

AIHA HIV/AIDS Twinning Center Program Evaluation

May 2013



■ The difference, proven

Table of Contents

Acronyms	i
Executive Summary	ii
I. Introduction	1
II. AIHA Twinning Center Model Overview and Partnerships	4
III. Evaluation Findings and Conclusions	7
IV. Overall Value of the Twinning Model	27
Annex A. AIHA Twinning Center Evaluation Scope of Work	35
Annex B. Twinning Center Evaluation: Analytical Framework	39
Annex C. Partnerships by Year, Goal, Partnership, Training, South-South Cooperation	43
Annex D. Country Reports	57
AIHA Twinning Center Evaluation Ethiopia Country Report	58
AIHA Twinning Center Evaluation South Africa Country Report	82
AIHA Twinning Center Evaluation Tanzania Country Report	102
AIHA Twinning Center Evaluation Zambia Country Report	122
Annex E. List of Persons Met	146
Annex F. Proposed Timeline, Travel Schedule and Deliverables for Evaluation	153
Annex G. Map of Partnerships	154
Annex H. Informed Consent Forms	156

Acronyms

AIHA	American International Health Alliance
ART	Anti-retroviral therapy
ARV	Antiretroviral
BSW	Bachelor of social work
CBO	Community-based organization
CDC	U.S. Centers for Disease Control and Prevention
CQI	Continuous quality improvement
DIC	Drug Information Center
DoD	U.S. Department of Defense
EPB	Evidence-based practice
ESEMP	Ethiopian Society of Emergency Medicine Professionals
FY	Fiscal year
HRSA	Health Resources Services Administration
IT	Information technology
LRC	Learning Resource Center
HRH	Human resources for health
HSS	Health systems strengthening
M&E	Monitoring and evaluation
MOH	Ministry of Health
NGO	Nongovernmental organization
NRD	Non-research determination
OGAC	Office of the Global AIDS Coordinator
OVC	Orphans and vulnerable children
PACASA	Professional Association of Clinical Associates of South Africa
PCAZ	Palliative Care Association of Zambia
PEPFAR	President's Emergency Plan for AIDS Relief
PSCW	Psycho-social care worker
PSW	Para social worker
QI	Quality improvement
ROSC	Recovery oriented systems of care
RUDASA	Rural Doctors of South Africa
SUNY-DMC	State University of New York Downstate Medical College
TANNA	Tanzania Nursing Association
TB	Tuberculosis
TNMC	Tanzania Nurses and Midwives Council
USAID	U.S. Agency for International Development
VHC	Volunteer Healthcare Corps
ZAMCOM	Zambia Institute of Mass Communication Educational Trust
ZDF	Zambian Defense Force

Executive Summary

Introduction

In January 2012 the American International Health Alliance (AIHA) commissioned the QED Group LLC to conduct a comprehensive evaluation of the AIHA HIV/AIDS Twinning Center Program in Africa. The evaluation intended to inform the Health Resources Services Administration (HRSA), the Human Resources for Health Technical Working Group, and the Office of the Global AIDS Coordinator (OGAC) about the President’s Emergency Plan for AIDS Relief (PEPFAR)-funded HIV/AIDS Twinning Center Program. The objectives of the evaluation were the following:

1. Assessing and documenting the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
2. Identifying promising approaches utilized in the implementation of twinning partnerships for possible replication and scale-up
3. Assessing and documenting the value added of twinning partnerships and how they contribute to human resources for health and health systems strengthening goals through institutional capacity building; healthcare workforce training; improved organizational development among institutions; and professional association building
4. Providing recommendations for human resources for health and health systems strengthening program strategies that are responsive to both existing as well as anticipated field needs

Methodology

The performance evaluation used qualitative data collection and analysis. Information sources included key informant interviews, focus groups, and direct observation. Interviews and focus groups were guided by the sub-questions that were included in the scope of work and outlined in the non-research designated (NRD) protocol. Interviews and focus groups were conducted using open-ended questions.

The evaluation team included two U.S. consultants—Dr. Rosemary Barber-Madden, a health professions development specialist (team leader), and Catherine (Tina) Cleland, a health systems strengthening specialist with extensive experience with the Twinning Partnership methodology. Both team members have technical and programmatic experience with HIV/AIDS programming. QED managed the evaluation team and AIHA provided operational and logistical support.

Data collection and synthesis compiled information from four major sources:

- Review and synthesis of AIHA and country-specific documents
- Key informant interviews of relevant stakeholders
- In-country site visits to AIHA partner sites
- A Washington, D.C., briefing with HRSA, OGAC, and AIHA

The evaluation was conducted between May 23, 2012, and June 30, 2013. The four sample countries selected for evaluation field work—South Africa, Zambia, Tanzania, and Ethiopia—represent more than 70% of AIHA twinning partnerships in Africa.

AIHA Twinning Center Model Overview and Partnerships

The Twinning Center model is designed to promote institutional capacity, develop human resources for health, and build sustainable professional relationships, primarily through faculty and curriculum development, pre-service and in-service training, organizational development, licensure and accreditation promotion, and association building. The twinning model presumes that healthcare

professionals abroad are more receptive to new ideas and more willing to make changes when they work in partnership with colleagues who face the same challenges in their day-to-day practice. Partnership institutions may include hospitals, clinics, universities, professional associations of healthcare workers, or community organizations, including faith-based organizations. The AIHA Twinning Center's operations in sub-Saharan Africa represent a diverse portfolio of institutions (universities and schools of health sciences, hospitals, associations, nongovernmental organizations [NGOs], media), covering numerous disciplines—emergency medicine, anti-retroviral therapy (ART), laboratories, pharmacies, nursing, mid-level health care workers, palliative care, information technology, journalism—mobilized to address PEPFAR priorities. The HIV/AIDS Twinning Center has established 50 partnerships and initiatives in 11 countries throughout sub-Saharan Africa. Currently the Twinning Center implements programs in Botswana, Ethiopia, Kenya, Mozambique, Namibia, Nigeria, South Africa, Tanzania, and Zambia. In addition to funding from HRSA, the U.S. twinning partners contribute approximately \$6-7 million dollars of in-kind contributions annually to AIHA and Twinning Center programs globally, representing a private sector match to U.S. Government funds of approximately 50%. AIHA's twinning methodology has promoted health system improvements for over two decades with more than 165 partnerships in 34 developing and transitional countries.

Evaluation Objective 1: Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals

Evaluation Objective 1: Findings

Types of Partnerships. Twinning partnerships in the countries covered by the evaluation were designed to develop the capacity of diverse types of academic institutions, local NGOs, and country governmental units. The evaluators assessed 21 partnerships. Thirteen of the reviewed were North-South, in which a U.S.-based institution partners with a similar type of institution in Africa, as shown in Table 1. Within these North-South partnerships, the majority paired institutions with similar missions.

Contribution of South-South Cooperation. During interviews with in-country partners, evaluators learned that South-South collaboration within countries is also extensive. This approach was taken as an integral component of partnership work plans, in some cases. In this mode, academic institutions and teaching hospitals extended their partnership activities through affiliation with other professional schools and universities involved in social work and nursing in Tanzania, social work in Ethiopia, and pharmacy in Ethiopia and Zambia.

Evaluation Objective 1: Conclusions

Main Achievements of Twinning Partnerships

Evaluators found that Twinning Partnerships were successful in seven areas that are essential to achieving PEPFAR HRH and HSS goals: Increasing the capacity of healthcare workers; introducing new cadres of healthcare workers; accrediting pre-service/in-service curricula; creating new models of care; strengthening the health work force using a four-pillared framework; strengthening professional associations and NGOs; and implementing VHC technical assistance to the health authorities program.

The evaluators found a number of factors leading to partnership success. The in-country partner's ability to leverage within local institutions and communities and with national governments, and the Twinning Center's ability to leverage its prestige to assist with advocacy led to success, as did the emergence of a champion or 'star' to catalyze the change process and connect the partnership and government with the community in creative ways. Anchoring partnerships with government buy-in launched partnerships in the right direction. And the expertise, skills, and commitment of U.S. partners helped strengthen partnerships.

Twining Benefits Reported by In-Country and Resource Partners

All partners, whether Africa- or U.S.-based, agreed that collaborative decision making led to a sense of joint ownership. Nearly all partners noted faculty/professional exchanges, peer-to-peer mentoring, and on-site training as highly motivational for faculty, administration, and staff. In-country partners highlighted access to and use of new clinical and technical skills. In-country partners also learned the benefits of quality improvement and its use as an important instrument for improving clinical and administrative practices. U.S.-based partners interviewed underscored the benefits and valuable experience gained through partnering with institutions and organizations in Africa. This was particularly true for university partners engaged in academic teaching and research who noted the importance of opportunities to develop new collaborative research agendas with partners in other countries, and to expand the possibilities for new publications and papers for presentation.

Monitoring and Evaluation and Graduation

The Twining Center built a monitoring and evaluation (M&E) system and M&E processes to meet the changing needs and requirements of the partnership program as it matured. Within the new M&E framework, an independent monitoring and evaluation plan was set up in 2012, with an evaluation framework focused on four levels. The Twining Center assists partners in developing work plans with measurable objectives, outputs, outcomes, and indicators.

Evaluators found that six partnerships were graduated during the period under review.

Evaluation Objective 2: Identify promising approaches utilized in the implementation of Twining Center partnerships for possible replication and scale up

Evaluation Objective 2: Findings

Twining paved the way for expansion and scale-up of health care work force development, health system strengthening (HSS), and institutional capacity-building initiatives in all four countries visited.

Health Workforce Development

Evaluators found that pre-service undergraduate and/or graduate curricula were either newly developed or adapted, and rolled out to 33 university and professional training schools. A national exam for clinical associate students and graduates was established by three universities in South Africa.

Twining strategies also contributed to the creation of a new model for training and integrating para-social workers (PSWs) into community-based caregiving, demonstrating the model's capacity to provide social support to persons with HIV/AIDS and other health problems, especially vulnerable children. This model is contributing to expanding the density and distribution of this cadre.

The Twining Center and its partners have established a new and extensive knowledge base, grounded in evidence-based clinical practice.

With advocacy and support of the Twining Center and its resource partners, in-country partners demonstrated how effective they can be in developing new linkages with academic institutions in their own countries and have taken advantage of resources and opportunities available in Africa through South-South cooperation.

Health System Strengthening

The team found newly developed interdisciplinary health teams that work horizontally across institutions and sectors and vertically to reach the para-professional and volunteer levels. Evidence-based practice (EBP) and quality improvement (QI) studies are informing clinical and management decisions; as a result, more decisions will gradually be made by health teams.

Evaluation Objective 2: Conclusions

Twinning successfully laid the ground work for scale-up of healthcare worker and system strengthening programs and services. By engaging national networks of academic professional training institutions, the Twinning Center and its partners galvanized the expansion and scale-up of competency-based training in five professions across a significant number of institutions in Zambia, Tanzania, and Ethiopia, and para-professional training for PSWs was expanded in three countries. At the institutional level, twinning partnerships fostered a multi-level hierarchical approach to garner buy in within institutions and across sectors, provided leadership training, and encouraged in-country partner advocacy and involvement in policy dialogue, which enabled broader institutional change and reform.

Evaluators found evidence of solid results in health workforce development, health systems strengthening, and institutional capacity building achieved thus far by the twinning model in the countries reviewed. These results present a basis on which replication and scale-up can be undertaken to meet PEPFAR goals in HRH and HSS goals in Africa. It will be important to adapt these strategies to meet the defined needs and policy contexts of individual African countries.

Evaluation Objective 3: Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.

Evaluation Objective 3: Findings

Partners stressed how the open, flexible nature of partnership collaboration, helped them figure out the sequence of program planning and to recognize that course corrections are not signs of failure. Involving the in-country partner as an equal collaborator from the outset empowers them to become effective change agents within their peer groups and countries.

Twinning partners approached actors at different levels of the institutional or organizational hierarchy to ensure that institutional changes could be consolidated and maintained. Resource partners engaged directors and staff from multiple levels with different levels of management at recipient institutions. The hierarchical approach used with academic institutions, health care facilities, and NGOs built capacity across a range of academic disciplines and institutional levels. Promoting leadership development boosted faculty development and NGO management leadership; it also introduced modern management and clinical practice to upper management and clinical practitioners. As change began to occur, in-country partners gained professional confidence.

Evaluation Objective 3: Conclusions

The evaluation team found that the Twinning Center and its partners added value to different levels of health workforce development. Developing new pre-service training programs and upgrading existing programs for health professionals and para-professionals, together with efforts to support accreditation, has helped raise quality and standardize pre-service academic programs at both the undergraduate and graduate level.

At the professional association level, most of the professional associations and NGOs interviewed for the evaluation reported that improvement of their organizational structures had improved their credibility, legitimized their mission and goals, and reinforced their confidence and forward vision.

Overall Value of the Twinning Model

Twinning differs from other forms of technical assistance in its scope, the quality of services provided, and the level of interaction among partners at all institutional levels. Twinning can provide a broader

range of technical service than traditional forms of technical assistance. It introduces a new body of knowledge and a different way of thinking, along with working models for alternative systems of health care delivery.

Sustainability

Most twinning partnerships reviewed were aligned with Ministry of Health priorities and national health plans, and either implicitly or explicitly endorsed by government. The main achievements reported under Objective 1 are sustainable if there is a continuing demand for services, if quality is maintained, and if there are sufficient sources of income. The main threat to sustainability is that maintaining many of these advances will depend on future government funding, especially since these advances entail higher staffing loads and enhanced maintenance or new equipment. While ministries of health have prioritized health care workforce development in their national plans and policies, and state their commitment to deploying new health professionals, there is no guarantee that additional resources will be forthcoming from governments to employ and deploy new cadres as they graduate from these programs.

Challenges

The evaluation identified challenges to effective and efficient partnership implementation: absorption of new cadres of healthcare graduates, programmatic evaluation restrictions, graduation, Twinning Center staffing, management and financing practices, and declining levels of core funding.

Recommendations

For the Twinning Center

1. Strengthen Twinning Center headquarters financial transparency and communications between headquarters and partners
2. Establish guidelines for partnership graduation and/or termination

For the Twinning Center and PEPFAR

1. Increase donor dialogue with country governments to plan for expanded health workforce capacity
2. Streamline CDC NRD approval process to accelerate program implementation, quality improvement, and assessment of program effectiveness
3. Adopt the four-pillar framework for health workforce strengthening and use twinning partnerships to pilot and test new healthcare workforce development models
4. Promote interdisciplinary team development, both within the health professions as well as across social sectors.
5. Expand South-South collaboration through exchanges and mentoring within Africa for professionals
6. Assess and benchmark the effectiveness of pre-service training curricula on performance in teaching and in clinical practice across academic and professional training institutions where curricula have been harmonized and rolled out, prior to replication and scale-up to other countries
7. Disseminate program information more broadly throughout PEPFAR and promote replication and scale-up of effective models

I. Introduction

A. Evaluation Purpose and Objectives

In January 2012 the Health Resources Services Administration (HRSA) commissioned the QED Group LLC to conduct a comprehensive evaluation of the American International Health Alliance (AIHA) HIV/AIDS Twinning Center Program in Africa. The evaluation intended to inform HRSA, the Human Resources for Health Technical Working Group, and the Office of the Global AIDS Coordinator (OGAC) about the President's Emergency Plan for AIDS Relief (PEPFAR)-funded HIV/AIDS Twinning Center Program. The objectives of the evaluation were the following:

1. Assessing and documenting the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
2. Identifying promising approaches utilized in the implementation of twinning partnerships for possible replication and scale-up
3. Assessing and documenting the value added of twinning partnerships and how they contribute to human resources for health and health systems strengthening goals through institutional capacity building; healthcare workforce training; improved organizational development among institutions; and professional association building
4. Providing recommendations for human resources for health and health systems strengthening program strategies that are responsive to both existing as well as anticipated field needs

In 2004, AIHA was awarded a cooperative agreement from HRSA to establish the Twinning Center, a capacity-building mechanism for supporting countries targeted for assistance under PEPFAR. AIHA's unique methodology aims to promote sustainable partnerships between communities and institutions to foster more effective and efficient health service delivery. Unlike traditional consultancy projects, the partnerships are voluntary, peer-based technical assistance programs, with an emphasis on professional exchanges and voluntary contributions. HRSA awarded the Twinning Center a second five-year cooperative agreement in February 2009, ensuring funding for the program through 2014. This evaluation covers the period of the current cooperative agreement, from 2009 to present.

B. PEPFAR Goals

PEPFAR is the largest bilateral health initiative in the world. President George W. Bush's 2003 pledge to spend \$15 billion over five years fighting HIV/AIDS, tuberculosis (TB), and malaria was considered by many observers as groundbreaking. Under two successive authorization acts—the Leadership Act, 17 P.L. 108-25, and the Lantos-Hyde Act, P.L. 110-293—a total of U.S. \$63 billion was authorized to fight HIV/AIDS, TB, and malaria. PEPFAR authorization expires at the end of fiscal year (FY) 2013. In the first phase of PEPFAR (FY 2004–FY 2008), the United States spent more than \$18 billion on global HIV/AIDS initiatives, including the Global Fund. From FY 2009 through FY 2012, U.S. spending on international HIV/AIDS assistance reached nearly \$26 billion.¹

The second phase of PEPFAR Funding (PEPFAR II) aims to transition countries from an emergency response phase toward a sustainable response to the HIV/AIDS epidemic. PEPFAR II goals include:

- Transitioning from an emergency response to promotion of sustainable country programs

¹ Tiaji Salaam-Blyther, The President's Emergency Plan for AIDS Relief (PEPFAR): Funding Issues After a Decade of Implementation, FY2004-FY2013, October 10, 2012, Congressional Research Service, 7-5700, R42776. <http://www.fas.org/sgp/crs/misc/R42776.pdf>, accessed 03/15/13.

- Strengthening of partner government capacity to lead the response to this epidemic and respond to other health-related demands
- Expanding of prevention, care, and treatment in concentrated and generalized epidemics
- Integration and coordination of HIV/AIDS programs with broader global health and development programs to maximize the impact on health systems
- Investment in innovation and operations research to evaluate impact, improve service delivery, and maximize outcomes²

C. Methodology

Methodology

The performance evaluation used qualitative data collection and analysis. Information sources included key informant interviews, focus groups, and direct observation. Interviews and focus groups were guided by the sub-questions that were included in the scope of work and outlined in the non-research designated (NRD) protocol. Interviews and focus groups were conducted using open-ended questions.

The evaluation team included two U.S. consultants—Dr. Rosemary Barber-Madden, a health professions development specialist (team leader), and Catherine (Tina) Cleland, a health systems strengthening specialist with extensive experience with the Twinning Partnership methodology. Both team members have technical and programmatic experience with HIV/AIDS programming. QED managed the evaluation team and AIHA provided operational and logistical support.

Data collection and synthesis compiled information from four major sources:

- Review and synthesis of AIHA and country-specific documents, including AIHA documents and prior evaluations, Twinning Partnership annual work plans, PEPFAR/Country Operational Plans semi-annual and annual reports, and relevant PEPFAR documents such as PEPFAR country Partnership Framework Implementation Plans for countries visited
- Key informant interviews of relevant stakeholders via in-person, telephone, and email questionnaires in Washington, D.C., South Africa, Zambia, Ethiopia, and Tanzania. Interviewees included representatives from the following organizations:
 - HRSA, OGAC, U.S. Centers for Disease Control (CDC), U.S. Agency for International Development (USAID), and U.S. Department of Defense (DoD)
 - AIHA headquarters and country office staff
 - U.S.-based and in-country academic, governmental, and nongovernmental partners
 - Government ministries of health, military health services, national drug commissions
 - Voluntary Healthcare Corps (VHC) volunteers
 - Selected beneficiaries, including students and graduates of academic programs and para-professional workers (a full list is provided in Annex E, List of Persons Met)
- In- country site visits to AIHA partner sites
- A Washington, D.C., in-briefing with HRSA, OGAC, and AIHA

The evaluation was conducted between May 23, 2012, and June 30, 2013. An initial team planning meeting took place May 23 to 25, 2012, and a second team meeting followed January 14 to 18, 2013. Both meetings took place in Washington, D.C. The evaluation team conducted field work from February 1 through March 9, 2013. (Annex F contains an evaluation timeline.)

² The U.S. President’s Emergency Plan for AIDS Relief Five-Year Strategy (2009)
<http://www.pepfar.gov/documents/organization/133035.pdf>, accessed 01/10/13.

The four sample countries selected for evaluation field work—South Africa, Zambia, Tanzania, and Ethiopia—represent the largest programs in the AIHA twinning partnership portfolio in Africa. The team interviewed or visited representatives from a total of 21 partnership sites. The evaluators submitted country reports for each country visited, including a list of sites and partnerships visited, stakeholders interviewed, AIHA program background, and salient preliminary findings and lessons learned related to the evaluation’s objectives. The four country reports are found in Annex D.

Qualitative data presented in this report is derived from extensive interviews conducted using interview guides developed by the team and approved in the CDC NRD clearance process. The guides enabled the team to collect information via in-person, telephone, and email interviews. Quantitative data used in this analysis comes from AIHA annual data reported to HRSA and OGAC.

In late January 2013, prior to the team’s departure for in-country visits, the evaluation team interviewed eight U.S.-based partners via telephone. Additionally, an email questionnaire was sent to U.S.-based partners not available during the January interview period. The email yielded four additional completed questionnaires.

In-country interviews took place over a five-to-six-day period in each country visited. The team interviewed representatives from all 21 twinning partnerships including 8 partnerships and VHC program representatives, in Ethiopia, 4 partnerships in South Africa, 5 partnerships in Tanzania, and 4 partnerships in Zambia. Additional sub-partners were also interviewed.

Focus groups and interviews included representatives from current and graduated beneficiaries, association members, and partners. The evaluation team held focus group discussions with two current and one former volunteer from the voluntary counseling and testing program in Ethiopia, 13 current students and two graduates of the Clinical Associate programs in South Africa, three members of the Professional Association of Clinical Associates of South Africa, and three psychosocial work caregiver graduates in Ethiopia. In addition to interviews, the evaluators conducted on-site observation trips to Learning Resource Centers (LRCs) in South Africa, Zambia, and Ethiopia, as well as Clinical Skills Labs in Zambia and Ethiopia. In total, the evaluation team interviewed 119 stakeholders during the evaluation’s data collection period. Informed consent forms were signed by all stakeholders interviewed. Informed consent forms are found in Annex H.

The evaluators developed an analytical framework that they used to guide the examination of each evaluation objective. The analytic framework is provided in Annex B.

D. Limitations and Constraints

Delays in implementing the evaluation: The NRD evaluation protocol was submitted to CDC for review and approval in June 2012. The protocol was approved in October 2012. During the protocol review period, the originally hired team leader withdrew from the evaluation. QED proceeded to recruit and seek approval for a new team leader. The new team leader was approved in late November 2012 and actual field work began in February 2013.

Limited duration of country visits: Although the AIHA Twinning Center provided logistical support to the evaluation team throughout country visits, the five-to-six-day duration of country visits limited the sample of program beneficiaries that could be interviewed for most partnerships.

Missing information: There were cases where the program data that provided was insufficient to understand the historical context of the Twinning Partnerships. The evaluators found it difficult to track down details related to outputs and achievements for partnerships extending beyond five years.

II. AIHA Twinning Center Model Overview and Partnerships

A. Twinning Center Model Overview

AIHA is a nonprofit organization working to advance global health by helping communities and nations with limited resources build sustainable institutional and human resource capacity. Through twinning partnerships and other programs, AIHA provides technical assistance using the knowledge and skills of experienced physicians, nurses, administrators, educators, allied health professionals, and civic leaders. AIHA's programs address critical issues such as health systems strengthening, HIV/AIDS prevention, and education and workforce development for health professionals.

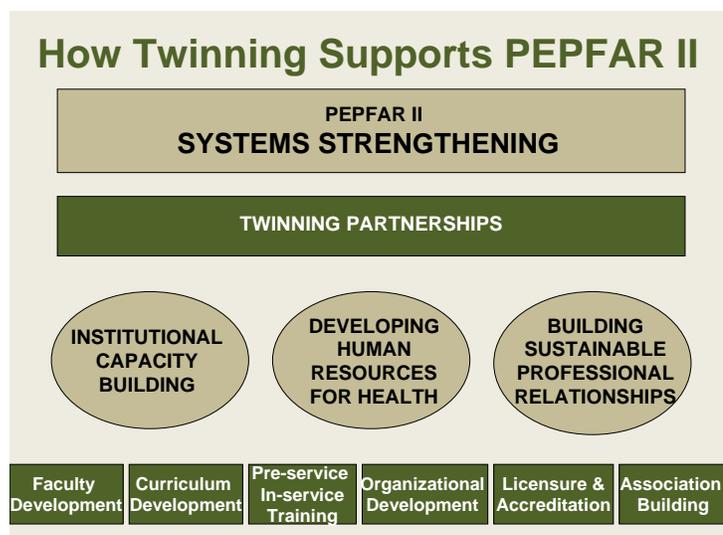
The majority of AIHA's capacity-building programs use institutional partnerships for the purpose of developing solutions to health systems issues that are technologically and economically appropriate and sustainable in host countries.

The "twinning" model presumes that healthcare professionals abroad are more receptive to new ideas and more willing to make changes when they work together in partnerships with colleagues who face the same challenges in their day-to-day practice. Partners may include hospitals, clinics, universities, professional associations of healthcare workers, or community organizations, including faith-based organizations.

The HIV/AIDS Twinning Center also manages the Volunteer Healthcare Corps program, which supports organizations receiving PEPFAR funding by actively recruiting qualified clinicians and allied professionals for strategic positions on the front lines of the fight against HIV/AIDS in Africa. Volunteers are professionals who share their knowledge and expertise, helping build sustainable human resources and organizational capacity within host institutions and communities. In Ethiopia, the VHC program taps into the Ethiopian diaspora in the U.S., bringing volunteers with extensive professional experience to the country. These volunteers are assigned to government institutions and non-governmental organizations (NGOs).

The AIHA Twinning Center's operations in sub-Saharan Africa represent a diverse portfolio of institutions, covering numerous disciplines—including emergency medicine, anti-retroviral therapy (ART), laboratories, pharmacies, nursing, mid-level health care workers, palliative care, information technology, journalism—mobilized to

address PEPFAR priorities. The HIV/AIDS Twinning Center has established 50 partnerships and initiatives in 11 countries throughout sub-Saharan Africa. Currently the Twinning Center implements programs in Botswana, Ethiopia, Kenya, Mozambique, Namibia, Nigeria, South Africa, Tanzania, and Zambia. In addition to funding from HRSA, the U.S. twinning partners contribute approximately \$6–7 million dollars



Source: *Twinning for Capacity Building and Systems Strengthening*, PowerPoint presentation by K. Wolfe, January 15, 2013

of in-kind contributions annually, representing a private sector match to U.S. Government funds of approximately 50 percent.

AIHA's twinning methodology has promoted health system improvements for over two decades with more than 165 partnerships in 34 developing and transitional countries.

Local and regional South-South partnerships are also supported as a way to tap into local expertise and scale up successful interventions and programs already under way in the targeted countries.

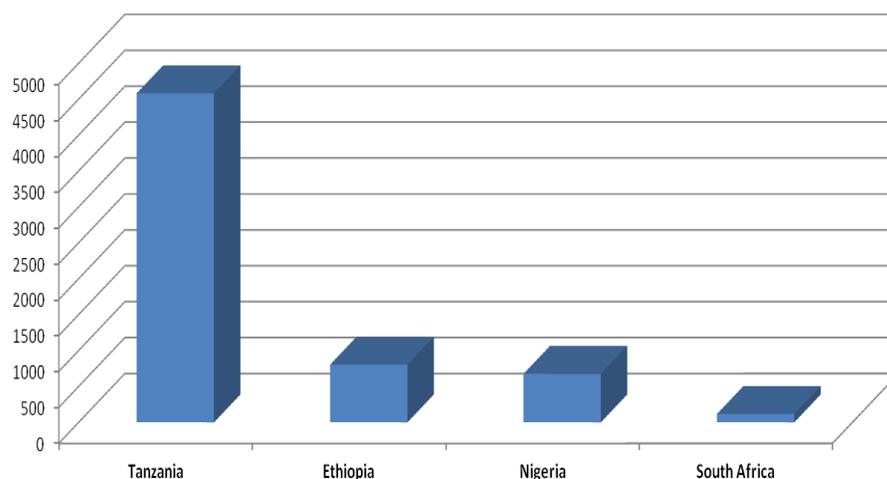
The Twinning Center model is designed to promote institutional capacity, develop human resources for health, and build sustainable professional relationships, primarily through faculty and curriculum development, pre-service and in-service training, organizational development, licensure and accreditation promotion, and association building.

According to Twinning Center reports, 6,313 healthcare workers and para-professionals graduated from Twinning Center-supported pre-service education and training programs during the period of 2005 to 2012. Graduates include:

- 3,904 healthcare graduates
 - 3,518 nurses (Tanzania and Ethiopia)
 - 254 clinical associates (South Africa)
 - 132 bachelor and master of social work (Tanzania and Ethiopia)

Trainees include 2,409 PSWs completed Twinning Center-supported PSW training programs between 2005 and 2012, including 1,053 directly trained in Tanzania, 681 trained in Ethiopia, and 675 trained in Nigeria. In addition, a total of 4,599 PSWs and 729 PSW supervisors have been trained across Tanzania with the assistance of external implementing partners using the Twinning Center's curriculum model.

Figure 1. Twinning Center Cumulative Pre-Service Healthcare Worker and Para-professional Graduates

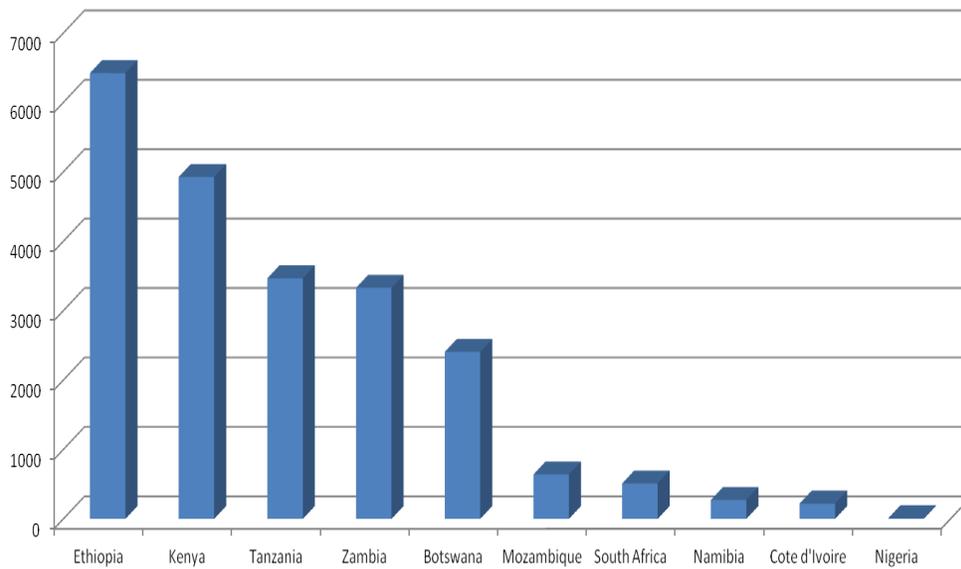


Source: *Twinning for Capacity Building and Systems Strengthening*, PowerPoint presentation by K. Wolfe, January 15, 2013.

During the same period, Twinning Centers provided in-service training to 22,209 healthcare and allied health professionals in 10 African countries.³

³ AIHA HIV/AIDS Twinning Center Monitoring & Evaluation, Systems, Results, & Technical Support, PowerPoint presentation by J. Buehler, January 15, 2013.

Figure 2. Twinning Center Cumulative In-service Training Results—All Countries (2005–2012)



Source: *Twinning for Capacity Building and Systems Strengthening*, PowerPoint presentation by K. Wolfe, January 15, 2013

B. Resource Partner Solicitation and Selection

AIHA priorities for soliciting and selecting resource partners begin with the identification of local partner capacity-building needs. Prior to releasing a solicitation, an AIHA-developed scope of work is submitted to the U.S. Government Activity Manager and the in-country partner to review for accuracy and final editing. The solicitation is then sent to a listserv of universities, past partners, and other relevant parties, and advertised on the AIHA web site for a period of four to six weeks. Once proposals are received, AIHA coordinates proposal review using a tailored template for each solicitation. Solicitations are reviewed at the AIHA headquarters level and then sent to the lead local partner for review and scoring. Five main criteria are used for scoring solicitations: strong support of senior organization officials, institutional capability, technical proposal, personnel capability and experience, and in-kind and financial resources to be provided by the resource partner.

Once scoring is completed, AIHA headquarters and AIHA field offices review scores with the lead local partner and select the highest scoring candidates. The lead local partner then conducts a phone interview with the selected resource partner to determine compatibility. Upon selection of a resource partner, AIHA requests CDC concurrence with the selection. With concurrence, AIHA notifies the selected resource partner of the award. The lead partner institution designates a partnership coordinator whose role is to oversee programmatic and administrative activities in support of the partnership and serve as the point person in relations with the HIV/AIDS Twinning Center. The partnership coordinator serves in the position on a voluntary basis.

III. Evaluation Findings and Conclusions

Evaluation Objective 1 – Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals

A. Objective 1: Findings

Twinning Center Partnerships

This section examines the types of partnerships, the extent of South-South cooperation activities, and partner and stakeholder opinions regarding the contributions and benefits of twinning partnerships.

Types of Partnerships

Twining partnerships in the countries covered by the evaluation were designed to develop the capacity of diverse types of academic institutions, local NGOs, and country governmental units. All partnerships reviewed are presented in Annex C by year initiated, goal, type of partnership, type of training provided, and South-South cooperation activities. All partners signed memoranda of understanding between partners and submit annual work plans and quarterly/annual progress reports that AIHA reviews and approves.

The evaluators assessed 21 partnerships. Thirteen of the reviewed were North-South, in which a U.S.-based institution partners with a similar type of institution in Africa, as shown in Table 1. Within these North-South partnerships, the majority paired institutions with similar missions: Educational institutions generally partnered with educational institutions, NGOs with NGOs, and faith-based organizations with faith-based organizations. In some cases, a public university or NGO in the U.S. partnered with a university in Africa, or a U.S. NGO partnered with a government entity; in one case, a U.S. university partnered with a university, the Ministry of Health and Social Welfare, and a national professional association in Tanzania. There was one triangular partnership in which a U.S.-based institution partnered with two academic institutions, one in Tanzania and another in Ethiopia. Three South-South partnerships were reviewed, in which an African institution in one country partnered with an African institutions in another country. Examples include the Palliative Care Association of Zambia (PCAZ) partnering with the African Palliative Care Association in Uganda and the AIDS Resource Center in Ethiopia partnering with the AIDS Treatment Information Center of Uganda.

Country	North-South Partnerships	Triangular Partnerships	South-South Partnerships	Partnering with AIHA
<i>Ethiopia</i>	5	1*	2	1
<i>South Africa</i>	4	-	-	-
<i>Tanzania</i>	4	1*	-	-
<i>Zambia</i>	1		1	2

*North partner with two (2) South partners in two (2) countries

The 21 partnerships reviewed in this evaluation covered 13 different disciplines. As shown in Table 2, most partnerships focused on a particular discipline in a single country, such as the case of clinical associate programs established in three universities in South Africa. Health information technology was

established in all four countries through the installation of LRCs at most partnership sites. In Zambia, for example, a partnership with the Zambian Defense Force had already set up LRCs at 15 remote sites to enable access to evidence-based practice to military medical personnel. Social work partnerships were pursued in Tanzania and Ethiopia, and palliative care programs were supported in Zambia and Tanzania.

Contribution of South-South Cooperation

In addition to South-South partnerships, AIHA has engaged in other types of South-South collaborative activities between institutions in African countries, which have enabled in-country partners to tap into the expertise and experience of institutions in Africa

During interviews with in-country partners, evaluators learned that South-South collaboration within countries is also extensive. This approach was taken as an integral component of partnership work plans, in some cases. In this mode, academic institutions and teaching hospitals extended their partnership activities through affiliation with other professional schools and universities involved in social work and nursing in Tanzania, social work in Ethiopia, and pharmacy in Ethiopia and Zambia. In another case, Debre Berhan, a regional hospital, expanded its partnership activities to include affiliated

Table 2: Twinning Partnerships by Discipline and Country

	Ethiopia	South Africa	Tanzania	Zambia
Clinical Associate		X		
Counseling & Testing	X			
Emergency Medicine	X			
Health Information Technology	X	X	X	X
Hospital Management	X			
Lab Services			X	
Nursing			X	
Palliative Care			X	X
Pharmacy	X			X
Social Worker/Social Welfare	X		X	
Health Communications				X
Substance Abuse Recovery			X	
Health Services Research		X		

Table 3: South-South Collaborative Activities with Institutions in Africa

Clinical rotations	<ul style="list-style-type: none">• University Teaching Hospital (UTH) and Livingstone Teaching Hospital (LTH) in Zambia for pharmacy students from Addis Ababa University, School of Pharmacy.• University of Witwatersrand (Wits) and Stellenbosch University TA for Emergency Medicine/Critical Care fellows, Addis Ababa University School of Medicine.
Learning Resource Program	<ul style="list-style-type: none">• Cochrane Collaborating Centre, South Africa, participates in the Learning Resources Program providing training in evidence based medicine for health professionals from Ethiopia, Namibia, and Zambia.
Technical Assistance	<ul style="list-style-type: none">• CHSR&D Free State University, South Africa - for HIV/TB assessment in Mozambique.
Laboratory Training	<ul style="list-style-type: none">• Cape Peninsula University of Technology (CPUT) to Polytechnic of Namibia (PoN) and to Southern Africa Nazarene University (SANU)/Swaziland.

hospitals and health facilities in the region as well as clinical rotations from the pharmacy partnership. In Zambia, clinical pharmacists from the University Teaching Hospital of Lusaka and Livingstone General Hospital conducted training around the country on new pharmacy concepts. The pharmacy partners are collaborating with emergency medicine partners at Addis Ababa University. There is also a plan for pharmacy students to conduct clinical rotations at Debre Berhan Referral Hospital. The Emergency Medicine Partnership in Ethiopia extended training to professionals, para-professionals, and volunteers in other sectors, as well. It is important to note that partners stressed that Twinning Center offices play an important role in identifying solid opportunities for this type of collaboration, including Twinning Center-sponsored national annual partner conferences, and periodic international partner conferences to promote cross learning between partnerships, strengthen individual partnerships, cross-partnership collaboration, and identify and share lessons learned. Table 3 provides examples of Twinning Partnership achievements in the four countries.

B. Objective 1: Conclusions

Main Achievements of Twinning Partnerships

Evaluators found that Twinning Partnerships were successful in seven areas that are essential to achieving PEPFAR HRH and HSS goals, as detailed in Table 4 and overviewed below:

Capacity of Healthcare Workers Increased

All of the 21 partnerships developed the capacity of health care workers to provide services for HIV and other health problems through pre-service and in-service training programs within the 13 disciplines. In most cases, training was extended beyond in-country partner institutions. Many partnerships provided training to health care workers from affiliated health facilities or curricula were harmonized and adapted by other professional education institutions.

New Cadres of Healthcare Workers Introduced

Six new cadres of healthcare workers and para-professionals were established. In South Africa clinical associate training at the bachelor's level was developed at three universities. Graduates of this mid-level professional degree program have already been employed by provincial health departments in the country. Pharmacy partners created clinical pharmacy curricula. Partners at University Teaching Hospital and Livingstone Teaching hospital in Zambia developed an in-service training model for pharmacists and pharmacy assistants at health facilities in several regions. In Ethiopia, partners established an in-service

training program in clinical pharmacy, having developed new modules for bachelors, masters and doctoral level students. The Institute of Social Work and Ministry of Health and Social Welfare in Tanzania collaborated on development of a training program for Social Welfare Assistant. NGO partners in Zambia and faith-based partners in Tanzania developed palliative care worker training to reach terminally ill and home-bound patients. In both cases, they adopted home care procedures for terminally ill persons and are involved in local and national policy dialogue. Information technology (IT) specialists received training on use of web-based programs on evidence based practice as part of the installation of Learning Resource Centers in all four countries. PSW training programs in Tanzania and Ethiopia trained volunteer PSWs in several regions in both countries who are attending to the social needs of families affected by HIV. Pre-service/In-service Curricula Accredited

Universities and professional training institutes approved or accredited pre-service or in-service curricula at undergraduate and graduate levels in pharmacy (Ethiopia), social work (Tanzania, Ethiopia), nursing (Tanzania), clinical associates (South Africa), and emergency nursing (Ethiopia). In some cases, such as nursing, social work and clinical associates, professional associations and councils have submitted documentation for review by national professional accrediting institutions. For example, standards of practice for clinical associates are under review by a national professional review board in South Africa. Similarly the Tanzania Nursing and Midwifery Council is developing procedures for licensure exams for graduating nurses.

New Models of Care Created

Evaluators found that five partnerships organized or reorganized models of care. Clinical pharmacy partners in Zambia and Ethiopia set up small pharmacies on hospital wards to dispense medication and provide patient education on medication use and adherence, and integrated health care teams for medical rounds. Debre Berhan hospital in Ethiopia created a nursing department with job descriptions, a continuing education program, bedside teaching, and 8-hour nursing shifts, providing 24-hour care. The substance abuse recovery partnership in Tanzania set up a multisectoral model of care engaging mental health, health care, the drug commission, and the interfaith community. The emergency medicine partnership in Ethiopia, in concert with Ministry of Health goals, created interdisciplinary teams of doctors and nurses as emergency medicine fellows in both adult and pediatric care. Using a multisectoral approach, partners provide training in pre-hospital care for health staff, ambulance nurses and drivers, aviation workers and professionals and para-professionals in other sectors. The triangular partnership in social work developed a career ladder approach for PSWs and social welfare assistants through bachelor- and graduate-level training to address the need for social support to families affected by HIV. The CDC Director in Ethiopia urged the evaluation team to recommend that these and other models of care emerging from twinning partnerships be assessed to determine their effect on clinical training and clinical practice.

Health Work Force Strengthened Using Four-pillar Framework

Twinning Center and its partners used a comprehensive four-pillar framework approach to strengthen the health workforce in several disciplines. In Tanzania, partners engaged in curriculum development for pre-service training in nursing, and undertook faculty development measures. At the same time, the Twinning Center and partners provided administrative, financial, and technical support to the revitalization efforts of the Tanzania Nursing Association. TANNA expanded its membership to several regions of the country and developed a resource mobilization strategy. In addition, assistance was provided to the Tanzania Nursing and Midwifery Council to establish a licensure process for graduating nurses. Partners also worked with the Ministry of Health and Social Welfare to reform the role of nursing in primary care.

A similar trajectory was followed by other partnerships, in particular, clinical associates, social work, clinical pharmacy, laboratory services, palliative care, and emergency medicine. In these latter cases, twinning partners concentrated on three pillars, namely curriculum development, training-of-trainers, and professional association building.

Evaluators found this to be a sound and effective framework for developing pre-service and in-service health workforce training and development activities. The approach served to legitimize the training and professional practice within the public policy arena, and improve the professional image in the eyes of the public.

Professional Associations and NGOs

The Twinning Center and its partners fostered professional association and nongovernmental organization development as an integral component of the partnership work plan. For example, in Tanzania, social work partners provided technical assistance to a consortium of 12 emerging schools of social work to standardize and harmonize bachelor and master of social work programs for national accreditation. These programs were reviewed by accrediting bodies, the National Council of Technical Education and the Tanzania Councils for Universities. Professional associations for nursing and social work in Tanzania are now working on developing standards of practice and professional ethics.

The Twinning Center and partners assisted in establishing new associations for clinical associates and emergency medicine. The Professional Association of Clinical Associates of South Africa, a non-profit professional association, was created in 2012 with the Twinning Center's financial and technical support. The Twinning Center supports PACASA's political alignment with the Rural Doctors of South Africa. A Twinning Center consultant assisted with constitution and by-law development and the preparation of documentation needed for the organization's recognition as a legal entity by the South African Government, which was approved in January 2013.

The Ethiopian Society of Emergency Professionals was established in 2012 by the Emergency Medicine Fellows at Addis Ababa University School of Medicine, and its U.S.-based twinning partners. According to the coordinator of the Addis Ababa University emergency medicine partnership, members are health professionals (doctors and nurses) and members of medically related para-professional groups, including ambulance staff, firefighters, aviation workers, hospital and hotel staff, embassy staff, government offices, and private firms. The Ministry of Health is now working with the partners to strengthen and develop the role of this new society. ESEMP hosted a continuing education conference on emergency medicine in October 2012.

The Twinning Center and its partners also provided financial and technical support to organize nongovernmental organizations. For example, PCAZ in Zambia received assistance from the Palliative Care Association of Uganda with organizational development training and a countrywide situational analysis on palliative care. The Twinning Center provided financial and technical support to restructure its board, hire a new national coordinator, and develop resource-generation strategies. PCAZ has since earned government recognition and buy-in for palliative care.

VHC Technical Assistance to Health Authorities Provided in Five Key HSS and HRH Areas

The AIHA Volunteer Healthcare Corps, established in 2006, has placed 93 volunteers in South Africa, Tanzania, and Ethiopia, contributing more than 31,000 in-kind days of work. Table 5 details in-kind VHC contributions. Volunteers are health professionals who function as a complementary conduit to expand the pool of trained health care providers, managers, and allied health staff. They are skilled professionals with extensive experience in their fields, including physicians, pharmacists, laboratory scientists, and infection control specialists and other HIV/AIDS specialists. Their professional service in a

position ranges from three months to two years. Travel-related costs, basic housing, and a modest allowance to cover living expenses are provided to selected volunteers.

The Ethiopia Diaspora Volunteer Program was launched by the Twinning Center in 2006 in collaboration with the Network of Ethiopian Professionals in the Diaspora. The program allows the Twinning Center to

Table 5: Volunteers by Country, Number of Placements, Total In-kind Days⁴

Country*	Total # of Volunteers	Total # of Placements	Total In-kind Days
Ethiopia	51	59	22,314
Tanzania	19	19	4,824
South Africa	22	23	4,192
TOTAL	93	101	31,330

* Zambia does not have a VHC program operating at this time

tap into the Ethiopian diaspora’s shared culture, language, and motivations to contribute in a meaningful way to development efforts in their country of origin. Three volunteers (two current and one former) were interviewed in Ethiopia. The volunteers informed evaluators that they were motivated to make a professional contribution in their own country.

The interviews and Twinning Center quarterly, semi-annual, and annual progress reports to authorities in South Africa and Ethiopia demonstrate the valuable contributions made by professional volunteers to the development of national and regional healthcare workforce, health plans, and systems. The evaluation’s review of AIHA reports and country office semi-annual and annual reports revealed that volunteer technical support has contributed to institutional and human capacity building in five key areas, as shown in Table 6 on the following page.

According to the Director of the Research Unit of the Free State Provincial Department of Health in South Africa, volunteers significantly contributed to the organization of a successful province-wide research conference and to the development of a monitoring and evaluation data system to enable accurate data reporting to the National Department of Health.

CDC staff members interviewed in Ethiopia emphasized the value of the MOH in reinforcing volunteer dedication, motivation, and multitasking, as well as the Twinning Center’s capacity to recruit and deploy volunteers.

The VHC program is valued by health officials, with technical support activities directed toward PEPFAR goals. Although volunteers receive high marks for contributions made, there was insufficient evidence of the measures taken by health authorities to sustain new approaches, systems, protocols, and programs developed with the assistance of volunteers.

Other Achievements

Many partnerships adopted evidence-based practices. For example, in-country partners in South Africa, Zambia, and Ethiopia reported that Learning Resource Centers were installed at their project sites, and that staff, faculty, and students were using the LRCs that provide information on modern professional practice. The nursing partnership in Tanzania purchased mobile libraries for several nursing schools

⁴ Source: Data sent to the evaluation team by AIHA on January 11, 2013.

Table 6: Volunteer Technical Support Contributes to PEPFAR HSS and HRH Goals

Five Key Areas	Highlights
Skills development, educational materials development, and training.	<ul style="list-style-type: none"> • Teaching basic sciences in medical schools in Ethiopia • Serving as tutors in clinical practice supervision for clinical associate students in South Africa • Training medical and nursing staff in early infant diagnosis in Tanzania • Developing hospital human resource capacity to provide physical therapy to people living with HIV/AIDS in Ethiopia • Training for data management staff at provincial health authority on proper maintenance of the database in South Africa • Training in logic models, monitoring tools, and evaluation designs in South Africa • Training for the medical and nursing staff on early infant diagnosis in Tanzania
Strengthening health systems	<ul style="list-style-type: none"> • Assisting regional laboratories in conducting external quality control systems and linking/coordinating regional laboratories with national reference laboratory in Ethiopia • Strengthening the capacity of the National Pharmacovigilance Centre to improve monitoring and evaluate in South Africa • Building the capacity of federal and regional health staff in research, epidemiology, development of M&E systems, and data analysis
Strengthening information systems or technology	<ul style="list-style-type: none"> • Supporting web site and database system development and geographic information system data web site management in Ethiopia • Assessing ART data extraction and reporting from facilities to districts and reporting from districts to a provincial health department in South Africa
Promoting research initiatives	<ul style="list-style-type: none"> • Technical support for planning the First Research Conference of the Free State Department of Health in South Africa
Strengthening communications/public relations	<ul style="list-style-type: none"> • Technical support for developing MOH communications and public relations efforts, including press conferences

Some partnerships in Ethiopia introduced quality improvement (QI) studies. Staff at Debre Berhan Hospital and the Addis Ababa University School of Medicine reported that QI studies were used to increase hand washing, reduce the number of in-hospital days, introduce consumer meetings with hospital management, and improve patient privacy measures and patient education. Masters students in emergency nursing undertook QI studies for their master's thesis project. These partners report that the role of the patient may be slowly shifting from that of a minimally informed advice recipient in a paternalistic system of care to an active participant, as the customer satisfaction model gradually takes hold.

"The great lesson for us is monitoring ourselves and correcting ourselves (doctors, nurses, cleaners), we can change things." – *Clinician, teaching hospital*

Factors Leading to Partnership Success

Evaluators found a number of factors leading to partnership success. In-country partner ability to leverage within their institutions, communities, and with national governments was also evident in the emergency medicine, pharmacy, and clinical associate partnerships. In cases where the in-country partner lacked sufficient access, the Twinning Center was able to leverage its prestige to assist with advocacy, as was reported by the social work partners in Ethiopia.

The emergence of a champion or "star" to catalyze the change process and connect the partnership and government with the community in creative ways was another factor. The Government of Zanzibar identified a champion who catalyzed the change process and connected the recovery oriented system of care (ROSC) partnership to the recovery community. The director and nurses at Debre Berhan Hospital spearheaded a nursing leadership and management initiative that led to the formal establishment of a hospital nursing department and roll-out to other hospitals in the region.

Most partnerships reviewed were rooted in government ownership and buy-in. In the case of emergency medicine, the MOH advocated for this type of partnership in Ethiopia; in Tanzania, the Government of Zanzibar and mainland Tanzania embraced the ROSC partnership for recovery, and the Chief Nursing Officer was a partner in the nursing partnership in Tanzania. The Zambia Defense Force originally requested technical support from the U.S. DoD to provide assistance for integrating clinical skill training and improving access to updated clinical care information for the Military Training School and the Military HIV Coordinator's office. Also in Zambia, the Ministry of Health invited the Palliative Care Association of Zambia to work on the inclusion of palliative care in the country's National Health Policy.

Other factors leading to success were the expertise, skills, and commitment of U.S. partners. In-country partners emphasized how their U.S.-based partners energized their work and helped them develop leveraging skills. A representative from Pare Diocese in Tanzania noted that its U.S.-based partner taught the organization about advocacy: "I had never met the Prime Minister, but when my partner, Empower Tanzania was here, we just popped in to see him." In the case of the social work partnership in Tanzania, an in-country partner underscored this point: "We cooked this up together, integrating theory with practice."

Twining Benefits Reported by In-Country and Resource Partners

All partners, whether Africa- or U.S.-based, agreed that collaborative decision making led to a sense of joint ownership, serving as a key element of true partnership. Several partners shared that they lacked experience in program management and had learned the meaning of 'deliverables'; program planning, and monitoring and evaluation systems.

Nearly all partners noted faculty/professional exchanges, peer-to-peer mentoring, and on-site training as highly motivational for faculty, administration, and staff, increasing confidence, validating their work, and increasing visibility among professional colleagues within their institutions. Several in-country partners reported that twinning helped them form a new vision for clinical practice and service delivery; others mentioned advances in program development and changes in teaching and clinical practice. Clinical associate faculty at the University of Witwatersrand, Walter Sisulu University, and the University of Pretoria in South Africa reported that joint development of annual exams for clinical associate students and the graduation exam developed by all six partners standardized the schools' academic programs, providing quality controls and helping them measure their work against benchmarks.

Peer-to-Peer Mentoring

"Our partner sent experienced faculty with professional expertise who validated the program with the Dean of the School of Health Sciences and clinical associate students and helped with developing student exams."

Clinical Associate Faculty, University of Pretoria

In-country partners highlighted access to and use of new clinical and technical skills. For example, the Military Defense School in Zambia, Muhumbili University of Health and Allied Sciences, and other nursing schools in Tanzania reported that clinical skills labs improved student understanding of clinical practices. A Drug Information Center was installed at Addis Ababa University as a reference center for students and faculty. In addition, the Twinning Center provided financial support for Cochran Library in South Africa to train partners in Zambia, Ethiopia, and South Africa in the use of Cochran online resources available at LRCs located at partner sites for faculty, staff, and students, providing them with ready access to evidence based practice.

In-country partners learned the benefits of quality improvement and its use as an important instrument for improving clinical and administrative practices. This was especially important to faculty and staff at the Addis Ababa University Emergency Medicine Department, School of Pharmacy, and Debre Berhan Hospital in Ethiopia. Both reported changes in clinical practice and professional behavior such as hand washing, infection prevention and control measures, and consumer satisfaction oriented practices based on results of quality improvement projects.

Faculty at the University of Free State's Centre for Health Systems Research and Development in South Africa reported that the partnership had provided researchers with several opportunities to develop new research skills, collaborate with top research institutions, and expand the center's research agenda. They emphasized that exchanges, webinars, short courses, and regular Skype discussions with mentors from State University of New York Downstate Medical College (SUNY-DMC) and the University of Alabama helped them develop research methodologies and use new tools. These advances resulted in the award of three new research projects and increased the center's visibility within the university. "With mentoring, and connecting internationally, we became a Center of Excellence, cemented our relationship with the provincial department of health, and it's prestigious for a university to have international partners," commented a member of the center's research faculty.

Partners also highlighted the career development opportunities that emerged through twinning. For example, social work partners at the Institute of Social Work in Tanzania noted the opportunities for faculty to pursue doctoral studies.

U.S.-based partners interviewed underscored the benefits and valuable experience gained through partnering with institutions and organizations in Africa. This was particularly true for university partners engaged in academic teaching and research who noted the importance of opportunities to develop new collaborative research agendas with partners in other countries, and to expand the possibilities for new publications and papers for presentation.

Faculty at the University of Kentucky, School of Communication and Journalism, reported having gained visibility within their home institution through their twinning partnership with ZAMCOM and collaboration with the Highway Africa media initiative. Communication faculty now play an important role in the University of Kentucky's global initiative. Over one-third of Howard University faculty members gained experience by teaching in the diverse courses introduced through the partnership and in workshops at Addis Ababa University School of Pharmacy.

"Partnership forces the partners to keep current in their profession with any changes in practice to provide evidence-based practices to our partners."
– U.S. hospital physician

Monitoring and Evaluation

The Twinning Center built a monitoring and evaluation (M&E) system and M&E processes to meet the changing needs and requirements of the partnership program as it matured. Within the new M&E framework, an independent monitoring and evaluation plan was set up in 2012, with an evaluation framework focused on four levels.

At the individual partnership level, monitoring is focused on achievement of measurable objectives and activities outlined in partnership work plans. The priority at the country level is to track the key objectives, indicators and targets, outputs, deliverables, and activities of all in-country partnerships, and produce the aggregated semi-annual and annual program documentation required by PEPFAR in-country donors and HRSA. The Twinning Center engages in cross-partnership evaluations to identify outcomes across partnerships working in similar technical areas. Finally, program-wide evaluation examines the broader outcomes of partnerships and the impact of the Twinning Center as it relates to sustained human and organizational change to enhance service delivery.

To monitor partnerships, the M&E system was built to review progress in work plan implementation and monthly financial reporting. The system also tracks partnership exchange trips; in-kind contributions including in-kind time and resources; regular site visits to in-country partner institutions; and partner quarterly progress reports.

The Twinning Center assists partners in developing work plans with measurable objectives, outputs, outcomes, and indicators. Partners are required to submit quarterly performance reports with information on progress in achieving PEPFAR targets and objectives; status of activities and outputs; and constraints affecting the partnership and plans to address the identified obstacles. Quarterly reports are used to prepare AIHA's quarterly reports to PEPFAR Activity Managers (CDC, USAID, or DoD, depending on the particular donor), and serve as the primary basis for monitoring partnership progress. These procedures ensure that the partnerships are in compliance with in-country donor guidelines.

Partners reported having presented a number of papers at partnership annual coordination meetings and national and international conferences; they have published results in national and international reports and refereed journals.

The Twinning Center M&E unit reports that partnership management challenges are primarily due to a lack of partner capacity to provide rigorous M&E feedback at start-up. Reporting is perceived as additional work by some resources partners who are volunteering time. Reporting on PEPFAR indicators also presents a challenge, since measureable outputs often fail to adequately reflect the impact of twinning in building institutional capacity and country ownership,

The Twinning Center supports internal and external assessments and evaluations that provide useful information on the status of its programs. Some partnerships have carried out pre-assessments prior to launching partnership activities—for example, a nursing tracer study in Tanzania and a needs

assessment for the social work partnership in Ethiopia. Another example is the multi-country situational analysis⁵ of the PSW training model commissioned by the OGAC-supported Orphans and Vulnerable Children (OVC) Technical Working Group and conducted in Tanzania, Nigeria, and Ethiopia in 2012.

Graduation

Evaluators found that six partnerships were graduated during the period under review. In some cases, in-country partners had accomplished the original objectives and were ready to proceed on their own or with additional, direct technical support from the Twinning Center. For example, the Ministry of Health identified a partner in Kenya to assist in developing policies and a framework for high-quality voluntary counseling and testing services in Ethiopia. In another case, the Centre for Health Services Research and Development, University of Free State, and SUNY-DMC partnership was graduated in 2010, but the Centre for Health Services Research and Development, University of Free State proceeded with support from the Twinning Center to develop a proposal for a CDC public health evaluation project, which was awarded in 2010 and is ongoing.

Evaluation Objective 2 – Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up

C. Objective 2: Findings

Twinning paved the way for expansion and scale-up of health care work force development, health system strengthening (HSS), and institutional capacity-building initiatives in all four countries visited. Promising approaches and scale-up highlights are summarized in Table 7.

Health Workforce Development

Evaluators found that pre-service undergraduate and/or graduate curricula in clinical pharmacy, nursing, social work, clinical associates and emergency nursing were either newly developed or adapted, and rolled out to 33 university and professional training schools in Tanzania, Ethiopia, and Zambia. A national exam for clinical associate students and graduates was established by three universities in South Africa. To strengthen application of new clinical practices within health systems, in-service training was provided at affiliated hospitals and health care facilities for clinical practice preceptors and other personnel in these institutions. This process resulted in a shift away from the traditional theoretical curricula used by these institutions to competency-based training standardized across a significant number of institutions.

In some cases, a convening body such as the Tanzania Emerging Schools of Social Work brought together representatives of other institutions to harmonize bachelor and masters curricula. This effort increased the capacity of many schools. The Deans' Forum for deans of schools of nursing was another such example. In South Africa, the Twinning Center provided financial and technical assistance to the three university-based clinical associate programs enabling faculty to meet regularly, and established standards for graduate national exams.

Twinning strategies also contributed to the creation of a new model for training and integrating PSWs in community-based caregiving, demonstrating the model's capacity to expand across regions in Tanzania, Ethiopia, and Nigeria to provide social support to persons with HIV/AIDs and other health problems,

⁵ Laura Guyer, Dana Singleton, and Nathan Linsk. Situation Analysis AIHA's Twinning Center Para-Social Worker Training, USAID and Capacity Plus, January 15, 2013.

Table 7: Scale-up and Roll-out of Promising Twinning Approaches

<p><i>Healthcare Work Force Development</i></p>	<p>Pre-service Training</p> <ul style="list-style-type: none"> • Clinical pharmacy curricula were harmonized at 8 schools of pharmacy in Ethiopia, and in-service training was provided to pharmacists and health workers from affiliated health facilities. • Nursing curricula at bachelor and masters level were harmonized and adopted by 7 nursing schools in Tanzania. • Bachelor and master social work curricula were piloted and harmonized with programs at 12 other university schools and professional schools in Tanzania and 6 in Ethiopia. • Clinical associate programs at 3 universities in South Africa developed and standardized a national exam for students and for graduates. <p>In-service Training</p> <ul style="list-style-type: none"> • PSW curricula was developed and implemented by the Institute of Social Work (Tanzania) and Addis Ababa University School of Social Work (Ethiopia) in several regions of both countries, with the training being rolled out in Tanzania by another contractor, with ISW retaining quality control. • Clinical pharmacy training for pharmacists in service at University Teaching Hospital and Livingstone Teaching Hospital in Zambia was expanded to reach pharmacists and pharmacy technicians in health facilities in other regions of the country.
<p><i>Health System Strengthening</i></p>	<ul style="list-style-type: none"> • Interdisciplinary teams in emergency medicine, clinical pharmacy, and hospital management in Ethiopia were developed and scaled up across institutions and sectors. • Emergency medicine, clinical pharmacy in Ethiopia, laboratory services, and substance abuse partners developed in-service training that has reached professionals and para-professional across several sectors, and regions within these countries.
<p><i>Institutional Capacity Building</i></p>	<ul style="list-style-type: none"> • Recovery oriented system of care is a full-service model for substance abuse recovery that was adopted as the core focus of both Government of Zanzibar and mainland, Tanzania. • Zambia Defense Force Learning Resource Center program provides evidence-based medicine through LRCs installed in remote military installations in the country.

especially vulnerable children. This model is contributing to expanding the density and distribution of this cadre.

The Twinning Center and its partners have established a new and extensive knowledge base, grounded in evidence-based clinical practice. In South Africa, Zambia, and Ethiopia, the new knowledge base is grounded in evidence-based clinical practice, enhanced by specialized training and access to modern clinical practice through Learning Resource Centers. In all four countries reviewed, the knowledge base is supported by a wealth of new curricula, materials, models of care, standards of practice, data, and technical resource systems with an enormous potential for scale-up and replication. Curriculum models and other educational products were accredited by the respective institutions involved and, in some cases, by national accrediting bodies.

With advocacy and support of the Twinning Center and its resource partners, in-country partners demonstrated how effective they can be in developing new linkages with academic institutions in their

own countries and have taken advantage of resources and opportunities available in Africa through South-South cooperation.

Health System Strengthening

The team found that clinical pharmacy partners in Zambia and Ethiopia, emergency medicine at Addis Ababa University and the hospital management partnership at Debre Berhan Hospital in Ethiopia developed interdisciplinary health teams that work horizontally across institutions and sectors and vertically to reach the para-professional and volunteer levels. These partners extended this approach to affiliated hospitals and other academic institutions in Ethiopia.

Establishing an interdisciplinary emergency medicine pre-service and in-service training program and integrating clinical pharmacy into the health care team are all quite new in the Ethiopian context. The development of interdisciplinary health teams at Addis Ababa University Emergency Medicine and Pharmacy and Debre Berhan Hospital were characterized by the CDC in Ethiopia as presenting “unique models of integrated health care,” whose experiences are replicable in other settings.

Collaboration between the three partnerships through exchange rotations within Ethiopia has enhanced training opportunities for students and professionals to work within interdisciplinary health teams, gaining experience and know how. In Ethiopia, there is the potential to further extend and replicate these models to the 13 new medical schools under development by the Ministry of Health.

Evidence-based practice (EBP) and QI studies are informing clinical and management decisions; as a result, more decisions will gradually be made by health teams. Some partners report that the role of the patient may be slowly shifting from that of a minimally informed advice recipient in a paternalistic system of care to an active participant, as the customer satisfaction model gradually takes hold in some institutions.

Faculty members stressed that the clinical pharmacy partnership has had a huge impact on the direction of professional pharmacy education and practice in Ethiopia, where pharmacy education was extended to four existing schools of pharmacy and three emerging schools. At the same time, they emphasized the need for continued collaboration on critical issues such as quality assurance and faculty development to ensure sustainability.

Institutional Capacity Building

Twinning partnerships developed replicable approaches to institutional capacity building in nearly all of the initiatives reviewed. To facilitate buy-in and support for policy and systems change, hospital strengthening at Debre Berhan Hospital in Ethiopia involved the hospital board of directors and the human resources and accounting departments. One of the most important twinning approaches reported by hospital administrators was the nursing leadership and management training provided by the North resource partner, Elmhurst Hospital. This training supported a variety of major reforms, the creation of a nursing department and 8-hour shift schedules, reduction of the patient-nurse ratio, establishment of case coordinators and bedside coaching, and decentralization of hospital management and decision making. All of these measures contributed to improved quality of care and hospital efficiency.

The substance abuse recovery partnership in Tanzania followed a similar trajectory. Beginning at the staff level, partners shared experiences, jointly developed and conducted in-service training, and developed new systems of care; subsequent partnership efforts went on to reach the upper levels of government in Zanzibar and later mainland Tanzania. Partners developed solid relationships with diverse actors within the government, interfaith community, families, and the private sector to support recovering addicts, enable public advocacy, and facilitate administrative reform. In Zanzibar, special

outreach efforts that involve 70 judiciary, police, and correction officials in promoting substance abuse programs have proven particularly effective. Substance users who were previously sentenced to 6 months in jail are now being given the option of going to a Sober House. Narcotics Anonymous sessions are now regularly held in prisons. And when residents of Sober Houses leave on outings, the police are notified and know of their whereabouts. Interfaith councils have been established in Zanzibar and on the mainland to support the program and empower those in recovery. With help from U.S. partners, various interfaith leaders (Christian, Muslim, Hindu) in Zanzibar and the mainland have become active in promoting ROSC and the 12-step program that facilitates the program's immediate acceptance.

In Zambia, there is room to expand the Zambia Defense Force (ZDF) Learning Resource Center (LRC) program, currently supported by the Twinning Center within the military. There is high demand for LRCs and a schedule for establishing additional centers. The Defense School of Health Sciences and the Twinning Center are planning for an enlarged LRC once the expanded facility is complete. There is potential to expand this model, once the benefits of the program and its effectiveness on clinical practice are better understood. ZDF LRC program with the military medical system can be diversified in many directions beyond LRCs to address the system's issues with HIV/AIDS, such as evidence-based medicine research and quality improvement of infection control.

In these and other examples, twinning partners provided leadership training and encouraged the use of advocacy to influence policy makers. Most partnerships now actively engage in advocacy and policy issues at the regional and national levels. Partner advocacy efforts are influencing policy change in several areas. In some cases, in-country partners were already well positioned to assume policy and advocacy leadership, but for the most part partners reported that partnerships had opened the door to new opportunities to participate in national advocacy and policy dialogue.

D. Objective 2: Conclusions

Twinning successfully laid the ground work for scale-up of healthcare worker and system strengthening programs and services. By engaging national networks of academic professional training institutions, the Twinning Center and its partners galvanized the expansion and scale-up of competency-based training in five professions across a significant number of institutions in Zambia, Tanzania, and Ethiopia, and para-professional training for PSWs was expanded in three countries. It is important to understand that implementing a large scale pre-service or in-service training program requires a level of administrative infrastructure that may not be available in some in-country academic institutions to effectively manage a national scale-up.

Evaluators observed three levels in strengthening health professions. The first is upgrading the profession through capacity building of current and new staff. The second is retraining large numbers of existing practitioners in the newly adapted skill sets. The third is rolling out pre-service and in-service training to other schools and professions. The twinning model has proven its effectiveness at all three levels from training trainers to actual roll-out. In fact, many partners successfully expanded to affiliated institutions.

Clearly, academic undergraduate and graduate pre-service and in-service curriculum models, standards of practice, lessons learned, and best practices that employ interdisciplinary health teams and use evidence-based medicine for quality and efficiency improvement have significant potential for replication and scale-up in other African countries. It would be important to evaluate these products prior to a roll out to other countries, where health workforce policies, and curriculum accreditation guidelines may differ.

The health care system depends on more than one discipline. In a system, each professional group must coordinate its role and special skills with those of the other professionals with whom its work intersects,

whether they are physicians, clinical associates, pharmacists, social workers or other health workers. Each discipline is an actor in the health care workforce; and each is necessary to strengthen the overall system. Unless disciplines are integrated, the health care system cannot be transformed to provide integrated quality care and treatment for the individual patient. Hospital strengthening and emergency medicine in Ethiopia, addiction recovery in Tanzania, and the clinical pharmacy and palliative care initiatives in Zambia all demonstrated the integration of health professionals into a care, treatment, and support team for the patient. Palliative care providers in Zambia and Tanzania, clinical associates in South Africa, pharmacy workers in Zambia, and social work, emergency medicine, and pharmacy providers in Ethiopia all incorporated at least two of the four pillars in the model.

At the institutional level, twinning partnerships fostered a multi-level hierarchical approach to garner buy in within institutions and across sectors, provided leadership training and encouraged in-country partner advocacy and involvement in policy dialogue, which enabled broader institutional change and reform.

Evaluators found evidence of solid results in health workforce development, health systems strengthening and institutional capacity building achieved thus far by the twinning model in the countries reviewed. These results present a solid basis on which replication and scale-up can be undertaken to meet PEPFAR goals in HRH and HSS goals in Africa. It will be important to adapt these strategies to meet the defined needs and policy contexts of individual African countries.

Evaluation Objective 3 – Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.

E. Objective 3: Findings

This section examines the value added of twinning processes to institutional capacity building, including twinning partner and Twinning Center assistance, based primarily on twinning partner, stakeholder, and Twinning Center reports, as outlined in Table 8.

Partners and stakeholders underscored the importance of resource partner selection, peer to peer mentoring, and collaborative problem analysis and decision making that are integral elements of

Table 8: Partner-reported Value Added of Twinning Process	
<i>Resource Partner Selection</i>	<p>In-country partners were satisfied with:</p> <ul style="list-style-type: none"> • Making the original request to Twinning Center to set up a partnership, and participation in the selection process • Selecting partner best suited to their needs
<i>Peer-to-peer Mentoring and Professional Exchanges</i>	<p>Resource and in-country partners reported mentoring and exchanges:</p> <ul style="list-style-type: none"> • Brought partners together as equals • Contributed to finding mutually beneficial solutions and opportunities to establish trust and build a multidisciplinary team • Provided and opportunity for partners to collaborate, transfer, and share knowledge, ideas, and skills, and learn new ways of doing things
<i>Collaborative Problem Analysis and Decision Making</i>	<p>Resource and in-country partners report:</p> <ul style="list-style-type: none"> • Collaborative problem analysis and decision-making enabled in-country partners to drive the initiative, and leverage their success and stimulates receptivity to change through professional activities
Partner-reported Twinning Promoted Institutional Capacity Building	
<i>Twinning partners collaborated at multiple institutional/organizational levels to advance the development of sustainable institutional change and reform</i>	<p>Partners undertook capacity-building activities at two levels:</p> <p><u>Programmatic (or departmental) level</u></p> <ul style="list-style-type: none"> • Resource and in-country partners shared and transferred knowledge and skills, engaged in advocacy to build new teaching and training models, introduced modern clinical practices, using evidence-based practices, and established standards of quality <p><u>Institution/organizational management level</u></p> <ul style="list-style-type: none"> • Partnerships engaged directors and staff from multiple levels within their institutions and organizations to collaborate with different levels of management to enable institutional buy-in and enhance institutional change processes
<i>Health Workforce Development</i>	<p>Faculty and training staff report:</p> <ul style="list-style-type: none"> • Pre-service and in-service curricula and faculty development led to training of a range of professionals and mid-level health professionals in competency-based practices to deliver modern health care • Opportunities to generate new knowledge
<i>Professional Association and Non-Governmental Organization Development</i>	<p>Association and NGOs report their:</p> <ul style="list-style-type: none"> • Organizational structures were modernized through board training, strategic plan development, improving public image, and lobbying and advocacy training, as an integral component of the partnership work plan.

twinning. Partners stressed how the open, flexible nature of partnership collaboration, helped them to figure out what steps should come first and follow-up steps, recognize that course corrections are not signs of failure, and let the process evolve. Involving the in-country partner as an equal collaborator from the outset empowers them to become effective change agents within their peer groups and countries. In-country partners stressed collaborative problem analysis and decision-making enabled them to drive the initiative, and leverage their success and stimulate receptivity to change through professional exchange visits.

Through partner interviews, and review of work plans and Twinning Center country-level progress reports to PEPFAR, evaluators found that most twinning partnerships were designed as pilots or as

standard-setting initiatives. Beginning with a narrow, straightforward work plan, institutions built on capabilities developed during the pilot, and as proven viable, they were poised for scale-up in their country. For instance, PCAZ first focused on the development of palliative care guidelines. As the organization advanced in its own development, and gained experience and credibility with national stakeholders, PCAZ became a leading advocacy organization for palliative care in Zambia. The University Teaching Hospital of Lusaka began with the objective of improving ART management for children and has since transformed the practice of pharmacy in the country with the introduction of clinical teams and satellite pharmacies.

Other examples of partnerships where both stability and narrow objectives existed include the development of an HIV curriculum for nurses, later extending to all nursing professional training institutions in Tanzania. Strengthening of the Institute of Social Work, laid the groundwork and creation of a curriculum for the new PSW cadre, outreach to injecting drug users in Zanzibar with an evidence-based recovery program, and training of community health workers in palliative care. These programs started with one counterpart institution and a specific objective. As success was achieved, the partnership advanced its ambitions, expanded the scope, and scaled up operations. With the advocacy and support of the Twinning Center and its resource partners, in-country partners demonstrated how effective they can be in developing new linkages with academic institutions and governmental institutions in their own countries.

Institutional Capacity Building at Multiple Levels

Twinning partners approached actors at different levels of the institutional or organizational hierarchy to ensure that institutional changes could be consolidated and maintained. Resource partners engaged directors and staff from multiple levels with different levels of management at recipient institutions. The hierarchical approach used with academic institutions, health care facilities, and NGOs built capacity across a range of academic disciplines and institutional levels. Promoting leadership development boosted faculty development and NGO management leadership, introduced modern management and clinical practice to upper management and clinical practitioners at the same time. As change began to occur, in-country partners gained professional confidence. This approach promoted reform measures at the upper levels of institutions. For example, senior-level managers were involved in professional exchanges, such as in the case of members of the Board of Directors of Debre Berhan Hospital (Ethiopia), ZAMCOM (Zambia), deans of academic institutions in South Africa and Ethiopia, who participated in exchange visits where they had an opportunity to develop an understanding of the basic concepts and practices related to the objectives of the twinning partnership.

At the programmatic (or departmental) level, resource and in-country partners shared and transferred knowledge and skills, engaged in advocacy to build new teaching and training models, introduced modern clinical practices, using evidence-based practices, and established standards of quality. In the case of academic institutions, twinning enabled standardization of training and performance measures.

Through advocacy, academic partners, such as clinical pharmacy partners in Zambia and Ethiopia, social work in Tanzania and Ethiopia, and nursing in Tanzania, were able to leverage university and government accreditation and support for training programs and institutional reforms, promoting more uniform education and health service delivery quality.

LRCs, supported by the Twinning Center and other partners, are the main vehicle used to provide access to evidence-based practice at partnership sites in all four countries. Evaluators observed that the

Partnering Together

“This model allows partners to come together and plan what they want to do together, develop shared goals and work plan with an emphasis on outcomes.” – Director, faith-based organization

installation of 15 such LRCs in remote military installations in Zambia enabled medical assistants to consult directly with medical specialists at the Zambian Defense Forces (ZDF).

New models of integrated health care that were introduced in emergency medicine, pharmacy, and hospital strengthening have produced spin-offs; similarly, pharmacy partners are now basing their curricula on an interdisciplinary approach, which has also been introduced at clinical practice sites in Ethiopia and Zambia, enhancing training opportunities for students and professionals to work in teams and gain experience as part of interdisciplinary health teams. Emergency medicine and Debre Berhan hospital partners in Ethiopia have learned the value of quality improvement. By learning how to monitor patient waiting times and establish and monitor infection prevention and control measures, these partners are improving outpatient services and maximizing efficiency. Another important lesson emerging from quality improvement studies was the need for increased attention to patient privacy, education, and satisfaction. For doctors, simply communicating in Amharic with patients was an important lesson to absorb.

With the exception of the laboratories in Tanzania and at Zambia Institute of Mass Communication Educational Trust (ZAMCOM) in Zambia, where capacity was not sufficiently embedded to withstand personnel changes, new institutional capacity developed through the partnerships appears to be durable in all cases where new practices have been embedded in day-to-day operations. Training and technical support in organizational development, business skills, board and manager training, and revenue generation opened new opportunities for the Palliative Care Association of Zambia to scale up care for patients requiring both home and hospice care, and for sober houses in Tanzania to provide housing, access to basic health and social services, and community support for recovering addicts. In-country partners developed the advocacy skills needed to leverage community support and participation and policy changes.

Health Workforce Development

Curriculum and faculty development activities constitute critical elements in building academic credibility and educational quality for pre-service and in-service training. Academic partners reported that twinning provided opportunities for faculty advancement, both for resource and in-country partners contributing to professional growth and institutional credibility. Co-authoring papers with partners and participating in national and international conferences brought faculty new prestige within their institutions, and for some, national recognition. Faculty at the University of the Free State's Centre for Health Services Research and Development singled out the partnership's efforts to introduce faculty to webinars, provide opportunities for co-authoring and presenting papers, and arrange for advance research courses, professional exchanges, and mentoring, reporting that these were major factors in building the center's capacity to develop new research projects, in particular a CDC-funded Public Health Evaluation and the center's designation as a University Center of Excellence.

In addition, a range of professionals and mid-level health professionals were trained in problem-solving, using competency-based training to deliver modern health care. Revising and upgrading existing curricula was clearly necessary to allow new health care workers to attend to the large volume of patients presenting with HIV or AIDS symptoms and other problems in health facilities; in such an environment, a separate curriculum for HIV/AIDS patients would not be feasible. The evaluation team observed how integrated programs now serve all patients at clinical training sites.

Generating New Knowledge

Some in-country partners reported that the partnerships provided an opportunity to generate new knowledge within their particular discipline. Clinical associate faculty in all three universities in South Africa discussed new studies to improve their understanding of the role and impact of the clinical associate on the health care team. Emergency medicine partners at Addis Ababa University and

University of Wisconsin emphasized that they were jointly developing a research agenda that would be presented to a range of donors. Also, in addition to the award of a CDC Public Health Evaluation grant, Free State University faculty informed the evaluators that they had also received a new grant award to study occupational medicine and HIV from a Canadian donor.

Professional Association and Nongovernmental Organization Development

Evaluators found that twinning partnerships fostered professional association and nongovernmental organization development as an integral component of the partnership work plan. Essentially the same methods were used to reactivate and revitalize existing associations and organizations and create new associations. Financial and technical assistance provided by the Twinning Center and its partners primarily focused on developing modern organizational structures through board training, strategic plan development, improving public image, and lobbying and advocacy training to leverage professional association or NGO influence on public policy processes. Such was the case of PCAZ, an NGO in Zambia. The Twinning Center provided financial and technical assistance to enable the organization to restructure its board, strategic and business plans enabling it to become an independent entity. Technical assistance such as organizational development training, assistance with the strategic plan, resource mobilization planning, and advocacy provided PCAZ with modern tools to manage itself and leverage the introduction of palliative care guidelines and standards as part of Zambia's national health plan.

Similarly, twinning partners trained peers (recovering substance users) from the substance abuse recovery community to establish 14 sober houses, which are now self-supporting. In this case, basic management training, and involving other donors, provided resources needed to maintain sober houses and offer minimal vocational training. Sober houses are currently managed by recovering substance abusers in Zanzibar, who live there voluntarily.

F. Objective 3: Conclusions

Institutional Capacity Building

The twinning approach facilitated the creation of a multi-tiered pre-service/in-service model for health workforce development. Bachelor's and master's degrees and in-service programs were created or upgraded in academic institutions in nursing in Tanzania; social work in Tanzania and Ethiopia; emergency medicine and clinical pharmacy in Ethiopia; and clinical associates in South Africa. In Tanzania and Ethiopia, these academic programs were rolled out to collaborating in-country professional schools.

The team found that twinning with national educational and service institutions in pharmacy, nursing, palliative care, medical care, and social work, and other types of partnerships such as hospital and NGO strengthening contributed significantly to building institutional capacity.

Operational knowledge in managerial, financial, and technical skills and systems, transferred through concrete learning opportunities and practical applications, contributed to improved organizational efficiency and effectiveness at in-country partner institutions and their affiliates. Having been endorsed by universities, regulatory agencies, and ministry of health officials and other policy makers, the programmatic successes in institutional capacity building are being introduced for broader application within national health systems, especially in Zambia, Tanzania, and Ethiopia.

Twinning helped focus training on patient-centered care and assisted in developing new tools to improve the patient experience and the system's responsiveness to their needs. At the service delivery level, twinning activities contributed to better quality, more effective health care delivery for the communities served. While institutionally oriented, the twinning approach produced results far beyond the institutional level. The training and monitoring programs produced new models of care, reaching

care providers at the highest health care system level at tertiary care hospitals, and at the lowest levels of the system in terms of care provided to people who are isolated and suffering at home. People at different stages of illness and people seeking care in diverse venues benefited from the new capacities introduced through twinning partnerships.

Training of the Healthcare Workforce

The evaluation team found that the Twinning Center and its partners added value to different levels of health workforce development. Developing new pre-service training programs and upgrading existing programs for health professionals and para-professionals, together with efforts to support accreditation, has helped raise quality and standardize pre-service academic programs at both the undergraduate and graduate level. Twinning Center partnerships in nursing, social work, and substance abuse recovery were based on a holistic, multidimensional systems approach. Ministry of Health and Social Work officials and other stakeholders in Tanzania believe this approach has been implemented effectively and is transforming the nursing and social work professions in Tanzania.

The intersection of knowledge-based skills with patient-centered care has improved the quality of professional training and patient care for people living with HIV/AIDS, which carries over to care for all patients.

In many cases, partner introduction of evidence-based practices and Twinning Center support to install LRCs accelerated access to information and the development of knowledge bases in partner and affiliated institutions. The Twinning Center and its partners will need to evaluate LRC use to determine the extent of use, identify which data and information resources are most useful, and determine if there are changes in the quality of care provided by users. Similarly, the introduction of quality improvement has provided important lessons for the few in-country partners who are using it. Small-scale studies have shown positive results leading to changes in clinical practice. The Twinning Center will need to assess the merit of these measures and determine the best course for promoting uptake among other partners.

Professional Association and NGO Development

Most of the professional associations and NGOs interviewed for the evaluation reported that improvement of their organizational structures had improved their credibility, legitimized their mission and goals, and reinforced their confidence and forward vision. Evaluators found that twinning added value to the organizational structures of existing professional associations, contributed to building skills in advocacy and management, and legitimized the health and social work professions. In many instances, the twinning partnership made meetings possible by financing the cost of the venue, lunch, supplies, and travel for key stakeholders. This was often the only incentive needed to spur collaboration, particularly when stakeholders were not in the same city. In-country partners were direct in stating that without this funding, stakeholder groups would never have come together due to the cost.

IV. Overall Value of the Twinning Model

Twinning differs from other forms of technical assistance in its scope, the quality of services provided, and the level of interaction among partners at all institutional levels. Twinning can provide a broader range of technical service than traditional forms of technical assistance. It introduces a new body of knowledge and a different way of thinking, along with working models for alternative systems of health care delivery. The Twinning Center resource partners showed they possessed a broad range of experience and in-house resources that could be used to tackle the problems of in-country partners. Over time and working together, partners were able to improve the quality and efficiency of health

services and workforce education and training. Leadership styles, professional relationships, and research methods were all enhanced.

The Twinning Center added value in four significant ways:

- **The Twinning Center selected the best resource partners to meet the needs of in-country partners.** The Twinning Center's role as an orchestrator is pivotal. The center has been effective in matching institutions for partnership; the models offered by North partners have resonated with South partners, and North partners have proved to be insightful mentors to their South partners in adapting the models to their environment.
- **The Twinning Center improved and enhanced the work of partners by supporting organizational development.** Many South partners commented on the business management skills developed with the Twinning Center's help. Simple lessons in how to manage an initiative's progress through work planning, budget development, deliverable deadlines, and assignments of accountability for products were introduced to in-country partners and have changed the way they organize themselves.
- **The Twinning Center opened new horizons for institutions and the professionals and para-professionals it trains.** The Twinning Center facilitated the installation of clinical skills labs to a number of nursing schools across Tanzania, providing additional resources to support competency-based training. The state of knowledge and practice in partner fields has advanced through the introduction of information technology such as LRCs, DICs, and other approaches, the promotion of annual all-partner meetings to exchange experiences and promote joint learning, and support for partners to publish and present the results of their work.
- **The Twinning Center leveraged its prestige to signal the worth of resource and in-country partners.** The Twinning Center added significant value, lending significant credibility to the partnerships as its chief liaison and advocate. It provided the marketing function for introducing new health professions and co-sponsored national and international meetings.

A. Benefits to Countries from Twinning Partnerships

Health workforce development and systems strengthening initiatives undertaken by twinning partners were aligned with PEPFAR Partnership Framework Implementation Plan and government priorities. Government stakeholders and CDC Activity Managers in the four countries acknowledged the contributions made by twinning to support the introduction of new professional cadres that will reduce health worker shortages in countries' health delivery systems. Partners rolled out curriculum reform in nursing, social work, and pharmacy in Tanzania, Ethiopia, and Zambia as key elements of their work plans; several other professional training institutions that participated in curriculum reform adopted these changes as part of their own programs.

These advances have resulted, or will result, in multiplying the number of health cadres in the workplace. The evaluation team observed during country visits that nurses in Tanzania are receiving their training as part of professional training programs and are graduating and beginning to work in health facilities in several regions of the country. In South Africa, graduate clinical associates are working in underserved rural areas, with the prospect of more such graduates over the next few years. In Tanzania and Ethiopia, a sizable number of PSWs have been deployed in several regions and are working at the community level to alleviate the social effects of HIV/AIDS. In Ethiopia, nurses with master's degrees in emergency nursing have graduated and will take up new positions in different regions; in-service training of large numbers of health and non-health workers in the public and private sectors is also occurring. In Zambia, pharmacists and pharmacy technicians in rural areas are being trained in clinical pharmacy.

It remains to be seen whether the governments of these countries will employ and deploy these new cadres of health workers to the best advantage. In some cases, officials informed the evaluators that opportunities for employment are already available. In the case of clinical associates, the Twinning Center informed the evaluators that all 2012 graduates had been contracted by provincial departments of health. In other cases, such as the clinical pharmacy partnership in Ethiopia, faculty expressed some concern about whether the government would create sufficient positions. Evaluators also heard reports about graduates being employed by international NGOs and the private sector.

To reform professional practice, credible peer change agents must take the lead. The prestige of an international twinning partnership validates leaders and gives them leverage to influence others to change. Once the partnership creates a model for reforming the status quo, the in-country institution is in a position to develop the reputation, distinction, and influence to mobilize other forces in transformative systemic change. The twinning model builds on institutions and individuals that are widely recognized as intellectual leaders in a country, who then become standard bearers to lead the change process.

Twinning partners have become extensively involved in national and regional policy issues, contributing to the development of important new health protocols, advocacy initiatives, and health policy deliberations through the provision of technical assistance. The evaluation team learned that partners are represented on national technical working groups in Zambia, Ethiopia, and Tanzania. Partners assisted with the establishment of the Interfaith Council in Zanzibar and mainland Tanzania to address substance abuse issues. The palliative care partners played a leading role in reactivating the Ministry of Health Palliative Care Technical Working Group in Zambia; the emergency medicine partner provided technical assistance to the Ministry of Health for developing an ambulance service protocol in Ethiopia.

While all in-country partners welcome and value the opportunity to partner with a prestigious U.S.-based entity, some in-country partners, such as pharmacy and social work in Ethiopia and health communications in Zambia, also highly valued the provision of technical assistance and support within the African context. In-country partners from all four countries commented that AIHA's support for their participation in regional conferences opened opportunities to network within the African region. CDC activity managers in South Africa and Tanzania underscored the need for a more of a South-South focus in partnerships, and singled out South-South in-country collaboration as a priority.

B. Sustainability of Achievements

Most twinning partnerships reviewed were aligned with Ministry of Health priorities and national health plans, and either implicitly or explicitly endorsed by government. In South Africa, for example, the clinical associate programs were established at Walter Sisulu University, Wits, and UP in response to priorities established in the national health workforce plan in 2008, and twinning partnerships initiated later in 2009 and 2010. In Tanzania, the Ministry of Health and Social Welfare was a member of both the nursing and social work partnerships.

In some cases, partnerships were undertaken at the direct request of a Ministry of Health or other government institutions. This was the case of the Zambia Defense Force that request health information technology partnership with Twinning Center, and has assumed responsibility for maintenance of LRCs installed. In Ethiopia, the Ministry of Health supported a request by Addis Ababa University School of Medicine to establish an emergency medicine partnership.

The main achievements reported under Objective 1 are sustainable if there is a continuing demand for services, if quality is maintained and if there are sufficient sources of income. Curricula were accredited by partner academic institutions and are being offered in institutions in South Africa, Ethiopia, and Tanzania, and have been rolled out to other professional training institutions in Ethiopia and Tanzania.

Accredited curricula, standardized national exams, and institutional changes are embedded in institutional operations and will be sustained. For example, Addis Ababa University accredited its revised bachelor's and master's curricula in social work and pharmacy, as well as the master's in emergency nursing and the emergency medicine fellowships. Faculty support for teaching in these programs will continue. The university's schools of medicine and pharmacy extended their outreach to affiliated hospitals and health facilities and universities in other regions of the country. It remains to be seen how these advances will be sustained.

For new academic programs in social work (Tanzania and Ethiopia), nursing (Tanzania), and pharmacy (Ethiopia), there is no pipeline of professionals with advanced degrees to fulfill current demands for faculty, as yet. However, some institutions have developed plans to ensure a pipeline; for example, the pharmacy partnership in Ethiopia plans for its master in clinical pharmacy graduates to take up teaching posts at schools of pharmacy across the country, provided the government supports these new faculty positions. The emergency medicine partners in Ethiopia plan to deploy master's degree graduates as emergency nursing graduates to assume a teaching role in affiliated schools of nursing.

In South Africa, Ethiopia, and Tanzania, faculty who received mentoring will likely continue in their positions, and fellowships and preceptorships in public institutions are relatively secure. In terms of continuing demand, the clinical associate programs in South Africa reported that new student applications have increased.

In Zambia, the institutionalization of clinical teams and satellite pharmacies in major medical departments at University Teaching Hospital and the Pediatric Department at Livingstone Teaching Hospital has embedded a modern approach to hospital pharmacy practice into hospital operations. In addition, these hospitals have launched training programs to expand the number of pharmacists with the skills needed to work within this new system.

LRCs, DICs, and other Twinning Center IT initiatives depend on various factors: Internet connectivity, physical space availability, equipment maintenance, institutional commitment, and the availability of staff and funding to continue to support operations.

In the case of NGOs, PCAZ has advocated for changes in national policy to ensure that palliative care will be embedded in the care and treatment of suffering patients in the country. PCAZ believes that once the Strategic Framework is approved, funds will be provided to support these services in government facilities. At the same time, the Pare Diocese and Empower Tanzania Initiative partnership successfully attracted private funding for economic development initiatives to generate income to support some of its operations when the partnership ends. The plan is starting a commercial enterprise: producing and selling amaranth, a high-protein grain that can provide low-cost nutritional support for people on ART. While this approach may provide needed support to persons affected by HIV/AIDS, it is not likely to guarantee the continuity of palliative care services currently provided by community health workers.

The main threat to sustainability is that maintaining many of these advances will depend on future government funding, especially since these advances entail higher staffing loads and enhanced maintenance or new equipment. While ministries of health have prioritized health care workforce development in their national plans and policies, and state their commitment to deploying new health professionals, there is no guarantee that additional resources will be forthcoming from governments to employ and deploy new cadres as they graduate from these programs.

Conclusion. Overall, the evaluators found that the Twinning Center and its partners are addressing PEPFAR II human resource for health and health system strengthening priorities, and addressing the need to develop and expand the health workforce and strengthen health services. Most partners are working in concert with ministry of health priorities in countries, in several cases at the direct request of

ministries of health or other government agencies. Pre-service and in-service training programs were accredited for the most part by academic or professional training institutions and will be sustained. There is evidence that some academic programs planned to place graduates of master's degree programs to fill teaching positions in other professional training institutions in their countries.

C. Challenges

The evaluation identified challenges to effective and efficient partnership implementation: absorption of new cadres of healthcare graduates, programmatic evaluation restrictions, graduation, Twinning Center staffing, management and financing practices, and declining levels of core funding.

Absorption of pre-service and in-service graduates in the public sector

The evaluators found that the planning by governments for human resources for health has not kept pace with the achievements of the partners. Similarly, providing quality and continuity of services at the village level can be compromised without provisions for incorporating unpaid volunteers such as PSWs into the paid healthcare workforce. On the one hand, PSWs are the link between PEPFAR and the people; on the other hand, without having expenses or subsistence covered or career opportunities, there is no guarantee of continuity.

The PEPFAR investment in health system strengthening is at risk as long as professionals trained with PEPFAR funding are unable to apply for jobs or to advance within the public system. Once trained in modern practice, health care professionals must have opportunities for employment and advancement in the public sector in order to keep the profession alive. Government remains both the primary provider for the population and employer of health professionals. For pharmacists, social workers, emergency medicine specialists, and palliative care providers, the government's public support for expanding these professional cadres has not been translated into budgetary funding. This issue is being taken up with the government by those leading the partnership initiatives as well as the associations that have been created or revitalized through the partnerships. However, it is also an important dialogue for PEPFAR officials to have with host country governments, especially with ministries of planning and finance.

Lack of guidelines for partnership graduation/termination

Some in-county and resource partners interviewed indicated frustration that their partnerships were ended, even though work plans were not completed. For example, social work partners in Ethiopia informed evaluators that their partnership was graduated. The Twinning Center field office reported that the psycho social care worker (PSCW) model was not advancing and the school's administration had identified other priorities. In another case, a successive leadership turnover issue was the major factor limiting partnership progress, despite strong efforts by the resource partner. In this case, the Twinning Center and CDC informed evaluators that they agreed that termination was the best course of action. In another case, CDC officials informed evaluators that the partnership between the AIDS Resource Center in Ethiopia and the National Clinicians' Consultation Center at UCSF was graduated due to changing needs in the country, and the fact that significant PEPFAR funding was already supporting the AIDS Resource Center through other programs.

Evaluators note that CDC officials in Ethiopia emphasized the importance for the Twinning Center to define an end point to partnerships. While recognizing that the Twinning Center has extensive in-country relationships, the CDC director stated that TC "has too many partnerships for too long, we want them to define an end point." Nine of the partnerships reviewed by the evaluators were established in 2005-2007.

Activity managers and the evaluation team recognize the complexities of managing a multi-year partnership within the annual COP funding process at country level. During partner interviews, it was not entirely clear that twinning partners have an understanding of the complex nature of this funding mechanism. The Twinning Center needs to communicate with partners through published guidelines regarding partnership graduation or termination, and ensure that partner institutions understand the complex nature of PEPFAR annual funding cycles. Finally, CDC officials in two countries emphasized that PEPFAR is in a transitional mode, graduating international partners and moving toward more government and national execution. While partners did not discuss this issue with evaluators, it would seem opportune for the Twinning Center to inform its partners of shifting priorities within PEPFAR funding.

A CDC NRD clearance process that causes delays in data collection intended for program decision making

Partners in Ethiopia and Tanzania reported that the CDC NRD protocol caused delays in data collection efforts intended for program management and decision making. For example, the emergency medicine, and pharmacy partners in Ethiopia reported extensive delays in carrying out assessments and 27 continuous quality improvement (CQI) projects that were halted until the NRD review and approval process was completed. Conversely in South Africa, although partners reported having conducted studies, the NRD protocol was not reported to have caused delays for assessment activities or publishing papers. It was not entirely clear whether the issue was that the NRD protocol was not applied uniformly across countries, or whether partners or Twinning Center had submitted proposals with sufficient advance to avoid delays. However, data collection intended solely for program management purposes serves to expedite PEPFAR's progress in health system strengthening and capacity building. Routine activities such as introduction and implementation of CQI that are commonly accepted practice in health care institutions need not necessarily be subject to NRD review. For partners to make continuous improvements in their programs, a feedback loop is needed to understand how well the new initiatives are working in the field and what must be revised.

Financial and management issues

Most partners reported significant benefits in working with the Twinning Center, in interviews a large number highlighted Twinning Center support as helping them focus their work. At the same time, some partners reported delays in receiving feedback on work plans, and the need for more transparency on budgetary issues for partnership activities, delays in receiving approval and funding for activities included in the annual work plan and budget. At the same time, Twinning Center field offices reported that not all activities in the work plan, which is jointly developed by the Twinning Center and the partners are approved in the COP, nor do all proposed expenditures comply with USG regulations.

USG activity managers, especially in Tanzania, reported that the Twinning Center field office staffing was inappropriate and did not meet demands of PEPFAR reporting to their offices. Activity managers, Ministry of Health representatives and some partners in Tanzania expressed concern about delays between the Twinning Center field office and Twinning Center headquarters in approving expenditures, causing delays advancing program activities. Some partners felt there is a need for the Twinning Center field offices to be able to engage in more and earlier planning for sustainability with donors and partners.

In Zambia, evaluators noted, during the visit, that there was a field office director and an administrative assistant to manage a portfolio with three activity managers from three different USG agencies (CDC, USAID, and DoD).

Since the partnership model is built around institutional exchanges and volunteer participation from the resource institutions, these uncertainties add frustration that discourage volunteers, and creates problems with partner institutions. One U.S. partner reported that no exchanges had been allowed for the past 11 months. It is not clear how performance targets are adjusted to account for this situation.

Declining levels of core funding made partnerships more dependent on annual COP funding

Core funding from the HRSA cooperative agreement declined over the past three years. At the same time, COP funding increased in Ethiopia, Zambia, and South Africa, but declined somewhat in Tanzania. It is noted here that increases in the three aforementioned countries does not always guarantee funding for a given partnership. The annual funding cycle of COP programs under PEPFAR does not ensure that the evolution of the South partners will be completed before funding ceases. USG Activity Managers interviewed recognize the importance of workforce strengthening using a mix of pre-service and in-service training to achieve longer-term objectives, and that twinning takes time to develop. The Twinning Center and USG are both clear that the twinning model does not always fit into the COP annual funding cycle. Time is needed to embed the organizations with the processes and procedures needed to make them resilient to changes in personnel and business/economic cycles. The annual funding cycle of COP programs under PEPFAR does not ensure that the evolution of the South partners will be completed before funding ceases. This is a situation that may become a greater challenge as PEPFAR gradually undergoes a transition to supporting country-driven initiatives with less support for international organizations.

A. Recommendations

For Twinning Center

1. TC program and financial management systems need to be adjusted to quickly address country-level staff shortages and shortcomings; expedite turn-around for program and financial management functions; and step up/intensify in-country partner training in organizational management and business skills.
2. Strengthen Twinning Center headquarters financial transparency and communications between headquarters and partners.
3. Establish guidelines for partnership graduation and/or termination and ensure that resource and in-country partners fully understand the guidelines and the complexities of PEPFAR annual funding cycles.

For the Twinning Center and PEPFAR

1. Increase donor dialogue with country governments to plan for expanded health workforce capacity. This will require discussions not only with ministries of health, but also with ministries of planning and finance, as well as with parliamentary leaders.
2. Streamline CDC NRD approval process to accelerate program implementation, quality improvement, and assessment of program effectiveness. The Twinning Center should expedite preparation of CDC NRD protocols so that it is possible to conduct surveys to assess program advances and guide course corrections and determine weaknesses in the system. This will require negotiation with CDC and ensuring that partners understand CDC guidelines and their application at the country level.
3. Adopt the four-pillar framework for health workforce strengthening and use twinning partnerships to pilot and test new healthcare workforce development models, especially for pre-service training programs with academic and professional training institutions.
4. Promote interdisciplinary teams development, both within the health professions as well as across social sectors, as an vital component of integrated health care delivery, with an emphasis on pre-service education that provide new health care workers with competency-based training to modernize service delivery.

5. Expand South-South collaboration through exchanges and mentoring within Africa for professionals to share experiences and learn from each other, and explore how to develop twinning partnerships within Africa. This was a recommendation made to the evaluation team by CDC Activity Managers in South Africa and Tanzania. This approach need not limit participation of U.S.-based partners who brought considerable commitment and drive to twinning thus far. However, the model should be shifted to increase the involvement of African institutions in South-South partnership and collaborative activities. While there may be some reluctance within the COP process to allocate funds for representatives of institutions to travel to other countries for training and rotations, evaluators found that these experiences provided unique opportunities for professionals and leaders to observe and put their new skills in practice. Also, explore in-country partner preferences for online learning opportunities such as webinars, online and tele-mentoring, and leadership enhancement, as lower-cost measures that can enhance twinning and technical assistance interventions.
6. Assess and benchmark the effectiveness of pre-service training curricula on performance in teaching and in clinical practice across academic and professional training institutions where curricula were harmonized and rolled out, prior to replication and scale-up to other countries. As previously emphasized, expansion and scale-up of academic and in-service training and systems-strengthening models is already under way with affiliated institutions. Potential users of such products need to know that these products are high-quality models and correspond to scientific criteria of good practice. The CDC Director in Ethiopia emphasized the important advances in health care delivery that twinning has developed, characterizing them as “unique models of integrated health care,” that should be carefully evaluated. Indeed, there is a need to examine and evaluate the effectiveness of the new curricula, models of care, and utility of data systems and technical resources to determine whether they have a mid- to longer-term effect on faculty, student, and graduate cadre clinical performance, and how they might be used in other countries with different health workforce priorities and contexts.
7. Disseminate program information more broadly throughout PEPFAR and promote replication and scale-up of effective models. The evaluation team reviewed a substantial list of refereed publications, professional reports, presentations, and abstracts provided by country offices and partners. Curricula, training materials, and publications were not always readily available on the Twinning Center web site. Twinning partnership products should be made available to institutions beyond conference presentation and publication.

Annex A. AIHA Twinning Center Evaluation Scope of Work

BACKGROUND

The Contractor shall work with AIHA to conduct and complete a comprehensive evaluation of the AIHA HIV/AIDS Twinning Center Program in Africa.

Services to be provided by the Contractor shall be performed in accordance with Scope of Work to this Subcontract:

SCOPE OF WORK

This scope of work describes a proposed evaluation of the HIV/AIDS Twinning Center Program that is managed by the American International Health Alliance (AIHA) and funded by the President's Emergency Plan for AIDS Relief (PEPFAR). The aim of the evaluation is to inform the Health Resources Services Administration (HRSA), the Human Resources for Health (HRH) Technical Working Group (TWG), and the Office of the Global AIDS Coordinator (OGAC) regarding the following objectives:

- Assess and document the collective achievements of the twinning partnerships towards reaching PEPFAR II goals;
- Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up;
- Assess and document the "value added" of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building; and
- Recommend HRH and HSS program strategies that are responsive to both existing, as well as anticipated, field needs.

In order to meet these objectives, the Contractor will recruit an appropriate Evaluation Team with sound technical qualifications to carry out the evaluation. After the Evaluation Team has been approved and the evaluation protocol has been drafted, the Contractor will be responsible for managing the multi-country research clearance process required by HRSA/CDC for all program evaluations. Soon after the non-research determination (NRD) has been obtained, the Evaluation Team will visit up to five (5) countries for quantitative and qualitative data collection around Twinning Center activities, achievements, and lessons learned. Upon completion of field work, data collection, and analysis, a final report and associated donor briefing documentation will be produced by the Evaluation Team and approved by both AIHA and its donor agency (HRSA).

The AIHA HIV/AIDS Twinning Center Program Evaluation will consist of six distinct phases, each of which requires at least one deliverable to be produced for and approved by AIHA. The identified phases are as follows:

Phase 1: Evaluation Team Selection and Recruitment

The Contractor will be responsible for identifying, selecting, and recruiting an Evaluation Team with sound technical qualifications to carry out the protocol development, field visits, data collection, analysis, report writing, and formal debrief presentations to AIHA and HRSA.

The Evaluation Team is expected to be comprised of no fewer than two senior-level technical experts with experience in health service delivery, professional health education, institutional capacity building,

and program evaluation in a developing context.

Although the Contractor has already listed suggested personnel in response to this solicitation, care must be taken to formally present and receive final approval from AIHA.

Once the list of candidates has been approved, the Contractor will be responsible for recruiting and setting up consultancy agreements/commitments from the identified Evaluation Team members.

If, for any reason, a member of the Evaluation Team is unable to perform or complete the duties associated with this evaluation, it will be the responsibility of the Contractor to consult with AIHA and make adjustments accordingly, including personnel changes, structural revisions to the team, and/or in-house technical support to complete the project.

Phase 2: Team Planning Meeting

Once contracted, representation from the Evaluation Team, the QED Project Team, AIHA, and HRSA will hold a two-day Team Planning Meeting in Washington, DC to:

- Review and clarify any questions about the evaluation's scope
- Define and agree on the roles and responsibilities of the Evaluation Team members, including drafting responsibilities for the evaluation report
- Define the steps and agree on roles and responsibilities for the team members to complete the multi-country NRD process with CDC
- Confirm the itinerary for Twinning Center countries and projects visited by the Evaluation Team
- Identify partners and key informants involved in the task and agree on an approach to working with these groups/individuals
- Review and confirm evaluation questions
- Develop a data collection plan
- Develop a realistic work plan, including realistic objectives and outcomes for the assignment
- Orient the Evaluation Team to any report guidelines, administrative procedures, and financial forms as needed

This meeting will be important for laying the groundwork for the final scope, roles, and responsibilities associated with the evaluation.

The Evaluation Team (in consultation with the Contractor) is expected to produce a detailed work plan at the within a week of the Team Planning Meeting for collecting the necessary information and data to produce the final report and dissemination materials.

The work plan should explain the steps required to achieve a formal non-research determination from HHS/HRSA/CDC, as well as the actual protocol development, field visits and data collection, analysis, report writing, and dissemination activities. This process should include plans for conducting interviews with implementing partners, HRSA and CDC project officers and activity managers, USG country teams, and other key stakeholders at the headquarters, national, and in the field, based on Team Planning Meeting discussions.

The plan should also incorporate a bibliography of background materials previously provided and/or currently required, including annual work plans for all relevant partnerships; PEPFAR country operational

plans and/or narratives; and any annual, semi-annual, and quarterly reports for the period of the evaluation.

Phase 3: Protocol Development

After The Contractor and AIHA have identified all stakeholders to be interviewed and have reviewed the draft list of evaluation questions, The Contractor will be responsible for finalizing all documentation associated with the evaluation protocol. This will include (but may not be limited to):

- Project Proposal/Overview Documentation (The “Project” summary documentation, including project objectives, populations studied, methods, etc.)
- All relevant interview scripts, focus group guides, and data collection instruments (e.g., US Partner Institution, Host Country Partner Institution, HRSA HQ, AIHA HQ, AIHA Field Office, Host Government, USG Country Office)
- Informed Consent documentation

Phase 4: Research and Ethical Clearance

The Contractor will be responsible for submitting a multi-country request for Project Determination & Approval; assistance will be provided by HRSA at HHS/HQ level, as well as AIHA headquarters and field office staff to ensure proper documentation and routing of the request. It will be the responsibility of the Contractor to manage and follow up on the process in order to achieve a comprehensive Non- Research Determination (NRD) from CDC CGH ADS/ADLS—either at the country level or from Atlanta, GA.

Phase 5: Field Visits and Data Collection

Upon receiving formal clearance from CDC to conduct the multi-country evaluation, the Contractor will work with the Evaluation Team and AIHA to formalize an itinerary for the evaluation field visits, both domestic and overseas. Once identified, the Evaluation Team will work directly with AIHA staff to manage travel, accommodation, Visas, logistics, and all other associated travel expenses related to field work.

While on the ground, the Evaluation Team will visit AIHA headquarters, country offices, partner institutions (both in the US and abroad), government stakeholders, and USG technical officers; collect data and conduct interviews with key stakeholders identified during the Team Planning Meeting; and whenever possible, debrief appropriate USG staff prior to the team’s departure.

Country Reports: For each country visited, the Evaluation Team should provide a country report including a comprehensive list of sites and partnerships visited, stakeholders interviewed, AIHA program background, and salient preliminary findings/lessons learned related to the original evaluation objectives outlined above. Each country report should be no longer than 20 pages in length and the content provided can be incorporated into the preliminary/final reports and/or annexes.

Phase 6: Report Writing and Dissemination

Preliminary Report: Upon completion of all field work and data collection, the Contractor will work with the Evaluation Team to submit a preliminary report including findings and recommendations. This report will highlight achievements and best practices, as well as shortcomings and lessons learned. This report should not exceed 40 pages in length (not including annexes, lists of contacts, etc.). This draft will include findings and recommendations for AIHA, HRSA, and the USG Mission for review. It is expected that a preliminary report will be available in draft form within 45 days of field work completion; AIHA will have 4 weeks to collaboratively review the preliminary draft for factual and focal considerations.

AIHA/HRSA Washington Debrief: Once the preliminary draft has been reviewed by AIHA, the Evaluation

Team will present two presentations on the major findings of the Twinning Center Program Evaluation to 1) HRSA Headquarters and 2) the OGAC HRH Technical Working Group through PowerPoint presentations. These debriefs will include a discussion of past achievements and issues, as well as any recommendations the team has for future programming.

Final Report: The Contractor, through its Evaluation Team, will submit the final report to AIHA. AIHA will sign off on the report and send the final formatted version to HRSA within one work week of receipt. This report should not exceed 50 pages in length (not including appendices, lists of contacts, etc.). The format will include executive summary, table of contents, findings and recommendations. The report will be submitted in English electronically. The report will be disseminated within HRSA. A second version of this report excluding any potentially procurement sensitive information will be submitted (also electronically in English) for dissemination among implementing partners, stakeholders, and the general public. This second version of the report will be 508 Compliant.

The final report document will be edited/formatted by QED and provided to HRSA approximately one month after HRSA has reviewed the content and approved the final revised version of the report. This final revised version of the report can be used as a working document while final report editing/formatting is in process by QED.

Annex B. Twinning Center Evaluation: Analytical Framework

QUESTIONS AND SUB-QUESTIONS	METHODS/INSTRUMENTS
1. Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals.	
Partnerships	
1.1.1 What have partners contributed?	Data review: The evaluation team will review the various project documents and reports (Work plans, Site visit reports, Annual, Semi-annual and Quarterly reports (from AIHA HQ to HRSA HQ) Other relevant materials
1.1.2 What types of partnerships have been successful?	
1.1.3 Have there been changes in the types of twinning partnerships over the time frame of the evaluation?	
1.1.4 Is there collaboration between similar partnerships within countries or between countries?	
1.1.5 What is the contribution of South-South partnerships? How have partners (both US and South) benefited from their partnerships?	
1.1.6 How have countries benefited from twinning partnerships?	
Volunteer Healthcare Corps	Interviews and Consultation Meetings
1.1.7 How do volunteers contribute to implementation of PEPFAR II goals	
1.1.8 What criteria are used to select volunteers?	
1.1.9 What types of volunteer programs have been most successful?	
1.1.10 How do volunteers benefit from their placements?	
1.1.11 How do individual institutions and countries benefit from placement of volunteers?	Country visits: South Africa, Zambia, Ethiopia, Tanzania
1.1.12 What is the long-term added value of VHC?	
Monitoring and Evaluation	In-person /Telephone/ email interviews: US government (HRSA/OGAC/HRH and HSS Technical Working Group), USG mission staff, AIHA headquarters and field staff, TC Southern and US partners, local stakeholders/line ministries, AIHA VHCs, AIHA Twinning Program students graduates in the Field
1.1.13 How are partnerships monitored? Have indicators been developed to measure progress?	
1.1.14 How are outcomes of partnerships currently assessed?	
1.1.15 How do we use the data collected from the partnerships?	
1.1.16 Have results been analyzed and reported?	
1.1.17 How is quality assessed?	
1.1.18 How have the results of partnerships been disseminated to promote best practices?	
1.1.19 Have there been publications, abstracts or posters representing twinning partnerships at professional conferences?	
Sustainability	
1.1.20 Is there evidence of sustainability of partnerships beyond the funding period?	
1.1.21 Do partnerships have sustainability plans? If so, how have they implemented these?	
1.1.22 What are the criteria for graduation? How many partnerships have graduated?	

2. Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up.	
2.1.1 What factors were necessary for successful adaptation of programs to meet the needs of local communities and circumstances?	<p>Data review: The evaluation team will review the various project documents and reports (Work plans, Site visit reports, Annual, Semi-annual and Quarterly reports (from AIHA HQ to HRSA HQ) Other relevant materials</p> <p>Interviews and Consultation Meetings</p> <p>Country visits: South Africa, Zambia, Ethiopia, Tanzania</p> <p>In-person /Telephone/ email interviews: US government (HRSA/OGAC/HRH and HSS Technical Working Group), USG mission staff, AIHA headquarters and field staff, TC Southern and US partners, local stakeholders/line ministries, AIHA VHCs, AIHA Twinning Program students graduates in the Field</p>
2.1.2 Are there any lessons learned or best practices from the Twinning Center that have already been successfully adopted and/or replicated by other donor projects and programs or by national governments?	
2.1.3 Are there especially innovative or promising technical approaches and strategies that should be applied in any future HRH or HSS programming?	
2.1.4 Are there technical approaches or strategies that should not be continued in the future? Why?	
2.1.5 Which programs/interventions appear to have the greatest likelihood of sustainability beyond the life of the project and/or broader replication?	
2.1.6 Are there particular characteristics of programs that increase the likelihood of sustainability and/or replication?	

3. Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.	
Institution strengthening of academic institutions and healthcare facilities	
3.1.1 What types of institutions have benefitted from the Twinning Center’s institutional strengthening?	<p>Data review: The evaluation team will review the various project documents and reports (Work plans, Site visit reports, Annual, Semi-annual and Quarterly reports (from AIHA HQ to HRSA HQ) Other relevant materials</p> <p>Interviews and Consultation Meetings</p> <p>Country visits: South Africa, Zambia, Ethiopia, Tanzania</p> <p>In-person /Telephone/ email interviews: US government (HRSA/OGAC/HRH and HSS Technical Working Group), USG mission staff, AIHA headquarters and field staff, TC Southern and US partners, local stakeholders/line ministries, AIHA VHCs, AIHA Twinning Program students graduates in the Field</p>
3.1.2 How have the institutions benefitted?	
3.1.3 How have end users benefitted from this institution strengthening?	
Training of the healthcare workforce (distinguish between pre-service, in-service and/or continuing education)	
3.1.4 What types of workers have been trained by Twinning Center partners?	
3.1.5 How many trained?	
3.1.6 Have some trainees become trainers?	
3.1.7 Have there been developments in local or regional networks in Africa to facilitate sustainability of programs?	
3.1.8 How is this training of healthcare workers improving access to HIV care and treatment services?	
Improving organizational development	
3.1.9 Has the Twinning Center built the capacity of local NGOs? If so, what types of NGOs and programs have benefitted?	
3.1.10 How does the Twinning Center build organizational capacity of larger institutions?	
3.1.11 What tools does the Twinning Center use to measure organizational capacity?	
3.1.12 What has been the impact of the increased capacity of local institutions and their staff?	
Professional association building	
3.1.13 How does twinning strengthen professional organizations? What types of professional associations have been established and/or supported by the Twinning Center?	
3.1.14 How many associations have been established as a result of the Twinning Center and its partners?	
3.1.15 Has the Twinning Center built the capacity of existing associations in-country? If so, how?	
3.1.16 What are the benefits of establishing and/or strengthening these associations? What is the long-term impact?	

4. Recommend HRH and HSS program strategies that are responsive to both existing as well as anticipated field needs.	
4.1.1 How have Twinning Center programs assisted in building capacity of schools of the health and allied professions in host countries by designing and collaborating on curriculum development?	<p>Data review: The evaluation team will review the various project documents and reports (Work plans, Site visit reports, Annual, Semi-annual and Quarterly reports (from AIHA HQ to HRSA HQ) Other relevant materials</p> <p>Interviews and Consultation Meetings</p> <p>Country visits: South Africa, Zambia, Ethiopia, Tanzania</p> <p>In-person /Telephone/ email interviews: US government (HRSA/OGAC/HRH and HSS Technical Working Group), USG mission staff, AIHA headquarters and field staff, TC Southern and US partners, local stakeholders/line ministries, AIHA VHCs, AIHA Twinning Program students graduates in the Field</p>
4.1.2 Identify and describe particularly successful examples of Twinning Center partner coordination efforts at the country level including both challenges and solutions in coordination efforts.	
4.1.3 What strategies could HRSA, USG missions, and partners potentially adopt to strengthen management of future Twinning Center projects and their integration within USG country-level portfolios?	
4.1.4 What additional critical management issues for Twinning Center activities (including partner, host country governments, and US funding agencies) should be considered moving forward?	

Annex C. Partnerships by Year Initiated, Goal, Partnership Type, Type of Training, South-South Cooperation

Tanzania: Partnerships by Year Initiated, Goal, Type of Partnership, Type of Training, South-South Cooperation

Partnership	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-country/ Between Countries)
<p>School of Nursing at Muhimbili University of Health and Allied Sciences (MUHAS); Ministry of Health and Social Welfare’s Nursing Training Unit; Tanzania National Nurses Association (TANNA); Tanzania Nurses and Midwives Council (TNMC); and AIHA</p> <p>Former partners: University of California, San Francisco (2008-2011) (graduated) University of Michigan (graduated)</p>	2006	To improve of the quality of nursing by strengthening the nursing profession with the ultimate goal of producing a more competent workforce that yields improved health outcomes	North-South	University–university, MOHSW, national associations, and councils	<p><u>Pre-service/In-service:</u></p> <p>International exchanges, nursing-gap analysis, tracer study completed in participating schools</p> <p>Revamped competency- based curriculum, 12-module HIV/AIDS nursing curriculum used in 65 nursing schools</p> <p>New 28-module nursing curriculum for primary care</p> <p>New curriculum for certificate, diploma, and advanced diploma</p> <p>Skills Labs usage</p> <p>Organizational and Board development and strategic planning</p> <p>International Council of Nursing Mobile Libraries</p>	Cooperation with 7 schools of nursing in Tanzania
Tanzania Institute of Social Work (ISW)	2006	To improve PLWHV social services and	Triangular	Public university and	<u>In-service:</u> International exchanges to	Cooperation with 12 schools

Partnership	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-country/ Between Countries)
<p>Jane Addams College of Social Work (JACSW) and Midwest AIDS Training and Education Center at the University of Illinois at the College of Medicine at Chicago</p> <p>Tanzania Social Work Association (TASWA) and U.S.-based National Association of Social Workers</p>		<p>support to orphans with the knowledge and skills necessary to ensure comprehensive social services to children affected by HIV/AIDS throughout Tanzania</p>		<p>NGO – public university</p>	<p>U.S. and Ethiopia HIV/OVC in-service training of ISW faculty</p> <p>10-day training for PSW</p> <p>Revised PSW training—1 yr.</p> <p>Mainstreamed HIV/OVC into bachelor’s degree curriculum</p> <p>New curriculum for first master’s degree program</p> <p>Social work research</p> <p>Leadership and management training of TASWA and TESWEP</p>	<p>of social work in Tanzania</p> <p>ISW and IntraHealth’s Tanzania Human Resource Project (THRP) trained an estimated 6,000 PSW, 600 PSW supervisors and 100 master trainers in 9 districts; ISW and MATEC provide trainers and M&E oversight of training</p>
<p>Evangelical Lutheran Church in Tanzania’s Pare Diocese and an Iowa-based consortium led by Empower Tanzania</p>	<p>2007</p>	<p>To strengthen palliative care capacity in Tanzania’s Pare Diocese (Same and Mwanga districts in Kilimanjaro Region) by training both medical and non-medical workers to provide high-quality care and support to PLWHV</p>	<p>North-South</p>	<p>Faith-based organization – faith-based organization</p>	<p><u>In-service:</u></p> <p>Palliative care</p> <p>International exchanges</p> <p>Nursing supervisor training</p> <p>21-day CHW curriculum</p> <p>Nurse supervision of CHWs</p>	<p>-</p>

Partnership	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-country/ Between Countries)
Ministry of Health and Social Welfare and Boulder Community Hospital (BCH) in Colorado	2006	To strengthen the capacity of Tanzanian laboratories to provide quality diagnostic services in support of HIV/AIDS diagnosis and treatment, and mentoring by providing ongoing mentorships in the application of related trainings and standard operating procedures developed for the country's labs	North-South	Non-profit community owned hospital – MOHSW	<u>In-service:</u> International exchanges Mentorship training on 12 quality systems essentials (QSE) for labs IT training 13-module lab quality management system Safety, quality, and management guides NHLPC inspection checklist Code of ethics and professional conduct	-
Tanzania Ministry of Health and Social Welfare's Zanzibar Department of Substance Abuse and Prevention and Mainland Non-Communicable Disease, Mental Health, and Substance Abuse Department and Drug Control Commission are working with Great Lakes Addiction Transfer and Technology Center and Detroit Recovery Project	2007 Zanzibar 2009 Mainland	To improve quality of life by reducing HIV rates among substance users on mainland Tanzania using a recovery-oriented system of care framework across Tanzania (mainland and Zanzibar)	North-South	NGOs (non-profit organizations) – national government and university	<u>In-service:</u> Peer-to-peer mentoring International exchanges Recovery-oriented systems of care (ROSC) Narcotics Anonymous (12 Step)	Drug Control Commission Zanzibar and mainland Leaders of recovery programs, Zanzibar and mainland faith leaders, judiciary, law enforcement personnel

Zambia: Partnerships by Year Initiated, Goal, Type of Partnership, Type of Training, South-South Cooperation

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
Pediatric ART Centers of Excellence University Teaching Hospital (UTH), Livingstone General Hospital (LGH), Center for International Health, Milwaukee, Wisconsin	2006	To improve the quality of care provided by pharmacists at Pediatric ART Centers of Excellence in Lusaka and Livingstone	North-South	NGO (area-wide consortium of government, and public-private university partners) – public teaching hospitals	<u>In-service:</u> Training provided to 160 Zambian pharmacists and pharmacy technicians 19 pharmacists trained as master trainers to roll out HIV clinical pharmaceutical training in rural health facilities 99 pharmacists and pharmacy technicians trained in HIV/AIDS care, medication adherence, pediatric HIV/AIDS care, and drug adverse patient-tracking	UTH and LGH provide rotation opportunities for AAU/School of Pharmacy/Ethiopia clinical pharmacy students
Palliative Care Association of Zambia (PCAZ), Palliative Care Association of Uganda (APCA), 2005- 2010 AIHA	2005-2010 2010-present	To position PCAZ as the lead organization in implementation of palliative care and to be custodian of standards of care and training in Zambia	South-South	NGO – NGO	<u>In-service:</u> Trained 89 health professionals and 332 community caregivers in pediatric palliative care Trained 11 hospice managers, finance officers, senior program staff, and board members in organizational and strategic capacity building	-

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
Zambia Defense Forces (ZDF) AIHA	2005	To create a replicable and integrated model of HIV/AIDS treatment, care, and support, including enhanced access to evidence-based practices, to improve the management of ART patients	-	Zambia Defense Force with Twinning Center	<p><u>In-service:</u> 36 medical assistant students are now enrolled in a program with a 15-week block on basic medical, a 2-year deployment to work under clinical officers, and a final 15-week academic block at the school</p> <p>346 health care workers completed in-service training in 2012</p> <p>25 military personnel, including commanding officers, nursing directors, medical officers, and site managers, trained in research techniques, access to evidence-based practices, and how to train in these areas</p>	

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
ZAMCOM, University of Kentucky, School of Journalism and Telecommunications	2008	To strengthen journalists' ability to report on HIV/AIDS issues through various media outlets	North-South	Public university – government-sponsored entity	<p><u>In-service:</u> Between 2007 and 2012, 463 health workers, media professionals, and policy makers were trained</p> <p>Journalism workshops in Chipata, Kitwe, and Livingstone for 18 community members to produce radio programs related to HIV/AIDS</p> <p>23 community members, rural journalists, and radio producers trained on HIV/AIDS reporting, participatory communication, and behavioral journalism</p> <p>29 media professionals and radio personalities trained in effective and accurate reporting of HIV/AIDS in the media</p>	ZAMCOM participates in the Rhodes University annual Highway Africa media conference

Ethiopia: Partnerships by Year Initiated, Goal, Type of Partnership, Type of Training, and South-South Cooperation

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
AIDS Resource Center (ARC), AIDS Treatment Information Center (ATIC) Uganda	2006	To strengthen the community AIDS hotline services and recognize the need for a hotline that will provide technical information to health care providers	South-South	Government – government	<u>In-service:</u> Training Fitun Warmline staff in HIV topics Increased volume of calls to more than 3,000	Provides access nationally
AIDS Resource Center (ARC), National Clinicians’ Consultation Center (NCCC) of the University of California, San Francisco/National AIDS Resource Center (ARC)	2009 Graduated 2012	To strengthen the clinical consultation skills of Fitun Warmline staff by providing continuing clinical education on ARV therapy and clinical consultation methodologies	North-South	Public university – government entity	Continuous quality improvement (CQI) integrated into partnership	
Debre Berhan Hospital, ⁶ Elmhurst Hospital	May 2007	To provide care and antiretroviral treatment services for PLWHA, and create professional development opportunities for hospital staff and managers through	North-South	Public hospital – public hospital	<u>In-service:</u> International exchanges to U.S. and Ethiopia and short courses (Board of Directors, Administrator, Human Resources, Accounting, clinical staff) Nurse Leadership and Management	Partners established peer relationships with Debre Berhan Health Science College and two adjacent hospitals, Mehal Meda and Enat

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
		training and mentoring				Hospitals, to incorporate nursing standards across institutions
<p>Addis Ababa University, School of Social Work</p> <p>Jane Addams College of Social Work (JACSW) and Midwest AIDS Training and Education Center at the University of Illinois Chicago</p> <p>Tanzania Institute of Social Work (ISW)</p>	2007 - 2012 (graduated)	To improve social work services, community services, HIV information, and linkages to care, and support people infected and affected by HIV/AIDS in Ethiopia	Triangular	Public university – public university – public college	<p>In-service: Curriculum development and revision,</p> <p>Faculty mentorship and development</p> <p>Supportive supervision for college to support quality pre-service social work degree programs</p> <p>Produced psychosocial care training curriculum and supervision training curriculum</p> <p>742 psychosocial care providers trained in 7 regions of country</p> <p>147 psychosocial care supervisors trained in 6 regions of country</p> <p>83 Ph.D. and MSW students trained as trainers-of-trainers</p>	Training psychosocial care providers and supervisors trained in several regions of the country
Addis Ababa University	May 2007	To strengthen	North-	Private	<u>Pre-Service/In-Service:</u>	Howard

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
<p>School of Pharmacy/ Drug Administration Control Authority (DACA)Ethiopia⁶</p> <p>Howard University School of Pharmacy, College of Pharmacy, Nursing and Allied Health Sciences Partnership</p>		<p>pharmacy services within the health care system by training current and future pharmacists on patient-centered pharmacy care and drug information services</p>	South	University – public university	<p>Developed clinically oriented B.S. in pharmacy program (graduating first class in 2013)</p> <p>Howard faculty taught 5 clinical pharmacy courses</p> <p>Preceptor training for doctors from AAU/School of Medicine and professional exchanges for 4 in the U.S.</p> <p>5 pharmacists from University of Colorado placed for international pharmacy rotation in clinics in the country</p> <p>Developed continuing education guidelines in collaboration with the Ethiopian Pharmaceutical Association (EPA)</p> <p>Established Drug Information Center at AAU/TASH and launched a weekly email alert for pharmacy professionals</p> <p>6 QI projects to improve pharmaceutical practice at TASH</p>	<p>University partners arranged a training-of-trainers for all 7 university schools of pharmacy in Ethiopia</p> <p>Clinical pharmacy student from AAU/School of Pharmacy sent on rotation to University Teaching Hospital Clinical Pharmacy program in Zambia</p>

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
					Developed SOP to manage pharmacy services at AAU/TASH	
National HIV/AIDS Prevention & Control Office NHAPCO, Addis Ababa HIV/AIDS Prevention and Control Office (AAHAPCO)/ VCTLiverpoolKenya/ AIHA	Approved 2007, initiated 2008	To strengthen VCT service provision in Ethiopia through improved quality assurance, policy development, and material development to increase the capacity of the federal Ministry of Health and regional Health offices to develop and support VCT sites	South-South	NGO – government entity	<u>In-Service:</u> Exchange visits to Kenya sharing experiences on HTC quality assurance and quality management Supporting and contributing for development of ten national guidelines, manuals, and modules with National Technical Working Group	National coverage
Addis Ababa University Faculty of Medicine/Emergency Medicine –Adults, Tikur Anbessa Specialized Hospital (TASH/ University of Wisconsin, Madison (UW)/People to People (P2P) Kentucky) ⁸	2009	To provide care and antiretroviral treatment services for PLWH through the strengthening of emergency medical services and education training opportunities	North-South	Public university/NGO – public university	<u>In-service:</u> Developing core faculty by establishing fellowships for doctors and nurses Professional exchanges for adult emergency medicine (EM) fellows, who upon completion of fellowship received diploma in EM from UW and certificate from Ministry of Health Curriculum for doctors, master’s in emergency	

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
					nursing with School of Nursing UW faculty provided mentorship	
Addis Ababa University, Faculty of Medicine, Pediatrics Emergency Department, Tikur Anbessa Specialized Hospital (TASH)/ University of Wisconsin, Madison, People to People ⁹	2010	To support development of the emergency medicine specialty and related in-service training capacity, and improve the delivery of emergency services at Tikur Anbessa Specialized Hospital (TASH), particularly in the pediatrics department within the context of HIV/AIDS	North-South	Public university/NGO – public university	<u>In-service:</u> Professional exchanges for pediatric emergency medicine fellows and training in pediatric emergency and related topics; upon completion of fellowship, fellows received diploma in EM from UW and certificate from Ministry of Health; partners developing standards of care by developing protocols for each disease UW partners conducted research methodology course for 35 faculty and residents, and provided bedside clinical teaching to medical students and residents 2 pediatric EM fellows are teaching in the schools of medicine and nursing and in the new master's in emergency nursing program Partners conducted Basic Life	AAU Pediatric EM fellows will complete their critical care pediatric fellows critical care rotation at Stellenbosch University Faculty of Medicine and Health Sciences in Cape Town, South Africa

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
					<p>Skills Emergency Triage Assessment and treatment training and trained health care workers in pediatric emergency</p> <p>Partners in adult and pediatric EM and UW developed the Emergency Medicine Training Center and plan to jointly establish an international training center as a self-supporting part of the university</p>	

South Africa: Partnerships by Year Initiated, Goal, Type of Partnerships, Type of Training, South-South Cooperation

Partnerships	Year Initiated	Goal	Type of Partnership		Type of Training	South-South Cooperation (In-Country/ Between Countries)
			North-South	Public university – private university		
Walter Sisulu University/ University of Colorado, School of Medicine	2009	To strengthen the clinical associates program to increase the number of mid-level medical professionals	North-South	Public university – public university	<u>Pre-service:</u> Bachelor of Clinical Medical Practice (BCMP) Honors Program in planning phase	Networking with WITS and UP
University of Witwatersrand/Emory University	2010	To strengthen the clinical associates program to increase the number of mid-level medical professionals	North-South	Private university – private university	<u>Pre-service:</u> Bachelor of Clinical Medical Practice (BCMP) Honors Master’s Degree Program to begin in 2015	Networking with WSU and UP
University of Pretoria/ Arcadia University	2011	To strengthen the clinical associates program to increase the number of mid-level medical professionals	North-South	Private university – public university	<u>Pre-service:</u> Bachelor of Clinical Medical Practice (BCMP) Honors Graduate Program in planning stages	Networking with WITS and WSU
State University of New York, Downstate Medical School CHSR&D University of Free State CDC/AIHA	2008 2010	To support the CHSR&D in implementing a public health evaluation with the goal of increasing the uptake of HIV testing among TB patients	North-South	Public university – public university	<u>In-service:</u> Faculty, master of science and Ph.D. students in research methods and techniques, research-public health, TB/HIV evaluation	South-South in Mozambique Collaborating with Free State Provincial Department of Health

Annex D. Country Reports

AIHA Twinning Center Evaluation Ethiopia Country Report

Acronyms

AAHAPCO	Addis Ababa HIV/AIDS Prevention and Control Office
AAU	Addis Ababa University
ARC	AIDS Resource Center
ATIC	AIDS Treatment Information Center
AIHA	American International Health Alliance
BSW	Bachelor of social work
CDC	U.S. Centers for Disease Control
COP	Country Operational Plan
DACA	Uganda Administration Control Authority
DIC	Drug Information Center
EBP	Evidence-based practice
FMOH	Ethiopian Federal Ministry of Health
FY	Fiscal year
HAPCO	HIV/AIDS Prevention and Control Office
HRH	Human resources for health
HRH TWG	Human Resources for Health Technical Working Group
HRSA	Health Resources Services Administration
HSS	Health systems strengthening
HTC	HIV testing and counseling
ISW	Tanzanian Institute of Social Work
IT	Information technology
M&E	Monitoring and evaluation
MOH	Ministry of Health
MSW	Master of social work
NARC	National AIDS Resource Center
NGO	Nongovernmental organization
NHAPCO	National HIV/AIDS Prevention and Control Office
NRD	Non-research determination
OGAC	Office of the Global AIDS Coordinator
PEPFAR	President's Emergency Plan for AIDS Relief
PMTCT	Prevention of mother-to-child transmission
QI	Quality improvement
SSW	School of Social Work
TASH	Tikur Anbessa Specialized Hospital
TB	Tuberculosis
TC	Twinning Center
TOT	Training of trainers
TP	Twinning partnership
UNICEF	United Nations Children's Fund
VCT	Voluntary counseling and testing
VHC	Volunteer Healthcare Corps

I. Introduction

A. Evaluation Purpose and Objectives

In January 2012 the American International Health Alliance (AIHA) commissioned the QED Group LLC to conduct a comprehensive evaluation of the AIHA HIV/AIDS Twinning Center Program in Africa. The evaluation intended to inform the Health Resources Services Administration (HRSA), the Human Resources for Health Technical Working Group (HRH TWG), and the Office of the Global AIDS Coordinator (OGAC) regarding the President's Emergency Plan for AIDS Relief (PEPFAR)-funded HIV/AIDS Twinning Center Program. The objectives of the evaluation were the following:

5. Assessing and documenting the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
6. Identifying promising approaches utilized in the implementation of twinning partnerships for possible replication and scale-up
7. Assessing and documenting the value added of twinning partnerships and how they contribute to human resources for health and health systems strengthening goals through institutional capacity building; healthcare workforce training; improved organizational development among institutions; and professional association building
8. Providing recommendations for human resources for health and health systems strengthening program strategies that are responsive to both existing as well as anticipated field needs

In 2004, AIHA was awarded a cooperative agreement from HRSA to establish the Twinning Center (TC), a capacity-building mechanism for supporting countries targeted for assistance under PEPFAR. AIHA's unique methodology aims to promote sustainable partnerships between communities and institutions to foster more effective and efficient health service delivery. Unlike traditional consultancy projects, the partnerships are voluntary, peer-based technical assistance programs with an emphasis on professional exchanges and voluntary contributions. HRSA awarded the Twinning Center a second five-year cooperative agreement in February 2009, ensuring funding for the program through 2014. The current evaluation covers the period of the current cooperative agreement, that is, from 2009 to the present

B. PEPFAR Goals

PEPFAR is the largest bilateral health initiative in the world. President George W. Bush's 2003 pledge to spend \$15 billion over five years fighting HIV/AIDS, tuberculosis (TB), and malaria was considered ground-breaking at the time. Under two successive authorization acts—the Leadership Act, 17 P.L. 108-25, and the Lantos-Hyde Act, P.L. 110-293—a total of U.S. \$63 billion was authorized to fight HIV/AIDS, TB, and malaria. PEPFAR authorization expires at the end of FY 2013. During the first phase of PEPFAR (FY 2004–FY 2008), the United States spent more than \$18 billion on global HIV/AIDS initiatives, including the Global Fund. From FY 2009 through FY 2012, U.S. spending on international HIV/AIDS assistance reached nearly \$26 billion.^{6,7}

The second phase of PEPFAR funding (PEPFAR II) aims to transition countries from an emergency response phase toward a sustainable response to the HIV/AIDS epidemic. PEPFAR II goals include:

- Transition from an emergency response to promotion of sustainable country programs

⁶ Tiaji Salaam-Blyther. The President's Emergency Plan for AIDS Relief (PEPFAR): Funding Issues after a Decade of Implementation, FY2004-FY2013. October 10, 2012, Congressional Research Service, 7-5700, R42776 <http://www.fas.org/sgp/crs/misc/R42776.pdf>, accessed 03/15/13.

⁷ The U.S. President's Emergency Plan for AIDS Relief Five-Year Strategy (2009) <http://www.pepfar.gov/documents/organization/133035.pdf>, accessed 01/10/13.

- Strengthen partner government capacity to lead the response to the epidemic and other health demands
- Expand prevention, care, and treatment in concentrated and generalized epidemics
- Integrate and coordinate HIV/AIDS programs with broader global health and development programs to maximize the impact on health systems
- Invest in innovation and operations research to evaluate impact, improve service delivery, and maximize outcomes

C. Country Context

Ethiopia is the tenth largest country in Africa, with an estimated population of 83 million, making the nation the second most populous country in Africa. The majority (83.9%) reside in rural areas.⁸ Ethiopia is one of the few sub-Saharan countries showing a decline of more than 25% in new HIV infections. Findings from the most recent ANC sentinel surveillance data show a declining prevalence of infection rates among women age 15–24 years attending ANC, from 5.6% in 2005, to 3.5% in 2007, to 2.6% in 2009. This trend was observed in both urban and rural areas. In urban centers the prevalence has halved, declining from 11.5 % in 2003 to 5.5% in 2009. The declining trend is even steeper in rural areas, where prevalence declined from 4% in 2003 to 1.4% in 2009. Generally, 94% of the sentinel sites showed absolute decrease, of which half of these were statistically significant. While this progress provides a reason for hope and encouragement, the fight against HIV/AIDS is far from over. The problem is still huge, as nearly 800,000 people are living with HIV, more are orphaned, and the rate of new infections is declining but still high, and possibly expanding to newer population groups and geographic areas.⁹

As one of the largest recipients of PEPFAR support, Ethiopia received \$930.3 million to support comprehensive HIV/AIDS prevention, treatment, and care programs from FY 2004 to FY 2011.¹⁰ The program supports prevention of sexual transmission, prevention of mother-to-child HIV transmission (PMTCT), counseling and testing, behavior change communications, condoms, and other forms of prevention. For those impacted by or living with HIV/AIDS, PEPFAR-Ethiopia offers basic palliative care, care and support for orphans and vulnerable children, support for treatment services, and the provision of antiretroviral drugs and other essential HIV and AIDS commodities. Support for essential health care systems required to deliver this comprehensive program includes infrastructure improvements, training of health workers, and development of health care financing, supply chain and laboratory systems.

⁸ UN Country Data, accessed online (www.un.org/popin/region/africa/ethiopia). Ethiopia Demographic and Health Survey. Addis Ababa, Ethiopia, 2011, as quoted in Federal Democratic Republic of Ethiopia, Country Progress Report on HIV/AIDS Response, April 2012, p.12. <http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/GAP%20Report%202012.pdf>

⁹ Federal Ministry of Health/Ethiopian Health and Nutrition Research Institute. Report on the 2009 Round Antenatal Care Sentinel HIV Surveillance in Ethiopia. Addis Ababa, Ethiopia; 2011- as quoted in UNAIDS. Global Report: UNAIDS Report on the Global AIDS Epidemic 2010, Switzerland, as quoted in Federal Democratic Republic of Ethiopia, Country Progress Report on HIV/AIDS Response, April 2012, p.12. <http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/GAP%20Report%202012.pdf>

¹⁰ Partnership to Fight HIV/AIDS in Ethiopia <http://www.pepfar.gov/countries/ethiopia/index.htm> and cited in Five-Year Partnership Framework in Support of the Ethiopian National Response to HIV/AIDS 2010 - 2014 Between The Government of the Federal Democratic Republic of Ethiopia and the Government of the United States of America October 2010. <http://www.pepfar.gov/countries/frameworks/ethiopia/158572.htm>, visited 3/22/13)

II. Methodology and Limitations

A. Methodology

The purpose of the American International Health Alliance HIV/AIDS Twinning Center Program evaluation is to inform the Health Resources Services Administration, the Human Resources for Health Technical Working Group, and the Office of the Global AIDS Coordinator regarding the following objectives:

- Assess and document the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
- Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up
- Assess and document the value added of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building
- Recommend HRH and HSS program strategies that are responsive to existing as well as anticipated, field needs

The performance evaluation used qualitative data collection and analysis. Information sources included key informant interviews, focus groups, and direct observation. Interviews and focus groups were guided by the sub-questions included in the scope of work and outlined in the non-research designated (NRD) protocol. Interviews and focus groups were conducted using open-ended questions.

The evaluation team included two U.S. consultants—Dr. Rosemary Barber-Madden, a health professions development specialist (team leader), and Catherine (Tina) Cleland, a health systems strengthening specialist with extensive experience with the Twinning Partnership methodology. Both team members have technical and programmatic experience with HIV/AIDS programming. QED managed the contract team and AIHA provided operational and logistics support.

Data collection and synthesis compiled information from four major sources:

- A review and synthesis of AIHA and country-specific documents, including AIHA documents and prior evaluations, Twinning Partnership annual work plans, PEPFAR/Country Operational Plans, semi-annual and annual reports, and relevant PEPFAR documents such as PEPFAR country Partnership Framework Implementation Plans for the countries visited
- Key informant interviews of relevant stakeholders at the national, provincial and district levels including PEPFAR US Centers for Disease Control (CDC) Director, and activity manager, Ministry of Health (MOH) officials, AIHA in-country partners (academic, governmental and non-governmental), AIHA headquarters and country office staff, Volunteer Healthcare Corps (VHC) volunteers (two) and graduates (one), and community-based psychosocial care workers (three) (see Annex E of the Evaluation Report for a full list of persons met)
- Use of standardized interview guide
- Site visits Site visits to AIHA in-country partner sites in Addis Ababa and the Amhara region of central Ethiopia

The Ethiopia field work was conducted from February 19 to 28, 2012.

III. AIHA Twinning Center Model Overview

A. Twinning Center Model Overview

The Twinning Center partnership model relies on building volunteer-driven, peer-to-peer relationships between African and U.S.-based institutions that provide HIV/AIDS-related prevention, care, treatment, and support services. TC partnerships have supported human and institutional capacity building using exchanges, training, and technical assistance. The TC has also supported the deployment of highly skilled volunteers through its volunteer healthcare corps program. The relationships are bolstered by institutional exchanges of key personnel to observe partners' respective operations and identify initiatives that can improve the quality of care provided by in-country partners. The central goal is to develop local solutions aided by observing examples in other country settings. The Twinning Center's use of volunteers and twinning partnerships (TPs) has provided a foundation for the rapid scale-up of prevention, treatment, and care, and has contributed to developing a solid platform upon which other health programs can be built.

B. The Twinning Center Model in Ethiopia

PEPFAR Ethiopia initiated its efforts to establish twinning between Ethiopian organizations and counterparts in the U.S as a tool for building human and organizational capacity during Country Operational Plan FY 05 (COP 05). PEPFAR Ethiopia initiated twinning and voluntary service initiatives through the AIHA Twinning Center in COP 06. The initial focus was to recruit Ethiopian health professionals in the diaspora and affiliated with U.S. and Israeli universities to render services. TC provided a sub-grant to Visions for Development Inc. (Visions) to mobilize and engage the professional diaspora through the identification of qualified professionals. Communication specialists in the U.S. with particular experience in developing and operating telephonic and online assistance services were targeted. Thus began the Volunteer Health Corps activities in Ethiopia.

According to PEPFAR Ethiopia Annual Progress Report, the Twinning Center conducted its first open solicitations to establish twinning partnerships in 2007.

IV. Evaluation Findings and Conclusions

Evaluation Objective 1 – Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals

A. Objective 1: Findings

Twinning Center Partnerships

A summary of the main achievements of Twinning Center Partnerships is presented in this section, based on review and analysis of stakeholder interviews, reports and other documents, and in-country partner site visits made by the evaluation team.

Types of Partnerships

In Ethiopia, the twinning partnerships reviewed by the evaluation team were designed to develop the capacity of diverse types of academic institutions and country governmental units. All partnerships reviewed are presented in Annex C by year initiated, goal, type of partnership, type of training provided, and South-South cooperation activities.

Most of the partnerships reviewed were North-South, in which a U.S.-based institution partnered with a similar type of institution in Ethiopia. Within this group, an educational institution partnered with an educational institution, such as the case of clinical pharmacy (Addis Ababa University [AAU] SOP – Howard University); or educational institutions paired with a nongovernmental organization (NGO), as with adult and pediatric emergency medicine (UW – AAU SOM and People 2 People); and with social work (Addis Ababa University School of Social Work [AAU SSW]). In another case, a hospital was partnered with another hospital (Elmhurst Hospital/Debre Berhan Hospital). And, the National AIDS Resource Center (NARC), a governmental unit, partnered with the National Clinician’s Consultation Center at the University of California-San Francisco. There was one South-South partnership, where an NGO partnered with a government entity (an NGO, Liverpool Voluntary AIHA Counseling and Testing, which partnered with a multi-stakeholder VCT Task Force led by the Federal Ministry of Health in Ethiopia). And one triangular partnership where two South partners joined with a North partner (Institute of Social Work in Tanzania, and Jane Addams and MATEC).

The partnerships are described below:

Building Hospital Capacity to Improve Care

The Twinning Partnership between Debre Berhan Hospital and Elmhurst Hospital Center began in 2007. Its purpose was to improve the quality of medical and psychosocial care provided and strengthen hospital services. Debre Berhan is a referral hospital for a catchment area of 2 million people in the Amhara region of central Ethiopia. According to Debre Berhan staff interviewed, the exchange visits to Elmhurst Hospital were “transformational.” Doctors, nurses, social workers, pharmacists, laboratory technicians, human resources, financial/accounting staff, the hospital’s director, and hospital board members all participated in international exchanges at Elmhurst Hospital. Peer-to-peer mentoring through exchanges, on-site mentoring, and training was provided to Debre Berhan staff, who reported that the exchanges motivated them to improve the quality and efficiency of service delivery.

Mentoring and leadership and management training for nurses led to the creation of a hospital-wide nursing initiative. The nursing initiative established an organizational structure incorporating staff nurses, head nurses, and supervisors. At the request of the Ministry of Health and the regional health bureau, and with CDC’s approval, the partnership was extended to affiliated institutions. Peer relationships with Debre Berhan Health Science College and two adjacent hospitals, Mehal Meda and Enat Hospital, were established to incorporate nursing standards of care across these institutions. Mehal Meda Hospital and Enat Hospital representatives have spent extended periods on exchange at Debre Berhan Hospital to jointly review national MOH guidelines.

Strengthening Clinical Pharmacy Education and Practical Learning

The goal of the Addis Ababa University School of Pharmacy and Howard University School of Pharmacy partnership, established in 2007, is to build AAU’s capacity to provide evidence-based pharmaceutical health information for health care practitioners, become an internationally recognized clinical pharmacy education and training institution, and to integrate the pharmacist into the health care team. This partnership was originally requested by the Minister of Health

The partners created a 32-week clinical attachment for pharmacy students, extended the academic program from four to five years, and incorporated an internship. Howard University, in collaboration with AAU partners, organized training-of-trainers for the seven public schools of Pharmacy in Ethiopia (three existing and four emerging schools); in this way, the partnership extended to the entire country to address constraints stemming from a lack of faculty with the required expertise to teach the new program. Current estimates are that 50 pharmacy students will graduate annually from each of the seven schools of pharmacy beginning in 2013. The partnership launched a new master’s of science

program in pharmacy practice in 2010, with the plan to deploy graduate master's degree graduates in 2013 to fill faculty positions for undergraduate students at the other schools of pharmacy. Preceptor training was conducted for pharmacists and physicians at Howard University, University of Wisconsin, and Elmhurst Hospital from 10 specialties to support pharmacy students during their clinical rotation.

Masters-level students in clinical pharmacy are using a quality improvement (QI) approach to implementing clinical practice projects at Tikur Anbessa Hospital. To strengthen staff at affiliated hospitals, training-of-trainers was conducted on selected topics in pharmacotherapeutics and drug informatics for local pharmacists, nurses and other professionals.

Answering Clinicians' Questions on HIV/AIDS Care in Ethiopia

At the request of HIV/AIDS Prevention and Control Office (HAPCO) and with the support of CDC/Ethiopia, AIHA TC established a partnership between NARC and the National Clinician's Consultation Center at the University of California-San Francisco in 2007. The goal of this partnership was to improve access to quality HIV care in Ethiopia by providing expert consultation for health workers caring for persons living with HIV and AIDS. The Warmline is a call-in service that allows healthcare workers nationwide to record questions on clinical care that are researched and answered by NARC specialists. Physicians can also submit questions via email. The University of California-San Francisco trained FITUN staff on Warmline methodologies and HIV-related topics. Partners jointly developed training manuals which are used to train FITUN staff on a broad range of topics, including antiretroviral therapy, perinatal care, PMTCT, post-exposure prophylaxis, clinical pharmacy, pediatric HIV, techniques of effective clinical consultation, opportunistic infections, and TB/HIV.

Strengthening Social Support for Vulnerable Populations

The goal of the triangular partnership between AAU's School of Social Work, Jane Addams College of Social Work at Chicago, Institute of Social Work in Tanzania, established in 2007, was to improve the capacity of the partner institutions to deliver pre-service quality social work education in the area of HIV/AIDS at AAU's School of Social Work and to design and implement a pre-service training infrastructure to train and supervise community-based psychosocial care workers to provide HIV/AIDS information and linkages to care and support.

The AAU School of Social Work was founded in 2004. The TC partnership (2007–2012) supported development of HIV component for curricula for the new bachelor of social work (BSW) and Ph.D. programs, and the already existing master of social work (MSW) program. The first cohort of BSW and MSW students graduated in 2012. International exchanges at the Institute of Social Work/Tanzania provided an opportunity to observe parasocial workers training at the Institute of Social Work. The partnership carried out an assessment in six regions, trained 147 psychosocial care work supervisors, and trained 742 psychosocial care workers in six regional states of Ethiopia: Addis Ababa (Central region), Bahir Dar (North West Region), Hawassa (South Region), Adama (Central Region), Dire Dawa (East Region, Mekele (North Region), and Gambella (West Region). The training program for community-based caregivers provides key social work and case management skills to enable them to support their clients by linking them to advocacy and legal support, psychosocial support, education including HIV prevention, health and mental services, food and nutritional support, housing, child rearing, life skills, and vocational training services.

Improving National HTC Services

In 2007 the Twinning Center linked several key in-country stakeholders to develop National Quality Assurance Guidelines for all HIV testing and counseling (HTC) service providers. The principal stakeholders are the Ethiopian Federal Ministry of Health (FMOH), HIV/AIDS Counseling and Testing National Technical Working Group, the Ethiopian Health and Nutrition Research Institute, and the

Ethiopian HIV/AIDS Counselors Association. In addition, the TC set up a South-South partnership linking the Ministry of Health with Kenya-based Liverpool voluntary counseling and testing to increase capacity to deliver effective HTC training activities on a national level, with particular focus on supporting the implementation of services for disadvantaged populations. Partners conducted professional exchanges sharing best practices and held a workshop on quality assurance for key HTC stakeholders. Through an agreement with the FMOH, a former TC volunteer was contracted as a consultant to provide technical support for developing the HTC Home-based Implementation Manual and Guidelines for Urban Health Extension Professionals and Urban Health Extension Workers. HTC Quality Assurance Manual for HIV Trainers and Participants was drafted and is under review by FMOH.

Improving Adult Emergency Medical Services

In 2009, Addis Ababa University School of Medicine, University of Wisconsin, and the Kentucky-based NGO People to People, a sub-grantee, established the Emergency Medicine Fellowship program. The objective is to strengthen local urgent care capacity and expanding pre- and in-service education and training opportunities. The partnership was established at the request of the Ministry of Health and the Addis Ababa University School of Medicine.

From the outset, the partnership adopted an interdisciplinary conceptual framework with a strong commitment to physician and nurse teams as a model for the delivery of emergency services. Four physicians and four nurses from Addis Ababa University/Tikur Anbessa Specialized Hospital (AAU/TASH) were selected for the Emergency Medicine Fellowship program at the University of Wisconsin, which involved two three-month rotations at the University of Wisconsin over a two-year period for the doctors and one rotation for the nurses. Fellows are responsible for developing and conducting training for the diverse curricula and assisting in service delivery management. This approach was adopted so AAU faculty members would have the requisite training to teach the emergency medicine subspecialists and the master's level emergency nurses. Partners developed the emergency medicine subspecialty, with a first cohort to graduate in 2013; in July 2012, the master's level emergency medicine nursing degree program graduated its first cohort of 16 nurses from different regions of the country: Gondar, Tigray, Hawassa, Haromaya, Afar, Adama, and Addis Ababa.

Improving Pediatric Emergency Medical Services

At the specific request of the Minister of Health and AAU, in 2010 AIHA TC established a second partnership between the University of Wisconsin, AAU School of Medicine, and Tikur Anbessa Specialized Hospital Pediatrics Department. The partnership is designed to improve pediatric urgent care through targeted training and education, organizational development, and capacity building. Pediatric faculty fellows who were faculty members at AAU School of Medicine completed training in 2012.

This partnership follows the same interdisciplinary conceptual framework developed in adult emergency medicine, with a strong commitment to physician-nurse teams as a model for the delivery of emergency services. The fellows will complete half of their fellowship in critical care with rotations at University of Witwatersrand and Stellenbosch University in South Africa in 2013. The fellows will receive their board certification from the Ministry of Health and a diploma from the University of Wisconsin, providing extra credibility for the program and its faculty. In-service training courses on basic life skills and intensive care unit management in pediatrics were developed for nurses from Tikur Anbessa and Twinning Center hospital partners from Ambo and Debre Berhan.

According to Twinning Center reports, 6,423 healthcare workers and para-professionals participated in Twinning Center-supported pre-service education and in-service training programs during the period of 2007 to 2012. Graduates include 681 parasocial workers, who completed Twinning Center-supported parasocial work training programs in Ethiopia. According to the AIHA M&E unit, AIHA only began

reporting graduates for MSW/BSW graduates in FY 2012, as earlier pre-service reporting eligibility was still under review.¹¹

Volunteer Healthcare Corps

The AIHA TC launched the Ethiopia Diaspora Volunteer Program in 2006 in collaboration with the Network of Ethiopian Professionals in the diaspora at the request of Ethiopia’s Ministry of Health. Through the VHC, the Twinning Center taps into the diaspora’s shared culture, language, and motivation to meaningfully contribute to development efforts in their country of origin. Twinning Center reports there appears to be a strong potential for repatriation, helping mitigate to a degree the negative effects of brain drain. The AIHA TC engages in an extensive process of volunteer recruitment, placement, and management of projects, including signed scopes of work and monthly, quarterly, and annual reports. Since its inception, the program has recruited more than 50 health and allied professionals ranging from physicians, nurses, social workers, and clinical pharmacists to IT, web development, database management experts, epidemiologists, psychologists, HIV nutritionists, specialists in HIV and TB co-infection, quality improvement, health communications, youth prevention, program management, and palliative care. Volunteers serve from three months up to two years, with some returning for a second tour.

Country	Total # of Volunteers	Total # of Placements	Total In-kind Days
Ethiopia	51	59	22,314

Volunteers receive a modest stipend, which is significantly less than the salaries and benefits these professionals command in the U.S. and other countries from which they are recruited. Volunteer contributions to the development of health systems are quite substantial. They provide high-level technical support. Many are assigned to the Federal Ministry of Health or to other government institutions and universities at both the national and regional level, where their extensive experience and contributions are highly valued.

Benefits to Volunteers from Their Placements

The evaluation team interviewed two current and one former volunteer, who continues to work in the country. One Ph.D.-level volunteer is a lecturer in organic chemistry for medical students at AAU/TASH, and also serves as coordinator of the post-graduate course. A second volunteer who was interviewed by the evaluation team also holds a Ph.D., with experience from the U.S. National Institutes of Health in HIV and hepatitis. The volunteer came to AIHA to find out how he could make a contribution in his home country and requested placement at the newly established medical school in Adama where he teaching microbiology. The former volunteer, with a Ph.D., formerly worked as a senior drug scientist at a Swedish drug company. Upon completing his volunteer work assessing regional laboratories, he was contracted by University of Washington I-TECH project where he coordinates the renovation of 50 laboratories in the country. Each mentioned challenges in implementing their respective VHC projects such as lack of equipment and materials, but all indicated satisfaction in being able to “contribute in some way to the development of the country.”

All noted the difficulties in completing a project serving on a short-term basis and that longer-term projects were more desirable. At the same time, one volunteer felt that he could not commit for a longer period, having left family and taken a leave of absence from his position in the U.S.

¹¹ AIHA HIV/AIDS Twinning Center Monitoring and Evaluation, Systems, Results, and Technical Support, PowerPoint presentation by J. Buehler, January 15, 2013.

Monitoring and Evaluation

AIHA developed a new monitoring and evaluation (M&E) system and processes in 2012 to establish an independent M&E unit to meet the program's changing needs and requirements as the partnership program matured.

The M&E system, built to monitor partnerships, was designed to review progress in work plan implementation; monthly financial report reviews; tracking of partnership exchange trips; tracking of in-kind contributions such as in-kind time and resources; regular site visits to partner institutions in-country, and partner quarterly progress reports. Using this system, AIHA monitors achievement of measurable objectives and activities outlined in partnership work plans. The priority at the country-wide level is to track key objectives, indicators and targets, outputs, deliverables, and activities of all in-country partnerships, and produce the aggregated semi-annual and annual program documentation that is required by HRSA and PEPFAR in-country donors.

AIHA assists partners in developing work plans with measurable objectives, outputs, outcomes, and indicators. Partners are required to submit quarterly performance reports with information on progress in achieving PEPFAR targets and objectives; status of activities and outputs; and constraints affecting the project and plans to address obstacles. Quarterly reports are used to prepare AIHA's quarterly reports to PEPFAR Activity Managers (CDC, USAID, or DoD, depending on the donor) and are the primary basis for monitoring partnership progress. Partners reported that they have presented a number of papers at partnership annual coordination meetings or national and international conferences, published results in national and international reports, and refereed journals to AIHA.

Changes in Partnerships

Changes occurred in twinning partnerships over time. For example, the receiving partner, the Ministry of Health of Ethiopia, determined that remote technical assistance with Liverpool VCT was no longer a critical priority, and the local technical support was needed. The MOH, CDC, and AIHA agreed to support a technical consultant, a former AIHA volunteer, to provide support for the follow-on activities.

Graduation

Evaluators found that several partnerships were graduated during the period under review. In the case of HIV counseling and testing, the Ministry of Health identified a partner in Kenya to assist in developing policies and a framework for high-quality voluntary counseling and testing services in Ethiopia. Once a framework was established, the MOH requested technical support from a local provider. With the Warmline, the original objective was to provide access to health providers nationally. Over the years, large numbers of the health workforce were trained and the CDC determined that continued support from an out-of-country partner was no longer needed. In late 2012, Twinning Center also graduated the social work partnership between Addis Ababa University School of Social Work, Jane Addams School of Social Work and Institute of Social Work (Tanzania).

B. Objective 1: Conclusions

Partnerships

Factors Leading to Partnership Success

Evaluators found a number of factors leading to partnership success. All partnerships reviewed in Ethiopia had government ownership. In the case of adult and pediatric emergency medicine, the MOH advocated for this partnership with CDC. The pharmacy partnership was also a priority of the ministry.

In two cases, a "champion" catalyzed the change process, connecting the partnership and government with the broader community in creative ways. The partners at Debre Berhan Hospital spearheaded a

nursing leadership and management initiative that led to the formal establishment of a hospital nursing department and roll-out to other hospitals in the region.

Partners spearheaded Ethiopia's first skills-based Emergency Medicine Training Center in 2010, where healthcare workers, medical and nursing students, and other professional and para-professional groups (such as ambulance staff, fire fighters, aviation workers, hospital and hotel staff, embassies, government offices, and Ethiopian Airlines) received training in several key areas: basic life support and CPR; pre-hospital service; advanced life support obstetrics; emergency triage assessment and treatment; and advanced life support in infectious diseases.

In-country partner ability to leverage within their institutions and with the national government was also evident in emergency medicine and in pharmacy. The emergency medicine partners shared results of quality improvement studies with the AAU president that demonstrated changes in hand-washing practices, reduction in length of stay in the emergency department, and improvements in patient privacy and education. The partners were able to advocate for a new adult and pediatric emergency department with space for a new training center. And, in a case where the AAU SSW lacked sufficient access at the national level, the Twinning Center was able to leverage its prestige to assist with organizing a national meeting with stakeholders.

Other factors leading to success were the expertise, skills, and commitment of U.S. partners that helped create a critical mass. The Twinning Center selection process led to the selection of U.S. partners with expertise relevant to the needs of in-country partners. Through professional exchanges, mentoring, and short courses, the U.S. partner opened a new world of opportunities and contributed to the effectiveness of partnership interventions. In-country partners emphasized how their U.S.-based partners energized their work and helped them develop leveraging skills. At Debre Berhan Hospital, staff reported that the exchanges for upper-level administration at Elmhurst Hospital—such as for the board of directors, accountant, and human resource specialist—was motivational. Administrative staff returned with a keen understanding of the types of changes that would be possible that would not increase costs, such as a nursing policy to adjust to 8-hour shifts.

The pharmacy partners developed an approach to address constraints stemming from a lack of faculty with the required expertise to teach the new program. Howard University partners organized a training-of-trainers for all universities with seven schools of pharmacy, upgrading and standardizing curriculum and faculty knowledge in all schools of pharmacy in the country. To bolster this approach, partners plan to place master's level graduates to teach in these seven schools. Other factors leading to success were the expertise, skills, and commitment of U.S. partners that helped create a critical mass.

Collaboration Between Partners

Evaluators found that South-South collaboration in-country is extensive. In this mode, academic institutions extended their partnership activities to other professional schools and universities across the country involved in social work, and pharmacy. Debre Berhan, a regional hospital, expanded its partnership activities to include affiliated hospitals and health facilities in the region as well as clinical rotations from the pharmacy partnership.

The pharmacy partners are collaborating with emergency medicine partners at Addis Ababa University, and there is a plan for pharmacy students to conduct clinical rotations at Debre Berhan Hospital. The Emergency Medicine Partnership in Ethiopia extended training to professionals, para-professionals, and volunteers in other sectors, including ambulance drivers, firefighters, aviation workers, private firms, and staff from the Ministry of Health.

Partners stressed the importance of Twinning Center-sponsored national annual partner conferences, and periodic international partner conferences to promote cross learning between partnerships,

strengthen individual partnerships, cross-partnership collaboration, and identify and share lessons learned.

Contribution of South-South Partnerships and Cooperation

In-country partners across all four countries—including Ethiopia—reported that twinning partnership offices play an important role in identifying opportunities for South-South collaboration. For example, the Emergency Medicine/Critical Care fellows from Addis Ababa University School of Medicine are taking rotations at University of Witwatersrand and Stellenbosch University. Cochrane Collaborating Centre, based in Cape Town, South Africa, participates in the Learning Resources Program, providing training in evidence-based medicine for health professionals from Ethiopia, Namibia, and Zambia. Clinical pharmacy students from Addis Ababa University School of Pharmacy complete rotations at the University Teaching Hospital and Livingstone Teaching Hospital in Zambia. Clinical pharmacy faculty in Ethiopia reported that visits to University Teaching Hospital and Livingstone Teaching Hospital demonstrated different options for scale-up and roll-out in Africa. Highlights are reported by partnership in the main Evaluation Report.

Twinning Benefits for Ethiopian Partners

Health workforce development and systems strengthening initiatives undertaken by twinning partners were aligned with PEPFAR Partnership Framework Implementation Plan and government priorities. Government stakeholders and CDC representatives in Ethiopia acknowledged the contributions made by twinning to support the introduction of new professional cadres, emphasizing that, over time, these new professionals will reduce health worker shortages in the national health delivery system. Ethiopian and U.S. -based partners concur that collaborative decision making has led to a sense of joint ownership and serves as a key element of true partnership. Nearly all partners, except the HIV/AIDS Testing and Counseling project, reported that faculty/professional exchanges, peer-to-peer mentoring, and on-site training as highly motivational for faculty, administrators, and staff, increasing confidence, validating their work, and increasing visibility among professional colleagues within their institutions, and in some cases, nationally. For example, interviewees from Addis Ababa University's Department of Emergency Medicine spoke about having developed an understanding of the importance of twinning for their institutions and the development of programs.

Partners emphasized that they learned how to use new program planning and M&E systems. As one pediatric emergency medicine partner in Ethiopia noted, "I now understand that program management is as important as clinical services." In-country partners highlighted access to and use of new clinical and technical skills. Both LRCS Drug Information Centers were mentioned as being very useful for students and faculty.

Debre Berhan Hospital and Elmhurst Hospital partners indicated the implemented reforms and extension of the approach to two affiliated hospitals were important achievements. The Director of Debre Berhan Hospital observed, "Our staff became very motivated. We did not have a benchmark. Exchanges were life changing. Our nurses became empowered." He reported that due to advances made through the twinning partnership, the hospital had been selected for national performance benchmarking and designated a teaching hospital by the Ethiopian Ministry of Health.

In-country partners learned the benefits of quality improvement and its use as an important instrument for improving clinical and administrative practices. This was especially important to faculty and staff at the Addis Ababa University Emergency Medicine Department, School of Pharmacy, and for staff at Debre Berhan Hospital. Both reported changes in clinical practice and professional behavior based on results of quality improvement projects. Hand-washing and infection prevention and control measures were introduced and improved practices observed. Customer satisfaction-oriented practices such as consumer meetings with hospital administrators and privacy measures for patients were established.

Doctors improved communications with patients by speaking in Amharic instead of English. Additionally, patient waiting times in outpatient departments and hospitalization days were reduced, and clinical pharmacy students introduced patient education to improve medication adherence.

Partners also highlighted the career development opportunities that emerged through twinning. For example, interviewees from Addis Ababa University School of Social Work noted the relevance to their career development of co-authoring papers and conducting presentations with U.S.-based and other partners.

Faculty at the Emergency Medicine Department, Addis Ababa University School of Medicine, credited the development of a research agenda for emergency medicine to the partnership with the University of Wisconsin. Interviewees from Addis Ababa University schools of pharmacy and social work, valued opportunities to develop new a research agenda with partners and publish and present papers based on the new agenda. Partners at Howard University School of Pharmacy reported that three-fourths of the entire faculty had taught in Ethiopia at some point during the partnership. Partners rolled out new and reformed curricula in social work, emergency medicine and pharmacy. In each case, other professional training institutions that participated in curriculum reform adopted these changes as part of their own programs.

A sizable number of parasocial workers were deployed in several regions and are working at the community level to alleviate the social effects of HIV/AIDS. Nurses with master's degrees in emergency nursing have graduated and will take up new positions in different regions of the country; in-service training of large numbers of health and non-health workers in the public and private sectors is also occurring in emergency medicine. These advances have resulted, or will result, in multiplying the number of health cadres in the workplace. The evaluation team observed during the country visit that these new professionals, para-professionals, and volunteers are receiving their pre-service and in-service training, and are beginning to work in health facilities in several regions.

It remains to be seen whether the government will employ/deploy these new cadres of health workers to the best advantage. In the case of the clinical pharmacy partnership, faculty expressed some concern about whether the government would create sufficient positions. Evaluators also heard reports about graduates being employed by international NGOs and the private sector.

While all in-country partners welcome and value the opportunity to partner with a prestigious U.S.-based entity, some in-country partners, such as pharmacy, emergency medicine, and social work, also highly valued the provision of technical assistance and support within the African context. In-country partners commented that AIHA's support for their participation in regional conferences opened opportunities to network within the African region. In conversations with the evaluation team, the CDC representatives underscored the need for a more of a South-South focus in partnerships, especially South-South in-country collaboration.

Volunteer Health Corps

The number of volunteers interviewed for the evaluation was insufficient to draw general conclusions on the benefits of the volunteer experience. For volunteers from the diaspora, the opportunity to serve in their own country of origin was appreciated by those interviewed.

The VHC program is valued by health officials, with technical support activities directed toward PEPFAR goals. Although volunteers receive high marks for contributions made, the team did not find evidence of measures taken by health authorities to implement and sustain new approaches, systems, protocols, and programs developed with the assistance of volunteers. A follow-up assessment post-volunteer

service would provide information on the actual uptake of manuals, data systems, and protocols developed.

The CDC representative interviewed during the evaluation visit emphasized the importance of the VHC program, stating that it is “very successful.” The FMOH values dedication, motivation, and multitasking of volunteers, and the capacity of the TC to recruit and deploy them in the country. He continued the TC’s VHC program “is like a tool in the back pocket of the Ministry.” The main result of the ministry’s regard for VHC performance is that the CDC selected the AIHA TC to spearhead the scale-up of the new Medical Education Initiative by FMOH and CDC Ethiopia, which will support the establishment of 13 new medical schools in underserved regions. Under this new agreement, the TC will recruit 25–30 VHCs to serve as basic science instructors in the new medical schools this year, with a focus on recruiting instructors with a master’s or doctorate degree. During the evaluation team’s visit, the TC reported 14 applicants, of which 3 were approved, 2 are pending, and an additional 9 under review. Most are physicians and nurses with advanced degrees but do not meet the FMOH target.

Institutional and Country Benefits from VHC Placement

CDC staff members interviewed in Ethiopia emphasized the value of the MOH in reinforcing volunteer dedication, motivation, and multitasking, and twinning partnership’s capacity to recruit and deploy volunteers. The ministry’s high regard for volunteer performance led to the CDC’s selection of the twinning partnership to assist in spearheading the roll-out of the new medical education initiative. Through this initiative, the MOH and CDC will support the establishment of 13 new medical schools in underserved regions.

The interviews and Twinning Center quarterly, semi-annual, and annual progress reports to authorities in Ethiopia demonstrate the valuable contributions made by professional volunteers to the development of national and regional healthcare workforce, health plans, and systems.¹² The evaluation’s review of AIHA reports and country office semi-annual and annual reports revealed that volunteer technical support has contributed to institutional and human capacity building in four key areas:

Skills development, educational materials development, and training. Highlights include:¹³

- Developing hospital human resource capacity to provide physical therapy to people living with HIV/AIDS
- Building the capacity of federal and regional health bureau staff in research, epidemiology, and data analysis
- Creating a national curriculum on self-care and burn-out prevention for caregivers
- Assistance for planning, implementation of monitoring and evaluation of programs associated with TB/HIV activities at Federal and Regional Health Bureaus

Strengthening health systems. Highlights include:

¹² Giorgis, T.W., A. Terrazas. Mobilizing Diaspora Volunteers for Public Health Capacity Building, Migration Policy Institute, Jan 2011; Terrazas, A. Connected through Service, Diaspora Volunteers and Global Development, USAID and Migration Policy Institute, Aug 2010; and the contribution of U.K.-based diasporas to development and poverty reduction, Centre on Migration, Policy and Society (COMPAS), University of Oxford for the Department for International Development, April 2004, at http://www.compas.ox.ac.uk/fileadmin/files/People/staff_publications/VanHear/NVH1_DFID%20diaspora%20report.pdf

¹³ AIHA PEPFAR SAPRs and APRs 2007-2012.

- Assisting regional laboratories in conducting external quality control systems in their own regions and better linking and coordinating regional laboratories with the national reference laboratory
- Advising national nutrition program at FMOH
- Development of the National Laboratory Health and Safety Manual

Strengthening information systems or technology. Highlights include:

- **Supporting web site and database system development** for the Drug Information Center at AAU SOP and Black Lion hospital, support to Geographic Information System data web site management at AA-HAPCO's National AIDS Resource Center sites
- Supporting improved operational management efficiency and system improvements for health facilities

Strengthening communications and public relations. Highlights include:

- Technical support for developing MOH communications and public relations efforts, including press conferences of the Federal Ministry of Health and a VHC volunteer-maintained FMOH web site.

Monitoring and Evaluation

The development of the Twinning Partnership M&E system created a broad framework that enabled compliance with PEPFAR reporting requirements while providing monitoring and evaluation of program-wide elements.

Contribution to Sustainability

Some partnerships, but not all, have taken proactive steps to plan for the continuation of activities after the termination of partnership support. For example, the public hospital in Ethiopia, Debre Berhan, rents space and provides training and maintenance services to other health facilities for fees that are used to make improvements in the hospital. The Emergency Medicine partnerships plan to establish an International Emergency Medicine Training Center at Addis Ababa University. If accredited by the American Heart Association, the new training center will offer continuing education courses across East Africa.

Professional training partnerships in social work, pharmacy, and emergency medicine that include new curricula/modules, residency, fellowships, and preceptorships are relatively sustainable. Addis Ababa University accredited its revised bachelor's and master's curricula in social work and pharmacy, and its new emergency medicine residency, fellowship components of the Emergency Medicine program. Faculty support for teaching in these programs will continue. The university's schools of medicine and pharmacy extended their outreach to affiliated hospitals and health facilities and universities in other regions of the country.

It remains to be seen how these advances will be sustained. While the Federal Ministry of Health has prioritized health care workforce development in national plans and policies, and indicates a commitment to deploying new health professionals, there is no guarantee that additional resources will be forthcoming from governments to employ and deploy new cadres.

Regarding the continuity of the LRCs, in Ethiopia AIHA procures hardware and basic Internet connectivity equipment along with providing technical assistance in securing network connectivity to learning resources including sometimes paying for online library memberships. Recurring Internet connection costs are the responsibility of the institutions. AIHA's Learning Resource Center Coordinator provided the initial LRC training. There is no guarantee that Addis Ababa University schools of pharmacy, medicine, and social work, Debre Berhan Hospital, or other partners will sustain the LRCs once partnerships are graduated.

Evaluation Objective 2 – Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up

C. Objective 2: Findings

The development of interdisciplinary health teams at AAU Emergency Medicine, and Pharmacy and at Debre Berhan Hospital were characterized by the CDC as presenting “unique models of integrated health care,” whose experiences are replicable in other settings. The deployment of interdisciplinary health teams to work horizontally across institutions and sectors, and vertically to the para-professional and volunteer levels established by the Pharmacy, Emergency Medicine, and Debra Berhan partnerships. This approach has already been extended across affiliated hospitals and other academic institutions in the country. Collaboration between these three partnerships through exchange rotations within Ethiopia has enhanced training opportunities for students and professional to work within interdisciplinary health teams and gain experience and know how; it also demonstrates the enormous potential of these experiences.

One AAU SOP faculty member stressed that “our work has had a huge impact on the direction of professional pharmacy education and practice in Ethiopia. The partnership made it possible for us to harmonize clinical pharmacy education in the four existing schools of pharmacy, and in three emerging schools. We’ve laid the foundation, but we must continue collaborating in the future on critical issues such as quality assurance and faculty development to ensure sustainability.” Current estimates are that 50 pharmacy students will graduate annually from the seven schools of pharmacy. The partnership launched a new Master of Science program in pharmacy practice, with the plan to deploy master’s degree graduates to fill faculty positions to teach undergraduate students at the other schools of pharmacy.

The social work partners carried out an assessment in six regions, trained 147 psychosocial care work supervisors, and trained 742 psychosocial care workers six regional states of Ethiopia in the Central region, North West Region, South Region, Central Region, East Region, North Region, and West Region. The training program for community-based caregivers provided key social work and case management skills to enable them to support their clients by linking them to advocacy and legal support, psychosocial support, and education, including HIV prevention, health and mental services, food and nutritional support, housing, child rearing, life skills, and vocational training services. This model proved to have capillarity and has improved density of services.

D. Objective 2. Conclusions

Establishing the nursing department and infection prevention and control procedures at Debre Berhan and the interdisciplinary (doctor-nurse) emergency fellows program in emergency medicine, and integrating clinical pharmacy into the health care team, are all quite new in the Ethiopian context. Clinical and management decisions are being informed by new tools founded on evidence-based practice and QI. As a result, more decisions will gradually be made by health team members. The approach used by these partners demonstrates its enormous potential for replication. Twinning partners have already set in motion the scale-up of healthcare worker training and system strengthening programs. Pharmacy, emergency medicine, expansion, and scale-up are already under way.

In Ethiopia, an improved, extensive knowledge base is supported by a new set of pre- and in-service curricula that is well grounded in evidence-based clinical practice. Educational materials, Learning

Resource Centers, models of care, standards of practice, data, and technical resource systems developed as part of this process have enormous potential for scale-up and replication. With the advocacy and support of the Twinning Center and its resource partners, in-country partners demonstrated how effective they can be in developing new linkages with academic institutions in their own countries and have taken advantage of resources and opportunities available in Africa through South-South cooperation. Networks of academic professional training institutions are providing comprehensive, skill-based training in social work, clinical pharmacy, and emergency medicine within the country.

LRCs can be used for all pre-service training programs once benefits to end users and changes in clinical practices are assessed. LRCs can be leveraged for scale up with the Ministry of Health to expand to training of other health professionals and mid-level health workers, such as physical therapists and occupational therapists. FMOH buy-in will offer potential for further replication and scale-up of these models to the 13 new medical schools in the medical education Initiative.

At the same time, the team did not find significant evidence of evaluation of curricula, models of care, and standards of practice. These products will have significantly more potential if assessed in terms of their effects on knowledge and skill development, and performance in clinical practice, especially in the use of evidence-based medicine for quality and effective improvements.

FMOH buy-in will offer potential for further replication and scale up of these models to the 13 new medical schools in the medical education Initiative. Through further analysis, these experiences will provide meaningful lessons for scale-up in Ethiopia and other countries in Africa. Assessment of the academic undergraduate and graduate pre-service and in-service curriculum models, standards of practice, lessons learned and best practices employing interdisciplinary health teams, and use of evidence-based medicine for quality and efficient improvement have significant potential for replication and scale-up in other African countries.

Evaluation Objective 3 – Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.

E. Objective 3: Findings

Evaluators assessed value added on two levels:

- The extent to which twinning serves as an instrument for building human and institutional capacity, specifically as relates to academic and healthcare facility institutional strengthening, healthcare workforce training, NGO capacity development, and professional association building
- The extent to which the Twinning Center supplemented or enhanced partnership efforts in human and institutional capacity development and health system strengthening

Institutional Capacity Building

The Debra Behan Hospital-Elmhurst Hospital partnership involved the hospital board of directors and the human resources and accounting departments early on to facilitate buy-in and gain support for systems change. The professional exchanges for hospital administrators, members of the board of

directors, accountants, and human resource specialist facilitated the decentralization of hospital management and decision making, paving the ways for institutional reforms. The most important reforms were creation of a nursing department and 8-hour shift schedules, reduction of the nurse-to-patient ratio, establishment of case coordinators and bedside coaching, and decentralization of hospital management and decision making. All of these measures contributed to improved quality of care and hospital efficiency, leading to the designation by the Ministry of Health of Debre Berhan as a teaching hospital for Debre Berhan University

Twinning partners provided leadership training and encouraged the use of advocacy to influence policy makers. Most partnerships actively engaged in advocacy and policy issues at the regional and national levels. In some cases, in-country partners were already well positioned to assume policy and advocacy leadership, but for the most part partners reported that partnerships had opened the door to new opportunities to participate in national advocacy and policy dialogue. Pharmacy partners are involved on the National Drug Advisory Board that is attempting to revitalize pharmaceutical manufacturing factories in the country. Emergency medicine partners are working with the Ministry of Health to develop new initiatives with different stakeholders including fire rescue and emergency prevention, private ambulance services, the Clinton Foundation, and WHO to develop a national protocol for ambulance services.

Ensuring faculty opportunities for advancement contribute to professional growth and institutional credibility and are a critical element in building academic credibility and educational quality. Co-authoring papers with partners and participating in national and international conferences brought faculty new prestige within their institutions. Achieving national recognition was reported by AAU SSW faculty as being important.

As previously noted, some partners were proactive in developing sustainability plans. AAU EM, the Twinning Center, and the University of Wisconsin developed an Emergency Training Center. The partners plan to organize an International Emergency Training Center which will be self-sustaining when the partnership graduates. The plan is to seek American Heart Association approval of this new center, and recruit trainees nationally and throughout East Africa.

Training of the Healthcare Workforce

A range of health professionals were trained in a problem-solving oriented approach to delivering modern health care. *Revising and upgrading existing* curricula was clearly necessary to allow new health care workers to attend to the large volume of patients presenting with HIV/AIDS symptoms and other problems in health facilities. For example, a CDC official reported having observed at the AAU Emergency Medicine service and found that one-fourth of patients presenting for care were HIV/AIDS patients.

The evaluation team observed how integrated programs now serve all patients at clinical training sites for the emergency medicine program. The twinning approach facilitated the creation of a multi-tiered pre-service/in-service model for health workforce development. Bachelor's and/or master's degree and in-service programs were created or upgraded in social work, emergency medicine, and clinical pharmacy at AAU. Through advocacy, these academic programs were rolled out to collaborating professional schools as sited above.

Twinning strategies also contributed to the creation of a new model for training and integrating para-social workers in community-based caregiving, demonstrating the model's capacity to expand across several regions in Ethiopia to provide social support to persons with HIV/AIDS and other health problems, especially vulnerable children. This model is contributing to expanding the density and distribution of this cadre. LRCs, supported by the Twinning Center and other partners, are the main

vehicle used to provide up-to-date access to evidence-based for faculty and students. LRCs and Drug information Centers were also installed at partnering academic institutions and hospitals.

New models of integrated health care that were introduced in emergency medicine, pharmacy, and hospital strengthening produced spin-offs. Pharmacy partners based their curricula on an interdisciplinary approach, which has also been introduced seven other schools of pharmacy and at clinical practice sites in Ethiopia. This has enhanced training opportunities for students and professionals to work on teams and gain experience as part of interdisciplinary health teams.

Emergency medicine and Debre Berhan hospital partners in Ethiopia learned the value of quality improvement. By learning how to monitor patient waiting times and establish and monitor infection prevention and control measures, these partners are improving outpatient services and maximizing efficiency.

Professional Association Building

The Twinning Center and its partners were instrumental in establishing professional associations in Ethiopia. The Ethiopian Society of Emergency Medicine Professionals (ESEMP) was established in 2012 by AAU SOM with the support of the Ministry of Health, along with two twinning partners, the University of Wisconsin-Madison School of Medicine and the NGO Public Health and People to People. The University of Wisconsin partners facilitated meetings with leaders of professional associations in Wisconsin to help with the development of the terms of reference, member profile, and a business plan. According to the coordinator of the Addis Ababa University emergency medicine partnership, members are health professionals (doctors and nurses) and members of medically related para-professional groups, including ambulance staff, firefighters, aviation workers, hospital and hotel staff, embassies, government offices, and private firms. ESEMP hosted a continuing education conference on emergency medicine in October 2012. The Twinning Center facilitated partner meetings, sponsored the launch of the association, and funded travel for the president of the African Emergency Medicine Association (AEMA) to participate in the October conference. Subsequently, the AEMA president requested that AAU partners host the next conference in 2014. The society is now a member of the African Confederation of Emergency Medicine and the International Federation of Emergency Medicine. Several countries are communicating with the department to share experiences.

The Consortium of Schools of Pharmacy consists of seven schools of pharmacy in the country. In the beginning of the AAU SOP-Howard partnership the consortium was just beginning to organize itself. As curriculum upgrading at AAU began, the Twinning Center and its partners have encouraged the development of a national curriculum. Consortium meetings were sponsored by Twinning Center by assuming financial support for member transportation, accommodation, and travel-related per diem. As discussed above, the curriculum revisions were adopted by all seven schools in the country.

The Twinning Center and the social work partners were instrumental in supporting the organization of the Alumnae Association for Social Workers. The Twinning Center sponsored its partners' attendance and networking with similar associations in the region so they could gain confidence and understand the benefits of establishing an association.

F. Objective 3: Conclusions

Twinning partners collaborated at multiple institutional levels to advance the development of sustainable institutional change and reform. At the programmatic (or departmental) level, resource and in-country partners shared and transferred knowledge and skills, engaged in advocacy to build new teaching and training models, introduced modern clinical practices, using evidence-based practices, and

established standards of quality. In the case of academic institutions, twinning enabled standardization of training and performance measures.

Partnerships reviewed in this report produced results embedded in a firm institutional base for the professional education programs at AAU schools of medicine, pharmacy, and social work, ensuring the establishment of an administrative and managerial framework to support the sustainability of the new academic programs. There is ample evidence that the organization, management, and delivery of health services at Debre Berhan improved markedly due to the meaningful exchanges of administrative and health professional staff, mentoring, and training provided through the twinning partnership. Some results were observed of improvements in the management and delivery of health services based on the use of quality improvement. Perhaps the best indication of results achieved by the TC partnership methodology was provided in a comment by the director of Debre Berhan Hospital: “Our staff became very motivated. We did not have a benchmark. Exchanges were life changing. Our nurses became empowered.”

The partnerships introduced evidence-based practice and quality improvement training for health workers as an instrument of change. The emergency medicine faculty has used quality improvement results to leverage improvements in service and new building construction. In the case of Debre Berhan, there is strong evidence that evidence-based practice and QI are firmly established and producing solid results not only in terms of institutional culture, but also by influencing practices at affiliated hospitals. And, as collaboration with Debre Berhan University School of Medicine evolves, the hospital will be on its way to becoming a regional hub. It remains to be seen what impact this partnership will have on institution reform, particularly on the culture and practices that may be entrenched.

Partners introduced interdisciplinary health care teams in AAU adult and pediatric emergency medicine and at Debre Berhan Hospital integrated teams provide health services. The School of Pharmacy plans to integrate the clinical pharmacist on the health team by placing pharmacists in nursing stations, which will extend integration of the health team. AAU emergency medicine and pharmacy are setting up a poison control center within the Emergency Department to be staffed by pharmacists, and AAU School of Pharmacy clinical pharmacy students at Debre Berhan Hospital are developing rotation practices, which will provide opportunities for the students to work with the health care team in that hospital. No evidence was found of any integration of social work and the AAU SSW partnership into these team-building efforts. The integrated health team established at Debre Berhan appears to reach across hospital departments horizontally—that is, the teams include doctors, nurses, pharmacists, social workers, laboratory technicians, and those in hospital administration departments (accounting, human resources).

Similarly, AAU SSW has developed undergraduate and graduate academic programs, providing the MSW students with an important practice opportunity by training them to serve as training-of-trainers in the para social work caregiver training program that was extended across seven regions, including in Addis Ababa. The experience of this partnership provides ample lessons for replication and scale-up of parasocial caregiver approaches. An evaluation of the successes and challenges would provide clear lessons and best practices for other regions of the country and other countries.

The use of information technology partner and affiliated institutions is advancing. Drug information Center satellites were set up at affiliated schools of pharmacy. Debre Berhan is gradually introducing electronic patient records which, although still in its infancy, may have far-reaching effects on the delivery of services and provide a model for affiliated institutions and medical, nursing, and pharmacy students and residents who rotate through the institution. Micromedix software purchased for AAU School of Pharmacy will be introduced for emergency medicine to provide a database with emergency

drug interaction. Learning Resource Centers are in use in emergency medicine, pharmacy, social work, and Debre Berhan, and partners report that they are useful. The TC has supported and assisted with the development of the training manual for Ecomap, a referral and linkage system. The system enables para-psycho-social caregivers to identify possible linkages to support the individual with the help of another organization already networked through the Ecomap system. There were no data available to the evaluation team regarding the extent and regularity of use of these mechanisms.

University faculty are participating in national and international fora where they are able to network and present professional papers, providing them with opportunities to promote their scholarly production and network and advocate in a broader forum in Ethiopia and in Africa.

The AIHA TC has added significant value, lending huge credibility to the partnerships as chief liaison and advocate. The TC provided the marketing function for the introduction of new health professions, co-sponsored national and international meetings such as ICASA, supported the recruitment and placement of the highly valued VHC program at FMOH, and provided a flexible model in a challenging environment.

Partner Collaboration

Twinning partners collaborated at multiple institutional levels to advance the development of sustainable institutional change and reform. At the programmatic (or departmental) level, resource and in-country partners shared and transferred knowledge and skills, engaged in advocacy to build new teaching and training models, introduced modern clinical practices, using evidence-based practices, and established standards of quality. In the case of academic institutions, twinning enabled standardization of training and performance measures.

Resource partners engaged directors and staff from multiple levels within their institutions to collaborate with different levels of management at recipient institutions. Through advocacy, partners leveraged university and government accreditation and support for training programs and institutional reforms, promoting more uniform education and health service delivery quality. Partnership advances in social work, clinical pharmacy, emergency medicine, and hospital strengthening in Ethiopia are excellent examples of the value added by twinning.

Operational knowledge in managerial, financial, and technical skills and systems, transferred through concrete learning opportunities and practical applications, contributed to improved organizational efficiency and effectiveness at in-country partner institutions and their affiliates. Having been endorsed by universities, regulatory agencies, and Ministry of Health officials and other policy makers, the programmatic successes in institutional capacity building are being introduced for broader application within national health systems in Ethiopia.

Overall, it is apparent that a different model is emerging in which evidence-based practice and results of QI projects are being used to advocate for changes in practice. As one faculty member noted “the great lesson for us is...monitoring ourselves and correcting ourselves (doctors, nurses, cleaners), we can change things.” (Ethiopia-based faculty member)

Administrators and university faculty who are using newly acquired skills in strategic thinking, leadership, and management have heightened visibility nationally and leadership roles within their institutions, demonstrating their willingness to drive health system reform that can potentially transform the delivery of health care at their institutions. AAU emergency medicine and Debre Berhan leveraged the expertise acquired through twinning partnerships to leverage financial resources for the construction of new buildings.

Professional organizations and networks established or revitalized with TC and partner support will legitimize new health professions, such as emergency medicine, clinical pharmacy, and social work,

enabling professionals and para-professionals to assume a greater role in public policy and advocacy and advance the development of their professional identity, which will contribute to longer-term professional sustainability.

All partnerships are directly aligned with FMOH policy and priorities. There is clear ministry buy-in, especially with the TC's new role in the implementation of the New Medical Education Initiative in collaboration with U.S. institutions in the MEPI consortium. The TC will need to monitor progress carefully to determine the feasibility of place the targeted number of volunteers in the basic sciences per year.

Contribution to Sustainability

With twinning partnership support, some partners have taken proactive steps to plan for the continuation of activities after the termination of partnership support. One example is Debre Berhan, which rents space and provides training and maintenance services to other health facilities for fees that are used to make hospital improvements.

Professional training partnerships in social work, pharmacy, and emergency medicine—including the new curricula/modules, residency, fellowships, and preceptorships that have been developed—are relatively sustainable. Addis Ababa University accredited its revised bachelor's and master's curricula in social work and pharmacy, and its new emergency medicine residency, fellowship components of the Emergency Medicine program. Faculty support for teaching in these programs will continue. The university's schools of medicine and pharmacy extended their outreach to affiliated hospitals and health facilities and universities in other regions of the country. It remains to be seen how these advances will be sustained.

While the Federal Ministry of Health has prioritized health care workforce development in national plans and policies, and indicates a commitment to deploying new health professionals, there is no guarantee that additional resources will be forthcoming from governments to employ and deploy new cadres.

As for the continuity of partnerships, some U.S.-based partners reported efforts to continue their involvement post-partnership, either through the use of email and Skype or by working with in-country partners to develop a research agenda and strengthen grant writing skills. Such is the case of the emergency medicine partners at Addis Ababa University and the University of Wisconsin that developed a joint research agenda.

V. Lessons Learned and Recommendations

A. Lessons Learned

- A number of factors contribute to the success of a partnership. In two cases in Ethiopia, a “champion” catalyzed the change process, connecting the partnership and government with the broader community in creative ways. The partners at Debre Berhan Hospital spearheaded a nursing leadership and management initiative that led to the formal establishment of a hospital nursing department and roll-out to other hospitals in the region.
- All partnerships in Ethiopia had government ownership. In the case of adult and pediatric emergency medicine, the MOH advocated for this partnership with CDC. The pharmacy partnership was also a priority of the ministry. Achieving government ownership is an important element in ensuring a partnership's success.
- The approach in Ethiopia promoted reform measures at the upper levels of institutions. The hierarchical approach used in Ethiopia with academic institutions and health care facilities built

capacity across a range of academic disciplines and institutional levels. Promoting leadership development boosted faculty development and leadership. In-country partners gained professional confidence. This success provides a lesson that should be incorporated into similar activities that place in the future. That said, the twinning approach can be used at different levels of the institutional hierarchy to ensure that institutional changes will be consolidated and maintained. Resource partners engaged directors and staff from multiple levels of their own institutions to collaborate with different levels of management at recipient institutions.

- An important lesson emerging from quality improvement studies in Ethiopia was the need for increased attention to patient privacy, education, and satisfaction. For doctors, simply communicating in Amharic with patients was an important lesson to absorb.
- The Twinning Center selected U.S. partners with expertise relevant to the needs of in-country partners. Through professional exchanges, mentoring and short courses, the U.S. partner opened a new world of opportunities and contributed to the effectiveness of partnership interventions. The expertise, skills, and commitment of the selected U.S. partners helped create a critical mass in Ethiopia. In the future, attention should be paid to ensuring a careful, thorough partner selection process that pairs the right institutions for maximum impact.

B. Recommendations

Twinning partners produced competency-based curricula, emerging models of care, and standards of practice in emergency medicine, clinical pharmacy, and social work with a view to introducing modern evidence-based practice. These products should be assessed to determine their effectiveness in terms of skills development and transfer of training curricula. The transferability of educational materials and standards of practice also needs to be assessed. In addition, measures should be developed to measure the continuing maintenance of effective professional performance and improvement. Once evaluated, these products and results should be made widely available in Africa.

Likewise, although volunteers receive high marks for contributions made. The evaluation team suggests that a follow-up assessment of volunteers with health authorities post-volunteer service would confirm the actual uptake of manuals, data systems, and protocols developed.

Assessment of the academic undergraduate and graduate pre-service and in-service curriculum models, standards of practice, lessons learned, and best practices employing interdisciplinary health teams, and using evidence-based medicine for quality and efficient improvement would have significant potential for replication and scale-up in other African countries

Learning Research Centers can be used for all pre-service training programs once benefits to end users and changes in clinical practices are assessed. LRCs can—and should—be leveraged for scale-up with the Ministry of Health to expand to training of other health professionals and mid-level health workers, such as physical therapists and occupational therapists.

The CDC NRD process is cumbersome. HRSA will need to support AIHA efforts to expedite resolution of problems obtaining NRD blanket clearances. The situation is causing significant delays for twinning partners to conduct surveys to measure program impact, guide course corrections, and determine weaknesses within systems. Changes to the current review process require negotiation with the CDC to understand agency guidelines and their application at the country level.

AIHA Twinning Center Evaluation South Africa Country Report

Acronyms

AIHA	American International Health Alliance
APCA	African Palliative Care Association
BCMP	Bachelor of clinical medical practice
BOCAIP	Botswana Christian AIDS Intervention Program
CDC	U.S. Centers for Disease Control
CHSR&D	Centre for Health Systems Research and Development
CPUT	Cape Peninsula University of Technology
DOH	Department of Health
FPD	Foundation for Professional Development
HIV	Human immunodeficiency virus
HPCA	Hospice Palliative Care Association of South Africa
HRH TWG	Human Resources for Health Technical Working Group
HRH	Human resources for health
HRSA	Health Resources and Services Administration
HSS	Health systems strengthening
IAPAE	International Academy of Physician Associate Educators
IHS	Institute of Health Sciences
IOM	Institute of Medicine
LRC	Learning Resource Center
M&E	Monitoring and evaluation
MDG	Millennium Development Goal
MDR-TB	Multidrug-resistant tuberculosis
NDOH	National Department of Health
NGO	Nongovernmental organization
NMMU	Nelson Mandela Metropolitan University
NRD	Non-research designation
OGAC	Office of the Global AIDS Coordinator
PACASA	Professional Association of Clinical Associates in South Africa
PEPFAR	President's Emergency Plan for AIDS Relief
PHE	Public health evaluation
PoN	Polytechnic of Namibia
QI	Quality improvement
RuDASA	Rural Doctors Association of South Africa
SANU	Southern Africa Nazarene University
SUNY-DMC	State University of New York-Downstate Medical Center, Brooklyn, New York
TB	Tuberculosis
TC	Twinning Center
TP	Twinning Partnerships
UP	University of Pretoria
VHC	Volunteer Healthcare Corps
WHO	World Health Organization
Wits	University of the Witwatersrand
WSU	Walter Sisulu University

I. Introduction

A. Evaluation Purpose and Objectives

In January 2012 the American International Health Alliance (AIHA) commissioned the QED Group LLC to conduct a comprehensive evaluation of the AIHA HIV/AIDS Twinning Center Program in Africa. The evaluation intended to inform the Health Resources Services Administration (HRSA), the Human Resources for Health Technical Working Group (HRH TWG), and the Office of the Global AIDS Coordinator (OGAC) regarding the President's Emergency Plan for AIDS Relief (PEPFAR)-funded HIV/AIDS Twinning Center Program. The objectives of the evaluation were the following:

9. Assessing and documenting the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
10. Identifying promising approaches utilized in the implementation of twinning partnerships for possible replication and scale-up
11. Assessing and documenting the value added of twinning partnerships and how they contribute to human resources for health and health systems strengthening goals through institutional capacity building; healthcare workforce training; improved organizational development among institutions; and professional association building
12. Providing recommendations for human resources for health and health systems strengthening program strategies that are responsive to both existing as well as anticipated field needs

In 2004, AIHA was awarded a cooperative agreement from HRSA to establish the Twinning Center, a capacity-building mechanism for supporting countries targeted for assistance under PEPFAR. AIHA's unique methodology aims to promote sustainable partnerships between communities and institutions to foster more effective and efficient health service delivery. Unlike traditional consultancy projects, the partnerships are voluntary, peer-based technical assistance programs with an emphasis on professional exchanges and voluntary contributions. HRSA awarded the Twinning Center a second five-year cooperative agreement in February 2009, ensuring funding for the program through 2014. The current evaluation covers the period of the current cooperative agreement, that is, from 2009 to the present.

B. PEPFAR Goals

PEPFAR is the largest bilateral health initiative in the world. President George W. Bush's 2003 pledge to spend \$15 billion over five years fighting HIV/AIDS, tuberculosis (TB), and malaria was considered groundbreaking at the time. Under two successive authorization acts—the Leadership Act, 17 P.L. 108-25, and the Lantos-Hyde Act, P.L. 110-293—a total of U.S. \$63 billion was authorized to fight HIV/AIDS, TB, and malaria. PEPFAR authorization expires at the end of FY 2013. During the first phase of PEPFAR (FY 2004–FY 2008), the United States spent more than \$18 billion on global HIV/AIDS initiatives, including the Global Fund. From FY 2009 through FY 2012, U.S. spending on international HIV/AIDS assistance reached nearly \$26 billion.¹⁴

The second phase of PEPFAR Funding (PEPFAR II) aims to transition countries from an emergency response phase toward a sustainable response to the HIV/AIDS epidemic. PEPFAR II goals include:

- Transition from an emergency response to promotion of sustainable country programs

¹⁴ Tiaji Salaam-Blyther. The President's Emergency Plan for AIDS Relief (PEPFAR): Funding Issues after a Decade of Implementation, FY2004-FY2013. October 10, 2012, Congressional Research Service, 7-5700, R42776 <http://www.fas.org/sgp/crs/misc/R42776.pdf>, accessed 03/15/13.

- Strengthen partner government capacity to lead the response to the epidemic and other health demands
- Expand prevention, care, and treatment in concentrated and generalized epidemics
- Integrate and coordinate HIV/AIDS programs with broader global health and development programs to maximize the impact on health systems
- Invest in innovation and operations research to evaluate impact, improve service delivery, and maximize outcomes¹⁵

C. Country Context

South Africa has the largest HIV epidemic in the world, with approximately 5.7 million people living with HIV. The country also ranks third in the world in terms of TB burden according to World Health Organization (WHO) estimates, with an incidence of 948 new infections per 100,000 population in 2010, which is compounded by high levels of multidrug-resistant tuberculosis (MDR-TB). The estimated number of confirmed MDR-TB cases among new pulmonary TB cases in 2010 was 7,386. The high rates of co-infection (approximately 60% of TB patients are co-infected with HIV) lead to further expansion of the epidemics and complicate patient treatment and care.

HIV and its related opportunistic infections (TB, certain forms of cancer, diarrheal disease) contribute significantly to maternal mortality (50%) and child mortality under 5 years of age (35%). This is reflected in the challenge South Africa is experiencing in making progress in achieving Millennium Development Goals (MDGs) 4 and 5, which relate to child and maternal mortality. Child mortality initially increased from the 1990 MDG baseline of 60 deaths under the age of 5 years per 1,000 live births, peaked at 82 deaths/1,000 births in 2003, and decreased to 56 deaths/1,000 births in 2009. The maternal mortality ratio is an estimated 310 maternal deaths per 100,000 live births (2008 data). PEPFAR support began in South Africa in 2004 and has scaled up rapidly. To date, the U.S. Government has contributed more than 3.7 billion U.S. dollars.¹⁶

II. Methodology and Limitations

A. Methodology

The performance evaluation used qualitative data collection and analysis. Information sources included key informant interviews, focus groups, and direct observation. Interviews and focus groups were guided by the sub-questions included in the scope of work and outlined in the non-research designated (NRD) protocol. Interviews and focus groups were conducted using open-ended questions.

The evaluation team included two U.S. consultants—Dr. Rosemary Barber-Madden, a health professions development specialist (team leader), and Catherine (Tina) Cleland, a health systems strengthening specialist with extensive experience with the Twinning Partnership methodology. Both team members have technical and programmatic experience with HIV/AIDS programming. QED managed the contract team and AIHA provided operational and logistics support.

Data collection and synthesis compiled information from four major sources:

- A review and synthesis of AIHA and country-specific documents, including AIHA documents and prior evaluations, Twinning Partnership annual work plans, PEPFAR/Country Operational Plans,

¹⁵ The U.S. President's Emergency Plan for AIDS Relief Five-Year Strategy (2009) <http://www.pepfar.gov/documents/organization/133035.pdf>, accessed 01/10/13.

¹⁶ PEPFAR Partnership Framework Implementation Plan, South Africa 2012/13 – 2016/17, accessed 3//2013.

semi-annual and annual reports, and relevant PEPFAR documents such as PEPFAR country Partnership Framework Implementation Plans for the countries visited

- Key informant interviews of relevant stakeholders at the national, regional, and district levels, including PEPFAR Centers for Disease Control (CDC) activity manager, government officials, AIHA headquarters and country office staff, U.S.-based and in-country partners, Clinical Associates Program participants and staff from Walter Sisulu University and the University of Pretoria, and researchers at the Centre for Health Systems Research and Development, University of Free State. (See Annex E of the Evaluation Report for a full list of persons met)
- Use of standardized interview guide
- Site visits to AIHA in-country partner sites in Johannesburg, Pretoria, Mthata, and Bloemfontein

The evaluation was conducted between May 23, 2012, and June 30, 2013. The evaluation team conducted field work in South Africa from February 4–8, 2013.

B. Limitations and Constraints

Limited duration of country visits: Although the AIHA Twinning Center provided logistical support to the evaluation team throughout country visits, the five-to-six-day duration of country visits limited the sample of program beneficiaries that could be interviewed for most partnerships.

III. AIHA Twinning Center Model Overview

A. Twinning Center Model Overview

The Twinning Center (TC) partnership model relies on building volunteer-driven, peer-to-peer relationships between African and U.S.-based institutions that provide HIV/AIDS-related prevention, care, treatment, and support services. TC partnerships have supported human and institutional capacity building using exchanges, training, and technical assistance. The TC has also supported the deployment of highly skilled volunteers through its volunteer healthcare corps (VHC) program. The relationships are bolstered by institutional exchanges of key personnel to observe partners' respective operations and identify initiatives that can improve the quality of care provided by in-country partners. The central goal is to develop local solutions aided by observing examples in other country settings. The Twinning Center's use of volunteers and twinning partnerships (TPs) has provided a foundation for the rapid scale-up of prevention, treatment, and care, and has contributed to developing a solid platform upon which other health programs can be built.

According to Twinning Center reports, 627 healthcare workers and para-professionals graduated from Twinning Center-supported pre-service and in-service education and training programs in South Africa during the period from 2006 to 2012, including 116 Clinical Associates through pre-service training, and 511 health care workers through in-service training.¹⁷

¹⁷AIHA HIV/AIDS Twinning Center Monitoring & Evaluation, Systems, Results, & Technical Support, PowerPoint presentation by J. Buehler, January 15, 2013.

IV. Evaluation Findings and Conclusions

Evaluation Objective 1 – Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals

A. Objective 1: Findings

Twining Center Partnerships

This section examines the types of partnerships, the extent of South-South cooperation activities, and partner and stakeholder opinions regarding the contributions and benefits of twinning partnerships.

Types of Partnerships

Twinning partnerships reviewed in South Africa were designed to develop the capacity of university academic units, namely the Centre for Health Systems Research and Development (CHSR&D), Free State University, and the Clinical Associate undergraduate programs at Walter Sisulu University (WSU), University of the Witwatersrand (Wits) and University of Pretoria (UP). All partnerships reviewed were North-South, with U.S.-based university academic unit partnering with a similar type of unit at the four universities in South Africa. Annex C presents each partnership by year initiated, goal, type of partnership, type of training provided, South-South cooperation activities, and evaluator observations. Partner institutions signed memoranda of understanding and submitted annual work plans and quarterly/annual progress reports that were reviewed and approved by AIHA.

Clinical Associate Partners

Clinical Associates are a cadre of mid-level health workers established as a priority by the National Department of Health (NDOH) in 2004. The NDOH supported the launch of a new Clinical Associates Program at three universities: Walter Sisulu University, established in 2008, and the University of Pretoria and University of the Witwatersrand, established in 2009. The program was launched with the support of the NDOH and other donors and stakeholders. The program's purpose was to increase the number of mid-level medical professionals in the workforce to address health workforce shortages, which are especially severe at community health centers and district hospitals in rural South Africa. The bachelor of clinical medical practice (BCMP) degree is a three-year full-time program, with a large portion of the time spent in clinical settings (district hospitals) to gain practical learning experience. Clinical Associates are trained to assess patients, make diagnoses, prescribe appropriate treatments, and undertake minor surgical procedures under the supervision of medical officers.

It should be noted here that Twinning Center and twinning partnerships did not have a role in clinical associate program development or in curriculum development per se. The role of twinning was to foster collaboration among clinical associate partners in South Africa to identify and address a range of policy issues regarding cadre inclusion in the health care team, and to convene universities to enable them to move toward achieving their national goals. To support the development of Clinical Associates academic programs at universities, the TC launched three coordinated university-to-university partnerships.

Walter Sisulu University and the University of Colorado School of Medicine have collaborated since February 2010. The goal of this partnership is to strengthen WSU's Clinical Associates Program through strategic faculty and staff development and mentoring and support for curriculum development. The University of Colorado and TC staff provided mentoring in research competencies in support of the Clinical Associates Program at WSU and jointly worked on a number of research activities (journal articles, presentations, abstracts) and grant proposals—including drafting evaluation protocols for the clinical site survey.

The University of the Witwatersrand/Emory University partnership was established in May 2010. Faculty and staff development plays an important role in this partnership, as does strengthening student assessment and learning opportunities. Partners also work to support research and program assessment capabilities at Wits and to build capacity in advocacy and marketing for the Clinical Associates profession. Emory partners served as external examiners for final examinations at Wits and assisted with setting third-year learning objectives. Together, partners conducted faculty development workshops focusing on enhancing bedside teaching skills, providing feedback to students, and supporting student testing and evaluation. The TC supports their work through the placement of clinical preceptor volunteers and the procurement of Learning Resource Center (LRC) resources to increase access to evidence-based clinical information at rural rotation sites.

The University of Pretoria/Arcadia University partnership was established in November 2010. The partnership works to strengthen the University of Pretoria's Clinical Associates Program by developing a tracking system to ensure that students at all training sites receive adequate training hours and a similar breadth of patient types. They are also collaborating to improve formative and summative student assessments and design Clinical Associates Program evaluation. The Arcadia partners contributed test questions for Pretoria's exams and acted as external examiners during finals.

With assistance from Arcadia University and Emory, the University of Pretoria and Wits have each developed honors-level post graduate program curriculum for Clinical Associates, to be launched in 2015.

Public Health Evaluation

In 2008, the Twinning Center established a partnership linking the Centre for Health Systems Research and Development, University of the Free State, with the State University of New York-Downstate Medical Center in Brooklyn, New York (SUNY-DMC). The goal was to strengthen the capacity of CHSR&D to more effectively conduct quality scientific research that informs HIV- and TB-related policy and practice in the Free State and in South Africa, and to disseminate research findings to national and international audiences. The institutions engaged in faculty and student exchanges and mentoring at SUNY-DMC. The partnership sponsored short courses for CHSR&D faculty and student participation at Johns Hopkins University, technical support on-site and via the Internet (webinars, Skype, email) from research experts at SUNY/DMC and UAB. SUNY/DMC assistance developed CHSR&D's research capacity to the point that CHSR&D and TC were able to prepare a successful public health evaluation (PHE) project proposal. CDC awarded the project to CHSR&D in 2011; PHE grant funds are executed by AIHA. This research is designed to integrate TB-HIV services in the Free State Province and evaluate professional and lay health worker training and mentoring interventions to improve TB patients' uptake of HIV counseling and testing in the Free State.

Pharmacy Technician Program

The Pharmacy Technician Program was launched at Nelson Mandela Metropolitan University, Port Elizabeth, in October 2012. This partnership is still in its early stages of development and was therefore not included in this evaluation.

Changes in Partnerships

The partnership between CHSR&D and State University of New York, Downstate Medical Center, graduated in 2010 when CDC approved a public health evaluation project at CHSR&D. Since that time, AIHA has served as the institutional partner for the execution of project funds and other technical support.

Collaboration Between Partners

The three Clinical Associates programs reported that they worked together to develop a standardized exam that serves as a national exam. All Clinical Associates graduates complete the exam prior to graduation. The exam will eventually be used to certify Clinical Associates in South Africa. All six university partners jointly participated in the development of the Clinical Associates National Exam, with financial support for travel provided by the Twinning Center. In addition to the exam, the partners forum jointly worked on advocating for the new profession, use of information resources, association building (PACASA), and mentorship (US PA faculty volunteers). All partners stressed the importance of Twinning Center-sponsored national annual partner meetings to promote cross-learning between partnerships, strengthen individual partnerships and cross-partnership collaboration, and identify and share lessons learned.

Contribution of South-South Partnerships and Cooperation

AIHA has extensively supported the involvement of South African institutions in South-South activities, primarily by providing technical support to other institutions in Africa:

- The University of Witwatersrand and Stellenbosch University have provided assistance to the emergency medicine partnership in Ethiopia. Wits provided training in Ethiopia while Ethiopian students served in emergency medicine residencies at Stellenbosch. Wits also held initial discussions with the Zambian Defense Forces about possible support.
- The Cape Peninsula University of Technology (CPUT) provided assistance to the Polytechnic of Namibia (PoN) for the development of PoN's polytechnic laboratory training (biomedical sciences) degree program. The TC is now enlisting CPUT to provide assistance to the lab training programs at the Southern Africa Nazarene University (SANU) in Swaziland.
- The Cochrane Collaborating Centre in Cape Town participated in the TC learning resources program, providing training in evidence-based medicine in Ethiopia, Namibia, and Zambia.
- The Hospice Palliative Care Association of South Africa (HPCA) provided assistance to the palliative care partnership between the Institute of Health Sciences (IHS) in Botswana and the African Palliative Care Association (APCA). HPCA has hosted partners from Botswana to provide technical assistance and to link the partners with hospice and other palliative care sites in South Africa for site visits and practical learning experiences.
- The Foundation for Professional Development (FPD) provided technical assistance to the Botswana Christian AIDS Intervention Program (BOCAIP) on the development of a strategic plan, and delivered a healthcare management certificate course for Botswana partners.
- CHSR&D, University of the Free State, conducted an assessment of the TB situation in Mozambique to inform the development of the twinning partnership there.
- Rhodes University hosts the annual Highway Africa media conference, which has been attended by the Botswana and Zambia media partners, including the formal launch of the Hearts and Minds prevention campaign.

Volunteer Healthcare Corps

In 2007, the TC began placing individual mentors through its Volunteer Healthcare Corps (VHC) mechanism to support capacity building within the context of the HIV/AIDS response in South Africa. Since the program's inception, 22 volunteers have been placed at 23 placement sites in South Africa. Volunteers devote substantial in-kind donations of professional time during assignments, which last from three months to more than a year. Volunteers bring expertise and experience in a number of clinical and non-clinical areas, including data management, epidemiology, monitoring and evaluation

(M&E), clinical care (physician), organizational development, and community-oriented primary care. The TC identifies appropriate host sites, develops scopes of work, recruits and identifies appropriate experts to serve, and supports the orientation, placement and monitoring of volunteers at host sites. Through its VHC mechanism, the TC is fielding expert faculty from the U.S. to conduct courses/training and provide mentoring to local staff. Assignments may or may not be consecutive.

Country	Total # of Volunteers	Total # of Placements	Total In-Kind Days
South Africa	22	23	4,192

Three volunteers placed in the past year included the following: (1) an M&E specialist to provide M&E support to the Free State Department of Health; (2) a Data Specialist to provide assistance to Medunsa and the National Department of Health in developing data systems for pharmacovigilance; and (3) a Monitoring and Evaluation specialist to support technical areas of monitoring and evaluation systems, research, and reporting results at the Northern Cape Department of Health.

As one of the Clinical Associates forum activities, mentors were placed at Wits, the University of Pretoria, and Walter Sisulu University to support the Clinical Associate Programs, and will support the training of pharmacy technicians at Nelson Mandela Municipal University (NMMU). The evaluation team met with one VHC volunteer at the University of Pretoria, a U.S.-trained Physician's Assistant who had just begun working as a tutor and was unable to provide much information. Another volunteer mentor to the Clinical Associate program at Wits was on leave. The team did not meet with the remaining two volunteers based at Free State Department of Health (DOH): one had returned to the U.S. and the other was unavailable. The DOH Research Unit Director reported that a VHC epidemiologist assigned to the unit had made significant contributions to the planning and organization of the Inaugural Research Day of the Free State DOH in collaboration with the University of Free State. The volunteer provided technical assistance to her counterpart via email for organizing the event, organizing the call for abstracts, coordinating the scientific review process for submitted papers, and preparing an abstract book published by the TC. The Free State DOH Research Unit has a second VHC volunteer who is assisting efforts to develop a provincial M&E plan and strengthen the unit's health information system, including data collection, input, and management.

Monitoring and Evaluation

AIHA developed a new M&E system and processes in 2012 and established an independent monitoring and evaluation unit to meet changing needs and requirements as the partnership program matured. The M&E system was built to review progress in work plan implementation; compile monthly financial report reviews; track partnership exchange trips; track in-kind contributions such as in-kind time and resources; track regular site visits to partner institutions in-country, and store partner quarterly progress reports. Through this system AIHA monitors achievement of measurable objectives and activities outlined in the partnership's work plans.

AIHA assists partners in developing work plans with measurable objectives, outputs, outcomes, and indicators. Partners are required to submit quarterly performance reports with information on progress in achieving PEPFAR targets and objectives; status of activities and outputs; constraints affecting the project; and plans to address obstacles. Quarterly reports are used to prepare AIHA's quarterly narrative and indicator reports to PEPFAR Activity Managers (CDC, USAID, or DoD, depending on the particular donor), and are the primary basis for monitoring partnership progress. The M&E priority at the country level is tracking key objectives, indicators and targets, outputs, deliverables, and activities of all in-

country partnerships, and producing quarterly narrative reports from partners along with indicator reporting by Twinning Center.

Partners reported having presented a number of papers at partnership annual coordination meetings and national and international conferences, published results in national and international reports, and refereed journals.

Contribution to Sustainability

The Twinning Center and its partners contributed significantly to the development and sustainability of new academic and research programs and a new national professional association.

Clinical Associate programs are firmly embedded within the three universities. Curricula were approved by their respective institutions. Applications to the programs are high, and there is institutional support to continue and sustain these academic programs over the mid to long range.

CHSR&D gained valuable research expertise from its partner, SUNY-DMC and its research agenda is expanding with new collaborative research opportunities at the national and international levels and funding from other donors. Twinning enabled CHSR&D to win the CDC PHE award. The School of Health Sciences CHSR&D is now recognized as a Center of Excellence and its director has been promoted.

Graduation

The Twinning Center does not have specific criteria for partnership graduation. The partnership between CHSR&D and SUNY-DMS had completed its work plan, and CHSR&D was proceeding on its own to develop the CDC PHE project. There were no plans to graduate the three Clinical Associate partnerships at the time of the evaluation team's visit. The TC field offices informed the evaluators that resource partners will continue to be involved through an as yet undetermined mechanism.

B. Objective 1: Conclusions

Partnerships

Benefits to Countries from Twinning Partnerships

The evaluation team found a number of factors leading to partnership success in South Africa. Having an international partnership validated the programs under development by in-country partners and increased program and faculty visibility within their respective institutions. This enabled them to leverage institutional support for faculty and program development. Faculty at Wits reported that other departments within the school were now willing to collaborate and teach within the Clinical Associate Program. The partnership opened up new opportunities for networking with other institutions in the country and internationally.

Partners reported that collaborative decision making led to a sense of joint ownership and was a key element in partnerships. Faculty at all four South African universities reported that faculty exchanges and peer-to-peer mentoring were valuable and increased faculty confidence. Faculty at Wits and the University of Pretoria and researchers at CHSR&D noted that the partnership validated their work and increased their visibility within their institutions. Clinical associate faculty at the University of Pretoria explained the significance of Arcadia University's contribution: "They sent experienced faculty with professional expertise who validated the program with the Dean of the School of Health Sciences and clinical associate students, and helped with developing student exams."

Clinical associate faculty at Wits, Walter Sisulu University, and the University of Pretoria reported that joint development of annual exams for clinical associate students and the graduation exam developed by all six partners standardized their academic programs, provided quality controls, and helped them work against benchmarks. A Wits Clinical Associate Program faculty member stated, "The partnership is

ensuring quality, helping standardize the education.” Additionally, in-country partners highlighted access to and use of new clinical and technical skills.

New Cadre of Professionals

A CDC Activity Manager emphasized the contributions of twinning to introducing a new professional cadre into South Africa’s health workforce, which will contribute to reducing health worker shortages in rural areas of the country. At the same time, it is important to note that all 2012 graduates were contracted by provincial departments of health since the evaluation team’s visit. A government representative reported that the introduction of the Clinical Associate into the health workforce had been a government priority. At the same time, the representative underscored the importance of documenting the contributions of Clinical Associates to rural health care. Both the CDC Activity Manager and the government representative stressed that AIHA should apply this model to other mid-level professional cadres, with emphasis on South-South in-country partnering.

The TC supported South-South cooperation with institutions and NGOs in Ethiopia, Swaziland, Namibia, Mozambique, Botswana, and Zambia, offering opportunities for highly specialized training; mentoring and technical support in emergency medicine, palliative care, health communications, and health assessments. The TC South-South cooperation experience has effectively demonstrated the agility of the Twinning Center in using its network of institutions to benefit institutions in other countries. This is a trend supported by CDC South Africa. As one representative pointed out, “Twinning fits within our South Africa Transition in PEPFAR. This approach should move toward national institution twinning rather than the current model.”

Evaluators did not have an opportunity to interview volunteers in South Africa. A volunteer in Free State Province was in another city providing assistance to the local health authorities in developing a data reporting system. Another volunteer, a tutor at the University of Pretoria Clinical Associate program, had only recently begun her assignment. A third volunteer serving as a mentor at the Wits Clinical Associate program was on leave.

AIHA quarterly and annual progress reports for South Africa show that volunteer projects have been focused on the following four technical areas:

Skills development, educational materials development, and training

- Capacity building of federal and regional health staff in research, epidemiology, and data analysis, specifically to interpret results of surveys and other field data and prepare reports; serving as tutors in the clinical practice supervision of clinical associate students
- Training for data management staff at provincial health authority on proper database maintenance
- Training in logic models, monitoring tools, and evaluation design

Strengthening health systems

- Strengthening the capacity of the National Pharmacovigilance Centre to monitor and evaluate pharmacovigilance activities

Strengthening information systems or technology

- Technical assistance on effective use of Excel to support data management
- Assessment of antiretroviral data extraction and reporting from facilities to districts and reporting from districts to provincial health departments

Promoting research initiatives

- Technical support for planning and organization of the Inaugural Research Conference of the Free State DOH in South Africa, which was the culmination of capacity building for the DOH

Since the evaluation team was unable to interview volunteers in South Africa, it was unable to determine the benefits of the volunteer experience for the volunteers themselves. According to the Free State Provincial Department of Health, Director of the Research Unit in South Africa, volunteers significantly contributed to organizing a successful province-wide research conference and developing an M&E system to enable accurate data reporting to the National Department of Health. Although volunteers appear to receive high marks for their contributions, the team did not find specific reports concerning how health authorities implement and sustain new systems, protocols, and programs developed with volunteer assistance. A follow-up post-volunteer service assessment would provide information on the actual uptake of manuals, data systems, and protocols developed.

Monitoring and Evaluation

The development of the TC monitoring and evaluation system created a broad framework to enable compliance with PEPFAR reporting requirements. The competency-based Clinical Associate curricula and standards of practice that are being produced by twinning partners should be assessed to determine their effectiveness of skills development, transferability of training curricula and educational materials to other professions, and potential use of standards of practice in other institutions. Other areas that merit more in-depth examination are maintenance and continuity of effective professional performance and continuous improvement efforts. Once evaluated, the products and results can be made widely available in Africa.

Sustainability

For the most part, partnerships did not have explicit sustainability plans. Accredited curricula and national exams will sustain the quality of the education of professionals over the medium term. The caveat is that expansion, continuous improvement, and maintenance of advances may require higher staffing loads and new equipment and will depend on future institutional and/or government funding. This caveat is not specific to the South African context or the partnerships managed in this country, but rather an issue faced by many programs standardizing national curricula and exams.

In the case of Clinical Associate graduates, they will sustain the program's benefits because they have acquired skills and knowledge that they will use in their everyday duties. Government policy surrounding workforce planning dictates the integration of recent graduates into both the public and private sectors. In South Africa, the TC country office found newspaper and online advertisements for Clinical Assistants in the private sector. It remains to be seen how the interplay between public and private work force capacity will affect the country's overall health care system.

Professional training for Clinical Associates, including new curricula and modules, are sustainable. Curricula were accredited by Wits, Walter Sisulu University, and the University of Pretoria, and the programs are receiving some institutional support for faculty and staff salaries. New student applications to Clinical Associate programs have increased. The Ministry of Health prioritized the development of this mid-level professional in its national plans and policies, and provincial governments made a commitment to deploying graduate Clinical Associates. However, there is no guarantee that provincial governments will continue to employ and deploy future graduates. Nor is there any assurance that the new academic programs are completely sustainable. Clinical Associate faculty in South Africa emphasized they lack sufficient faculty to entirely support the programs. The Twinning Center deployed

volunteers to serve as tutors. At the University of Pretoria, two tutors were nurses seconded from the military; another tutor, a Clinical Associate from Malawi, was hired on a temporary contract.

As for continuity of partnerships, some U.S.-based partners reported efforts to continue their involvement post-partnership, either through email and Skype or by working with in-country partners to develop a research agenda and grant writing capabilities. With regard to the continuity of the LRCs, the agreement is that AIHA will support Internet access at clinical sites for a short period, after which the institutions will assume the costs.

Evaluation Objective 2 – Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up

C. Objective 2: Findings

Clinical Associates

Three Clinical Associates twinning partnerships worked together to develop a standardized exam that serves as a national exam. All graduates complete the exam prior to graduating. The exam will eventually be used to certify Clinical Associates in South Africa. All six university partners jointly participated in the development of the Clinical Associates National Exam; U.S.-based partners assisted in developing the Clinical Associates National Exam. Arcadia University and Emory University faculty also participated in the review of the draft National Certification exam to ensure consistency before its finalization. The national exam was administered for the first time in November 2011 for third-year students from all three universities and in November 2012 for the second time. Emory partners participated in the exam review with faculty from the three Clinical Associate programs to assess the effectiveness of the questions based on expected student outcomes.

AIHA supported these efforts by supporting networking between and among the six university partners; assisting with marketing of the Clinical Associate as a new mid-professional cadre; providing increased access to evidence-based information resources through Internet access and learning resource materials at rural rotation sites; and recruiting volunteers as needed through the VHC.

The TC supported faculty travel from Wits, the University of Pretoria, Walter Sisulu University, and Nelson Mandela Metropolitan University to attend a two-day quality improvement (QI) workshop facilitated by QI experts from the University of Wisconsin. The four universities are working together with their twinning partners to develop quality improvement projects within their training programs.

Learning Resource Centers

The TC directly supports efforts to increase access to online and offline medical information resources, including guides for clinical practice, videos of clinical procedures, and guides on how to install evidence-based mobile medical apps for Clinical Associates students and faculty.

The TC also supports the development of Learning Resource Centers that will play a pivotal role in introducing evidence-based practice and quality improvement for faculty and students. LRCs under development will provide online and offline medical information resources and equipment for students. The TC partnered with Tembisa Hospital and the University of Pretoria to set up an LRC at the hospital. The TC provided infrastructure improvements; the outside park was provided by the University of Pretoria, with the TC providing a computer skills lab along with computers and tablets with programs and apps for research. Students use the tablets to find easy references on questions that arise in their practice. A second LRC is planned for St. Barnabas Hospital, a clinical practice site for Walter Sisulu

University. A mobile caravan will be purchased, furnished, and installed at that hospital providing space for classrooms and access to medical information resources.

The Twinning Center's work on LRCs was presented at a Professional Development Workshop, Information and Communication Technologies, Social Media and M-Health for Care Treatment and Comprehensive Management of HIV/AIDS, at the International AIDS Conference in Washington, D.C., on July 25, 2012. The TC provided marketing, space rental, and funding for Clinical Associates faculty and students to attend the global meeting of the International Academy of Physician Associate Educators in South Africa in 2012.

D. Objective 2: Conclusions

Clinical Associates

The TC and its partners contributed significantly to the development of a mid-level professional cadre, Clinical Associates. The twinning model can also be applied to other medical fields where there are significant shortages, such as pharmacy, nutrition, and dental health. Based on the success of the Clinical Associates program the CDC approved a new pharmacy technician partnership for NMMU.

Public Health Evaluation

Developing research capacity is a formidable task under any circumstance. Partners demonstrated how the twinning model can be modified to fit the needs of research entities to develop their competence and engage at both national and international levels. In the case of the CHSR&D at Free State University, the partnership moved beyond faculty and student exchanges and mentoring to provide substantive training in research methodologies for faculty and junior researchers in areas including data analysis, epidemiology, baseline surveys, and quasi-experimental design. Faculty and researchers reported that Skype discussions, webinars, and short courses brought new vision to their research. The team learned that both senior and junior researchers had jointly published and presented papers with SUNY/DMC and other U.S.-based researchers as a result of the partnership. This experience, coupled with the award of the Public Health Evaluation Grant from CDC, led to the promotion of the CHSR&D director, designation of the university as a Center of Excellence by Free State University, a new research award on occupational health and HIV/AIDS with the University of British Columbia, and the undertaking of South-South cooperation in Mozambique.

Through TC support, CHSR&D expanded its knowledge base and capacity to teach and conduct research and has strengthened its collaboration with the provincial DOH. This is a model that can be expanded to other provinces to improve locally driven research. CHSR&D now has the capability to engage in a Twinning Partnership through South-South cooperation in South Africa as well as in other African countries.

Learning Resource Centers

The development of LRCs promotes health communication for health professionals, providing regular access to evidence-based practices. LRCs have been installed in Ethiopia and Tanzania, and are being set up in South Africa and Zambia. Anecdotal reports demonstrate their enormous potential for clinical use and contributions to improvements in clinical practice. With adequate monitoring, LRCs can be a powerful resource for students and faculty in academic and clinical settings, assuming that resources are implemented and used effectively.

Evaluation Objective 3 – Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.

E. Objective 3: Findings

Evaluators assessed value added on two levels:

- The extent to which twinning serves as an instrument for building human and institutional capacity, specifically as relates to academic and healthcare facility institutional strengthening, healthcare workforce training, NGO capacity development, and professional association building
- The extent to which the Twinning Center supplemented or enhanced partnership efforts in human and institutional capacity development and health system strengthening

Institutional Capacity Building

Ensuring faculty opportunities for advancement contributes to professional growth and institutional reputation and is a critical element in building academic credibility and educational quality. Co-authoring papers with partners and participating in national and international conferences brought faculty new prestige within their institutions, and for some, national recognition. Faculty at the University of the Free State’s Centre for Health Services Research and Development singled out the partnership’s efforts to introduce faculty to webinars; provide opportunities for co-authoring and presenting papers; and arrange for advanced research courses, professional exchanges, and mentoring. The faculty reported that these were major factors in building the center’s capacity to develop new research projects, in particular a CDC-funded public health evaluation and the center’s designation as a University Center of Excellence.

Co-sponsorship of the International Academy of Physician Associate Educators (IAPAE) annual meeting in South Africa helped spotlight the role of Clinical Associates in South Africa. The meeting afforded an opportunity for representatives of other South African universities to meet and learn about this mid-level health professional, and for faculty and students in South Africa to network with African and international counterparts.

The Dean of the Physician Assistant Program at Emory University, a member of IAPAE Board of Trustees, leveraged her influence to bring the meeting to Johannesburg. In September 2012, IAPAE held its annual global meeting at the University of the Witwatersrand Medical Campus in Johannesburg, with the participation of faculty and students from the University of Pretoria, University of the Witwatersrand, and Walter Sisulu University. IAPAE’s mission is to promote and continue to develop a vision for Physician Associate education that is international in perspective. The three-day meeting brought Physician Associate educators from over 10 countries together to discuss issues regarding the training of mid-level medical workers, their role in the clinical care team, and the organization’s research agenda.

Training of the Healthcare Workforce

A range of mid-level health professionals have been trained in a problem solving-oriented approach to delivering modern health care. Assisting with Clinical Associate curricula standardization was essential in providing these new health care workers from three distinct institutions across the country with the knowledge and skills needed to attend to the large volume of patients presenting with HIV/AIDS symptoms and other problems in health facilities. The evaluation team observed how integrated

programs now serve all patients at clinical training sites for the Clinical Associate Program. For example, the twinning approach facilitated the creation of a multi-tiered pre-service/in-service model for health workforce development. Bachelor's and in-service programs were created for Clinical Associates in South Africa. Although there had been delays in graduate placement in Mpumalanga and Gauteng provinces, all graduates from the 2012 class have been contracted for posts with provincial departments of health. Results of a survey of Clinical Associate practice intentions, undertaken at the University of Pretoria, showed that a majority of Clinical Associate students have a keen interest in working at rural sites where they will be autonomous, compared to only 4% of medical students overall, indicating this cadre's particular interest in practicing in rural clinics. Since the evaluation team's visit, new employment opportunities have begun to appear with job advertisements for Clinical Associates for an NGO to staff up for male circumcision and another from a private hospital.

LRCs supported by the Twinning Center and its partner are the main vehicle used to provide access to evidence-based practice at clinical training sites for Clinical Associates. For example, the University of Pretoria Family Medicine clinical faculty conducted a weekly seminar series focused on family medicine clinical practice areas such as infectious diseases (meningitis, HIV, malaria), maternal and child health, emergency care for department staff, physicians, and Clinical Associate students. The department's plan is to use the LRC as the resource for physician and student research on clinical cases. Through the new LRC, students and clinical faculty at the University of Pretoria attended a course on the use of the Internet to research evidence-based practices. The TC is distributing tablets to students on which programs and apps have been installed to facilitate access to both online and offline research resources. Providing tablets to students and graduates will reinforce evidence-based practice at these institutions.

Improving Organizational Development

The Twinning Center in South Africa does not support NGO and local organization development in any of the current partnerships.

Professional Association Building

The Twinning Center fostered professional association development as an integral component of Clinical Associate professional cadre development. The Professional Association of Clinical Associates of South Africa (PACASA), a non-profit professional association, was created in 2012 with the Twinning Center's financial and technical support.

Financial and technical support was focused on developing a modern organizational structure for PACASA through board establishment and training, strategic plan development, and support to improve the public's image of the new mid-level professional cadre, as well as lobbying and advocacy training to leverage the association's professional influence on public policy.

A Twinning Center-supported consultant assisted with constitution and by-law development and the preparation of documentation needed for the organization's recognition as a legal entity by the South African Government, which was approved in January 2013. Other consultative support involved the creation of an association bank account, exploration of medical and legal coverage for members, and proposal development for other donors.

The Twinning Center supported travel and hotels for PACASA membership meetings and PACASA political alignment with the Rural Doctors of South Africa (RUDASA). The Twinning Center supported member participation at the RUDASA annual meeting in 2012 and will co-sponsor the RUDASA annual meeting in 2013. An example of Twinning Center value added is the center's provision of technical assistance in advocacy for approving the profession's scope of practice, which is still under review by government councils.

F. Objective 3: Conclusions

TC-supported partnerships were effective in promoting the achievement of PEPFAR 2 goals and objectives and the South African Government's plan for Re-engineering of Primary Health Care in South Africa (2010) by contributing to the training and retention of health care workers and supporting the development of research capability.

Institutional Capacity Building

TC support for volunteer mentors, advocacy and coordination activities, and provision of travel funding enabled institutions to launch their curricula with sufficient tutors, establish networks, collaborate on important issues related to academic program standardization, embed the new Clinical Associates cadre in clinical practice, and expand research competence, all of which contributed to sustainability and the dissemination of best practices. The universities have allocated space for the new programs and provided support for some faculty.

CHSR&D related that its researchers had several opportunities to develop new research skills, collaborate with top-notch research institutions, and expand the center's research agenda. Researchers at the center contacted by the evaluation team emphasized that exchanges, webinars, short courses, and regular Skype discussions with mentors from SUNY/DMC and the University of Alabama-Birmingham helped them develop new research methodologies and use new tools. These advances resulted in the award of three new research projects and increased their visibility within the institution. A CHSR&D faculty member noted, "With mentoring, and connecting internationally, we became a Center of Excellence, cemented our relationship with provincial department of health, and it's prestigious for a university to have international partners."

Partners also highlighted career development opportunities through twinning. For example, faculty at CHSR&D, University of Free State, and the University of Witwatersrand valued opportunities to develop a new research agenda with partners and co-publish and present papers related to the new research agenda with partners. One CHSR&D researcher noted that staff members are now better equipped to serve as mentors to researchers, because ... "we were trained and mentored and now we will mentor some people in action research."

U.S.-based partners interviewed by the evaluation team underscored the benefits and valuable experience gained through partnering with institutions and organizations in Africa. This was particularly true for university partners engaged in academic teaching and research, who noted the importance of opportunities to develop new collaborative research agendas with partners in other countries, and to expand possibilities for papers for publication and presentation.

Training of the Healthcare Workforce

The TC and its partners put in place a partnership model that built the capacity of academic institutions to develop a new mid-level cadre of human resources for health with the knowledge and skills needed to provide services to all patients, including those with HIV and its complications. The partners advanced the model introducing LRCs and training on evidence-based practice and quality improvement. Judging the long-term effects of these developments on the delivery of health care in rural regions of the country will take time. However, academic achievements of students are an interim measure of achievement: The majority of students passed annual exams and the national graduation exam, indicating that the pre-service model was effective in providing the knowledge and professional competence that were the original objectives of the three university programs.

The majority of Clinical Associate graduates are employed in district hospitals in eight of nine provinces in South Africa as well as in the South Africa Military Services. Faculty reported that graduates have

sufficient knowledge and professional skills to manage HIV and its complications. Clinical Associate students and graduates are involved in the care and treatment of conditions related to HIV, due in large part to the high prevalence of patients presenting with HIV/AIDS at clinical service sites. For example, graduates interviewed at a district hospital in Eastern Cape reported that between 80 and 90% of patients seen were HIV positive and/or in treatment. Estimates are that 500 or more Clinical Associates will have graduated by 2014, still a small number for assessing value added. Nevertheless, supporting the development of new pre-service academic programs at the undergraduate level is a necessary step to ultimately strengthening health care delivery, particularly in rural areas.

Institutional and human capacity was built at the three new undergraduate programs: curricula was developed and approved by the respective universities, faculty were developed, and students are achieving well on annual and graduation exams. New mid-professional cadres were introduced into the health delivery system and are filling a needed role in HIV prevention, care, and treatment in the district hospitals and health clinics where they are deployed. They will assume an even more significant role in addressing two national priorities—the high prevalence of HIV/AIDS in South Africa and acute shortages of medical personnel, particularly in rural areas, over the longer term. A key point is that there is the potential for the replication of this model at other institutions.

Representatives of the National Department of Health and the Centers for Disease Control in South Africa cautioned that the impact of Clinical Associates on service delivery needs to be documented to make the case for continued support for training of Clinical Associate, as the new Partnership Framework Implementation Plan moves toward national institutions. The evaluation team agrees there is a need for a concerted effort to document the value added and potential impact of Clinical Associate graduates in health care delivery in rural areas. Since the evaluation team's visit to South Africa, the Twinning Center country office has undertaken a new effort with PACASA and the three university clinical associate programs to collect service-level clinical practice data.

VHCs deployed in provincial departments of health are directly supporting the strengthening of M&E systems, building databases, and promoting a research agenda, all of which contribute to the National Department of Health Strategic Plan 2010/11–2012/13.

One of the most important twinning approaches reported by researchers at CHSR&D was research training and mentoring by SUNY/DMC and a research consultant from University of Alabama-Birmingham. These measures served to build the center's research capacity and contributed to developing solid relationships with diverse actors within the provincial government, and within Free State University, enabling new collaborative research ventures to improve its standing within Free State University and the Provincial Department of Health.

Ensuring faculty opportunities for advancement contributed to professional growth and institutional credibility. These are critical elements in building academic credibility and educational quality. Faculty at the University of the Free State's Centre for Health Services Research and Development singled out the partnership's efforts to introduce faculty to webinars, provide opportunities for co-authoring and presenting papers, and arrange for advance research courses, professional exchanges, and mentoring. The faculty reported that these were major factors in building the center's capacity to develop new research projects, such as the CDC-funded Public Health Evaluation and the center's designation as a University Center of Excellence.

Twinning partner mentoring encouraged faculty to engage in advocacy and influence the policy process. For the most part, partners reported that the partnerships had opened the door to new opportunities to participate in institutional and national advocacy and policy dialogue.

Finally, U.S. institutions benefited from learning how other countries organize their training and curriculum for mid-level medical professionals and borrowed ideas that would enhance their approach. For instance, after seeing that the South African partners required students to enter the clinical setting during their first year, at least one U.S. institution has modified its program. In addition, U.S.-based partners have leveraged their participation in twinning partnerships to serve as models for international engagement for programs across their own universities.

Professional Association Building

PACASA is collaborating with RuDASA in strengthening that organization's role in rural health in South Africa. RuDASA asked PACASA to name a Clinical Associate representative to the RuDASA executive committee. With TC assistance, PACASA has already begun to advocate for its professional place in South Africa and has aligned itself with RUDASA, which will bolster its place in rural health in the country.

V. Lessons Learned and Recommendations

A. Lessons Learned

- The twinning model focused on “big picture” needs for establishing the Clinical Associate profession, concentrating on establishing the profession's credibility within the country. This enabled the three university-based programs to achieve milestones and accelerate program development. A faculty member at the University of Pretoria noted that the program was given “clout, credibility, and validation” through the efforts of the TC.
- Successful twinning was influenced by the degree to which in-country partners were involved during project formulation. Partner selection, the quality of pre-project analysis on the recipient partner's perceived needs, and the amount of effort cooperating parties put into defining key concepts such as curriculum development and research methodologies all played a role in successful twinning and worked together to operationalize the twinning concept.
- Twinning provides university faculty with an opportunity to gain important international experience both for African- and U.S.-based institutions and contributed to their career development. This is shown by the experience of CHSR&D faculty that now provide technical support in Mozambique and the Physician Assistant program at Emory University, which gained an opportunity to participate in the university's global health initiative.

B. Recommendations

The Institute of Medicine's Study of PEPFAR at 10, released in February 2013, and the PEPFAR Partnership Framework Implementation Plan in South Africa both emphasized the importance of country ownership/country-driven programming and the need to nurture small, fragile local organizations and institutions. In that context, it will be important for the TC to re-examine its approach to twinning as the TC moves forward.

Assess the potential of using the twinning model with a focus on South-South partnering

The TC should assess the feasibility of using the South-South in-country or the triangular partnering mechanism for South Africa. A South-South approach, whether in-country or between African partners, is the CDC's preferred approach in South Africa.

The CDC Activities Manager interviewed during the evaluation team's visit cautioned that the Partnership Framework Implementation Plan for South Africa (2013–2017) calls for scaling down funding and transitioning support for program areas to the South African Government.

Given this shift in funding and the challenges encountered when developing the Clinical Associates cadre, the Twinning Center should analyze which twinning partnership mechanism will be most successful for programming—South-South, in-country, or triangular partnering. This will require reviewing the desired end point for twinning partnerships and setting clear criteria for their graduation. South-South and in-country partnering are the preferred approaches emphasized by CDC in South Africa. The TC will need to assess whether South African institutions have the capacity and structure to support a three- to five-year twinning partnership in another African country.

Expedite Twinning Center Preparation of CDC NRD Protocols

The TC should fast track preparation of CDC protocol for NRD. Blanket clearances for each partnership will accelerate data collection for surveys, quality improvement initiatives, academic research, publications, and student theses. It is important for academic programs for emerging health professional to engage in research and scholarly production to contribute to the body of knowledge on their particular specialty.

Establish a Database to Track Value-added and Training Information

The Twinning Center and its partners should accelerate efforts to document the value added of the Clinical Associates to the delivery of HIV and other health services. Since the team visit, the Twinning Center and PACASA began collecting data on Clinical Associate practice to address the issue brought up by CDC and the government representative during evaluation interviews. It will still be important to follow through on plans to establish a database to follow student and graduates; tracking their progression through training, after graduation, and their career paths; and documenting the number of patients attended by a diagnostic group and number of patients requiring HIV/AIDS services. Students and graduates could report into a central database at regular intervals either via tablets (on or offline) or using paper-based reporting.

Disseminate Program Information More Broadly

The TC should elaborate a strategy to disseminate successful Twinning Partnership results and publish lessons learned and best practices on its web site or through other outlets. Dissemination through presentations at ICASA and other international meetings as well as on the TC web site is important. A broader dissemination strategy would contribute to replication efforts in South Africa and to other countries. At the time of this evaluation, AIHA was in the beginning stages of developing a social media

AIHA Twinning Center Evaluation Tanzania Country Report

Acronyms

AIDS.....	Acquired immunodeficiency syndrome
AIHA	American International Health Alliance
BCH.....	Boulder Community Hospital
BSW	Bachelor of social work
CBO.....	Community-based organization
CCHP.....	Comprehensive Council Health Plan
CDC.....	U.S. Centers for Disease Control
CHAT.....	Continuum of Care for People Living with HIV/AIDS in Tanzania
CHW	Community health worker
CLSI.....	Clinical and Laboratory Standards Institute
COP.....	Country Operational Plan
CQI.....	Continuous quality improvement
DCC.....	Drug Control Commission
DFZ	Drug Free Zanzibar
DSAPR.....	Zanzibar’s Drug Control Commission Department of Substance Abuse, Prevention and Rehabilitation
DSW.....	Department of Social Work
FBO.....	Faith-based organization
FY.....	Fiscal year
GLATTC.....	Great Lakes Addiction Technology Transfer Center, University of Chicago
HCV.....	Hepatitis C virus
HIV.....	Human immunodeficiency virus
HRH	Human resources for health
HRSA.....	Health Resources and Services Administration
HSS	Health systems strengthening
IDU	Injecting drug user
ISO	International Organization for Standardization
ISW	Institute of Social Work in Dar es Salaam
JA.....	Jane Addams
JACSW	Jane Addams College of Social Work
KIOTA	Social Work Resource Knowledge Hub
M&E	Monitoring and evaluation
MATEC.....	Midwest AIDS Training and Education Center
MOHSW.....	Ministry of Health and Social Welfare
MSW.....	Master of social work
MUHAS.....	Muhimbili University of Health and Allied Sciences
MVC.....	Most vulnerable children
NA.....	Narcotics Anonymous
NACTE.....	National Accreditation Council for Technical Education
NGO.....	Nongovernmental organization
NHLPC.....	National Health Laboratory Practitioners Council of Tanzania
NPI.....	New Partners Initiative
NRD	Non-research designation
OVC	Orphans and vulnerable children
PC	Palliative care
PEPFAR	President’s Emergency Plan for AIDS Relief

PLWHA People living with HIV/AIDS
 PSW Para social worker
 Q..... Quarter
 QSE..... Quality systems essential
 ROSC..... Recovery oriented system of care
 RSC Recovery Support Center
 SLIPTA..... Strengthening Laboratory Improvement Projects Through Accreditation
 SLMTA Strengthening Laboratory Management Toward Accreditation
 SWA..... Social welfare assistant
 TANNA..... Tanzania National Nurses Association
 TAPP Tanzania AIDS Prevention Program
 TASWO Tanzania Social Work Association
 TC Twinning Center
 TESWEP Tanzania Emerging Schools of Social Work
 THANE Tanzania HIV/AIDS Nursing Education
 TNI..... Tanzania Nursing Initiative
 TNMC Tanzania Nurses and Midwives Council
 TWG Technical working group
 UCSF..... University of California, San Francisco
 USAID U.S. Agency for International Development
 USG..... U.S. Government

I. Introduction

A. Evaluation Purpose and Objectives

The American International Health Alliance (AIHA) HIV/AIDS Twinning Center was established in 2004 and is supported by The Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services with funding from the President's Emergency Plan for AIDS Relief (PEPFAR). The Twinning Center programs strengthen the human and organizational capacity necessary to scale up and expand HIV/AIDS prevention, care, treatment, and support services in countries throughout sub-Saharan Africa and in other PEPFAR-supported countries across the globe.

In January 2012 the American International Health Alliance (AIHA) commissioned the QED Group LLC to conduct a comprehensive evaluation of the AIHA HIV/AIDS Twinning Center Program in Africa. The evaluation intended to inform HRSA, the Human Resources for Health Technical Working Group (HRH TWG), and the Office of the Global AIDS Coordinator (OGAC) regarding the President's Emergency Plan for AIDS Relief (PEPFAR)-funded HIV/AIDS Twinning Center Program. The objectives of the evaluation were the following:

1. Assessing and documenting the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
2. Identifying promising approaches utilized in the implementation of twinning partnerships for possible replication and scale-up
3. Assessing and documenting the value added of twinning partnerships and how they contribute to human resources for health and health systems strengthening goals through institutional capacity building; healthcare workforce training; improved organizational development among institutions; and professional association building
4. Providing recommendations for human resources for health and health systems strengthening program strategies that are responsive to both existing as well as anticipated field needs

In 2004, AIHA was awarded a cooperative agreement from HRSA to establish the Twinning Center, a capacity-building mechanism for supporting countries targeted for assistance under PEPFAR. AIHA's unique methodology aims to promote sustainable partnerships between communities and institutions to foster more effective and efficient health service delivery. Unlike traditional consultancy projects, the partnerships are voluntary, peer-based technical assistance programs with an emphasis on professional exchanges and voluntary contributions. HRSA awarded the Twinning Center a second five-year cooperative agreement in February 2009, ensuring funding for the program through 2014. The current evaluation covers the period of the current cooperative agreement, that is, from 2009 to the present.

B. PEPFAR Goals

PEPFAR is the largest bilateral health initiative in the world. President George W. Bush's 2003 pledge to spend \$15 billion over five years fighting HIV/AIDS, tuberculosis (TB), and malaria was considered groundbreaking at the time. Under two successive authorization acts—the Leadership Act, 17 P.L. 108-25, and the Lantos-Hyde Act, P.L. 110-293—a total of U.S. \$63 billion was authorized to fight HIV/AIDS, TB, and malaria. PEPFAR authorization expires at the end of FY 2013. During the first phase of PEPFAR (FY 2004–FY 2008), the United States spent more than \$18 billion on global HIV/AIDS initiatives,

including the Global Fund. From FY 2009 through FY 2012, U.S. spending on international HIV/AIDS assistance reached nearly \$26 billion.¹⁸

The second phase of PEPFAR Funding (PEPFAR II) aims to transition countries from an emergency response phase toward a sustainable response to the HIV/AIDS epidemic. PEPFAR II goals include:

- Transition from an emergency response to promotion of sustainable country programs
- Strengthen partner government capacity to lead the response to the epidemic and other health demands
- Expand prevention, care, and treatment in concentrated and generalized epidemics
- Integrate and coordinate HIV/AIDS programs with broader global health and development programs to maximize the impact on health systems
- Invest in innovation and operations research to evaluate impact, improve service delivery, and maximize outcomes¹⁹

The Twinning Partnership was set up to contribute to the achievement of PEPFAR's goals through the establishment of volunteer-driven institutional partnerships to carry out the following:

- Strengthening health education institutions and training facilities
- Building the capacity of health professional associations
- Training and mentoring individual caregivers and providers
- Developing models for improved delivery of services and for rapid scale up of interventions

C. Country Context

In 2011, there were about 1.6 million people living with HIV in Tanzania (UNAIDS 2012). The prevalence rate for adults aged 15-49 has dropped from 13% 10 years ago to approximately 5.8%. That year there were 84,000 deaths due to AIDS. There are 230,000 children aged 0-14 living with HIV and there are 1.3 million orphans aged 0-17 due to AIDS. From 2005-2011, there were 48,000 decline in deaths from AIDS-related causes.

According to the Ministry of Health and Social Welfare (MOHSW), "the HIV/AIDS epidemic changed everything. Both in-service and pre-service training had to be completely revamped." Nursing service standards were minimal in certain areas, like HIV/AIDS. Nurses comprise 60% (n=33,000) of the health care workforce, yet there is a severe shortage. In the past, there were not clear boundaries for the role of nurses in the health care system and because they are the provider closest to the patient, they had to informally assume responsibilities that they were not trained to perform. This task shifting sometimes resulted in poor quality of care for patients. Until about 2009 the physical space assigned to laboratories in Tanzania was cramped; many were not equipped with basic and well-maintained laboratory equipment and the capacity for management of the skyrocketing demands of the HIV/AIDS epidemic was limited. Taken together with a shortage of qualified technicians, the quality of laboratory services was unacceptably low for meeting the needs of the epidemic.

The U.S. Centers for Disease Control (CDC)/Tanzania engaged the AIHA Twinning Center to coordinate a series of partnerships to strengthen the country's capacity to respond to the diverse demands of the

¹⁸ Tiaji Salaam-Blyther. The President's Emergency Plan for AIDS Relief (PEPFAR): Funding Issues after a Decade of Implementation, FY2004-FY2013. October 10, 2012, Congressional Research Service, 7-5700, R42776 <http://www.fas.org/sgp/crs/misc/R42776.pdf>, accessed 03/15/13.

¹⁹ The U.S. President's Emergency Plan for AIDS Relief Five-Year Strategy (2009) <http://www.pepfar.gov/documents/organization/133035.pdf>, accessed 01/10/13.

HIV/AIDS epidemic on the health care system. AIHA began operations in Tanzania in 2005, initiated its first two partnerships (Nursing and Orphans and Vulnerable Children (OVC)) in 2006, and opened its office in Dar es Salaam in 2006. PEPFAR funding for fiscal year (FY) 2012 Twinning Center (TC) operations was \$2,772,925. CDC oversees the TC Tanzania portfolio and provides Country Operational Plan (COP) funding for activities in the areas of nursing, palliative care, laboratory, and substance abuse and OVC/social work. The U.S. Agency for International Development (USAID) provides the program management for the OVC/social work initiative and recommends the funding level to CDC.

II. Methodology

The AIHA Twinning Center Evaluation in Tanzania was carried out through:

- Review and synthesis of country-specific documents, including review of: prior evaluations of AIHA partnerships in Africa and elsewhere; AIHA/TC annual and quarterly reports FY 2008-FY 2012; PowerPoint briefings by AIHA; numerous emails from AIHA in response to evaluator's questions; IOM Report, *Evaluation of PEPFAR*, February 2013; and review of previous AIHA evaluations.
- Site visits to AIHA in-country partner sites: In-country field visit from February 28 to March 9, 2013 by the two members of the Evaluation Team. Sites visited included the 1) AIHA TC Tanzania Offices; 2) the Zanzibar Department of Substance Abuse, Prevention and Rehabilitation (DSAPR); 3) Detroit Sober House/Zanzibar, run by Drug Free Zanzibar (DFZ); 4) Ministry of Health and Social Welfare (MOHSW), Department of Social Welfare, Office of Chief Nurse, and Non Communicable Diseases, Mental Health and Substance Abuse Section; 5) The Institute of Social Work; 6) Temeke Regional Laboratory; and 7) faculty and partnership officials from Muhimbili University of Health and Allied Sciences.
- Key informant interviews of relevant stakeholders at the national, regional, and district levels, use of standardized interview guide, and face-to-face interviews with: 1) AIHA TC Tanzania Staff; 2) CDC and USAID/Tanzania activity managers; 3) faculty of Institute of Social Work; 4) officials from ELCT-Pare Diocese ; 5) Temeke Regional Laboratory staff and mentors; 6) Muhimbili University of Health and Allied Sciences, Tanzania AIDS Prevention Program; 7) Ministry of Health and Social Welfare, Office of the Chief Nurse and Nursing Training Unit, and Non Communicable Diseases, Mental Health and Substance Abuse Section Chief; 8) Board members from Tanzania Emerging Social Work Education Program, Tanzania Social Work Association (TASWA), Tanzania National Nurses Association (TANNA), and Tanzania Nurses and Midwives Council (TNMC); and 9) Drug Control Commissions on Zanzibar and the mainland, as well as with U.S. partners from MATEC. Telephone interviews with U.S. partners from Empower Tanzania, Boulder Community Hospital, and MATEC. Written response to interview questions from various U.S. partners.

III. The Twinning Center Model

The AIHA partnership model relies on building volunteer-driven, peer-to-peer relationships between institutions in-country and their respective counterparts, usually in the U.S. The relationships are buoyed by institutional exchanges of key personnel to observe respective operations and identify initiatives that could improve the quality of care in the country. The central goal is to develop local solutions aided by observing examples in other country settings. AIHA has used the twinning methodology to promote health systems improvements for over two decades, with 150 partnerships in 33 countries.

In Tanzania, AIHA states that it achieves results through “non-prescriptive adherence” to the model described above. Besides establishing institutional relationships between North and South partners, it has also tapped individual consultants in Africa with specialized knowledge as well as technical advisers from other African institutions.

IV. Findings

Evaluation Objective 1 – Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals

A. Objective 1: Findings

All five of the CDC-funded AIHA partnerships in Tanzania were reviewed by the evaluation team. The five TC programs were designed to increase human and institutional capacity and create sustainable health care systems. The Tanzania portfolio focused on strengthening the health sector workforce, with each partnership concentrating on a different professional area. The five themes were as follows:

- Nursing
- Social work/orphans and vulnerable children (OVC)
- Laboratory sciences
- Palliative care
- Substance abuse and recovery

The partnerships began with the goal of improving care, treatment, and support for people living with HIV/AIDS (PLWHA) and built on that platform to introduce state-of-the-art practices that are benefiting all patients. The length of the reports varies with the time AIHA allocated for interviews during the visit.

The summaries provide ample evidence of the principal significant achievements of the Twinning Center Partnerships in Tanzania. Over the past five years, the Tanzanian partnerships have conducted scores of workshops and trained 8,048 people.²⁰ But these official PEPFAR measures do not adequately convey the extent of TC’s achievements in human and institutional capacity building of the mid-level health professional cadres. The curricula developed under the nursing, social work/OVC, and palliative care programs are the central platforms for the training of all health care workers in these professional groups. Besides developing new curricula, the TC partners have led many of the training-of-trainers programs. In addition, other organizations are using the curricula produced through the TC to train community-based workers, assuring that the new capacity reaches the people needing services at the grass roots level. The recovery oriented system of care (ROSC) introduced by the substance abuse partnership is the first organized program for substance abuse recovery in Tanzania. Originally adopted on Zanzibar, the system is now operational at multiple sites in Zanzibar and on the mainland. Through a training and mentorship program for regional laboratory personnel, laboratories are making progress toward achieving standards for accreditation endorsed by WHO AFRO. At least five associations and organizations have been established or revitalized to become powerful advocates for strengthening care and treatment provided by and for their constituents. The advocacy has been successful. Government policies are changing to support the higher professional standards introduced by the partners.

²⁰ Source: AIHA HIV/AIDS Twinning Center PEPFAR Pre-Service and In-Service Training Results, January 2013.

AIHA has five active initiatives focused on clinical and non-clinical strategies for supporting Tanzanians infected and affected by HIV/AIDS. These include health systems strengthening through improved education of nurses and social workers on care of people with HIV/AIDS, improved quality of laboratory diagnostic services, introduction of home-based care volunteer workers to provide palliative care and other community health services, and a peer-led initiative to offer recovery support services and HIV prevention services among injecting drug users (IDUs).

At the beginning of the partnership, the social work profession did not have a role in the care and support of people living with HIV/AIDS (PLWHA). In fact, the Department of Social Welfare at the Ministry of Health and Social Welfare (MOHSW) stated that social work is not yet a recognized profession in sub-Saharan Africa, so it has been a slow process to get them recognized in Tanzania. As social workers have gained skills in responding to OVC over the past 10 years, they have also broadened their interest to include all marginalized people, such as those with disabilities, the elderly, albinos, terminally ill, etc. At the time of the 2013 evaluation, the MOHSW stated that the country has a severe deficit in social work capacity. There is a need for 3,000 social workers; at present there are 400-500. The greatest need is at the grass roots level. Specialized social workers are generally unwilling to work at the village level.

As of early 2013, there are no regional laboratories in Tanzania with greater than a 3 star (out of 5) accreditation from the World Health Organization Strengthening Laboratory Management toward Accreditation (WHO/SLMTA), a stepping stone to international accreditation by ISO. Clinical and Laboratory Standards Institute (CLSI) in the U.S. has been mentoring the two national labs and six zonal labs, which are the referral labs for the country. All have applied for ISO accreditation. It is important to note that this was not only a regional laboratory issues, since referral labs and other sites not supported by this partnership had similar challenges in accreditation, such as activity delays, personnel changes, and lab mentor recruitment.

Hospital and home-based palliative care (PC) services were very limited in Tanzania when the partnership was organized. The Evangelical Lutheran Church in Tanzania (ELCT) has a national palliative care program in Tanzania. Pare Diocese is one out of 20 Lutheran Dioceses across Tanzania and encompasses the two districts of Same and Mwanza, which have a population of approximately 340,000.²¹ The TC's partnership activities are implemented at health center and dispensary levels, complementing the Lutheran Church's national palliative care program, which is operating at the hospital level and is funded by PEPFAR's New Partners Initiative (NPI). Gonja Hospital in Pare Diocese is supported by the NPI program and coordinates closely with AIHA's program. The demand for palliative care services in Pare Diocese has been high and is increasing. However, few healthcare providers are equipped with adequate knowledge of palliative care services. Lack of these services have deprived people with HIV/AIDS and other life-limiting illnesses from basic care and support at critical points in their illness.

In Zanzibar, there were two intertwining epidemics, HIV/AIDS and the increase in the number of people consuming illicit drugs. IDUs have a HIV/AIDS prevalence of 39%, with 46% of IDUs sharing needles.²² In the general population of Zanzibar, the prevalence is under 1%. The substance abuse initiative is a strategy targeted to reach this high risk population and reduce transmission rates. In 2007 when the partnership began in Zanzibar, and in 2009 when it began on the mainland, there was no community-based, comprehensive program to support recovery of substance abuses. Some counseling was available and drug users were either jailed or admitted to the hospital for "psychotic disorder." In 2007-2008 a

²¹ According to 2002 census.

²² UNAIDS.

drop-in center was opened by the government on Zanzibar, but the 12-Step process was not introduced at that time.

B. Objective 1: Conclusions

Evaluators found ample evidence that human and institutional capacity have been built. This conclusion is based on changes in the curricula, establishment of new academic and community-based programs, revitalization of professional associations, and a multitude of in-service and pre-service training using the curricula developed under the partnerships with thousands of participants over the term of the partnership. Individual medical and non-medical caregivers and providers have been trained and mentored.

Questions of interviewees about the status quo in their field before and after the interventions by the TC revealed very significant changes in the capacity of professional cadres and in substance abuse treatment programs. The partnership has built sustainable institutional and human capacity in these areas. Health system strengthening is progressing nicely in these areas.

A key stakeholder at CDC summarized the overall finding of this country evaluation: “At the beginning of PEPFAR I, there was no capacity in the country compared to now. Over the years, capacity has definitely been built through twinning.”

The program changes are now embedded in the system of care, ensuring sustainability. The government has approved the changes to curricula and schools have retrained teachers in the new curricula. Following the lead of the partners, and building on the retraining they have offered to faculty, schools across the country are replacing their traditional outdated teaching materials methods with the up-to-date materials. The government has endorsed ROSC, the introduction of new social work, and palliative care cadres and has made a commitment to laboratory accreditation under WHO AFRO standards.

Partners introduced holistic approaches to serving the PLWHA population rather than relying on isolated services that promoted quality outcomes. One of the most effective features of the PSW and ROSC programs is the use of an ECOMAP system that identifies community services so that linkages can be made to needed services. PSWs were able to follow patients from health centers to homes and vice versa. The ECOMAP can also be used as a source of information for monitoring availability and accessibility of support services and providing feedback to the U.S. government (USG) and Tanzanian government regarding gaps. Addressing these gaps promotes continuity of recovery. Beyond ECOMAP, ROSC involved the broad community supporting addicts in recovery. PC providers in hospitals and homes connected patients and families to other community resources. Not only has AIHA catalyzed team work by bringing all players together, including government and academic institutions, but it has helped instill a sense of voluntarism.

Through the efforts of TC partners, policy change has been undertaken in four areas: substance abuse, palliative care, social work/OVC, and nursing. The evidence that the TC has been effective in achieving new policy directions is as follows:

- 1) ROSC has been endorsed at the highest levels of government as the method of choice for responding to the needs of substance abusers.
- 2) The Social Work Practice Act, establishing a regulatory body for the social work profession, is pending and expected to become law.
- 3) The palliative care partners brought palliative care to the attention of the government for the first time. They made significant contributions to the National Palliative Care Guidelines and they successfully advocated with the Council Health Management Teams to include palliative care

programs into the Comprehensive Council Health Plans of two districts for the first time. With this addition to the CCHP, the government commits itself to including palliative care in the budget to pay for these activities.

- 4) A bill to establish a Nursing Directorate at the MOHSW originated from partnership advocacy and has been guided forward in consultation with a consultant from the TC. It is expected to become law. This change will elevate the position of nursing in the government hierarchy.
- 5) TNMC will pilot a licensing exam.

The TC has arranged South-to-South technical assistance utilizing experts from both within the country and from other African countries. There are models of innovation on the continent that provide excellent reference points/demonstrations for Tanzania, and their assistance has been very fruitful to date. These include ISW's leadership in organizing TESWEP, MUHAS's role at the Deans Forum, and Zanzibar's assistance to the mainland on ROSC. Thus far, TC South-to-South assistance has been narrowly targeted. The North-South institutional partnerships have been the vehicle for establishing new benchmarks of performance, building institutions, and modernizing professional cadres. As capacity in Africa increases, true partnerships between African institutions hold promise.

Challenges

CDC views the future of twinning to be South-to-South partnerships and believes the model in social work/OVC shows how effective these relationships can be. However, it does not see AIHA planning to use that model more extensively: "It is not happening quickly."

Several partners expressed frustration that they were unable to carry out timely and appropriate evaluations of the effectiveness of curricula changes and the new services delivered to HIV/AIDS patients because of CDC's NRD process. The delays in initiating routine program evaluation procedures are adding costs to the project and are holding back the revisions to the program that are needed to ensure that service delivery is properly targeted to achieve the greatest impact. For U.S. partners, the NRD requirements present a bureaucratic hurdle they did not anticipate as part of their partnership duties as volunteers.

Even though the partners consulted the government throughout the development of the new program at Kisangara to train people to qualify for the new social work assistant positions, government funding was still not certain as of March 2013. The first class will graduate in June 2013. Even the MOHSW department responsible for overseeing the program is frustrated as shown in its comment: "The challenge is sustainability; there are no assurances for the coming year."

To improve the lives of PLWHA, the focus must be on getting quality services to the village level because this is where the identification of vulnerable and high risk people occurs. Currently para social workers are not being paid for their services, which has an impact on the supply of services and the continuity of services by these providers. PSWs were not remunerated; however, community health workers (CHWs) in the ELCT partnership received a modest stipend for their services. In neither case can sustainability be ensured since neither group will receive support once the partnership has ended. To promote sustainability, there is a need for commitment by the government that people will be paid for their services or reimburse volunteers for their expenses.

Institutional capacity building of laboratories in Tanzania has not progressed satisfactorily. All who were interviewed, including MOHSW, CDC, AIHA, and U.S. and Tanzanian partners, concurred with this statement. The immediate objective is to achieve a level of performance to qualify some of the laboratories for the 3 star accreditation by SLMTA. Reasons given by interviewees for the lack of substantial progress varied. They included a departure from the original focus of the partnership's

strategic plan due to requests for changes in focus by CDC and the MOHSW; communications issues between CDC and MOHSW and CDC and AIHA; difficulty in identifying culturally sensitive mentors for labs; perceived CDC restrictions on AIHA's direct access to the Tanzanian partner, MOHSW; and a mismatch of institutional types (schools of laboratory science and a community lab) due to a change in focus by MOHSW or CDC at the beginning of the partnership. Overly ambitious goals for the resources available probably also played a part in the lack of progress. As stated below under Lessons Learned, partnerships that begin with a fairly narrow scope and expand as milestones are reached appear to be more productive than partnerships that start with a broad scope. These factors complicated the task of building laboratory capacity and slowed process; that said, the laboratories assigned to the partnership now appear to be on track and are making progress at a rate comparable to other regional laboratories in the country.

Financial transparency and communications between AIHA and partners was an issue for some partners. Examples that were provided included failure to provide feedback on work plans, confidentiality of the budget for their partnership activities, and delays in receiving approval and funding for activities included in the annual work plan and budget. AIHA states that uncertainty about finances is an issue for several reasons: not all activities in the work plan (which is jointly developed by AIHA and the partners) are approved in the COP; expenditures do not comply with USG regulations; and AIHA's budget is centralized at the headquarters level and there may be a delay in receiving approval. AIHA also noted that prime-sub relationships naturally create information asymmetries (i.e., not all subs will know what other subs receive in funding) and this lack of transparency should be anticipated by subs.

C. Objective 2: Findings

Evaluation Objective 2 – Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up

Partnership activities have already proven that several of the TC initiatives can be scaled up. **Curriculum development** has been piloted at one school (i.e., ISW and MUHAS) and expanded to schools across the country. This has been facilitated through the formation or activation of convening body such as TESWEP and the Deans Forum. Through meetings of these organizations, the curricula are harmonized to increase the capacity of many schools and avoid duplication of effort. CDC has embraced this model and would like to see it used more often.

With appropriate programs to train trainers, both in-service and pre-service training curricula can be used continuously in new settings to build the country capacity to meet the special needs of PLWHA. The para social work program is already being implemented in Ethiopia and Nigeria.

The new curricula developed in Tanzania are transferable to other countries as long as they are tailored to the structure of the health care workforce and the local resources available in the health care system. Scaling up use of a curriculum across borders therefore requires careful analysis and adaptation.

According to the U.S. partner, the partnership demonstrated how **ROSC can be adapted and instituted in other countries**. The government of Zanzibar has introduced it to the mainland where it is slowly scaling up. According to DCC, the greatest contribution of TC has been the training of members of the DCC in different cities who have then trained others using their technical know-how, manuals, and guidelines developed through the program.

D. Objective 2: Conclusions

Models for improved delivery of services and for rapid scale-up of interventions have been developed through the palliative care, social work/OVC, and substance abuse partnerships. The training and implementation model developed by the partnership for home-based palliative care services can be adapted to other settings.

The Zanzibar and mainland DCCs both strongly support continuation of the ROSC model as the lead intervention for reaching substance abusers. ROSC includes both clinical (e.g., methadone) and non-clinical pathways to recovery, as well as a system of services that support the journey to recovery. The U.S. partner noted that the partnership had shown that the ROSC framework can be used in other jurisdictions and countries, and that it demonstrated how addressing substance abuse can lead to a significant reduction of HIV and HCV infection among IDUs, alcohol-dependent residents, and their drug- and sex-sharing partners. The primary capacity building focus emphasized the need to develop recovery-oriented practices and services that value and promote multiple pathways to addiction recovery including medication-assisted treatment (methadone), faith-based recovery, 12-Step recovery, medical models, and family-based recover as strategies for reducing HIV 4 and HCV infection among key populations.

The introduction of para social workers to the health care system has built system capacity for trained workers to coordinate and deliver supportive services to PLWHA at the grass roots level. The benefits of the non-clinical professional to the healing of the population are becoming recognized; slowly, the advances in understanding are being translated into new staffing patterns in the health care workforce.

Evaluation Objective 3 – Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.

E. Objective 3: Findings

The TC matched North and South institutions that have the **same fundamental mission**, e.g., education or advocacy for the profession. This peer-to-peer relationship has been especially effective in building institutions and has helped South partners obtain the resources and knowledge needed to accomplish their goals.

The presence of a **champion of the partnership objectives** who is talented, charismatic and visionary can accelerate the benefits of the partnership. Examples are the leaders of the social work/OVC and substance abuse partnerships.

Partners perceived the TC methodology of **exchanges** was effective because they were able to see the differences in their current practices and the practices in a modern facility meeting quality standards. The exchanges enabled both partners to see and obtain in-depth understanding of the communities and environments in which services and practices are “nested.” The combined communications of face to face, on line and in conference calls were very effective.

TC offered the laboratories **various practical tools for learning** the QSEs – oral presentations plus teaching notes provided on CDs and in hard copy.

The TC promotes a **practical approach to professional training**, making it easier to transfer academic training to the grass roots.

Behavior change is challenging, but the collaborative work between partners and mutual commitment to success is an effective way to achieve this goal. Interviewees stated that “mentorship” is a best practice. The partners did not “tell” them: rather, they did things together. Partners had a vision and the knowledge about how to put the pieces together to achieve it. Through the twinning exchanges, they realized what they were missing and how they could change. Through the TC they worked together with key institutions whose experiences matched their needs. They helped them “outside the box.”

A testimonial from the U.S. partner for the substance abuse partnership states a number of value added qualities of the TC that led to the success of that partnership. The generic comments in bold echo the sentiments expressed in interviews with other North and South partners. The testimonial is as follows:

“The partners, especially our Tanzania colleagues, deserve tremendous credit in the success of this effort. The sheer volume of people that they were able to engage across the Republic of Tanzania has been amazing to witness. The development and creation of Sober Houses, with little or no funding support, in my opinion, has been miraculous. Their ability to leverage resources and partnerships, including the government, was accomplished in a short period of time. The U.S. partners that were selected came to the project with tremendous expertise in the area of recovery and addictions; HIV/AIDS; law enforcement (criminal justice); training and technical assistance; collaboration and partnership building; evidence-based practices; system change and capacity building; how to develop networks and organizations; advocacy; and more. Coupling the expertise and skills of U.S. partners with their commitment and dedication to helping individuals, families, and communities recover created a critical mass and an effective across-the-globe effort. The fact that the U.S. partners were all from the African-American community and included a Muslim U.S. partner opened many doors very quickly and helped the U.S. partners to understand and adapt to the cultures (ethnic, religious, law enforcement, etc.) that exist within and across Tanzania. Finally, U.S. sponsor, SAMHSA, and leadership at their Center for Substance Abuse Treatment (Dr. H. Wesley Clark) supported and guided partners in securing national support. Our partners at AIHA also deserve much credit as our sponsor. Staff went far beyond the role of project officers participating in the learning, training and all activities, as well as providing logistical support for trips, conference calls and addressing any challenges that came up. They were also critical in making connections and brokering relationships for us in the U.S. and Africa.”

Partners have been adaptable to new demands. The social work/OVC initiative was restructured under PEPFAR 2 in order to significantly improve the country’s capacity for social work education. ISW spearheaded the formation of TESWEP and expanded its role beyond improvements in its own institution. A network of international experts was engaged under the partnership to assist the schools and ISW collaborated with IntraHealth on training at the grass roots level.

The South partners learned how to coordinate a program that has many stakeholders such as the ministry, trainers, facilitators, students, and donors. They also learned how to organize a conference, pick themes and speakers to address pressing issues (e.g., disaster management).

The role of the Twinning Center as an “orchestrator” is pivotal. They identified the key stakeholders who had to come together to accomplish goals and were successful in engaging these different groups in developing action plans with shared responsibility for success.

The team observed that some of the reasons the TC has been successful in arranging exchanges and opportunities for networking is that within the corporate body of AIHA there is 1) a comprehensive understanding of the health care system; 2) a broad perspective on interdisciplinary resources that are needed to fill gaps; and 3) knowledge of what skills/models are accessible in the U.S., Africa, and the

international community. Technical competence in health systems, together with a broad network of contacts from academia, NGOs, FBOs, CBOs, health care providers and industry contacts, enable AIHA TC to organize, facilitate, and convene the relevant resources to address specific development challenges. The one-on-one relationship of the North and South partners enables a customized approach to addressing capacity building needs of individuals and organizations.

To promote networking and collaboration, TC has taken the lead in organizing and financing meetings of in-country affinity groups and sponsored attendance at international meetings. Based on interviews and observation, it is clear that the return on this relatively small investment of funds has been quite high, providing inspiration and excitement for all partners as they share their progress and build on each other's ideas. The evaluators found this to be a TC best practice in all countries visited. Some examples of the benefits to Tanzania are the administrative and financial support to associations and organizations such as TANNA, DFZ, TASWO, and TESWEP. Reactivation and formation of these major change agents in the country would not have taken place without TC's involvement in planning activities, covering per diem, and arranging accommodations. Having an in-country presence, the TC has also been able to identify implementation issues with the South partner and respond with helpful interventions to facilitate solutions. This occurred with their actions to revitalize the Nursing Deans' Forum. A byproduct of the substance abuse partnership was the formation of the DFZ non-profit organization. Though not a formal partner, the TC understood the important role of an advocacy organization for substance abuse recovery programs. Without PEPFAR funding, it nonetheless provided seed money for organizers to attend meetings and convene meetings of key stakeholders. DFZ has become a powerful voice for the substance abuse recovery initiatives in the country.

AIHA has introduced simple management practices that self-direct stakeholders to get things done. Partners report that learning new management practices has improved efficiency. They now know how important it is to use management systems to get work done on time, keep everyone in the loop, be specific about deliverables, and be accountable for the number of people they will train. They also have a better understanding about how to estimate time and budgets.

TNMC and the TANNA Board of Directors both stated that the TC provided media and advocacy training as well as support for organizing their organizational structures, all of which was essential to reorienting their operations.

According to the MOHSW, the TC has succeeded in bringing the government together with academic institutions to work collaboratively on achieving goals. This was a new experience.

F. Objective 3: Conclusions

Curriculum revisions related to HIV/AIDS and primary care in general have been developed and implemented for nursing, social work, and palliative care to address not only the needs of HIV/AIDS patients and their families but the needs of patients with all conditions. This will have long-term, far-reaching effects, bringing a change in the quality of care for PLWHA, the priority group, but also strengthening the entire system of care. The new curricula for nursing and social work are being offered in accredited institutions, ensuring that improvements in education will be sustained.

The status and prestige of the mid-level professional cadres in social work, nursing, and palliative care has been transformed. According to CDC Tanzania: "The expertise [acquired through] twinning is raising the voice of the neglected health professionals in the country, specifically social work, nursing, and palliative care."

Through the five areas of partnership activity, the TC successfully introduced medical and non-medical improvements to the health care system, which has strengthened the system's capacity to provide

quality care and treatment for people living with HIV/AIDS. The improvements in facility-based medical services are demonstrated by the new curricula and retraining of nurses and laboratory technicians to achieve the higher levels of performance needed for laboratory accreditation. Particularly notable is that community-based capacity to serve PLWHA was built through non-medical cadres serving people in their homes, para-social workers and home/palliative care providers, and substance abuse peer counselors helping recovering addicts in the community. Achievements include the following:

- The para social worker cadre was introduced to Tanzania by the U.S. partners and has been fully embraced by the MOHSW.
- Development of sustainable capacity for provision of palliative care in Pare Diocese has been established. The diocese has worked hard to have this important service integrated into the health care system. The partnership has trained facilitators and supervisors in Same and Mwanza Districts and has been successful in supporting the local community health workers to learn and apply the skills used in home-based and palliative care. In addition, work with the Council Health Team has resulted in home-based care being included in the council's health plan in both districts. To ensure sustainability, the partners have developed a business plan for income-generating activities.
- A new platform of social services has brought an effective response to the problem of injecting drug users in the community. The founding of three organizations—Narcotics Anonymous, Drug Free Zanzibar—greatly strengthens Tanzania's capacity for aiding substance abuse recovery. These community-based organizations have complemented the government's goals to reduce addiction and the transmission of HIV/AIDS by addicts sharing needles and to rehabilitate recovering addicts. Many clients are now in recovery programs. The risk of HIV/AIDS transmission by IDU has been reduced and the crime rate has gone down.
- AIHA's collaboration with other organizations pursuing complementary objectives was effective in achieving an intersection between high-level retraining of professionals and training of workers at the community level. Examples of effective collaboration include the TC-sponsored social work/OVC initiative and IntraHealth's role in training PSWs at the community level; the TC nursing initiative and JHIEGO and iTech's role in training nurses at the community level; and Pathfinder's assistance in adapting the gender-based violence curriculum for nurses.
- The capacity of health professional associations and organizations has been built. TASWO and TANNA have been revitalized. Capacitating the Social Work and Nursing Professional Associations has advanced the professionals' ability to advocate for themselves, know their roles in the system and their rights, and share knowledge and organize around issues important to the profession. TASWO recognizes the need to be financially self-sufficient after the partnership ends. It has taken steps to establish a committee on fund raising, is developing fund-raising skills, and plans to hire a Development Director to write grant proposals. It is learning to use data and to build its leadership skills. TESWEP and the Deans Forum have become effective vehicles for harmonizing social work and nursing curricula throughout the country. Partners and an international consultant assisted the Tanzanian Nursing and Midwifery Council (TNMC) and TANNA in conducting needs assessments, creating organizational databases, and developing organizational manuals. The TC provided support to TNMC to launch a new web site.
- Health care workers are learning to use data. Associations have developed membership databases. Four schools of nursing completed the collection of data for a situation analysis of their institutions. A tracer study developed at MUHAS is being conducted in other nursing schools under the auspices of the Deans' Forum.

V. Conclusions, Lessons Learned, and Recommendations

A. Conclusions and Lessons Learned

TC activities have been effective in promoting the achievement of PEPFAR 2 goals and objectives.

The February 2013 Institute of Medicine Study of *PEPFAR at 10* cited the importance of country ownership and the need to nurture small, fragile indigenous organizations to help them achieve sustainable operations. The AIHA approach with South partners has been effective in demonstrating that these objectives can be achieved, but that time is needed to embed the organizations with the processes and procedures needed to make them resilient to changes in personnel and business/economic cycles. All of these organizations operate within the context of government policies and procedures. While governments may be sincere in their commitment to achieve PEPFAR goals, their own systems may impede or delay progress.

Health education institutions for nursing and social work have been strengthened and the health care workforce they train is better equipped to provide services for people living with HIV/AIDS.

In collaboration with the U.S. partners, MUHAS, the lead institution in Tanzania for nursing education, developed a new HIV/AIDS component to the curriculum for nurses, providing specific training for the treatment of this disease. It has been adopted nationwide by all 65 of Tanzania's nursing schools. Beyond improving nursing education for HIV/AIDS, the national nursing curriculum for all levels of primary care providers was redesigned to be a competency-based curriculum rather than a knowledge-based curriculum. The primary care nursing curriculum is the first curriculum at MUHAS to achieve accreditation, and is now considered the national nursing curriculum in Tanzania. The Deans' Forum with a membership of deans from eight schools has been refocused to address academic issues and harmonization of nursing curriculum throughout Tanzania. Thus far, the standardized nursing curriculum has been adopted by seven schools.

Collaborating with the U.S. partners, ISW, the lead school of social work in Tanzania, rewrote and refocused its curricula away from an academically oriented education to a client-oriented program. Attention to the needs of PLWHA has been mainstreamed into these curricula. In addition, it has developed an in-service training curriculum geared to the needs of HIV-positive children and the most vulnerable children in Tanzania. The institution has developed the model curriculum for two new cadres of health professions, the para social worker and the social work assistant. This curriculum is used for training across the country and is constantly updated through feedback from providers. All of the certificate and undergraduate programs at ISW have achieved accreditation.

A consortium of 12 schools of social work called TESWEP has been organized by the partners to strengthen the diploma, bachelor of social work (BSW), and master of social work (MSW) programs at member schools. TESWEP has developed a standardized field manual for social work faculty and field supervisors to enable all school to evaluate students against the same standards.

Care and support at the village level has improved for people living with HIV/AIDS as a result of their access to providers of care with up-to-date knowledge about the disease and the needs of PLWHA.

The team did not interview professionals who had received training in the new programs and so lacks information on how these professionals have been integrated into the health care system and whether the system capitalizes on their particular skill sets to the greatest possible benefit of patients. Surveys of PSWs have been carried out by IntraHealth and action taken to make improvements based on the results of the surveys.

Partnerships that had stable and narrow targeted outcomes from the beginning of the programs were the most successful.

Examples of this are the development of an HIV curriculum for nurses; strengthening of the ISW and creation of the PSW cadre to reach IDUs on Zanzibar with an evidence-based recovery program; and training CHWs in palliative care in two districts. All of these efforts started with one counterpart institution and a specific objective. As success was achieved, the partnership advanced its ambitions, expanded the scope, and scaled up operations.

The objective and targets for the laboratory partnership were shifting and broad. At first, the partners were directed to improve four schools of laboratory sciences. Then their scope of work was changed to assisting 28 regional laboratories in achieving ISO accreditation. Most recently, the objectives focused on training and mentoring a cohort of six regional laboratories to achieve 3 stars in the SLMTA accreditation process within a one-year period. A second cohort of laboratories will complete training shortly and will be ready to accept assistance from mentors.

B. Recommendations

1. AIHA should work closely with the CDC Science Advisor in-country and in Atlanta on the myriad issues that have arisen in relation to the NRD determination process and how it impacts progress in implementation of continuous quality improvement (CQI) by partners as well as PEPFAR program monitoring and evaluation.

Some of the issues that must be addressed are the following:

During interviews, CDC stated that “AIHA could do much better on evidence-based medicine. They need to do more quality improvement, research, and evaluation).” They have also stated that to meet these expectations, the TC should **expedite preparation of the CDC protocol for NRD** so that it is possible to collect data; conduct surveys to measure program impact; introduce quality improvement initiatives; support academic and operations research, publications, and student theses; and determine weaknesses in the system and guide course corrections. In other discussions, CDC suggested submitting the application one year prior to the year in which funding is requested. This could result in blanket approval for data collection within each partnership, including research for master's theses using data from partnership activities.

AIHA contends that “this suggestion is extremely difficult to implement in practical terms with partners. The only way partners can describe the project is by understanding the funding/budget levels, and the NRD process would then hold up partnership progress significantly. It amounts to a ‘chicken and egg’ funding problem, and while it makes sense on paper, it would be difficult to get partners to plan this far in advance only to wait a year before any activities could begin.”

Reporting on the number of people trained and courses/workshops held is not a good way to measure how effectively the program is changing the health care system and improving the lives of people living with HIV/AIDS and services to the population.

2. While CDC and AIHA are working through the issues cited above, which are impeding progress in program implementation, CDC and AIHA should do the following:

Collaboratively pursue **blanket authorization from CDC for data collection** in each of the TC activities. Evaluators recognize that this is a time-consuming and labor-intensive process which is frustrating to volunteer partners and a disincentive for some to engage in routine program evaluation and CQI evaluation activities. While technically the coordinator of the partnership or principal investigator is responsible for the NRD protocol, AIHA should provide technical support to ensure that procedures are

carefully followed, and where possible, assist with a request for blanket protocol to ensure that all required information is submitted.

CDC should consider including **the requirement for blanket authorization in its guidance** to new partners (e.g., contractors) as part of its monitoring and evaluation program. Knowing that this is a burdensome and lengthy process, AIHA must build it into all partnership agreements and take responsibility for completing the work for partners.

3. The momentum for change must come from within the government. Its action is needed to ensure that the system supports the new cadres of social workers, PSW, SWA, PC workers, and retrained nurses.

Successful introduction of a whole new cadre of workers requires a holistic approach. The TC should continue to facilitate input from all key stakeholders to assist the MOHSW in advancing the gains in human resources for health that have been made through partnership training programs. The effort to respond to the needs of OVC, MVC, and PLWHA can be promoted most vigorously by building Tanzania's infrastructure to implement a restructured social welfare system that connects with the population at the grass roots level. At present, this process is moving slowly.

Through the work of the partners, the required human resources are now more available. The MOHSW must take the lead in engaging all levels of its personnel for action (national, regional, district, ward, and village level), as well as the Ministry of Finance, Ministry of Human Resources, Prime Minister's Office for Regional Authority, local governments, health care providers, community leaders, and media outlets. They will have to work together to ensure that these groups have a good understanding of the skills and role of these new cadres in order for them to become fully integrated into the system. In addition, financial incentives should be identified to expedite growth in these areas to ensure that services are provided throughout the country. Broadening the agenda, the stakeholders could address the life cycle of health care workers (hiring, employment conditions, promotion, retention) as well as the distribution of personnel throughout the country. Some of the items on the advocacy agenda are as follows:

- Support for the Social Work Practice Bill and Establishment of the Social Work Council
- Reimbursement or payment for CHW
- Job opportunities for SWA
- Funding for the expansion of ROSC
- Establishment of a Directorate of Nursing
- Expediting action of NHLPC
- Payment for palliative care workers

4. TC capacity building activities should include more training in business skills needed for nongovernmental organizations (NGOs) to achieve financial self-sufficiency.

Through the partnership, NGOs built and demonstrated skills in organizing and directing their objectives, but they still must develop the know-how to identify and plan revenue-generating activities, particularly including the development of marketing strategies. There should be on-going training for all partners on the organizational competencies needed to **qualify for a Twinning Center sub-grant**. Instead of scheduling this training semi-annually, the training should be provided as soon as there is a change in management or governance of the local partners. This will accelerate partner self-sufficiency.

5. The government must take a systems view that is more strategic in relation to their deployment of nursing and social work professionals to meet the needs of PLWHA. This view is supported by interviews with key informants from CDC and professional associations.

The government is currently primarily focused on training, whereas capacity building is broader than training. It involves inter-agency coordination, policy and guideline development, institutional management at the national, regional, and local levels, and financing of service delivery. For instance, the cross-cutting needs of PLWHA related to economics, family, and life skills can be addressed by social workers, but their role related to these broad concerns is not yet well understood. Similarly, with the continuing shortage of nurses in the country, the government must assess the geographic placement of nurses and their role on the medical team in responding to the changing priorities in the fight against AIDS. It must also address bottlenecks in hiring and advancement of employees, employment practices, retention issues, and the CME necessary for the profession to remain current with the evolution of the epidemic.

6. The Twinning Center must closely monitor the alignment of its programs with PEPFAR priorities and the role it can play as priorities shift or change.

In this regard, AIHA should **mine the February 2013 PEPFAR Evaluation** for statements about expected new program directions to find intersections between its program strengths and the continuing challenges of the HIV/AIDS epidemic (e.g., scaling up and prevention strategies). To remain relevant, AIHA must prove that it has strong technical expertise in-country to respond to constantly changing needs as countries and PEPFAR advance.

AIHA must build in-country staff capacity to provide technical leadership in the emerging areas of interest. CDC expressed frustration that there is no core technical group in-country to address needs as they emerge. For instance, CDC views the Twinning Center as its main nursing partner in Tanzania. NEPI is not present in Tanzania because CDC viewed it as duplicating TC's scope of work. Yet, when CDC asked the TC for suggestions regarding scale-up options for PMTCT, the briefing did not reflect state-of-the-art thinking on the topic. "There is a lot of competition and they must show they are a strong technical partner in country."

7. South partners and associations should relentlessly pursue dialogue with the government about the importance of compensating village-level health care workers for their time or at least their expenses.

This is an important prerequisite for ensuring that services are continuously available and the ultimate achievement of PEPFAR goals reaching all PLWHA.

8. The TC could undertake an inventory of the health care programs across Africa to identify the "leading lights" in innovation and modernization within these systems.

CDC expressed a desire for the TC to move more quickly to **South-to-South partnerships**. With PEPFAR funding, the TC could sponsor a conference to discuss issues and opportunities related to South-South partnerships and how to make this concept feasible in the context of a partnership model. The social work/OVC partnership and mentoring provided by ISW has demonstrated how the South-to-South strategy within the same country can work.

9. A back-up strategy for strengthening laboratory capacity should be developed.

The mentorship program has progressed slowly and may not be a viable strategy. The number of laboratories qualifying for mentors will require TC to have a large cadre of knowledgeable, senior, and preferably African laboratory experts fairly soon. Since identification of qualified Tanzanian experts has proceeded slowly, a back-up plan is advised.

10. The substance abuse intervention should include more linkages to vocational training programs.

Increased linkages to vocational training programs will help those in recovery to become community stakeholders. The peer-to-peer approach of ROSC inspires commitment to the success of the program. As more recovering addicts are employed, their financial contributions will help sustain the program.

11. The TC should establish a database for its partnerships that tracks the history of all partnerships chronologically.

Such a database should include the dates that objectives were adopted and changed, the status of each objective at the time of the change and reason for revision, and progress toward achieving each of its objectives. Annotated notes on the progress of each objective should be consolidated from quarterly reports and maintained in a central file on each partnership.

AIHA Twinning Center Evaluation Zambia Country Report

Acronyms

AIHA	American International Health Alliance
APCA.....	African Palliative Care Association
PCOE.....	ART Center of Excellence
CDC.....	U.S. Centers for Disease Control
CIDRZ.....	Center for Infectious Disease and Research of Zambia
CIH.....	Center for International Health at Children’s Hospital of Milwaukee
COP.....	Country Operating Plan
CQI.....	Continuous quality improvement
CSH.....	Communications Support for Health
DHS.....	Department of Health Survey
DIC.....	Drug Information Center
DOD.....	Department of Defense
DSHS.....	Defense School of Health Sciences
EBM.....	Evidence-based medicine
EBP.....	Evidence-based practice
EM.....	Emergency medicine
HRH.....	Human resources for health
HRSA.....	Health Resources and Services Administration
HSS.....	Health systems strengthening
LGH.....	Livingstone General Hospital
LRC.....	Learning Resource Center
M&E.....	Monitoring and evaluation
MEPI.....	Medical Education Partnership Initiative
MISA.....	Media Institute of Southern Africa
MOH.....	Ministry of Health
MOU.....	Memorandum of understanding
MUVI TV.....	Independent TV station in Zambia
NEPI.....	Nursing Education Partnership Initiative
NGO.....	Nongovernmental organization
NIE.....	Newspapers In Education
OGAC.....	Office of the Global AIDS Coordinator
PCAZ.....	Palliative Care Association of Zambia
PEPFAR.....	President’s Emergency Plan for AIDS Relief
RSA.....	Republic of South Africa
SMART CARE.....	Electronic Health Record System Developed by the Zambia MOH
TC.....	Twinning Center
TEVATA.....	Technical Education Vocational Training Authority
TWG.....	Technical working group
UKY.....	University of Kentucky
UNDPKL.....	United Nations Peacekeeping Surveillance Forces
USG.....	U.S. Government
UTH.....	University Teaching Hospital, Lusaka
ZAMCOM.....	Zambia Institute of Mass Communication Educational Trust
ZDF.....	Zambian Defense Force

I. Introduction

A. Evaluation Purpose and Objectives

In January 2012 the American International Health Alliance (AIHA) commissioned the QED Group LLC to conduct a comprehensive evaluation of the AIHA HIV/AIDS Twinning Center Program in Africa. The evaluation intended to inform the Health Resources Services Administration (HRSA), the Human Resources for Health Technical Working Group, and the Office of the Global AIDS Coordinator (OGAC) about the President's Emergency Plan for AIDS Relief (PEPFAR)-funded HIV/AIDS Twinning Center Program. The objectives of the evaluation were the following:

1. Assessing and documenting the collective achievements of the twinning partnerships toward reaching PEPFAR II goals
2. Identifying promising approaches utilized in the implementation of twinning partnerships for possible replication and scale-up
3. Assessing and documenting the value added of twinning partnerships and how they contribute to human resources for health and health systems strengthening goals through institutional capacity building; healthcare workforce training; improved organizational development among institutions; and professional association building
4. Providing recommendations for human resources for health and health systems strengthening program strategies that are responsive to both existing as well as anticipated field needs

In 2004, AIHA was awarded a cooperative agreement from the Health Resources Services Administration (HRSA) to establish the Twinning Center, a capacity-building mechanism for supporting countries targeted for assistance under PEPFAR. AIHA's unique methodology aims to promote sustainable partnerships between communities and institutions to foster more effective and efficient health service delivery. Unlike traditional consultancy projects, the partnerships are voluntary, peer-based technical assistance programs, with an emphasis on professional exchanges and voluntary contributions. HRSA awarded the Twinning Center a second five-year cooperative agreement in February 2009, ensuring funding for the program through 2014. The current evaluation covers the period of the current cooperative agreement, that is, from 2009 to the present.

B. PEPFAR Goals

PEPFAR is the largest bilateral health initiative in the world. President George W. Bush's 2003 pledge to spend \$15 billion over five years fighting HIV/AIDS, tuberculosis (TB), and malaria was considered by many observers as groundbreaking. Under two successive authorization acts—the Leadership Act, 17 P.L. 108-25, and the Lantos-Hyde Act, P.L. 110-293—a total of U.S. \$63 billion was authorized to fight HIV/AIDS, TB, and malaria. PEPFAR authorization expires at the end of fiscal year (FY) 2013. In the first phase of PEPFAR (FY 2004–FY 2008), the United States spent more than \$18 billion on global HIV/AIDS initiatives, including the Global Fund. From FY 2009 through FY 2012, U.S. spending on international HIV/AIDS assistance reached nearly \$26 billion.²³

The second phase of PEPFAR Funding (PEPFAR II) aims to transition countries from an emergency response phase toward a sustainable response to the HIV/AIDS epidemic. PEPFAR II goals include:

²³ Tiaji Salaam-Blyther, *The President's Emergency Plan for AIDS Relief (PEPFAR): Funding Issues After a Decade of Implementation, FY2004-FY2013*, October 10, 2012, Congressional Research Service, 7-5700, R42776. <http://www.fas.org/sgp/crs/misc/R42776.pdf>, accessed 03/15/13.

- Transitioning from an emergency response to promotion of sustainable country programs
- Strengthening of partner government capacity to lead the response to this epidemic and respond to other health-related demands
- Expanding of prevention, care, and treatment in concentrated and generalized epidemics
- Integration and coordination of HIV/AIDS programs with broader global health and development programs to maximize the impact on health systems
- Investment in innovation and operations research to evaluate impact, improve service delivery, and maximize outcomes²⁴

C. Zambia Country Context

Zambia has 970,000 people living with HIV/AIDS. The prevalence of HIV/AIDS in Zambia is around 14%, making it the sixth most affected country in the world. HIV infection rates vary within the country, with infection rates highest in cities and towns along major transportation routes. Young women, military personnel, commercial sex workers, truck drivers, and people who work in fisheries are among the populations at greatest risk of contracting HIV. There has been impressive success in reducing the rate of new infections. Between 2001 and 2011 it dropped by 58%. AIDS-related deaths dropped by 56% during the same period.²⁵

Since 2005, AIHA has been working to strengthen health system capacity in Zambia by building sustainable institutional capacity and human resources for health. The Twinning Center aims to train the next generation of healthcare workers and deliver quality HIV/AIDS and other critical care services to patients and their families. AIHA currently manages four active partnerships focused on pharmacy strengthening, palliative care, improving access to evidence-based medicine in the military medical system, and HIV/AIDS prevention through media. In Zambia it has established institutional relationships between North and South partners as well as South and South partners. Organizations and individual consultants in Africa with specialized knowledge have also been involved. From 2005 to 2010, the program was managed by the Director of the TC regional office in South Africa. In 2010, AIHA opened a local office and hired a Country Director, Anne Mumbi.

The overarching objectives for Twinning Center partnerships in Zambia are:

Objective 1: To strengthen the human and organizational capacity of schools and training institutions in Zambia to increase the number of trained providers, managers, and allied health staff capable of providing quality healthcare services by strengthening curricula, faculty, teaching materials, information resources, and overall institutional strategic and operational management

Objective 2: To strengthen the human and organizational capacity of health providers and media outlets in Zambia to deliver quality patient care and community health services, including mass-media HIV awareness and prevention messaging, palliative care, and community-based HIV/AIDS support services

Objective 3: To strengthen and support health providers through the development and support of national and/or regional health professional member associations to advocate for professional standards and continuing education opportunities for working professionals

²⁴ The U.S. President's Emergency Plan for AIDS Relief Five-Year Strategy (2009)
<http://www.pepfar.gov/documents/organization/133035.pdf>, accessed 01/10/13.

²⁵ 2012 USAIDS World AIDS Day Report.

II. Methodology and Limitations

A. Methodology

The performance evaluation used qualitative data collection and analysis. Information sources included key informant interviews, focus groups, and direct observation. Interviews and focus groups were guided by the sub-questions that were included in the scope of work (SOW) and outlined in the non-research designated (NRD) protocol. Interviews and focus groups were conducted using open-ended questions.

The evaluation team included two U.S. consultants—Dr. Rosemary Barber-Madden, a health professions development specialist (team leader), and Catherine (Tina) Cleland, a health systems strengthening specialist with extensive experience with the Twinning Partnership methodology. Both team members have technical and programmatic experience with HIV/AIDS programming. QED managed the contract team and AIHA provided operational and logistics support.

Data collection and synthesis compiled information from four major sources:

- Review and synthesis of AIHA and country-specific documents, including AIHA documents and prior evaluations, Twinning Partnership annual work plans, PEPFAR/Country Operational Plans semi-annual and annual reports, and relevant PEPFAR documents such as PEPFAR country Partnership Framework Implementation Plans for countries visited
- Key informant interviews of relevant stakeholders via in-person, telephone, and email questionnaires in Washington, D.C., South Africa, Zambia, Ethiopia, and Tanzania. Interviewees included representatives from the following organizations:
 - HRSA, OGAC, U.S. Centers for Disease Control (CDC), U.S. Agency for International Development (USAID), and U.S. Department of Defense (DoD)
 - AIHA headquarters and country office staff
 - U.S.-based and in-country academic, governmental, and nongovernmental partners
 - Government ministries of health, military health services, national drug commissions
 - Voluntary Healthcare Corps (VHC) volunteers
 - Selected beneficiaries, including students and graduates of academic programs and para-professional workers (a full list is provided in Annex E, List of Persons Met).
- In- country site visits to AIHA partner sites
- A Washington, D.C., in-briefing with HRSA, OGAC, and AIHA

The evaluation was conducted between May 23, 2012, and June 30, 2013. An initial Team Planning Meeting took place May 23 to 25, 2012, and a second team meeting followed January 14 to 18, 2013. Both meetings took place in Washington, D.C. The evaluation team conducted field work from February 1 through March 9, 2013.

The four sample countries selected for evaluation field work—South Africa, Zambia, Tanzania, and Ethiopia—represent more than 70 percent of AIHA twinning partnerships in Africa. The team interviewed or visited a total of 21 partnerships.

Qualitative data presented in this report is derived from extensive interviews conducted using interview guides developed by the team and approved in the CDC NRD clearance process. The guides enabled the team to collect information via in-person, telephone, and email interviews. Quantitative data used in this analysis comes from AIHA annual data reported to HRSA and OGAC.

In-country interviews took place over a five-to-six-day period in each country visited. The team interviewed four partnerships in Zambia. Additional sub-partners were also interviewed.

In addition to interviews, the evaluators conducted on-site observation trips to Learning Centers (LRCs) as well as Clinical Skills Labs in Zambia and Ethiopia. In total, the evaluation team interviewed 119 stakeholders during the evaluation's data collection period. Informed consent forms were signed by all stakeholders interviewed.

B. Limitations and Constraints

Limited duration of country visits: Although the AIHA Twinning Center provided logistical support to the evaluation team throughout country visits, the five-to-six-day duration of country visits limited the sample of program beneficiaries that could be interviewed for most partnerships.

III. Evaluation Findings and Conclusions

Evaluation Objective 1 – Assess and document the collective achievements of the Twinning Center partnerships toward reaching PEPFAR II goals

A. Objective 1: Findings

Twinning Center Zambia Partnerships

This section examines the types of twinning partnerships in Zambia, monitoring and evaluation systems, and the contributions of Twinning Center programming toward sustainability.

Types of Partnerships

Twinning partnerships in Zambia were designed to develop the capacity of diverse types of academic institutions, local NGOs, and country governmental units. Two of the partnerships reviewed were North-South, in which a U.S.-based institution partnered with a similar type of institution in Africa. One of the partnerships reviewed was a South-South partnership pairing a Zambian Palliative care association with a regional palliative care association. One partnership was an in-country partnership, pairing the Zambian Defense Forces with the AIHA local Twinning Center.

Annex C details each Zambian partnership by Partnership objective, year initiated, goal, and type of partnership.

Partnership: Improving quality of services at Pharmacy Centers of Excellence

North partner: Center for International Health, Milwaukee, Wisconsin

South partner(s): University Teaching Hospital (UTH), Livingstone General Hospital (LGH)

Partners at University Teaching Hospital (UTH) in Lusaka and Livingstone General Hospital (LGH) have been working with the Milwaukee-based Center for International Health to improve the quality of services provided by pharmacists at the Pediatric ART Centers of Excellence at both Zambian institutions. A key partnership objective is to develop in-country training capacity that enables pharmacists to more effectively organize and manage pharmacy services—all with the goal of ensuring high-quality HIV-related treatment and care to mothers, infants, and children. Partners are also working to better integrate pharmacists into the multidisciplinary HIV/AIDS care teams at both hospitals and establish satellite pharmacies to improve access to both medications and expert advice in selected wards.²⁶

²⁶ AIHA Fact Sheet.

Partnership: Palliative Care**North partner: AIHA (as of 2010)****South partner(s): Palliative Care Association of Zambia (PCAZ)/South partner: African Palliative Care Association, Uganda (APCA) (2005-2010)**

The Twinning Center funded a partnership between the Uganda-based African Palliative Care Association (APCA) and the Palliative Care Association of Zambia (PCAZ) from 2005 to 2010. In September 2010, PCAZ began receiving direct funding from the Twinning Center to continue its efforts to strengthen palliative care throughout Zambia. The main objectives of this ongoing program are to develop organizational and human resource capacity of PCAZ staff; promote best practices in palliative care; and create broader awareness through expanded advocacy and information dissemination efforts.²⁷

Partnership: Evidence-based Practices for Management of ART**North partner: AIHA****South partner: Zambia Defense Forces (ZDF)**

The ZDF medical system provides care and treatment to the military and is open to the civilian populations in surrounding communities. The TC project partners with the ZDF to enhance the quality of care for HIV/AIDS patients provided by military facilities through access to evidence-based practice information. Evidence-based practice is the intellectual underpinning of a capacitated modern health care system. AIHA provides direct technical support to the ZDF military medical personnel through its Learning Resource Center Initiative. The project is designed to improve provider access to evidence-based clinical resources as a means of enhancing management of patients living with HIV.²⁸ The purpose of the DOD involvement with the ZDF-TC project is the following:

- 1) Promote an integrated model of HIV/AIDS treatment, care and support
- 2) Improve access to evidence-based practices
- 3) Improve the management of ART patients

To achieve these purposes, the TC's strategy focuses on assistance to the ZDF in the introduction of evidence-based medicine in the management of HIV/AIDS at military hospitals and in the Defense Force School of Health Sciences (DSHS) through computer connectivity.

The TC has also supported the School in developing a Skills Lab for nurses, which will qualify the School for accreditation of its nursing program with the Zambia Health Professions Council and General Nursing Council. The TC and the ZDF are also working to establish a high-quality telemedicine capability in the military system. This capacity will enable the military to connect rural areas with a teaching hospital for assistance in the diagnosis and treatment of complex cases that rural health professionals are not trained to manage.

Partnership: Strengthening Media Reporting on HIV/AIDS and Public Health and Prevention through Media**North partner: University of Kentucky, School of Journalism and Telecommunications****South partner: ZAMCOM (Zambia Institute of Mass Communication Trust)**

The ZAMCOM – University of Kentucky partnership aims to 1) to strengthen ZAMCOM's management, administration, and institutional capacity to organize and conduct trainings, specifically in HIV/AIDS reporting; 2) assist ZAMCOM in improving and expanding skills, practical techniques, and knowledge of journalists in electronic and print media production, promotion, and distribution; and 3) strengthen

²⁷ AIHA Fact Sheet.

²⁸ AIHA Fact Sheet.

ZAMCOM's capacity to monitor and evaluate its programs, including professional trainings, student certificate and diploma curricula, and production and research activities.

As late as 2005, over a decade after the AIDS epidemic had become a serious national crisis, the media lacked the capacity to report effectively on HIV/AIDS. Journalists needed support and training to be active contributors to public education on the epidemic. In 2008 the TC suggested to the U.S. Embassy that twinning would be an effective way to develop the capacity of ZAMCOM not only in pre and in-service training, but also in engaging media and other stakeholders to more effectively address HIV/AIDS prevention.

Changes in Partnerships

The initial goal of the CIH/UTH/LGH partnership was to develop the capacity of the Centers of Excellence at UTH and Livingstone to more effectively provide pediatric pharmaceutical care, including integrating pharmacists as part of the care team. The partnership then shifted focus slightly from purely supporting the institutions themselves (UTH/LGH) to focusing on broader pharmacy human resources and equipping regional hospitals and pharmacy professionals with HIV/AIDS pharmaceutical care skills and tools to provide quality patient care for ART.

In the case of PCAZ, the South-South partnership initiated between PCAZ and APCA transitioned to PCAZ's receiving direct funding from the Twinning Center.

The ZDF/AIHA partnership started in 2005. The DOD has managed PEPFAR funding to introduce evidence-based medicine in the treatment of HIV/AIDS into the military medical system under the health system strengthening (HSS) portion of the portfolio. The TC is currently managed out of HRSA, but DOD is considering providing direct funding to continue activities. The DOD Program Manager stated that because of the "closed nature of the military," DOD decided it was better to provide direct funding for this activity rather than to organize it through partnership exchanges. As a result, AIHA was unable to proceed with a traditional partnership; however, the LRC model was a strategy that AIHA could implement at ZDF to assist the local partner in the absence of a full partnership.

Contribution of South-South Partnerships and Cooperation

The South-to-South collaboration on pharmacy has included two exchanges between clinical attachments at UTH and LGH and Twinning Center Partners at Addis Ababa University School of Pharmacy. The two parties are discussing the possibility of conducting joint research projects.

The professional association partnership between PCAZ and APCA paired an East African partner with a Southern African receiving partner. APCA gave PCAZ technical assistance on national guideline development using the guidelines from Uganda and other African countries as the reference point. The end result was the adaptation and adoption of a set of national palliative care guidelines for Zambia.

These achievements can be credited to the technical expertise of the partners and consultants, who collaborated with the Zambian partners and the proactive openness of the Zambians to adapting new models and skill sets to their country context. The partners and consultants involved in the Zambia program were drawn from institutions within Africa, including other Twinning Center South partners, Twinning Center Regional Office staff, and U.S. universities.

Volunteer Healthcare Corps

At the time of this evaluation there is no Volunteer Healthcare Corps program in Zambia.

Monitoring and Evaluation

AIHA developed a new M&E system and processes in 2012 and established an independent monitoring and evaluation unit to meet changing needs and requirements as the partnership program matured. The M&E system was built to review progress in work plan implementation; monthly financial report reviews; track partnership exchange trips; track in-kind contributions such as in-kind time and resources; regular site visits to partner institutions in-country, and partner quarterly progress reports. Working through this system, AIHA monitors the achievement of measurable objectives and activities outlined in the partnership's work plans.

AIHA assists partners in developing work plans with measurable objectives, outputs, outcomes, and indicators. Partners are required to submit quarterly performance reports with information on progress in achieving PEPFAR targets and objectives; status of activities and outputs; and constraints affecting the project and plans to address obstacles. Quarterly reports are used to prepare AIHA's quarterly reports to PEPFAR Activity Managers (CDC, USAID, or DoD, depending on the particular donor), and are the primary basis for monitoring partnership progress. The M&E priority at the country level is tracking key objectives, indicators and targets, outputs, deliverables, and activities of all in-country partnerships, and producing aggregated semi-annual and annual program documentation required by PEPFAR in-country donors and HRSA.

Partners reported presenting a number of papers at partnership annual coordination meetings and national and international conferences and publishing results in national and international reports and refereed journals to AIHA.

B. Objective 1: Conclusions

Contribution of South-South Partnerships and Cooperation

The TC has successfully promoted South-to-South collaborations. TC helped them establish relations with other African countries and internationally. In 2008 ZAMCOM developed a partnership with the Media Institute of Southern Africa (MISA) in Botswana. In 2009 through the TC, ZAMCOM, MISA, and UKY conducted a workshop on the HIV/AIDS public awareness campaign, Hearts and Minds, that they have developed together. In 2009–2010 MISA carried out a "Hearts and Minds Campaign" for which ZAMCOM contributed materials.

UKY introduced ZAMCOM to other African journalists through conferences such as Highway Africa, a gathering of about 1,000 journalists representing radio, TV, and print media organizations from all over Africa, Europe, Asia, and the U.K. Since 2007, TC has funded ZAMCOM's travel to RSA to attend the Highway Africa conference; in 2010 and 2011, ZAMCOM presented posters and distributed a flash drive at its exhibit. In 2012 it conducted a workshop on the NIE project. Other countries are learning from this organization and giving it positive feedback. Nigeria and RSA have expressed interest in NIE.

Monitoring and Evaluation

AIHA's monitoring and evaluation of ZAMCOM is oriented to the training targets that are required under PEPFAR, but these numbers may not have yielded useful management information. Reporting of impact is anecdotal. Evaluators recognize the challenges in measuring behavior change, and that PEPFAR requires reporting of output data. At present, there is not a plan to determine if the reporting is changing behavior and how the reporting should be modified to be more effective.

Contribution to Sustainability

The Twinning Center partnership program in Zambia has produced sustainable results in HSS and institutional and human capacity building. Its macro-level sustainability depends on high-level factors including improved country infrastructure, institutional commitment, and political will. Addressing these

factors is often beyond the scope of the Twinning Center partnership. But on a micro level, sustainability can be gradually achieved through health workforce strengthening and organizational capacity building.

System of Care—Health Workforce Strengthening

The clinical pharmacy partnership in Zambia has successfully reorganized the system of care. The new cadres of clinical pharmacists significantly address health workforce shortage and strengthen country capacity to meet the needs of HIV/AIDS patients. The clinical pharmacy concept is sustainable at UTH and in the pediatric ward at LGH because the structures within the institutions have changed to incorporate the concept into day-to-day operations. The clinical team is part of the fabric of the institutions and not subject to dissolution in the case of financial stresses and management changes.

The Ministry of Health (MOH) wants to modernize pharmacy in Zambia and expand implementation of the new concept of pharmacy to other hospitals. But it does not yet have the capability to sustain this new idea and improve the quality of care in the pharmacy area. It has asked for TC help to do this. Even with TC help, funding constraints will limit implementation in large and small ways and will become more severe as more sites are added. For instance, the MOH is planning to recruit more pharmacists with a goal of 250, but the current budget provides funding for only 25 new positions per year. It also endorses the idea of satellite pharmacies and LRCs, but there are no national policies that authorize spending for them. Other sustainability issues include a shortage of drug supply, lack of office supplies, and a need for remodeling of old dispensaries. Clinical pharmacists take pride in their new role and responsibilities, but salaries have not increased and there is no defined career progression in pharmacy.

The UTH pharmacists want to establish a career track that includes specialist pharmacists similar to those they saw in the U.S. However, the MOH does not yet recognize a specialty in pharmacy and courses are not offered locally. Creation of these opportunities in Zambia is dependent on changes in the academic track for pharmacy and availability of jobs in Zambia.

Government policy surrounding workforce planning dictates the integration of recent graduates into both the public and private sectors.

Organizational/Institutional Capacity

The ZDF LRCs, PCAZ, and ZAMCOM are all developing lines of business through initiatives such as consultation on training, palliative care/respice care for affluent clients, and a clearinghouse for advertising and public service announcements on community radio stations.

On the other hand, even though ZAMCOM has new teaching materials and a training program for journalists on HIV/AIDS reporting, key informants indicated that the organization is dependent on UKY as the lead trainer and that it is not capable of monitoring developments in the field of HIV/AIDS. In addition, its future solvency is in question. Sustainability of partnership-initiated activities at ZAMCOM hinges on stability, management expertise, and financing of the staff to lead the organization and conduct training of journalists for community radio stations in the absence of the on-going boost from the UKY.

At one point AIHA withheld funding from ZAMCOM because it lacked financial management systems. To enable the project to go on, the TC hired local consultants to help ZAMCOM implement systems and develop a strategic business plan. Now ZAMCOM is initiating a strategic planning process to address long-term sustainability. AIHA has hired a consultant to assist it in developing the plan and is also recruiting a volunteer to spend three months at ZAMCOM helping to drive the implementation of the strategic plan. Priority issues to be addressed in the strategic planning process are revenue-generating activities and new product lines. Income must be enhanced for ZAMCOM to carry on and expand its program activities. Currently, there are two sources of income: a full-time journalism course and in-service short courses. A recent objective of the partnership is to build capacity at ZAMCOM for mass

communications and media, which will provide a source of revenue. Thus far, University of Kentucky has been conducting the training on this topic with ZAMCOM managing the logistics. The weakness at ZAMCOM, which became evident from this activity, is its lack of professional management. Basic skills must be developed in running a workshop, setting up the room, creating and following schedules, preparing and distributing teaching materials, etc. ZAMCOM is not yet able to take responsibility for the range of technical/substantive and logistical skills needed to conduct the training. This objective has not yet been fully met.

The Executive Director wants to expand the donor base by building on ZAMCOM's HIV messaging experience. Because communications on HIV is an on-going priority in the country, this would appear to be a logical area for growth. According to stakeholders, ZAMCOM is close to having the skills to be sustainable as a trainer in this area, as it knows who the technical experts are and how to work with them to put together good training programs. However, it needs to develop more expertise in monitoring developments in the field of HIV/AIDS and journalism to be ready to take on this training.

Underused Resources

There are assets at ZAMCOM that are underutilized. These include the ZAMCOM Lodge, owned by ZAMCOM, where students and workshop participants from out of town can stay during their training. Occupancy rates are low, according to key informants. Also, in the absence of funding for NIE, it appears that the equipment (Apple computers with large monitors to facilitate video editing and other products) purchased for the NIE project is not being used regularly. ZAMCOM and the TC are not getting a return on their investment in assets. ZAMCOM should be able to leverage its skills with the equipment and the excess capacity at ZAMCOM Lodge to attract income-generating business.

Income Generation

ZAMCOM is also exploring new product lines to generate revenue. There are numerous opportunities being discussed. A potential source of income is a pending deal with MUVI TV, an independent TV station. In the coming year ZAMCOM and MUVI TV will be collaborating on a video editing workshop. They have worked with UKY on TV documentaries that are bringing out real life stories with a focus on HIV/AIDS prevention. Working with community-based organizations, such as hospices, they are telling ordinary but powerful stories to reinforce the need to change behaviors. There will be 13 episodes of a 30-minute program. After piloting the program in the country's copper belt, MUVI TV will show it nationally. Another possible product line is a clearinghouse for advertising and public service announcements on community radio stations. The model for this arrangement was suggested by the University of Kentucky, based on its experience with its own commercial initiative to establish a similar arrangement with radio stations in Appalachia.

Other ideas under consideration are 1) training programs for TV stations, commercial radio stations, and newspapers about how to sell ads to build a healthier media industry; and 2) expanding ZAMCOM's in-service training programs to target working professionals in the newspaper industry. The ZAMCOM Executive Director mentioned a number of prospects for new business, but only one seems to be in an advanced stage of development, the MUVI TV project. Evaluators did not review ZAMCOM's sources of income and on-going programs, so the team is unable to comment on the likelihood that this activity will be sufficient to sustain the organization's training activities when combined with its other sources of income.

Evaluation Objective 2 – Identify promising approaches utilized in the implementation of Twinning Center partnerships for possible replication and scale-up

C. Objective 2: Findings

Scale-up and Replication of Multidisciplinary Clinical Teams

Pharmacists have a central role in the provision of ARVs for HIV/AIDS patients; as the number of patients has grown, their role has become more critical. Prior to this partnership, the function of hospital pharmacists in Zambia was limited to dispensing medicines from one central location. Beginning in 2006, a partnership between the Milwaukee-based Center for International Health (CIH) and pharmacists and physicians at the Pediatric HIV/AIDS Centers of Excellence (PCOE) of the University Teaching Hospital and the Livingstone General Hospital was formed to build capacity among pharmacists supporting pediatric care to provide high quality HIV care and to ensure access to appropriate antiretroviral medications in the country. Through partnership exchanges, the Zambia teams learned why and how the pharmacist should be a member of an integrated/multidisciplinary clinical team in the hospital, which includes a doctor, nurse, and pharmacist. They also observed the role and value of establishing satellite pharmacies in hospital wards.

A demonstration of these modern methods, which transform pharmacy practice from a product-centered profession to a patient-centered profession, began with HIV/AIDS pediatric patients at UTH in Lusaka. It has now been implemented hospital-wide at the UTH and in the pediatric ward at the LGH in Livingstone.

LGH, located in Livingstone, has recently been designated the third teaching hospital in Zambia as a result of participation in the partnership. Pharmacists now prepare an integrated plan for all pediatric patients and participate in the clinical team rounds. UTH is lobbying the MOH to have pharmacists as required members of medical teams as a matter of policy.

The MOH supports the redefinition of the pharmacists' role and wants all of the 150–160 pharmacists in Zambia to be trained. The university has developed an ART manual to guide the training. The plan is that each year a team of four trainers will go to each region to train up to 25 pharmacists and pharmacy technologists, producing 100 retrained pharmacists and pharmacy technicians. Thus far, most hospital pharmacists in the southern province and in Lusaka have been trained in the clinical team concept.

In addition to introducing clinical teams to their institutions, the Zambian partners focused on the U.S. model of a decentralized pharmacy with pharmacy satellite sites, which bring pharmacy services closer to the patients. The CIH helped them develop a decentralization plan for UTH. At UTH the two concepts of clinical pharmacist and decentralized pharmacy practice were combined in the pediatrics ward. The new configuration of pharmacy was so successful that UTH expanded the model beyond pediatrics. All hospital patients are now serviced through satellite sites in surgery, OB, ICU, medicine, pediatrics, and the outpatient departments. The MOH recognized the success of the program and reassigned/increased the number of pharmacists assigned to UTH (from 5 to now 42).

Increased Access to EBM Information

Through the partnership, AIHA assisted partners in installing an LRC in the LGH pediatric ward to facilitate referencing manuals and EBM whenever questions arise. The LRC at LGH is one of the few places in the local area that has free access to the Internet. The medical staff is using it as well as staff from two district pharmacies in the area. The UTH Pharmacy Learning Resource Center has online

support for pharmacy and each satellite pharmacy in the hospital has offline sources loaded on a computer located there.

Similarly the TC started with one Learning Resource Center at Maina Soko Referral Hospital in 2006, followed by another at the Defense Force School for Health Sciences (DSHS) in 2007. From that experience interest in expansion developed very quickly as the activities of the school were expanding. In 2007 the LRC could work with 20 students at a time, but now the school has grown to 80–100 students. DSHS has found the computers so vital to its mission that it is pursuing its own procurement of computers and is using the TC training to capacitate its faculty and staff.

Expansion of Curricula and a Move Toward Diplomas

With TC-coordinated observation visits to other countries, the ZDF staff has been able to observe emergency medicine training. Subsequently, ZDF and HSDS is expanding its curriculum to incorporate emergency medicine into the training of all mid-level health care professionals.

In the case of PCAZ, the association's goal is for Zambia to have a cadre of people with a palliative care diploma. It envisions a two-week course for nurses and doctors. The curriculum it designed includes five days of clinical assessments and five days of classroom teaching. It plans to set up its own training institute to reach in-service professionals. PCAZ is carrying out advocacy to get palliative care included in the curriculum for all health workers. Additionally the National Palliative Care Strategic Framework for Zambia was developed by the Technical Working Group. The TC mobilized stakeholder interviews to develop this strategy and identified and paid the consultant. The draft framework is now awaiting action by the MOH, which is determining the cost of implementation. Once it is approved, the framework will be used to scale up palliative care in Zambia and help integrate palliative care principles into other medical services.

D. Objective 2: Conclusions

The evaluation team found that twinning paved the way for the rapid scale-up of healthcare worker and system strengthening programs and services. In fact, expansion and scale-up are already under way in Zambia. In general the Zambian partnerships have developed models that can be scaled up in Zambia or replicated in other countries.

At the same time, the team did not find significant evidence of evaluation of curricula, models of care, and standards of practice. If properly evaluated, academic undergraduate and graduate pre-service and in-service curriculum models, standards of practice, lessons learned, and best practices that employ interdisciplinary health teams and use evidence-based medicine for quality and efficient improvement have significant potential for replication and scale-up in other African countries.

Scale-up and Replication of Multidisciplinary Clinical Teams

The Twinning Center promotes a holistic four-pillar paradigm that leads to a comprehensive, vertical approach to health workforce strengthening. The health care system depends on more than one discipline. In a system, each professional group must coordinate its role and special skills with those of the other professionals with whom its work intersects. Until disciplines are properly integrated, the health care system cannot be transformed to produce holistic quality care and treatment for the individual patient. The clinical pharmacy and palliative care initiatives in Zambia all demonstrated the integration of health professionals into a care, treatment, and support team for the patient. Evaluators found this to be a sound and effective framework for both clinical and non-clinical providers.

When the partnership began, the UTH pharmacy was centralized. Pharmacists sat in one location in the hospital and dispensed medicine. The single site served hospital in-patients as well as outpatients waiting in a queue for their medications before being discharged. Hospital services were congested and

slow. On the second exchange trip, the partners focused on the U.S. model of a decentralized pharmacy or pharmacy satellites sites, which bring pharmacy services closer to the patients. The CIH helped them develop a decentralization plan for UTH. At UTH the two concepts of clinical pharmacist and decentralized pharmacy practice were combined in the pediatrics ward. The new configuration of pharmacy was so successful that UTH expanded the model beyond pediatrics. All hospital patients are now serviced through satellite sites in surgery, OB, ICU, medicine, pediatrics, and the outpatient departments. The MOH recognized the success of the program and reassigned/increased the number of pharmacists assigned to UTH (from 5 to now 42). The AIHA Country Director is held in high esteem as a good communicator and advocate for expanding the TC program to more provinces. Under her leadership the PEPFAR portfolio for TC has increased significantly. In the words of a ministry official, “the TC’s reputation is very good. They contribute to increased quality of care in pharmacy and in general medicine. The ministry had talked about having satellites to improve management of commodities, but the TC made it happen.” Since the ministry trusts the Twinning Center to get results, the new policy should have implications for future expansion of the TC in the pharmacy area.

Having a computer in all the satellite pharmacies at UTH with offline information enables pharmacists to quickly and easily check dosage, contraindications, etc. This new capability should reduce medication errors.

At UTH and in the pediatric ward at LGH, clinical pharmacy (i.e., the pharmacists as a member of the clinical team) and satellite pharmacies have become embedded in hospital operations. Early reports from the hospitals indicate that these changes are benefiting inpatients with all conditions. Timeliness of pharmacy services and quality of care are improving and medication errors are decreasing. Institutional capacity has been built in those locations and UTH is serving as the model as well as the lead trainer in the modernization of pharmacy in the country.

As a clinical team, the doctor, pharmacist, and nurse make their rounds together and discuss the patient’s treatment plan. The clinical team has empowered pharmacists at UTH to interact more effectively with doctors, who have reported that the quality of care has improved.

The new pharmacy procedures were phased in after training clinical team integration. Functions of a satellite pharmacy and the use of computers in pharmaceutical practice have improved the quality of care for children in the pediatric unit at LGH.

Thus far, only the *concept* of the pharmacist as a member of the clinical team has been introduced at the University of Zambia and is included in the curriculum for pre-service training of both pharmacists and pharmacy technicians. Over time UTH will incorporate the new role of pharmacists into an enriched curriculum and the faculty will be trained on the skills to teach the curriculum and guide patients in doing assessments on the ward. In the meantime, UTH will be a demonstration site for the new role of pharmacists.

International training is advancing the understanding of the new system. Twenty people have taken part in the exchanges between the U.S. and UTH and LGH. Through an extension of the partnership, four pharmacists (three UTH, one LGH) are scheduled to go to Concordia University in Minnesota to take a pharmacy specialization course so specialized pharmacy can be introduced in Zambia. They will receive a certificate at the end of the 8–12 weeks of training, which will include compounding and other areas where there are gaps in the curriculum for the pharmacist in Zambia.

All stakeholders agree that the modernization of pharmacy practice has improved the quality of care where it has been implemented and is the wave of the future in Zambia. The government has expressed its strong support and appreciation for the work of the Twinning Center, as well as its need for their further support. The feasibility of scale up has already been proven at UTH. What started as a pediatric

initiative is now hospital wide. The clinical team and the satellite pharmacy concept could be implemented separately and rolled out at all provincial and district hospitals, if there were resources. The goal is to expand the program to three more hospitals in 2013. A limiting factor in the scale-up is that UTH lacks a vehicle for follow-up visits and assessments at new sites. LGH's doctors and nurses would like to have it rolled out hospital-wide as soon as there is funding.

Increased Access to EBM Information

The TC established the first LRC for the military medical system at Zambia's main military tertiary hospital, Maina Soko, in April 2006. There are now a total of 15 LRCs in the military medical system. Over time there will be LRCs at each of the 54 military health sites including the Defense Force School of Health Sciences (DSHS). Through the TC's installation of LRCs and training in Internet search engines and database resources, the military medical professionals have access for the first time to online and offline information on EBM including the Cochrane Library and the HINARI database—in other words, the most modern and up-to-date information about EBM and treatment of HIV/AIDS.

At the Defense Force School of Health Sciences faculty for mid-level health professionals also have online access to EMB through an on-site LRC which they use to inform their teaching and research. All students learn how to use the Internet and access information on EBM. Instructors are integrating information on EBM regarding the treatment of HIV/AIDS into the curriculum, and structuring their assignments to ensure that students use the LRCs to conduct searches for reference material. The contribution was summed up by an official at the School as follows: "The students could not do their school work without the LRC."

There is room to expand the TC's assistance within the Zambian Military. There is high demand for LRCs and there is a schedule for installing additional LRCs. The Defense School of Health Sciences and AIHA are planning for an enlarged LRC once the expansion of the DSHS is complete. LRCs can be used for all pre-service training programs.

Military leaders from Angola, Namibia, and Mozambique have planned visits to Zambia to see the LRCs and learn about TC assistance. They have expressed interest in sending personnel to Zambia for training as well as having LRCs at their military medical facilities. The visits will take place once they receive formal clearance from DoD. The ZDF is financing the expansion of the LRC initiative and has its own trainers as a result of an AIHA training for trainers course.

Conversely, online access is limited at UTH and LGH. The only online resources at UTH and LGH are in the LRC. It is housed in a small space and is only open for a few hours a day. Computers in the libraries are old and slow. UTH and LGH pharmacists want online access in more locations. UTH pharmacists have requested an Internet connection between the satellites in the same hospital. There is no Internet in the pediatric ward or networking available at LGH.

Once evaluated in terms of the benefits to end users and changes in clinical practices, LRCs can be leveraged for scale-up with the Ministry of Health in the country and across borders.

In addition to LRC expansion and training, ZDF is planning the creation of a Skills Lab for nurses and medical assistants. Later in the coming year, the Skills Labs will be equipped to train lab assistants and pharmacy assistants. This resource could be further expanded to include training of physical therapists and occupational therapists.

The TC program can be diversified in many directions to address issues related to HIV/AIDS, such as EBM research and quality improvement of infection control.

Expansion of Curricula, Innovative Messaging, and Organizational Development

The Zambia palliative care guidelines were adapted from the Ugandan guidelines and can be used as a model for other countries in the same way. PCAZ has a curriculum for in-service training of health care workers in palliative care and is developing a palliative care curriculum for pre-service training of all health care workers. These curricula can be adapted to other countries. Expansion of ZDF and HSDS curricula, advocacy to get palliative care included in the curriculum for all health workers as well as the creation of a palliative care diploma will all strengthen new cadres of healthcare workers. Additionally the Twinning Center may want to adapt successful HIV/AIDS prevention messaging developed through the ZAMCOM radio and NIE programs.

The community radio initiative and ZAMCOM's use of more creative ideas for messaging to communities about HIV/AIDS have been adapted from U.S. models that are replicable. NIE also originated in the U.S. and is now a worldwide program. The way these programs have been used for messaging on HIV/AIDS prevention and related issues makes the ZAMCOM program particularly relevant for South-to-South scale-up. After the ZAMCOM-UKY partner's presentation in South Africa at the AIHA All Partners Meeting, partners in Ethiopia and Tanzania requested assistance with community radio and NIE as well as with HIV media reporting manual and guidelines. After a ZAMCOM presentation in South Africa on the Highway Africa initiative, it received requests from other countries to do training, but there has been no funding to support this. Additionally the ZAMCOM initiative with MUVI TV is a variation on the idea of the Community Correspondents Corps which could be applied in other countries.

Evaluation Objective 3 – Assess and document the “value added” of twinning partnerships and how they contribute to human resources for health (HRH) and health systems strengthening (HSS) goals through institutional capacity building, training of the healthcare workforce, improving organizational development among institutions, and professional association building.

E. Objective 3: Findings

Institutional Capacity Building

The institutionalization of clinical teams and satellite pharmacies in all major medical departments at UTH and the pediatric department at LGH have embedded this modern approach to hospital pharmacy practice into the hospital operations. Training programs are being conducted to expand the number of pharmacists with the skills to work within this new system. These institutional changes have been supported by the MOH and hospital leadership with funding to sustain the changes.

Training of the Healthcare Workforce

Pharmacists are key health care providers in the treatment of HIV/AIDS, but at the beginning of PEPFAR they were not recognized as a critical member of the team needed to provide a continuum of care. The Director of the Pediatric ART Center of Excellence (PCOE) at the University Teaching Hospital identified the pharmacy area as lagging behind in the care and support area; she suggested the pediatric pharmacy initiative at her first meeting with the Twinning Center. After exchange visits between the University of Zambia, UTH, and the Center for International Health (CIH) at Children's Hospital of Milwaukee, clinical pharmacy became a focus area for the partnership and twinning support. The TC arranged for Professor Henry Fomundam, an American consultant from Howard University, to train 18 pharmacist master trainers (2 LGH and 16 from UTH). The training was designed to develop practical skills in clinical pharmacy. With help from a CIH consultant and Dr. Fomundam, the new pharmacist master trainers designed a three-day in-service technical training curriculum on HIV/AIDS pharmaceutical care for home

institutions and the new role of a clinical pharmacist. The 18 practicing pharmacists were divided into four master trainer groups and had intensive training and mentoring in the new skills needed to be members of clinical teams and be more patient-focused in pharmacy practice. Each team is responsible for conducting the three-day training program in two to three provinces. The TC is financing travel, materials, and the cost of the venue for this training as well as providing capacity-building assistance that helps trainers learn how to organize their sessions and improve their teaching techniques.

The MOH supports the redefinition of the pharmacists' role and wants all of the 150–160 current pharmacists in Zambia to be re-trained.

Palliative care is accepted by the government and a group of caregivers with special training in palliative care has been introduced.

With TC funding, PCAZ developed a Pediatric Palliative Care Manual to guide a training-of-trainers course. It began with in-service training of community volunteers and health workers in pediatric palliative care, eventually expanding the training to hospitals. Speakers at these programs address topics ranging from symptom management, drug enforcement criteria, pharmacy regulatory authority for palliative care, to religious/spiritual concerns. PCAZ trained 337 caregivers from member organizations in community and home-based palliative care in 2012. An LRC has equipped PCAZ with up-to-date information on EBM in palliative care which is available to all caregivers.

To reach the population with HIV/AIDS messages, the UKY suggested the partners undertake a Community Radio Initiative. The concept was to capitalize on the UKY's communications expertise and ZAMCOM's access to the community radio stations. The partners agreed that they had to overcome media fatigue about HIV/AIDS and go beyond reporting on government statistics. The UKY taught ZAMCOM and community radio stations how to be creative in their public health journalism. The strategy was for reporting to become more personal and to put a human face on the epidemic by looking for informants other than the government. The UKY partners went with ZAMCOM to community radio stations in all the provinces in Zambia with a central training module on journalism and HIV reporting. They held storytelling workshops on HIV where community radio personnel paired up with community health workers to learn about storytelling and audio production. With this training, the Community Correspondents Corps was formed and the journalists developed the capability to report on HIV topics and gained basic journalism skills. UKY trained the corps to be freelance journalists, teaching interviewing skills, editing, and writing. All the stations were given small audio and digital recorders by the Twinning Center to use for interviews in the community. After the training, they submitted stories to University of Kentucky to be evaluated for journalistic quality and content, and comments were sent back to the journalists. According to the UKY, the quality is good and enthusiasm high among writers at the community radio stations.

ZAMCOM and UKY are collaborating with a USAID project managed by Chemonics, Communications Support for Health (CSH), to hold workshops to train DJs in Lusaka on messaging about HIV, other infectious diseases, maternal and child health, and family planning.

In October 2011, the partners launched the "The Newspapers in Education" (NIE) project in close cooperation with Zambia's Ministry of Education and the Zambia Daily Mail. According to the U.S. partner, "The project involves working with the MoE to develop content that fits with the national curriculum, including issues on HIV prevention and HIV and AIDS treatment. The content is reported and written by ZAMCOM students and then designed and printed in cooperation with the Daily Mail newspaper." Newspaper supplements are periodically inserted at no cost into a daily newspaper. The supplements are written to teach literacy in the schools and encourage students to read newspapers. Because the students often share the supplements with their parents, NIE can educate two generations.

With TC funding, ZAMCOM and UKY have trained 95 teachers in four provinces in how to use newspapers to teach subjects, i.e., math (HIV infection rates), reading, writing, and civics in addition to HIV/AIDS explicitly. They cleverly connect the subjects to the HIV/AIDS epidemic. Schools like it and use the trained teachers to be faculty for the next workshops. At the time of the evaluation, only three supplements had been produced over an 18-month period due to a lack of funding.

Three staff at the HIV Coordinator's Office at ZDF have been trained in EBM, including the Coordinator. LRCs are designed to make HIV-related resources available to all clinicians and eventually through telemedicine to far flung areas of the country. The only access to the Internet that the military medical service has is through the LRCs. AIHA has requested that a specific person be appointed in the military to be the LRC coordinator, but the person selected was immediately deployed to Sudan, delaying action on this request.

Improving Organizational Development

As the HIV/AIDS epidemic has spread and evolved in Zambia, hundreds of private organizations have formed to provide home-based comfort, assistance, and support for people with advanced disease. Prior to the partnership, government agencies had no role in palliative care and it was not an officially recognized component of the government's care package for HIV/AIDS patients and others at the end of life. The Palliative Care Association of Zambia in Zambia partnered with the Palliative Care Association of Uganda from 2005 to 2010. The goal was to develop PCAZ and help it engage politically as the lead Zambian organization for implementing palliative standards of care and training. PCAZ was registered as a relevant authority in Zambia in 2005 and officially launched a year later.

The Palliative Care Association of Uganda assisted PCAZ with organizational development training, a countrywide situational analysis on palliative care, development of a strategic plan, governance training to increase board capacity, and the development of operational manuals. The Palliative Care Association of Uganda/PCAZ partnership graduated in 2010. The Twinning Center installed and provided financial support to hire a new national coordinator and additional technical staff, and assisted in developing resource-generation strategies. PCAZ has since earned government recognition and buy-in for palliative care. The organization was instrumental in introducing palliative care guidelines and standards as part of Zambia's the National Health Policy. The organization has a well-structured board of directors and solid strategic plan. In addition, support from a Twinning Center consultant provided PCAZ with the skills to begin generating its own resources. Twinning partners and the Twinning Center provided an NGO in Zambia with a platform for organizing itself and becoming an independent entity.

F. Objective 3: Conclusions

The TC is an enabling organization. It builds institutional capacity that empowers organizations to deliver on their mandates. It helps define the knowledge, skills, and abilities that staff and boards, where relevant, should have to do their job well, according to quality standards and the needs of the institution. AIHA's 20 years of experience with capacity building, together with its in-house knowledge of the country context, informs its decisions on partnership matching, educational exchanges, training of trainers, and networking within and outside the country. AIHA has an empowering effect on local groups. Stakeholders summed up the value of the TC in various ways: "The MOH had talked about having [pharmacy] satellites to improve the management of commodities, but the TC made it happen." "The TC has been a huge help in mentoring." The "TC gave them credibility and clout."

Institutional Capacity Building

AIHA helps boost organizations with small amounts of direct and indirect financial support. It awards subgrants to organizations that meet USG financial standards. These funds cover a percentage of staff support. AIHA then acts as a facilitator as they pursue their mission. Both PCAZ and ZAMCOM have

benefited. For instance, by paying the administrative costs of meetings, the TC enabled PCAZ to be the convening organization for a technical working group on palliative care, which the Ministry of Health now chairs. Even though PCAZ was providing the expertise, its leadership role was underscored by covering the costs of the venue, refreshments, and resource materials. TC paid for ZAMCOM to attend an exhibition in Lusaka at the Agricultural Commercial Show last year. It showed posters, videos, and other examples of its work. Some companies have expressed interest in contracting with ZAMCOM. TC also paid for its participation in the Education EXPO and fair at Government Complex where it showcased NIE to other educational institutions. In addition to financial support, the TC created a Zambia partners network to explore ways to be mutually supportive. For instance, PCAZ and ZAMCOM are working together on advocacy training. ZAMCOM helped PCAZ develop a communications strategy and will be making a documentary on palliative care for the next National Day. ZAMCOM also made a video on Zambia, which was shown at the AIHA HIV/AIDS Twinning Center all partners meeting held in South Africa in June 2011. Livingstone General Hospital and PCAZ are collaborating on a project to establish a pilot palliative care Center of Excellence at Livingstone. DSHS is benefiting from lectures given by one of the UTH clinical pharmacists.

Institutional capacity has been built and human resources for modern pharmacy practice are now in place at the leading teaching hospital in Zambia, University Teaching Hospital of the University of Zambia. Livingstone General Hospital has recently been named one of two new teaching hospitals. These hospitals successfully implemented a working model of modern pharmacy practice with the new role for the pharmacist as a member of the clinical team and satellite pharmacies in all wards at UTH and in the pediatric ward at LGH. Even though they encountered some political problems in setting it up, the leadership and support of the Director of the PCOE inspired them to keep pushing until they achieved their goal. The MOH is now interested in expanding the implementation of the model.

The partnership improved the pharmacy services provided to all patients at UTH and children at LGH, and introduced a model of modern pharmacy practice to Zambia.

Additionally, PCAZ has achieved several notable breakthroughs in public policy to advance palliative care. It successfully advocated for a change in national policy on palliative care and on treatment guidelines for the use of morphine for pain management. It has also worked closely with the MOH to develop a draft Strategic Framework for Palliative Care, which is currently awaiting approval at the national level. The changes in national policy ensure that palliative care will be embedded in the care and treatment of suffering patients in Zambia. Once the framework is approved, funds will be provided to support the services in government facilities.

PCAZ's initiatives to achieve acceptance of palliative care as part of the continuum of care has improved the quality of care and treatment for HIV/AIDS patients and all other patients, particularly those facing the end of life.

South-South Partner Strengthening

The peer-to-peer relationship touted in presentations on partnerships is genuine. The institutions face the same issues, but they are at different stages of advancement in addressing them. The partnership creates a sense of co-ownership of problems and challenges. The partners feel a vested interest in working together to achieve progress in institutional advancement. Using the same working model as the point of reference helps everyone focus.

The Zambia TC has promoted South-to-South twinning in several ways to advance the ZDF initiative. In the absence of an institutional partner, TC is customizing the assistance to each specific area of need. Examples are as follows: Two faculty members at the defense school are being trained in Namibia to serve as IT and EBM faculty. One medical assistant and a nursing trainer went to Tanzania to see a

demonstration of the Skills Lab before setting up the Skills Lab at the ZDF School of Health Sciences. Telemedicine training will be carried out by a consultant from Tanzania where telemedicine is practiced. The TC paid for two faculty members to travel to Ethiopia and South Africa to look at the different methods of incorporating emergency medicine into the training of mid-level health care professionals.

PCAZ has not had a partner since 2010. It receives direct funding from the TC and the Country Director, Anne Mumbi, provides the assistance and facilitation that PCAZ needs. The TC lobbied for them with USAID to get the things they needed to strengthen their capacity.

Evidence-based Medicine

AT UTH and LGH, LRCs are effectively used to access EBM and to promote the professional development of pharmacists, some of whom are now pursuing online master's degrees and certificates in areas of pharmacy specialization. The core group that was trained in the U.S. has launched a phased program to train all pharmacists in Zambia. Thus far 97 have been trained, covering all of Zambia's 10 provinces

The LRC has improved the way the Defense Force School of Health Sciences trains medical personnel in the care and treatment of HIV/AIDS patients and other conditions. Search engines aid research on treatment of HIV/AIDS. Medical books are expensive for students at DSHS. Through the LRCs, they are able to get the latest information without purchasing textbooks. "Students cannot do their school work without the LRCs resources."

Students, faculty, and administrators have learned computer skills and Internet search techniques, essential skills in today's world. Access to evidence-based medicine through the Cochrane Library and online courses equips trainers to teach EBM, and provides continuous professional development for the teachers and providers. LRCs also have offline resources on HIV and medical topics in general. Faculty member use of online resources for lectures and research will be facilitated by tablets, which will soon be delivered. Additionally, the LRCs are enhancing management of patient care at ZDF facilities. They provide managers with real-time management information on patient load and easy linkages to Ministry of health guidelines and protocols. The agreement has been that AIHA pays for up to three years for Internet access for one LRC per year; after that, the institution takes over those costs. AIHA paid for Internet connection at Maina Soka and the DSHS for three years and then stopped. The two institutions could not survive without the Internet, and they are now paying the full costs themselves.

The IT equipment provided by the TC is a significant asset, but it appeared to the reviewers that this capacity is underutilized. In the absence of funding for NIE, the equipment is not being used regularly. ZAMCOM and the TC are not getting a return on their investment in this asset.

Training of the Healthcare Workforce

The Zambia partnership program has achieved human capacity building through its training programs in all four focus areas of the country program. Results of training programs have been transformative for entire cadres of health professionals at three institutions. Two new professions have been recognized—clinical pharmacist and palliative care worker—and all military medical personnel are now becoming educated about evidence-based medicine. These changes are transforming the care and treatment of people living with AIDS in Zambia and improving the quality of care provided to all patients served by these professionals. ZAMCOM has capacitated journalists in communities around the country to be more adept at reporting on the AIDS epidemic and producing stories that will motivate people to change their behavior. PCAZ developed a morphine fact book and resource material as well as a chapter on pain management for the NAC Care Treatment and Prevention guidelines. Doctors are now prescribing oral morphine, and nurses with special training are also involved. Pain management has been integrated into the health care system for all patients, not just for those suffering from AIDS.

Pharmacists reported that the training was effective in teaching them to manage the patient's drugs, and participate as full members of the clinical team. They found that their profession became more respected in the institutions where they were participating as members of the clinical team.

ZAMCOM's work with community radio stations was the first use of this media outlet for messaging about HIV or public health messages in general. The initiative to package delivery of information on HIV/AIDS and the epidemic within a course on how to put a story together was successful. The training, writing, and management became flavored with HIV/AIDS themes. By all accounts, the partnership has transformed the capacity of community radio stations to deliver HIV/AIDS prevention messages. Based on anecdotal evidence, this capacity at the community level has also been effective in educating the public about HIV/AIDS and other public health issues. This experience showed ZAMCOM that it is better to have the community deciding the programming rather than the radio station. The community hears their own voices telling their stories.

In many cases, partner introduction of evidence-based practices and Twinning Center support to install LRCs accelerated access to information and the development of knowledge bases in partner and affiliated institutions. The Twinning Center and its partners will need to evaluate LRC use to determine the extent of use, identify which data and information bases are most useful, and determine if there are changes in the quality of care provided by users. Similarly, the introduction of quality improvement has provided important lessons for the few in-country partners who are using it. Small-scale studies have shown positive results leading to changes in clinical practice. The Twinning Center will need to assess the merit of these measures and determine the best course for promoting uptake among other partners.

Improving Organizational Development and Professional Association Building

Through the partnership program and work with TC, PCAZ has strengthened its operations as an association and advocacy organization representing private institutional and individual providers of palliative care. It has established a strong governance and management capability and developed a curriculum for training palliative care workers. Its most significant achievements have been in advocating for palliative care to be a recognized profession and to be included in the national health plan. Its work has resulted in changes in national policy on palliative care and on the use of morphine in pain management. To assure its long-term sustainability, it has plans for income generation. Both human and institutional capacity for providing palliative care in Zambia has been built.

The partnership with APCA and the TC helped PCAZ build capacity as an association. In the 2008 evaluation of the TC *Building Capacity from Within: AIHA's Twinning Program in Africa*,²⁹ the contributions of APCA to PCAZ are described. The partnership is credited with establishing the technical and organizational capacity of PCAZ, which gave it a solid foundation. In response to PCAZ's request for assistance in building a strong board of directors, TC helped it establish good governance.

By 2010, PCAZ realized that the lack of a financial audit was a significant obstacle to its ability to attract funding. The AIHA Zambia office provided support, including enrollment in the USAID course on financial management and compliance with a funder's requirements. With this new capacity, it qualified for direct TC funding, rather than funding routed through APCA. The TC and PCAZ work together to identify spending priorities.

The Board of Directors and staff of PCAZ have benefited from the training arranged by TC. The association is now the palliative care training and advocacy organization for Zambia and is increasingly financially stable. The strong management team has identified income-generating initiatives that appear to be feasible. It is a model advocacy organization that has demonstrated how to use classic levers

²⁹ Richard Conviser, July 2008.

available in a democracy to change national policy. PCAZ's future is also promising because the MOH has become dependent on its knowledge and skill set. Three institutions are leading the in-service training programs in the new practices in their field: UTH, LGH, and PCAZ.

PCAZ is beginning to develop its role as an association in ways other than training and advocacy. The TC funded PCAZ to develop an institutional self-assessment tool for government facilities to monitor standards of palliative care. PCAZ has also facilitated the development of strategic plans for eight member private hospices and one community-based organization. A Learning Resource Center was established at PCAZ in 2011.

The partnership lifted ZAMCOM's reputation and capacity. Due to the help of the TC, it is accredited by TEVETA, the Technical Education Vocational Training Authority for journalism and public affairs. The Zambian Association for Business Managers hired it to carry out vocational training in HIV/AIDS at a management course for business executives on community development and media.

IV. Recommendations

1. Consolidate reporting to one PEPFAR manager

For a relatively small portfolio, the TC portfolio has four USG activity managers. The reporting burden on the TC is significant because it is funded by three different PEPFAR agencies and must respond to each of their requirements. With a small budget for Zambia, the administrative demands of this arrangement add to the TC's costs and reduce the funds available for direct program implementation. The TC could be strengthened by having the country team report to only one PEPFAR manager for all the diverse activities.

2. Bolster in-country staff to meet technical assistance demand

AIHA staff, particularly the Zambia Country Director, fill a role as detached observers and analysts identifying when to step in and use AIHA's resources, contacts, and influence. The application of non-programmatic resources, such as networking and connection of stakeholders, has been effective in helping the Zambian partners achieve their objectives. The Country Director is a Zambian national who understands the country context and has many connections for networking. These skills are appreciated by partners and donors. The ability of the TC to fully scale up some of its activities, including the palliative care activities, is hampered by the size of its staff and the time-consuming demands of bureaucratic reporting. Since PCAZ and ZDF do not have partners, the TC Country Director is monitoring the needs of these organizations and is orchestrating the provision of technical assistance. This is a heavy workload for the one technical person in the AIHA Zambia office.

3. Provide continued organizational development to ZAMCOM Board and staff

Business, management, and governance training should be offered to ZAMCOM Board and staff.

4. Maintain open and flexible scopes of work

Openness and flexibility in deciding on the scope of work is effective. Behavioral and institutional change is an evolutionary process, and one of the most difficult decisions is where and how to take the first steps. The partnership is invaluable in helping each other figure that out, knowing that course corrections are not a sign of failure.

5. Revisit the idea of a new cadre of mid-level health care professionals

The TC has had conversations with the MOH about the severe shortage of medical staff in rural areas which could be well served by supporting the Medical Licentiate professional cadre that already exists in Zambia. The Medical Licentiates are similar to the Clinical Associates cadre in South Africa but face shortage issues of their own. Perhaps networking with South Africa and twinning could help in creating demand for an increase student pipeline and fill the need for pre-service training. The MOH was interested in the Clinical Associates program, but when NEPI and MEPI were approved for Zambia, its priorities changed. The donors should revisit this issue with the MoH.

6. Expand access to EBM via DICs and LRCs

The theme of the academic and clinical partnerships should be **evidence-based practice**. Measurement tools should be identified to help partners determine their progress in this area. Inclusion of a component for training on continuous quality improvement and implementation should be considered for all partnerships.

The TC should work with the MOH to facilitate establishment of a model Drug Information Center (DIC) for Zambia at UTH. A DIC is different from an LRC. A DIC uses a database and a call-in line. In response to queries, the pharmacists do searches and send back answers to the caller. Many medical staff members at UTH and other civilian hospitals do not have computer skills. Donors should consider broadening the LRC initiative to civilian hospitals. Every tertiary and secondary hospital in Zambia should have an LRC which provides online and offline access to information on EBM.

The presence of LRCs has laid the foundation needed to change military medical practice, but it is only the first step in a long continuum of measures that must be taken toward modernizing the practice of military medicine and embedding EBM into the care of each individual patient. The ZDF and TC appear ready to move from an equipment- and database-oriented collaboration into clinical areas. ZDF has already asked the TC for assistance in introducing emergency medicine. While this is a logical priority area, AIHA could assist the ZDF in identifying the other areas where EBM can be promoted through professional exchanges.

7. Monitor and evaluate

Use of LRCs (including number of users and sites accessed) should be monitored on a random basis to determine utilization of this asset. If certain thresholds of utilization are not achieved, the institutions should determine why and address the barriers to use.

AIHA's monitoring and evaluation of ZAMCOM is oriented to the training targets that are required under PEPFAR, but these numbers may not yield useful management information. The number of people trained may not reflect the capacity building at the community radio stations because there could be churning due to turnover. The number trained may be a good measure of knowledge in the country about good journalism and HIV/AIDS reporting but not a good measure of community radio capacity for reporting. There is no way at present to measure how many stories were run by trained journalists or the quality and accuracy of the articles. Also, there is no data on changes in behavior at the village level as a result of community radio. UKY and ZAMCOM travelled province by province with the message on testing, prevention, etc., so it should be possible to see how testing numbers, number of condoms distributed, etc. has changed. HIV awareness questions were included in the last Demographic and Health Survey (DHS). Once results of that survey are known, the partners will have a better idea of the impact of the community messaging. Project monitoring information can inform adjustments in the scope of work to increase effectiveness.

Annex E. List of Persons Met

Country	Date	Name	Profession/Title	Institution
Ethiopia	Individual names not received			
South Africa	February 4, 2013	Letitia Robinson	Senior Program Management Officer, Extramural Office	CDC/South Africa
		John Capati	Country Director	AIHA/South Africa
		Sailas Nyzreza	Regional Coordinator, Learning Resources	AIHA/South Africa
		Murray Lou	Coordinator, Clinical Associates Program	University of Pretoria
		Zukisa Tshabazaza	Coordinator, 1st year	University of Pretoria
		Cynthia Hickson	Site Facilitator	University of Pretoria
		Lombaru Tshotetsi	Site Facilitator	University of Pretoria
		Roan Schalkuyk	Site Facilitator	University of Pretoria
		Thierry Ngoyi	Senior Lecturer	University of Pretoria
	February 5, 2013	Bhumsto Heunis	Director	CHSR&D, University of Free State
		Nandipha Jacobs	Researcher	CHSR&D, University of Free State
		Asta Rau	Senior Researcher	CHSR&D, University of Free State
		Michelle Engeliorecht	Senior Researcher	CHSR&D, University of Free State
		Andre Van Resnsburg	Researcher	CHSR&D, University of Free State
		Ega Janse Van Rensburg-Rothyzer	Senior Researcher	CHSR&D, University of Free State
		Gladys Kigori	Researcher	CHSR&D, University of Free State
		P. Chikobvu	Information & Researcher	PDOH
		R.B. Fakroodeen		NDOH

Country	Date	Name	Profession/Title	Institution
	February 6, 2013	Oguttu O James	Lecturer	Walter Sisulu University
		Jem Iputo	Director	Walter Sisulu University
		Fredrick Govere	Researcher	AIHA/Walter Sisulu University
		Khatry-Chretry	Coordinator	Walter Sisulu University
		K. Mfenyana	VC's office	Walter Sisulu University
		McEtywa SM	Student	Walter Sisulu University
		Mbele A.	Student	Walter Sisulu University
		Mhlana O.	Student	Walter Sisulu University
		Macingwame O.M.	Student	Walter Sisulu University
		M.B. Khatry-Chhetry	Principal Specialist (Family Medicine) Coordinator, Clinical Associate Program	Walter Sisulu University
		Banele Qwanyaza	Clinical Associate	Mtata General Hospital
	February 7, 2013	Ando Kenler	PA Lecturer	University of the Witwatersrand
		Bright Sithole	Clinical Associate Tutor	University of the Witwatersrand
		Abigail Dreyer	Manager	University of the Witwatersrand
		Audrey Gibbs	Medical Doctor	University of the Witwatersrand
		Scott Smalley	Clinical Associate	University of the Witwatersrand
		Marcim Graber	Clinical Associate	Tembisa District Hospital (University of Pretoria students)
		Anel Wijma	Clinical Associate	Tembisa District Hospital (University of Pretoria students)
		Michelle Botha	Clinical Associate	Tembisa District Hospital (University of Pretoria students)
		Ropuiwa Sadiki	Clinical Associate	Tembisa District Hospital (University of Pretoria students)
Magnolia Rakgole		Clinical Associate	Tembisa District Hospital (University of Pretoria students)	
Mathe Sithembile	Clinical Associate	Tembisa District Hospital (University of Pretoria students)		

Country	Date	Name	Profession/Title	Institution
				Pretoria students)
		Khumalo S.W.	BCMP	Tembisa District Hospital (University of Pretoria students)
		Mtalapa K.M.E.	BCMP (Clinical Associate)	Tembisa District Hospital (University of Pretoria students)
		Shabalala	BCMP	Tembisa District Hospital (University of Pretoria students)
		Xolani L Nkosi	BCMP	Tembisa District Hospital (University of Pretoria students)
		Vanessa Khoza	Clinical Associate	Tembisa District Hospital (University of Pretoria students)
		Vusi Zulu	Clinical Associate	Tembisa District Hospital (University of Pretoria students)
		Dr. Frank Peters	Principal Specialist, Senior Lecturer	Tembisa Provincial Tertiary Hospital (University of Pretoria)
Tanzania	March 2, 2013	Ahmed Salim	Director	Drug Control Commission, First Vice President's Office-Zanzibar
		Mahamoud Mussa	Coordinator	Drug Control Commission, First Vice President's Office-Zanzibar
		Sober House participants		Zanzibar Sober House
	March 4, 2013	Danford Makala	Commissioner of Social Welfare	Department of Social Welfare (DSW)
		Jeanne Ndyetabura	Assistant Commissioner of Social Welfare	DSW
		Dr. Abu Mvungi	Principal of Institute of Social Work	Institute of Social Work (ISW)
		Leah Omari	Director of HIV/AIDS OVC Twinning Program	ISW
		Furaha Dimitrios	HIV/AIDS OVC Twinning Program Coordinator	ISW

Country	Date	Name	Profession/Title	Institution
		Dr. Zena Mnasi Mabeyo	Chair	Tanzania Emerging Social Work Education Program (TESWEP) Executive Committee
		Mr. Mbise	Vice-Chair	TESWEP
		Mr. Mshana	Secretary General	TESWEP
		Stella Mngodo	Treasurer	TESWEP
		Joseph Kayinga	Press Secretary	TESWEP
		Dr. Naftali Ng'ondi	Chair	TESWEP
		Asiya Mwanzi	Secretary	TESWEP
		Zachayo Shigongo	Member	TESWEP
		Suleiman Mtwana	Member	TESWEP
		Sipha Shaaban	Member	TESWEP
	March 5, 2013	Susan Clark		CDC/Tanzania
		Tumani Chambua	General Secretary of Pare Diocese	
		Rev. Joas Mpinda	Program Coordinator	
		Thomas Mshana	Registrar, Health Laboratory Practitioners Council (HLPC)	Ministry of Health and Social Welfare-Diagnostic Services Unit
		Dickson Majige	Program Officer Laboratory Training	Ministry of Health and Social Welfare-Diagnostic Services Unit
		Mrs. Magogo	QA Officer	Ministry of Health and Social Welfare-Diagnostic Services Unit
	March 6, 2013	Dr. Norman Sabuni	Principal Medical Officer	Ministry of Health and Social Welfare Non Communicable Diseases, Mental Health and Substance Abuse
		Gabriel Kisyombe	Laboratory Specialist	Mentor, Laboratory Service Partnership
		Appolinary Mugomela	Laboratory Specialist	Mentor, Laboratory Service Partnership
		Alois Ngonyani	Chemist	Drug Control Commission
		Dr. Norman Sabuni	Principal Medical Officer	Ministry of Health and Social Welfare

Country	Date	Name	Profession/Title	Institution	
				Non Communicable Diseases, Mental Health and Substance Abuse	
		Jacqueline Kitwika	Program Manager	Muhumbili University of Health and Allied Sciences, Tanzania AIDS Preventions Program	
		Jacqueline Kitwika	Progam Manager	Muhumbili University of Health and Allied Sciences, Tanzania AIDS Preventions Program	
	March 7, 2013	Dr. Thecla Kohi	Principal Investigator	Muhimbili University of Health and Allied Sciences	
		Clavery Mpandana	Government Chief Nursing Officer	Office of the Government Chief Nurse at Ministry of Health and Social Welfare	
		Ndementria Vermand	Assistant Director	Nursing Training Unit at Ministry of Health and Social Welfare	
		E. Ayo	Technical Advisor at MOHSW Nursing Unit		
		Individual Association and Council representatives		Tanzania National Nurses Association and Tanzania Nurses and Midwives Council representatives	
	Zambia	Feb. 11, 2013	Chris Mahoney	Development Outreach Communications Officer	USAID/Zambia
			Zegeye Abeje	HIV/AIDS Nutrition Specialist	PCAZ
Eda Lifuka			Program Manager	DOD/PEPFAR Program	
Feb. 12-13, 2013		Fred S. Njovu	Clinician	PCAZ	
		Shila Hamwe Nda	Caregiver	HST	
		Jack Hamuso Nda	Caregiver	HST	
		Muluwe Syanjingu	Finance Officer	HST	
		Kabwela Malisa	M&E Officer	PCAZ	
Anayawa M. Siamianze		Program Manager	PCAZ		

Country	Date	Name	Profession/Title	Institution
		Njekwa Lumbwe	National Coordinator	PCAZ
		Brigadier General Evans Malyangu	Commandant	Defense School of Health Science (DSFHS)
		Col. Jenipher Hamuldebwe	Chief Instructor (Nurse/Midwife)	Defense School of Health Science (DSFHS)
		Lieutenant Colonel D. Ndhlovu	Admin of Find (Nurse/Midwife)	Defense School of Health Science (DSFHS)
		Captain J. Kapembwa	Assistant Admin (Nurse Tutor)	Defense School of Health Science (DSFHS)
		Abner Musenge	IT Support/LRC	Defense School of Health Science (DSFHS)
		Wol. K. Mulimba	Computer Operator	Army
		Major S. Tembo	Clinician	Defense School of Health Science (DSFHS)
		Lieutenant Colonel F. Malasha	Medical Doctor	Defense School of Health Science (DSFHS) HIV Secretariat
	Feb. 14, 2013	Alutuli Luke	Pharmacist	Ministry of Health - Headquarters
		Justina Phiri Mthoniswa	HIV/AIDS Gender Media Specialist	ZAMCOM
		Oliver Kanene	Director	ZAMCOM
		Doreen Valeta Mukube	Assistant HIV/AIDS Specialist	ZAMCOM
		Jones Kaumba	Journalist	ZAMCOM
		Gardiner Siyakantu	Medical Doctor	Ministry of Health - Headquarters
Washington	Jan. 14-18, 2013	Jacob Buehler	M&E Director	AIHA
		Kelly Wolfe	Twinning Center Director	AIHA
		James Smith	President	AIHA
		Aarazmina Rangwala	Ethiopia Program Manager	AIHA
		Kelley Wolfe	Zambia Program	AIHA

Country	Date	Name	Profession/Title	Institution
			Manager	
		Jaana Smith and Sara Adelman	South Africa Program Manager	AIHA
		Rebecca Sutton-Kanyako	Tanzania Program Manager	AIHA
		Dr. Barbara Aranda-Naranjo	Director, Division of Training and Capacity Development	HRSA
		Philippe Chiliade	Branch Chief	HRSA
		Rafi Morales	Director of the Global AIDS Program	HRSA
		Ellen Caldeira	Team Lead Health System Strengthening Global AIDS Program	HRSA
		Anil Purohit	Global HIV/AIDS program	HRSA
		Susan Becker	Global HIV/AIDS program	HRSA
		Estelle Quain	Office of HIV/AIDS	USAID
		Andrew Mitchell	OGAC	OGAC
		Alexandra Zuber	Technical Advisor on human resources for health issues for CDC GAP	CDC

Annex F. Proposed Timeline, Country Travel Schedule and Deliverables to Conduct the AIHA Twinning Center Evaluation

	Jan 1-5	Jan 8-14	Jan 7-12 19	Jan 14-19	Jan 21-26	Jan 28- Feb 2	Feb 4-9	Feb 11-16	Feb 18-23	Feb 25- Mar 2	Mar 4-9	Mar 11-16	Mar 18-23	Mar 25-30	Apr 1-6	Apr 7-13	Apr 14-20	Apr 22-27	Apr 29 – May 4	May 6-11	May 20-24	Deliverables	
NRD process completed, field work begins																							Draft work plan updated
Meetings with AIHA//DC and DC-based USG stakeholders																							Meetings documented in Final Report annex
Field work in South Africa (10 days)																							Country report contained in Final Report annex
Field work in Zambia (7days)																							Country report contained in Final Report annex
Field work in Ethiopia (7 days)																							Country report contained in Final Report annex
Field work in Tanzania (7 days)																							Country report contained in Final Report annex
Return to US																							
Interviews with US (North) partners																							Meetings documented in Final Report annex
Draft Evaluation Report – submitted																							Evaluation Report
AIHA and HRSA review																							
HRSA debrief																							PowerPoint presentation
OGAC HRH debrief																							PowerPoint presentation
Final Report submitted																							Final Report

Annex G. Map of Partnerships

Partnerships

Ethiopia

- Amhara region: Hospital Strengthening
- Addis Ababa: Social Work/PSW, Pharmacy, HTC, and Emergency Medicine (Adult & Pediatric)

Tanzania

- Dar es Salaam: Nursing, Social Work/PSW, Palliative Care, and Lab Services
- Zanzibar: ROSC

Zambia

- Livingstone: Pharmacy
- Lusaka: Palliative Care, Health Communications, and Health Information Technology

South Africa

- Umtata: Clinical Associates
- Johannesburg: Clinical Associates
- Pretoria: Clinical Associates
- Bloemfontain: Public Health Evaluation

