

PHIA SURVEYS: A NEW APPROACH TO HELP COUNTRIES CONTROL THEIR HIV EPIDEMICS

OVERVIEW

UNAIDS has set a global target (known as “90-90-90”) for controlling the HIV epidemic by the year 2020. According to the “90-90-90” target, 90 percent of all people living with HIV (PLHIV) will know their status; 90 percent of all people with a diagnosed HIV infection will receive sustained antiretroviral treatment (ART); and 90 percent of all people receiving ART will have viral suppression (reducing the amount of virus in a person’s body to an undetectable level). UNAIDS’ models predict zero new HIV infections by 2030 if these “90-90-90” targets are met.

Since 2000, population-based household surveys have been an important surveillance tool for measuring HIV prevalence – the total number of PLHIV. However, household surveys typically do not provide direct estimates of either HIV viral load (VL) – the amount of the virus in a person’s body – which is necessary to measure progress toward the “90-90-90” targets, or HIV incidence – the number of new HIV infections – which helps assess the impact of HIV prevention and treatment programs.

The U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) is prioritizing population-based, HIV-focused household surveys as a means of monitoring HIV incidence, prevalence, and VL. The goal of the Population-based HIV Impact Assessments (PHIA) is to provide a better understanding of HIV trends at the national and regional level, as well as population-wide program achievements. PHIA surveys are used to collect data on the uptake of treatment services for HIV and other infectious diseases, provide real-time home-based HIV counseling and testing, and estimate HIV incidence, CD4 T-cell counts (a measure of immune health), and VL. For this reason, PHIA surveys serve as the most comprehensive evaluation of HIV outcomes and impact that can be used by all stakeholders, including national HIV programs, PEPFAR, the Global Fund to Fight AIDS, Malaria, and Tuberculosis, and other donors and multilateral organizations, such as the World Health Organization (WHO) and UNAIDS. PHIA surveys follow UNAIDS’ standard methods for conducting national household surveys. PHIA surveys have been completed in Zimbabwe, Malawi, Zambia, Lesotho, Tanzania, Uganda, eSwatini, Namibia, Ethiopia, Cote d’Ivoire, and Cameroon. Additional surveys are planned for Kenya, Rwanda, and Haiti.

PHIA Goals

- Measure progress in achieving epidemic control by assessing the impact of national HIV programs, including confidential HIV testing, counseling and treatment, prevention of mother-to-child transmission, and the impact of programs addressing sexually transmitted infections.
- Evaluate public health programs for improvements and target interventions related to the prevention and treatment of HIV and AIDS, along with tuberculosis (TB) and other opportunistic infections.
- Strengthen the capacity of countries to collect and use surveillance data for the management of national HIV programs and provide laboratory support for surveillance, diagnosis, treatment, and disease monitoring.

Workers conducting PHIA surveys gather electronic data and transmit it to a central server location; collect blood for CD4 counts and VL testing; conduct point-of-care HIV and CD4 tests; return the results; and refer newly diagnosed people to treatment.

The survey will assess the following key PEPFAR program indicators at a national (and regional for some indicators) level, focusing on the HIV care continuum.

- **HIV prevalence** – The proportion and number of adults and children infected with HIV at the national and regional level
- **HIV incidence** – The rate and number of new HIV infections among adults nationally
- **Knowledge of HIV status** – The percentage of HIV-infected people who know their HIV status. Self-reported HIV status is measured through survey questions, and actual HIV status is confirmed by diagnostic HIV testing at the time of the survey.
- **Continuum of care** – Uptake of HIV services among PLHIV. Includes people who have reported testing positive for HIV, receiving pre-treatment care, and continuing treatment.
- **Population-level VL** – VL among PLHIV at the national and regional levels, including proportion of PLHIV – overall and specifically those on treatment – who have a suppressed VL (e.g., <1,000 copies/ml).
- **Prevention of mother-to-child HIV transmission** – Percentage of pregnant women who have been tested for HIV and the percentage of HIV-positive pregnant women who received antiretroviral treatment to prevent passing the virus on to their child
- **Male circumcision program coverage** – Percentage of men and boys who underwent voluntary medical male circumcision to prevent HIV

CDC'S ROLE

Working side-by-side with ministries of health, non-governmental organizations, other U.S. Government agencies, and implementing partners, CDC provides expertise in epidemiology, laboratory science and infrastructure, survey design, training of health workers, and other technical assistance to help partners plan, implement, and evaluate PHIA in countries supported by PEPFAR. The PHIA project also builds on CDC's previous efforts designing and implementing similar HIV surveys in Kenya and Tanzania. These surveys will provide critical information on the state of the HIV epidemic in these countries and help shape policies and programs to confront the epidemic.

ACCOMPLISHMENTS / RESULTS

PHIA surveys have been completed in Zimbabwe (ZIMPHIA), Malawi (MPHIA), Zambia (ZAMPHIA), Lesotho (LePHIA), eSwatini (SHIMS2), Uganda (UPHIA), Tanzania (THIS), Namibia (NAMPHIA), Ethiopia (EPHIA) Cameroon (CAMPHIA), and Côte d'Ivoire (CIPHIA). Approximately 238,000 adults have been surveyed, and nearly 294,000 blood samples were collected from adults and children. Progress toward the "90-90-90" target for national HIV VL suppression (73 percent) ranged from 40 percent in Côte d'Ivoire to 77 percent in Namibia. Key findings on HIV incidence, prevalence, and VL suppression continue to be updated. The final report for MPHIA¹, released in October 2018, shows further evidence of the impact of the Malawi program on the HIV epidemic. Final reports for ZIMPHIA, ZAMPHIA, THIS, and SHIMS2 will be available in 2019. The data collected will be owned and used primarily by the respective national governments. Final anonymous household, individual, and biomarker datasets will be made available to the public on a secure website. Data collection began in Kenya (KENPHIA) in June 2018 and Rwanda (RPHIA) in October 2018. An additional PHIA survey will begin in Haiti (HaPHIA) in February 2019.

FUTURE EFFORTS

The next round of PHIA surveys are scheduled for early 2019 and will include new countries such as Mozambique. PHIA surveys are large, complex, and resource intensive projects to implement. As such, PHIA surveys are expected to be conducted on a 3-5-year cycle. Strengthening HIV surveillance systems, including case-based surveillance, will provide routine data to monitor program coverage and VL suppression among people diagnosed with HIV. PHIA surveys are also limited in their ability to monitor progress toward "90-90-90" targets among key populations (e.g., female sex workers, men who have sex with men, prisoners, young women and girls), and people living outside of a household (e.g., military populations and university students). Alternative surveillance strategies are needed for these populations.

BENEFITS OF OUR WORK

The PHIA surveys provide essential population-level information on the state of the HIV epidemic in some of the countries most affected by HIV. The information will be used to direct national and international funding and focus programs in places and populations that will yield the greatest impact on epidemic control. The methods developed for the PHIA surveys can be used in other countries as they conduct HIV-focused household surveys. PHIA surveys are also the most comprehensive evaluations to-date of the HIV epidemic in specific sub-Saharan African countries. The surveys will provide critical information on progress toward control of HIV and enhance global efforts to reach the right people in the right places.

¹ https://phia.icap.columbia.edu/wp-content/uploads/2018/10/MPHIA-SS_2018_FINAL.pdf