

IDENTIFYING OPTIMAL MODELS FOR HIV CARE IN AFRICA

ETHIOPIA, KENYA, MOZAMBIQUE, RWANDA, TANZANIA

Background and Rationale:

HIV care and treatment services have been rapidly scaled up across sub-Saharan Africa, the region hardest hit by the HIV epidemic. In order to evaluate and improve efforts to make high-quality HIV care and treatment accessible to all who need it, it is critical to measure patient outcomes and assess the impact of different models of HIV care.



Study Overview:

From 2009 to 2015, ICAP partnered with the Centers for Disease Control and Prevention (CDC) and the Ministries of Health in Ethiopia, Kenya, Mozambique, Rwanda, and Tanzania to examine routinely collected, patient-level data in order to measure outcomes from PEPFAR-supported HIV care and treatment facilities. The study includes data on close to 500,000 adults living with HIV and more than 45,000 children, gathered from 284 ICAP-supported health facilities across the five focus countries. The study, which utilized routinely collected (de-identified) data from on-site electronic databases, evaluated key HIV care and treatment outcomes across different health facilities within and across each country. To leverage the study as a means to strengthen in-country ownership and utilization of routinely collected data for program evaluation and research, targeted

capacity building activities were implemented in each country. For example, training and analytic mentorship were provided to local collaborators to build their skills in designing and conducting analyses, and in presenting findings via abstracts, presentations, and manuscripts.

Key Findings:

The study has addressed critical questions related to patient care, treatment outcomes, and the impact of facility-level and national efforts to improve HIV care. Optimal Models analyses have examined characteristics of patients enrolling late in HIV care, assessed retention of older adults living with HIV, quantified outcomes among children, and examined treatment initiation after changes to national pediatric antiretroviral therapy (ART) guidelines. The study has also measured the impact of targeted care packages, including adolescent- and youth-friendly services.

Examples of study findings include:

- In an analysis of data from 274 public health facilities in Kenya, Lesotho, Mozambique, Rwanda, and Tanzania, the investigators demonstrated that the expansion of pediatric services to primary health facilities resulted in increased numbers of children on ART, and suggested that these facilities have lower rates of mortality and loss to follow-up.
- In an analysis of data from 160 HIV clinics in Kenya, Mozambique, Rwanda, and Tanzania, the investigators found that youth experienced substantially higher attrition before and after ART initiation compared with younger adolescents and older adults, and that adolescent-friendly services were associated with reduced attrition among youth (particularly after ART initiation).
- In an analysis of data from 217 health facilities in Kenya, Mozambique, Rwanda, and Tanzania, the investigators

Optimal Models study findings have been featured in:

- **21 peer-reviewed publications** in major public health and medical journals, including AIDS, JAIDS, PLoS, and the Clinical Infectious Disease Journal
- **11 oral presentations** and **17 posters** at major scientific meetings, including the Conference on the Retrovirus and Opportunistic Infections (CROI) and the International AIDS Society Meeting (IAS)

demonstrated the value of a comprehensive HIV care cascade as a tool for monitoring HIV program performance (versus the traditional HIV treatment cascade approach, which does not follow outcomes of pre-ART patients)

Data from the Optimal Models study have also been included

Highlighted Publications:

Teasdale CA, Alwar T, Chege D, et al. Impact of youth and adolescent friendly services on retention of 10-24 year olds in HIV care and treatment programs in Nyanza, Kenya. *J Acquir Immune Defic Syndr*. 2016;71(2):e56-9.

McNairy ML, Lamb MR, Abrams EJ, et al. Use of a comprehensive HIV care cascade for evaluating HIV program performance: Findings from 4 sub-Saharan African countries. *J Acquir Immune Defic Syndr*. 2015;70(2):e44-51.

Melaku Z, Lamb MR, Wang C, et al. Characteristics and outcomes of adult Ethiopian patients enrolled in HIV care and treatment: a multi-clinic observational study. *BMC Public Health*. 2015;15:462.

Eduardo E, Lamb MR, Kandula S, et al. Characteristics and outcomes among older HIV-positive adults enrolled in HIV programs in four sub-Saharan African countries. *PLoS One*. 2014;9(7):e103864.

Teasdale CA, Wang C, Francois U, et al. Time to initiation of antiretroviral therapy among patients who are ART eligible in Rwanda: Improvement over time. *J Acquir Immune Defic Syndr*. 2014;68(3):314-21.

Koeh E, Teasdale CA, Wang C, et al. Characteristics and outcomes of HIV-infected youth and young adolescents enrolled in HIV care in Kenya. *AIDS*. 2014;28(18):2729-38.

Mugisha V, Teasdale CA, Wang C, et al. Determinants of mortality and loss to follow-up among adults enrolled in HIV care services in Rwanda. *Plos One*. 2014;9(1):e85774.

Lamb ML, Fayorsey R, Nuwagaba-Bironwoha H, et al. High attrition before and after ART initiation among youth (15-24 years of age) enrolled in HIV care. *AIDS*. 2014;28(4):559-68.

Fayorsey RN, Saito S, Carter RJ, et al. Decentralization of pediatric HIV care and treatment in five sub-Saharan African countries. *J Acquir Immune Defic Syndr*. 2013;62(5):e124-30.

Tene G, Lahuerta M, Teasdale C, et al. High retention among HIV-infected children in Rwanda during scale-up and decentralization of HIV care and treatment programs, 2004-2010. *Pediatr Infect Dis J*;32(8).

McNairy ML, Lamb MR, Carter RJ, et al. Retention of HIV-infected children on antiretroviral treatment in HIV care and treatment programs in Kenya, Mozambique, Rwanda, and Tanzania. *J Acquir Immune Defic Syndr*. 2012;62(3):e70-81.

Lahuerta M, Lima J, Nuwagaba-Biribonwoha H, et al. Factors associated with late antiretroviral therapy initiation among adults in Mozambique. *PLoS One*. 2012;7(5):e37125.

in analyses conducted by the International Epidemiologic Databases to Evaluate AIDS (IeDEA) and the Collaborative Initiative for Paediatric HIV Education and Research (CI-PHER)—international collaborations that aim to pool cohort data across countries in order to improve understanding of the HIV epidemic globally.

Implications:

The Optimal Models study is unique in its utilization of data collected during routine HIV care from a wide range of health facilities across sub-Saharan Africa. The data provide both a snapshot and longitudinal view of the implementation and outcomes of services at facilities representative of those where most HIV-infected people receive care. The study's findings have contributed to greater understanding of outcomes among HIV-infected adults and children receiving care in resource-limited settings, and have contributed to the improvement of clinical HIV care. Findings from the study, which are relevant to policymakers and decision-makers within countries, across the region, and around the world, have been disseminated globally via scientific publications and international conferences (see box).