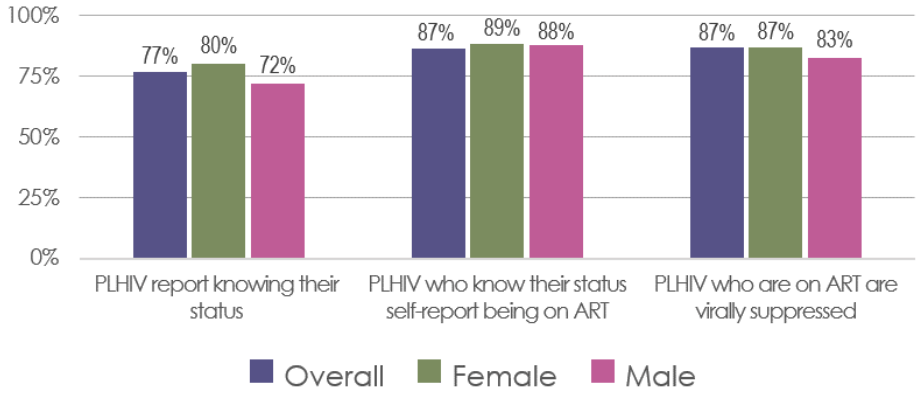
The Importance of Collecting and Using Valid Data on Reaching Partners through Index Testing for HIV

Results and Recommendations

Background

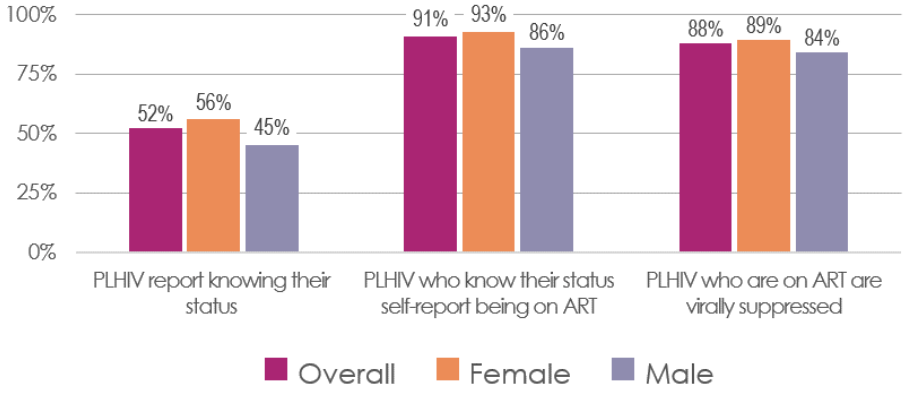
Among some countries including Tanzania and Zimbabwe that have made progress toward the global HIV 90-90-90 targets,[1] the biggest challenge has been reaching the first target: for 90 percent of people living with HIV (PLHIV) to be tested and know their status (see Figures 1 and 2). An analysis of data from Demographic and Health Surveys from 16 countries found that, on average, about 54 percent of PLHIV were aware of their status; in most of these countries, women were more likely than men to ever have been tested.[2]

Figure 1. Zimbabwe: 90-90-90 statistics for global HIV targets



Source: Zimbabwe Population-Based HIV Impact Assessment, 2015–2016 (https://phia.icap.columbia.edu/wp-content/uploads/2017/11/ZIMPHIA_First_Report_FINAL.pdf)

Figure 2. Tanzania: 90-90-90 statistics for global HIV targets



Source: Tanzania HIV Impact Survey, 2016–2017 (https://phia.icap.columbia.edu/wp-content/uploads/2017/11/Tanzania_SummarySheet_A4.English.v19.pdf)

Index testing—which aims to break the chain of HIV transmission, by offering HIV testing services (HTS) to people who have been exposed to HIV and linking those who test positive to HIV treatment—can be an effective mechanism to increase the proportion of PLHIV who know their status. Index testing is a voluntary process in which service providers ask individual clients newly diagnosed with HIV ("index clients") to list all sexual or injection drug-use partners within the past year, as well as any biological children or biological parents ("contacts"). If index clients consent to this process and list their contacts, the contacts are then traced, informed that they have been exposed to HIV, and offered voluntary HTS. A recent meta-analysis of studies from eight countries concluded that, in comparison with passive referral, index testing increases the proportion of HIV-positive partners who are tested and diagnosed.[3] Another study in Tanzania found that about 57 percent of listed contacts were successfully referred (i.e., came to a study facility following notification), and successful partner referral was 2.2 times more likely among male than female index clients.[4]

Recently, sub-Saharan countries have been incorporating and scaling up index testing as part of HTS, to increase testing among PLHIV. Tanzania and Zimbabwe aim for approximately 30 percent of all HIV-positive people who received HTS to be identified through index testing.[5,6] To better understand gaps in index testing and, thus, ways to improve programmatic efforts, MEASURE Evaluation—funded by the United States Agency for International Development (USAID) and the United States President's Emergency Plan for AIDS Relief (PEPFAR)—examined sex

and geographic differences in index testing and index testing yield in two countries: Tanzania and Zimbabwe. USAID and PEPFAR implementing partners in both countries provided MEASURE Evaluation with facility-based data covering the last two quarters in FY2018. This brief presents results of our analysis of individual-level data for 5,347 index clients in Zimbabwe and facility-level data for 23,331 index clients in Tanzania.

Several data quality issues affected the analysis and results. In Tanzania, access to facility-level data only (not individual-level data) precluded examination of the amount of missing data in the data set. Additionally, data from 20 facilities in Tanzania were dropped, because of such data quality issues as the index testing cascade getting larger instead of smaller (i.e., the total number of contacts accepting HIV testing exceeded the total number of contacts traced by the health facility). In Zimbabwe, data on sex were missing for about 13 percent of index clients and data on age were missing for 18 percent of these clients, making analyses of age differences in Zimbabwe impossible. Additionally in Zimbabwe, larger portions of data were missing for contacts who received HTS, contacts who tested positive, and positive contacts who were on antiretroviral therapy (ART). Although these data quality issues likely had an impact on the results of the analysis, it is not possible to determine the extent or direction of the effect.

Key Findings

Figures 3 and 4 present the proportion of contacts traced, tested for HIV, tested positive, and—for Tanzania only—on ART (children and adults in all categories). Despite the reported larger proportion of contacts being tested in Tanzania compared to Zimbabwe (94% versus 43%), index testing yielded a lower proportion of contacts who tested positive for HIV in Tanzania compared to Zimbabwe (12% versus 39%).

Characteristics of Index Clients and Contacts

Index clients in Tanzania and Zimbabwe had similar characteristics: about 59–64 percent of index clients were female and about 72–74 percent were 25–49 years of age.

Figure 3. Index testing in Tanzania, 2018

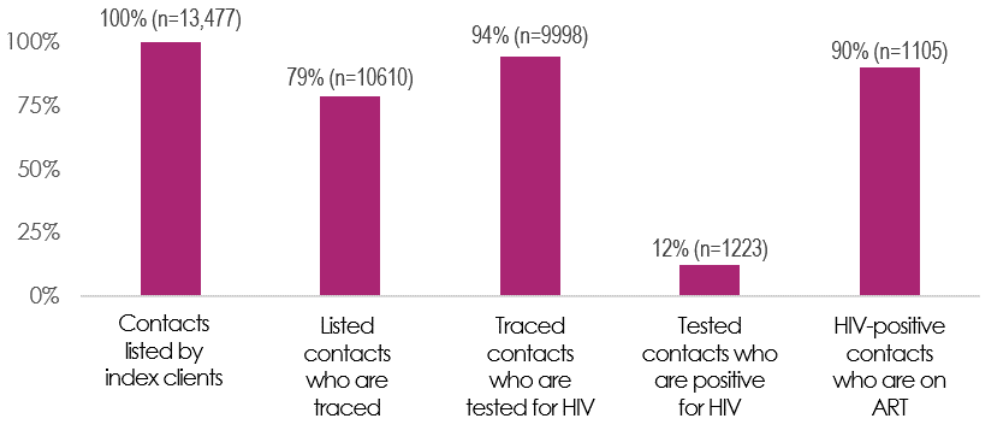


Figure 4. Index testing in Zimbabwe, 2018

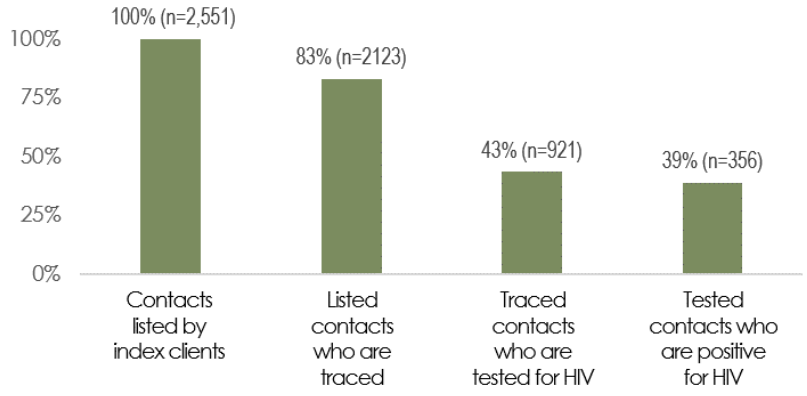


Table 1 shows the regions or provinces where index clients and contacts lived.

Table 1. Where index clients and contacts in Tanzania and Zimbabwe lived

Tanzania regions	Zimbabwe provinces
Iringa	Bulawayo
Lindi	Harare
Morogoro	Manicaland
Mtwara	Masholand East
Njombe	Masvingo

In Zimbabwe, the ratio of contacts to index clients was 0.48; about half of all index clients listed one or more contacts. Male and female index clients were equally likely to list contacts who were successfully traced. In Tanzania, the ratio of contacts to index clients was 0.58. Female contacts listed by index clients were 1.9 times more likely to be traced than male contacts.

Sex, Age, and Geographic Differences in HTS

In Tanzania, there were sex, age, and geographic differences; in Zimbabwe, only geographic differences in HTS were seen. Table 2 presents key findings.

Table 2. Differences in HTS in Tanzania and Zimbabwe, all clients and contacts

Tanzania	Zimbabwe
• Nationally, female contacts more likely to get HTS than male contacts • Contacts ages 25–49 years old more likely to get HTS than those younger or older • By region, only in Morogoro female contacts more likely to get HTS than male contacts	• Nationally, male and female index clients equally likely to list contacts who received HTS • Age analysis not possible, because of data quality issues • Contacts successfully traced in Harare and Manicaland more likely to receive HTS than those in Bulawayo and Masvingo

Sex, Age, and Geographic Differences in HIV-Positive Contacts

Age and geographic differences in the proportion of HIV-positive contacts were found in Tanzania, while sex and geographic difference were found in Zimbabwe. See Table 3 for key findings.

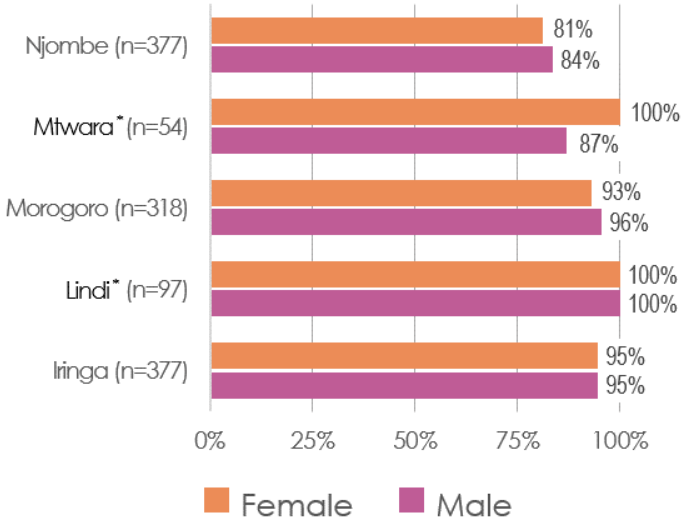
Table 3. Differences among HIV-positive contacts, Tanzania and Zimbabwe

Tanzania	Zimbabwe
• Nationally and by region, male and female contacts equally likely to test positive for HIV • Contacts ages 25–49 years most likely to test positive for HIV, and those ages 15–24 years least likely • Contacts in Morogoro most likely to test positive for HIV and those in Mtwara least likely	• Nationally, male index clients more likely than female index clients to list contacts who test positive for HIV • Analysis of difference in sex by region not possible, because of data quality issues • Age analysis not possible, because of data quality issues • Contacts in Bulawayo who receive HTS more likely to be positive than those in Harare and Manicaland

Sex and Geographic Differences in Antiretroviral Therapy

In Tanzania no significant sex differences were found nationally or regionally in the proportion of HIV-positive contacts who were on antiretroviral therapy (ART). Across the country, about 90 percent of female contacts and 91 percent of male contacts who tested positive for HIV were on ART. See Figure 5 for estimates of the proportion of HIV-positive contacts on ART, by sex within each region. In Zimbabwe, sex and geographic differences in use of ART could not be analyzed, because of the large amount of missing data on treatment.

Figure 5. Tanzania: Percentage of contacts on ART out of those who tested positive, by contact region and sex, 2018



*Does not meet criteria for Chi-square test

Conclusions

In Tanzania, the overall proportion of HIV-positives was relatively low (12%), despite reportedly almost 80 percent of contacts listed being traced and 94 percent of contacts traced being tested. We found no statistically significant differences by sex in contacts traced and tested. The largest observed difference was in the proportion of HIV-positives by region. There was no difference by sex, nationally or regionally, for HIV-positive contacts on ART.

In Zimbabwe, even though female and male index clients were equally likely to list one or more contacts, male index clients were more likely than females to list contacts who tested positive.

Additionally, while contacts primarily lived in Bulawayo, Harare, and Masvingo, those in Bulawayo, Harare, and Manicaland were more likely to test positive.

Recommendations

To achieve the 90-90-90 targets, sub-Saharan African countries should focus on implementing index testing consistently across all PEPFAR sites. In Zimbabwe, two-thirds of index clients were female, but a higher proportion of male index clients listed contacts who tested positive for HIV. Therefore, paying attention to men is a crucial part of reaching the first of the 90-90-90 targets and closing the gender gap in index testing.

In both countries, inaccurate and incomplete data limit our ability to make programmatic recommendations. We confronted such data quality issues as the inability to link index clients to contacts, because of a lack of individual-level data (Tanzania); substantial amounts of missing data (Zimbabwe); the inability to examine the amount of missing data (Tanzania); and incorrect data, such as the number of contacts on ART exceeding the number of contacts who tested positive for HIV (Tanzania). Given these obstacles, MEASURE Evaluation recommends that countries develop standard reporting tools and that implementing partners receive training on these tools and associated procedures, so they can collect and document high-quality data on index testing. Electronic tools, such as those developed in Microsoft Excel or Open Data Kit (an open-source software for collecting, managing, and using data) can be programmed to have automatic data-quality checks, including value limits (i.e., the number of contacts tested for HIV must be equal to or less than the number of contacts traced) and the ability to generate sequential unique identifiers for index cases. For additional information on designing electronic data-collection systems for improved data quality, see MEASURE Evaluation's Improving Data Quality in Mobile Community-Based Health Information Systems: Guidelines for Design and Implementation: https://www.measureevaluation.org/resources/publications/tr-17-182. For guidance on creating and using unique identifiers, see LINKAGES' Unique Identifier Code: Guidelines for Use with Key Populations: https://www.fhi360.org/sites/default/files/media/documents/resource-linkages-uic-guidance.pdf.

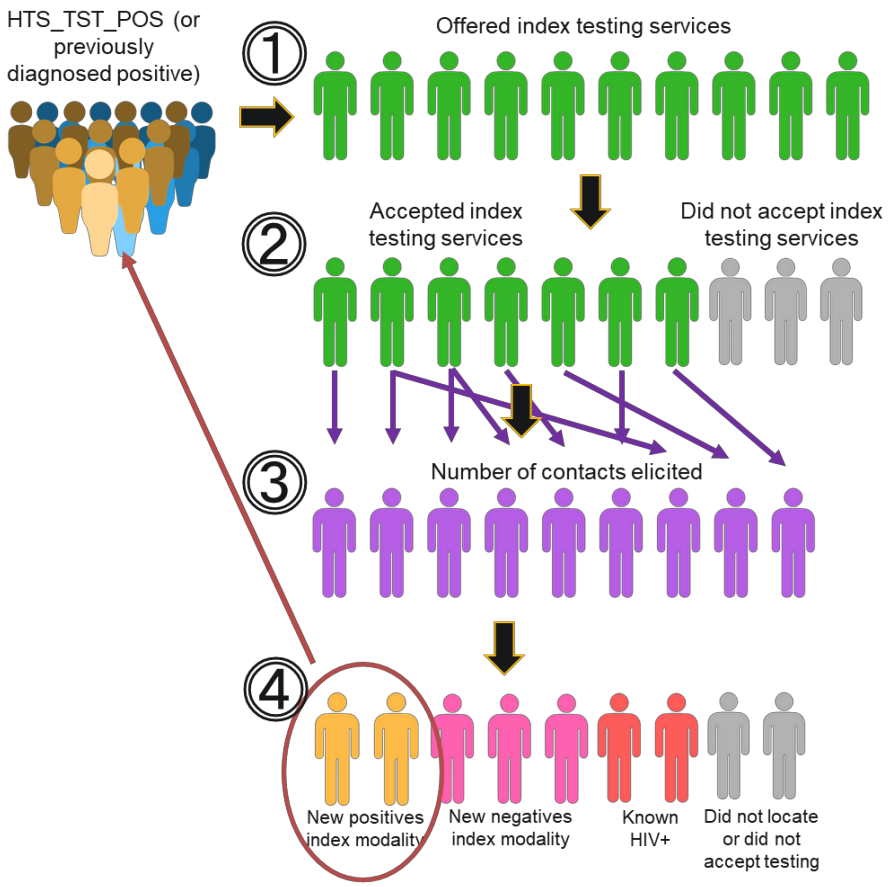
Collecting and documenting accurate and complete data are particularly important in light of the PEPFAR FY 2019 Country Operational Plan Guidance, which focuses on monitoring index client data and demonstrating results using data, and the Monitoring, Evaluation, and Reporting (MER) 2.3 indicator HTS_Index, which is the **number of individuals who were identified and tested using index testing services and received their results**. To monitor this indicator, implementing partners will need to document the four-step cascade (see Figure 6 below) with the following information:

- Individual-level data with unique IDs, (i.e., case-based data)
- Data on whether clients are offered and agree to index testing services
- Data on new index clients only (i.e., avoiding duplicates), ideally linked to contacts
- Data related to the process, timing, and effort of tracing contacts
- Demographic, testing, and treatment-related data both for index clients and contacts

Ideally, index testing data would be collected through an electronic system, using unique identifiers to create and calculate cascades automatically in a dashboard. Such a system would be able to track multiple contacts per index client, as well as include a feature that would treat each contact as a potential index client who might later list his or her own contacts.

Many countries are coming close to the 90-90-90 targets, and index testing has great potential to help them. Collecting and using valid data from index testing can strengthen programmatic efforts to reach more PLHIV to be tested, treated, and virally suppressed.

Figure 6. Index testing cascade



Source: PEPFAR Monitoring, Evaluation, and Reporting Indicator Reference Guide; MER 2.0 (Version 2.3); September 2018 (https://www.pepfar.gov/documents/organization/263233.pdf)

Notes

[1] By 2020, 90 percent of those who are HIV-positive will have been diagnosed, 90 percent of those diagnosed will be on ART, and 90 percent of those on ART will be virally suppressed (UNAIDS; http://www.unaids.org/en/resources/documents/2017/90-90-90).

[2] Staveteig, S, Croft, T. N., Kampa, K. T., & Head, S. K. (2013). Reaching the "first 90": Gaps in coverage of HIV testing among people living with HIV in 16 African countries. *PLoS ONE*;12(10): e0186316.v. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/29023510

[3] Dalal, S., Johnson, C., Fonner, V., Kennedy, C.E., Siegfried, N., Figueroa, C., & Baggaley, R. (2017). Improving HIV test update and case finding with assisted partner notification services. *AIDS*;31(13). Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/28590326

[4] Plotkins, M., Kahabuka, C., Christensen, A., Ochola, D., Betron, M., Njozi, M, . . . Wong, V. (2018). Outcomes and experiences of men and women with partner notification for HIV testing in Tanzania: Results from a mixed method study. *AIDS Behavior*;22:102–116. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/29090397

[5] Tanzania Country Operational Plan 2018 Strategic Direction Summary (https://www.pepfar.gov/documents/organization/285852.pdf)

[6] Zimbabwe Country Operational Plan 2018 Revised Strategic Direction Summary (https://www.pepfar.gov/documents/organization/285847.pdf)

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