

District Health Officer perceptions of PEPFAR's influence on the health system in Uganda, 2005-2011

Nathaniel Lohman

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Amy Hagopian

James Pfeiffer

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Nathaniel Lohman

University of Washington

**Abstract**

Vertically oriented global health initiatives (GHIs) addressing the HIV/AIDS epidemic, including the President's Emergency Plan for AIDS Relief (PEPFAR), have been successful at reducing HIV/AIDS related morbidity and mortality. However there is still debate about whether these disease specific programs have improved or harmed overall health systems. As part of a larger evaluation of PEPFAR's effects on the Ugandan health system between 2005-2011, we asked District Health Officers (DHOs) from all 112 districts to share their perceptions about the ways in which GHIs had helped and harmed the health system. Ugandan DHOs said that GHIs had generally helped the health system by improving training, integrating HIV and non-HIV care, and directly providing resources. To a lesser extent, however, DHOs also said that GHIs caused the health system to focus too narrowly on HIV/AIDS, increased workloads for already overburdened staff, and encouraged doctors to leave public-sector jobs for higher paid positions with HIV/AIDS programs.

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Chair of the Supervisory Committee:  
Amy Hagopian, Associate Professor  
Global Health and Health Services

## **Acknowledgments**

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## **Introduction**

Ten years now since its inception, there is general consensus the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) has been successful at its main goal – to reduce the morbidity and mortality from HIV/AIDS in targeted low-income countries.<sup>1,2</sup> Among other positive effects specifically pertaining to HIV, PEPFAR increased equity and access to HIV treatment, raised standards of care, and improved diagnostic laboratory capacity.<sup>3-6</sup> However, the jury is still out as to whether PEPFAR investment contributed to strengthening, perhaps undermined, or had no effect on broader health systems. Did PEPFAR provide much needed funding, energy, and support to the health systems in the countries where it operated, by unintentionally “spilling-over” surplus resources from its vertical HIV/AIDS programs, as some have hypothesized?<sup>7,8</sup> Or conversely, did PEPFAR undermine health systems by luring health workers away from primary care duties, distracting health decision makers, establishing parallel service delivery and reporting structures, and prioritizing HIV/AIDS over potentially more pressing challenges, as others have suggested?<sup>5,6,9-12</sup>

Studies attempting to investigate PEPFAR's influence on health systems offer mixed evidence for productive or counterproductive effects. Some researchers have observed positive effects on primary care, increased vaccination rates, antenatal care coverage, malaria diagnoses, and treatment of sexually transmitted diseases.<sup>8,13-16</sup> There is evidence, however, that health service providers have, indeed, shifted focus from primary care duties and some have challenged the measurements of those reporting positive PEPFAR spillover.<sup>11,12,17</sup> While some studies demonstrated PEPFAR's association with reduced demand for hospital beds, effective task-shifting, improved in-service training, and higher job satisfaction,<sup>5,6,18</sup> other studies have noted an internal brain-drain of doctors from the public sector to HIV programs run by non-governmental organizations (NGOs), work interruption due to training, and overburdening of a health workforce already spread thin.<sup>3-6,9,17,19</sup>

Despite this burgeoning body of literature analyzing the interactions between PEPFAR and health systems, few studies have examined public sector health managers' perceptions about how PEPFAR impacted their experiences working in the health system. Those that have included qualitative analyses of stakeholder experiences have relied on a small number of interviews in a limited geographical area,<sup>16,20</sup> focused on the experiences of patients<sup>21</sup> and policy makers,<sup>6,9</sup> or assessed the marginalization of civil society organizations.<sup>22</sup> Many studies have not attempted to measure the differential experiences working with PEPFAR, the Global Fund, and the World Bank's Multi-Country HIV/AIDS Program, and have instead examined the net impact of global health initiatives (GHIs) generally.<sup>5,19,23</sup> Those studies that have assessed the impacts of a single initiative have tended to focus on the Global Fund.<sup>24-39</sup> This is an important distinction because there are valid reasons to believe that the varied policies and approaches of each GHI may have interacted with health systems in distinct ways.<sup>40</sup>

To our knowledge, this is the first survey specifically assessing the impact of GHIs on the experiences of District Health Officers (DHOs) across an entire country. Moreover, because contributions from PEPFAR were much larger than from other GHIs, constituting 73% of Uganda's budget for HIV activities and more than a quarter of total health sector funding in 2006, this study focuses more on the effects of PEPFAR than many previous analyses.<sup>40</sup> In many ways, DHOs and other leaders at district health offices are best positioned to comment on the effects of PEPFAR on the health systems in which they work as they have the most immediate responsibility to turn policy into action. Likewise, they occupy a unique position within the health system that affords them a front-row view to both the challenges of managing under-resourced health centers and leveraging an influx of NGO-run HIV programs for maximal gain. Ultimately, their perceptions of PEPFAR's impacts are necessary to determine whether the strategy of directing support for HIV programs through implementing partners helped or hurt the health system as a whole.<sup>5,22,40-43</sup>

## **Methods**

This analysis of Ugandan DHOs' perceptions about the positive and negative effects of PEPFAR is part of a larger evaluation of the influences that PEPFAR had on the Ugandan health system between 2005-2011 that includes both quantitative and qualitative analyses. The project was funded with a PEPFAR Public Health Evaluation Award to the University of Washington from the U.S. Centers for Disease Control (CDC) in late 2010. The pre-award research protocol was designed by the health systems team in the Health Economics, Systems and Integration Branch Division of Global AIDS at CDC. The University of Washington partnered with Makerere University, Kampala, Uganda for in-country know-how including leadership, appropriate scientific study design, project management, and data collection.

The Uganda office of the CDC and the resource center at the Ugandan Ministry of Health also made valuable contributions to the research.

Although a case could be made that any of the original 15 PEPFAR focus countries would be a suitable setting for an evaluation like this, there were many factors favoring the selection of Uganda. In addition to being one of the first 15 PEPFAR focus countries, PEPFAR funding far outstripped the contributions from other GHIs.<sup>40</sup> Also, Uganda had a stable HIV prevalence of between 6.5% and 7%, ancillary data from Demographic and Health Survey and AIDS Indicator Survey were readily available, and the relatively high incidence of maternal and infant mortality would make small changes in the strength of the health systems more easily distinguishable. Perhaps most importantly, Uganda had a well established Health Management and Information System (HMIS) to provide data necessary for the quantitative analyses.<sup>44</sup>

To collect qualitative and quantitative data from the 112 district health offices, Makerere University hired approximately 20 research assistants. Recent university graduates, many with degrees in health sciences, comprised most of the team, but some junior faculty also participated. We conducted a one-week training in October 2011 to orient our team to the goals and the research protocol, and provided a field manual outlining data collection procedures (manual available upon request).

Following the training, the research assistants were divided into six teams and assigned a geographical region. Each team consisted of three data collectors, one of whom was designated leader. During the first week of data collection, each team visited and gathered data from nine district health offices and submitted these data to the research leadership team at Makerere University to be reviewed for

thoroughness and to troubleshoot any problems that had arisen. The teams then returned to the field and completed data collection from the district health offices by late December 2011.

District health offices were informed of the research project by a letter from the Ministry of Health authorizing participation in the research. The research assistants then contacted each district health office to schedule their visit, confirmed their appointment with a call the day prior to arrival, and carried a letter of introduction from the Ministry of Health. During each visit, we used quantitative data collection tools for use in the other elements of this program evaluation (fully described in Luboga et al.<sup>45</sup> in review) from the monthly and annual routine data collection reports for the HMIS.

We also administered open-ended questions in our interviews with DHOs which generated qualitative text data. If DHOs were unavailable, we asked to interview another appropriate district health leader (see Table 1). Our structured interview guide is available upon request. The team leaders administered the interview while a second member took hand-written notes on the interview guide as to the content of the answers. All members of the data collection teams had been trained to take accurate notes and probe respondents for rich responses. Paper copies of the completed interview guides were scanned in the field using Fujitsu S1500 portable scanners, and the electronic copies were uploaded into a secured project “Dropbox.” Team members then transcribed the responses from the handwritten copies to digital format by typing them into the software CSPro using the laptops that the teams carried with them. These electronic transcripts were also uploaded to the project “Dropbox.” The team then stored paper copies securely until they could be submitted to the project leadership at Makerere University for archiving.

**Table 1: Number of survey respondents categorized by professional title**

District Health Officer/ Acting District Health Officer	74
Assistant District Health Officer (Nursing, MCH, or Environmental Health)	12
District Health Educator	8
District Health Inspector	7
HIV/AIDS Focal Person	4
Senior Clinical Officer	3
Medical Superintendent / Sub-district In-charge	2
Public Health Nurse	1
Missing	1
<i>Total</i>	<i>112</i>

*Data source:* Self-reported professional titles from interviews with health leaders at 112 Ugandan district health offices

We used the World Health Organization’s six building blocks for strong health systems to structure the questionnaire topics: capacity to plan, monitoring and evaluation capacity, capacity to manage medical equipment, human resource capacity, capacity to coordinate stakeholders in the health system, ability to mobilize resources, and the management of information systems. First, we asked each respondent to state categorically whether they thought that the PEPFAR investment had improved, had no effect on, or decreased each element of the health system as related to non-HIV health. Then, we asked respondents to list and explain a few ways in which the PEPFAR investment had both positively *and* negatively affected each key element as it related to non-HIV health, regardless of whether their overall impression was of improvement, neutrality, or decrease. Next, we asked each respondent to hypothesize two or three potential explanations for why the quantitative aspects of this program analysis might find that the PEPFAR investment could have had positive, and alternatively, negative, impacts on non-HIV health indicators. Finally, we offered each respondent the opportunity to make any comments that they would like to be included in the study.

Using the scanned copies of the structured interview guides containing the hand written notes from each interview, we confirmed that the electronic transcriptions entered into CSPro in the field were complete

and accurate. In the instances where the electronic transcripts had been misentered or truncated, we corrected the electronic transcripts to reflect the notes taken during each interview verbatim.

We employed an inductive content analysis approach to analyze the survey responses. This approach was most appropriate because of the positivist orientation of the research in which the respondents remarks were taken at face value without attempting to make deeper inferences about the subtext of remarks. Because the text comprised highly fragmented notes of the interview, created by note takers who paraphrased and listed the main points raised by each respondent, a more interpretive analysis would have been inappropriate, if not impossible. Furthermore, because the primary goal of this research was to determine what district health leaders perceived to be the positive and negative effects of the PEPFAR investment on critical components of the non-HIV health system, an inductive approach was most appropriate to analyze the interviews. In this approach, themes arise from the responses themselves rather than being determined *a priori* based on a conceptual framework.

We developed the code book in three steps. Initially, two graduate students trained in methods of qualitative analysis at University of Washington read through a non-random selection of ten interview transcripts to discuss the structure of the responses and the themes that seemed apparent *prima facie*. Following this discussion, we reviewed all 112 transcripts in electronic form using AtlasTi, working question by question, rather than interview by interview, creating narrowly defined categories of the themes found in the responses to each question and memoing reflections about the themes. After reviewing the responses to all of the questions and placing informative responses into the narrow categories that we had created, we grouped and merged the narrower categories into three to five broader categories of themes with the goal of having inclusive, yet distinct, themes for positive and

negative responses to each question. We then gave each of these broader categories a descriptive title, or code, extracted exemplar quotes, and wrote inclusion and exclusion criteria for each.

During this process, it became clear that a sizeable minority of respondents had answered questions early in the interview with answers that could more closely pertain to questions that were to be asked later in the interview (e.g. about health workforce capacity and information management systems). To adjust for this, the data coder moved a small percentage of responses (less than 10%) during the process of analysis to be considered with the question to which they more closely pertained. However, responses were only relocated if they specifically referenced another question (e.g. referred to the provision of computers for data management in response to the question inquiring about human resource capacity), and also did not specifically respond to the question they were asked (e.g. continuing the example from above, the provision of computers was not related back to the ability of health workers to adequately perform their duties). Lastly, the second coder needed to agree with the relocation of the item during the check for intercoder reliability discussed in the following paragraph.

We checked intercoder reliability by randomly selecting 15 of the 112 transcripts and having a second member of the research team (TL) independently code them using the code book we had developed. To randomly select the 15 interviews, all 112 were ordered alphabetically by district name and numbered in order. Then 15 random integers between 1 and 112 were generated using the RANDBETWEEN(1,112) command in Microsoft Excel to identify which numbered transcripts to select. After the transcripts of the 15 interviews chosen had been coded by the second coder, the two coders compared how they had applied the codes to the transcripts and discussed the instances in which they had coded the transcripts differently. Based on the consensus that the two coders reached about how and why they had applied

the codes differently in each instance, the inclusion and exclusion criteria for each code were edited to minimize discrepancy between coders. We then applied the codes with the revised inclusion and exclusion criteria to the remaining 97 interview transcripts.

We established the relative importance of the themes in three ways: by summing the number of respondents who named any positive or negative influence of PEPFAR funding on non-HIV health, by triangulating comments that pertained to each other but did not fall into the same theme, and by considering the uniqueness and insight of comments that appeared infrequently. The primary means of establishing the relative importance of a given theme was the tally of counts of the number of DHOs naming a given theme. Beyond counts however, it was also important to consider how comments interacted with each other regardless of the frequency in which they occurred; that is to say, we triangulated responses. Lastly, because insight, by its very definition, is neither a perception held by a sizeable proportion of any group (thus, will not appear in counts), nor easily deduceable by considering how two (or more) comments converge (thus, not distinguishable through triangulation), we also considered unique comments that the team agreed were particularly germane.

Institutional review board approval was obtained from the CDC's Office of Science, the Uganda National Council for Science and Technology, the Makerere School of Medicine, and the University of Washington. All parties signed a data user agreement stipulating that the Uganda Ministry of Health owns the data, can grant approval to their use, and must have the opportunity to review manuscripts arising from the data.

## Results

### Categorical responses

Ugandan DHOs generally perceive the PEPFAR investment from 2005-2011 as helpful for the country's overall health system. When asked to categorize PEPFAR's overall effects on the health system as beneficial, detrimental, or having had no effect, 79% of respondents asserted that the effects were beneficial, 8% claimed that the effects were detrimental, and 9% responded there were no net effects. An additional 4% either did not know or reported mixed effects (Table 2).

**Table 2: Overview of respondents' answers to categorical questions asking whether PEPFAR improved, had no effect on, decreased, or had mixed effects on seven health system components**

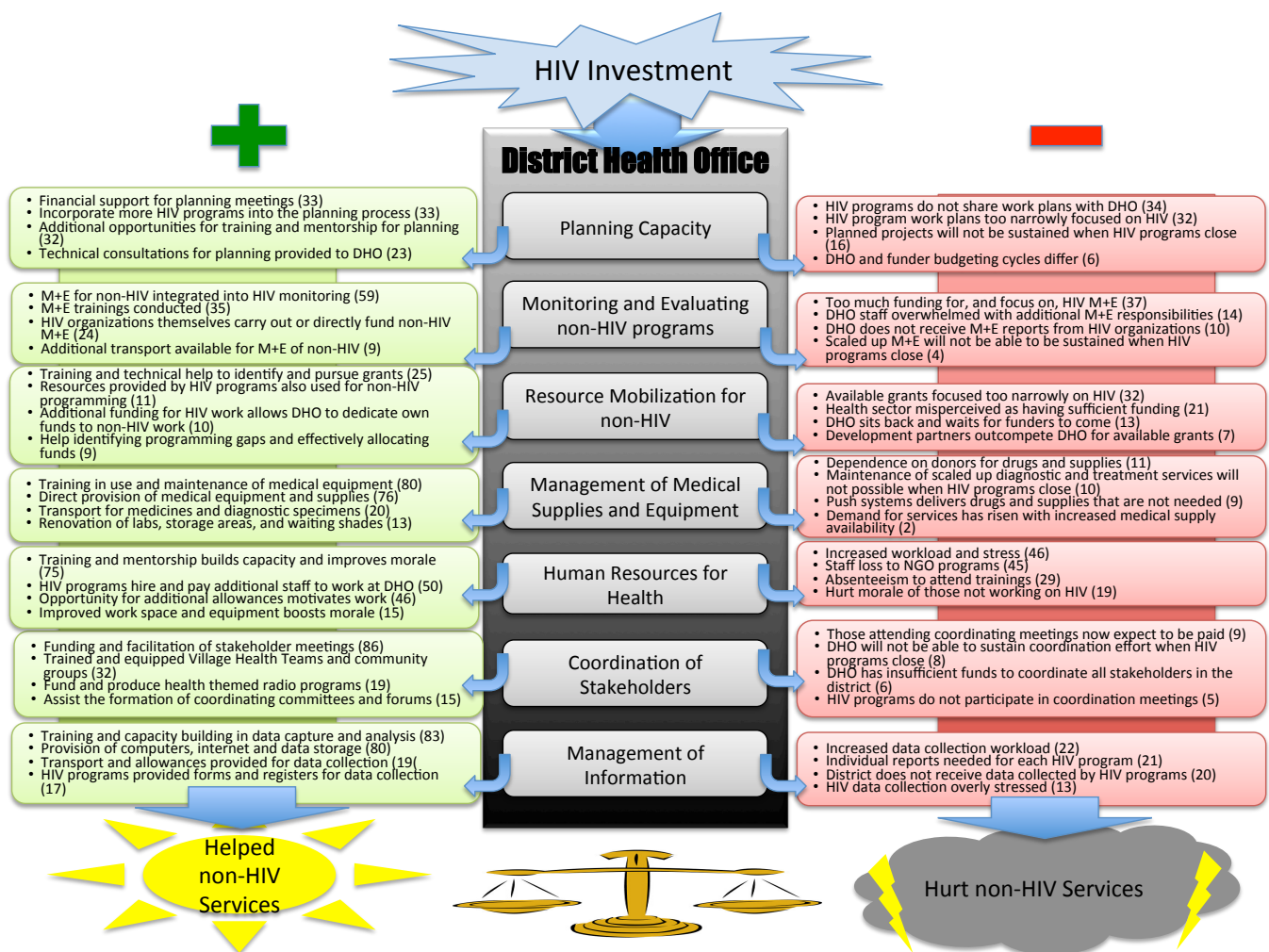
	Planning Capacity (%)	M+E Capacity (%)	Mobilize Resources (%)	Manage Medical Supplies (%)	HR Capacity (%)	Coordinate Stakeholders (%)	Manage Information (%)	Total (%)
Improved	93 (83.0)	91 (81.3)	51 (45.5)	100 (89.3)	88 (78.6)	103 (92.0)	94 (84.0)	620 (79.4)
No Effect	8 (7.1)	7 (6.3)	33 (29.5)	7 (6.3)	4 (3.6)	5 (4.5)	7 (6.3)	71 (9.1)
Decreased	5 (4.5)	12 (10.7)	25 (22.3)	2 (1.8)	12 (10.7)	2 (1.8)	3 (2.7)	61 (7.8)
Mixed	3 (2.7)	1 (0.9)	1 (0.9)	2 (1.8)	7 (6.3)	1 (0.9)	1 (0.9)	16 (2.0)
Missing/ Don't Know	3 (2.7)	1 (0.9)	2 (1.8)	1 (0.9)	1 (0.9)	1 (0.9)	7 (6.3)	16 (2.0)

*Data Source:* Categorical data from interviews with health leaders at 112 Ugandan district health offices

In addition to asking about PEPFAR's effects on the health system overall, we asked DHOs about seven different health system components for which they are responsible. While still largely positive, there was more heterogeneity of views between the categories. Across six of the seven health system components studied - *planning capacity, monitoring and evaluation (M+E) capacity, management of medical supplies, human resource (HR) capacity, ability to coordinate stakeholders, and information*

*management capacity* - respondents in large numbers perceived PEPFAR's effects as beneficial (78% - 92%). The one exception to this trend was for the component of *ability to mobilize resources*, for which only 46% of health leaders perceived PEPFAR as beneficial. DHOs predominantly attributed this detrimental effect to the unavailability of grants for non-HIV related health programs as well as the perception that the windfall of HIV funding had sufficiently provided for the entire health sector (discussed more fully below) (Figure 1).

**Figure 1: Most common responses for the positive and negative effects of PEPFAR on health system components with number of respondents citing each effect in parentheses**



When asked if PEPFAR had had any negative effects on individual components of the health system, nearly one in four (22%) DHOs said that PEPFAR had undermined their *ability to mobilize resources*. Very few DHOs (3%) perceived that PEPFAR had harmed *management of medical supplies*, *ability to coordinate stakeholders*, and *information management capacity*. Slightly more DHOs (5%) perceived a negative effect on *planning capacity*, and 11% said that PEPFAR had been detrimental both to *M+E capacity* and *HR capacity* (Table 2). In addition to the 22% of DHOs who perceived that PEPFAR reduced their *ability to mobilize resources*, many (30%) also felt that PEPFAR had had no effect on that component. In comparison, only between 4% to 7% of respondents said PEPFAR had no net effect across the other health sector components (Table 2).

### **Open-ended responses**

When we asked DHOs open-ended questions about the specific means by which PEPFAR had a positive effect on the non-HIV health system, they most often named training, mentoring, and capacity building as the key theme that cut across all components studied. DHOs most frequently said the most important positive effect of PEPFAR was on *HR capacity*, specifically skills that health workers gained. Two in three respondents said that trainings had increased the ability of health workers, at levels ranging from Village Health Teams to skilled service providers, to manage both HIV and non-HIV health care. In the words of one respondent, HIV programs and district health offices “built capacity of staff in different skills making them competent in service delivery not only for HIV, but also in non-HIV service delivery.” Beyond the component of *HR capacity*, many DHOs also felt that additional training improved the *management of medical supplies* as well, outpacing even the direct provision of medical resources. Moreover, many DHOs perceived that trainings were helpful across all other health system components.

After training in the most often named positive effects, DHOs also said they appreciated the ability to integrate HIV and non-HIV activities. Respondents perceived this integration of services as most important to the sectors of *M+E capacity* and *planning capacity*. Integration allowed district health offices to supervise HIV services concurrently with non-HIV services using the same transportation and staff, and using forms and registers that included indicators necessary for the evaluation of both programs: “They [implementing partners] supported the district by funding the monitoring exercise of HIV programs, in turn, our staff used the opportunity to evaluate other district programs,” summarized one respondent. DHOs also perceived positive effects on *planning capacity* emphasizing that program integration improved the ability of district health offices to plan together with more implementing partners working in the district. One DHO expressed this sentiment saying, “HIV/AIDS organizations have increased multi-sectoral collaboration which has led to a more integrated planning system for the district.” In addition to the particular importance of integration for the components of *M+E capacity* and *planning capacity*, respondents also perceived that the integration of HIV and non-HIV was important to all other components of the health system vis-à-vis the extent to which district health offices could use medical supplies, transport, and funding for staff allowances procured through HIV programs for non-HIV services as well.

Thirdly, DHOs felt that the direct provision of medical supplies, transport, and funding for staff allowances itself, whether through integration of HIV and non-HIV programs or direct support for non-HIV programs alone, was a third major positive impact of PEPFAR. This additional support for non-HIV activities was particularly important to the components of *information management*, *management of medical supplies*, and *HR capacity*. However, a sizeable minority of DHOs also cited positive

impacts of directly supplied resources on the components of *resource mobilization* and *M+E capacity*. Comments about the material support provided to bolster *information management* focused primarily on the provision of computer hardware, software, and internet connectivity at health centers, hospitals, and district health offices. Respondents said that these resources helped data analysis and timely report submission. DHOs also felt that direct material support fortified *management of medical supplies* via the provision of a wider range of equipment. These supplies included microscopes and other lab equipment, refrigerators for cold chain expansion, reagents for diagnostic tests, and buffer stocks of sundry medications for the treatment of malaria, tuberculosis, and other bacterial infections.

Regarding DHOs' perceptions about the negative effects of PEPFAR, many respondents felt that the vertical nature and narrow focus on HIV programs supported by PEPFAR either came at the expense of, or did not sufficiently address, public health priorities other than HIV. DHOs perceived the narrow focus of programming to be most acutely damaging to the health system components of *resource mobilization*, *M+E capacity*, and *planning capacity*. Respondents frequently commented on how few grant opportunities were available for non-HIV programming as well as the high number of monitoring reports required for HIV activities. Perhaps, though, the most counterproductive effect of PEPFAR was secondary to this overemphasis on HIV and centered on how the windfall of PEPFAR funding and support from NGOs changed the political and behavioral landscape in which district health offices operated. Addressing the ability of district health offices to lobby for more funding from the government, one respondent stated, the “wrong perception [was] created that the health department has a lot of money because of many HIV activities which makes it difficult for central and local government to allocate [additional] resources.” To complicate the matter further, in some cases district health offices themselves changed their resource seeking activities to become more passive and demur to NGOs: “the

district is not writing proposals for non-HIV services funding because they are being ‘spoon-fed’ by HIV organizations, i.e. they expect funds whether they [district health offices] apply or not.” The fact that health system leaders were more likely to say that PEPFAR had harmed or had no effect on their *resource mobilization* than any other component highlights the importance of both of these challenges (Table 2).

Moreover, DHOs perceived the implementation of PEPFAR as increasing the workload for an already over-burdened health workforce. With the scale-up of HIV services, district health offices faced what some might call the consequences of their own success, seeing an increase in the number of patients seeking care for HIV and non-HIV alike. Respondents attributed this phenomenon to a popular, albeit vague, understanding that all health centers had scaled-up all health services. At the same time, DHOs perceived their offices to be saddled with the burden of additional M+E, data analysis, and reporting to a variety of implementing partners which often required individual and frequent reports. Meanwhile, many public sector health providers received a growing number of financially enticing offers to join the staff of NGOs, placing additional pressure on district health offices to fill vacancies: “HIV programs limit the district capacity to attract workers because everyone wants to work for these programs. For example, when the district advertises for jobs they get no responses, but HIV programs are flooded with applications when they advertise.” Thus, in addition to perceiving the need to shoulder a heavier burden of work, DHOs felt the additional pressure of counteracting the “glamorization” of HIV programs, as one respondent put it.

More specifically, health sector leaders felt that the influx of NGOs offering lucrative salaries to recruit health providers from the public sector was one of two ways that PEPFAR caused, or at least

encouraged, a fragmentation and pending instability of the health system. Beyond the heavier burden of work and challenges filling vacancies, DHOs also saw the disparity in salaries between NGOs and the public sector as harmful to morale: “the monetary benefit [offered to NGO staff] affects other staff who are not working for the HIV organizations. This demotivates them because they see their colleagues benefiting a lot, which also compromises services offered.” Furthermore, respondents perceived that the unlikelihood that programs scaled-up with PEPFAR support will be maintained by district health offices once funding “dries up” largely undermines the validity of the effort expended to address challenges posed by increased workloads and the movement of health providers out of the public sphere.

### **Explanations for a hypothetical strengthening or weakening of the health system 2005-2011**

When asked to propose hypothetical reasons for potential improvement of the health system due to PEPFAR between 2005-2011, DHOs most frequently credited increased staffing levels and performance (Table 3). Respondents were particularly optimistic about improvements in the quantity and quality of health staff making health centers better places to work and seek medical care. DHOs also frequently attributed potential strengthening to improvements in physical infrastructure at health centers and availability of medications and medical supplies. Interestingly, only 12 of the 112 respondents used terms like “cross-cutting” or “spillover” to indicate the use of funds and resources procured for HIV programs being employed for non-HIV activities. Although, the theme *integration of HIV and non-HIV services* surely includes similar concepts, resource spill-over or integration seem to be relatively less important potential explanations for hypothetical improvements in the health system than improved staffing or better access to medical supplies and facilities.

**Table 3: Speculations from health sector leaders about the potential causes for observed strengthening or weakening of the health system**

**Hypothetical reasons for overall improvement**

Increased staffing levels and performance – 70  
 Improved infrastructure, better access to health facilities – 42  
 Better monitoring, management, support supervision – 40  
 Increased availability of drugs and medical supplies – 40  
 Increased community awareness, knowledge, demand for services – 34  
 Staff morale, motivation, commitment, and vigilance – 32  
 Presence of additional donors/partners (not otherwise specified) – 31  
 Better integration of HIV and non-HIV services – 24  
 Transport provided to service providers– 19  
 Political support – 18  
 Use of resources brought by HIV programs for non-HIV, “Cross-cutting,” “Spillover” – 12

**Hypothetical reasons for overall worsening**

Funding and staff focus over-emphasizes HIV - 39  
 Understaffing\* – 37  
 Insufficient health sector funding\* - 26  
 Increased workload – 23  
 Data quality issues – 22  
 Staff loss to NGOs - 18  
 Low staff morale, motivation – 18  
 Poor infrastructure at health facilities\* - 16  
 Lack of transport\* – 15  
 Negative community attitudes towards health workers, services\* - 13  
 Absenteeism for trainings, outreaches– 13  
 Continued stock-outs, lack of supplies\* – 12  
 Poor roads\* – 12  
 Health facilities hard to reach, poorly located\* – 11

*Data source:* Qualitative text data from interviews with health leaders at 112 Ugandan district health offices

\*Indicates underlying conditions rather than impacts attributable to PEPFAR programs

As hypothesized, the greatest number of DHOs suggested that overemphasis on HIV programming, whether due to additional allowances for HIV activities or paltry funding opportunities for provision of non-HIV services, was the most likely explanation for a potential overall worsening of the health system. According to one respondent, “the mindset of people handling HIV programs [is] that HIV is presumed to have more funding, and they are less interested in other programs other than HIV.” Interestingly though, many of the potential reasons offered for a hypothetical overall worsening of the health system were based on underlying and environmental conditions rather than the impact of PEPFAR programs themselves. Of these underlying factors, the largest number of health sector leaders cited understaffing as a potential explanatory factor. But, DHOs also frequently cited insufficient health sector funding, poor health infrastructure, lack of transport, and negative community attitudes towards the health system. For example, one health sector leader offered the potential explanation that there is “poor infrastructure for non-HIV services; like you find health center IIIs could have been given a mandate to handle

deliveries, but due to poor infrastructure they cannot [perform that service], so people can't even access it and also health personnel don't want to reside there.” Though increased workloads due to the scale-up of HIV services and the loss of some healthcare providers to HIV programs surely exacerbated these pre-existing challenges, many respondents stressed underlying and environmental causes as potential explanations for a hypothetical worsening of the health system.

## **Discussion**

Our goal was to understand whether PEPFAR resulted in a beneficial spilling-over of resources or caused harm to the overall health system. Complementary analyses of quantitative indicators gathered from district health office records and reported elsewhere<sup>45</sup> found no meaningful health system improvement or deterioration. However, our qualitative analysis of DHOs' perceptions about PEPFAR's influences found DHOs said PEPFAR generally strengthened the health system by improving medical training, integrating HIV and non-HIV activities, and directly providing additional resources. That said, DHOs' perceptions were not unanimously positive, and many felt that PEPFAR had exacerbated the loss of staff to NGOs, over-emphasized HIV care, and increased workloads.

The positive and negative perceptions of DHOs regarding PEPFAR are largely consistent with previous studies examining the effects of HIV initiatives on health system strength. There is a substantial body of literature demonstrating HIV care has improved as a result of investments in training, health infrastructure, and access to treatment. Ugandan DHOs in our study agreed, reporting health system strengthening to the extent that training, integration, and direct provision of medical supplies benefited non-HIV programs as well.

However there are also reports the narrowing of national health policies has concentrated focus on HIV programs,<sup>5,10,12</sup> that duplicative and unique evaluation requirements for each implementing partner organization have burdened ministries of health,<sup>46</sup> and doctors have moved out of the public sector to work for HIV programs.<sup>4,6,13</sup> So too, Ugandan DHOs reported they experienced these challenges and said these factors undermined the strength of the health system.

Uganda's DHOs reported broad satisfaction with PEPFAR, despite criticism of individual aspects and some negative consequences. PEPFAR offered a major new source of funding in a weak health system starved for resources. It's hardly surprising, therefore, that DHOs would be generally happy to receive those resources as they struggled to organize services for rapidly growing populations with a high burden of disease. At the same time, DHOs were not asked how they would choose to direct new resources for the greatest health benefits, so it is unsurprising they might have some criticisms about PEPFAR decisions made by foreigners and at the national level.

We observed DHOs were rather pessimistic about the long-standing weaknesses in health system infrastructure in Uganda, attributing responsibility to national policy decisions. They did not tend to hold PEPFAR accountable for those issues, choosing instead to point to the positive gains PEPFAR offered (e.g. increased staffing, facility improvements), even if those were marginally effective in strengthening the health system generally.

The brief amount of time we spent with each DHO limited the depth of responses we received. The interview portions of our visits with DHOs were necessarily succinct. Indeed, our ability to have conversations with health officers in all 112 Ugandan districts, a unique strength of our research, is

attributable to the efficiency of each visit. Also, while we can generalize our findings to all of Uganda, observations are still limited to Uganda's specific political, professional, and economic contexts and do not necessarily apply to the experiences of public-sector health leaders with HIV initiatives in other countries. Lastly, DHOs may have been reticent to appear unappreciative of the significant financial contributions of HIV initiatives by expressing criticisms. To minimize the likelihood that this would happen, we conducted all interviews in private settings, did not record the names of respondents, and trained the data collection teams to establish collegial rapport with respondents before beginning the interviews.

## **Conclusion**

Ugandan DHOs perceived PEPFAR strengthened their health systems between 2005-2011 despite objective indicators there were no significant improvements or reductions in non-HIV services in the country (results reported elsewhere).<sup>45</sup> However, DHO perceptions of PEPFAR were not unanimously or uniformly positive. While the overall satisfaction rate with PEPFAR approached 80% positive ratings among DHOs, fewer than half perceived an improvement in their ability to mobilize resources to strengthen the health system beyond HIV services. DHOs also offered constructive criticisms of PEPFAR's effects on other health system components. DHOs tended to credit improvements in health system strength to PEPFAR's influence, while attributing declines to preexisting or environmental factors. This tendency is consistent with DHOs' positive perception of PEPFAR's effects, despite paltry evidence from separate quantitative analyses. As HIV infection becomes a chronic disease requiring strong health systems to manage sustained patient care over time, Uganda's weak health systems will require broad infrastructure improvements inconsistent with narrow vertical health programming.

Nonetheless, health system leaders in Uganda at the district level were broadly appreciative of resources aimed at HIV that they could often leverage for broader purposes.

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