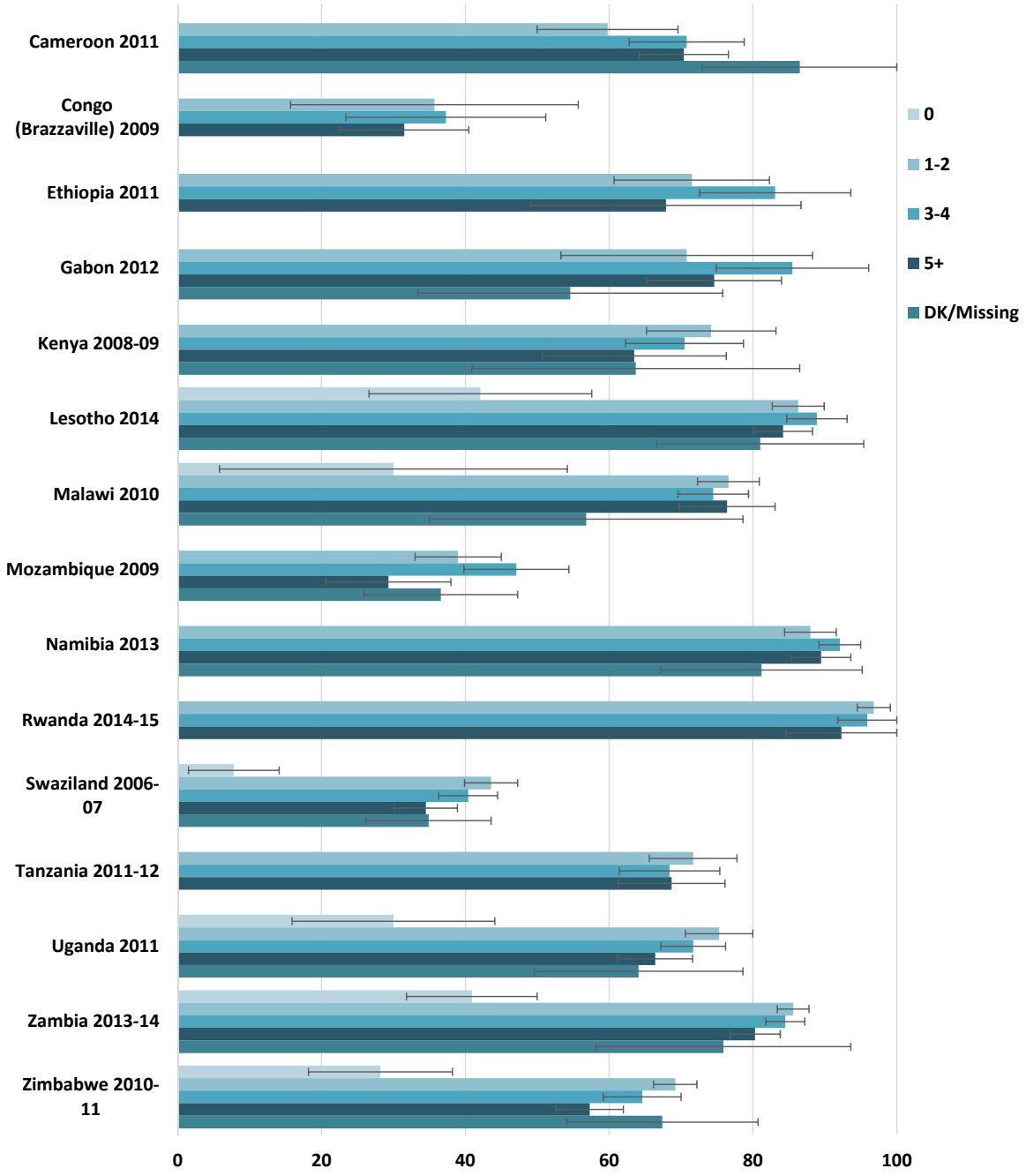
Note: Bars indicate 95 percent confidence intervals. Results based on fewer than 25 unweighted cases have been removed.

In four countries, unadjusted logistic regressions indicate that PLHIV in the poorest wealth quintiles are significantly less likely than PLHIV in all other wealth quintiles to have ever been tested—Cameroon, Lesotho, Mozambique, and Swaziland. In nearly every other country—Congo (Brazzaville), Ethiopia, Gabon, Malawi, Namibia, Uganda, Zambia, and Zimbabwe—the difference between the poorest and the richest is statistically significant.

Figure 5.7 shows testing uptake among PLHIV, by reported number of lifetime sex partners. As discussed previously, don't know and missing (DK/Missing) is a separate category, one that is insufficiently large to produce estimates of ever tested in Congo (Brazzaville), Ethiopia, Rwanda, and Tanzania. Additionally, only six countries had sufficient sample size of PLHIV who reported zero lifetime sex partners to produce estimates: Lesotho, Malawi, Swaziland, Uganda, Zambia, and Zimbabwe.

Figure 5.7. HIV testing among PLHIV, by number of lifetime sex partners

Among HIV-positive adults age 15-49 with specified number of lifetime sexual partners, percentage who have ever been tested for HIV



Note: Bars indicate 95 percent confidence intervals. Results based on fewer than 25 unweighted cases have been removed.

While we might expect those with higher risk behaviors—more than five lifetime sexual partners—to be the most likely to have ever been tested, this is not the case, even descriptively, in any country. PLHIV who reported between one and two lifetime sex partners are the most likely to have ever been tested in eight countries: Kenya, Malawi, Rwanda, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. In all but one of the remaining seven countries, PLHIV who reported between three and four sexual partners were the most likely to have ever been tested. Some of this difference may be driven by the fact that men far outnumber women in the 5+ category, and men tend to have lower testing uptake overall.

The DK/Missing response to number of sexual partners may reflect persons in an even higher risk group than those in the 5+ category because this group includes respondents who have either lost track of their number of lifetime partners or who were unwilling to say.[7] In Cameroon, PLHIV in the DK/Missing category on this variable were the most likely to have ever been tested.

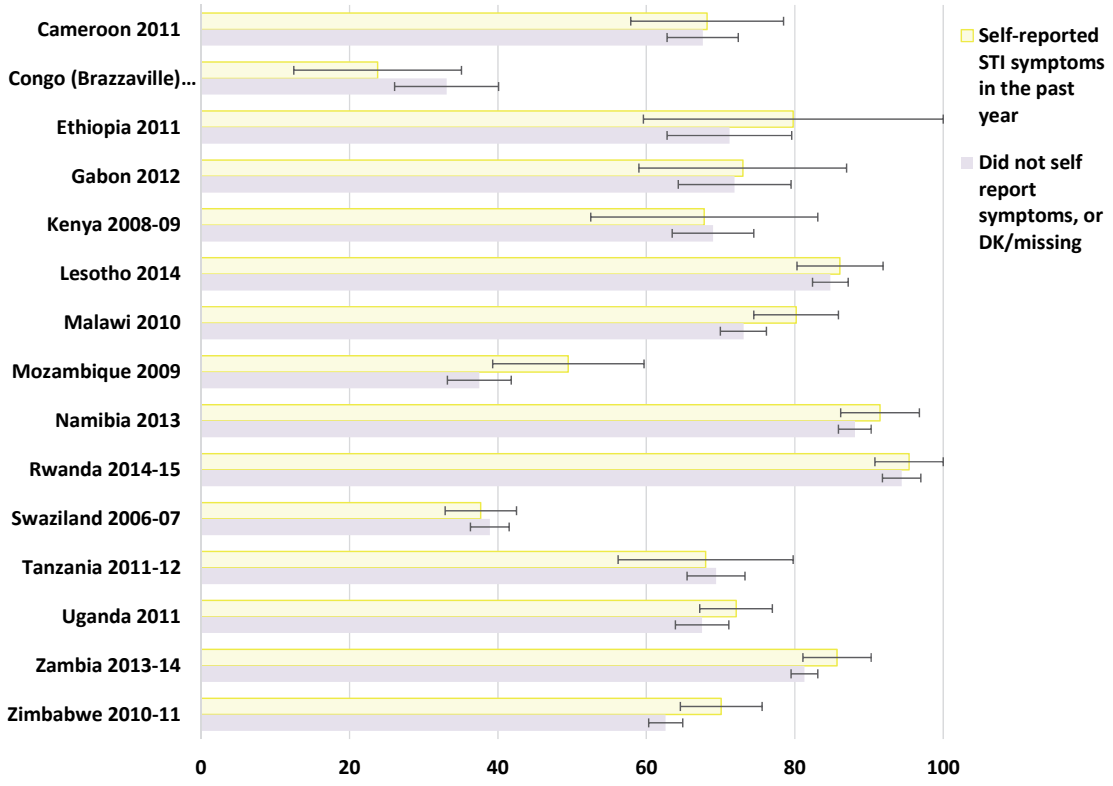
The main statistically significant difference was between PLHIV who reported zero lifetime partners and all other groups. In Lesotho, Swaziland, Uganda, Zambia, and Zimbabwe, unadjusted logistic regressions indicate that PLHIV who reported zero lifetime sexual partners were significantly less likely than any other group to have ever been tested for HIV. In the only other country with sufficient sample size of PLHIV who reported zero lifetime partners—Malawi—PLHIV who reported zero partners were significantly less likely than any group except the DK/Missing to have ever been tested.

For adults who are knowledgeable about how HIV is transmitted, symptoms of an STI might typically prompt HIV testing, either self-initiated or at a clinic. Figure 5.8 compares testing uptake among PLHIV by whether or not they reported STI symptoms in the past 12 months. Here the trend is fairly weak: PLHIV who self-reported STI symptoms in the last year appear to be more likely to have ever been tested in 11 of 15 countries, but the difference was only statistically significant in Malawi, Mozambique, and Zimbabwe.

[7] The respondent can refuse to answer the question for any reason, but one piece of evidence that is consistent with higher risk behavior among the DK/Missing group is that the response is more concentrated among PLHIV (see Table 5.1, compared with Appendix Table A.1).

Figure 5.8. HIV testing among PLHIV, by whether reported STI symptoms in the past year

Among HIV-positive adults age 15-49 by STI reporting status, percentage who have ever been tested for HIV

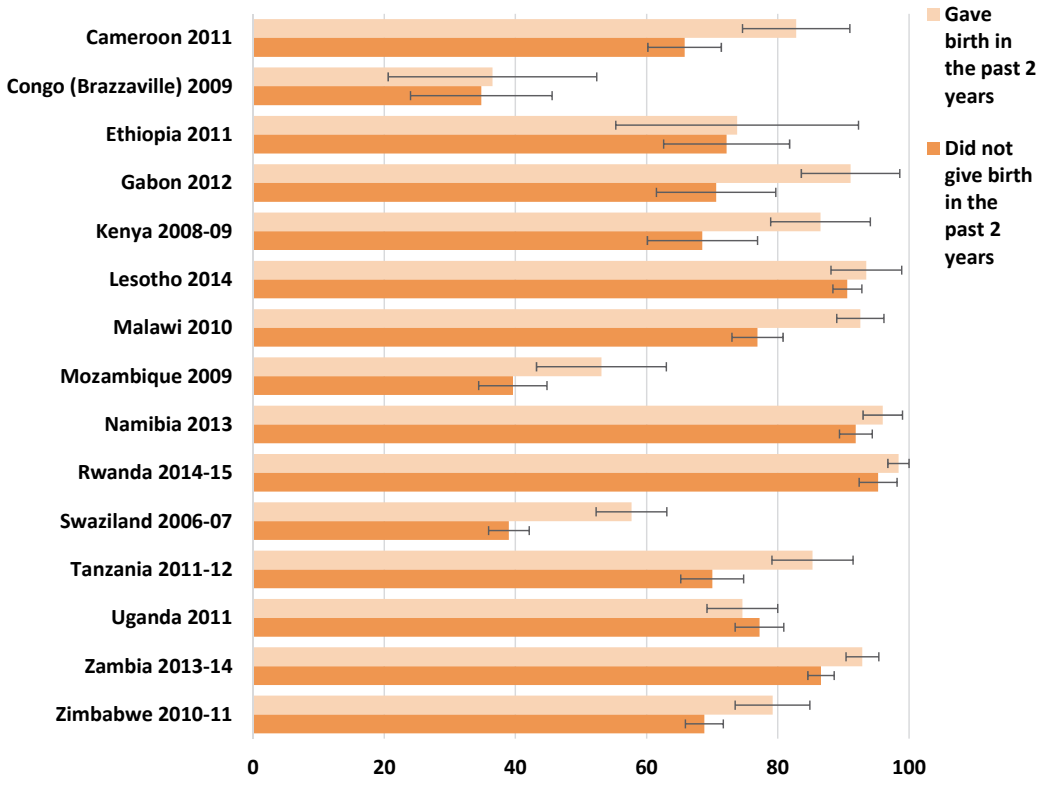


Note: Bars indicate 95 percent confidence intervals.

As discussed in Chapter 4, ANC and labor and delivery are two main points of contact for HIV testing. Figure 5.9 shows testing uptake among HIV-positive women by whether they have given birth in the past two years. In every country except Uganda, women who have given birth in the past two years appear to be more likely to have ever been tested. Unadjusted logistic regressions indicate that this difference is statistically significant in eight countries: Cameroon, Gabon, Kenya, Malawi, Mozambique, Swaziland, Tanzania, Zambia, and Zimbabwe. Notably, the three countries with the highest levels of testing—Lesotho, Malawi, and Rwanda—have achieved near parity between the two groups.

Figure 5.9. HIV testing among HIV-positive women, by whether given birth in the past two years

Among HIV-positive women age 15-49 in each group, percentage who have ever been tested for HIV

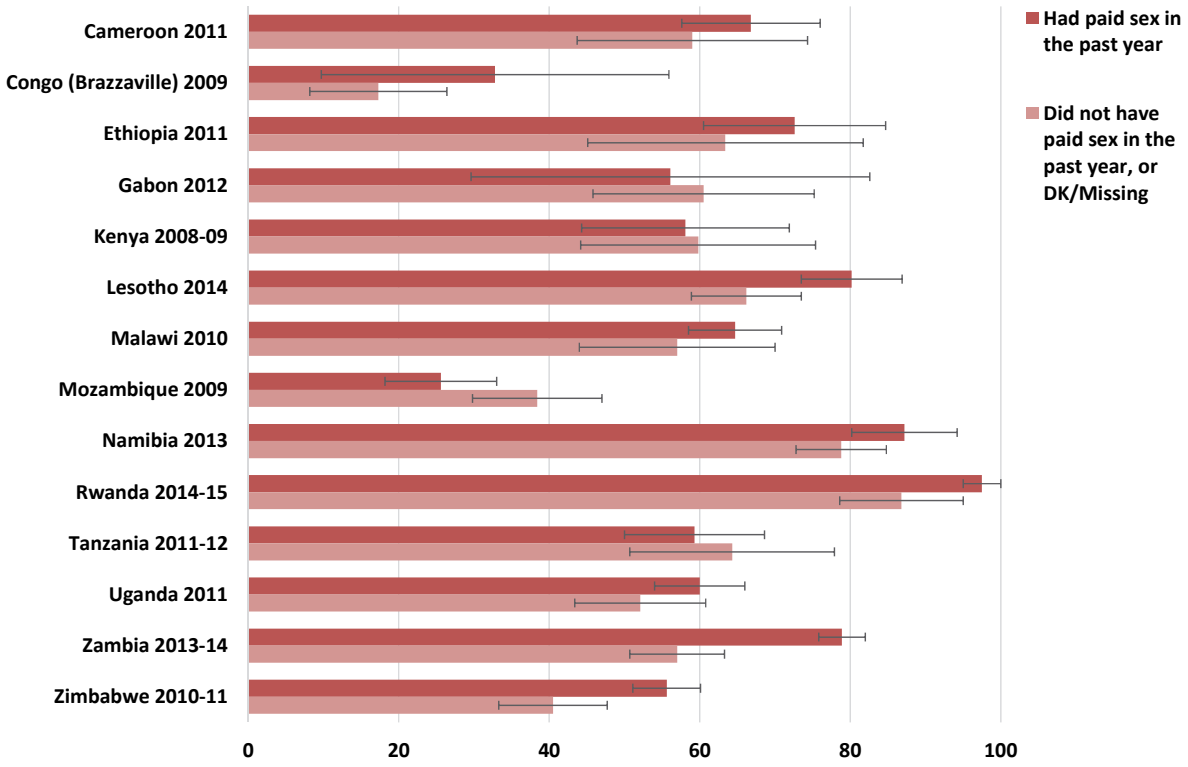


Note: Bars indicate 95 percent confidence intervals.

Figure 5.10 shows HIV testing uptake among HIV-positive men by whether they paid for sex in the past year. Of the 14 countries with data available for this indicator—all except Swaziland—men who paid for sex seem to be more likely to have ever been tested; however, the difference is statistically significant only in Lesotho, Mozambique, Zambia, and Zimbabwe.

Figure 5.10. HIV testing among HIV-positive men, by whether they paid for sex in the past year

Among HIV-positive men age 15-49 in each group, percentage who have ever been tested for HIV



Note: Bars indicate 95 percent confidence intervals. No data were collected on paid sex in the past year in the 2006-07 Swaziland DHS.

6. Discussion and Conclusions

HIV testing is an essential gateway to treatment, care, and—through provision of ART and counseling on behavior—a key part of preventing transmission. As part of its 90-90-90 goal, UNAIDS has called for 90 percent of all PLHIV to know their status, 90 percent of those who know their status to receive ART, and 90 percent of ART recipients to achieve viral suppression by 2020. This report has examined factors related to the "first 90" target in the region of the world that has been hardest hit by the HIV/AIDS pandemic: HIV testing uptake and estimated knowledge of their HIV status among PLHIV in 15 countries in sub-Saharan Africa.

The 15 countries studied in this report have an adult HIV prevalence of between 1.5 percent (Ethiopia) to 25.9 percent (Swaziland). The study examines three key indicators among PLHIV age 15-49 in every country: (1) whether *ever tested for HIV*, (2) *tested in the past 12 months*, and (3) estimated to *know their HIV status*. The first two indicators require that the respondent received results of the most recent test. Estimated to know their HIV status is, among PLHIV, computed as the midpoint between tested in the past 12 months and ever tested. It is identical to the pre-2015 UNAIDS indicator, *"people living with HIV who know their status."* We computed an *adjusted* version of this indicator, based on UNAIDS estimates of ART coverage among the adult population ages 15 and older as an alternate lower bound, which matches the *revised* definition of *"people living with HIV who know their status"* introduced by UNAIDS in 2016. These adjusted figures indicate that between 23 percent (Congo [Brazzaville]) and 71 percent (Rwanda) of PLHIV are estimated to know their status. On average, across study countries, after adjusting for ART coverage, 51 percent of PLHIV are estimated to know their status. This indicates encouraging progress, but is far short of the 90 percent goal set by UNAIDS. Important gaps remain to reach the 2020 targets.

We examined the following 10 key covariates in relationship to having ever been tested: sex, place of residence, age group, marital status, educational attainment, wealth quintile, lifetime number of sex partners, self-reported STI symptoms in the past year, whether gave birth in the past two years (women), and whether paid anyone in exchange for sexual intercourse in the past year (men).

Results show that HIV-positive women are more likely than their male counterparts to have ever been tested, and the difference is statistically significant in 11 of 15 countries. Women's contact with the health system during pregnancy and birth and the increased efforts to test pregnant women, discussed in Chapter 4, likely play a role in this difference.

PLHIV in urban areas are more likely to have ever been tested than PLHIV in rural areas; the difference is statistically significant in five countries. Despite the rural nature of the HIV/AIDS pandemic in several countries, health systems face the continuing challenge of providing outreach to rural populations and providing adequate health infrastructure. At the same time, the vast majority of PLHIV who have never been tested know of a place to get a test, which suggests that mere expansion of HIV testing services would be insufficient. Additional barriers to testing need to be identified and addressed.

The analysis has some limitations, described in Chapter 2. The year in which the survey was conducted deserves consideration because testing dynamics change rapidly. The three countries with the lowest estimated knowledge of HIV status among PLHIV—Congo (Brazzaville), Mozambique, and Swaziland—are also countries with the earliest surveys. Another consideration is the potential bias resulting from the possibility that PLHIV who are aware of their status may refuse serological testing altogether. However, in the countries studied, consent for serological testing was well above the 75 percent threshold thought to be problematic. In three countries—Malawi, Namibia, and Uganda—the survey question about testing was not prefaced with the phrase *"I don't want to know the results,"* which may have caused some underreporting among PLHIV who were aware of their status.

While progress on testing and treatment of HIV has undoubtedly been achieved, several gaps in coverage still exist. This report finds that in the study countries, despite the high risk of HIV young adults face, their testing rates are also among the lowest of any age group. This is a particularly important challenge because of the broad opportunity for HIV prevention during this critical period in life; however, addressing this challenge may require re-examining the age of consent for HIV testing and counseling. The findings also show important gaps in coverage among never married, the poorest, and the under-coverage of PLHIV who engage in higher-risk behaviors, such as five or more sex partners and paid sex. Taken together, these findings suggest that, in addition to efforts to target people at greatest risk of HIV, there is a continued need to target interventions toward the most vulnerable people: rural residents, the least educated, young adults, and the poorest adults.

References

Central Statistical Agency/Ethiopia, and ICF International. 2012. *Ethiopia Demographic and Health Survey 2011*. Addis Ababa, Ethiopia: Central Statistical Agency/Ethiopia and ICF International. Available at http://dhsprogram.com/pubs/pdf/FR255/FR255.pdf.

Chamie, G., D. Kwarisiima, T. D. Clark, J. Kabami, V. Jain, E. Geng, L. B. Balzer, M. L. Petersen, H. Thirumurthy, E. D. Charlebois, M. R. Kamya, and D. V. Havlir. 2014. "Uptake of Community-Based HIV Testing during a Multi-Disease Health Campaign in Rural Uganda." *PLoS ONE* 9(1):1-7.

Embassy of the United States, Windhoek, Namibia. 2008. *National HIV Testing Day – May 9, 2008*. Embassy of the United States.

Fishel, J. D., B. Barrère, and S. Kishor. 2014. *Validity of Data on Self-Reported HIV Status in Malawi and Uganda and Implications for Measurement of ARV Coverage*. DHS Methodological Reports No. 10. Rockville, Maryland, USA: ICF International. Available at http://dhsprogram.com/pubs/pdf/MR10/MR10.pdf.

Fishel, J. D., and D. Garrett. 2016. *Performance of Enzyme Immunoassays for HIV Serology in Surveys Conducted by the Demographic and Health Surveys Program*. DHS Comparative Reports No. 39. Rockville, Maryland, USA: ICF International. Available at http://dhsprogram.com/pubs/pdf/CR39/CR39.pdf.

Fonner, V. A., J. Denison, C. E. Kennedy, K. O'Reilly, and M. Sweat. 2012. "Voluntary Counseling and Testing (VCT) for Changing HIV‐Related Risk Behavior in Developing Countries." The Cochrane Library.

Grabbe, K. L., N. Menzies, M. Taegtmeyer, G. Emukule, P. Angala, I. Mwega, G. Musango, and E. Marum. 2010. "Increasing Access to HIV Counseling and Testing through Mobile Services in Kenya: Strategies, Utilization, and Cost-Effectiveness." *Journal of Acquired Immune Deficiency Syndromes* 54(3):317-23.

Helleringer, S., H. P. Kohler, J. A. Frimpong, and J. Mkandawire. 2009. "Increasing Uptake of HIV Testing and Counseling among the Poorest in Sub-Saharan Countries through Home-Based Service Provision." *Journal of Acquired Immune Deficiency Syndromes* 51(2):185-93.

ICF International. 2011. *Demographic and Health Surveys Methodology - Questionnaires: Household, Woman's, and Man's. MEASURE DHS Phase III*. Calverton, Maryland, USA: ICF International. Available at http://www.measuredhs.com/publications/publication-DHSQ6-DHS-Questionnaires-and-Manuals.cfm.

ICF International. 2012. *Demographic and Health Survey Sampling and Household Listing Manual*. MEASURE DHS, Calverton, Maryland, USA: ICF International. Available at http://dhsprogram.com/pubs/pdf/DHSM4/DHS6_Sampling_Manual_Sept2012_DHSM4.pdf.

ICF International. 2016. *Demographic and Health Surveys (DHS) Model Woman's Questionnaire - Phase 7*. Rockville, Maryland, USA: ICF International and the DHS Program.

Lesotho Ministry of Health. 2012. *Lesotho—Global AIDS Response Country Progress Report*. Available at http://www.unaids.org/sites/default/files/country/documents//file,68395,fr..pdf.

Mishra, V., B. Barrere, R. Hong, and S. Khan. 2008. "Evaluation of Bias in HIV Seroprevalence Estimates from National Household Surveys." *Sexually Transmitted Infections* 84 Suppl 1:i63-i70.

National AIDS and STI Control Programme (NASCOP). 2008. *Guidelines for HIV Testing and Counseling in Kenya*. Nairobi, Kenya: NASCOP.

Reniers, G., T. Araya, Y. Berhane, G. Davey, and E. J. Sanders. 2009. "Implications of the HIV Testing Protocol for Refusal Bias in Seroprevalence Surveys." *BMC Public Health* 9:1-9.

Rwanda Ministry of Health. 2014. *Rwanda Global AIDS Response Progress Report (GARPR)*. Kigali, Rwanda: Rwanda Biomedical Center. Available at http://www.unaids.org/sites/default/files/country/documents/RWA_narrative_report_2014.pdf.

Seyoum, E., Y. Mekonen, A. Kassa, A. Eltom, T. Damitew, M. Lera, B. Felema, and Y. Assefa. 2009. "ART Scale-up in Ethiopia: Success and Challenges." *Ethiopia HIV/AIDS Prevention and Control Office (HAPCO); Plan, Monitoring & Evaluation Directorate*.

South, A., A. Wringe, Y. Kumogola, R. Isingo, R. Manyalla, C. Cawley, B. Zaba, J. Todd, and M. Urassa. 2013. "Do Accurate HIV and Antiretroviral Therapy Knowledge, and Previous Testing Experiences Increase the Uptake of HIV Voluntary Counselling and Testing? Results from a Cohort Study in Rural Tanzania." *BMC Public Health* 13(1):1-12.

Staveteig, S., S. Wang, S. K. Head, S. E. K. Bradley, and E. Nybro. 2013. *Demographic Patterns of HIV Testing Uptake in Sub-Saharan Africa*. DHS Comparative Reports No. 30. Calverton, Maryland, USA: ICF International. Available at http://dhsprogram.com/pubs/pdf/CR30/CR30.pdf.

Strauss, M., B. Rhodes, and G. George. 2015. "A Qualitative Analysis of the Barriers and Facilitators of HIV Counselling and Testing Perceived by Adolescents in South Africa." *BMC Health Services Research* 15(1):1-12.

Takarinda, K. C., L. K. Madyira, M. Mhangara, V. Makaza, M. Maphosa-Mutsaka, S. Rusakaniko, P. H. Kilmarx, T. Mutasa-Apollo, G. Ncube, and A. D. Harries. 2016. "Factors Associated with Ever Being HIV-Tested in Zimbabwe: An Extended Analysis of the Zimbabwe Demographic and Health Survey (2010–2011)." *PLoS ONE* 11(1):1-18.

UNAIDS. 2014a. *90-90-90 an Ambitious Treatment Target to Help End the AIDS Epidemic*. Geneva, Switzerland: The Joint United Nations Programme on HIV/AIDS (UNAIDS). Available at http://www.unaids.org/sites/default/files/media_asset/90-90-90_en_0.pdf.

UNAIDS. 2014b. *The Gap Report*. Geneva, Switzerland: The Joint United Nations Programme on HIV/AIDS (UNAIDS). Available at http://cms.unaids.org/sites/default/files/media_asset/UNAIDS_Gap_report_en.pdf.

UNAIDS. 2015. *Monitoring HIV Impact Using Population-Based Surveys*. Geneva, Switzerland: UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance. Available at http://www.unaids.org/sites/default/files/media_asset/JC2763_PopulationBasedSurveys_en.pdf.

UNAIDS. 2016a. *AIDSinfo Database*. UNAIDS. Available at http://aidsinfo.unaids.org/.

UNAIDS. 2016b. *Fact Sheet 2016: Global Statistics – 2015*. Geneva, Switzerland: The Joint United Nations Programme on HIV/AIDS. Available at http://www.unaids.org/sites/default/files/media_asset/global-AIDS-update-2016_en.pdf.

UNAIDS. 2016c. *Global AIDS Response Progress Reporting 2016: Construction of Core Indicators for Monitoring the 2011 United Nations Political Declaration on HIV and AIDS*. Geneva, Switzerland: The Joint United Nations Programme on HIV/AIDS. Available at https://aidsreportingtool.unaids.org/static/docs/GARPR_Guidelines_2016_EN.pdf.

UNAIDS. 2016d. *Prevention Gap Report*. Geneva, Switzerland: The Joint United Nations Programme on HIV/AIDS. Available at http://www.unaids.org/sites/default/files/media_asset/2016-prevention-gap-report_en.pdf.

UNICEF. 2011. *Mother-Baby Pack Update: More Efforts Needed to Prevent Mother-to-Child Transmission of HIV*. Available at http://www.unicef.org/aids/index_58357.html

Wanyenze, R. K., M. R. Kamya, R. Fatch, H. Mayanja-Kizza, S. Baveewo, S. Sawires, D. R. Bangsberg, T. Coates, and J. A. Hahn. 2011. "Missed Opportunities for HIV Testing and Late-Stage Diagnosis among HIV-Infected Patients in Uganda." *PLoS ONE* 6(7):1-11.

WHO. 2005. *Mozambique: Summary Country Profile for HIV/AIDS Treatment Scale-Up*. Geneva, Switzerland: World Health Organization. Available at http://www.who.int/3by5/support/june2005_moz.pdf.

WHO. 2011. *Namibia: Analytical Summary – HIV/AIDS*. Brazzaville, Republic of Congo African Health Observatory, World Health Organization. Available at http://www.aho.afro.who.int/profiles_information/index.php/Namibia:Analytical_summary_HIV/AIDS.

WHO. 2015a. *Global Health Sector Response to HIV, 2000-2015: Focus on Innovations in Africa: Progress Report*. Geneva, Switzerland: World Health Organization. Available at http://apps.who.int/iris/bitstream/10665/198065/1/9789241509824_eng.pdf?ua=1.

WHO. 2015b. *Policy Brief: Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection: What's New*. Geneva, Switzerland: World Health Organization. Available at http://apps.who.int/iris/bitstream/10665/198064/1/9789241509893_eng.pdf.

Appendix Tables

Table A.1 Characteristics of HIV-negative adults, by country

Background characteristic	Cameroon 2011	Congo (Brazza-ville) 2009	Ethiopia 2011	Gabon 2012	Kenya 2008-09	Lesotho 2014	Malawi 2010	Mozam-bique 2009	Namibia 2013	Rwanda 2014-15	Swaziland 2006-07	Tanzania 2011-12	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
	Among HIV-negative adults age 15-49, percentage distribution of each characteristic and whether the distribution is statistically significantly different from the HIV-positive population														
Sex	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Male	47.2	47.4	46.3	48.7	46.7	49.1	49.1	43.4	49.3	45.5	49.8	45.6	44.9	48.2	47.7
Female	52.8	52.6	53.7	51.3	53.3	50.9	50.9	56.6	50.7	54.5	50.2	54.4	55.1	51.8	52.3
Place of residence	**		***			***	***	***		***	***	***	***	***	**
Urban	54.5	62.9	22.6	88.0	24.5	32.7	18.9	31.8	57.0	19.2	25.3	26.0	20.2	43.8	30.2
Rural	45.5	37.1	77.4	12.0	75.5	67.3	81.1	68.2	43.0	80.8	74.7	74.0	79.8	56.2	69.8
Age group	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15-19	24.5	19.9	24.2	21.3	23.7	30.5	26.0	20.4	24.9	22.0	37.6	24.1	24.0	25.8	26.1
20-29	37.0	36.0	36.5	34.2	35.9	38.4	38.2	34.7	38.6	35.1	32.6	33.5	34.9	34.9	39.3
30-39	23.0	27.8	24.0	27.3	23.1	18.8	22.8	27.5	22.3	27.2	15.8	25.2	24.7	24.8	22.1
40-49	15.5	16.2	15.3	17.2	17.3	12.3	13.0	17.4	14.1	15.6	13.9	17.1	16.4	14.6	12.5
Marital status	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Never married	39.5	33.5	34.7	40.7	40.4	51.7	31.9	20.9	66.7	43.0	64.5	34.0	30.9	38.1	37.4
Currently married	54.4	55.6	58.7	50.9	53.6	42.6	61.5	70.4	29.6	51.0	31.3	58.5	60.7	55.5	55.7
Formerly married	6.1	10.9	6.6	8.4	6.1	5.8	6.5	8.7	3.7	6.0	4.3	7.5	8.3	6.4	6.9
Education	***		**	**		***	***	**	***	**	***	***	***	**	***
No education	15.1	3.9	41.1	5.8	6.3	4.0	10.7	21.7	5.9	10.9	6.9	13.7	10.0	6.0	1.6
Primary	32.4	23.6	45.2	18.4	54.3	40.0	64.1	59.9	20.6	64.6	34.2	65.6	57.9	44.0	25.5
Secondary+	52.5	72.5	13.7	75.8	39.5	56.0	25.3	18.5	73.5	24.5	58.9	20.6	32.1	49.9	72.9
Wealth quintile	***		***			***	***	***	***	***		***	**	***	
Poorest	16.2	20.3	17.7	14.6	16.4	14.6	16.3	19.2	14.6	16.7	15.4	16.7	17.2	17.2	17.6
Poorer	17.0	19.7	18.7	20.3	17.3	18.2	20.1	20.0	17.8	18.8	16.7	18.4	18.6	18.6	19.4
Middle	18.9	20.2	19.0	22.1	17.4	19.8	20.1	20.3	20.3	19.7	20.6	18.6	18.9	19.1	20.1
Richer	22.4	20.2	20.3	21.6	22.7	22.6	19.6	18.8	24.2	21.5	22.2	20.8	19.9	21.2	21.3
Richest	25.6	19.6	24.4	21.4	26.2	24.7	24.0	21.7	23.1	23.3	25.1	25.6	25.3	23.8	21.6
Lifetime number of sex partners	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0	16.8	7.0	30.3	7.5	17.7	16.2	15.1	6.8	16.1	27.7	31.4	16.3	16.0	15.9	23.8
1-2	35.1	21.4	59.2	20.7	45.3	39.9	58.3	49.6	40.2	60.0	36.2	45.6	42.5	48.2	51.0
3-4	18.2	24.6	7.0	19.6	16.8	20.1	17.4	20.6	21.0	9.1	15.7	19.2	22.4	19.5	12.5
5+	28.2	44.0	3.3	41.5	16.5	22.8	8.6	16.6	19.8	3.2	13.8	17.2	17.1	16.0	11.2
DK/Missing	1.7	3.1	0.2	10.7	3.6	1.1	0.7	6.4	2.8	0.1	2.8	1.7	2.0	0.4	1.4

(Continues)

Table A.1—*Continued*

Background characteristic	Cameroon 2011	Congo (Brazzaville) 2009	Ethiopia 2011	Gabon 2012	Kenya 2008-09	Lesotho 2014	Malawi 2010	Mozambique 2009	Namibia 2013	Rwanda 2014-15	Swaziland 2006-07	Tanzania 2011-12	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
	Among HIV-negative adults age 15-49, percentage distribution of each characteristic and whether the distribution is statistically significantly different from the HIV-positive population														
Self-reported STI symptoms in the past year	***		***	*	***	***	***	***	***	***	***	***	***	***	***
Yes	10.2	18.5	2.0	16.4	3.0	11.1	6.6	5.5	6.5	7.1	6.0	6.2	22.8	3.8	5.9
No/DK/Missing	89.8	81.5	98.0	83.6	97.0	88.9	93.4	94.5	93.5	92.9	94.0	93.8	77.2	96.2	94.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NUMBER	12,917	11,726	26,854	10,018	6,286	4,384	12,144	8,022	6,646	11,937	6,068	16,837	18,120	24,155	11,499
WOMEN: Gave birth in the past 2 years	***	**	**			**	***		***			***	***	***	***	***
Yes	29.9	32.3	27.3	26.5	27.6	22.2	35.5	37.2	21.7	24.7	21.8	33.3	36.4	32.8	28.8
No	70.1	67.7	72.7	73.5	72.4	77.8	64.5	62.8	78.3	75.3	78.2	66.7	63.6	67.2	71.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NUMBER	6,817	6,172	14,412	5,142	3,350	2,230	6,177	4,543	3,367	6,507	3,046	9,156	9,976	12,503	6,018
MEN: Paid sex in the past year	***		***		***	***	***		***			***	***	***	***
Yes	37.0	19.3	52.8	23.5	47.4	30.5	53.1	59.1	15.4	39.1		54.2	53.5	52.3	48.0
No	63.0	80.7	47.2	76.5	52.6	69.5	46.9	40.9	84.6	60.9		45.8	46.5	47.7	52.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
NUMBER	6,100	5,555	12,442	4,876	2,936	2,154	5,967	3,479	3,279	5,430		7,681	8,144	11,652	5,481

Note: ***=p<.01, **=p<.05, *=p<.10

No data were collected on paid sex in the past year in the 2006-07 Swaziland Demographic and Health Survey.

Table A.2. Characteristics of HIV-positive women, by country

Among HIV-positive women age 15-49, percentage distribution of each characteristic and whether the distribution of the characteristic is statistically significantly different from the HIV-negative population

	Cameroon 2011	Congo (Brazza-ville) 2009	Ethiopia 2011	Gabon 2012	Kenya 2008-09	Lesotho 2014	Malawi 2010	Mozam-bique 2009	Namibia 2013	Rwanda 2014-15	Swazi-land 2006-07	Tanzania 2011-12	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Place of residence	***	*	***		**	***	***	***	***	***	***	***	***	***	**
Urban	61.5	69.9	67.3	89.4	30.9	42.6	34.6	44.7	49.9	40.5	31.3	38.9	27.0	64.6	34.8
Rural	38.5	30.1	32.7	10.6	69.1	57.4	65.4	55.3	50.1	59.5	68.7	61.1	73.0	35.4	65.2
Age Group	***	*	***	***	***	***	***	***	***	***	***	***	***	***	***
15-19	8.4	9.1	2.7	5.6	7.1	4.1	7.1	9.1	3.1	4.9	8.4	4.5	7.8	7.1	5.1
20-29	36.1	37.7	38.7	32.0	39.1	35.6	30.6	44.1	23.1	28.8	48.8	32.2	36.9	30.9	33.0
30-39	36.4	31.5	43.8	41.1	30.2	37.8	42.3	31.6	46.4	34.7	29.7	37.1	35.1	39.9	41.6
40-49	19.1	21.7	14.8	21.4	23.6	22.5	20.1	15.2	27.5	31.6	13.0	26.2	20.2	22.1	20.4
Marital Status	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Never married	14.5	27.7	7.6	18.1	14.5	18.1	6.4	7.7	46.1	18.1	41.6	13.4	11.0	15.9	9.9
Currently married	59.3	47.1	51.8	61.0	49.2	56.5	61.0	60.1	36.7	51.7	42.7	53.1	55.3	57.4	56.9
Formerly married	26.2	25.2	40.6	20.9	36.3	25.5	32.6	32.2	17.2	30.2	15.7	33.5	33.7	26.7	33.1
Education	***		**	*		***	***	***	***	***	***		***	**	***
No education	10.5	5.1	35.4	1.3	6.4	0.9	16.9	21.8	7.5	18.6	10.3	15.4	15.8	7.2	2.0
Primary	39.5	23.3	45.5	25.6	63.9	46.2	58.0	63.4	30.4	64.1	36.3	70.7	63.7	44.8	33.5
Secondary+	50.0	71.7	19.0	73.1	29.7	52.9	25.1	14.7	62.1	17.3	53.4	13.9	20.5	48.0	64.5
Wealth Quintile	***	**	***			***	***	***	***	***		***	***	***	**
Poorest	7.5	14.1	4.5	14.8	13.7	11.9	11.7	9.6	21.9	20.5	16.3	13.1	13.9	10.4	18.2
Poorer	15.6	24.5	4.9	22.6	18.8	14.0	14.2	12.5	26.4	13.8	18.0	13.8	16.4	11.1	17.8
Middle	20.5	16.1	7.2	22.4	14.2	18.9	16.2	14.8	23.6	20.3	19.9	16.1	16.3	18.1	22.4
Higher	27.7	19.4	15.7	24.7	20.8	28.6	20.5	28.4	20.8	10.1	22.9	22.8	22.8	30.2	23.2
Highest	28.7	25.8	67.7	15.5	32.5	26.6	37.4	34.7	7.3	35.3	22.9	34.2	30.7	30.2	18.5
Lifetime number of sex partners	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0	2.4	6.1	4.0	0.8	2.5	1.5	2.1	0.7	1.7	3.2	3.0	2.5	2.7	3.4	3.4
1-2	26.4	15.2	77.0	11.3	49.2	47.1	61.0	58.4	41.6	72.2	50.3	49.1	44.3	54.4	69.7
3-4	33.3	31.2	11.5	22.0	39.4	30.9	30.0	26.7	43.2	21.2	31.9	30.5	35.8	31.9	19.1
5+	34.1	43.1	5.7	55.0	6.9	19.1	6.6	10.7	10.5	3.5	11.1	17.0	16.1	9.3	6.9
DK/missing	3.9	4.5	1.8	10.9	2.0	1.4	0.4	3.4	3.0	0.0	3.8	0.9	1.1	0.9	1.0
Self-report STI symptoms in past year	***		**		***	***	***	***		***	***	***	***	***	***
Yes	18.1	29.5	5.4	26.7	11.9	17.6	20.0	11.0	10.4	21.1	17.1	15.9	48.8	7.7	16.3
No or don't know	81.9	70.5	94.6	73.3	88.1	82.4	80.0	89.0	89.6	78.9	82.9	84.1	51.2	92.3	83.7
Gave birth in the past 2 years	***	**	**			**	***	***			***	***	***	***	***
Yes	21.6	21.6	15.5	28.9	27.9	17.5	25.7	26.4	21.6	21.2	26.9	22.5	26.7	22.1	21.0
No	78.4	78.4	84.5	71.1	72.1	82.5	74.3	73.6	78.4	78.8	73.1	77.5	73.3	77.9	79.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NUMBER	402	266	273	317	291	942	913	687	683	244	1,378	601	907	2,216	1,295

Note: *** = p<.01, ** = p<.05, * = p<.10

Table A.3. Characteristics of HIV-positive men, by country

Among HIV-positive men age 15-49, the percentage distribution of each characteristic and whether the distribution is statistically significantly different from the HIV-negative population

	Cameroon 2011	Congo (Brazza-ville) 2009	Ethio-pia 2011	Gabon 2012	Kenya 2008-09	Lesotho 2014	Malawi 2010	Mozam-bique 2009	Namibia 2013	Rwanda 2014-15	Swazi-land 2006-07	Tanzania 2011-12	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Place of residence	***			***	***	***	***	***	***	**	***				
Urban	58.6	59.8	64.9	85.0	22.4	43.1	31.5	49.8	59.7	44.1	36.9	35.2	19.7	61.7	31.8
Rural	41.4	40.2	35.1	15.0	77.6	56.9	68.5	50.2	40.3	55.9	63.1	64.8	80.3	38.3	68.2
Age Group	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15-19	3.1	7.9	0.5	3.2	4.3	6.8	4.2	6.5	4.3	2.7	3.2	4.9	6.5	8.9	6.9
20-29	21.7	18.8	20.6	21.9	29.2	23.3	19.8	29.1	20.7	21.9	33.7	16.8	17.6	24.2	20.6
30-39	45.6	28.7	50.5	36.6	46.0	40.4	43.9	41.9	43.4	31.4	41.9	44.4	43.1	36.1	42.3
40-49	29.6	44.6	28.4	38.2	20.5	29.4	32.1	22.4	31.6	44.0	21.2	33.9	32.8	30.8	30.2
Marital Status	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Never married	18.1	22.3	9.6	22.6	16.5	26.6	10.1	15.1	45.1	20.5	33.7	13.4	12.2	24.4	14.8
Currently married	73.4	65.6	71.6	60.1	66.9	58.1	80.3	73.8	50.4	70.7	51.9	74.2	71.8	66.4	72.0
Formerly married	8.5	12.0	18.8	17.3	16.6	15.2	9.6	11.1	4.5	8.7	14.4	12.4	16.0	9.3	13.2
Education	**			***					***		***	***	**		
No education	4.8	1.0	23.8	6.0	4.1	12.8	8.2	8.0	11.6	8.3	11.9	8.2	7.6	3.5	1.0
Primary	34.2	15.5	47.3	14.3	60.1	46.7	58.8	63.1	31.3	69.3	32.6	79.6	62.3	34.4	24.8
Secondary+	61.0	83.5	28.9	79.6	35.9	40.5	33.0	28.9	57.1	22.5	55.5	12.2	30.1	62.1	74.2
Wealth Quintile	**			***			**	***	***	***				***	
Poorest	6.5	23.7	3.4	16.3	7.4	15.0	9.9	9.2	16.3	14.7	15.0	12.7	16.2	8.7	19.9
Poorer	19.1	20.7	6.6	19.6	18.8	14.6	15.5	12.3	29.0	12.3	16.3	13.8	15.6	14.1	19.1
Middle	16.4	23.4	12.6	27.6	18.3	19.0	19.6	15.8	29.5	19.2	18.0	21.6	20.5	16.2	20.2
Higher	24.2	20.1	10.7	21.1	30.4	27.4	20.2	26.2	19.9	13.1	24.4	19.2	23.1	30.8	20.8
Highest	33.8	12.1	66.6	15.4	25.2	23.9	34.8	36.6	5.3	40.8	26.4	32.7	24.6	30.2	20.0
Lifetime number of sex partners	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0	2.3	4.5	1.6	5.4	2.0	4.7	2.8	2.1	1.8	6.6	3.3	4.6	5.5	7.4	7.3
1-2	8.7	0.8	38.0	0.3	10.9	14.1	21.0	17.7	20.8	41.6	9.0	18.5	12.6	17.5	17.8
3-4	13.4	12.6	28.3	13.1	24.3	18.4	33.3	25.9	18.4	25.9	24.2	22.4	21.7	28.0	22.4
5+	68.9	71.5	29.6	56.3	49.1	59.6	38.2	37.5	48.9	25.9	56.8	50.6	50.4	46.1	45.5
DK/missing	6.6	10.6	2.5	24.8	13.7	3.2	4.7	16.8	10.1	0.0	6.6	4.0	9.8	1.1	6.9
Self-report STI symptoms in past year	***			***	**	***	***		***	***	***	**	***	***	***
Yes	14.4	9.6	9.5	10.3	4.8	15.7	14.9	7.8	12.8	13.3	20.5	9.1	31.5	9.5	11.8
No or don't know	85.6	90.4	90.5	89.7	95.2	84.3	85.1	92.2	87.2	86.7	79.5	90.9	68.5	90.5	88.2
Had paid sex in the past year	***			***	***	***	***	***	***			***	***	***	***
Yes	63.4	24.8	74.8	24.5	69.8	50.8	79.4	65.4	28.4	46.6		68.6	65.6	70.0	71.6
No	36.6	75.2	25.2	75.5	30.2	49.2	20.6	34.6	71.6	53.4		31.4	34.4	30.0	28.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NUMBER	181	117	127	109	130	493	529	352	401	121	741	308	529	1,487	769

Notes: *** = p<.01, ** = p<.05, * = p<.10. No data were collected on paid sex in the past year in the 2006-2007 Swaziland Demographic and Health Survey.

Table A.4. HIV testing among PLHIV, by sex and place of residence

	Women				Men			
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
	%		n		%		n	
Estimated to know their HIV status[a]								
Cameroon 2011	57.4	37.6	248	155	53.8	53.2	106	75
Congo (Brazzaville) 2009	30.0	12.4	186	80	20.7	16.7	70	47
Ethiopia 2011	60.3	31.7	184	89	54.5	51.4	82	45
Gabon 2012	56.4	49.7	283	34	42.5	40.8	93	16
Kenya 2008-09	56.8	55.4	90	201	46.7	47.3	29	101
Lesotho 2014	72.3	70.3	401	541	63.2	54.8	212	280
Malawi 2010	[b]	[b]	316	597	50.1	45.5	167	362
Mozambique 2009	42.3	24.6	307	380	27.0	16.8	176	177
Namibia 2013	72.5	68.3	341	342	66.9	60.3	240	161
Rwanda 2014-15	70.7	63.3	99	145	68.7	68.2	53	68
Swaziland 2006-07	35.9	35.2	431	947	23.1	22.9	274	468
Tanzania 2011-12	56.9	52.0	234	367	50.3	47.4	108	199
Uganda 2011	[b]	[b]	245	662	48.3	45.6	104	424
Zambia 2013-14	68.4	63.2	1432	784	57.1	57.5	918	570
Zimbabwe 2010-11	56.0	51.6	451	844	41.4	43.1	244	525
Tested in the past 12 months								
Cameroon 2011	37.2	18.9	248	155	32.0	30.9	106	75
Congo (Brazzaville) 2009	16.8	7.7	186	80	13.5	5.5	70	47
Ethiopia 2011	36.8	14.3	184	89	31.1	24.9	82	45
Gabon 2012	35.2	31.8	283	34	24.0	20.7	93	16
Kenya 2008-09	32.8	40.6	90	201	34.5	35.7	29	101
Lesotho 2014	53.8	49.2	401	541	48.0	39.9	212	280
Malawi 2010	[b]	[b]	316	597	32.2	30.1	167	362
Mozambique 2009	28.7	16.1	307	380	17.8	9.5	176	177
Namibia 2013	50.5	45.3	341	342	50.5	42.3	240	161
Rwanda 2014-15	42.9	32.2	99	145	49.4	41.6	53	68
Swaziland 2006-07	25.9	27.2	431	947	16.9	16.5	274	468
Tanzania 2011-12	38.3	31.7	234	367	35.6	29.7	108	199
Uganda 2011	[b]	[b]	245	662	30.9	25.5	104	424
Zambia 2013-14	46.5	42.6	1432	784	41.5	42.4	918	570
Zimbabwe 2010-11	36.3	34.8	451	844	25.2	28.7	244	525
Ever tested								
Cameroon 2011	77.6	56.3	248	155	75.5	75.5	106	75
Congo (Brazzaville) 2009	43.1	17.0	186	80	27.9	27.9	70	47
Ethiopia 2011	83.8	49.0	184	89	77.8	77.8	82	45
Gabon 2012	77.6	67.6	283	34	60.9	60.9	93	16
Kenya 2008-09	80.8	70.2	90	201	58.9	58.9	29	101
Lesotho 2014	90.8	91.4	401	541	78.3	69.6	212	280
Malawi 2010	83.9	79.4	316	597	68.0	60.9	167	362
Mozambique 2009	55.9	33.0	307	380	36.2	24.0	176	177
Namibia 2013	94.5	91.2	341	342	83.3	78.2	240	161
Rwanda 2014-15	98.4	94.3	99	145	87.9	94.8	53	68
Swaziland 2006-07	45.9	43.2	431	947	29.2	29.2	274	468
Tanzania 2011-12	75.4	72.2	234	367	65.0	65.0	108	199
Uganda 2011	80.2	75.2	245	662	65.7	65.7	104	424
Zambia 2013-14	90.3	83.7	1432	784	72.6	72.6	918	570
Zimbabwe 2010-11	75.7	68.4	451	844	57.5	57.5	244	525

[a] "Estimated to know their HIV status" is computed as the midpoint between the percentage tested during the past 12 months and the percentage ever tested.
[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.5. HIV testing among HIV-positive women, by age group

	15-19	20-29	30-39	40-49	15-19	20-29	30-39	40-49
	%				n			
Estimated to know their HIV status[a]								
Cameroon 2011	(39.8)	47.7	56.4	45.8	34	145	147	77
Congo (Brazzaville) 2009	*	31.3	28.7	17.6	24	100	84	58
Ethiopia 2011	*	53.5	51.4	47.6	7	106	120	40
Gabon 2012	*	61.3	61.5	48.4	18	101	130	68
Kenya 2008-09	(41.7)	66.3	53.6	45.9	21	114	88	69
Lesotho 2014	(50.1)	74.1	71.9	69.3	38	335	357	212
Malawi 2010	[b]	[b]	[b]	[b]	64	280	386	183
Mozambique 2009	35.9	31.0	37.8	23.6	63	303	217	104
Namibia 2013	(50.4)	77.2	71.0	65.8	21	158	317	188
Rwanda 2014-15	*	73.2	63.1	62.3	12	70	85	77
Swaziland 2006-07	18.5	38.2	37.4	31.4	116	673	409	180
Tanzania 2011-12	(49.8)	59.2	55.1	46.3	27	193	223	157
Uganda 2011	[b]	[b]	[b]	[b]	71	335	318	183
Zambia 2013-14	54.4	71.5	67.6	61.7	157	686	884	490
Zimbabwe 2010-11	40.6	58.0	53.5	47.7	66	427	539	264
Tested in the past 12 months								
Cameroon 2011	(22.2)	29.6	35.8	24.1	34	145	147	77
Congo (Brazzaville) 2009	*	19.2	16.7	7.4	24	100	84	58
Ethiopia 2011	*	38.2	23.6	27.8	7	106	120	40
Gabon 2012	*	42.6	38.1	24.1	18	101	130	68
Kenya 2008-09	(25.2)	46.2	37.7	29.5	21	114	88	69
Lesotho 2014	(40.2)	57.0	50.3	45.5	38	335	357	212
Malawi 2010	[b]	[b]	[b]	[b]	64	280	386	183
Mozambique 2009	25.0	21.1	25.2	14.5	63	303	217	104
Namibia 2013	(44.7)	59.9	47.1	39.4	21	158	317	188
Rwanda 2014-15	*	50.2	30.1	27.0	12	70	85	77
Swaziland 2006-07	14.2	29.6	27.8	21.9	116	673	409	180
Tanzania 2011-12	(46.7)	35.2	36.3	28.3	27	193	223	157
Uganda 2011	[b]	[b]	[b]	[b]	71	335	318	183
Zambia 2013-14	46.8	52.5	43.8	36.7	157	686	884	490
Zimbabwe 2010-11	34.1	40.9	34.7	27.8	66	427	539	264
Ever tested								
Cameroon 2011	(57.4)	65.7	76.9	67.5	34	145	147	77
Congo (Brazzaville) 2009	*	43.4	40.7	27.7	24	100	84	58
Ethiopia 2011	*	68.8	79.1	67.4	7	106	120	40
Gabon 2012	*	80.0	84.8	72.7	18	101	130	68
Kenya 2008-09	(58.2)	86.3	69.4	62.2	21	114	88	69
Lesotho 2014	(59.9)	91.1	93.4	93.1	38	335	357	212
Malawi 2010	56.2	84.6	84.6	76.5	64	280	386	183
Mozambique 2009	46.7	40.9	50.4	32.7	63	303	217	104
Namibia 2013	(56.0)	94.4	94.9	92.1	21	158	317	188
Rwanda 2014-15	*	96.2	96.1	97.5	12	70	85	77
Swaziland 2006-07	22.7	46.7	47.0	40.8	116	673	409	180
Tanzania 2011-12	(52.8)	83.2	73.9	64.3	27	193	223	157
Uganda 2011	55.1	79.6	78.8	75.4	71	335	318	183
Zambia 2013-14	61.9	90.5	91.3	86.7	157	686	884	490
Zimbabwe 2010-11	47.0	75.1	72.3	67.6	66	427	539	264

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] "Estimated to know their HIV status" is computed as the midpoint between the percentage tested during the past 12 months and percentage ever tested.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.6. HIV testing among HIV-positive men, by age group

	15-19	20-29	30-39	40-49	15-19	20-29	30-39	40-49
	%				n			
Estimated to know their HIV status[a]								
Cameroon 2011	*	(57.9)	47.3	45.3	6	39	83	54
Congo (Brazzaville) 2009	*	*	(13.6)	15.6	9	22	34	52
Ethiopia 2011	*	(49.8)	52.7	44.9	1	26	64	36
Gabon 2012	*	*	52.7	(46.0)	4	24	40	42
Kenya 2008-09	*	(55.6)	42.5	(49.9)	6	38	60	27
Lesotho 2014	(19.2)	57.5	60.5	65.3	34	115	199	145
Malawi 2010	*	44.7	48.4	49.1	22	105	232	170
Mozambique 2009	(13.6)	18.6	25.8	21.1	23	103	148	79
Namibia 2013	*	57.4	68.4	67.8	17	83	174	127
Rwanda 2014-15	*	(71.1)	(62.4)	73.9	3	26	38	53
Swaziland 2006-07	*	19.4	24.4	28.3	24	250	310	157
Tanzania 2011-12	*	49.6	43.6	52.3	15	52	137	104
Uganda 2011	(30.2)	39.7	44.7	42.0	35	93	228	173
Zambia 2013-14	22.2	56.7	63.9	59.4	132	360	537	459
Zimbabwe 2010-11	11.0	34.9	41.3	46.7	53	158	325	232
Tested in the past 12 months								
Cameroon 2011	*	(47.2)	29.7	26.2	6	39	83	54
Congo (Brazzaville) 2009	*	*	(4.8)	11.1	9	22	34	52
Ethiopia 2011	*	(28.6)	32.1	23.8	1	26	64	36
Gabon 2012	*	*	25.2	(27.5)	4	24	40	42
Kenya 2008-09	*	(49.5)	28.3	(38.9)	6	38	60	27
Lesotho 2014	(11.1)	43.3	44.6	49.3	34	115	199	145
Malawi 2010	*	31.2	30.9	31.2	22	105	232	170
Mozambique 2009	(5.5)	10.4	17.5	12.9	23	103	148	79
Namibia 2013	*	41.4	51.8	47.8	17	83	174	127
Rwanda 2014-15	*	(48.2)	(38.7)	49.0	3	26	38	53
Swaziland 2006-07	*	15.0	16.7	21.8	24	250	310	157
Tanzania 2011-12	*	35.2	26.7	38.5	15	52	137	104
Uganda 2011	(22.0)	24.7	30.3	23.6	35	93	228	173
Zambia 2013-14	15.0	43.1	47.3	42.2	132	360	537	459
Zimbabwe 2010-11	6.3	26.4	30.0	30.0	53	158	325	232
Ever tested								
Cameroon 2011	*	(68.5)	64.8	64.3	6	39	83	54
Congo (Brazzaville) 2009	*	*	(22.4)	20.1	9	22	34	52
Ethiopia 2011	*	(70.9)	73.2	65.9	1	26	64	36
Gabon 2012	*	*	80.2	(64.5)	4	24	40	42
Kenya 2008-09	*	(61.7)	56.6	(60.9)	6	38	60	27
Lesotho 2014	(27.3)	71.6	76.4	81.3	34	115	199	145
Malawi 2010	*	58.2	65.9	66.9	22	105	232	170
Mozambique 2009	(21.7)	26.7	34.0	29.3	23	103	148	79
Namibia 2013	*	73.3	84.9	87.8	17	83	174	127
Rwanda 2014-15	*	(93.9)	(86.0)	98.7	3	26	38	53
Swaziland 2006-07	*	23.8	32.0	34.8	24	250	310	157
Tanzania 2011-12	*	63.9	60.4	66.1	15	52	137	104
Uganda 2011	(38.3)	54.7	59.0	60.3	35	93	228	173
Zambia 2013-14	29.3	70.3	80.5	76.6	132	360	537	459
Zimbabwe 2010-11	15.6	43.3	52.6	63.3	53	158	325	232

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] "Estimated to know their HIV status" is computed as the midpoint between percentage tested during the past 12 months and percentage ever tested.

Table A.7. HIV testing among HIV-positive women age 15-49, by marital status

	Never married	Currently married	Formerly married	Never married	Currently married	Formerly married
	%			n		
Estimated to know their HIV status[a]						
Cameroon 2011	43.2	48.8	55.9	58	239	106
Congo (Brazzaville) 2009	14.4	26.5	32.6	74	125	67
Ethiopia 2011	(40.9)	54.8	48.0	21	142	111
Gabon 2012	42.7	58.2	59.4	57	194	66
Kenya 2008-09	(53.7)	57.9	54.1	42	143	106
Lesotho 2014	63.4	72.3	74.2	170	532	240
Malawi 2010	[b]	[b]	[b]	59	557	298
Mozambique 2009	33.7	31.4	34.4	53	413	221
Namibia 2013	70.8	70.4	69.2	315	251	117
Rwanda 2014-15	(68.4)	66.5	64.6	44	126	74
Swaziland 2006-07	31.4	37.1	41.5	573	589	216
Tanzania 2011-12	54.3	49.9	60.0	81	319	201
Uganda 2011	[b]	[b]	[b]	100	502	306
Zambia 2013-14	58.6	69.2	65.7	352	1272	593
Zimbabwe 2010-11	42.6	54.6	53.9	129	737	429
Tested in the past 12 months						
Cameroon 2011	24.0	30.3	33.3	58	239	106
Congo (Brazzaville) 2009	9.5	15.5	16.6	74	125	67
Ethiopia 2011	(20.4)	36.6	22.0	21	142	111
Gabon 2012	20.4	38.5	36.4	57	194	66
Kenya 2008-09	(41.7)	38.9	35.9	42	143	106
Lesotho 2014	47.5	50.9	54.4	170	532	240
Malawi 2010	[b]	[b]	[b]	59	557	298
Mozambique 2009	21.1	21.1	23.2	53	413	221
Namibia 2013	50.3	46.9	43.4	315	251	117
Rwanda 2014-15	(45.1)	34.8	34.3	44	126	74
Swaziland 2006-07	22.9	28.6	32.0	573	589	216
Tanzania 2011-12	34.7	30.2	40.7	81	319	201
Uganda 2011	[b]	[b]	[b]	100	502	306
Zambia 2013-14	43.4	47.0	42.1	352	1272	593
Zimbabwe 2010-11	30.3	38.0	32.2	129	737	429
Ever tested						
Cameroon 2011	62.3	67.2	78.4	58	239	106
Congo (Brazzaville) 2009	19.2	37.4	48.6	74	125	67
Ethiopia 2011	(61.4)	72.9	74.0	21	142	111
Gabon 2012	65.0	77.9	82.4	57	194	66
Kenya 2008-09	(65.7)	76.8	72.2	42	143	106
Lesotho 2014	79.2	93.7	93.9	170	532	240
Malawi 2010	58.6	83.0	81.6	59	557	298
Mozambique 2009	46.2	41.6	45.5	53	413	221
Namibia 2013	91.2	93.9	94.9	315	251	117
Rwanda 2014-15	(91.7)	98.1	94.8	44	126	74
Swaziland 2006-07	39.8	45.6	50.9	573	589	216
Tanzania 2011-12	73.8	69.6	79.3	81	319	201
Uganda 2011	64.7	76.8	79.9	100	502	306
Zambia 2013-14	73.7	91.3	89.3	352	1272	593
Zimbabwe 2010-11	54.9	71.2	75.5	129	737	429

Note: Figures in parentheses are based on 25-49 unweighted cases.

[a] "Estimated to know their HIV status" is computed as the midpoint between percentage tested during the past 12 months and percentage ever tested.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.8. HIV testing among HIV-positive men age 15-49, by marital status

	Never married	Currently married	Formerly married	Never married	Currently married	Formerly married
	%			n		
Estimated to know their HIV status[a]						
Cameroon 2011	(45.3)	49.5	*	33	133	15
Congo (Brazzaville) 2009	(13.5)	15.9	*	26	77	14
Ethiopia 2011	(25.8)	50.6	(58.4)	12	91	24
Gabon 2012	*	47.6	*	25	66	19
Kenya 2008-09	*	49.1	*	22	87	22
Lesotho 2014	47.3	65.8	49.6	131	286	75
Malawi 2010	(26.4)	48.8	(53.7)	54	425	51
Mozambique 2009	21.5	21.5	(24.6)	53	260	39
Namibia 2013	61.0	66.6	*	181	202	18
Rwanda 2014-15	(60.0)	72.2	*	25	86	11
Swaziland 2006-07	18.2	25.7	23.1	250	385	107
Tanzania 2011-12	(32.0)	47.1	(57.4)	41	228	38
Uganda 2011	32.0	44.0	40.5	64	380	85
Zambia 2013-14	40.3	62.4	62.9	363	987	138
Zimbabwe 2010-11	22.9	42.9	39.6	114	554	102
Tested in the past 12 months						
Cameroon 2011	(32.8)	32.5	*	33	133	15
Congo (Brazzaville) 2009	(9.6)	10.9	*	26	77	14
Ethiopia 2011	(12.7)	29.1	(36.7)	12	91	24
Gabon 2012	*	29.7	*	25	66	19
Kenya 2008-09	*	37.8	*	22	87	22
Lesotho 2014	36.0	49.3	33.8	131	286	75
Malawi 2010	(15.8)	32.0	(37.0)	54	425	51
Mozambique 2009	9.6	13.6	(19.2)	53	260	39
Namibia 2013	47.6	45.8	*	181	202	18
Rwanda 2014-15	(44.8)	48.7	*	25	86	11
Swaziland 2006-07	14.3	18.1	17.2	250	385	107
Tanzania 2011-12	(15.8)	32.2	(46.4)	41	228	38
Uganda 2011	20.8	28.5	22.2	64	380	85
Zambia 2013-14	30.0	45.2	48.6	363	987	138
Zimbabwe 2010-11	16.1	30.1	26.9	114	554	102
Ever tested						
Cameroon 2011	(57.7)	66.5	*	33	133	15
Congo (Brazzaville) 2009	(17.3)	20.8	*	26	77	14
Ethiopia 2011	(38.8)	72.0	(80.1)	12	91	24
Gabon 2012	*	65.4	*	25	66	19
Kenya 2008-09	*	60.4	*	22	87	22
Lesotho 2014	58.6	82.2	65.3	131	286	75
Malawi 2010	(36.9)	65.5	(70.4)	54	425	51
Mozambique 2009	33.3	29.4	(29.9)	53	260	39
Namibia 2013	74.3	87.3	*	181	202	18
Rwanda 2014-15	(75.1)	95.6	*	25	86	11
Swaziland 2006-07	22.1	33.2	28.9	250	385	107
Tanzania 2011-12	(48.1)	62.0	(68.4)	41	228	38
Uganda 2011	43.1	59.4	58.8	64	380	85
Zambia 2013-14	50.5	79.6	77.2	363	987	138
Zimbabwe 2010-11	29.7	55.7	52.2	114	554	102

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] "Estimated to know their HIV status" is computed as the midpoint between percentage tested during the past 12 months and percentage ever tested.

Table A.9. HIV testing among HIV-positive women age 15-49, by education

	No education	Primary	Secondary and above	No education	Primary	Secondary and above
	%			n		
Estimated to know their HIV status[a]						
Cameroon 2011	(18.0)	48.0	57.9	42	159	201
Congo (Brazzaville) 2009	*	19.1	28.1	13	62	190
Ethiopia 2011	41.2	52.8	65.1	97	124	52
Gabon 2012	*	47.5	57.9	4	81	232
Kenya 2008-09	(35.2)	55.1	62.1	19	186	86
Lesotho 2014	*	72.3	70.8	9	435	498
Malawi 2010	[b]	[b]	[b]	154	530	229
Mozambique 2009	26.2	30.7	49.5	150	436	101
Namibia 2013	71.8	65.7	72.4	51	208	424
Rwanda 2014-15	(62.6)	67.2	(66.8)	46	157	42
Swaziland 2006-07	30.5	32.5	38.4	142	500	735
Tanzania 2011-12	42.0	54.6	63.7	92	425	84
Uganda 2011	[b]	[b]	[b]	144	577	186
Zambia 2013-14	66.4	64.6	68.4	160	992	1064
Zimbabwe 2010-11	(49.4)	45.5	57.3	26	434	835
Tested in the past 12 months						
Cameroon 2011	(0.0)	32.3	34.8	42	159	201
Congo (Brazzaville) 2009	*	7.7	17.2	13	62	190
Ethiopia 2011	23.7	29.4	40.5	97	124	52
Gabon 2012	*	29.2	35.8	4	81	232
Kenya 2008-09	(25.3)	36.6	44.5	19	186	86
Lesotho 2014	*	51.4	51.7	9	435	498
Malawi 2010	[b]	[b]	[b]	154	530	229
Mozambique 2009	18.2	20.7	31.6	150	436	101
Namibia 2013	50.8	42.7	50.0	51	208	424
Rwanda 2014-15	(30.5)	39.1	(33.6)	46	157	42
Swaziland 2006-07	23.5	24.9	28.7	142	500	735
Tanzania 2011-12	22.2	35.4	42.4	92	425	84
Uganda 2011	[b]	[b]	[b]	144	577	186
Zambia 2013-14	47.1	43.1	46.7	160	992	1064
Zimbabwe 2010-11	(41.1)	31.8	37.0	26	434	835
Ever tested						
Cameroon 2011	(36.0)	63.7	81.0	42	159	201
Congo (Brazzaville) 2009	*	30.4	38.9	13	62	190
Ethiopia 2011	58.6	76.1	89.7	97	124	52
Gabon 2012	*	65.7	79.9	4	81	232
Kenya 2008-09	(45.0)	73.5	79.7	19	186	86
Lesotho 2014	*	93.1	89.8	9	435	498
Malawi 2010	76.6	78.7	89.2	154	530	229
Mozambique 2009	34.2	40.6	67.3	150	436	101
Namibia 2013	92.8	88.7	94.8	51	208	424
Rwanda 2014-15	(94.6)	95.2	(100.0)	46	157	42
Swaziland 2006-07	37.4	40.0	48.0	142	500	735
Tanzania 2011-12	61.8	73.7	84.9	92	425	84
Uganda 2011	68.3	75.9	85.0	144	577	186
Zambia 2013-14	85.7	86.0	90.1	160	992	1064
Zimbabwe 2010-11	(57.6)	59.2	77.5	26	434	835

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] "Estimated to know their HIV status" is computed as the midpoint between percentage tested during the past 12 months and percentage ever tested.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.10. HIV testing among HIV-positive men age 15-49, by education

	No education	Primary	Secondary and above	No education	Primary	Secondary and above
	%			n		
Estimated to know their HIV status[a]						
Cameroon 2011	*	42.7	52.2	9	62	111
Congo (Brazzaville) 2009	*	(15.7)	15.9	1	18	98
Ethiopia 2011	*	54.2	46.5	30	60	37
Gabon 2012	*	(44.2)	41.4	7	16	87
Kenya 2008-09	*	41.2	(51.3)	5	78	47
Lesotho 2014	48.1	55.4	65.2	63	230	199
Malawi 2010	(40.8)	46.1	50.2	43	311	174
Mozambique 2009	(1.7)	19.2	33.2	28	223	102
Namibia 2013	58.7	64.0	65.4	46	126	229
Rwanda 2014-15	*	64.3	(77.8)	10	84	27
Swaziland 2006-07	23.0	19.2	24.8	88	242	411
Tanzania 2011-12	*	46.1	(51.9)	25	245	38
Uganda 2011	(18.9)	40.6	50.8	40	329	159
Zambia 2013-14	60.2	55.0	58.1	52	512	923
Zimbabwe 2010-11	*	28.4	43.7	8	190	570
Tested in the past 12 months						
Cameroon 2011	*	29.0	34.0	9	62	111
Congo (Brazzaville) 2009	*	(8.3)	10.8	1	18	98
Ethiopia 2011	*	31.3	24.1	30	60	37
Gabon 2012	*	(34.1)	22.8	7	16	87
Kenya 2008-09	*	30.1	(37.5)	5	78	47
Lesotho 2014	36.3	40.5	49.0	63	230	199
Malawi 2010	(22.9)	32.2	30.4	43	311	174
Mozambique 2009	(0.0)	12.9	19.0	28	223	102
Namibia 2013	40.6	49.6	47.1	46	126	229
Rwanda 2014-15	*	39.5	(57.8)	10	84	27
Swaziland 2006-07	17.6	14.7	17.6	88	242	411
Tanzania 2011-12	*	31.1	(43.1)	25	245	38
Uganda 2011	(9.7)	27.0	30.0	40	329	159
Zambia 2013-14	38.8	41.3	42.3	52	512	923
Zimbabwe 2010-11	*	20.1	30.5	8	190	570
Ever tested						
Cameroon 2011	*	56.4	70.3	9	62	111
Congo (Brazzaville) 2009	*	(23.0)	21.0	1	18	98
Ethiopia 2011	*	77.1	68.9	30	60	37
Gabon 2012	*	(54.2)	60.0	7	16	87
Kenya 2008-09	*	52.2	(65.1)	5	78	47
Lesotho 2014	59.8	70.2	81.3	63	230	199
Malawi 2010	(58.7)	59.9	69.9	43	311	174
Mozambique 2009	(3.4)	25.5	47.3	28	223	102
Namibia 2013	76.7	78.4	83.7	46	126	229
Rwanda 2014-15	*	89.1	(97.7)	10	84	27
Swaziland 2006-07	28.4	23.6	32.0	88	242	411
Tanzania 2011-12	*	61.1	(60.7)	25	245	38
Uganda 2011	(28.0)	54.1	71.5	40	329	159
Zambia 2013-14	81.6	68.6	73.9	52	512	923
Zimbabwe 2010-11	*	36.7	56.8	8	190	570

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

Table A.11. HIV testing among HIV-positive women age 15-49, by wealth

	Poorest	Poorer	Middle	Higher	Highest	Poorest	Poorer	Middle	Higher	Highest
	%					n				
Estimated to know their HIV status[a]										
Cameroon 2011	(15.5)	38.2	48.2	55.5	60.9	30	63	83	112	115
Congo (Brazzaville) 2009	14.5	20.9	(17.8)	(24.0)	(38.6)	38	65	43	52	69
Ethiopia 2011	*	*	*	(32.3)	59.3	12	13	20	43	185
Gabon 2012	47.4	47.6	(52.0)	(66.2)	(63.8)	47	72	71	78	49
Kenya 2008-09	(59.4)	57.2	(58.1)	51.7	55.3	40	55	41	61	94
Lesotho 2014	66.6	73.6	74.9	70.6	69.8	112	132	178	270	251
Malawi 2010	[b]	[b]	[b]	[b]	[b]	107	129	148	188	341
Mozambique 2009	(8.2)	22.0	24.9	33.4	45.5	66	86	102	195	238
Namibia 2013	68.1	67.5	73.8	69.0	(80.5)	150	180	161	142	50
Rwanda 2014-15	64.1	(66.6)	(64.5)	(66.3)	68.3	50	34	50	25	86
Swaziland 2006-07	29.9	35.3	37.7	37.7	35.1	225	248	275	315	316
Tanzania 2011-12	50.7	48.3	50.0	50.2	61.7	79	83	97	137	205
Uganda 2011	[b]	[b]	[b]	[b]	[b]	126	148	148	207	278
Zambia 2013-14	60.9	67.0	63.3	70.6	66.3	230	246	400	670	670
Zimbabwe 2010-11	49.8	54.6	51.0	53.5	57.2	236	231	290	300	239
Tested in the past 12 months										
Cameroon 2011	(8.6)	16.9	33.2	31.6	39.5	30	63	83	112	115
Congo (Brazzaville) 2009	11.2	8.4	(12.5)	(10.7)	(24.7)	38	65	43	52	69
Ethiopia 2011	*	*	*	(6.2)	36.3	12	13	20	43	185
Gabon 2012	29.5	22.9	(37.1)	(45.3)	(37.3)	47	72	71	78	49
Kenya 2008-09	(46.7)	42.3	(41.9)	35.8	32.2	40	55	41	61	94
Lesotho 2014	47.3	55.7	54.1	49.3	50.4	112	132	178	270	251
Malawi 2010	[b]	[b]	[b]	[b]	[b]	107	129	148	188	341
Mozambique 2009	(5.9)	13.7	17.8	21.2	31.2	66	86	102	195	238
Namibia 2013	45.2	42.6	53.0	46.2	(63.2)	150	180	161	142	50
Rwanda 2014-15	35.0	(38.4)	(33.1)	(35.2)	39.0	50	34	50	25	86
Swaziland 2006-07	23.5	25.6	31.6	28.1	24.4	225	248	275	315	316
Tanzania 2011-12	25.1	31.6	25.8	34.7	42.7	79	83	97	137	205
Uganda 2011	[b]	[b]	[b]	[b]	[b]	126	148	148	207	278
Zambia 2013-14	43.8	46.6	39.2	51.5	42.3	230	246	400	670	670
Zimbabwe 2010-11	35.9	39.0	31.0	34.8	36.9	236	231	290	300	239
Ever tested										
Cameroon 2011	(22.4)	59.5	63.1	79.3	82.2	30	63	83	112	115
Congo (Brazzaville) 2009	17.8	33.4	(23.0)	(37.2)	(52.5)	38	65	43	52	69
Ethiopia 2011	*	*	*	(58.3)	82.2	12	13	20	43	185
Gabon 2012	65.3	72.3	(66.9)	(87.1)	(90.3)	47	72	71	78	49
Kenya 2008-09	(72.1)	72.1	(74.3)	67.5	78.4	40	55	41	61	94
Lesotho 2014	85.8	91.5	95.7	91.9	89.2	112	132	178	270	251
Malawi 2010	77.5	77.6	74.9	79.3	86.8	107	129	148	188	341
Mozambique 2009	(10.5)	30.3	32.0	45.6	59.7	66	86	102	195	238
Namibia 2013	90.9	92.4	94.5	91.7	(97.7)	150	180	161	142	50
Rwanda 2014-15	93.1	(94.8)	(95.9)	(97.4)	97.6	50	34	50	25	86
Swaziland 2006-07	36.3	45.0	43.7	47.3	45.8	225	248	275	315	316
Tanzania 2011-12	76.2	64.9	74.2	65.6	80.6	79	83	97	137	205
Uganda 2011	75.3	67.9	73.2	80.7	80.4	126	148	148	207	278
Zambia 2013-14	77.9	87.4	87.4	89.6	90.3	230	246	400	670	670
Zimbabwe 2010-11	63.7	70.2	70.9	72.2	77.4	236	231	290	300	239

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.12. HIV testing among HIV-positive men age 15-49, by wealth

	Poorest	Poorer	Middle	Higher	Highest	Poorest	Poorer	Middle	Higher	Highest
	%					n				
Estimated to know their HIV status[a]										
Cameroon 2011	*	(41.0)	(47.4)	(51.9)	(54.3)	12	35	30	44	61
Congo (Brazzaville) 2009	(7.0)	(17.2)	(6.9)	*	*	28	24	27	23	14
Ethiopia 2011	*	*	*	*	50.3	4	8	16	14	85
Gabon 2012	(40.0)	(42.9)	(38.4)	*	*	18	21	30	23	17
Kenya 2008-09	*	(27.6)	*	(59.0)	(52.1)	10	25	24	40	33
Lesotho 2014	46.1	61.1	55.7	64.5	59.7	74	72	94	135	118
Malawi 2010	45.2	44.9	45.4	50.1	47.4	52	82	104	107	184
Mozambique 2009	(5.2)	(19.0)	12.8	16.7	34.6	32	43	56	92	129
Namibia 2013	60.4	61.4	63.8	70.9	*	65	116	118	80	21
Rwanda 2014-15	*	*	*	*	68.3	18	15	23	16	49
Swaziland 2006-07	14.9	26.0	22.6	24.6	23.8	111	121	133	181	196
Tanzania 2011-12	(40.4)	(61.6)	36.4	44.2	50.1	39	42	66	59	101
Uganda 2011	43.6	40.2	37.5	36.1	51.2	85	82	108	122	130
Zambia 2013-14	56.7	55.9	56.1	56.0	59.4	129	209	241	459	450
Zimbabwe 2010-11	36.3	30.1	36.3	43.2	51.1	153	147	155	160	154
Tested in the past 12 months										
Cameroon 2011	*	(34.2)	(36.2)	(32.0)	(31.3)	12	35	30	44	61
Congo (Brazzaville) 2009	(5.1)	(13.7)	(0.0)	*	*	28	24	27	23	14
Ethiopia 2011	*	*	*	*	27.4	4	8	16	14	85
Gabon 2012	(31.9)	(18.6)	(13.0)	*	*	18	21	30	23	17
Kenya 2008-09	*	(20.6)	*	(50.4)	(40.1)	10	25	24	40	33
Lesotho 2014	33.0	46.4	44.1	47.8	42.6	74	72	94	135	118
Malawi 2010	32.8	29.4	34.5	33.7	27.0	52	82	104	107	184
Mozambique 2009	(0.0)	(10.5)	9.2	11.6	21.4	32	43	56	92	129
Namibia 2013	43.5	47.1	44.9	53.5	*	65	116	118	80	21
Rwanda 2014-15	*	*	*	*	48.3	18	15	23	16	49
Swaziland 2006-07	11.4	19.8	16.8	18.8	15.7	111	121	133	181	196
Tanzania 2011-12	(27.9)	(45.2)	22.2	28.0	36.1	39	42	66	59	101
Uganda 2011	30.5	26.1	22.5	23.1	30.9	85	82	108	122	130
Zambia 2013-14	41.9	40.8	40.9	41.3	43.4	129	209	241	459	450
Zimbabwe 2010-11	25.6	22.2	26.1	28.5	35.4	153	147	155	160	154
Ever tested										
Cameroon 2011	*	(47.7)	(58.6)	(71.8)	(77.3)	26	48	59	72	77
Congo (Brazzaville) 2009	(8.8)	(20.7)	(13.8)	*	*	9	21	14	44	23
Ethiopia 2011	*	*	*	*	73.2	49	53	72	69	73
Gabon 2012	(48.0)	(67.1)	(63.7)	*	*	48	67	64	50	67
Kenya 2008-09	*	(34.5)	*	(67.6)	(64.1)	46	35	66	68	64
Lesotho 2014	59.2	75.7	67.2	81.2	76.7	74	72	94	135	118
Malawi 2010	57.6	60.4	56.3	66.5	67.7	52	82	104	107	184
Mozambique 2009	(10.4)	(27.5)	16.3	21.7	47.7	32	43	56	92	129
Namibia 2013	77.2	75.6	82.6	88.2	*	65	116	118	80	21
Rwanda 2014-15	*	*	*	*	88.3	18	15	23	16	49
Swaziland 2006-07	18.3	32.1	28.3	30.3	31.8	18	32	28	30	32
Tanzania 2011-12	(52.8)	(78.0)	50.6	60.3	64.0	53	78	51	60	64
Uganda 2011	56.7	54.2	52.4	49.1	71.5	57	54	52	49	72
Zambia 2013-14	71.4	71.0	71.3	70.7	75.3	71	71	71	71	75
Zimbabwe 2010-11	46.9	38.0	46.5	57.8	66.8	47	38	47	58	67

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

Table A.13. HIV testing among HIV-positive women age 15-49, by lifetime number of sexual partners

	0	1-2	3-4	5+	DK/missing	0	1-2	3-4	5+	DK/missing
	%					n				
Estimated to know their HIV status[a]										
Cameroon 2011	*	44.2	51.4	54.3	*	10	106	134	137	16
Congo (Brazzaville) 2009	*	(29.4)	31.1	23.9	*	16	40	83	114	12
Ethiopia 2011	*	50.4	(66.3)	*	*	11	210	31	16	5
Gabon 2012	*	(53.4)	66.8	57.7	(29.2)	2	36	70	175	34
Kenya 2008-09	*	56.6	57.5	(48.3)	*	7	143	114	20	6
Lesotho 2014	*	69.6	74.1	72.6	*	14	444	291	180	13
Malawi 2010	b	b	b	b	b	19	557	274	60	4
Mozambique 2009	*	32.3	38.5	20.6	(33.1)	5	401	184	73	24
Namibia 2013	*	71.2	73.2	69.3	*	12	285	295	72	20
Rwanda 2014-15	*	67.1	64.0	*	*	8	176	52	8	0
Swaziland 2006-07	(6.3)	36.8	36.3	35.2	31.9	41	693	440	152	52
Tanzania 2011-12	*	50.0	58.0	58.2	*	15	295	183	102	5
Uganda 2011	b	b	b	b	b	25	402	324	146	10
Zambia 2013-14	43.6	68.7	66.8	62.8	*	76	1205	708	207	21
Zimbabwe 2010-11	29.3	53.3	55.4	55.2	*	44	902	247	89	13
Tested in the past 12 months										
Cameroon 2011	*	27.0	33.0	31.4	*	10	106	134	137	16
Congo (Brazzaville) 2009	*	(22.2)	23.7	7.5	*	16	40	83	114	12
Ethiopia 2011	*	30.2	(39.1)	*	*	11	210	31	16	5
Gabon 2012	*	(35.3)	50.2	32.6	(16.6)	2	36	70	175	34
Kenya 2008-09	*	36.1	41.3	(33.9)	*	7	143	114	20	6
Lesotho 2014	*	49.8	54.2	51.1	*	14	444	291	180	13
Malawi 2010	b	b	b	b	b	19	557	274	60	4
Mozambique 2009	*	22.6	24.1	11.5	(25.6)	5	401	184	73	24
Namibia 2013	*	49.3	51.0	42.5	*	12	285	295	72	20
Rwanda 2014-15	*	36.5	33.2	*	*	8	176	52	8	0
Swaziland 2006-07	(1.9)	28.0	26.4	29.3	24.3	41	693	440	152	52
Tanzania 2011-12	*	28.0	42.2	37.2	*	15	295	183	102	5
Uganda 2011	b	b	b	b	b	25	402	324	146	10
Zambia 2013-14	35.8	48.9	43.2	35.9	*	76	1205	708	207	21
Zimbabwe 2010-11	21.3	35.2	36.1	39.2	*	44	902	247	89	13
Ever tested										
Cameroon 2011	*	61.4	69.7	77.2	*	10	106	134	137	16
Congo (Brazzaville) 2009	*	(36.5)	38.5	40.3	*	16	40	83	114	12
Ethiopia 2011	*	70.5	(93.5)	*	*	11	210	31	16	5
Gabon 2012	*	(71.5)	83.4	82.7	(41.8)	2	36	70	175	34
Kenya 2008-09	*	77.0	73.7	(62.6)	*	7	143	114	20	6
Lesotho 2014	*	89.4	93.9	94.1	*	14	444	291	180	13
Malawi 2010	*	80.6	81.8	95.8	*	19	557	274	60	4
Mozambique 2009	*	41.9	52.8	29.7	(40.5)	5	401	184	73	24
Namibia 2013	*	93.0	95.3	96.1	*	12	285	295	72	20
Rwanda 2014-15	*	97.7	94.7	*	*	8	176	52	8	0
Swaziland 2006-07	(10.6)	45.6	46.1	41.1	39.4	41	693	440	152	52
Tanzania 2011-12	*	72.0	73.7	79.2	*	15	295	183	102	5
Uganda 2011	(33.2)	78.5	77.2	76.2	*	25	402	324	146	10
Zambia 2013-14	51.4	88.4	90.3	89.6	*	76	1205	708	207	21
Zimbabwe 2010-11	37.2	71.4	74.6	71.1	*	44	902	247	89	13

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.14. HIV testing among HIV-positive men age 15-49, by lifetime number of sexual partners

	0	1-2	3-4	5+	DK/missing	0	1-2	3-4	5+	DK/missing
	%					n				
Estimated to know their HIV status[a]										
Cameroon 2011	*	*	*	45.9	*	4	16	24	125	12
Congo (Brazzaville) 2009	*	*	*	13.2	*	5	1	15	84	12
Ethiopia 2011	*	47.6	(61.8)	42.4	*	2	48	36	38	3
Gabon 2012	*	*	*	37.6	(53.2)	6	0	14	62	27
Kenya 2008-09	*	*	(47.0)	49.4	*	3	14	32	64	18
Lesotho 2014	(27.7)	50.7	59.0	63.0	*	23	69	90	293	16
Malawi 2010	*	45.4	46.9	50.4	(37.4)	15	111	176	202	25
Mozambique 2009	*	16.0	25.4	22.0	23.7	7	62	91	132	59
Namibia 2013	*	58.0	61.4	69.9	(58.6)	7	84	74	196	40
Rwanda 2014-15	*	65.7	(75.6)	(68.0)	*	8	50	31	31	0
Swaziland 2006-07	*	20.8	20.7	25.4	20.8	25	67	180	421	49
Tanzania 2011-12	*	(52.1)	41.4	48.3	*	14	57	69	156	12
Uganda 2011	(23.7)	40.7	44.1	43.4	41.6	29	66	115	266	52
Zambia 2013-14	23.6	61.3	58.8	60.3	*	110	260	416	686	16
Zimbabwe 2010-11	16.6	40.8	38.0	42.6	44.7	56	137	172	350	53
Tested in the past 12 months										
Cameroon 2011	*	*	*	28.7	*	4	16	24	125	12
Congo (Brazzaville) 2009	*	*	*	7.0	*	5	1	15	84	12
Ethiopia 2011	*	19.4	(49.5)	20.3	*	2	48	36	38	3
Gabon 2012	*	*	*	23.6	(35.5)	6	0	14	62	27
Kenya 2008-09	*	*	(35.2)	35.0	*	3	14	32	64	18
Lesotho 2014	(18.0)	34.6	45.5	47.9	*	23	69	90	293	16
Malawi 2010	*	34.2	30.5	30.2	(23.7)	15	111	176	202	25
Mozambique 2009	*	11.6	15.0	14.9	12.4	7	62	91	132	59
Namibia 2013	*	44.6	43.8	52.7	(34.0)	7	84	74	196	40
Rwanda 2014-15	*	37.9	(53.3)	(45.7)	*	8	50	31	31	0
Swaziland 2006-07	*	18.5	15.0	18.5	11.2	25	67	180	421	49
Tanzania 2011-12	*	(33.9)	28.7	34.7	*	14	57	69	156	12
Uganda 2011	(20.1)	25.2	32.0	25.8	23.6	29	66	115	266	52
Zambia 2013-14	13.4	49.8	42.9	43.1	*	110	260	416	686	16
Zimbabwe 2010-11	12.2	27.2	25.6	31.4	26.4	56	137	172	350	53
Ever tested										
Cameroon 2011	*	*	*	63.0	*	4	16	24	125	12
Congo (Brazzaville) 2009	*	*	*	19.4	*	5	1	15	84	12
Ethiopia 2011	*	75.7	(74.0)	64.4	*	2	48	36	38	3
Gabon 2012	*	*	*	51.5	(70.9)	6	0	14	62	27
Kenya 2008-09	*	*	(58.8)	63.7	*	3	14	32	64	18
Lesotho 2014	(37.4)	66.8	72.5	78.1	*	23	69	90	293	16
Malawi 2010	*	56.5	63.3	70.6	(51.1)	15	111	176	202	25
Mozambique 2009	*	20.3	35.7	29.0	35.0	7	62	91	132	59
Namibia 2013	*	71.3	79.0	87.0	(83.2)	7	84	74	196	40
Rwanda 2014-15	*	93.5	(97.8)	(90.2)	*	8	50	31	31	0
Swaziland 2006-07	*	23.0	26.4	32.2	30.3	25	67	180	421	49
Tanzania 2011-12	*	(70.3)	54.0	61.8	*	14	57	69	156	12
Uganda 2011	(27.3)	56.1	56.2	61.0	59.5	29	66	115	266	52
Zambia 2013-14	33.7	72.8	74.7	77.5	*	110	260	416	686	16
Zimbabwe 2010-11	21.0	54.4	50.3	53.8	62.9	56	137	172	350	53

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

Table A.15. HIV testing among PLHIV, by self-report of STI symptoms in the past year

	Women				Men			
	Yes	No	Yes	No	Yes	No	Yes	No
	%		N		%		n	
Estimated to know their HIV status[a]								
Cameroon 2011	56.8	48.3	73	329	(44.5)	48.3	26	155
Congo (Brazzaville) 2009	17.1	27.8	78	187	*	17.3	11	106
Ethiopia 2011	*	50.6	15	259	*	51.4	12	115
Gabon 2012	57.1	55.2	85	233	*	43.8	11	98
Kenya 2008-09	(58.7)	55.5	35	256	*	46.9	6	124
Lesotho 2014	75.4	70.3	166	777	52.8	59.5	113	401
Malawi 2010	[b]	[b]	182	731	52.5	46.0	79	450
Mozambique 2009	48.8	30.5	76	611	(3.7)	23.4	28	325
Namibia 2013	72.8	70.1	71	612	(60.1)	64.8	51	350
Rwanda 2014-15	65.7	66.4	52	193	*	67.6	31	95
Swaziland 2006-07	37.0	35.1	235	1143	26.5	21.8	152	589
Tanzania 2011-12	54.0	53.9	95	505	(43.8)	46.6	28	280
Uganda 2011	[b]	[b]	443	464	40.6	42.6	167	362
Zambia 2013-14	70.4	66.2	170	2047	63.4	56.5	141	1347
Zimbabwe 2010-11	60.0	51.9	211	1084	42.9	39.1	91	678
Tested in the past 12 months								
Cameroon 2011	42.3	27.5	73	329	(29.4)	31.9	26	155
Congo (Brazzaville) 2009	7.2	17.0	78	187	*	11.4	11	106
Ethiopia 2011	*	29.8	15	259	*	31.8	12	115
Gabon 2012	37.1	34.0	85	233	*	26.2	11	98
Kenya 2008-09	(46.5)	37.1	35	256	*	34.7	6	124
Lesotho 2014	56.0	50.1	166	777	37.7	44.5	113	401
Malawi 2010	[b]	[b]	182	731	36.3	29.8	79	450
Mozambique 2009	32.7	20.4	76	611	(0.0)	14.8	28	325
Namibia 2013	52.4	47.3	71	612	(31.1)	49.5	51	350
Rwanda 2014-15	33.3	37.4	52	193	*	42.6	31	95
Swaziland 2006-07	31.8	25.7	235	1143	22.3	15.2	152	589
Tanzania 2011-12	36.1	34.0	95	505	(32.7)	31.7	28	280
Uganda 2011	[b]	[b]	443	464	23.4	28.0	167	362
Zambia 2013-14	51.3	44.6	170	2047	45.6	41.5	141	1347
Zimbabwe 2010-11	42.7	33.9	211	1084	32.3	27.0	91	678
Ever tested[2]								
Cameroon 2011	71.3	69.0	73	329	(59.6)	64.7	26	155
Congo (Brazzaville) 2009	27.0	38.6	78	187	*	23.2	11	106
Ethiopia 2011	*	71.3	15	259	*	71.0	12	115
Gabon 2012	77.0	76.3	85	233	*	61.3	11	98
Kenya 2008-09	(70.9)	73.9	35	256	*	59.0	6	124
Lesotho 2014	94.7	90.4	166	777	67.8	74.4	77	415
Malawi 2010	85.2	79.9	182	731	68.6	62.1	79	450
Mozambique 2009	64.9	40.5	76	611	(7.4)	32.0	27	325
Namibia 2013	93.2	92.8	71	612	(89.1)	80.1	51	350
Rwanda 2014-15	98.1	95.4	52	193	*	92.6	16	105
Swaziland 2006-07	42.2	44.4	235	1143	30.6	28.4	152	589
Tanzania 2011-12	71.9	73.7	95	505	(54.8)	61.5	28	280
Uganda 2011	77.4	75.7	443	464	57.8	57.1	167	362
Zambia 2013-14	89.4	87.8	170	2047	81.2	71.4	141	1347
Zimbabwe 2010-11	77.3	69.8	211	1084	53.5	51.1	91	678

Note: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.16. HIV testing among HIV-positive women, by whether they gave birth in the past 2 years

	Yes	No	Yes	No
	%		n	
Estimated to know their HIV status[a]				
Cameroon 2011	[b]	[b]	87	316
Congo (Brazzaville) 2009	30.1	23.2	57	208
Ethiopia 2011	(63.5)	48.7	42	231
Gabon 2012	67.1	51.1	92	226
Kenya 2008-09	67.9	51.2	81	210
Lesotho 2014	74.2	70.5	165	778
Malawi 2010	[b]	[b]	234	679
Mozambique 2009	42.2	29.0	182	505
Namibia 2013	79.6	67.8	147	536
Rwanda 2014-15	71.2	64.9	52	193
Swaziland 2006-07	48.8	30.5	371	1007
Tanzania 2011-12	65.4	50.6	135	465
Uganda 2011	45.0	52.4	242	665
Zambia 2013-14	73.7	64.6	489	1728
Zimbabwe 2010-11	66.4	49.6	273	1023
Tested in the past 12 months				
Cameroon 2011	[b]	[b]	87	316
Congo (Brazzaville) 2009	23.7	11.5	57	208
Ethiopia 2011	(53.1)	25.1	42	231
Gabon 2012	43.0	31.5	92	226
Kenya 2008-09	49.3	33.9	81	210
Lesotho 2014	54.8	50.4	165	778
Malawi 2010	[b]	[b]	234	679
Mozambique 2009	31.2	18.4	182	505
Namibia 2013	63.1	43.7	147	536
Rwanda 2014-15	43.9	34.5	52	193
Swaziland 2006-07	39.9	21.9	371	1007
Tanzania 2011-12	45.4	31.1	135	465
Uganda 2011	15.3	27.6	242	665
Zambia 2013-14	54.4	42.5	489	1728
Zimbabwe 2010-11	53.6	30.4	273	1023
Ever tested				
Cameroon 2011	82.8	65.8	87	316
Congo (Brazzaville) 2009	36.5	34.8	57	208
Ethiopia 2011	(73.8)	72.2	42	231
Gabon 2012	91.1	70.6	92	226
Kenya 2008-09	86.5	68.5	81	210
Lesotho 2014	93.5	90.6	165	778
Malawi 2010	92.6	76.9	234	679
Mozambique 2009	53.1	39.6	182	505
Namibia 2013	96.0	91.9	147	536
Rwanda 2014-15	98.4	95.3	52	193
Swaziland 2006-07	57.7	39.0	371	1007
Tanzania 2011-12	85.3	70.0	135	465
Uganda 2011	74.6	77.2	242	665
Zambia 2013-14	92.9	86.6	489	1728
Zimbabwe 2010-11	79.2	68.8	273	1023

Note: Figures in parentheses are based on 25-49 unweighted cases.

[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.

[b] Due to a problem with the questionnaires for the Malawi 2010 Demographic and Health Survey and Uganda 2011 AIDS Indicator Survey, data on time since last HIV test are not available for some women; therefore, these estimates are omitted.

Table A.17. HIV testing among HIV-positive men, by whether they paid for sex in the past year

	Yes	No	Yes	No
	%		n	
Estimated to know their HIV status[a]				
Cameroon 2011	50.5	43.1	115	66
Congo (Brazzaville) 2009	(29.2)	11.3	29	88
Ethiopia 2011	52.8	40.2	95	32
Gabon 2012	(44.9)	40.4	27	83
Kenya 2008-09	46.3	(48.8)	91	39
Lesotho 2014	64.5	52.1	250	242
Malawi 2010	48.7	40.2	420	109
Mozambique 2009	18.8	27.6	230	122
Namibia 2013	67.0	63.1	114	287
Rwanda 2014-15	74.8	62.9	56	65
Tanzania 2011-12	45.4	48.4	211	97
Uganda 2011	43.7	38.5	347	182
Zambia 2013-14	61.9	46.0	1041	446
Zimbabwe 2010-11	42.2	32.7	551	218
Tested in the past 12 months				
Cameroon 2011	34.1	27.2	115	66
Congo (Brazzaville) 2009	(25.5)	5.3	29	88
Ethiopia 2011	33.0	16.9	95	32
Gabon 2012	(33.6)	20.3	27	83
Kenya 2008-09	34.4	(37.8)	91	39
Lesotho 2014	48.7	37.9	250	242
Malawi 2010	32.7	23.3	420	109
Mozambique 2009	11.9	16.8	230	122
Namibia 2013	46.7	47.3	114	287
Rwanda 2014-15	52.0	39.0	56	65
Tanzania 2011-12	31.4	32.5	211	97
Uganda 2011	27.4	24.9	347	182
Zambia 2013-14	44.8	35.0	1041	446
Zimbabwe 2010-11	28.7	24.9	551	218
Ever tested				
Cameroon 2011	66.8	59.0	115	66
Congo (Brazzaville) 2009	(32.8)	17.3	29	88
Ethiopia 2011	72.6	63.4	95	32
Gabon 2012	(56.1)	60.5	27	83
Kenya 2008-09	58.1	(59.8)	91	39
Lesotho 2014	80.2	66.2	250	242
Malawi 2010	64.7	57.0	420	109
Mozambique 2009	25.6	38.4	230	122
Namibia 2013	87.2	78.8	114	287
Rwanda 2014-15	97.5	86.8	56	65
Tanzania 2011-12	59.3	64.3	211	97
Uganda 2011	60.0	52.1	347	182
Zambia 2013-14	78.9	57.0	1041	446
Zimbabwe 2010-11	55.6	40.5	551	218

Note: Figures in parentheses are based on 25-49 unweighted cases.
[a] Calculated as the midpoint of the range between the percentage of adults ever tested and the percentage tested in the past 12 months. See Chapter 2 for additional information.
[b] No data were collected on paid sex in the past year in the 2006-07 Swaziland Demographic and Health Survey.