



Published in final edited form as:

AIDS Educ Prev. 2016 December ; 28(6): 472–484. doi:10.1521/aeap.2016.28.6.472.

BUILDING CAPACITY FOR DATA-DRIVEN DECISION MAKING IN AFRICAN HIV TESTING PROGRAMS: FIELD PERSPECTIVES ON DATA USE WORKSHOPS

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Abstract

Strategic, high quality HIV testing services (HTS) delivery is an essential step towards reaching the end of AIDS by 2030. We conducted HTS Data Use workshops in five African countries to increase data use for strategic program decision-making. Feedback was collected on the extent to which workshop skills and tools were applied in practice and to identify future capacity-building needs. We later conducted six semistructured phone interviews with workshop planning teams and sent a web-based survey to 92 past participants. The HTS Data Use workshops provided accessible tools that were readily learned by most respondents. While most respondents reported increased confidence in interpreting data and frequency of using such tools over time, planning team representatives indicated ongoing needs for more automated tools that can function across data systems. To achieve ambitious global HIV/AIDS targets, national decision makers may continue to seek tools and skill-building opportunities to monitor programs and identify opportunities to refine strategies.

In 2014, the United Nations Program on HIV/AIDS (UNAIDS) announced new and ambitious global treatment targets, such that by 2020: (1) 90% of all people living with HIV will know their HIV status, (2) 90% of all people living with HIV (PLHIV) will receive sustained antiretroviral therapy, and (3) 90% of all people receiving antiretroviral therapy will have durable viral suppression (UNAIDS, 2014a). If these 2020 targets are achieved, at

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All authors report no conflicts of interest relevant to this article.

least 73% of all PLHIV worldwide will be virally suppressed and the goal of reaching the end of AIDS by 2030 will become an achievable reality.

HIV testing services (HTS) are essential towards meeting the first of these HIV care and treatment goals, (i.e., achieving the first 90). Early diagnosis is essential for linking persons to HIV care and antiretroviral treatment to improve their own health and to reduce the risk of transmitting HIV to others (Cohen et al., 2011; Insight Start Study Group et al., 2015). Although HIV testing is on the rise globally, an estimated 50% of people living with HIV are still unaware of their HIV status (UNAIDS, 2014b). The scale-up of antiretroviral therapy (ART) to achieve 73% viral suppression among PLHIV will require a significant expansion of targeted, high quality HIV testing to increase case-finding among those who are unaware of their HIV-positive status and to increase rates of PLHIV who are linked to clinical HIV care and treatment. Given that the resources for HIV programs have been largely flat or decreasing annually, HIV testing program planners need tools to analyze existing program results in order to prioritize those that are serving populations and geographic areas with the greatest burden of undiagnosed populations, to maximize new enrollments in care and identify opportunities for further program strengthening.

In recent years, there have been a number of efforts to increase use of data for decision-making in a range of domestic and international health programs. These have varied in specific data use objectives as well as in types of analytic strategies employed. For example, in 2012 the *Maternal and Child Health Journal* published a special issue (volume 16, issue 2 supplement) highlighting results from a multiyear, multiphase workforce development initiative to increase capacity for data use in U.S.-based maternal and child health programs. Supported by the Centers for Disease Control and Prevention (CDC) and the University of Illinois at Chicago, this initiative included phases to provide distance-learning in support of analyzing data from complex sample surveys, analytics to inform state-level priority setting in maternal and child health block grant applications, and support of in-depth analyses to answer research questions related to maternal and child health populations (Rankin, Kroelinger, Rosenberg, & Barfield, 2012). In Zanzibar, Braa, Heywood, and Sahay (2012) conducted an action research activity involving data use workshops to improve data quality in the national Health Management Information System (HMIS) through quarterly data reviews and feedback from the data users themselves. In 2013, Nutley, McNabb, and Salentine (2013) described how an electronic decision-support tool piloted in Kenya was used to guide health program decisions at the district level. From in-depth interviews with tool users, they found the features that most facilitated data use included the direct link of the tool to a monthly Ministry of Health (MOH) data aggregation system in Microsoft Excel, autogeneration of standard reports from the tool, and inclusion of standardized denominator (population) data. These elements reduced burden on staff to input data and create outputs, and allowed the users to contrast their program results with program targets based on the proportion of the population reached.

Within the same timeframe as these strategies were being developed and reported, the Presidents' Emergency Plan for AIDS Relief (PEPFAR) was also developing strategies to increase efficiency and impact of HIV programs along the prevention, care, and treatment continuum. Holmes et al. (2012) described the development of PEPFAR's Impact and

Efficiency Acceleration Plan, which involved the collection and review of economic and financial data to inform decision-makers about average expenditures in the delivery of key programs and services and to identify ways to increase the efficiency of programs (e.g., reduce average unit expenditures to deliver more services at the same level of funds). To address the need for increased data use for decision-making in PEPFAR-supported HIV testing programs, PEPFAR through the CDC also supported the development of a series of HTS Data Use and Strategic Planning workshops.

The goal of these workshops was to increase the capacity of strategic information and HIV testing program professionals to use tools that compile and display data from multiple sources, and to formulate evidence-based strategic plans to improve how HTS is aligned with population burden and other health services. The data use workshop objectives were to: (1) identify, obtain, and input program, population, and epidemiological data into an Excel-based Data Use Tool; (2) use the Data Use Tool to generate charts and tabular outputs; (3) use mapping software to overlay data onto national and sub-national geographic units; (4) conduct critical analysis of outputs to identify current HTS program strengths and misalignments, and (5) develop strategies to address data gaps and action steps to improve HTS services. Workshops were designed to include both program and strategic information (SI) staff so that all would have opportunities to learn how to answer specific, relevant questions about their programs in relation to the health burden in the communities they serve. While country teams could tailor and add questions to further examine their national, local, or PEPFAR-funded program components, the workshops were framed around addressing the following basic questions addressed at the lowest sub-national unit available (e.g., region/district) for either the most recent reporting periods or across multiple reporting periods:

1. What is the HIV prevalence and size of the population?
2. What proportion of the population has:
 - Ever been tested
 - Been tested in the past 12 months
 - Tested HIV positive
3. What proportion of people tested were HIV positive at health facility sites:
 - By type of service (e.g., prevention of mother-to-child transmission [PMTCT], or tuberculosis [TB] programs)?
 - What are these proportions stratified by age group and sex?
4. What proportion of people tested were HIV positive at community sites:
 - By type of service (e.g., voluntary counseling and testing, mobile, home-based)?
 - What are these proportions stratified by age group and sex?
5. How many people tested HIV positive in relation to the number of new enrollees at HIV care and treatment sites in the same time period?

6. Where do the HIV prevalence rates and population sizes differ in magnitude?
7. Where are HTC services located in the district/region in relation to:
 - HIV prevalence?
 - Population size?
 - Proportion of the population that has tested and/or tested HIV positive in the past 12 months?
 - Other HIV-related services, e.g., PMTCT, TB, voluntary medical male circumcision, HIV clinical care?

Questions related to aspects of HTS program quality, such as the performance of the HIV tests used or the quality of HTS information, education, and counseling (IEC) materials were not addressed in the workshops because relevant data were not included in the data use tools. From 2011 to 2014, workshops were provided in 5 countries (see Table 1). In several countries, more than one workshop was conducted to either change the focus of the geographic analysis or to engage other participating organizations. For each workshop, a planning team was formed to represent the MOH and other key agencies that support HIV testing programs in the country. These planning teams tailored the agenda to meet the needs of their country context (for example, the mapping activity was not included in the South Africa workshop); identified and compiled the data to be reviewed during each workshop; arranged the meeting logistics and invitations to participants; and selected appropriate workshop facilitators. Depending on the scope of each workshop, planning team members included MOH staff from national and local levels, as appropriate, PEPFAR staff, and PEPFAR-funded implementing partner organizations. Additional staff from these entities and other related organizations were invited to attend the workshops as participants (Table 1). Workshop participants included HTS program and SI staff who were responsible for managing, monitoring, and evaluating HTS program delivery in their respective countries. In order to understand the extent to which the HTS Data Use and Strategic Planning Tool was integrated into program activities and whether the participants attributed the workshops with any changes in programmatic decision making, we conducted a series of interviews with country planning team members and an online survey of workshop participants.

METHODS

DESIGN

We invited staff in each country where an HTS Data Use and Strategic Planning Workshop was held to participate in a post-workshop interview or web-based survey. Staff were invited to one or the other activity based on their role in the workshops.

Key Informant (KI) Interviews.—One-on-one semistructured interviews were conducted over the phone with key in-country staff that participated in the workshop planning teams (hereafter referred to as planning partners). Topics discussed in these interviews included the planning partner's perspectives on whether the data visualization methods presented in the workshop have been integrated into HTS program strategic planning and implementation

and what recommendations they would have for future capacity building in using data to inform HIV-related program planning at national and local levels.

Web-Based Participant Surveys.—A web-based survey was sent to all past workshop participants who provided contact information on the original workshop attendance lists. As the participants represented a broader range of MOH representatives and implementing partner organizations, the purpose of this survey was to characterize the extent to which the methods presented in the workshop have been used in the participant's work and to assess if and how data-driven decision making has been integrated into their organizations' HTS program strategies.

PARTICIPANTS

KI Interviews.—All original planning team members were invited to participate in the interviews. The number of in-country planning team members ranged from 2–7 depending on the country. We aimed to interview at least one in-country planning partner from each of the countries.

Web-Based Participant Survey.—All participants from the original lists of past workshop participants were invited to participate in the web-based survey. Contact information from the participant lists collected during workshop implementation was used to send invitations to these participants.

PROCEDURES

KI Interviews.—After approval was received from each country, we sent email invitations to country planning partners requesting to schedule a phone interview. The invitation also included the questions to be asked during the interview. We sent up to three reminder emails to each planning partner to maximize participation. If a bounce-back message indicated that the email address was no longer valid, we attempted to contact other planning team members to identify a current working email address for the individual. If we were not able to obtain a current working email address, we counted the individual as ineligible to participate.

For the planning partner interviews, data were collected through notes typed on a computer during the call and an audio-recording of the call was used as a back-up source for clarification of the written notes. Audio tapes were not transcribed as a primary data source and were destroyed by UCSF staff upon completion of the data collection process. At the beginning of the interview, the participant was asked to provide a verbal consent to both the interview and the audio recording. We also offered planning partners the opportunity to respond to the questions via email, prior to the phone interview. If this option was selected, the interview focused on follow-up points, e.g., points to clarify or expand upon responses provided electronically.

Web-Based Participant Survey.—We sent an email invitation to each past workshop participant to respond to the web-based survey. If we received a bounce-back message to the survey invitation, indicating the email address was no longer valid, we counted the

individual as ineligible to participate in the survey. Otherwise we sent up to three reminder emails in 2-week intervals to maximize survey participation.

Participant survey responses were collected through Qualtrics, a web-based survey platform (Qualtrics, LLC; <http://www.qualtrics.com/>). The survey was designed to take no more than 10 minutes to complete, with primarily fixed-choice responses to describe their recollection of the workshop and their use of the tools following the workshop. Participants were provided an anonymous link in order to access the survey. The invitation is designed to allow only one response per link. Participant survey responses were kept anonymous. All interview and survey records were stored electronically on encrypted computers accessible only by the project team.

ANALYSES

Responses from the phone interviews were typed on a computer with a back-up audio recording used for the purpose of clarification to enhance notes taken during the call. The qualitative responses were content-coded for key themes and to identify illustrative quotes. Data from the web-based surveys were exported from Qualtrics to Excel and descriptive analyses were conducted.

RESULTS

Tables 1 and 2 present the number of participants per country that were included in the initial contact lists for key informant interviews and web-based surveys, the number of valid contacts (i.e., person could be reached by available phone or email), and the number of completed interviews and surveys. As expected, not all information from the original contact lists was current and valid, and not all those with a valid email or other contact information provided a response. In one country, staff turnover between the time of the workshop and the time of the interviews made identifying an appropriate representative or alternate difficult, and several countries indicated that a single representative could provide sufficient feedback on behalf of the planning team. We conducted an interview with representatives of four out of the five country planning teams; in cases where more than one representative provided feedback, we combined country-level feedback.

For the web-based surveys, we obtained 92 valid email addresses from the original participant lists and sent each an invitation with up to two reminders to participate. No alternates to the original participants were sought or further tracking of contact information was conducted. A total of 38 survey respondents represented 42.1% of those who received an invitation to participate. The majority of respondents (52.6%, $n = 20$) represented an MOH or other national agency, followed by a PEPFAR-funded implementing partner organization (28.9%, $n = 11$) and PEPFAR agencies (15.7%, $n = 6$). The majority of respondents worked in strategic information (57.9%, $n = 22$), followed by HTS program managers (23.7%, $n = 9$) and other HTS service providers (7.9%, $n = 3$).

KEY INFORMANT INTERVIEW RESULTS

Feedback on the extent to which the data use tools were easy to use was some-what mixed. Many praised the conclusions participants were able to draw from the workshop and the knowledge gained from the process overall. One informant appreciated how:

It showed a picture whereby you could integrate data from different sources ... to try to see what the overall direction the program is taking, which was quite very useful.

Another acknowledged that he

... learned a lot from the process itself in terms of how to enter data, how to enter data from different sources, how to match data and how to make sure the matching fits across different sources. I think that was a very good process and we learned a lot from it.

In contrast, one informant acknowledged that participants who had less experience with manipulating data faced more challenges and were less likely to use the tools on their own in the future compared to those who used data regularly:

I think M&E [monitoring and evaluation] people found it easy and easy to use the Excel-based tool, however the program people, while they were excited and interested in it had to have an M&E person working with them throughout.

Still, this same KI suggested that even if program managers were not implementing analyses with these (or other) data tools themselves,

at least they could learn when to request data. They had an idea of how to ask for different things, kinds of graphs and the M&E people would be able to do it.

In general, informants said that inputting the information and keeping it updated “was a laborious process.” Many attributed this to limitations in available data, such as the lack of de-duplicated data (i.e., the number of tests recorded instead of the number of persons tested), inaccessibility of data and the lack of disaggregation (e.g., testing modality) at lower sub-national levels needed for planning purposes. One KI lamented,

We tried to compare modalities at a national level and at a provincial level, however, we didn't have the modalities, for example. Modalities could be compared at the partner level, but even at the partner level it was not comprehensive data elements at the national level and provincial level were not collected and so they didn't have that data.

Another commented,

A lot of data goes unsummarized and not analyzed and not in a form that people can use it for decision making and policy formation or communication.

Shifts in the decision-making process for HIV programs in 2015 impacted how data were used for planning:

We have been given a very strict guidance [by PEPFAR] whereby we only... set targets for key populations and priority populations ... We need to saturate the

PLHIV in the priority districts ... we were proposing targets at the regional level but now we have changed and the focus is looking at district level coverage.

Still, KIs noted a continuity between the approach taken in these workshops and the broader needs for using data to monitor and drive program strategies. In the context of the 2015 Country/Regional Operational Plan (COP/ROP) development process, one respondent said the workshops showed “good foreshadowing on your [the organizers’] part.” When asked about what types of changes in program strategies had been made using data triangulated from multiple sources (e.g., program, surveillance, census), one KI reported that during the COP process,

They looked at all those different modalities for HTC activities...and they determined that churches and schools had a pretty low positivity yield ... considerably less than the national average ... based on that the HTC strategy was to eliminate those modalities and focus on the others that had clearly higher demonstrated positivity yield.

A challenge in implementing the changes to program strategies that resulted from the HTS workshops included ongoing needs to harmonize indicator definitions and reporting periods across multiple entities, such as PEPFAR and ministries of health. As one informant put it,

... We will need to engage the USG [U.S. government] in general because we cannot conduct whatever exercise we want to do in isolation, we will need to involve all.

To improve this process and to maximize data use for decision making in HTS and other related programs, many respondents noted that it would be helpful to have a more passive data collation and analysis system or dashboard where managers:

Are able to look at the dashboard and see their performance, more of a decision making tool...this is to enable managers, who may not have enough time to look at this data, but it will show them how the program is moving, in the direction the program is taking. Because naturally when you see this you can say, oh, my program is not doing well, you can call for a meeting. You look at it and you can say, this is what I think is possible and try to make the necessary arrangements.

WEB-BASED SURVEY OF WORKSHOP PARTICIPANTS

Figure 1 illustrates responses to survey questions about what changes they experienced in their capacity to analyze and interpret data related to HIV testing programs. Most respondents reported increased confidence in interpreting data visualization outputs such as charts and graphs (89.5%) and in assessing target achievements (86.8%). Nearly three-fourths reported that they review program data more often (73.7%) and use Excel more often (71.1%). Only a slight majority viewed program planners in general as changing strategies based on disease burden or case identification, or produced more charts, than before the workshops (55.3% agreed with each of those statements). Less than half of respondents (39.5%) agreed HTS program teams produce more maps than before the workshop.

Figure 2 illustrates how frequently survey respondents reported doing various tasks associated with data use for decision-making. When looking specifically at the frequency

with which participants apply data use tools and concepts, well over half of the participants reported that at least once a month or more they use data when planning (86.8%), present data through advanced visualizations (68.4%), use Excel (65.8%) and create charts (63.2%). Maps were less commonly used with only (42.1%) creating maps at least once a month or more.

DISCUSSION

The purpose of these data use workshops was to build capacity among HTS program providers and SI staff on using their own data to inform program decision-making at relevant national, province, district, program, or site levels. Through demonstration, discussion, and hands-on small group exercises, the processes for strengthening data use included collation and review of available data; data management; integration into a unified dataset; data exploration and analysis; and interpretation and presentation of tables, graphs, and maps created during the workshop. The program decision-making component of the workshops included facilitated discussion to identify recommendations and next steps for refining program strategies and data monitoring. During these discussions, we encouraged the group to specify timelines and persons responsible for those next steps. We specifically designed the workshops to include both program and SI staff so that all would have opportunities to learn how to answer specific, relevant questions about their programs in relation to the health burden in the communities they serve.

In the KI interviews, we were told that the data use tools were generally easier for SI staff to use than they were for other HIV prevention staff, but that even those whose jobs may not require frequent production of data illustrations found it was helpful to understand what the tools could offer. Non-SI participants indicated that this helped them in communicating to SI staff the types of program questions they would like to use data to answer. Since it was not the objective of the workshop to turn all participants into “SI folks,” we feel that both of these points underscore successes in the types of capacity building the workshops aimed to achieve.

KIs also indicated that one particularly useful—and new to them—type of analysis that resulted from these data reviews included identifying HTS modalities that yielded higher proportions of HIV-positive results (relative to the overall number of tests delivered). The UNAIDS 90-90-90 targets (UNAIDS, 2014a) have increased the spotlight on programs increasing the proportion of PLHIV who are aware of their status and linked to care: critically examining which modalities are yielding higher numbers of HIV diagnoses is essential to achieving this first 90. Unfortunately, understanding which HTS programs are most successful at linking those who were diagnosed with HIV to care is not yet achievable in many countries given the limitations on this type of data, although recent recommendations on how to do this have become available (World Health Organization, 2015).

Importantly, most survey respondents indicated that their participation in the workshops increased their confidence in both interpreting data and in assessing target achievements. This is especially important given that the majority of the respondents represented the MOH

or other government agencies. While the United States President's Emergency Plan for AIDS Relief (PEPFAR) has introduced an extensive set of new tools and guidelines for analyzing data to set and monitor PEPFAR program targets in 2015 (PEPFAR, 2014), the audience most likely to benefit from ongoing capacity building in this realm continues to be national program staff. Relatedly, several KIs indicated that in order to improve future use of data for decision-making it would be helpful to have a more 'automated' process. It may benefit program and SI staff to work together to identify outputs that would be most relevant to their contexts and create templates or dashboards to auto-populate quickly and easily as data are updated over time. Such tools are increasingly a component of PEPFAR data monitoring systems and have been made available in other contexts as well (Nutley et al., 2013).

During the time that these workshops were implemented, it was difficult to integrate expenditure or other program cost data into the data use tools. This restricted the kinds of analyses that could be conducted and conclusions that could be drawn related to best use of limited resources. When PEPFAR (2015) shifted its approach to country program planning in 2015, major improvements for data use in regards to HIV testing programs included (1) site-level yield analyses that were not available before; (2) use of expenditure data, which had previously been difficult to share between country and headquarters offices; and (3) alignment of testing targets (i.e., numbers testing HIV positive) to achieve 80% ART coverage, which had not been formally built into prior planning cycles. The extent to which this shift in approach yields more efficiencies and impact within PEPFAR-supported programs will be observable in the years to come. Greater efforts to incorporate financial data into decision-making tools for national health programs and program components supported by other donors may also be needed.

Finally, participants indicated that program decision-makers may not have always changed program strategies based on epidemiologic data such as geographic disease burden or program success in case identification. In our experience, discussions on next steps for HTS programs were typically left as preliminary and pending further discussion with larger decision-making bodies. Previous efforts to increase data use in decision-making have similarly acknowledged that hard data is often only one element in the types of inputs that guide decision-making by health program managers (Mutemwa, 2006). In Zambia, for instance, Mutemwa (2008) found that use of HMIS data for program decision-making at the health district level was typically integrated with other data sources such as verbal or observational reports from program staff, program manager's personal experience or training, and the organizational culture or structure. Without a clear mandate to weight these kinds of data analyses above potentially many other factors that drive local program decisions, it was often difficult to draw a clear line from the implementation of a data use workshop and a specific programmatic shift. It will continue to require in-country leadership to determine how best to act on evidence to improve the overall effectiveness and impact of HTS and other HIV prevention programs.

Our evaluation of the data use workshop process was limited in the availability of contacts, given the delay between the workshops and the interviews and surveys. Depending on when the most recent workshop was held in a country, some of the interviews and surveys may

have occurred from 1 to 3 years post-workshop. Therefore, in addition to the potential biases from self-report or recall bias, incomplete or outdated contact information from original participant lists may have yielded a potentially biased sample of past workshop participants. However, the rate of responses among those with valid email addresses was acceptable in the context of web-based surveys more generally (Cook, Heath, & Thompson, 2000). The HTS workshops that were delivered during this period were also focused primarily on questions of program targeting and alignment with populations with disproportionate burden. While scaling up HTS programs certainly require capacity to align those services with client needs, it is also important to monitor program quality, i.e., providing correct test results and providing high quality IEC materials, post-test counseling, and referrals and/or linkages to other health services as appropriate for the client. To the extent that other relevant data sources are available, they could be integrated into the data use workshop structure to address questions of program quality.

These data use workshops provided accessible tools that could be readily learned by the majority of HIV testing program staff, including those with limited prior experience using spreadsheet or mapping software. The framing of the workshop around a series of program questions created a flexible platform to analyze data at any administrative level for which data were available, and which could be easily adapted to address questions for other health programs. Indeed, staff from Zambia and South Africa both reported interest in using these tools to examine other areas of their HIV programs and services, and staff from Malawi expressed interest in applying the approach to their maternal and child health programs (Spindler, personal communication, July, 2014). We developed a set of examples and instructions on the UCSF website (<http://globalhealthsciences.ucsf.edu/prevention-public-health-group/global-strategic-information-gsi/gsi-courses-and-materials/data-use>) as reference materials for workshop participants, which may also foster the adaptation of these tools for other program purposes.

CONCLUSION

Data use for program decision-making is increasingly a skill needed in resource-limited health programs, and it is likely to be most successful in guiding evidence-based changes to national or donor-funded programs when there are more tools, capacity, and formal processes to do so. Such tools should also be applied to routinely monitoring programs in order to identify areas where expected outputs are not being met or where quality may need improvement. While processes for doing this have recently been more formally integrated into PEPFAR's approach to HIV program planning (PEPFAR, 2014), governments with fewer resources or lower quality data systems may still require significant ongoing support to build capacity for data use in health program decision making. This may especially be true where much of the decision-making still occurs at lower levels in decentralized national health systems. We hope that these findings can be useful for future capacity-building efforts in HTS as well as other health program areas.

Acknowledgments

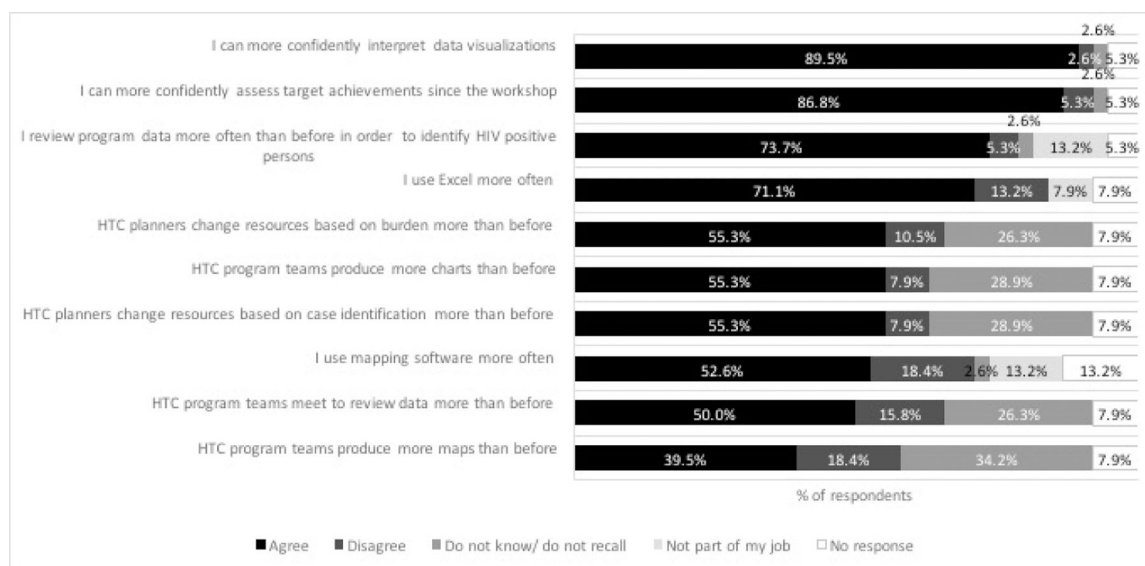
The authors would like to thank Stephanie Behel, Amy Medley, Allison Mneimneh, and the PEPFAR Technical Working Group for HIV Testing and Counseling which supported the development and promotion of the data use

workshops. We would also like to thank each country workshop planning team, especially the staff of each ministry of health, for their active support and engagement in these efforts to increase the effectiveness and impact of their HIV-related programming.

This project was funded through the President's Emergency Plan for AIDS Relief through the Centers for Disease Control and Prevention. This project was reviewed and approved as nonresearch by the Global Division of HIV/AIDS and Tuberculosis, the U.S. Centers for Disease Control and Prevention. The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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**FIGURE 1.**

Responses to survey items regarding changes in data use for decision-making following HTS workshops, $n = 38$.

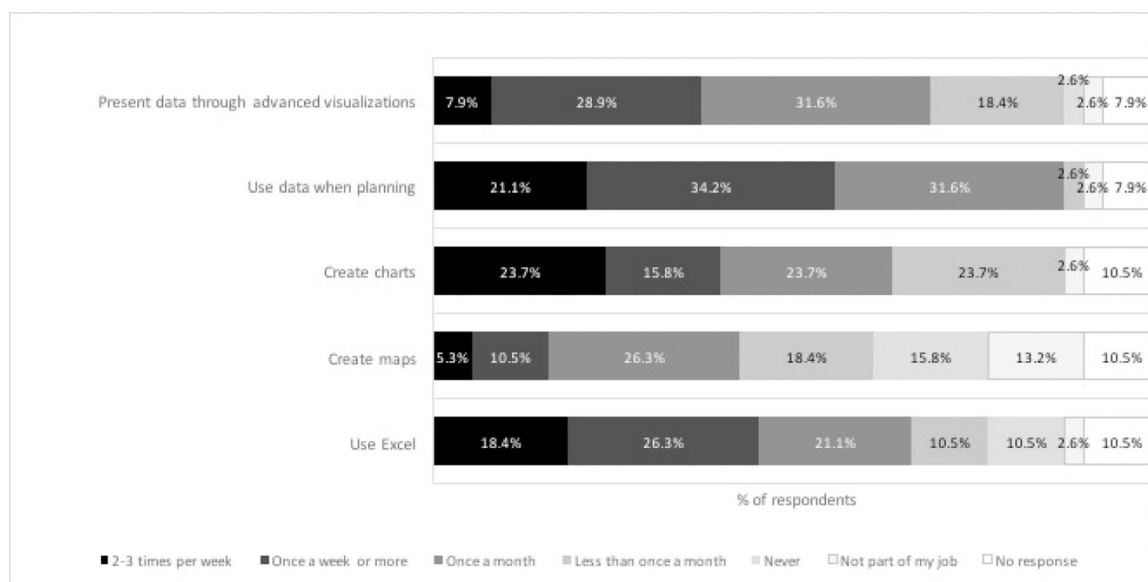


FIGURE 2.
Frequency of using data tools to guide program decisions since attending the HTS workshops, $n = 38$.

TABLE 1.

Number of Original HTS Workshop Planning Team Members Contacted and Interviewed, by Country, 2011–2014

Country	Original planning team members	Contacted*	Interviewed
	<i>N</i>	<i>N</i>	<i>N</i>
Republic of South Africa	3	3	1
Swaziland	3	1	0
Tanzania	4	4	2
Zambia	2	1	1
Zimbabwe	7	4	2
TOTAL	19	14	6

* This includes all contacts made with either an original planning team member or an alternative respondent.

TABLE 2.

Number of Original Participants Contacted and Completing a Web-Based Survey on HTS Workshop Experiences, by Country, June–August 2015

Country	Original HTS workshop participants	Valid email addresses	Total responses received
	<i>N</i>	<i>N</i> (%)	<i>N</i> (%)
Republic of South Africa	20	7 (35.0)	6 (85.7)
Swaziland	35	19 (54.3)	8 (42.1)
Tanzania	45	26 (57.8)	8 (30.8)
Zambia	16	14 (87.5)	7 (50.0)
Zimbabwe	28	26 (92.9)	9 (34.6)
TOTAL	144	92 (63.9)	38 (41.3)