

# SWAZILAND HIV INCIDENCE MEASUREMENT SURVEY 2: A POPULATION-BASED HIV IMPACT ASSESSMENT SHIMS2 2016-2017



The Swaziland HIV Incidence Measurement Survey 2 (SHIMS2) was a household-based national survey conducted between August 2016 and March 2017 to measure the impact

of Swaziland's national HIV response on HIV incidence and viral load suppression. SHIMS2 offered household-based HIV counseling and testing with return of results and collected information about uptake of HIV care and treatment services. This is the second survey to estimate national HIV incidence and viral load suppression. Previous measurements were conducted in SHIMS1 in 2011.

SHIMS2 was led by the Government of the Kingdom of Swaziland (GKoS) through the Ministry of Health (MOH) and Central Statistical Office (CSO). The survey was conducted with funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and through technical assistance and partnership with the U.S. Centers for Disease Control and Prevention (CDC). SHIMS2 was implemented by ICAP at Columbia University in collaboration with government entities, including the Health Research Unit, Swaziland Health Laboratory Services (SHLS), Swaziland National AIDS Program (SNAP), Health Promotion Unit, Environmental Health Department, and National Emergency Response Council on HIV/AIDS (NERCHA). GKoS local and international development partners participated in steering committees and task teams during study implementation.

## KEY FINDINGS

HIV Indicator	Female	95% CI	Male	95% CI	Total	95% CI
Annual incidence (%)						
15-49 years	1.99	1.15-2.81	0.99	0.39-1.60	1.48	0.96-2.00
15+ years	1.70	1.04-2.36	1.02	0.46-1.58	1.36	0.92-1.81
Prevalence (%)						
0-14 years	2.6	1.8-3.4	3.0	2.1-4.0	2.8	2.2-3.4
15-49 years	34.3	32.6-36.0	18.9	17.3-20.4	27.2	25.8-28.7
15+ years	32.5	31.0-34.0	20.4	18.9-21.9	27.0	25.7-28.3
Viral load suppression (%)						
15+ years	76.0	73.8-78.2	67.6	64.5-70.6	73.1	71.3-75.0

95% CI (confidence interval) indicates the interval within which the true population parameter is expected to fall 95% of the time. Viral load suppression is defined as HIV RNA <1,000 copies per ml of plasma among HIV-positive adults.

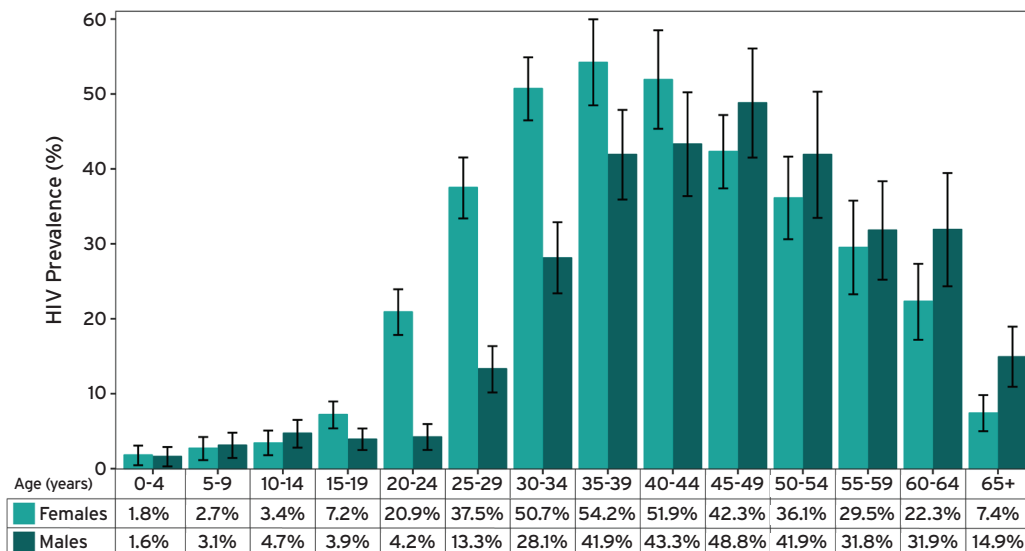
Annual incidence of HIV among adults ages 15 years and older in Swaziland is 1.36 percent: 1.70 percent among females and 1.02 percent among males. This corresponds to approximately 7,000 new cases of HIV annually among adults ages 15 years and older in Swaziland.

Prevalence of HIV among adults ages 15 years and older in Swaziland is 27.0 percent: 32.5 percent among females and 20.4 percent among males. This corresponds to approximately 200,000 people living with HIV (PLHIV) ages 15 years and older.

Prevalence of viral load <1,000 copies/ml among all HIV-positive adults ages 15 years and older, regardless of knowledge of HIV status or ART use, in Swaziland is 73.1 percent: 76.0 percent among females and 67.6 percent among males.

## HIV PREVALENCE, BY AGE AND SEX

HIV prevalence peaks at 54.2 percent among females ages 35 to 39 years and 48.8 percent among males ages 45 to 49 years. The disparity in HIV prevalence by sex is most pronounced among young adults: HIV prevalence among 20- to 24-year-olds is five times higher among females (20.9 percent) than males (4.2 percent).

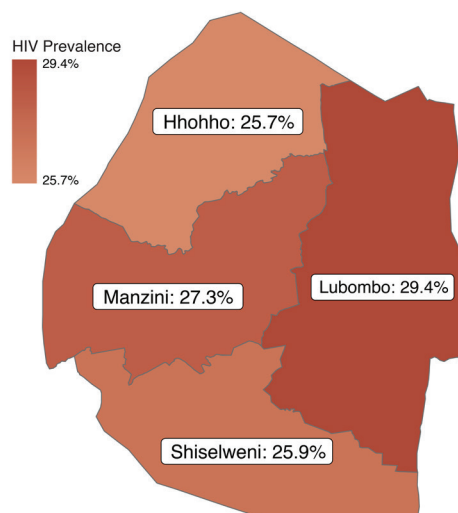


Error bars represent 95% confidence intervals.

## HIV PREVALENCE AMONG ADULTS, BY REGION

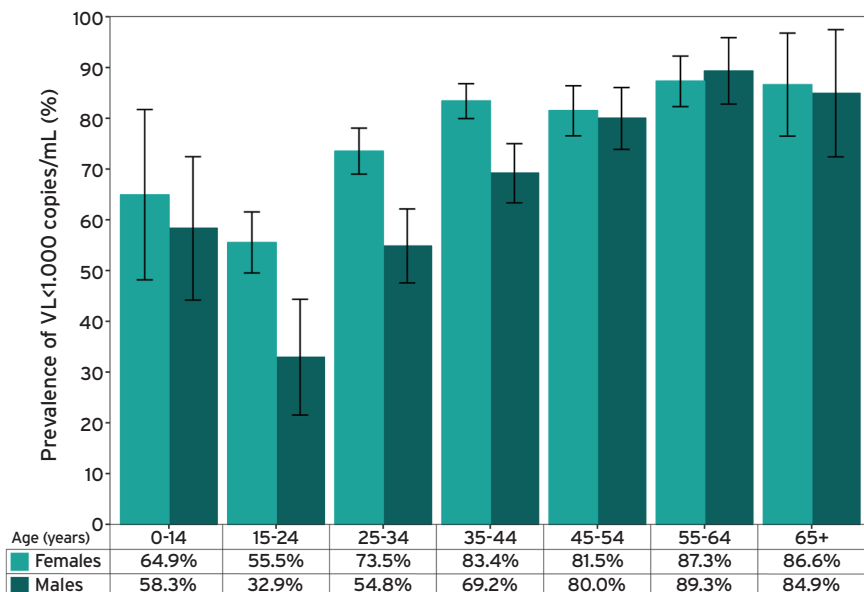
Among adults ages 15 and older, prevalence of HIV has no significant geographic variation across Swaziland, ranging from 25.7 percent in Hhohho to 29.4 percent in Lubombo.

Region	HIV Prevalence	95% CI
Hhohho	25.7	23.2-28.2
Lubombo	29.4	26.7-32.1
Manzini	27.3	24.3-30.3
Shiselweni	25.9	23.6-28.3



## PREVALENCE OF VIRAL LOAD <1,000 COPIES/ML AMONG ALL PARTICIPANTS LIVING WITH HIV, REGARDLESS OF KNOWLEDGE OF HIV STATUS OR REPORTED ART USE, BY AGE AND SEX

Prevalence of viral load <1,000 copies/ml among HIV-positive people, regardless of knowledge of HIV status or ART use, in Swaziland is highest among older adults: 87.3 percent among HIV-positive females and 89.3 percent among HIV-positive males ages 55 to 64 years. In contrast, prevalence of VLS is lowest among younger adults: 55.5 percent among HIV-positive females and 32.9 percent among HIV-positive males ages 15 to 24 years.

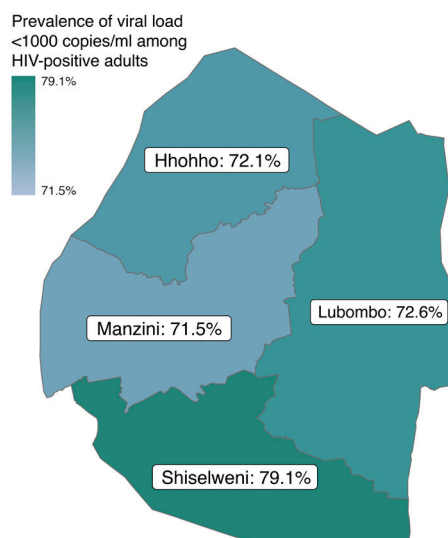


Error bars represent 95% confidence intervals.

## PREVALENCE OF VIRAL LOAD <1,000 COPIES/ML AMONG ADULTS LIVING WITH HIV, REGARDLESS OF KNOWLEDGE OF HIV STATUS OR REPORTED ART USE, BY REGION

Among HIV-positive adults ages 15 and older, prevalence of viral load <1,000 copies/ml among HIV-positive people (regardless of knowledge of HIV status or ART use) has minimal geographic variation across Swaziland, ranging from 71.5 percent in Manzini to 79.1 percent in Shiselweni.

Region	VLS Prevalence	95% CI
Hhohho	72.1	68.5-75.7
Lubombo	72.6	68.7-76.5
Manzini	71.5	68.2-74.7
Shiselweni	79.1	75.8-82.5



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

### 90-90-90: an ambitious treatment target to help end the AIDS epidemic

UNAIDS and affected countries have set the 90-90-90 targets by 2020: 90 percent of all PLHIV will know their HIV status; 90 percent of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (ART); and 90 percent of all people receiving ART will have viral suppression.

#### Diagnosed

In Swaziland, 84.7 percent of PLHIV ages 15 and older report knowing their HIV status: 88.6 percent of HIV-positive females and 77.5 percent of HIV-positive males know their HIV status.

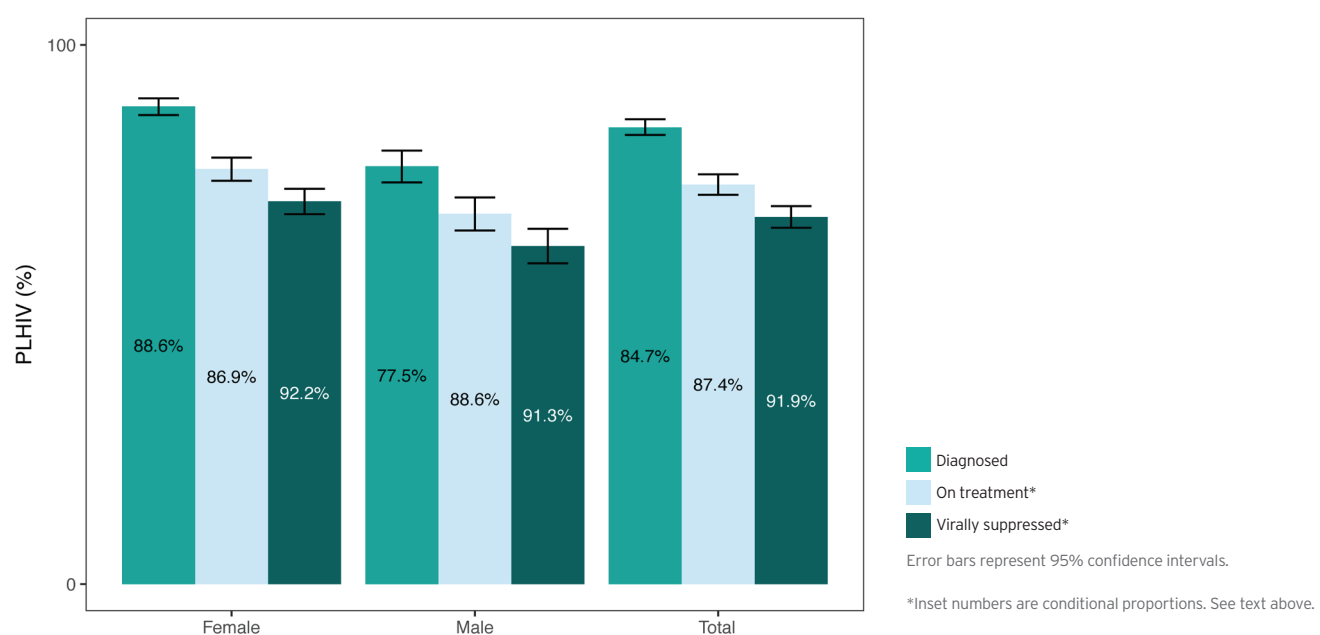
#### On Treatment

Among PLHIV ages 15 and older who know their HIV status, 87.4 percent self-report current use of ART: 86.9 percent of HIV-positive females and 88.6 percent of HIV-positive males who know their HIV status self-report current use of ART.

#### Virally Suppressed

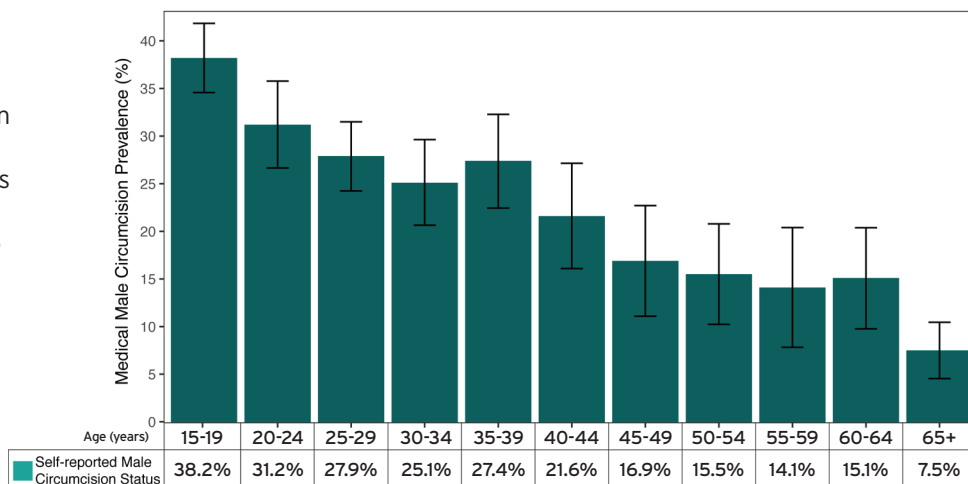
Among PLHIV ages 15 and older who self-report current use of ART, 91.9 percent are virally suppressed: 92.2 percent of HIV-positive females and 91.3 percent of HIV-positive males who self-report current use of ART are virally suppressed.

	Unconditional 90-90-90 Percentages		
	Diagnosed	On Treatment	Virally Suppressed
Female	88.6%	77.0%	71.0%
Male	77.5%	68.7%	62.7%
Total	84.7%	74.1%	68.1%



## MEDICAL CIRCUMCISION AMONG ADULT MALES, BY AGE

Among males 15 years and older, prevalence of medical circumcision is 26.7 percent. Prevalence of medical circumcision decreases with age, from 38.2 percent among 15- to 19-year olds to 7.5 percent among males 65 and older. One out of three 15- to 24-year old males is circumcised (34.8 percent), compared with one out of five males ages 25 years and older (21.9 percent).



Error bars represent 95% confidence intervals.

## CONCLUSIONS

- Progress toward the 90-90-90 goals in Swaziland demonstrates that the national HIV response has achieved great strides against its HIV epidemic.
- Sustaining and improving this progress will require continued expansion in HIV prevention and treatment programs, especially for men and young women.
- Closing the gap in knowledge of HIV status and uptake of medical male circumcision, among other proven interventions, will be central to continued advances in the national response.

## RESPONSE RATES AND HIV TESTING METHODS

Of 6,056 eligible households, 84.5 percent completed a household interview. Of 7,209 eligible women and 5,648 eligible men ages 15 and older, 88.7 percent of women and 79.4 percent of men were interviewed and tested for HIV. The overall response rate (i.e., the weighted proportion of individuals within participating households who agreed to an interview and provided blood) among adults 15 years and older was 71.5 percent. Of 3,997 eligible children ages 0 to 14 years, 83.8 percent were tested for HIV. The overall response rate (i.e., the weighted proportion of children ages 0 to 9 years who provided blood and children ages 10 to 14 years who agreed to an interview and provided blood) among children ages 0 to 14 years was 70.8 percent.

HIV prevalence testing was conducted in each household using a serological rapid diagnostic testing algorithm based on Swaziland's national guidelines, with laboratory confirmation of seropositive samples using a supplemental rapid assay. A laboratory-based incidence testing algorithm (HIV-1 LAg avidity plus viral load) was used to distinguish recent from long-term infection, and 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 multi-country project funded by PEPFAR to conduct national HIV-focused surveys that describe the status of the HIV epidemic. Results will 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 CDC, host governments, and other partners.

See [phia.icap.columbia.edu](http://phia.icap.columbia.edu) for more details.



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