

TECHNICAL REPORT | NOVEMBER 2019

# Increasing Site-Level Staffing Levels: Does It Improve Site Performance?

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Cover photo: (top left) Geomark Banda, Medical Assistant In Charge at Chadza Health Centre in Lilongwe; (center right) Sister Emma Nazombe, In Charge at the Makaya Health Centre in Zomba; (bottom center) a group of health workers pose in front of a facility in Malawi. Credit: HRH2030.

## DISCLAIMER

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## Acronyms

ANC	Antenatal Clinic
ART	Antiretroviral Therapy
CHAM	Christian Health Association of Malawi
COP	Country Operational Plan
DATIM	Data for Accountability Transparency and Impact
DHMT	District Health Management Team
DHO	District Health Officer
DMO	District Medical Officer
DNO	District Nursing Officer
DSD	Differentiated Service Delivery
FTEs	Full-time Equivalents
GFATM	Global Fund to Fight AIDS, Tuberculosis, and Malaria
HCWs	Health Care Workers
HRH	Human Resources for Health
HRH2030	Human Resources for Health in 2030
HSA	Health Surveillance Assistants
HTC	Hard-to-Count (communities)
MER	Monitoring, Evaluation, and Reporting
MOH	Ministry of Health
NMT	Nurse Midwife Technicians
OPD	Outpatient Department
OR	Operational Research
PEPFAR	President's Emergency Plan for AIDS Relief
PLHIV	People Living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission
TB	Tuberculosis
TWG	Technical Working Group
USAID	United States Agency for International Development
WISN	Workload Indicators of Staffing Need
WHO	World Health Organization

## Operational Definition of Terms

**ART providers:** Clinical cadres who play a major role in the provision of antiretroviral therapy (ART) and prevention of mother-to-child transmission (PMTCT) services including ART initiation. They include clinical technicians, medical assistants, and nurse midwife technicians.

**Client waiting time:** The total number of minutes that a patient spends waiting to be served at a health service delivery point. Waiting time is measured from the time a patient arrives at a service point to the time when he or she receives service. For this study, client waiting time was determined for ART consultation, laboratory testing, and dispensing.

**Client/ provider facing time:** The total number of minutes that a client spends face-to-face or in consultation with a health provider while receiving a health service.

**Comparison district:** A selected PEPFAR scale up or sustained district matched geographically and by HIV burden to an intervention district that is not receiving PEPFAR-supported health care workers (HCWs) for contrast and analysis.

**Deployed:** HRH2030 uses a cascade to track the recruitment status of PEPFAR-supported health workers. In the cascade, an HCW is first recruited or offered a job and then is deployed or posted to a health facility. After an HCW is deployed, they are considered reporting (to the facility) in the cascade.

**Differentiated ART Service Delivery (DSD):** A patient-centered approach that adapts ART services to the individual needs of people living with HIV/AIDS (PLHIV) in order to improve their quality of care across ART clinics (MOH, 2018). Approved DSD models in Malawi include teen clubs, mobile clinics, district health officer (DHO)-linked drop-in centers, 3-multi-month prescription, and pharmacy fast-track refills.

**Frequency of HIV/AIDS services:** The total number of days in a week, or times in a month, that HIV/AIDS services are provided at a facility. It is a measure of HIV/AIDS service coverage.

**HIV clinical management guidelines:** A set of guidelines published in 2018 by the Clinical Management of HIV in Children and Adults.

**Intervention district:** A selected PEPFAR accelerated or scale up district receiving aggressive to moderate programmatic interventions including PEPFAR-supported HCWs, recruited and managed by HRH2030.

**Locum:** A scheme through which medical personnel are paid additional salary to fill work shifts beyond their own when there is no other coverage (DFID, 2010).

**Organized absenteeism:** A practice in which HCWs agree amongst themselves to not report to the health facility, leaving only skeleton staff on duty.

**PEPFAR acceleration districts:** Five PEPFAR scale up districts with the highest HIV burden and gap to saturation that constitute 70 percent of the national gap to saturation. They include Blantyre, Zomba, Mangochi, Machinga, and Chikwawa. These are targeted for aggressive to intensive programmatic interventions including HCW salary support (PEPFAR 2017).

**PEPFAR scale up districts:** Five PEPFAR priority districts with a high HIV burden and gap to saturation, targeted for intensive focused programmatic interventions excluding HCW support except for Lilongwe district. They include Lilongwe (rural), Mulanje, Mzimba, Phalombe, and Thyolo (PEPFAR, 2016).

**PEPFAR sustained districts:** The remaining 18 districts with moderate-to-low HIV burden and gap to saturation that received sustained PEPFAR support excluding HCW salary support.

**PEPFAR-supported HCWs:** HCWs deployed in PEPFAR acceleration districts and Lilongwe district (scale up) to augment HIV/AIDS service delivery and whose salaries are funded by PEPFAR. They include transitioning and surge HCWs (defined below).

**Perceived quality:** The extent to which clients' needs and expectation are met as observed by different stakeholders (clients, providers, and community) (Mosadeghrad, 2013).

**PMTCT\_ART:** The total number of HIV-positive pregnant women who received ART to reduce the risk of mother-to-child-transmission during pregnancy.

**Recruited:** HRH2030 uses a cascade to track the recruitment status of PEPFAR-supported health workers. In the cascade, an HCW is recruited before deployment, meaning they have gone through the recruitment process and have been offered a job. After recruitment, an HCW is deployed to and reports for duty at a health facility.

**Reported:** HRH2030 uses a cascade to track the recruitment status of PEPFAR-supported health workers. In the cascade, HCWs who have reported are defined as having been offered a job or recruited, then deployed, and are present and ready for duty at the health facility where posted.

**Retention rate:** The proportion of PEPFAR-supported HCWs at the sites at the beginning of the fiscal year who are still at the site at the end of the year, expressed as a percentage of the total number of the PEPFAR-supported HCWs at the beginning of the year.

**Scope of HIV/AIDS services:** The range or type of HIV/AIDS services provided given the approved package in the continuum of HIV/AIDS care. It is a measure of HIV/AIDS service coverage.

**Surge health worker:** A PEPFAR-supported HCW who deployed in a PEPFAR acceleration and scale up district that will not shift or transition to the Government of Malawi payroll.

**Technical quality:** Compliance to standards such as guidelines and standard operating procedures in delivering services (Mosadeghrad, 2013).

**Testers:** Laboratory-trained, professional HCWs recruited to support and improve laboratory services, particularly viral load monitoring and tuberculosis (TB) testing.

**Transitioning health worker:** A PEPFAR-supported HCW who deployed in a PEPFAR scale up district that will shift to the Government of Malawi payroll after two to three years of PEPFAR salary support.

**Turnover rate:** The proportion of PEPFAR-supported HCWs who left their posting, expressed as a percentage of total number of PEPFAR-supported HCWs who reported to the site for duty.

**TX\_CURR:** Total number of adults and children currently receiving ART.

**TX\_New:** Total number of adults and children newly enrolled on ART.

**TX\_TB:** Total number of ART patients who were screened and are receiving TB treatment.

## Executive Summary

While Malawi has made significant strides in combatting HIV/AIDS, by 2016 an estimated 350,000 Malawians still had no access to antiretroviral therapy (ART), and the need was growing at about 30,000 new infections per year.

Despite embracing key HIV control strategies such as Test and Start, Malawi's progress to ensure that all HIV positive people were started and retained on ART was challenged due to widespread health system inadequacies such as a lack of human resources for health (HRH). In 2017, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) in Malawi received funding for the recruitment and deployment of health care workers (HCWs) to selected PEPFAR priority sites located in areas with the highest HIV/AIDS burden. The HCWs included ART providers (clinical technicians, nurse midwife technicians, and medical assistants) to improve ART care and treatment services; HIV/AIDS testers (lab cadres) to improve laboratory services; and pharmacy cadres to ensure proper management of medicines, including dispensing. HRH2030 managed the recruitment and deployment of the PEPFAR-supported HCWs for 63 sites in Lilongwe and Zomba districts.

The deployment of the PEPFAR-supported HCWs was expected to increase the number of HCWs providing HIV/AIDS services and, subsequently, improve the availability, utilization, and quality of HIV/AIDS services in the supported sites, for improved HIV/AIDS and health outcomes. The purpose of this operations research was to assess the initial extent to which the intended results of the PEPFAR-supported HCW deployment were achieved and to draw lessons to inform current and future HRH programming in Malawi.

## Study Objectives

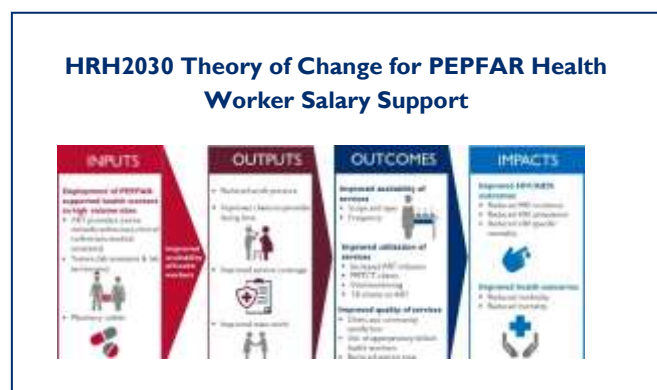
Overall, the research aimed to assess the extent to which the PEPFAR-supported HCWs have contributed to improving HIV/AIDS services at the supported PEPFAR sites in Lilongwe and Zomba.

Specifically, the study sought to find out whether the deployment of the PEPFAR-supported HCWs:

1. Increased the number of HCWs providing HIV/AIDS services
2. Improved availability of HIV/AIDS services and utilization of Differentiated ART Service Delivery (DSD) models
3. Improved utilization of HIV/AIDS services
4. Enhanced the quality of HIV/AIDS services

## Methodology

The HRH2030 Theory of Change for PEPFAR Health Worker Salary Support (see page 5) served as the theoretical framework in developing the study methodology. A longitudinal study design was utilized with the study covering the period 2017/2018 to 2019/2020.



Data was obtained from several sources including PEPFAR's Data for Accountability Transparency and Impact (DATIM), HRH2030 activity reports and databases, and a nested observational study. The nested study was conducted in two intervention districts (Lilongwe and Zomba) and two comparison districts (Mulanje & Ntcheu). A total of 30 sites in the intervention districts and 20 sites in the comparison districts were studied. Both qualitative and quantitative data were collected through structured interviews with health facility or clinic in-charges, PEPFAR and non-PEPFAR-supported HCWs, document review of patient health passports, and clients at exit. Key informant interviews were also conducted with members of the district health management teams (DHMT) of the four districts. Observations were conducted as clients received treatment at the ART clinic, the laboratory, or the pharmacy, and were examined to determine the treatment clients obtained.

Ethical approval to conduct the study was received from the National Committee on Research Ethics in the Social Sciences and Humanities and permission to collect data was obtained from the Ministry of Health (MOH), the Christian Health association of Malawi (CHAM) and the four districts. Consent was obtained from all study respondents. In total, structured interviews were conducted with 49 in-charges, 180 HCWs,

and 627 clients. In addition, 494 client observations and nine key informant interviews with DHMT members were carried out representing an 87 percent response rate.

## Study Results

The results of the study highlight several achievements along the HRH2030 Theory of Change for PEPFAR Health Worker Salary Support that suggest that the deployment of the PEPFAR-supported HCWs is positively impacting HIV/AIDS services in the supported sites. A total of 432 HCWs were recruited and of these, 312 retained, including 223 ART providers, 67 testers, and 22 pharmacy assistants. With the deployment, the total number of HCWs providing HIV/AIDS services at the sites increased from 414 at baseline in 2016 to 646 in 2018, representing a 56 percent increase.

Consequently, availability of HIV/AIDS services in terms of number of sites providing each of the services increased significantly in the intervention districts compared to comparison sites. Forty (40) percent more sites in the intervention districts were providing ART and viral load monitoring services at least five times a week compared to September 2017, before the deployment of the PEPFAR-supported HCWs.

With increased availability of HIV/AIDS services, utilization increased significantly. The number of clients newly initiated on ART increased tenfold in intervention districts (855 percentage change) against a six-fold increase in comparison districts (515 percentage change). The fact that the increase was greater in intervention districts compared to comparison districts could be attributed to the deployment of the PEPFAR-supported HCWs. Intervention districts exceeded annual 2017/18 targets for TX\_New, PMTCT\_ARV, and TX\_CURR, while comparison districts did not exceed targets but did improve.

Client perception of the quality of HIV/AIDS services was high with overall satisfaction at 93 percent, exceeding the 2018 MOH Health Sector Strategic Plan II target of 75 percent. Forty-seven (47) percent of the clients in intervention districts versus 33 percent in comparison sites said that they had noted improvements in the delivery of HIV/AIDS services at the sites. At least 87 percent of the clients reported that the HCWs were available when needed, treated clients with respect, answered their questions, and gave appropriate information about their disease and treatment. Use of appropriately skilled HCWs in intervention districts improved significantly compared with comparison sites with all ART consultations conducted by an appropriately skilled HCW including clinical technicians, medical assistants, and nurse midwife technicians. This is a notable improvement when compared to 2016, when 16 percent of the ART consultations were conducted by inappropriately trained HCWs. Waiting time at the ART clinic and pharmacy were good, below the 30 minutes

recommended by the institute of medicine in both intervention and comparison districts.

## Recommendations

Given that by 2020 the PEPFAR-supported HCWs will have transitioned to government, PEPFAR should consider supporting HRH system-wide interventions targeting the PEPFAR priority districts aimed at improving HCW productivity and performance and strengthening HRH capacity at district and site levels. For sustained impact, PEPFAR should also consider continued support for HRH system strengthening at both the center and district level given the widespread HRH system inadequacies and recent decentralization. For continuous quality improvement and efficient utilization of the available HCWs, PEPFAR could consider complementing the deployment of the PEPFAR-supported HCWs with other site-level quality improvement interventions.

As a short-term priority, HRH2030 will collaborate with key stakeholders to minimize HCW attrition from the sites to sustain the gains made. This will entail closely monitoring site staffing levels for both government and PEPFAR-supported HCWs; working with DHMTs to minimize HCW transfers out of the sites; continuing to monitor and support the HCWs; collaborating with key stakeholders at the center and district levels to minimize recruitment of PEPFAR-supported HCWs with funding from other sources and ensuring timely payment of salary; and implementing the HCW transition plan. Based on the experiences and lessons learned in conducting this study, HRH2030 will also consider modifying the study methodology.

Drawing on the lessons learned during implementation, which led to high HCW attrition and inefficiencies, both PEPFAR and HRH2030 could consider improving coordination with key stakeholders at design and implementation of future HRH interventions particularly recruitment interventions.

## Conclusion

Results of this study show that the deployment of the PEPFAR-supported HCWs is making a difference in the delivery of HIV/AIDS services. One year after the deployment of the HCWs in the 63 PEPFAR priority sites, improvements have been noted in staffing levels; availability of HIV/AIDS services particularly in terms of frequency of services; and utilization of HIV/AIDS services. Results on the quality of HIV/AIDS services are not definitive, and this is attributed to the fact that improving staffing levels alone does not guarantee improvement in quality. Future priorities should be aimed at maintaining and further improving all aspects of quality for HIV/AIDS services, such as implementing site-level quality improvement and HCW performance interventions. While initial results are promising, future research will illuminate more long-term impacts. To sustain the benefits in the medium to longer term, continuous and focused HRH support is required to further strengthen the health system, particularly in the newly decentralized context.



## Background

Malawi has made significant strides in combatting HIV/AIDS and by 2016, the Malawi Population-Based HIV Impact Assessment reported significant progress toward 95-95-95 targets (73-90-91). Despite these impressive milestones, an estimated 350,000 Malawians still had no access to antiretroviral therapy (ART), and the need was growing at about 30,000 new infections per year. Despite the country's embracing of key HIV control strategies such as Test and Start, progress to ensure all HIV positive people were started and retained on ART was challenged by widespread health system inadequacies including one of the severest health worker shortages in Africa (see box).

### CRITICAL HRH SHORTAGES

A 2017 HRH situation analysis by the MOH revealed critical HRH shortages in Malawi.

- **Malawi total health worker to population ratio: 2.23/1000**
  - WHO benchmark: 4.45/1000
- **Malawi doctor/nurse/midwife population ratio: 0.37/1000**
  - WHO benchmark 2.28/1000

Only 52 percent of the established HRH positions are filled, with gross maldistribution across districts (MOH, 2018). Moreover, district health managers deem the staffing establishment inadequate to meet service needs of a fast-growing and highly disease-burdened population. The health workforce shortage affects all health cadres, but mainly the laboratory cadres, medical assistants, and nursing cadres. Extreme resource constraints further aggravate the situation, making the Malawian health system very fragile and in need of support to achieve Malawi's health goals, including those related to HIV/AIDS.

In 2017, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) in Malawi received funding to support salaries of health care workers (HCWs) deployed to PEPFAR priority sites located in areas with the highest HIV/AIDS burden. The PEPFAR Health Worker Salary Support targeted ART providers (clinical technicians, nurse midwife technicians, and medical assistants) to improve ART care and treatment services; HIV/AIDS testers (lab cadres) to improve laboratory services; and pharmacy cadres to ensure proper management of medicines including dispensing. HRH2030 managed the recruitment and deployment of the PEPFAR-supported HCWs for 63 sites in Lilongwe and Zomba districts.

Unlike previous approaches to PEPFAR salary support where service delivery partners hire HCWs to provide HIV/AIDS

services independent of the host country hiring systems, the PEPFAR salary support activity in Malawi adopted a new approach. With the ultimate objective of ensuring host country ownership and sustainability of the PEPFAR-supported HCWs, PEPFAR Malawi and HRH2030 worked closely with the Government of Malawi to plan and implement the salary support activity. Firstly, PEPFAR Malawi engaged in high-level discussions with the government to secure its commitment to absorb the PEPFAR-supported HCWs after the two to three years of PEPFAR salary support. With the high-level agreement, HRH2030 worked collaboratively with different stakeholders in the recruitment and deployment of the PEPFAR-supported HCWs. HRH2030 established a multi-stakeholder recruitment task team composed of representatives from the supported districts, the Ministry of Health (MOH)'s human resources department, the Christian Health Association of Malawi (CHAM), PEPFAR, and PEPFAR clinical partners to guide the recruitment, deployment, and transition PEPFAR-supported HCW process, as well as to address key challenges. With technical support from HRH2030, the multi-stakeholder task team developed a recruitment roadmap and later a transition plan to guide the two processes. HRH2030 also signed MOUs with districts outlining the key roles and responsibilities of each party in HCW recruitment and transition.

As a result, except for the HCW salary payments which are done using a parallel system to the government one, recruitment and management of the PEPFAR-supported HCWs utilized existing government systems. This included finalizing the recruitment plan (HCW number and cadre) jointly with MOH and districts based on HIV/AIDS service needs and vacancies; interviewing the HCWs in collaboration with district teams, the local government service commission, and MOH; utilizing the same job descriptions and salary structure for the PEPFAR-supported HCWs as their government counterparts; letting the districts spearhead the deployment of the PEPFAR-supported HCWs based on a jointly developed deployment plan; having the PEPFAR-supported HCWs supervised and managed on a day-to-day basis by their respective health facility or clinic in charges; and using government systems to manage HCW discipline and performance including performance appraisal.

The early and high-level engagement with government, joint planning and problem solving through the multi-stakeholder recruitment task team, clarification of roles and responsibilities of key stakeholders, and use of government systems were key success factors. This resulted in improved communication across stakeholders and ultimately improved ownership and sustainability of the PEPFAR-supported HCWs.

## HRH2030 Theory of Change for PEPFAR Health Worker Salary Support

As illustrated in Exhibit I, “HRH2030 Theory of Change for PEPFAR Health Worker Salary Support” (see next page), the logic of the PEPFAR HCW salary support is that the deployment of the PEPFAR-supported HCWs at the sites would increase the number or availability of HCWs providing HIV/AIDS service particularly because the HCW targeted for recruitment are new graduates and not existing staff. An increase in the number of HCW providing HIV/AIDS services would in turn contribute to improved availability, utilization, and quality of HIV/AIDS services. The long-term impacts of the inputs are contributing to improvements in HIV/AIDS-related indicators such as HIV incidence and prevalence, as well as overall health indicators such as morbidity and mortality. Details of the indicators utilized to measure this theory of change can be found in Annex I, “Summary of PEPFAR HCW Salary Support M&E Data Collection and Reporting.”

This theory of change assumed that the HCWs would be appropriately supervised and supported to provide quality HIV/AIDS services using the same procedures as their government-employed peers and would be retained. The theory also assumes that other key factors such as inadequate equipment, working space, medicines and supplies, and financial resources that affect HIV/AIDS service delivery will be addressed. To this end, HRH2030 has provided technical support to the MOH and the intervention districts to enhance technical capacity and systems for HRH planning and management. This was particularly critical given the 2016 decentralization of the HRH function to the district councils. At the central level, HRH2030, through the HRH technical working group (TWG), ensured that key district HRH priorities were included in the national HRH strategic plan developed in 2018. HRH2030 also continued to advocate for support from key HRH TWG stakeholders to address cross-cutting HRH challenges that affect HCW motivation, performance, and retention in the districts. At district level, HRH2030 provided technical support to the intervention districts to enhance technical and organizational capacity for effective HRH planning and management. HRH2030 supported Lilongwe and Zomba districts to conduct annual analysis of their HRH data to inform their plans and management decisions; develop comprehensive HRH plans to address key HRH bottlenecks and advocate for support; and to conduct HCW site monitoring visits to identify and address key HRH motivation and retention issues. HRH2030 also worked with the MOH to orient HCW supervisors on their roles and responsibilities including their role in managing HCW performance. This support was anticipated to provide an enabling environment for optimal HCW

performance and eventually their sustainability. The key limitation in the project design, however, was that it was not possible to put in measures such as district-level MOUs to limit movement or transfers of government-funded HCWs from PEPFAR-supported sites to ensure that the PEPFAR-supported HCWs were additive, not just replacement, due to the Government of Malawi’s public service regulations. The deployment of the PEPFAR-supported HCWs started in late 2017.

The purpose of this operations research was to assess the initial extent to which the intended results of the PEPFAR-supported HCW deployment were achieved and to draw lessons to inform current and future HRH programming in Malawi. The short-term outputs and medium-term outcomes are explored in this report. Long-term impacts are expected after adequate time with the PEPFAR-supported HCWs deployed at sites. The round of data collection presented in this report therefore establishes a baseline and early impact for the PEPFAR-supported HCWs. The four research objectives in this study measure progress against the anticipated outcomes in the theory of change.

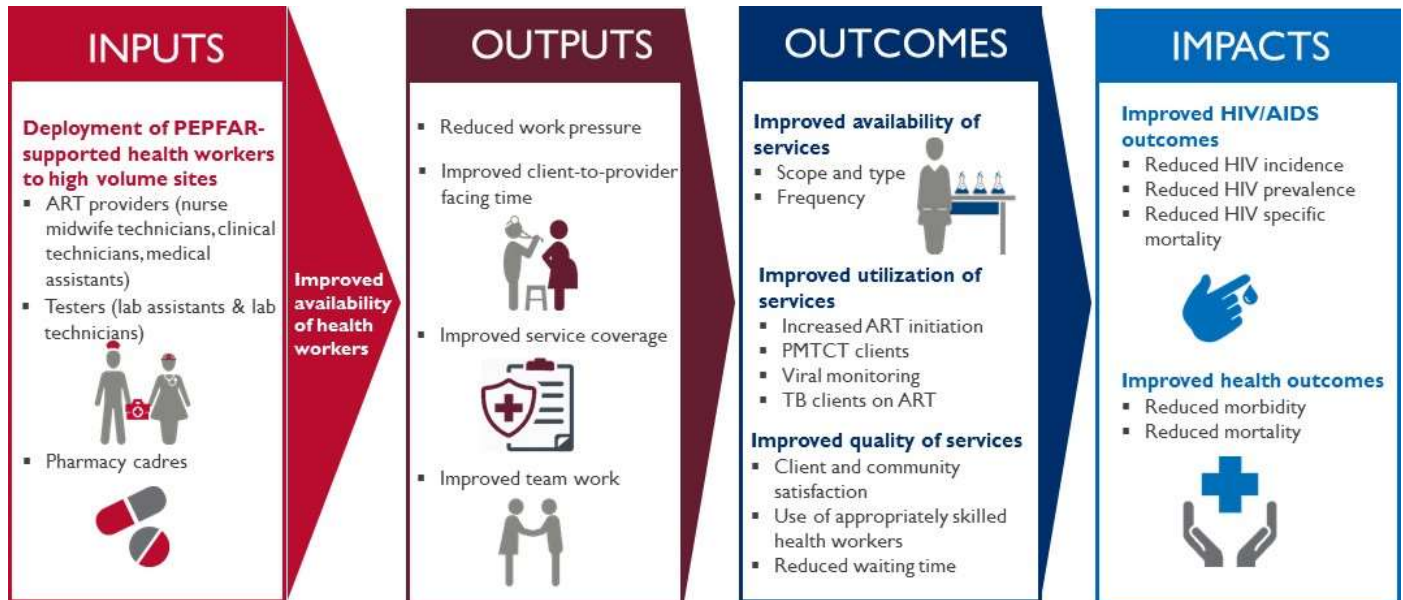
## Research Justification and Purpose

This study was conducted for several reasons, key among which was to provide continuous data to PEPFAR on the impact of the HCW salary support activity to inform ongoing and future HRH programming in the country and globally. Most importantly, the study aimed to demonstrate the impact of PEPFAR HRH investments in Malawi on HIV/AIDS services, given the high-level interest of the activity, and its consideration as emerging best practice for replication. PEPFAR has used the model of additive HRH in several countries, and PEPFAR’s annual report to the U.S. Congress referenced the Malawi recruitment and deployment of HCWs to support the government as a best practice for other countries. Several studies have assessed impact of HRH investments in similar contexts including Malawi, but many of these studies focus broadly on health services and not specifically on HIV/AIDS services. For example, similar assessments conducted both in Uganda and Malawi evaluated the impact of additional HCWs on utilization of antenatal care, immunization, deliveries, and outpatient department (OPD) services among others, with ART as the only HIV/AIDS service assessed in Uganda, and prevention of mother-to-child transmission (PMTCT) in Malawi. Moreover, the previous Malawi HRH investment that was studied, the Emergency Human Resources Program, was a different model in terms of cadre, time frame, and scope. For example, interventions included salary augmentation, preservice training, and infrastructure assistance.

This study was therefore motivated by the scarcity of detailed data on the impact of additional HCWs on HIV/AIDS services. Results of this study are envisaged to provide objective evidence on the impact of the PEPFAR salary support activity to make a case for continued support

and inform similar HRH investments in the future. The information is also critical for the MOH to advocate for additional qualified HCWs to the grossly understaffed districts and health facilities. Lack of this information could result in reduced domestic and donor investments in HRH, which would further aggravate the already fragile HRH situation and jeopardize the accessibility and quality of HIV/AIDS and health services for the Malawian population.

### Exhibit I: HRH2030 Theory of Change for PEPFAR Health Worker Salary Support



## Research Questions

Overall, the research aimed to assess the extent to which the PEPFAR-supported HCWs have contributed to improving HIV/AIDS services in terms of access and quality of services at the supported PEPFAR sites in Lilongwe and Zomba. Specifically, the study objectives and research questions included the questions seen in Exhibit 2, below.

### Exhibit 2: Study objectives and research questions

Study Objectives: <i>Has the deployment of the PEPFAR-supported HCWs...</i>	Specific Research Questions
1. Increased the number of HCWs providing HIV/AIDS services.	1. Has the addition of PEPFAR-supported staff at the site increased the number of HCWs providing ART services, or have they merely replaced existing staff? 2. To what extent have the deployed HCWs been retained at the sites and what are the key factors affecting HCW retention?
2. Improved availability of HIV/AIDS services and utilization of the DSD models.	3. Has the deployment of the PEPFAR-supported HCWs increased the scope and frequency of HIV/AIDS services? 4. Has the deployment of the PEPFAR-supported at the site increased the range of differentiated service delivery models offered by the site? 5. Are there HRH “gaps” remaining at the sites that should be addressed to further improve service provision?
3. Improved utilization of HIV/AIDS services.	6. Have HIV/AIDS service outputs (TX_NEW, TX_CURR, PMTCT_ART, and TX_TB) increased since the recruitment of the additional HCWs?
4. Enhanced the quality of HIV/AIDS services.	7. Has the deployment of the PEPFAR-supported HCW at the site led to improvements in the quality of services in terms of: <ol style="list-style-type: none"> <li>a. Client satisfaction with services</li> <li>b. Perceived effect of HCWs on HIV/AIDS service provision</li> <li>c. Use of appropriate HCW in providing services</li> <li>d. Adherence to HIV clinical management guidelines</li> <li>e. Patient waiting time</li> <li>f. Client/provider facing time.</li> </ol>

The research objectives, which are intended to measure the medium-term impact of the interventions are derived from the anticipated outcomes in the HRH2030 Theory of Change for PEPFAR Health Worker Salary Support.

# Methodology

## Study Design

The HRH2030 Theory of Change for PEPFAR Health Worker Salary Support served as the theoretical framework in developing the study methodology. This was a longitudinal study design covering the period 2017/2018 to 2019/2020. Data was obtained from several sources including PEPFAR's Data for Accountability Transparency and Impact (DATIM), HRH2030 activity reports and databases, and a nested observational study. The nested study was conducted in two intervention districts (Lilongwe and Zomba) and two comparison districts (Mulanje & Ntcheu). A total of 30 sites in the intervention districts and 20 sites in the comparison districts were studied. Both qualitative and quantitative data were collected through structured interviews with health facility or clinic in-charges, PEPFAR and non-PEPFAR-supported HCWs, document review of patient health passports, and clients at exit. Key informant interviews were also conducted with members of the DHMTs in the four districts. Observations were conducted as clients received treatment at the ART clinic, the laboratory, or the pharmacy, and were examined to determine the treatment clients obtained.

## Study Setting and Period

The study covered four districts: Lilongwe and Zomba as intervention districts, and Ntcheu and Mulanje as comparison districts. The districts were selected based on their high HIV burden and gap to meeting the targeted 90 percent ART coverage. Lilongwe had a total of 142,931 people living with HIV/AIDS (PLHIV) with an ART coverage gap of six percent; Zomba had 74,489 PLHIV with an ART coverage gap of 13 percent; Mulanje had a total of 60,473 PLHIV with an ART coverage gap of 11 percent; while Ntcheu had a total of 43,607 PLHIV and an ART coverage gap of seven percent (PEPFAR, 2018). To control for confounders, Lilongwe was matched with Ntcheu since both districts are in the central region with similar ART coverage gaps. Zomba was matched with Mulanje since both districts are in the southern region with similar ART coverage gaps.

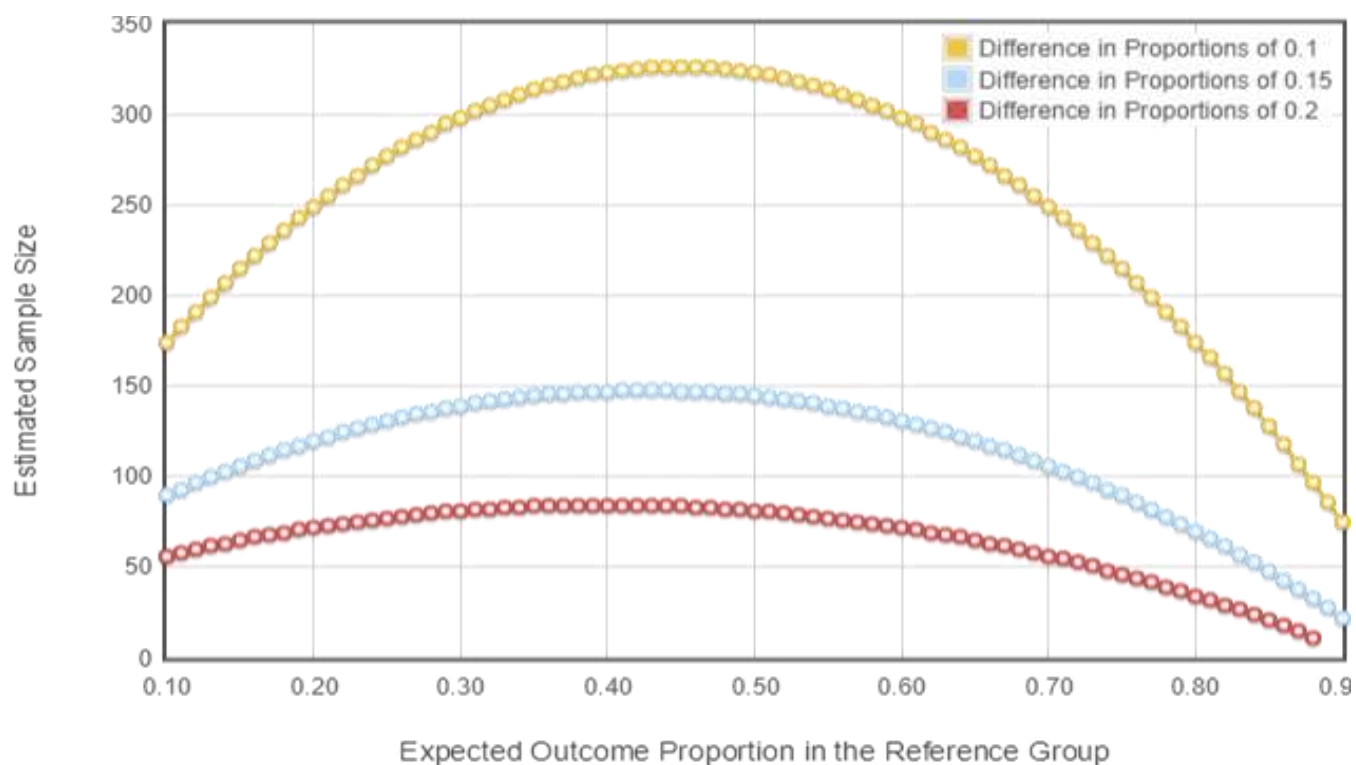
Although the intervention districts were matched by geographic location, HIV burden, ART coverage gap, and the presence or absence of any PEPFAR-supported HCWs, a further analysis of the district context revealed that they receive significant support from other partners which affects their performance against the HIV/AIDS indicators, hence they are not true controls or comparisons. For example, 37 percent of the comparison sites receive some type of salary

support; 90 percent receive training support; 58 percent receive quality improvement support including supportive supervision; 23 percent receive workload management support; and 21 percent receive support to implement the new Differentiated ART Service Delivery (DSD) models. As a result, Ntcheu and Mulanje were considered comparison sites rather than control sites. The purpose of having the comparison sites was to elicit general trends and differences, and where the differences were very large, to assess whether the differences could be attributed to the deployment of the PEPFAR-supported HCWs. Both public and CHAM sites ranging from clinics and health centers to hospitals were included in the study.

For the DATIM data analysis, the October 2016 to September 2017 DATIM data was used as baseline while the October 2017 to September 2018 data was used as the intervention year one data. Data collection for the nested study in both intervention and comparison sites was done in June 2018. Complementary activity data used in the report is for the period between October 2016 and September 2018.

## Sampling Method and Size

Determination of sample size varied by study unit and data collection method. For the longitudinal analysis of DATIM data, a census of all 63 sites that received PEPFAR-supported HCWs were studied while 43 sites (22 in Mulanje and 21 in Ntcheu) that report in DATIM were studied. Data for the nested observational study was collected from 30 randomly selected sites in intervention districts and 20 sites in comparison sites matched to intervention sites by facility type (clinic, health center, and hospital), ownership (CHAM or public facilities), geography, and HIV burden. Using a one-sided test of two independent proportions with a 95 percent level of statistical significance and a power of 0.8 and assuming a difference of 10 percent between intervention and control sites (40 vs. 50 percent), a sample size of 325 individuals for each the intervention and comparison group (650 in total) or about 11 to 16 observations per site was obtained. This sample size was the most conservative as shown in Exhibit 3 and based on variables such as HCW compliance with the HIV/AIDS treatment guidelines standards.

**Exhibit 3: Sample sizes for comparing two proportions (reference group = comparison group)****Exhibit 4: Sample size and respondents by data collection method**

Data collection method	Respondents / data source	Number targeted per site / district	Number Targeted
<b>DATIM data analysis</b>			
Review of records (DATIM data)	DATIM data from USAID	63 sites (intervention) 43 sites (Comparison)	106 sites
<b>Nested study</b>			
In charge interviews	Facility/ART clinic in charges	1	50
HCW interviews	PEPFAR & Non-PEPFAR HCWs	4	200
Patient/client exit interviews	Patients/clients	11(intervention) 16 (Comparison)	650
Patient/client observations	Patients/clients	11(intervention) 16 (Comparison)	650
DHMT interviews	DHMT members	3	12

## Exhibit 5: Data collection methods and data sources

Variable	Analysis Goals	Data collection method and tools
1. Increased the number of HCWs providing HIV/AIDS services.	<ul style="list-style-type: none"> <li>Determine the number and type of PEPFAR-supported HCWs deployed to the sites by cadre, net change in number of HCWs at the site from 2016/17 to 2017/18 and change in number providing HIV/AIDS services</li> <li>Calculate turnover, retention, and average length of service for PEPFAR-supported HCWs, and motivation factors</li> </ul>	<ul style="list-style-type: none"> <li>Document review of existing data and records:               <ul style="list-style-type: none"> <li>Activity database of PEPFAR-supported HCWs</li> <li>2016 baseline rapid HRH assessment data base</li> <li>District HRH status report in corresponding HRH plan</li> </ul> </li> <li>Interviews using semi structured questionnaire               <ul style="list-style-type: none"> <li>Health facility/ART clinic in charges</li> <li>PEPFAR and Non-PEPFAR HCWs</li> </ul> </li> <li>Key informant interviews using an interview guide               <ul style="list-style-type: none"> <li>Members of the district health management teams</li> </ul> </li> </ul>
2. Improved availability of HIV/AIDS services and utilization of the DSD models.	<ul style="list-style-type: none"> <li>Assess availability of HIV/AIDS services in terms of type in the approved continuum of care and frequency</li> <li>Assess the extent to which the approved DSD models are used</li> <li>Determined remaining HRH barriers affecting availability of HIV/AIDS services and use of DSD models</li> <li>Compare availability of services in intervention districts with comparison districts</li> </ul>	<ul style="list-style-type: none"> <li>Document review of existing data and records:               <ul style="list-style-type: none"> <li>Activity quarterly HCW monitoring reports for 2017/18</li> </ul> </li> <li>Interviews using semi structured questionnaire               <ul style="list-style-type: none"> <li>Health facility/ART clinic in charges</li> <li>PEPFAR and Non-PEPFAR HCWs</li> </ul> </li> <li>Qualitative report from communication's assignment site visit on benefits of the PEPFAR-supported HCWs</li> </ul>
3. Improved utilization of HIV/AIDS services.	<ul style="list-style-type: none"> <li>Compare trends in utilization of HIV/AIDS services between baseline (2016/17) and current (2017/18) and between intervention and comparison districts</li> <li>Assess performance against targets between baseline (2016/17) and current (2017/18) and between intervention and comparison districts</li> </ul>	<ul style="list-style-type: none"> <li>Statistical analysis of DATIM information provided by PEPFAR for 2016/17 and 2017/18 in intervention and comparison sites, using indicators:               <ul style="list-style-type: none"> <li>TX_NEW</li> <li>TX_CURR</li> <li>PMTCT_ART</li> <li>TX_TB</li> </ul> </li> </ul>
4. Enhanced the quality of HIV/AIDS services.	<ul style="list-style-type: none"> <li>Assessed overall satisfaction of clients with services received and specific service provision attributes</li> <li>Obtain stakeholders' perceptions on the effect or benefit of the PEPFAR-supported HCWs on HIV/AIDS service provision</li> <li>Determine appropriateness of HCWs providing HIV/AIDS services</li> <li>Assess HCW performance against selected criteria in HIV clinical management guidelines</li> <li>Identify barriers affecting conformance to set standards</li> <li>Determine client waiting time and client/provider facing time for select HIV/AIDS services</li> </ul>	<ul style="list-style-type: none"> <li>Document review of existing data and records:               <ul style="list-style-type: none"> <li>Activity quarterly HCW monitoring reports for 2017/18</li> <li>Malawi Integrated Guidelines and Standard Operating Procedures for Providing HIV Services</li> <li>HCW job descriptions</li> </ul> </li> <li>Interviews using semi structured questionnaire               <ul style="list-style-type: none"> <li>ART clients</li> <li>Health facility/ART clinic in charges</li> <li>PEPFAR and Non-PEPFAR HCWs</li> </ul> </li> <li>Key informant interviews using an interview guide               <ul style="list-style-type: none"> <li>Members of the district health management teams</li> </ul> </li> <li>Qualitative report from communication's assignment site visit on benefits of the PEPFAR-supported HCWs</li> </ul>

## Data Collection Methods and Data Sources

Exhibit 5 presents the approach that was used to respond to each study objective outlining the data collection methods, tools, respondents, and data sources. Data to respond to the research questions was obtained from both routine monitoring data and from the nested study. The routine data provided information on:

1. The number and type of HCWs at each of the sites
2. Impact of the PEPFAR-supported HCWs on scope/type and frequency/number of times in a week HIV/AIDS services are provided
3. Level of utilization of the DSD models
4. Qualitative perspective of the impact of the PEPFAR-supported HCWs on HIV/AIDS services

On the other hand, the operational research (OR) collected survey data on impact of PEPFAR-supported HCWs on quality of HIV/AIDS services including client waiting time, client/provider facing time, appropriate use of skilled HCWs in service provision, and compliance with key HIV/AIDS clinical guidelines; patient satisfaction; and proportion of time spent providing HIV/AIDS services. An outline of the data obtained from the routine monitoring visits and nested study is attached in Annex I.

## Data Quality Control Measures

To ensure quality data, the data collectors were selected based on their experience conducting similar data collection exercises and familiarity with the health sector. The data collection team was trained for one day on the data collection process and use of Open Data Kit. The data collection tools were field tested in Nathonje Health Center to ensure reliability and consistency of the tools and to determine the duration of the interviews. The data collection team was divided into four field teams with each team assigned a supervisor to oversee the data collection process and ensure data quality. While in the field, each of teams held daily debriefing meetings to share experiences, address bottlenecks, and check accuracy and completeness of questionnaires, field notes, and voice recordings. To further ensure data quality, one member of the study team was assigned to oversee the quality of the data collected through the different teams and data collection methods.

## Ethical Considerations

Ethical approval to conduct the study was received from the National Committee on Research Ethics in the Social Sciences and Humanities and permission to collect data was obtained from the MOH, CHAM, and the four districts. Consent was obtained from all study respondents.

## Data Management and Analysis

Quantitative data was analyzed using the Statistical Products and Services Solutions computer program and the data analysis function in MS Excel to generate descriptive and inferential statistics. Qualitative data was analyzed manually to obtain key themes. All data sets are available upon request.

## Challenges in Data Collection and Lessons Learned

The key challenges in data collection were inadequate time allocated for data collection and variability in approaches used during data collection by the team despite the training before data collection.

## Limitations

The study had three key limitations. First, no comprehensive baseline analysis was conducted before the deployment of the PEPFAR-supported HCWs to the sites. Therefore, other than the analysis on utilization of services which was based on the DATIM data which had data for both the period before and after the deployment, data for other variables depended on different data sources that were cumbersome to collate since most of the data was in different formats than what was required. Since the PEPFAR-supported HCWs had been deployed at sites for varying amounts of time, discerning between a baseline and mid-line results was challenging.

Second, comparing interventions to a control was impossible in the context. Getting a true control was not possible with all districts receiving some level of HRH support by different funding agencies. Across all districts in Malawi there are interventions that seek to increase the availability and quality of HIV/AIDS services, whether it is increasing the health workforce (through HRH2030) or improving outreach to hard-to-count (HTC) communities (via several other partners). For example, Ntcheu and Mulanje districts, which were supposed to serve as controls, were confounded by the fact that they have PEPFAR lay health workers supporting the provision of HIV/AIDS services. Moreover, Mulanje has robust HRH support through the Global AIDS Interfaith Alliance which is also a confounder. Therefore, in analysis, instead of considering Ntcheu and Mulanje as control sites, they were considered comparison sites and analysis focused on demonstrating striking similarities, differences, or trends, but did not elicit attribution.

Lastly, the collection and analysis of the data on client observations experienced several challenges which impacted the final sample size included in the analysis. The results obtained for variables that depended on the client observations, like use of appropriately trained HCWs in the provision of HIV/AIDS services, patient waiting time, and client/provider facing time, cannot be widely generalized.



## Results

This section presents the study findings. The study set out to answer seven specific research questions under four broad objectives. The results are presented by objective after a brief section on response rate by the different respondents.

### Response Rate

The study was conducted in two intervention districts (Lilongwe and Zomba) covering a total of 30 sites and two comparison districts (Ntcheu and Mulanje) covering 20 sites. The response rate by data collection method and respondent is presented in Exhibit 6.

The overall response rate of the study was good, at 87 percent, with response rates being highest for health facility/ART clinic in charge and patient/client exit interviews. Of the HCWs interviewed, 20 percent were PEPFAR-supported while the rest were government HCWs. Some of the DHMT members were not present during the interview period, hence the relatively low response rate for this category of respondents.

### Research Objective 1: Increased number of HCWs providing HIV/AIDS services.

The HRH2030 Theory of Change for PEPFAR HCW Salary Support posits that deployment of PEPFAR-supported HCWs to high-volume sites will, as an intermediate output, improve the availability of health workers for provision of health and HIV/AIDS services. To measure this initial input and chain of events, the study determined the magnitude by which the PEPFAR-supported HCWs improved staffing levels at the supported sites and the extent to which the PEPFAR-supported HCWs have been retained. While adding HCWs and then measuring if there was an increase in available HCWs seems basic, one risk of this type of intervention is that the deployed PEPFAR HCWs will merely replace exiting staff with the latter being deployed elsewhere resulting in no net gain in the total HCWs available at the site. The study also assessed key factors affecting HCW retention, and for

those who left, their average length of service, or how long they served before leaving. The results of this assessment are presented in the sections below by research question.

### Research Question 1: Has the addition of PEPFAR-supported staff at the site increased the number of HCWs providing ART services, or have they merely replaced existing staff?

To assess the effect of the PEPFAR-supported HCWs on site staffing levels, the research team first determined the total number of PEPFAR-supported HCWs deployed to the sites by cadre. Later, the total staffing before the deployment of the PEPFAR-supported HCWs was compared with one year after the deployment to determine the difference in staffing levels. The team also estimated the number of HCWs that are currently providing HIV/AIDS services compared to those before the deployment of the PEPFAR-supported HCWs. Key findings are outlined below.

#### SUMMARY OF HCWs DEPLOYED BY PEPFAR

To improve provision of HIV/AIDS services and particularly HIV treatment (second 90), PEPFAR through HRH2030 supported the recruitment and deployment of professional HCWs to 63 high HIV-burdened sites in Lilongwe and Zomba districts. The details of the recruitment are summarized in Exhibit 7.

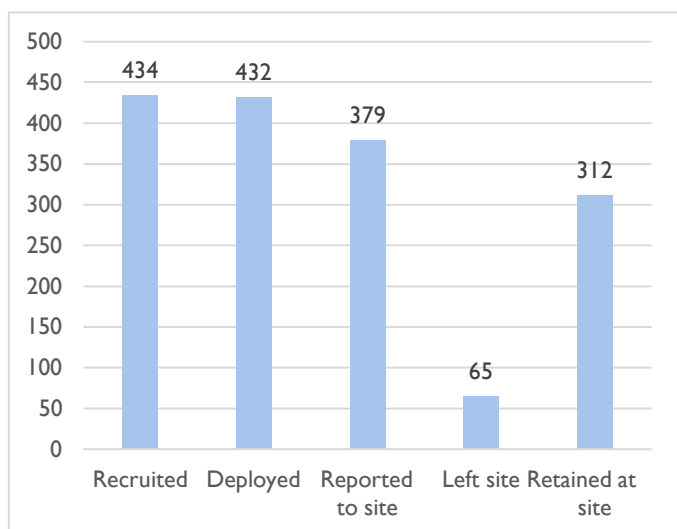
The number of HCWs recruited refers to the HCWs who passed the interview and were given a job offer, while deployed are those HCWs that accepted the job offer and signed an employment contract. Although 432 HCWs were deployed, 53 did not report to work due to several reasons including unfavorable location, had another job, lack of accommodation, and personal/family reasons. A total of 379 HCWs reported to work between September 2017 and September 2018, and by the time of the assessment, 312 of these had been retained, including:

- 223 ART providers (144 nurse midwife technicians, 69 medical assistants, 10 clinical technicians)
- 67 testers (66 lab assistants and one lab technician)
- 22 pharmacy assistants

#### Exhibit 6: Response rate by data collection method

Data collection method	Respondents / data source	No. Targeted	No. Achieved	% Response rate
In charge interviews	Facility/ART clinic in charges	50	49	98%
Patient/client exit interviews	Patients/clients	650	627	96%
HCW interviews	PEPFAR & Non-PEPFAR HCWs	200	180	90%
Patient/client observations	Patients/clients	650	494	76%
DHMT interviews	DHMT members	12	9	75%
<b>Overall</b>		<b>1,562</b>	<b>1,359</b>	<b>87%</b>

### Exhibit 7: Recruitment cascade for the PEPFAR-supported HCWs



The ART providers, constituting 71 percent of the deployed HCWs were intended to improve HIV/AIDS care and treatment which is a key PEPFAR priority in attaining ART coverage. The deployed HCWs also included laboratory assistants intended to improve laboratory services particularly viral load monitoring and TB testing. The pharmacy assistants were intended to improve pharmacy services particularly ensuring proper management of medicines including dispensing. On average, each site received four HCWs with the number varying by site based on service needs.

One of the early benefits of the PEPFAR HCWs as reported by many of the HCWs at the 63 sites was reduced work pressure (see quote). The actual change in the number of HCWs available for service delivery after the deployment of the HCWs was quantified and the results are presented below.

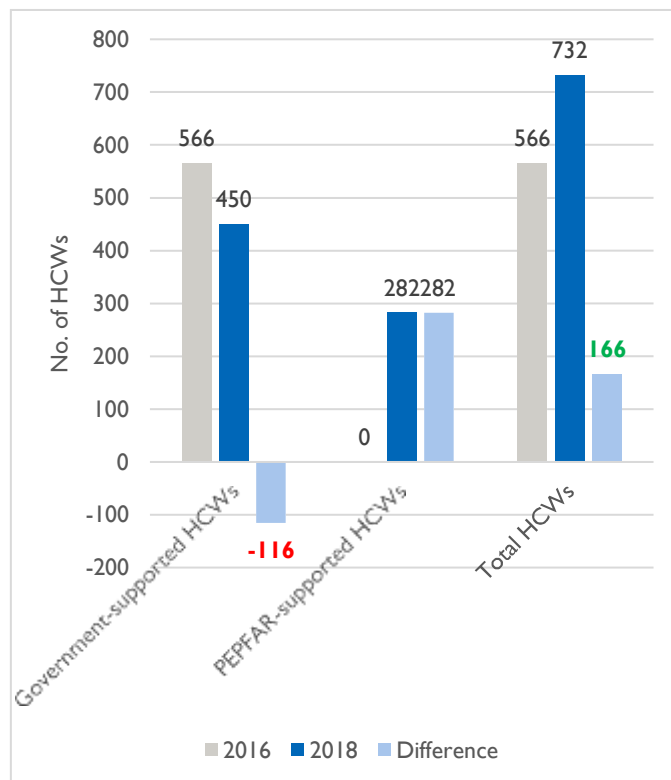
*I was alone working here before the PEPFAR HCWs, with only one community nurse. We were only two health workers. I was working day and night without resting, alone...there was a [heavy] workload...there were a lot of problems. But now I have time to rest, to sleep, to take care of my children, have lunch. As you can see now, I'm on off duty. —Facility In-Charge*

#### CHANGE IN NUMBER OF HCWs AT SITE (2016 TO 2018)

The number of HCWs at the supported sites as determined during the 2016 rapid HRH site assessment was obtained and compared with the current number of HCWs at the sites including the PEPFAR-supported HCWs. A total of 59 health centers and clinics were included in this assessment, since

comparable data for the hospitals was not obtainable. The results of this assessment are presented in Exhibit 8.

### Exhibit 8: Impact on total number of HCWs at the supported sites



In 2016 before the deployment of the PEPFAR-supported HCW, the 59 sites had a total of 566 government-supported HCWs (laboratory assistants, medical assistants, nurse midwife technicians or NMTs, and pharmacy assistants). This number had reduced by 116 to 450 HCWs in 2018, due mainly due to transfers of government HCWs to other facilities to ensure equity given the critical shortage of qualified HCWs in Malawi. When compared to the minimum threshold of 23 doctors, nurses, and midwives per 10,000 population that was established by the World Health Organization (WHO) as necessary to deliver essential maternal and child health services, overall, Malawi is at 3 while Lilongwe and Zomba are at 1.95 and 3 doctors (and other clinicians), nurses, and midwives per 10,000 population respectively. In addition to the fact that the movement of HCWs was not surprising given the critical staffing shortages, the project does not have scope to limit the government mandated movements of government-funded HCWs. However, with the deployment of the 282 PEPFAR-supported HCWs to the 59 sites, the total number of HCWs at the sites increased to 732. This resulted in a net increase of 166 HCWs, which is equivalent to a 29 percent net change

in site staffing from 2016 to 2018. This means that PEPFAR support replaced the 116 government HCWs in 2018 and then provided a net addition of 166 HCWs. Further analysis showed that the net change was highest for the laboratory assistants and pharmacy assistants. Since there is no other partner supporting HCW deployment outside the government system in the supported sites, this change in staffing levels can be directly attributed to the PEPFAR salary support activity.

*OPD attendance has increased since there are two clinicians, unlike in the past when the facility had only one clinician available to see all patients and he could only manage to see a few.*

—Facility In-Charge

#### CHANGE (DIFFERENCE AND PERCENT) IN NUMBER OF HCWs PROVIDING HIV/AIDS SERVICES (2016 TO 2018)

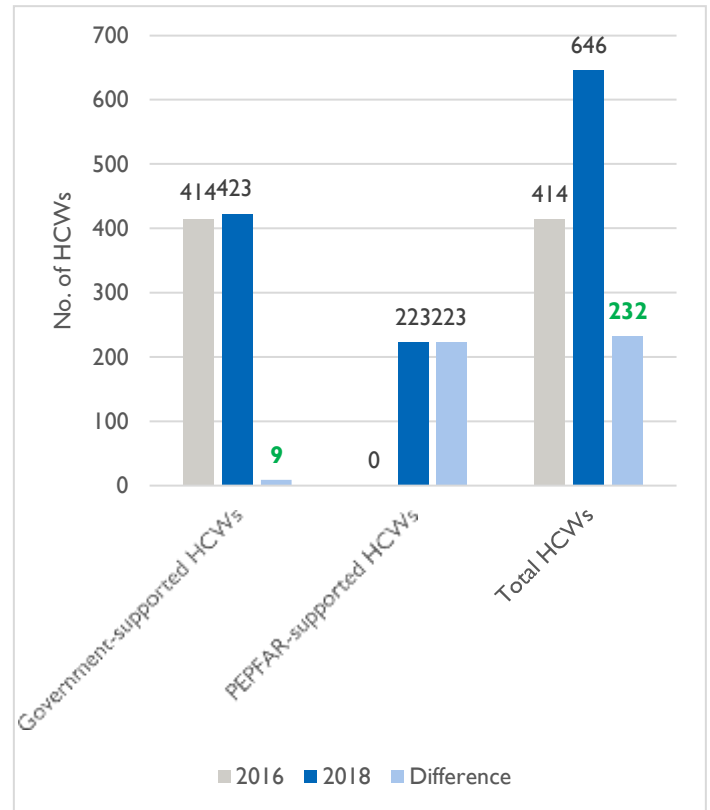
To determine the impact of the PEPFAR-supported HCWs on the number of HCWs providing HIV/AIDS, the study team compared the number of HCWs that were providing HIV/AIDS services before the PEPFAR salary support to those providing HIV/AIDS services one year after the deployment of the PEPFAR-supported HCWs. The number of HCWs that were providing HIV/AIDS services in 2016 was obtained from the HRH rapid assessment study, while the number currently providing HIV/AIDS services was obtained through interviews with the HCWs.

Results from the HCW interviews show that currently 94 percent of the government HCWs and 79 percent of the PEPFAR-supported HCWs are involved in the provision of HIV/AIDS services. A lesser percent of PEPFAR-supported HCWs are currently providing HIV/AIDS services because they are only getting certified as ART providers following their deployment. Exhibit 9 illustrates the overall changes in number of HCWs providing HIV/AIDS services from 2016 to 2018.

As noted in Exhibit 9, the total number of HCWs providing HIV/AIDS services at the PEPFAR priority sites increased from 414 in 2016 to 646 in 2018 representing a 56 percent increase after the deployment of the PEPFAR-supported HCWs. Given that the number of government HCWs providing HIV/AIDS services in 2018 (423) is slightly higher than the number in 2016 (414), it means that the PEPFAR-

supported HCWs did not replace government HCWs in providing HIV/AIDS, but instead the 223 PEPFAR HCWs were additive. This is a substantial increase in the health workforce providing ART initiation and services.

#### Exhibit 9: Impact on total number of HCWs providing HIV/AIDS services



As presented earlier, the deployment of the PEPFAR-supported HCWs reduced work pressure but most importantly, it ensured continuity of health care services, including on ART clinic days when HCWs have additional competing priorities (see quote).

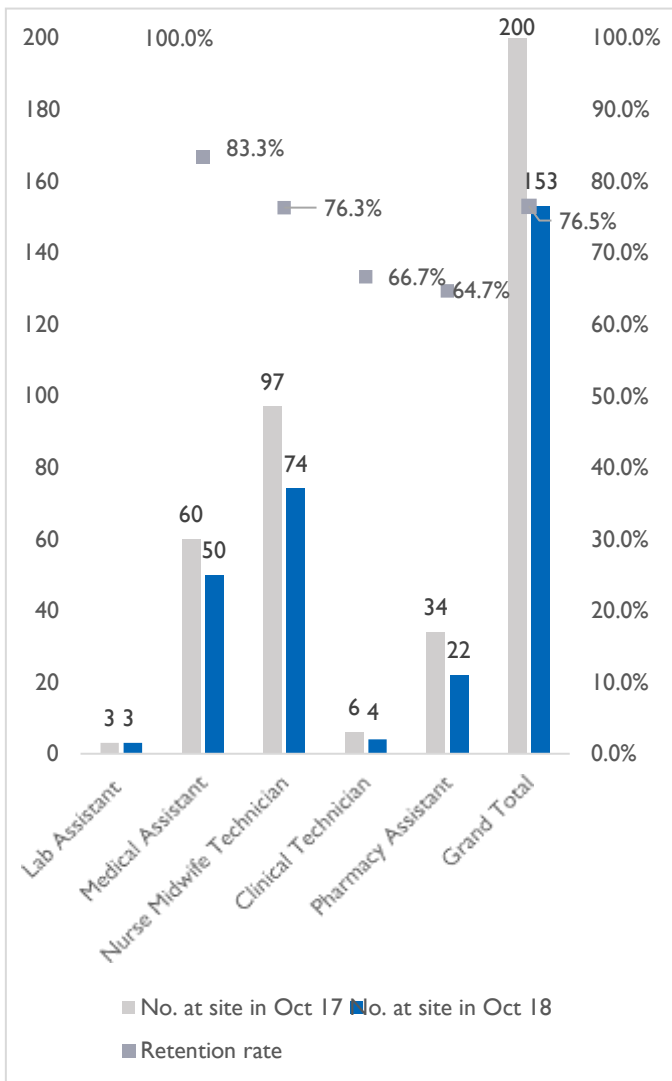
*Staff previously had no time to provide other services due to pressure of work, but since the deployment of the HCWs, more departments have services.... most service points are now catered for enhancing teamwork for quality services.*

—Facility In-Charge

**Research Question 2: To what extent have the deployed HCWs been retained at the sites and what are the key factors affecting HCW retention?**

According to the HRH2030 Theory of Change for PEPFAR HCW Salary Support, staffing up with additional HCWs will lead to positive health outcomes. The assumption is that the HCWs will be retained at the sites. As a basis for subsequent analysis of outputs and outcomes, the research team used district data to determine how many PEPFAR-supported HCWs were at the sites by October 2017 and compared this with the staffing at the end of year (September 2018). Retention rate was calculated by cadre and the results of this assessment are presented in Exhibit 10.

**Exhibit 10: Retention of PEPFAR-supported HCWs by post**



Overall, the retention rate was 76.5 percent (153/200), with retention in government facilities at 81.7 percent, higher than that for CHAM facilities at 59.6 percent. Retention rate was highest for lab assistants and medical assistants and lowest for pharmacy assistants. However, of the HCWs that left in the 2017 recruited HCW cohort, 28 took on government postings which technically cannot be considered attrition since the HCWs are still within the government service with just a change in salary funding source. So, to enable comparison with similar studies in literature, the 28 HCWs that joined government were considered as retained and the overall retention rate was determined as 90.5 percent (181/200). This result highlights the fact that government is the preferred employer and that HCW retention is high due to limited job opportunities.

During the year, a total of 65 HCWs left their posting for several reasons presented in Exhibit 11. The main reason for leaving service was to fill government posts following recruitment with funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). This was an out-of-the-ordinary circumstance, disproportionately impacting retention rates that would have been expected in normal circumstances. Retention was lowest amongst NMTs and pharmacy assistants with 45 percent and 34 percent leaving respectively.

The average duration of service of the PEPFAR-supported HCWs that left was six months. As illustrated in Exhibit 12, the majority of HCWs left between 9 and 12 months.

Key attrition factors included job security, with many of the HCWs that left opting to join government employment which is long-term. Other reported key challenges affecting HCW attrition included insufficient management support, inadequate accommodation, lack of social amenities, and inadequate resources such as widespread shortage of medicines and medical supplies. On a positive note, timely payment of salaries by the activity, supportive supervisors and peers, and supportive communities were highlighted as key motivating factors for the HCWs as shared by some of the PEPFAR-supported HCWs (see quote).

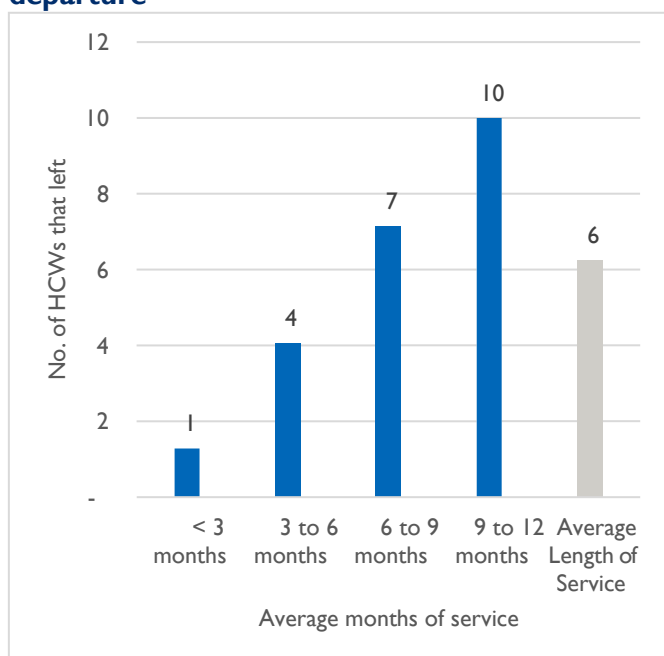
*I live far from here. So, I just asked some of the [community] members to find me housing since they told me there was no adequate housing for the staff... so, they did it! I just came in and found the house and entered the house. That was something else I really appreciate. —PEPFAR-supported NMT*

## Exhibit 11: HCW exits by post and reason

Reason	Clinical Technician	Medical Assistant	Nurse Midwife Technician	Pharmacy Assistant	Total	Percent
Government Post with GFATM funding	1	5	15	20	41	63%
Resigned	1	3	7	1	12	18%
Absconded	1	1	2	0	4	6%
Indiscipline	0	1	2	1	4	6%
Other (death, accommodation, unfavorable location, other job)	0	1	3	0	4	6%
<b>Grand Total</b>	<b>3</b>	<b>11</b>	<b>29</b>	<b>22</b>	<b>65</b>	
	<b>5%</b>	<b>17%</b>	<b>45%</b>	<b>34%</b>		

Only 35 percent of the HCWs in the intervention sites and 37 percent in comparison sites said they had considered leaving their posting. Those who considered leaving in intervention districts cited poor working conditions (33%), insufficient management support (29%), and poor pay (24%) as the key push factors. On the other hand, the key factors in the comparison sites were poor working conditions (33%), insufficient management support (33%), and high workload (20%). So, poor working conditions and insufficient management support are cross-cutting retention challenges, while high workload is a key factor in comparison sites.

## Exhibit 12: Average length of service before departure



## Conclusion: Increased number of HCWs providing HIV/AIDS services

The evidence strongly suggests that the deployment of the PEPFAR-supported HCWs increased the number of HCWs providing HIV/AIDS services. Overall, the number of HCWs providing HIV/AIDS services increased by 232 in 2018 compared to the number in 2016, representing a 56 percent increase. Therefore, in the provision of HIV/AIDS services, the PEPFAR-supported HCWs contributed to increasing the number of HCWs providing HIV/AIDS services and did not merely replace existing staff. This is particularly significant given that the majority of the HCWs deployed are ART providers. HCW retention was also high at 76.5 percent, or 90.5 percent when the HCWs that joined government are considered retained. The majority of the HCWs served at least six months on average before their departure. Government recruitment with funding from GFATM presented a unique challenge to HCW retention in PEPFAR priority districts and sites.

## Research Objective 2: Improved availability of HIV/AIDS services and utilization of the DSD models.

One goal of deploying additional HCWs according to the HRH2030 Theory of Change for PEPFAR Health Worker Salary Support was to increase the availability of HIV/AIDS services to help Malawi reach epidemic control. The research team therefore assessed the availability of HIV/AIDS services as one of the anticipated outcomes of the salary support activity. Improved availability of HIV/AIDS services was determined by assessing the scope or type of HIV/AIDS

services provided along the 90-90-90 cascade, and frequency, or number of days in a week that each service is provided. The research team also assessed the extent to which the DSD models are utilized at each of the sites as a proxy indicator of improved availability and use of HIV/AIDS services. The results of this assessment are presented by research question in the subsequent sections.

### Research Question 3: Has the deployment of the PEPFAR-supported health workers increased the scope and frequency of HIV/AIDS services?

Increased availability was measured by analyzing the scope and frequency of HIV/AIDS services at facilities in intervention and comparison districts. Changes in scope and frequency of services were compared in two ways: first by comparing services in intervention sites before (September 2017) and one year after the deployment of the PEPFAR-supported HCWs (September 2018), and second by comparing the services available in September 2018 in intervention sites with comparison sites.

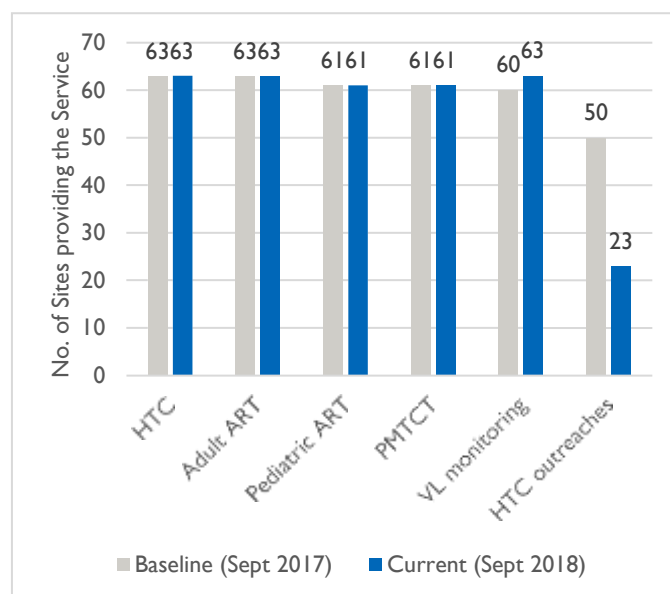
#### SCOPE OF HIV/AIDS SERVICES PROVIDED

With the deployment of the PEPFAR-supported HCWs, it was expected that the supported sites would be able to provide a wider scope or type of HIV/AIDS services ranging from HTC to viral load monitoring. The research team used September 2017 and September 2018 site monitoring data to assess changes in scope of services before and one year after the deployment of the PEPFAR-supported HCWs for intervention districts, interview within charges of studied sites in control districts. The results of this assessment are presented in Exhibit 13.

It can be noted in Exhibit 13 that more than 60 PEPFAR-supported sites are currently providing HTC, PMTCT, ART, and viral load services. The two sites that are not providing pediatric ART and PMTCT are male prison clinics where these services are not required. The number of sites providing viral load monitoring increased by three (5%) from the September 2017 baseline. The only type of HIV/AIDS service that decreased in availability at sites was HTC outreach, with only 23 sites conducting outreach compared to 50 in September 2017. This was mainly due to inadequate resources for HTC outreach coupled with a lag in service provision following a change of clinical partners in the supported districts.

*Scope of HIV/AIDS services in intervention districts compared with comparison districts.* The scope or type of services provided in September 2018 was compared between intervention and comparison sites to identify similarities and differences. Exhibit 14 presents the results obtained.

**Exhibit 13: Change in number of sites providing each HIV/AIDS service**



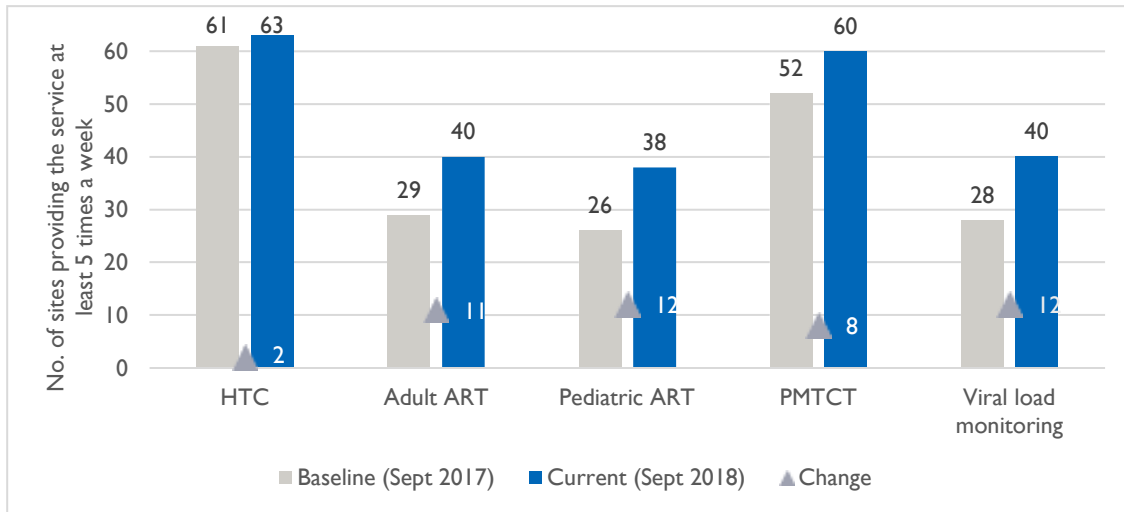
**Exhibit 14: Percent of sites providing each type of HIV/AIDS service by district type**

HIV/AIDS service	Intervention	Comparison
HTC	100%	95%
Adult ART	100%	100%
Pediatric ART	97%	100%
PMTCT	97%	100%
Viral Load Monitoring	100%	100%
HIV HTC outreach	37%	42%
<b>Average</b>	<b>89%</b>	<b>90%</b>

Overall, there was no significant difference in the scope or type of services provided in intervention and comparison sites.

The trends in both intervention and control districts are also similar, with HIV HTC outreach services being the least provided services. Significant changes in scope and type of services were not expected, because Malawi has a mature HIV program where most health facilities provide all critical HIV services.

### Exhibit 15: Number of sites providing HIV/AIDS services at least five times a week



#### FREQUENCY OF HIV/AIDS SERVICES

The frequency of HIV/AIDS services was also assessed by comparing changes in intervention sites from September 2017 to September 2018 on one hand, and between intervention and comparison sites in September 2018 on the other hand. A frequency of five times a week was considered optimal and was used in the analysis.

*Change in frequency of HIV/AIDS services in intervention districts.* As noted in Exhibit 14, when compared to September 2017 before the deployment of PEPFAR-supported HCWs, the number of sites providing each of the HIV/AIDS services at least five times a week significantly increased in September 2018, one year after the deployment of the HCWs. The change was most significant for ART, which increased by 38 percent, and viral load services, which increased by 43 percent. The sites attributed the increase in availability of ART services to improved staffing. For example, Mlale staff explained that with better staffing, the site now has a medical assistant available Monday to Friday at the ART clinic to attend to Test and Treat clients and those who missed their clinic appointments.

*Frequency of HIV/AIDS services in intervention districts compared with comparison districts.* The percent of sites providing each of the HIV/AIDS services at least five times in a week was compared between intervention and comparison sites. The results of the analysis are presented in Exhibit 16.

As noted in Exhibits 15 and 16, not only have intervention sites significantly improved ART and viral load testing services between 2016 and 2018, but intervention sites significantly outperform comparison sites in 2018. This result provides strong evidence for the positive contribution of PEPFAR

support to HIV service delivery, particularly the second 90 in the cascade in intervention districts. The lower frequency of provision of HIV/AIDS services in comparison sites could be attributed to staffing constraints and in part to low patient volumes because they are low-volume sites.

When asked how the deployment of the PEPFAR-supported HCWs has affected the frequency of service provision, the health facility in-charges explained that the additional HCWs enabled them to organize their services better to meet the needs of their clients (see quote). With improved staffing levels, the facilities are becoming more responsive to their clients. The health facility in-charges also stressed the fact that the frequency reported is for dedicated clinic days for the different HIV/AIDS services. However, each of the services can be provided as and when needed by the clients, for example if a client tests positive on a non-ART clinic day, the client can be initiated on ART. Facility in-charges also explained that, with the adoption of the different DSD models, increasing the frequency of clinic days might not be necessary.

*We see ART clients daily; you can say 70 to 80 on a daily basis... Now that we have PEPFAR employees, we have divided the antenatal clinic into four different days... and they come in large numbers almost daily. At first, we were doing it only Mondays and Thursdays... The waiting period has been reduced at antenatal and even at the outpatient department, and especially the ART department, because we have three consultation rooms for ART. Before there was only one.*  
—Facility In-Charge

### Exhibit 16: Percent of sites providing each HIV/AIDS service at least five times a week, September 2018

HIV/AIDS service	Intervention sites	Comparison sites	Difference
HTC	100%	90%	10%
Adult ART	63%	37%	26%
Pediatric ART	60%	22%	38%
PMTCT	95%	53%	42%
Viral Load Monitoring	63%	37%	26%
<b>Average</b>	<b>76%</b>	<b>48%</b>	<b>28%</b>

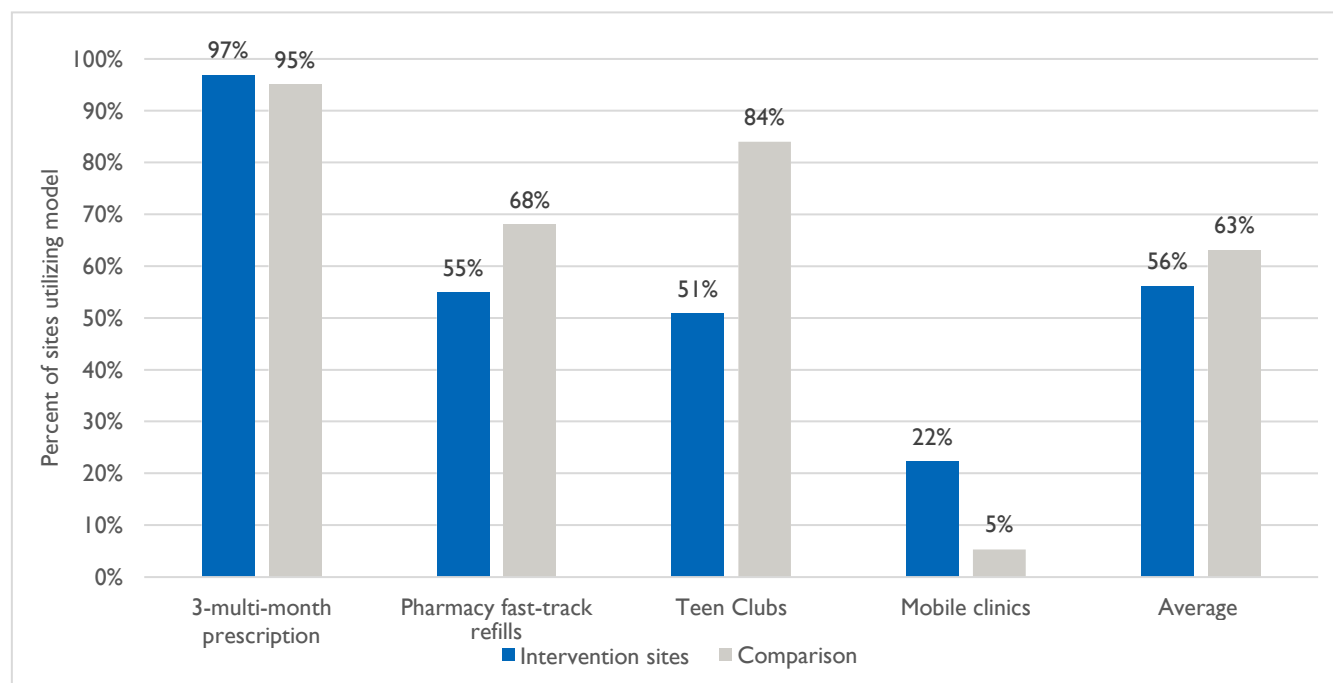
#### Research Question 4: Has the deployment of the PEPFAR-supported at the site increased the range of differentiated service delivery models offered by the site?

In June 2018, following a pilot phase of different DSD models, Malawi approved the use of the following DSD models: 3-multi-month prescription, pharmacy fast-track refills, teen clubs, mobile clinics such as ART-provider managed community ART groups, and DHO-linked drop-in centers. The study assessed the extent to which the DSD models have been scaled up in sites and are being utilized following the approval of the models, coupled with the deployment of the PEPFAR-

supported HCWs. Data was only captured for four out of the five models, with DHO-linked drop-in centers not included at this time. A comparison was made between intervention and comparison sites as summarized in Exhibit 17.

Based on the results of the assessment, the DSD models are generally being used in both intervention and comparison districts. The 3-multi-month prescription is the most used model while the mobile clinic model is the least used model in both intervention and comparison sites. It is worth noting that except for the 3-multi-month prescription, the rest of the models are partner driven with Mulanje (comparison) district having a long history of partner support. These

### Exhibit 17: Utilization of the DSD models by district type, September 2018





findings provide a snapshot for 2018 that can serve as a baseline for future assessments, because DSD models have just recently been introduced (June 2018).

**Research Question 5: Are there HRH “gaps” remaining at the sites that should be addressed to further improve service provision?**

As available and fit-for-purpose HRH is a critical part of effective service provision, it was important to assess if there were remaining gaps in HRH that could further improve services. Remaining HRH gaps were identified through interviews with health facility in-charges and the HCWs. When in-charges were asked whether they think they have enough staff to provide services using the different DSD models, more than 60 percent said their staffing was inadequate both in number and training especially regarding management of teen clubs. There was no difference between intervention and comparison sites.

In addition, HCWs reported continued challenges of inadequate staffing and high workload (see quote). DHMT members in all four surveyed districts also cited shortage of trained HCWs especially in hard-to-reach areas and shortage of equipment—both which affect HCW morale—as key gaps affecting the provision of ART services and underlining the need for the government and partners to recruit more HCWs. As will be noted under objective four, there is continued use of inappropriately trained HCWs in service provision especially in the laboratory and pharmacy an indication of existing HRH gaps in this area.

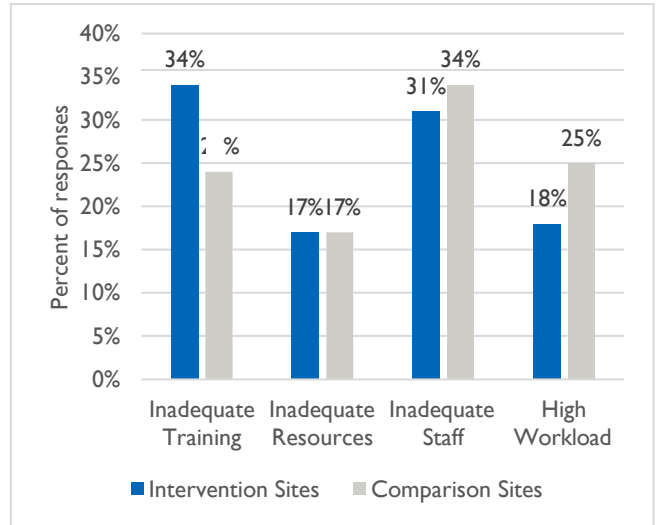
*The workload is still there. It’s the biggest gap. We cannot necessarily say we are enough [health workers], no. But we have helped a lot. We have helped our friends in the government sector...we need more nurses, we need more medical assistants, we need more health care personnel.*

—PEPFAR-supported NMT

Furthermore, when health facility in-charges were asked what their key challenges were regarding compliance with the guidelines and standard operating procedures for providing HIV/AIDS services, the key HRH challenges experienced were similar between intervention and comparison districts in terms of type of challenge and scale. The slightly lower proportions for inadequate staff and high workload are consistent with greater staff availability in PEPFAR-supported interventions sites. As illustrated in Exhibit 18, inadequate

training was more pronounced in intervention districts when compared to comparison districts.

**Exhibit 18: Key HRH challenges affecting the delivery of HIV/AIDS services**



**Conclusion: Improved availability of HIV/AIDS services and utilization of the DSD models**

Availability of HIV/AIDS services in terms of frequency of service provision greatly improved in intervention districts compared to comparison districts. In intervention districts, for example, 60 percent of the sites provide ART services at least five times a week compared to only 22 percent in comparison sites. ART and viral load services are the most impacted HIV/AIDS services with a percentage increase of about 40 percent each. The results also show a good uptake of the DSD models given that they were only formally approved in June 2018. Use of the 3-multi-month prescription model is particularly high across intervention and comparison sites. The minimal differences in uptake of DSD models between intervention and comparisons districts are attributed more to the fact that the models are new, than to staffing levels. Training and support for rolling out DSD models are probably more important factors at this stage.

**Research Objective 3: Improved utilization of HIV/AIDS services.**

According to the HRH2030 Theory of Change for PEPFAR Health HCW Support, one of the anticipated outcomes of the PEPFAR salary support activity was improved utilization of HIV/AIDS services particularly HIV/AIDS services such as:

- Number of clients initiated on ART (TX\_New)

- Percentage of HIV-positive pregnant women who received ART to reduce the risk of mother-to-child transmission during pregnancy (PMTCT\_ART)
- Number of adults and children currently receiving antiretroviral therapy (TX\_CURR)
- Proportion of ART patients who were screened who are receiving TB treatment (TX\_TB)

Changes in service utilization of TX\_New, TX\_CURR, and PMTCT\_ART for 63 sites in intervention districts and 43 sites in comparison sites were analyzed using DATIM data. Data for TX\_TB was inadvertently omitted in the DATIM request to PEPFAR and hence not included in the analysis.

Utilization in 2016 before the deployment of PEPFAR-supported HCWs was compared with that in 2018, a year after the deployment to determine improvements and trends. Further analysis was done to compare the level of performance against target before the deployment of the PEPFAR-supported HCWs and one year after the deployment. The study team also conducted a linear regression analysis in MS Excel to determine whether there was a correlation between improved service utilization (service outputs) and staffing levels. Results of this analysis are presented in the sections below.

**Research Question 6: Have HIV/AIDS service outputs (TX\_NEW, TX\_CURR, PMTCT\_ART, and TX\_TB) increased since the recruitment of the additional HCWs?**

An assessment of changes in service outputs was done using DATIM data for TX\_New, TX\_CURR, and PMTCT\_ART. The results for intervention districts were compared with those of comparison districts to determine similarities,

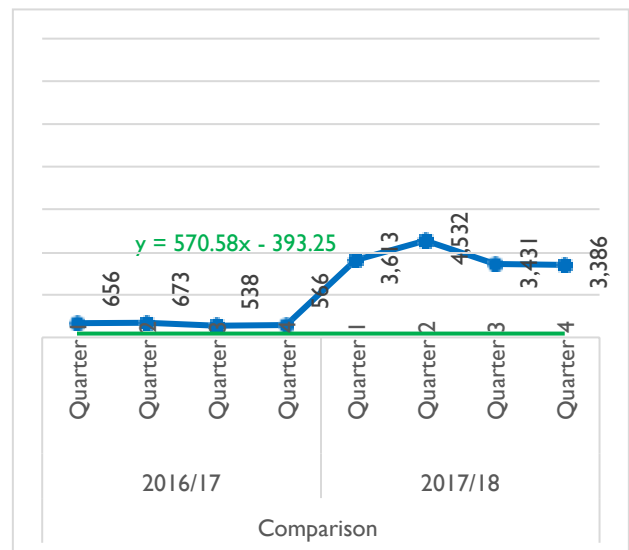
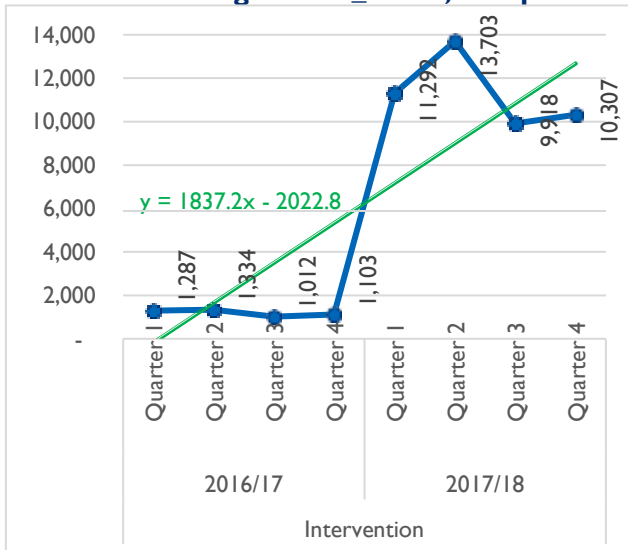
differences, and trends. Results are presented by HIV/AIDS service in the sections below.

TX\_NEW. TX\_NEW was used to assess the changes in number of clients initiated on ART between 2016/17 and 2017/18 on a quarterly basis.

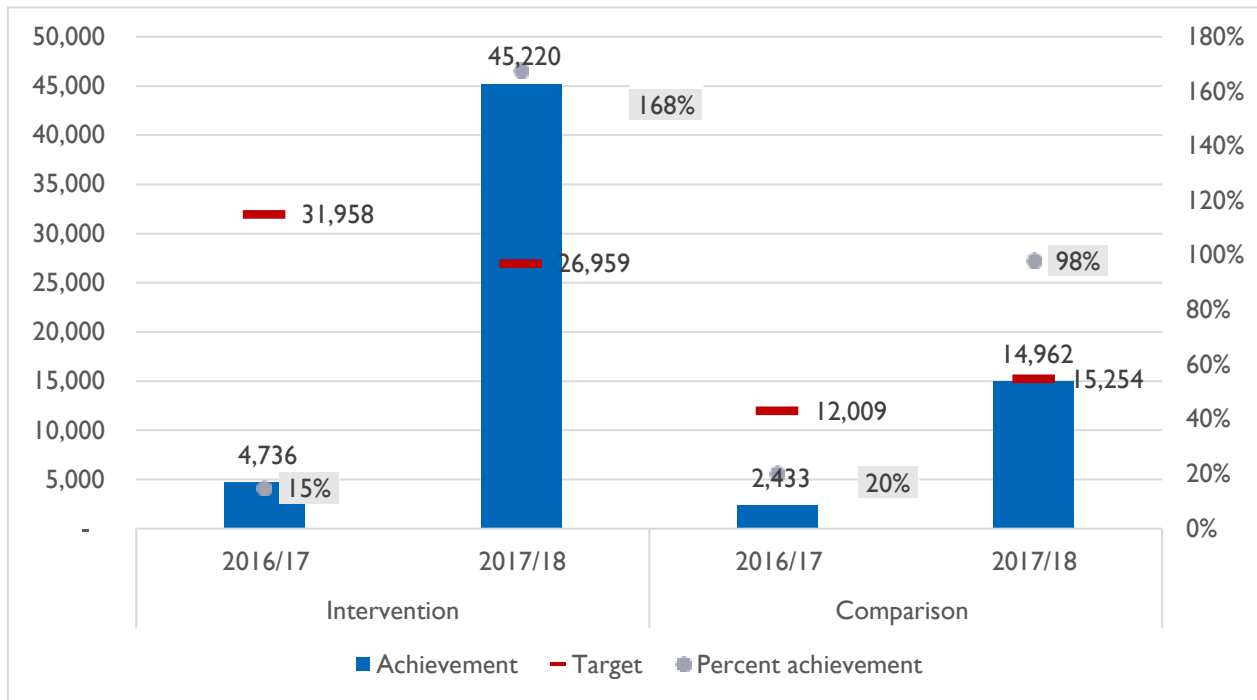
As noted in Exhibit 19, there was a significant increase in TX\_NEW in sites in the intervention districts between 2016/17 and 2017/18. In total, TX\_NEW increased from 4,736 in 2016/17 to 45,220 in 2017/18 which is a tenfold increase (855 percent change). Similarly, in sites in comparison districts, TX\_NEW increased from 2,433 in 2016/17 to 14,962 in 2017/18 which is a six-fold increase (515 percent change). The significant increase in number of clients initiated on ART is in part explained by Malawi adopting the Test and Start strategy during this time and cannot be exclusively attributed to the deployment of health workers. However, the districts with deployed PEPFAR-supported HCWs had a higher increase and exceeded their TX\_NEW targets as well, as shown in Exhibit 19. The lower increase in results could also be attributed to the comparison sites having a higher frequency of low-volume sites.

The trends over the quarters in intervention districts are similar with those in the comparison districts. The trend in TX\_NEW is similar for both years, where TX\_NEW varies by quarter with a general decline over the year. The rate of decline is, however, larger in 2017/18 compared to 2016/17, because of the substantial increase, which would be expected to be followed by some attrition. The somewhat steeper decline in the intervention districts is likely attributable to its much steeper increase than in the comparison districts. Importantly, the service levels remain significantly higher in intervention districts.

**Exhibit 19: Change in TX\_NEW, comparison and intervention districts**



**Exhibit 20: Performance against TX\_NEW targets by district type**



As noted in Exhibit 20, performance against targets for TX\_NEW increased significantly from 2016/17 to 2017/18 for both intervention and comparison districts. In intervention districts, the increase was 153 percent while it was 78 percent in comparison districts. Qualitative data also reveals patterns in increase in demand for HIV/AIDS services (see quote).

*At first, before we came, they were saying at the end of the month they were seeing less than 1,000 people. But after our team, each and every month it's about 4 point something or 5 point something thousand... They see the difference, that's why they come in huge numbers.*

—PEPFAR-supported Medical Assistant

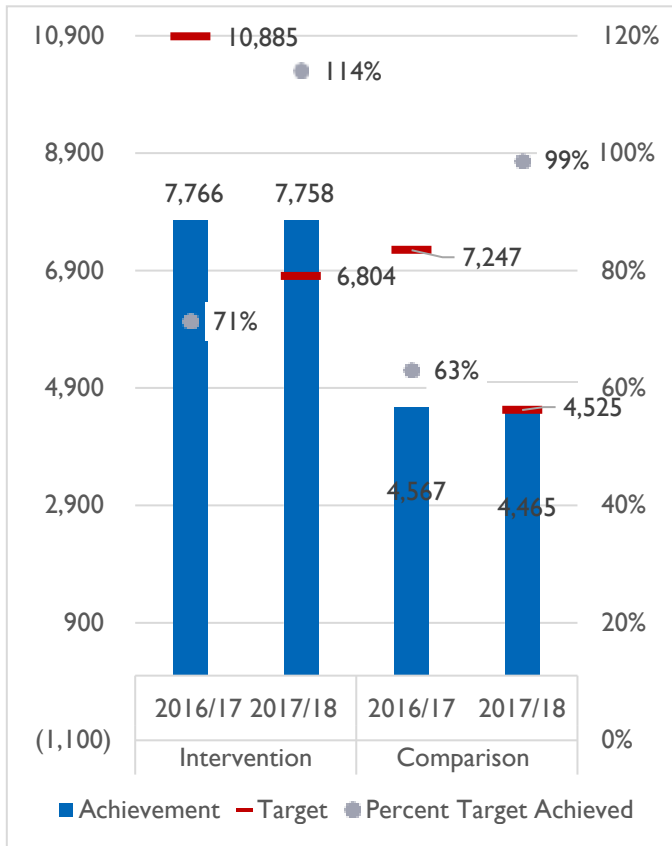
**PMTCT\_ART.** 2016/17 PMTCT\_ARV outputs and performance against targets were compared with those of 2017/18 for both intervention and comparisons sites to determine any significant changes. The results of the assessment are presented in Exhibit 21.

As noted in Exhibit 21, generally, there was minimal change in the total PMTCT\_ARV outputs between 2016/17 and 2017/18. Similarly, the improvements in terms of performance against targets are due to lowering of PMTCT\_ARV targets between 2016/17 and 2017/18 and not an increase in outputs per se. Although performance against targets improved in both intervention and target districts, the percentage change was similar between intervention and comparison districts at 43 percent and 36 percent respectively.

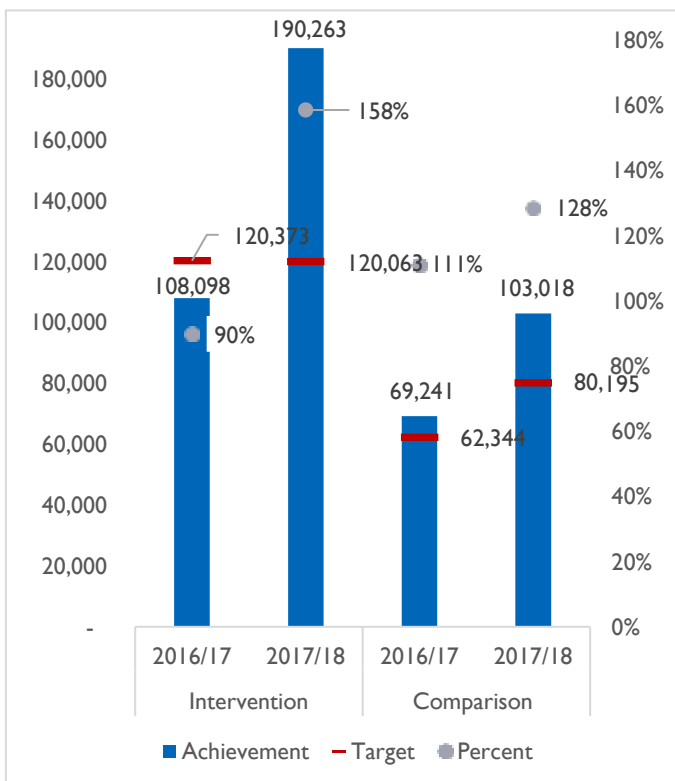
**TX\_CURR.** Since data on TX\_CURR is available on an annual basis, the total number of TX\_CURR in 2016/17 was compared to that of 2017/18 for both intervention and comparison sites to determine change in TX\_CURR. The results show an increase in TX\_CURR as illustrated in Exhibit 22.

As noted in Exhibit 21, TX\_CURR increased significantly in both intervention and comparison districts. Performance against targets was also surpassed in both types of districts. The net improvement in performance was higher however in intervention districts with a 68 percent improvement compared to comparison sites with 17 percent improvement.

**Exhibit 21: PMTCT\_ARV outputs and performance against targets by district type**



**Exhibit 22: Performance against TX\_CURR targets by intervention and comparison districts**



**Conclusion: Improved utilization of HIV/AIDS services**

Overall, the results of the assessment suggest that utilization of HIV/AIDS services (TX\_NEW, TX\_CURR, and PMTCT\_ARV) improved in 2017/18 following the deployment of the PEPFAR-supported HCWs when compared to 2016/17 before the deployment. The improvement was most significant for TX\_NEW with an 855 percent change in intervention districts against a 515 percent change in comparison districts. The commencement of the Test and Start strategy in Malawi clearly influenced these outputs but triggered a much stronger response where PEPFAR provides staffing support. The lower increase in results could also be attributed to the comparison sites having a higher frequency of low-volume sites.

In addition, improvements in performance against targets were noted, with intervention districts surpassing their targets for all HIV/AIDS outputs assessed. However, the relationship between improvement in outputs and staffing levels was either weak or not statistically significant. In conclusion, there is strong evidence of improvement in HIV/AIDS outputs that can be attributed to PEPFAR support, although there are other factors that contribute to these outcomes in addition to improved staffing levels. Qualitative data reinforced the trends in increased use of services (see quote).

*People appreciate the services offered. There is a great change. They [staff] share responsibility, so the clients are served on time. There is tremendous change in the turnout of clients because they hear of good services. —Patient*

**Research Objective 4: Enhanced the quality of HIV/AIDS services.**

A key anticipated outcome in the HRH2030 Theory of Change for PEPFAR HCW Salary Support is improved quality of services both in terms of perceived and technical quality. Measurement of patient satisfaction and perceived quality is essential for providing patient-centered care, a fundamental of DSD models.

**Research Question 7: Has the deployment of the PEPFAR-supported health workers at the site led to improvements in the quality of services?**

Perceived quality was assessed through interviews with health facility in-charges, HCWs, and clients. Technical quality was assessed through observations during service delivery, client exit interviews, and examination of patient medical forms. Result of this assessment are presented below.

## CLIENT SATISFACTION WITH SERVICES

During the client exit interviews, clients were asked to rate their level of satisfaction with the services received using a five-point Likert scale of very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, or very dissatisfied. The level of satisfaction for both intervention and comparison districts was very high, with 93 percent of the clients reporting that they were either very satisfied or satisfied with the services compared to the 2018 MOH Health Sector Strategic Plan II target of 70 percent. The clients were also asked to assess their level of satisfaction with specific aspects of service provision that are proxy indicators of quality. A Mann-Whitney test was done to test differences in the responses obtained and cut-off point for the p-values was 0.05. Results of this assessment are presented in Exhibit 23.

Overall, satisfaction levels were high and similar for both intervention and comparison districts and any differences were not statistically significant. “Treatment with respect” and “medications received” had the highest score, whereas “answering patient questions” and “convenience of clinic hours” were comparatively low. Both areas offer opportunities for improvement. When the clients were asked if they had noted any improvement in the provision of HIV/AIDS services, more clients in intervention districts (47 percent) said that they had noted improvements, against 33 percent in comparison districts.

## PERCEIVED EFFECT OF HCWs ON HIV/AIDS SERVICE PROVISION

To specifically assess perceived quality of HIV/AIDS services and perceived benefit of the PEPFAR-supported HCWs, the research team administered a questionnaire to both PEPFAR and non-PEPFAR-supported HCWs and facility in-charges to assess their perceptions. Data collectors ticked off every benefit that the respondents mentioned against a pre-

determined list of possible benefits. The results of this assessment are presented in Exhibit 24.

As noted in Exhibit 24, perceived benefits associated with the deployment of the PEPFAR-supported HCWs varies by type of respondent with the facility in-charges perception of benefits being highest. Overall there is a general trend of respondents citing improved delivery and quality of HIV services and an increase in number of patients seen. Fewer respondents perceived waiting time to have been reduced. Other benefits cited included enhanced teamwork, improved timely provision of care to clients, appreciation of services by the community, improved management of the pharmacy, improved health facility management and staff supervision, extended clinic hours, and peer learning.

## USE OF APPROPRIATE HCWs IN PROVIDING SERVICES

HRH2030 data from 2016 revealed that 16 percent of HIV service delivery is done by “other cadres” who include ward attendants, home craft workers, tuberculosis volunteers, clinic aides, mother2mother volunteers, ground labor, and security guards. It has been recognized that these cadres play an important role in many HIV services, however, they may not have the adequate qualifications and supervision to provide optimal care according to the guidelines (see quote).

*We found HSAs [health surveillance assistants] and other facility support staff helping...in provision of ART services and documentation. However, they were not equipped with skills to manage clients who presented with side effects from ARVs. Now, ART services are provided by properly trained personnel who ably handle any issues. —PEPFAR-supported HCW*

**Exhibit 23: Client satisfaction with different aspects of treatment by district type**

Area assessed	Intervention	Comparison	Difference	P value (2-tailed)
Treatment with respect	97%	99%	-2%	0.169
Medications received	96%	93%	3%	0.937
Information about disease and treatment	90%	92%	-2%	0.11
Availability of HCWs when needed	89%	91%	-2%	0.302
Convenience of clinic hours	77%	79%	-2%	0.695
Answering patient questions	75%	72%	3%	0.456
<b>Average</b>	<b>87%</b>	<b>88%</b>	<b>0%*</b>	

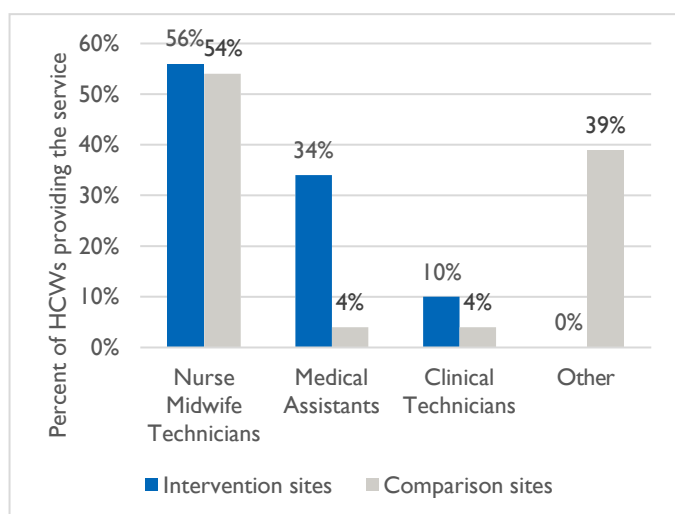
\*Without rounding, this value is -0.33%.

### Exhibit 24: Perceived benefits of PEPFAR-supported HCWs on HIV/AIDS service delivery

Perceived benefit	PEPFAR-supported HCW	Non- PEPFAR-supported HCW	Facility in charge survey	Average
Improved delivery and quality of HIV services	76%	48%	90%	71%
Increase in number of patients seen	76%	45%	83%	68%
Increase in types of HIV services	71%	42%	83%	65%
Enabled right health worker to provide right service	68%	44%	80%	64%
Reduced workload	50%	30%	73%	51%
Reduced patient waiting times	32%	23%	50%	35%
<b>Average</b>	<b>62%</b>	<b>37%</b>	<b>77%</b>	<b>59%</b>

In supporting the deployment of additional trained HCW in the facilities, PEPFAR intended to improve the quality of HIV/AIDS services by having more services provided by appropriately trained and skilled HCWs. This study therefore sought to find out if HIV/AIDS services, including client consultation during ART initiations, laboratory tests, and dispensing of medicines were being provided by appropriately trained and skilled health workers, and if there was any improvement from the 2016 baseline situation. The results of this assessment are presented in Exhibits 25, 26, and 27.

### Exhibit 25: Percent of HCWs conducting client consultations including ART initiations



All ART initiation client consultations in intervention districts are conducted by either NMTs, medical assistants, or clinical technicians, which are the cadres appropriately trained to provide these services. On the other hand, in comparison sites, 39 percent of the ART initiation client consultations are conducted by other cadres that include: health surveillance assistants (HSAs), HIV diagnostic assistants, clerks, pharmacy assistants, and expert clients which is not in accordance with the scopes of practice of these cadres. The result in the intervention districts suggests an improvement from the 2016 baseline situation where 16 percent of the HIV/AIDS services were provided by HCWs who were not appropriately trained (HRH2030, 2016).

Before the deployment of PEPFAR-supported HCWs in 2016, the 63 supported sites had only 22 pharmacy technicians and 27 pharmacy assistants who were located mainly in hospitals and urban health centers (HRH2030, 2016). In most facilities therefore, pharmacies and dispensaries were managed by non-pharmacy cadres such as nurses, HSAs, and clerks (see quote). Whereas PEPFAR supported the deployment of 43 pharmacy assistants, at the time of data collection, only 22 had been retained. As a result, as illustrated in Exhibit 26, the impact on ensuring an appropriately trained cadre was dispensing and managing the pharmacy or drug store was not fully sustained in most facilities.

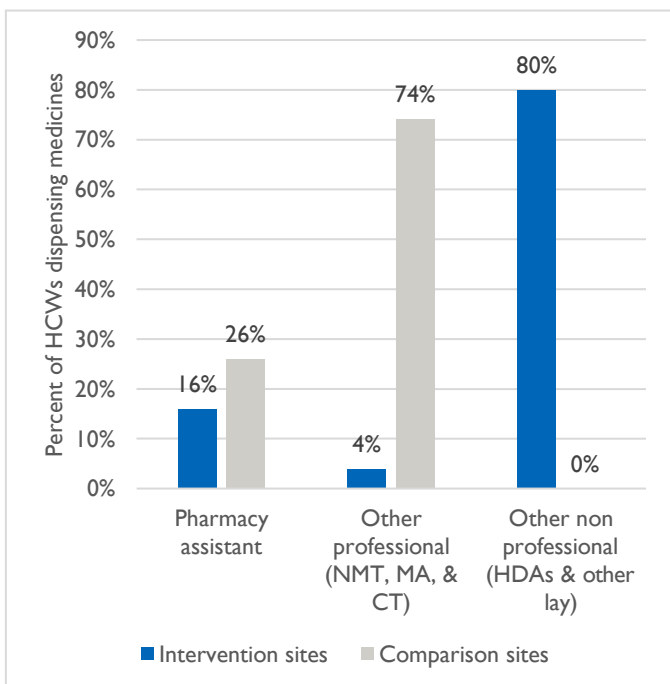
*The health center attendants used to order and dispense medicines as they managed the pharmacy despite being unqualified. Due to this training gap, the facility experienced frequent stock-outs. But now we make advance orders to curb stock outs.*  
—PEPFAR-supported HCW

As noted in Exhibit 26, less than 30 percent of the dispensing is done by an appropriately trained health care worker. The use of other health professionals such as NMTs, medical assistants, and clinical technicians is inefficient use of skilled HCWs, while the use of non-professional HCWs including lay cadres compromises quality of services. In the facilities with the few pharmacy assistants, the impact on quality of dispensing is significant and well-documented in the qualitative data (see quote).

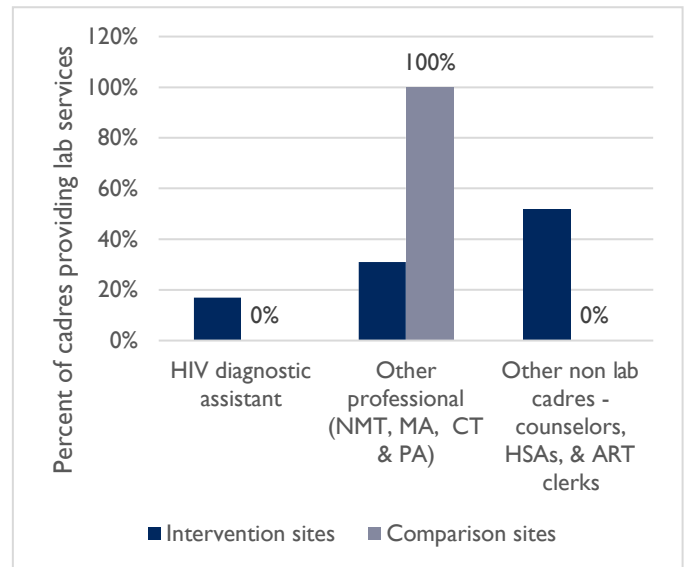
*At first, I found a lot of drugs which were expired. But it was just a lack of knowledge about how to manage the medicines... I've managed to minimize the drugs which are expiring...so in short, I can say that my coming here has really benefitted the facility because everything is now in order.*  
 — PEPFAR- supported pharmacy assistant

In 2016, the staffing situation for laboratory cadres in the 63 supported sites was like that of the pharmacy cadres. Together, the 63 sites had 72 lab technicians and 24 lab assistants, located mainly in hospitals and urban health centers (HRH2030, 2016). A total of 67 laboratory assistants were deployed in the 63 sites. The impact of the 67 laboratory assistants deployed could not be elicited because at the time of data collection, the lab assistants were just reporting for work.

**Exhibit 26: Percent of HCWs by cadre dispensing medicines**



**Exhibit 27: Percent of HCWs by cadre providing lab services**



As noted in the in Exhibit 27, provision of lab services in comparison sites is 100 percent by other health professionals, mainly nurses, which is inefficient use of skills; this varied in intervention sites with majority for the lab services offered by non-professional HCWs, mainly health diagnostic assistants (HDAs) or HSAs.

**ADHERENCE TO HIV CLINICAL MANAGEMENT GUIDELINES**

The new HIV clinical management guidelines outline several protocols that need to be followed at every ART clinic visit. The study team selected a few of these and used them to assess the level of compliance. The assessment was done through observations during service provision, client exit interviews, and document review of patient health passports.

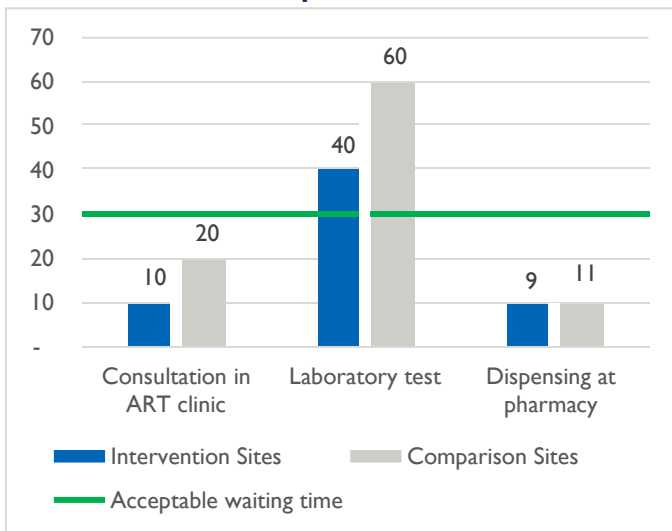
Overall, there was no significant difference in adherence to the HIV clinical management guidelines between intervention and comparison sites. In both intervention and comparison sites, 96 percent of the clients were prescribed and received Cotrimoxazole Preventive Therapy. Seventy-five (75) percent of clients in intervention districts and 13 percent in comparison sites were prescribed and received Isoniazid Preventive Therapy per the guidelines. In addition, adherence monitoring was good, with an average of 73 percent of the clients monitored for adherence, which included asking clients if patients understood how and when to take their medication; reminding them about the importance of adherence to medication; explaining major side effects that require a patient to come back to clinic; and discussing the challenges of taking ARVs. Adherence to the standards for clinical monitoring as outlined in the Standard Clinical Monitoring Checklist for HIV Exposed Clients and ART Patients was low with less than 40 percent of the clients

clinically monitored according to the SOP. According to the SOP, the areas that need to be monitored at every ART clinic visit include asking or examining patients for cough; weight loss; fever or night sweats; vomiting; leg pain, numbness, and weakness; abdominal pain; diarrhea; mouth sores; and eyes, for yellowing of sclera.

**PATIENT WAITING TIME**

The amount of time a patient waits to be seen is a key determinant of quality of health care (Xie, 2017; Tran, et al., 2017). This study set out to assess the patient waiting time at the ART clinic, laboratory, and pharmacy. The results of the assessment are summarized in Exhibit 28.

**Exhibit 28: Average waiting time for intervention and comparison sites**



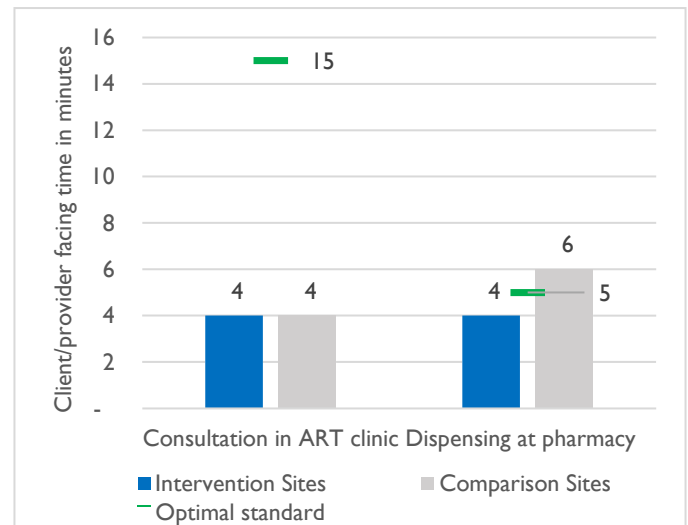
Based on the study results, as seen in Exhibit 28, waiting time was below the optimal waiting time of 30 minutes recommended by the Institute of Medicine (O’Malley, 1983) for a client to receive a service (Oche & Adamu, 2013; Enabulele, et al., 2018). The waiting time was, however, longer than optimal in the laboratory. HRH2030 also collected data on the differences in waiting times between intervention and comparison districts but did not find statistically significant results. At least 18 percent of clients in both intervention and comparison districts asserted that waiting time had been reduced compared to the last time they were at the facility, while about 33 percent said the waiting time was considerably longer this time around. In responses to the perception questionnaire, PEPFAR and non-PEPFAR-supported HCWs and facility in-charges all reported waiting time decrease as a benefit of the PEPFAR-supported HCWs. However, qualitative data supported that waiting time had reduced in intervention districts (see quote).

*The patients used to wait for a long time for the treatment. But now it has changed lately because of more workers coming in. If I get tired, my colleague will come in and help. So, staying long in the queue waiting for the treatment has reduced.*  
 —PEPFAR- supported medical assistant

**CLIENT/PROVIDER FACING TIME**

There is a strong association between the quality of client and provider interactions and health care quality, and ultimately health outcomes (Calo, et al., 2014). However, for quality client and provider interactions, the HCW needs adequate time to be able to respond to the client’s needs and comply with set technical standards. This study set out to determine the client and provider facing time as a proxy indicator of quality for critical services including patient consultation in the ART clinic and dispensing at the pharmacy. The results obtained are presented in Exhibit 29.

**Exhibit 29: Client and provider facing time, in minutes**



As noted in Exhibit 29, the facing time for consultations in the ART clinic was below the standards reported in literature, with negative implications on the quality of care that the HCWs can provide within this time (Burmen, Owuor, & Mitei, 2017; Hagopian, Mohanty, Das, & House, 2012). The facing time for dispensing, on the other hand, was within the standards (World Bank Group, 2017).



## **Conclusion: Enhanced quality of HIV/AIDS services**

Results on the outcomes of the PEPFAR-supported HCWs on quality of services were mixed with an optimistic outlook. Client satisfaction with services was very high for both intervention and comparison sites and although it may not be solely attributed to the PEPFAR-supported HCWs, it is a significant finding. There was a clear improvement in intervention districts regarding use of appropriately trained HCWs for ART consultations compared to the situation in 2016, with all consultations currently being conducted by an appropriately trained HCW. Unlike intervention districts, this was not the case for comparison sites. The intervention has made

improvements in aligning appropriate HCWs with services, which is critical, but not an outcome that many patients would recognize as an improvement in quality. The quality improvement outcomes for pharmacy assistants were not sustained due to the high attrition of pharmacy assistants, which shows quality can improve with sustained deployment of appropriate health workers. In referring to the HRH2030 Theory of Change for PEPFAR HCW Salary Support, quality is an outcome that may be best measured in medium-term results, not short-term results, which this research presents after only one year of deploying the PEPFAR-supported HCWs.

# Discussion

## Summary of the Results

The study results provide strong evidence of the positive impact of PEPFAR-supported HCWs on the delivery of HIV/AIDS services. The results show that deployment of the PEPFAR-supported HCWs significantly improved the staffing levels for provision of HIV/AIDS services and especially ART services. With higher staffing levels, significant positive changes were noted such as greater availability of HIV/AIDS services with more sites providing a broader scope of services and more frequently each week compared to a year prior, which was before the deployment of the PEPFAR-supported HCWs. Utilization of HIV/AIDS services also improved, particularly new ART initiations which recorded a tenfold increase in intervention districts compared to a six-fold increase in comparison districts. The substantial increase is likely due to applying the Test and Start strategy, but intervention districts showed comparatively higher results than other districts. Annual targets for ART\_NEW, PMTCT, and TX\_CURR in the study sites were achieved or exceeded. Results on the impact of the HCWs on quality of services were mixed with variation by quality aspect and service observed. While client satisfaction and client perception of quality was high, patient waiting, client/provider facing time, and compliance to the HIV clinical management guidelines varied by area assessed and respondent. These findings raise several areas for consideration in HRH programming and they include the following:

## Sustaining Gains

The impact of the PEPFAR-supported HCWs on staffing levels and related benefits is well demonstrated in the study results. Sustaining these levels of staffing would include minimizing HCW attrition and maintaining or increasing the number of HCWs providing HIV/AIDS services. In the long term, it would entail transitioning the HCWs to government while maintaining them at the same sites.

As noted in the results, the number of government-supported HCWs in the supported sites decreased between 2016 and 2018 which, in part, could have been due to transfers of HCWs to other sites to ensure equity. As a result, the net increase following the deployment of the PEPFAR-supported HCWs was lower than the number of PEPFAR-supported HCWs deployed and retained at the sites, meaning that a small portion of the PEPFAR-supported HCWs replaced the government HCWs that had left. While it was not possible to determine when the government supported HCWs left nor the reasons for their departure, it

will be critical to avoid further HCW attrition through transfers out or other reasons. Sustaining the numbers would involve reinforcing retention factors such as timely payment of salaries, good working relationship with peers and supervisors, supportive community, and mitigating common attrition factors. Key factors cited in the study that could lead to HCW attrition include insufficient management support, inadequate resources for provision of health and HIV services, and high workload. Although workload reportedly improved following the deployment of the PEPFAR-supported HCWs, the workload is likely to increase over time as a result of improved service utilization triggered by improved staffing, hence the need to closely monitor and manage workloads at the sites.

Increasing the number of HCWs providing HIV/AIDS services at the sites is one of the goals of the PEPFAR HCW salary support activity with the ultimate goal of increasing availability of HIV/AIDS services. While the number of HCWs at the sites providing HIV/AIDS services increased by 56 percent from 2016 to 2018, this level of staff involvement in HIV/AIDS services needs to be maintained or further improved to continue enhancing the scope and frequency of HIV/AIDS services. Training a larger pool of HCWs in ART, using the new HIV clinical management guidelines, and ensuring proper staffing of HIV/AIDS service delivery points will contribute to sustaining these levels of HCWs providing HIV/AIDS services.

In the long term, sustaining the gains in staffing levels and associated benefits would entail transitioning the HCWs to government and further strengthening the systems critical for HCW retention. For maximum impact, the HCWs would need to be transitioned to the same sites where they are currently deployed to minimize disruption of services. Given that some sites and districts do not have vacancies in the current staffing establishments, review of district and facility staffing structures would be necessary to match HCW availability with service delivery need.

## HCW Performance

The deployment of the PEPFAR-supported HCWs was welcomed by all key stakeholders including DHMT members and health facility and clinic in-charges. The impact of the staffing levels on service availability and utilization is also well demonstrated in the results. However, to sustain the impact and improve the quality of services, there is need for additional HRH support particularly aimed at improving HCW performance (Scott, 2014). HRH2030 has been able to check in with DHMTs and facility in-charges to monitor some level of performance, but there is need for more robust supportive supervision and management. For example, interviews with DHMT members revealed a growing concern

about “organized absenteeism,” in which the HCWs agree amongst themselves to leave only a skeleton staff on duty while the rest are absent doing their private work. If this is not well managed through close supervision and performance management, organized absenteeism can diminish the potential impact of the increased HCW numbers on HIV/AIDS services. Further, due to critical shortages, some PEPFAR-supported HCWs have been put in leadership roles in their facilities and would benefit from supportive supervision.

## Remaining HRH Gaps

The recruitment of the PEPFAR-supported HCWs has greatly improved the availability of HCWs to provide health and HIV/AIDS services. However, several gaps still exist that need to be addressed for better and sustained impact. Key HRH gaps in terms of number and skills gaps were identified among the pharmacy cadres as evidenced by continued use of inappropriately trained HCWs to provide these services. Since most of the pharmacy assistants that were recruited later joined government and were posted outside the PEPFAR priority districts, the need for pharmacy assistants in PEPFAR sites remains high. Further, as discussed earlier, although there is currently a general reduction in work pressure due to the additional HCWs, with time the workload is likely to increase following increased utilization of services by the communities. Therefore, there will be a need to closely monitor staffing levels against workload to minimize work pressure and ensure sustained quality improvements.

## HRH System Strengthening and Support

The gross understaffing in health facilities that necessitated the deployment of the PEPFAR-supported HCWs is an indication of a fragile HRH system that needs comprehensive support. Other indicators of this fragility identified during this study include shortages of some critical cadres in the labor markets such as laboratory and pharmacy cadres; inadequate HRH information for decision-making; inadequate staffing establishments; and weak management of HCW performance. Inadequate capacity and resources to support the HRH function are key factors contributing to the current situation, and the situation is further compounded by the decentralization of the HRH function to the district councils. Long-term sustainability will therefore require further support for strengthening HRH systems both at the center and district levels to ensure that the HCWs are well equipped and supported to work during the full life cycle of the health worker from pre-service on. Priority interventions could be aimed at improving HCW productivity and performance; strengthening health facility governance structures; strengthening capacity of different levels of health

managers in HRH; ensuring responsive staffing structures based on needs; and ensuring a supportive policy environment for HRH planning and management.

## Quality of HIV/AIDS Services

Client satisfaction with services exceeded the Health Sector Strategic Plan II target and generally the quality of HIV/AIDS services were perceived as good by clients. On the other hand, the quality of HIV/AIDS services in terms of adherence to the HIV clinical management guidelines, particularly adherence to the clinical monitoring SOPs, needs additional attention. Assessment scores were very low in both intervention and comparison districts, highlighting a systemic problem. This could be attributed in part to the fact that the HIV clinical management guidelines were approved in June 2018 after data collection, and at that point many of the HCWs had not yet been trained in the new guidelines. Mitigating this would include training and continuously mentoring the HCWs.

According to the study results, the patient waiting times were within the Institute of Medicine recommended standards of 30 minutes (O'Malley, 1983). Despite this, fewer clients perceived the waiting time to have improved following the deployment of PEPFAR-supported HCWs. This is because on its own, waiting time does not provide a complete picture of the quality of services. In this study, assessment of waiting time was coupled with an assessment of client/provider facing time, and adherence to SOPs in providing services. For ART services, for example, it was noted that whereas the waiting time was within the acceptable standard, the client/provider facing time of four minutes was much lower than the recommended standard of 10 to 15 minutes. The short facing time would mean that HCWs do not have ample time to thoroughly take history and examine the clients as per the SOPs, which ultimately affects the quality of services. Ahmad (2017) and Ogden (2004) assert that to the client, the quality of interaction with the provider is a very important factor and clients will be satisfied with the facing time and even waiting time if they feel that their needs were met and that they were listened to and understood. Increasing the quality of client and provider interactions could also have larger ramifications on reaching the 90-90-90 goals. If PEPFAR-supported HCWs are focusing on the second 90 of initiating ART and supporting clients, clients may have a greater success rate in the third 90 and adherence. Therefore, to further improve the quality of HIV/AIDS services at the sites, there is need to implement a package of quality improvement interventions aimed at simultaneously improving waiting time, client/provider facing time, and adherence to SOPs in providing HIV/AIDS services. This is a delicate balance given the interactions of these variables. In addition, further improvements in quality would require addressing barriers

to service delivery like inadequate infrastructure and laboratory equipment and addressing workflow issues. Having more consultation rooms could reduce waiting time further since more HCWs could then provide services simultaneously which, with limited consultation rooms, is currently not possible even if more HCWs were available.

## **The Differentiated Service Delivery Models**

The research findings show early impacts from the adoption of the DSD models. Increased adoption of the DSD models would significantly impact the quality of services and ensure efficient utilization of HCW time. For example, adoption of the 3-multi-month ART prescription, pharmacy fast track, and mobile clinic models would mean that fewer clients would come to the facilities frequently, thereby

decongesting the facilities. Ultimately this would contribute to the HCWs focusing on those clients that need their care most, as well as improving waiting time resulting from the reduced congestion (PEPFAR Malawi, 2017; Oche & Adamu, 2013). While the use of the 3-multi-month prescription model was high in both intervention and comparison sites, partly because the model is easy to use with minimum resource requirements, the widespread use of the remaining models will require support to be able to harness the benefits that accrue from using the DSD. The support would entail training HCWs on how to use the model, and availing the required resources for implementation, and for the pharmacy tack model, supporting the facilities to make changes to the clinic patient flow systems such as setting up an ART reception area with a full-time nurse to assess ART clients for fast tracking.

## Recommendations

The study findings resulted in several areas for recommendations, which apply both to HIV/AIDS service delivery as well as to optimizing HRH interventions in Malawi in general. The deployment of PEPFAR-supported health workers to high-volume sites had positive impacts on several components of service delivery as detailed above, in line with the hypotheses included in the theory of change. However, given that there are several outputs and outcomes were not as improved in the intervention sites as expected, there needs to be a continued focus on complementary interventions, including supportive supervision, mentoring and training, and differentiated service delivery models. Given that the deployment of PEPFAR-supported HCWs alone is not achieving the full outputs and outcomes of the theory of change, PEPFAR and implementers should consider adding the complementary interventions to the theory of change as inputs. Further detailed recommendations are presented below.

### Recommendations for Future Activities Based on Research Results

#### Support key HRH priorities identified

Given that by 2020 the HCWs will have transitioned to government, PEPFAR could consider supporting system-wide interventions targeting the PEPFAR priority districts aimed at improving HCW productivity and performance; efficient utilization of available HCWs; strengthening health facility governance structures; strengthening capacity of different levels of health managers in HRH; ensuring responsive staffing structures based on needs; and addressing key factors that affect HCW motivation and retention.

#### Continue supporting health systems strengthening for sustained impact

The deployment of the PEPFAR-supported HCWs to the sites was in response to a weak human resource system that resulted in the acute staffing issues. Continued support for HRH system strengthening at both the central and district levels is therefore critical for sustainability. Priority would be on strengthening systems for HCW strategic planning and policy formulation and review to ensure a supportive environment for the HCWs. The results of this research capture a period of HRH decentralization. While the PEPFAR-supported HCWs are championed by the HRH2030 program, the coordination and maintenance with various levels of government reveal areas that need strengthening.

### Support the implementation of complementary interventions

For continuous quality improvement and efficient utilization of the available HCWs, the deployment of the PEPFAR-supported HCWs needs to be complimented with other site-level resources and quality improvement interventions. For example, one area the research identified as declining was the ability of facility staff to conduct HTC outreach, which was the only type of HIV/AIDS service that decreased in availability at sites. Other quality improvement interventions could include supporting the roll-out of the DSD models, training and mentoring the HCWs in ART provision, and improving workflow to reduce waiting time.

#### Match health workforce with health need

Deployment of the health workers and monitoring of efficacy with DHMTs reveals a need to match the establishment of the health workforce with health needs. Some facilities do not have vacancies in the current staffing establishments, but demand for services requires more health workers. Review of the district and facility staffing structures is necessary to match HCW availability with service delivery need. In particular, as Malawi increases the use of DSD, there are opportunities to utilize available human resources more efficiently and effectively. There are resources available, such as the HRH2030 tools highlighted in the [PEPFAR Solutions Platform](#), for optimizing HRH with DSD models. Anecdotal data also revealed a need for further analysis of equity to ensure health workers are distributed in a data-driven matter to meet health needs and address equity issues.

### Recommendations for Current Salary Support Activities

#### Minimize HCW attrition

A key priority for HRH2030 is to collaborate with key stakeholders to minimize HCW attrition from the sites to sustain the gains made. This will entail closely monitoring site staffing levels for both government and PEPFAR-supported HCWs, working with the DHMT to minimize HCW transfers out of the sites, continuing to monitor and support the HCW, collaborating with key stakeholders at the center and district level to minimize recruitment of PEPFAR-supported HCWs with funding from other sources, and ensuring timely payment of salary and implementing the HCW transition plan.

#### Modify study methodology

Based on the experiences and lessons learned in conducting this study, HRH2030 will consider modifying the study methodology, including reducing the number of sites

studied, carefully selecting and training the data collection team, as well as, changing the data collection approach to collecting data from one district at a time by the same team instead of four teams collecting data simultaneously. This would ensure consistency and accuracy of the data collected and uniform implementation of data quality controls.

### **Improve coordination with key stakeholders**

As noted from the study, inadequate coordination with key players in HCW recruitment such as GFATM led to significant attrition and inefficiencies. This is a key lesson learned and an area for improvement in future HRH programing both at design and implementation phases.

## **Conclusion**

Results of this study show that the deployment of the PEPFAR-supported HCWs is making a difference in the delivery of HIV/AIDS services. One year after the deployment of the HCWs in the 63 PEPFAR priority sites, improvements have been noted in

staffing levels, availability of HIV/AIDS services—particularly in terms of frequency of services, and utilization of HIV/AIDS services. Results on the quality of HIV/AIDS services are not clear-cut and this is attributed to the fact that improving staffing levels alone does not guarantee improvement in quality. With this assertion, priority interventions would be aimed at maintaining and further enhancing the gains made, and to find ways to improve all aspects of quality for HIV/AIDS services such as implementing site-level quality improvement and HCW performance interventions. Going forward, there is a need to further focus on supportive supervision, training and mentoring, and differentiated service delivery for the deployed HCWs. These interventions would help ensure that the deployment of PEPFAR HCWs not only increases the frequency and utilization of those services, but also the quality of those services. To sustain the benefits in the medium-to-longer term, continuous and focused HRH support is essential to further strengthen the HRH systems particularly in the decentralized system.

## Annex I. Details of PEPFAR HCW Salary Support M&E Data Collection and Reporting

#	Data collected	Data type	Data collection method	Data source	Data disaggregation	Frequency of data collection	Where the data is reported
<b>1: Verifying PEPFAR-supported HCWs at sites</b>							
1.1	Total No. of PEPFAR-supported HCWs at site	Quantitative	Remote monitoring through timesheets	PEPFAR-supported HCWs HCW supervisors	Cadre Site	Monthly	<ul style="list-style-type: none"> <li>Monthly payroll</li> <li>Quarterly Activity report</li> </ul>
		Quantitative	Physical verification during site monitoring visits	PEPFAR-supported HCWs HCW supervisors	Cadre Site	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> </ul>
<b>2: Documenting the positive benefits of the PEPFAR HCW salary support intervention on site staffing</b>							
2.1	No. of HCWs in ART clinics (including government / CHAM HCWs).	Quantitative	Interviews during site monitoring visits	ART clinic/facility in charges	Cadre Site Type of HCW	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
2.2	Proportion of PEPFAR-supported HCWs providing HIV/AIDS services and using the different DSD models	Quantitative	Interviews during site monitoring visits	PEPFAR-supported HCWs	Cadre Type of service DSD model	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
2.3	Perceived positive benefits of the PEPFAR-supported HCWs on staffing	Qualitative	Discussions during site monitoring visits (collective site response)	PEPFAR HCWs HCW supervisors	None	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
		Quantitative	Interviews during longitudinal study visits	PEPFAR and non-PEPFAR HCWs HCW supervisors	None	Annual	<ul style="list-style-type: none"> <li>Quarter 4 Activity report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>

#	Data collected	Data type	Data collection method	Data source	Data disaggregation	Frequency of data collection	Where the data is reported
2.4	Key factors affecting HCW motivation and retention	Qualitative	Discussions during site monitoring visits (collective site response)	PEPFAR HCWs HCW supervisors	None	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
2.5	Key reasons for HCW attrition	Qualitative	HCW exit interviews	PEPFAR-supported HCWs	Reason	Quarterly	<ul style="list-style-type: none"> <li>Activity quarterly reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
<b>3: Documenting the positive benefits of the PEPFAR HCW salary support intervention on HIV/AIDS services (availability, utilization, and quality)</b>							
3.1	Type/scope of HIV/AIDS services offered	Quantitative	Interviews during site monitoring visits	ART clinic/facility in charges	None	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.2	Frequency/number of times in a week that the different HIV/AIDS services are offered	Quantitative	Interviews during site monitoring visits	ART clinic/facility in charges	None	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.3	Number of sites using the different DSD models	Quantitative	Interviews during site monitoring visits	ART clinic/facility in charges	None	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.4	Perceived positive benefits of the PEPFAR-supported HCWs on staffing and HIV/AIDS services	Qualitative	Discussions during site monitoring visits (collective site response)	PEPFAR and non-PEPFARHCWs HCW supervisors	None	Semiannual	<ul style="list-style-type: none"> <li>Quarter 2 and 4 Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
		Quantitative	Survey during longitudinal study visits	PEPFAR and non-PEPFAR HCWs HCW supervisors DHMT members	None	Annual	<ul style="list-style-type: none"> <li>Quarter 4 Activity report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.5	MER data on (TX_NEW, TX_CURR, PMTCT_ART, and TX_TB)	Quantitative	Review of MER data	DATIM from intervention and comparison sites	None	Quarterly Semiannual – TX_TB	<ul style="list-style-type: none"> <li>Quarterly Activity reports</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.6	Client satisfaction and perceived quality of HIV/AIDS services	Quantitative	Client exit interviews during longitudinal study visits	ART clinic clients	None	Annual	<ul style="list-style-type: none"> <li>Quarter 4 Activity report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>



#	Data collected	Data type	Data collection method	Data source	Data disaggregation	Frequency of data collection	Where the data is reported
3.7	Technical quality of HIV/AIDS services – adherence to treatment guidelines	Quantitative	Client exit interviews during longitudinal study visits	ART clinic clients Health passports	None	Annual	<ul style="list-style-type: none"> <li>Quarter 4 Activity report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.8	Type of HCW providing ART consultations, laboratory services, dispensing	Quantitative	Observation of service delivery during longitudinal study visits	Clients	ART clinic, Laboratory Pharmacy	Annual	<ul style="list-style-type: none"> <li>Quarter 4 Activity report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.9	Client/provider facing time	Quantitative	Observation of service delivery during longitudinal study visits	Clients	ART clinic, Laboratory Pharmacy	Annual	<ul style="list-style-type: none"> <li>Quarter 4 report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
3.10	Client waiting time	Quantitative	Observation of service delivery during longitudinal study visits	Clients	ART clinic, Laboratory Pharmacy		<ul style="list-style-type: none"> <li>Quarter 4 Activity report</li> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>
<b>4: Documenting lessons learned and best practices</b>							
4.1	What is working, what is not, challenges, opportunities	Qualitative	Discussions during site monitoring visits	PEPFAR HCWs HCW supervisors DHMT members	None	Semiannual Annual	<ul style="list-style-type: none"> <li>Annual PEPFAR HCW salary support M&amp;E report</li> </ul>

## Annex 2. Resources

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Takula Namakhwa, a PEPFAR-supported medical assistant at Dickson Health Center in Lilongwe District sits with a patient. This clinic has been recognized by the Ministry of Health as an outstanding provider of prevention of mother-to-child transmission (of HIV) as well as antiretroviral treatment. Credit: HRH2030

### Program Partners

- Chemonics International
- American International Health Alliance (AIHA)
- Amref Health Africa
- Open Development
- Palladium
- ThinkWell
- University Research Company (URC)

### About HRH2030

HRH2030 strives to build the accessible, available, acceptable, and high-quality health workforce needed to improve health outcomes.

### Global Program Objectives

1. **Improve performance and productivity of the health workforce.** Improve service delivery models, strengthen in-service training capacity and continuing professional development programs, and increase the capacity of managers to manage HRH resources more efficiently.
2. **Increase the number, skill mix, and competency of the health workforce.** Ensure that educational institutions meet students' needs and use curriculum relevant to students' future patients. This objective also addresses management capability of pre-service institutions.
3. **Strengthen HRH/HSS leadership and governance capacity.** Promote transparency in HRH decisions, strengthen the regulatory environment, improve management capacity, reduce gender disparities, and improve multi-sectoral collaboration for advancing the HRH agenda.
4. **Increase sustainability of investment in HRH.** Increase the utilization of HRH data for accurate decision-making with the aim of increasing investment in educating, training, and managing a fit-for-purpose and fit-for-practice health workforce.



[www.hrh2030program.org](http://www.hrh2030program.org)

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