UGANDA POPULATION-BASED HIV IMPACT ASSESSMENT
UPHIA 2016-2017

UGANDA POPULATION-BASED HIV IMPACT ASSESSMENT | A DROP THAT COUNTS

The Uganda Population-based HIV Impact Assessment (UPHIA), a household-based national survey, was conducted from August 2016 to March 2017 to assess the progress of Uganda's national HIV response.

UPHIA offered household-based HIV counseling and testing, with the return of results and referral to clinics for those who tested HIV positive, and collected information about the uptake of HIV prevention, care, and treatment services. The survey estimated HIV incidence, viral load suppression (VLS), and the prevalence of HIV, syphilis, and seroprevalence of hepatitis B surface antigen at a population level. This survey is the first in Uganda to measure population-level VLS. The results provide information on national and regional progress toward control of the HIV epidemic.

UPHIA was led by the government of Uganda and conducted by the Ministry of Health in collaboration with ICAP at Columbia University. Funding for the survey was provided by the US President's Emergency Plan for AIDS Relief (PEPFAR) with technical assistance provided by the US Centers for Disease Control and Prevention (CDC). Other collaborating partners included the Uganda Virus Research Institute, Uganda Bureau of Statistics, World Health Organization (WHO Uganda), and UNAIDS.

KEY FINDINGS

HIV INDICATOR	Female	95% CI	Male	95% CI	Total	95% CI
Incidence (%)						
15-49 years	0.47	0.27-0.67	0.31	0.12-0.50	0.39	0.24-0.54
15-64 years	0.46	0.27-0.64	0.35	0.15-0.55	0.40	0.25-0.56
Prevalence (%)						
0-14 years	0.7	0.4-1.1	0.4	0.1-0.6	0.5	0.3-0.8
15-49 years	7.5	6.9-8.1	4.3	3.9-4.7	6.0	5.5-6.4
15-64 years	7.6	7.1-8.2	4.7	4.3-5.1	6.2	5.8-6.7
Urban areas	9.8	8.8-10.9	4.6	3.8-5.4	7.5	6.7-8.3
Rural areas	6.7	6.0-7.4	4.7	4.2-5.2	5.8	5.2-6.3
Viral load suppression (%)						
0-14 years	45.1 *	19.0-71.2 *	**	**	39.3	17.9-60.7
15-64 years	62.9	59.8-66.1	53.6	48.8-58.5	59.6	56.8-62.5

95% confidence interval (CI) indicates the interval within which the true population parameter is expected to fall 95% of the time.
Viral load suppression refers to the proportion of HIV-positive persons with an HIV RNA <1,000 copies per milliliter of plasma.

*Warning: Number of observations were less than 50. As a result, point estimates may not be reliable.

**Suppression: Number of observations were less than 25 and point estimates have been suppressed due to inadequate sample size.

The annual incidence of HIV among adults aged 15 to 64 in Uganda was 0.40%: 0.46% among females and 0.35% among males, which corresponded to approximately 73,000 new cases of HIV annually among adults aged 15-64 years living in Uganda.

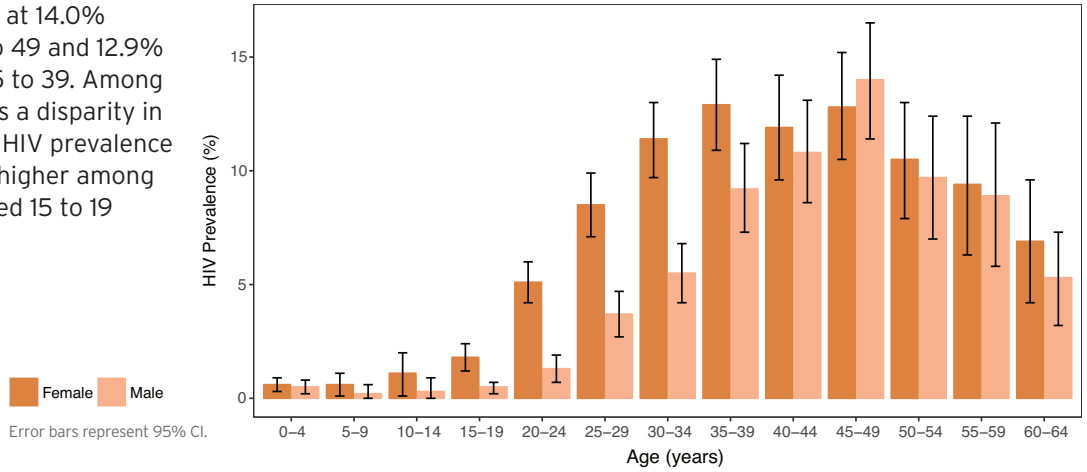
The prevalence of HIV among adults aged 15 to 64 in Uganda was 6.2%: 7.6% among females and 4.7% among males. This corresponded to approximately 1.2 million people aged 15 to 64 living with HIV in Uganda. HIV prevalence was higher among women living in urban areas (9.8%) than those in rural areas (6.7%).

The prevalence of HIV among children aged 0-14 was 0.5% which corresponded to approximately 96,000 children living with HIV in Uganda.

The prevalence of VLS among all HIV-positive adults aged 15 to 64 in Uganda was 59.6%: 62.9% among females and 53.6% among males. The prevalence of VLS in children aged 0-14 was 39.3%.

HIV PREVALENCE, BY AGE AND SEX

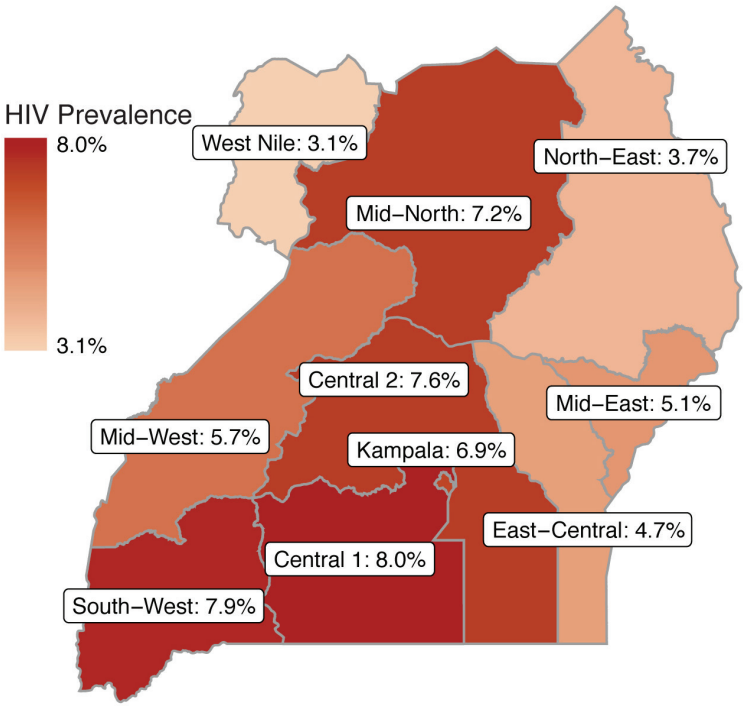
HIV prevalence peaked at 14.0% among men aged 45 to 49 and 12.9% among women aged 35 to 39. Among young adults, there was a disparity in HIV prevalence by sex. HIV prevalence was almost four times higher among females than males aged 15 to 19 and 20 to 24.



HIV PREVALENCE AMONG ADULTS, BY REGION

Among adults aged 15 to 64, the prevalence of HIV varied geographically across Uganda, ranging from 3.1% in West Nile region to 8.0% in Central 1 region.

Region	HIV Prevalence (%)	95% CI
Central 1	8.0	6.6-9.3
Central 2	7.6	6.1-9.0
Kampala	6.9	5.6-8.1
East-Central	4.7	4.0-5.4
Mid-East	5.1	4.0-6.2
North-East	3.7	3.0-4.4
West Nile	3.1	2.5-3.7
Mid-North	7.2	6.0-8.4
Mid-West	5.7	4.7-6.8
South-West	7.9	5.8-9.9
Total	6.2	5.8-6.7



ACHIEVEMENT OF THE 90-90-90 GOALS AMONG HIV-POSITIVE ADULTS, BY SEX

Diagnosed

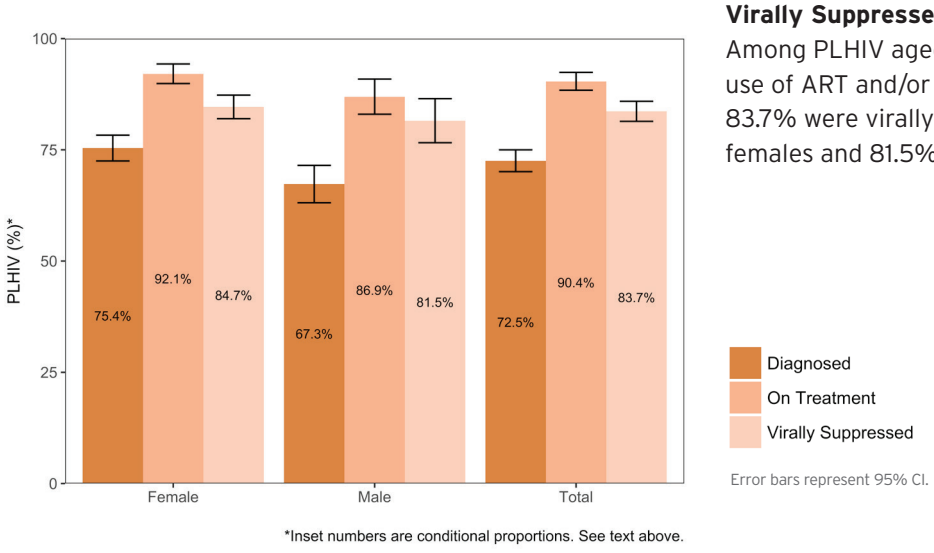
In Uganda, 72.5% of people living with HIV (PLHIV) aged 15 to 64 were aware of their HIV status: 75.4% of HIV-positive females and 67.3% of HIV-positive males. Awareness was defined as self-reporting HIV positive and/or having a detectable antiretroviral (ARV) in the blood.

On Treatment

Among PLHIV aged 15 to 64 who knew their HIV status, 90.4% were on antiretroviral treatment (ART); 92.1% of HIV-positive females and 86.9% of males. Being on ART was defined as self-reporting current use of ART and/or having a detectable ARV in the blood.

Virally Suppressed

Among PLHIV aged 15 to 64 who self-reported current use of ART and/or had a detectable ARV in their blood, 83.7% were virally suppressed: 84.7% of HIV-positive females and 81.5% of HIV-positive males.

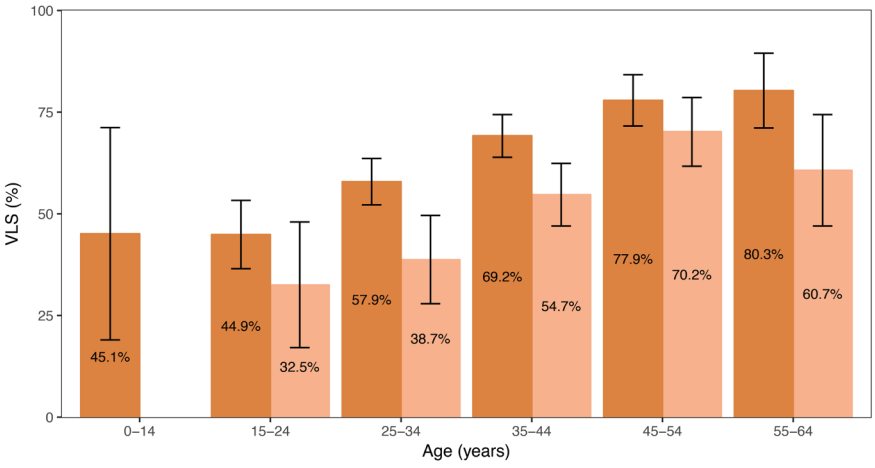


*Inset numbers are conditional proportions. See text above.

Error bars represent 95% CI.

VIRAL LOAD SUPPRESSION AMONG HIV-POSITIVE PEOPLE, BY AGE AND SEX

The prevalence of VLS among HIV-positive people in Uganda was highest among older adults: 80.3% among HIV-positive females aged 55 to 64 and 70.2% among HIV-positive males aged 45 to 54. In contrast, the prevalence of VLS was distinctly lower among younger adults: 44.9% among HIV-positive females and 32.5% among HIV-positive males aged 15 to 24[1].



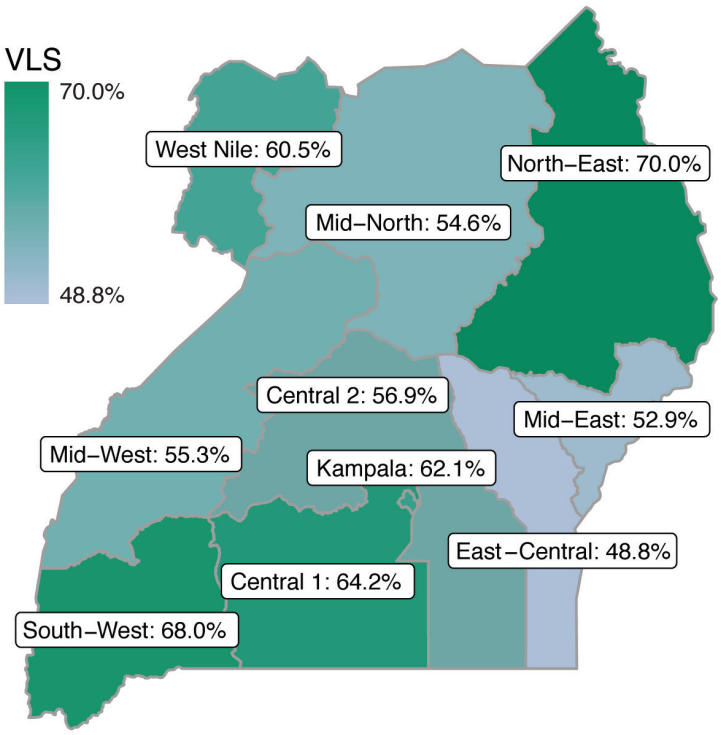
Error bars represent 95% CI.

[1] The estimate for males aged 0-14 has been suppressed because it is based on fewer than 25 unweighted cases. The estimates for females aged 0-14 and males aged 15-24 are based on 25-49 unweighted cases and therefore should be interpreted with caution.

VIRAL LOAD SUPPRESSION AMONG HIV-POSITIVE ADULTS, BY REGION

Among HIV-positive adults aged 15 to 64, prevalence of VLS varied geographically across the country, ranging from 48.8% in the East-Central region to 70.0% in the North-East region.

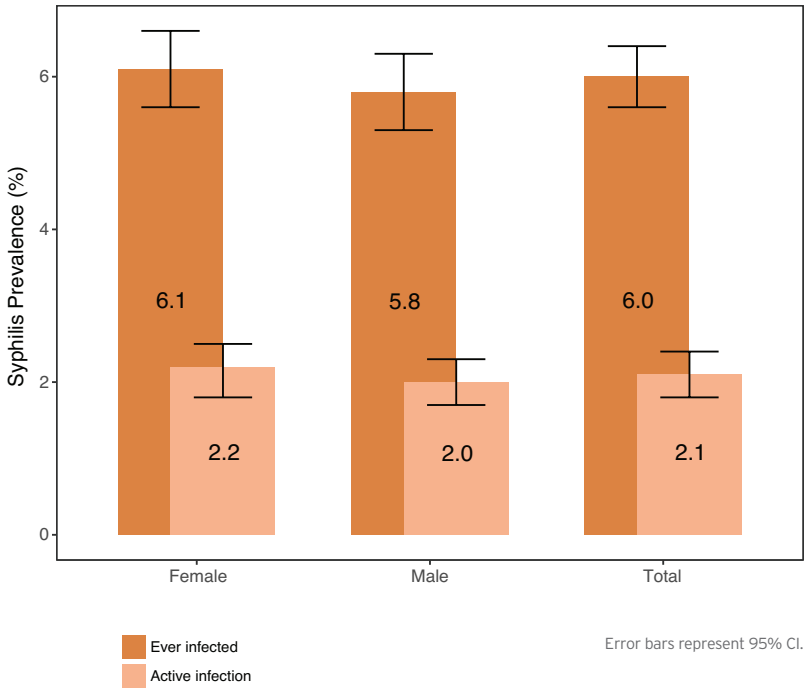
Region	VLS Prevalence (%)	95% CI
Central 1	64.2	55.7-72.7
Central 2	56.9	49.1-64.6
Kampala	62.1	53.5-70.7
East-Central	48.8	42.3-55.2
Mid-East	52.9	44.5-61.4
North-East	70.0	60.4-79.5
West Nile	60.5	50.5-70.6
Mid-North	54.6	45.5-63.7
Mid-West	55.3	46.2-64.5
South-West	68.0	60.3-75.8
Total	59.6	56.8-62.5



SYPHILIS PREVALENCE AMONG ADULTS, BY SEX

Syphilis testing was conducted in each household using a serological dual non-treponemal and treponemal rapid diagnostic test.

Among adults aged 15 to 64 in the country, 6.1% of females and 5.8% of males have ever been infected with syphilis.[2] The prevalence of active syphilis infection was similar among men and women, at 2.2% among women and 2.0% among men aged 15 to 64.



[2] The percentage of adults ever infected with syphilis includes people with active infection. Participants whose test was reactive only to treponemal antibodies were considered ever infected. Participants whose test was reactive to both treponemal and non-treponemal antibodies were considered to have an active infection.

PREVALENCE OF VOLUNTARY MEDICAL MALE CIRCUMCISION, BY REGION

Overall, among male participants aged 15 to 64, the prevalence of self-reported (medical or non-medical) circumcision is 42.2%. In this sample, 21.7% of the male participants self-reported having received voluntary medical male circumcision (VMMC) and 20.5% of the male participants had non-medical (traditional) circumcision.

Prevalence of VMMC ranged from 13.1% in the Mid-North region to 32.2% in Kampala.

Region	Medically Circumcised	Non-medically Circumcised	Uncircumcised	Unknown
Central 1	28.4	18.9	45.5	7.1
Central 2	27.4	20.1	48.5	4.0
Kampala	32.2	19.1	40.8	7.8
East-Central	19.8	34.3	41.5	4.4
Mid-Eastern	14.6	54.1	30.0	1.4
North-East	13.7	5.6	79.8	0.8
West Nile	23.9	23.3	50.9	1.8
Mid-North	13.1	0.6	85.7	0.6
Mid-West	23.4	25.7	48.5	2.4
South-West	20.0	4.9	73.6	1.5
Total	21.7	20.5	54.6	3.2

PREVALENCE OF SEX WITH NON-MARITAL PARTNER AND CONDOM USE AT LAST SEX, BY REGION AND SEX

Among sexually active participants aged 15 to 64 years, 45.2% of men and 29.0% of women reported having sex with a non-marital partner in the last 12 months.

Prevalence of self-reported sex with a non-marital partner in the last 12 months ranged from 32.4% in South-West to 59.2% in Kampala for men, and from 15.5% in West Nile to 47.8% in Kampala for women.

Condom use at last sex with a non-marital partner was reported among 37.0% of men and 28.3% of women who reported having a non-marital partner in the last 12 months.

Prevalence of condom use at last sex with a non-marital partner among male participants ranged from 25.8% (Mid-West) to 52.2% (Kampala), while for female participants ranged from 19.8 (Mid-West) to 36.0% (Kampala).

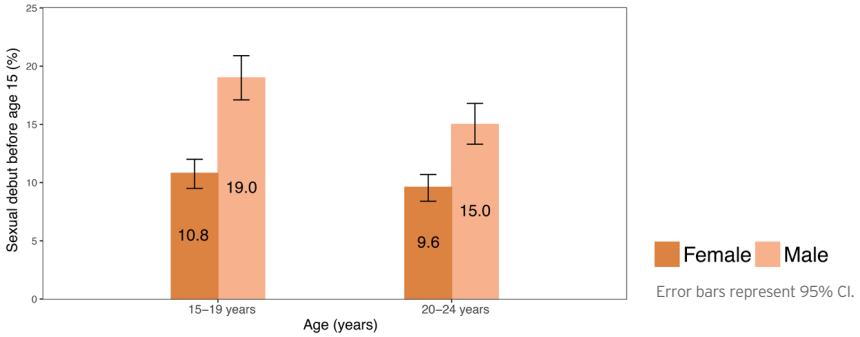
	Males		Females	
Region	Sex with non-marital partner in 12 months [1]	Condom at last sex with non-marital partner [2]	Sex with non-marital partner in 12 months [1]	Condom at last sex with non-marital partner [2]
Central 1	55.5	34.9	37.4	30.2
Central 2	57.2	43.0	35.8	26.5
Kampala	59.2	52.2	47.8	36.0
Eas-Central	47.4	37.8	29.6	35.0
Mid-Eastern	47.7	28.7	27.6	25.8
North-East	33.9	42.2	21.2	24.1
West Nile	33.3	45.0	15.5	32.4
Mid-North	36.0	45.7	24.3	32.0
Mid-West	45.0	25.8	29.6	19.8
South-West	32.4	27.9	19.2	22.9
Total	45.2	37.0	29.0	28.3

[1] Among those who reported having sex in the past 12 months

[2] Among those who reported having sex with a non-marital, non-cohabiting partner in the past 12 months

SEX BEFORE AGE 15

Among youth aged 15 to 19, 10.8% of females reported sexual intercourse prior to age 15 compared to 19% of males. Among youth aged 20 to 24, 9.6% of females reported sex before age 15 compared to 15.0% of males.



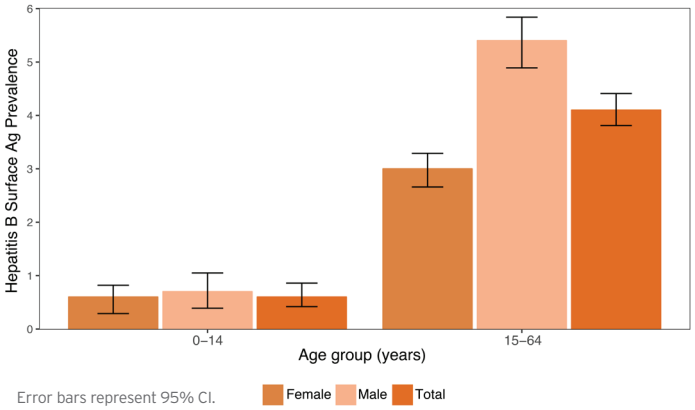
SEROPREVALENCE OF HEPATITIS B SURFACE ANTIGEN AMONG PERSONS AGED 0-64, BY REGION

Hepatitis B testing was conducted using a serological rapid diagnostic test for the hepatitis B surface antigen.[3] The seroprevalence of hepatitis B surface antigen among persons aged 0-64 varies across Uganda, from 0.8% in South-West region to 4.6% in Mid-North region.

Region	Prevalence (%)	95% CI
Central 1	1.6	1.1-2.1
Central 2	2.0	1.5-2.6
Kampala	1.9	1.3-2.5
East-Central	2.7	2.1-3.4
Mid-East	2.1	1.7-2.5
North-East	4.4	3.6-5.3
West Nile	3.8	3.0-4.6
Mid-North	4.6	3.8-5.4
Mid-West	1.8	1.3-2.2
South-West	0.8	0.4-1.1
Total	4.1	3.8-4.4

[3] The majority of people who are seropositive for HBsAg will turn out to have chronic HBV infection.

The seroprevalence of hepatitis B surface antigen among adults aged 15 to 64 in Uganda is 4.1%. The prevalence is 5.4% and 3.0% in men and women aged 15-64, respectively. The prevalence is 0.7% and 0.6% in boys and girls, respectively, aged 0-14.



Error bars represent 95% CI.

CONCLUSIONS

- Uganda has made considerable progress towards the adult 90-90-90 goals, particularly in linkage to and retention in HIV treatment as demonstrated by the 2nd and 3rd 90 targets (82 and 84 percent, respectively).
- Gender, age, and regional variations in HIV prevalence, VLS, and prevalence of hepatitis B and syphilis infections should be utilized to further focus the national response.
- Continued expansion of HIV testing and treatment, especially for men, will be essential to achieve epidemic control by 2030.

RESPONSE RATES AND HIV TESTING METHODS

Of 12,812 eligible households, 96.7% completed a household interview. Of 17,217 eligible women and 13,364 eligible men aged 15 to 64, 97.9% of women and 94% of men were interviewed. Response rates for blood test among women and men interviewed were 99.0% and 98.5% respectively. Of 10,793 eligible children aged 0 to 14, 87.5% were tested for HIV.

HIV prevalence testing was conducted in each household using a serological rapid diagnostic testing algorithm based on Uganda's national guidelines, with laboratory confirmation of seropositive samples using a supplemental rapid assay. A laboratory-based incidence testing algorithm (HIV-1 LAg avidity with correction for viral load and detectable antiretroviral drugs in plasma) was used to distinguish recent from long-term infection and weighted specifically for the predominant HIV-1 subtypes in Uganda. Incidence estimates were obtained using the CDC Incidence Calculator, which uses the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays, with time cutoff (T)=1.0 year and residual proportion false recent (PFR)=0.00. Survey weights are utilized for all estimates.

The PHIA Project is a multicountry project funded by PEPFAR to conduct national HIV-focused surveys that describe the status of the HIV epidemic. Results measure important national and regional HIV-related parameters, including progress toward 90-90-90 goals, and will guide policy and funding priorities. ICAP at Columbia University is implementing the PHIA Project in close collaboration with the CDC and other partners. See phia.icap.columbia.edu for more details.

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