Changes in HIV and Non-HIV Service Delivery Outcomes at the Subnational Level Associated with PEPFAR Funding Shifts in Kenya and Uganda

Elizabeth G. Sutherland, PhD; Chris B. Agala, PhD; Khou Xiong, MPH; Stephanie Watson-Grant, DrPh

MEASURE Evaluation, University of North Carolina at Chapel Hill

Study Objective and Research Questions

Study Background: Beginning in 2015, the United States President's Emergency Plan for AIDS Relief (PEPFAR) redirected their investments in countries to divert more resources to subnational units (SNUs) with higher burdens of HIV. This had different effects in different countries: a reduction or cessation of PEPFAR investment, unchanged investment, or increased PEPFAR investment.

Study Objective: To better understand the ongoing effects of PEPFAR's changing HIV/AIDS investment strategy (as implemented by United States Government agencies) on health outcomes and associated routine data quality at the SNU level

Study Questions:

1. How has routine data quality changed by SNU type over time?
2. How have key health outcomes changed by subnational unit type (e.g., district or county) over time?

Data Sources

This study used the following data sources: facility, district, and national routine health information systems—including monthly reporting forms, DHIS 2, TIBU (Kenya only), iHRIS, health management information system (HMIS) manuals, facility registers, census data, PEPFAR integrated performance site lists, and country operational plan planning documents.

Methods

MEASURE Evaluation, which is funded by the United States Agency for International Development (USAID) and PEPFAR, conducted a routine data quality assessment (DQA) at a sample of SNUs and facilities in Kenya (33 counties and 87 facilities) and Uganda (19 districts and 30 facilities). The DQA aimed to assess routine HMIS data quality immediately prior to PEPFAR's reprioritization of investment at the SNU level, then again mid-transition, and, finally, one year post-transition. Four routine health indicators were examined for timeliness, completeness, availability, and accuracy over a single quarter in 2015, 2016, and 2017: antenatal care (ANC) 4 (or 4+) visits, the tuberculosis (TB) case detection rate, numbers of confirmed malaria cases, and numbers enrolled in antiretroviral therapy (ART).

Routine health sources were also used to extract data on health service delivery indicators for a range of HIV and non-HIV-related services over the same period. Health outcome data were extracted from all SNUs in each country. Changes over time in service delivery and data quality outcomes were assessed using generalized least squares with random effects and Poisson regression with random effects models. Change among SNUs of differing levels of PEPFAR investment, among SNUs over time, and the interactions between year and SNU investment category were examined. We assessed these health outcomes: indicators for data quality, indicators for TB and malaria (including TB case notification rates and confirmed malaria cases), ANC and MCH (including child immunization rates and attendance at 4 or 4+ ANC visits), and HIV (including HTC, ART enrollment, and percentage of clients alive and on ART after 12 months).

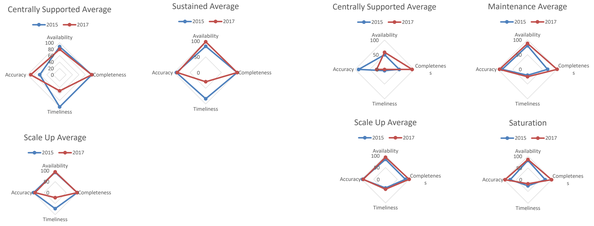
DQA Results

Data quality assessments indicated that data quality was generally acceptable, and data quality challenges in ART indicators were noted only in timeliness of data reporting. Findings for timeliness in both countries were compromised more by a lack of data on the timeliness of report submission than on a definitive lack of timeliness of reporting. In Uganda, late reports cannot be entered into the HMIS system past the deadline, indicating that data on timeliness is actually a failure to keep data on the time of submission and not an actual "missed" deadline. These data are reflected in Figure 1, below, which summarizes the data quality for the number of HIV-positive clients enrolled in ART by level of PEPFAR investment. In Uganda, central support is the lowest level of PEPFAR support, and scale-up districts received the greatest amount of PEPFAR support.

Data quality for all four indicators was high (greater than 80% of reports, timely, complete, and available) though some indicators reflected higher levels of underreporting or overreporting. Importantly, data quality did not substantially change in response to year or level of PEPFAR support to the SNU.

During implementation of the DQA, we noted that several indicators had a recent change of definition or limitations of registers or tally sheets, which complicated the accurate reporting of certain indicators.

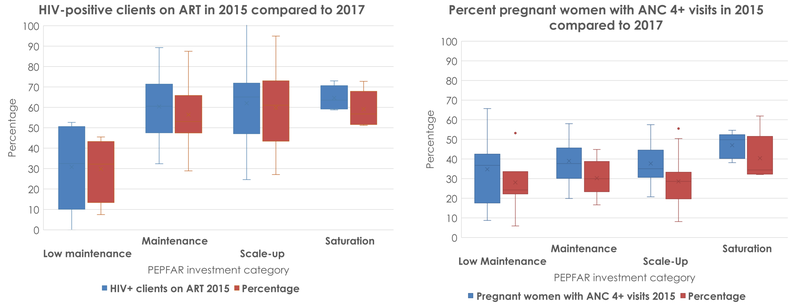
Figure 1. Spidergrams showing changes between 2015 and 2017 in data quality for number enrolled on ART in Uganda (on left) and Kenya (on right) by level of PEPFAR investment



Time Series Results

Analyses of data from 2015, 2016, and 2017 suggest changes in PEPFAR investment did not immediately affect the direction of trends observed in HIV or non-HIV outcomes by year at each SNU level. However, the magnitude of changes in outcomes observed in the post-PEPFAR prioritization period in some cases *did* vary significantly, for some health outcomes, by level of PEPFAR investment. Through its influence on the rate of change in some service delivery outcomes, there is a possibility that variation in PEPFAR investment at the SNU level does contribute to (or at least did nothing to reduce) inequalities in service outcomes at the SNU level, at least in the short term. These effects (modification of effect size, rather than mediator of effect) are not limited to HIV service outcomes but also modify the rate of change observed in other variables related to TB, malaria, and maternal and child health outcomes. See Figure 2 for examples for Kenya for an HIV service outcome (HIV-positive clients enrolled in ART) and on an ANC outcome (proportion of pregnant women attending 4+ antenatal visits).

Figure 1. Enrollment on ART and attendance of 4+ ANC visits in Kenya by PEPFAR investment category and year



Discussion and Conclusion

Our results indicate that the change in PEPFAR investment did not have immediate negative effects on the service outcomes we examined in Kenya and Uganda. However, we also found that increased PEPFAR funding at the SNU level could affect the magnitude of trends observed over the short term, illustrating the power of shifting donor investment to maintain or contribute to existing inequalities in service delivery outcomes (in this case both HIV and non-HIV related outcomes) at the subnational level.

Our results indicate that, where data quality is acceptable, existing routine health data can be used to answer some program and policy evaluation questions. In this instance, we examined changes in service delivery outcomes following the PEPFAR change in SNU-level investment.

These results also indicate that where data quality and routine health systems are robust, they can also be resilient to changes in donor investment policy. Investments, then, in health information systems, can pay dividends in sustainability.

For More Information

An associated report will be posted in 2018 at **www.measureevaluation.org**

Contact Beth Sutherland, corresponding author: beth_sutherland@unc.edu

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