

Title: Modeling HIV care and treatment data in Tanzania to assess the impact of ART programs in averting AIDS-related deaths and improving quality of life for people living with HIV

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Background: Project HEART, funded by the U.S. Centers for Disease Control and Prevention, was launched by the Elizabeth Glaser Pediatric AIDS Foundation in 2004 in Tanzania to support implementation and monitoring of HIV care and treatment (C&T) in five regions. After eight years of program activities, an impact analysis was conducted to measure the effect of ART on patients' lives.

Methods: AIDS-deaths averted were calculated using SPECTRUM 4.23 AIM Beta6 modeling data of patients on ART from 165 sites from 2004 to 2010 and Ministry of Health/UNAIDS HIV estimates, comparing scenarios with and without Project HEART. Change in patients' median CD4 and WHO functional status were determined through retrospective review of patients' data from 70 facilities, comparing baseline and follow-up for each year cohort. Databases contained information on 90% of patients in C&T.

Results: By December 2010, 77,940 people were started on antiretroviral therapy (ART) of whom 7,006 (9%) were children under 15 years. Modeling analysis showed that from 2004 to 2010 an average of 25% of AIDS-related deaths were averted (21.8% among adults, 38.4% among children) saving the lives of an estimated 32,490 people who would have died in the absence of intervention. Cohort analysis showed that patients in the same cohort had an increase in their observed CD4 count: proportion of patients with CD4 > 200 cells/mm³ increased from 26% at baseline to 68% at 12 months and 81% at 24 months. Functional status improved: patients with WHO defined working functional status increased from 82% at baseline to 97% after 24 months of ART.

Conclusion: The modeling and cohort analysis shows that Project HEART had a positive impact in reducing AIDS-related deaths and improving quality of life. Conducting impact analyses in addition to program monitoring provides an important component of program review, allowing understanding of the effects of ART.

