4. BUILDING NURSE AND MIDWIFERY CAPACITY IN MALAWI: A PARTNERSHIP BETWEEN THE GOVERNMENT OF MALAWI AND THE PEPFAR/NURSING EDUCATION PARTNERSHIP INITIATIVE (NEPI)

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Malawi's health care system is amongst the most seriously strained systems in all of sub-Saharan Africa. This is mostly because of the high demand for clinical care services and the high burden of communicable, noncommunicable, and preventable diseases coupled with the severe shortage of health care providers. The purpose of this paper is to present the process of collaboration between the Malawi Ministry of Health (MOH) and the US President's Emergency Plan for AIDS Relief (PEPFAR) to establish an integrated, comprehensive approach to increase the number of qualified health professionals. In September 2010, PEPFAR created an initiative to provide support for scaling up the nursing profession through the PEPFAR Nursing Education Partnership Initiative (NEPI), while the MOH advanced reforms through the establishment of a National HRH Strategic Plan. Funding for the NEPI was available to a select number of countries, including Malawi, during the following year, 2011. The partnership between the government of Malawi and PEPFAR has defined an effective model for tackling the shortage of well-trained nurses and midwives.

COUNTRY CONTEXT

Malawi, with a population of approximately 13 million, is characterized as predominantly rural (84.7 percent), young (47 percent less than fifteen years of age), and poor (73.9 percent population living on less than $1 [purchasing power parity at dollar rate] a day) (WHO 2011). There exists a high burden of communicable and noncommunicable diseases, including HIV, malaria, tuberculosis, hypertension, cardiovascular disease, mental illness, and diabetes (WHO 2011). And, the health system is often characterized as extremely weak and fractured, as having inadequately trained providers, and as suffering from a lack of resources to address current population-based health needs (Mueller et al. 2011).

There are three main health services providers in Malawi, namely, the government, nongovernmental organizations (NGOs), and the private sector. The government is the largest provider, operating 55 percent of all health facilities in the country, followed by the private or for-profit sector (20 percent), Christian Hospital Association of Malawi (CHAM) (14 percent), other nongovernmental organizations (6 percent), and statutory organizations and companies (5 percent) (Ministry of Health 2008).

The current human resources for health (HRH) situation is characterized by chronic and severe shortages of health care providers, imbalances in the mix and distribution of skilled and competent providers (table 1), and highly underresourced health care provider training and service delivery sectors (WHO 2011). Due to the severe shortage of clinicians, the health system relies predominantly on nonphysician clinicians, primarily nurses and community health workers, as a means to provide adequate access to health care for the general population (Ministry of Health 1999).

TABLE 1. MALAWI HEALTH CARE WORKER NUMBERS AND RATIOS—PHYSICIANS, NURSES, AND MIDWIVES

Physicians		Nursing and Midwifery Personnel	
Number	Density (per 1,000 population)	Number	Density (per 1,000 population)
257	.02	3,896	.28

Source: WHO 2011.

As in most settings, nurses are considered to be the backbone of the health delivery system. However, the current vacancy rate for nursing and midwifery positions in the public sector is 65 percent, and workforce geographical distribution is severely imbalanced, with 74 percent of providers in urban areas serving 19 percent of the population (Brugha et al. 2010). There are 3,896 practicing nurses/midwives; an additional 23,000 are needed to adequately address the population's health needs (African Health Workforce Observatory 2009). The sixteen nursing schools, both government and private, collectively graduate approximately 650 new nurses per year. In order to fill current public service vacancies, the number of annual nursing graduates would need to increase by nearly 20 percent. Although intake numbers have grown by 119 percent over the past five years, the number of educators has increased only 26 percent. Recent studies have also raised concerns about the quality of care provided by health care workers, including nurses, in the delivery of the Malawian Essential Health Package (EHP), which was developed in 2002 to identify cost-effective interventions that addressed local burden of disease and mortality (Chilowa et al. 2001; Mueller et al. 2011). Adding to this imbalance, nearly a third of the nursing workforce is non-practicing, due to poor salaries, inadequate living and working conditions in rural areas, and limited advancement opportunities (Caffrey and Frelick 2006; Ministry of Health 2010).

This paper describes the partnership between Malawi's national government and numerous external organizations and governments, including international donors, to support national health care workforce reforms, examine the key elements employed to build nursing capacity

through the PEPFAR/NEPI program, summarize key issues from the perspectives of the government and training institutions, and report the lessons learned to date.

In response to these historic challenges, the government of Malawi (GOM) implemented a series of health sector strategic plans with broad reforms over the past decade. The GOM adopted a strategic plan to address the human resources for health crisis through the development of the Health Sector-Wide Approach (SWAp) and joint Programme of Work (2004–2010). These documents encompassed the Six-Year Emergency Pre-service Training Plan, launched in 2002, and the 2004 Emergency Human Resource Programme (EHRP). The goal of these efforts was to increase the availability and quality of delivery of the EHP and other health services.

In general, the EHRP and SWAp were considered to be successful in increasing the production of many of the health care worker cadres, although serious shortcomings still remained due to emerging health needs and challenges to administrative systems and training institutions. The GOM has recently launched the National Health Strategic Plan (NHSP) (2011–2016) to build on the successes of SWAp with an emphasis on increasing coverage of an expanded EHRP through targeted health system and HRH interventions. The new plan includes implementing the National Nurse/Midwife Training Operational Plan over five years to double the training capacity for nursing and midwifery. The NHSP (2011–2016) serves as the primary blueprint for addressing the current challenges across the health sector (Ministry of Health 2011).

In October 2009, the US Department of State, Office of the Global AIDS Coordinator, established a nursing capacity building initiative, the Nursing Education Partnership Initiative (NEPI), in collaboration with the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), to fund a select number of PEPFAR-supported countries. The purpose of the NEPI is to strengthen and expand the capacity of host governments, regulatory bodies and professional associations, and pre-service training institutions in implementing, managing, and/or monitoring pre-service training programs for nurses and midwives. Malawi was selected as a NEPI awardee due to several factors: the strong role of the government in addressing HRH issues over the past decade; previous HRH assessments completed by the Ministry of Health and the Clinton Health Access Initiative; and the severe shortage of nurses within the country relative to other African countries. As NEPI awardees, the Malawian government and nursing institutions receive financial support over a five-year period through HRSA, via the Columbia University/ICAP Global Nursing Capacity Building Program (formerly called ICAP Nurse Capacity Initiative, or INCI), to foster the work of a national workgroup responsible for assessing current nursing gaps and developing an implementation plan of pre-service interventions at the pilot and national scale-up level (US Government 2012).

PARTNERSHIP TO BUILD MALAWI'S NURSING WORKFORCE

Over the past decade, the government of Malawi has engaged in a series of strategic initiatives, as reflected in the EHRP and NHSP, to define national health services priorities as based on the implementation of an EHP to achieve its targets for the Millennium Development Goals. Early efforts resulted in some limited improvements in specific health indicators including the HIV prevalence rate; however, the overall health delivery system remained extremely fragile and underresourced, and continues to be severely challenged in critical areas of human resources and management, including the competency of providers to deliver essential health care services and the general lack of sufficient infrastructure and supplies, such as key medical consumables (Mueller et al. 2011).

In 2004, the GOM underwent a realignment of internal government structures to establish the MOH/SWAp and Programme of Work as the primary vehicles for coordinating and leveraging multiple stakeholders, resources, and internal and external priorities into a single, coordinated planning and implementation mechanism. The establishment of SWAp was, fundamentally, a pivotal point in the ability of the GOM to accomplish widespread multi-sectoral reforms, such as HRH reforms. Once in place, the direction was set to advance reforms, as reflected in the EHRP and coverage of the EHP.

In 2010, the MOH formed a core group to coordinate the development of the NHSP (2011–2016) with a new and expanded set of priority objectives. The core group drew membership from all departments in the MOH, health workers' training institutions, the private sector, civil society organizations, and health development partners, including PEPFAR. The core group was chaired by the director of the SWAp Secretariat in the MOH, and members met regularly to discuss the progress in drafting the Health Sector Strategic Plan as well as other emerging issues. Within the NHSP, the GOM advanced reforms in five key areas: (1) expanded health care worker training capacity; (2) financial incentives for recruitment and retention of staff; (3) government capacity building in areas of HRH resource planning and management; (4) regulatory reforms to support the expanded role, quality, and professional development of nurses; and (5) strategies to implement monitoring systems for decision making and quality purposes.

In mid-2010, two key events converged: the completion of the GOM/MOH NHSP (2011–2016) and the introduction and implementation of NEPI in Malawi. These events catalyzed the GOM and local institutions to more rapidly implement HRH strategies as outlined in the NHSP (2011–2016) as directed toward strengthening nursing and midwifery professionals through pre-service training programs. This development was unique for several reasons. First, the funds were under the guidance of the GOM/MOH in collaboration with other relevant stakeholders (regulatory council, professional associations, and training institutions) on key interventions as reflected in the NHSP and other relevant planning strategies. Second, the primary role of the US government

and its partner, ICAP, was to provide the necessary technical support to GOM/MOH and the local institutions to effectively execute their respective roles as convener, planner, implementer, and trainer. The project established a partnership between the U.S. government/PEPFAR and the GOM/MOH based on several key principles: country ownership; national leadership; sustainability; and national and local institutional capacity building. These principles are inherent in the operational policies and procedures of the NEPI.

To date, the Malawi NEPI has completed nearly two years of programmatic activities. In this brief time, several key issues have emerged as essential elements in nursing capacity building for national governments, and important factors in the engagement of partners, including international donors, in supporting national health care workforce reforms. The purpose of this article is to summarize and reflect on these key issues from two perspectives: government and training institutions.

Government

A persistent constraint in addressing the complex barriers to improving population health outcomes has been the limited capacity of Malawi's national and subnational governments and other national institutions, such as regulatory councils and professional associations, to assess, plan, implement, and manage multi-sector reforms. Absent the capacity of national organizations to implement and manage reforms, the likelihood of adoption of sustainable sector-wide reforms is compromised or impossible. A primary function of the PEPFAR/NEPI program is to provide necessary technical and capacity-building support to governments and other national institutions to implement real and sustainable systemic, multi-sector reforms for scaling up nursing and midwifery capacity. In Malawi, the PEPFAR/NEPI program was implemented in a manner to assure a country-owned and -led process and, thus, was integrated within existing planning framework and implementing structures as established by the MOH and as described in the NHSP and the Nursing/Midwifery Operational Plan.

First, within the context of the MOH/SWAp and its historic achievements in organizing a multi-sectoral response for broader health reforms, the PEPFAR/NEPI program provided direct support to the MOH to expedite the NHSP-HRH reforms related to nursing capacity building through the HRH Technical Working Group. Support was provided through various means, such as logistical support for meetings, managerial support within the MOH to develop and implement strategies, technical assistance to institutions for needs assessments and planning activities, and creating enabling environments and strengthening the capacity of institutions to identify and implement reforms. In doing so, the program accelerated the timeline for advancing national nursing reforms within the framework of the GOM/MOH priorities as established in the National Health Strategic Plan. It was essential for the PEPFAR/NEPI program to integrate its

efforts into a wider strategic plan to maximize its efficiency and impact, to be aligned with budget financing priorities, and to support the overall sustainability of the health delivery system.

Second, the PEPFAR/NEPI program provided dedicated support in a critical area of HRH, namely pre-service nurse and midwifery training, while allowing other stakeholders and donors to support broader HRH reforms such as policy (retention, wages, migration) reforms. The GOM, which is the major funder of health professional pre-service training in Malawi, has historically been unable to provide an adequate and reliable stream of resources to training institutions (TIs), resulting in intermittent closures of training institutions. Donors have been reluctant to fund pre-service training, preferring instead to support in-service training. And the mass migration of health care workers to other countries worsened the shortage of both didactic and clinical faculty, especially for nurses. The dedicated resources for pre-service training institutions provided by the PEPFAR/NEPI program were paramount in promoting reforms and provided an added benefit of leveraging additional resources within both the public and private sectors.

Third, the PEPFAR/NEPI program worked in collaboration with other donors, including the Clinton Health Access Initiative, to support an MOH national assessment of nursing and midwifery training institutions and, subsequently, support the MOH HRH Technical Working Group in developing a Nurse/Midwifery Training Operational Plan based on the data from the national assessments. The operational plan was linked to the priorities and objectives of the NHSP to support the overall goal of increasing the number and quality of nursing and midwifery graduates. In addition, PEPFAR/NEPI provided direct human resources support to the MOH, within the nursing directorate, and served a logistical and technical role within the MOH HRH Technical Working Group by providing ongoing technical and capacity-building support to manage the implementation of the operational plan.

Finally, the PEPFAR/NEPI program provided direct capacity-building support to the Nursing and Midwives Council of Malawi, which has a critical role in the national nursing and midwifery reforms. The council was established by The Act of Parliament Cap 36:2 (1995) to regulate training, education, and practice of all nursing and midwifery services. The council carries out the following functions to fulfill its role in the Human Resource Directorate in the Ministry of Health: approves nursing/midwifery colleges to train nurses and midwives; sets standards for nursing/midwifery education and expands the scope of practice through regulatory reforms; sets monitoring and evaluation criteria of the training institutions and checks if the set standards are being followed to ensure compliance; sets and conducts licensure examinations for the nurses and midwives that have undergone training; gives certificates to those nurses/midwives who pass the licensure examinations; keeps the registers for all nurses/midwives that are licensed and practicing; and conducts monitoring and evaluation of health facilities to ensure that standards of care are adequately followed (African Health Workforce Observatory 2009).

As described above, the intent of the Malawi and PEPFAR/NEPI partnership was to provide necessary resources to the GOM in a manner that enabled the government to plan and implement essential reforms in collaboration with key stakeholders (including councils and TIs), and to build on the success and lessons learned from the previous decade of HRH activities and reforms.

Training Institutions

Gains were made during the implementation of the EHRP (2004–2010) in scaling up nursing TIs to increase the number and quality of students. Accomplishments included increasing the total number of health workers from 5,453 to 8,369, of which 4,812 were nurses or midwives; improving infrastructure for both government and CHAM TIs; improving tutor and health care worker retention through salary top-ups; and implementing basic reforms to the nursing curriculum with a greater emphasis on clinical instruction (Ministry of Health 2011). Despite these accomplishments, serious challenges still existed. Aside from supporting capacity of national institutions, the GOM and PEPFAR/NEPI partnership has resulted in the identification and implementation of priority interventions at the TI level. Based on the Nurse/Midwife Training Operational Plan, six priority areas are key to scaling up capacity of training institutions:

1. Increased faculty recruitment and retention, especially in rural areas
2. Sufficient number of clinical practical sites and preceptors
3. Up-to-date learning resources
4. Increased number of student and faculty accommodations in rural and peri-urban areas
5. Improved institutional infrastructure
6. Stronger candidate qualifications

With the PEPFAR/NEPI resources, three TIs were selected to scale up specific pre-service interventions based on the priorities identified in the operational plan: Kamzuzu College of Nursing, University of Malawi (KCN), Mzuzu University (MZUNI), and Malawi College of Health Sciences (MCHS). The PEPFAR/NEPI provides financial and technical support to these nursing schools. ICAP, HRSA's implementing partner with international expertise in nursing capacity development, provided technical and administrative support for the design and implementation of these identified interventions. Table 2 includes a summary of NEPI country interventions for Malawi. Table 3 includes the type of intervention, selected nursing school, and expected outcomes as related to the operational plan.

TABLE 2. PEPFAR/NEPI INTERVENTIONS IN MALAWI, 2010–2015

Core Intervention Areas	Dimensions	Interventions
Institutional	Technology infrastructure, including Internet connectivity	• Distance-learning platform including e-learning planning under way at KCN with 4 regional sites identified as learning centers • Internet connectivity being upgraded at MCHS
	Simulation-based training resources	• Clinical skills laboratory including high-fidelity simulators, low-fidelity simulators, and computer-based simulation technologies being established at MZUNI with upgrading occurring at MCHS and KCN
	Teaching and learning resources and materials	• Library books • Electronic journal subscriptions • Needs analysis under way
	Teaching and learning equipment	• Computers: 20 laptops • Data projectors: 2 • Wireless dongles: 20 planned
	Faculty development: formal advancement opportunities created	• PhD: 1 PhD scholarship for 1 faculty at each implementing school, with 2 faculty enrolled and 1 pursuing places in South African universities

Continued

Table 2, continued

Core Intervention Areas	Dimensions	Interventions
		• Master's: 4 faculty enrolled at KCN for master's degrees in nursing and midwifery education
	Faculty development: exchange and best-practice visits (facilitate networking)	• Best-practice visits: 1 visit of 4 KCN faculty to 2 SA universities to explore best practices with respect to student admission processes and documentation; postgraduate and undergraduate curriculum development and implementation; clinical preceptorship training; management of clinical laboratories • MZUNI faculty visit to University of the Free State to explore skill-based training and clinical preceptorship training program planning under way
	Faculty development topics: needs-based short courses and workshops	• Teaching methodologies; education research methodologies; e-learning; simulation-based training; curriculum design; change management and leadership; program management and evaluation; current trends in health patterns and care needs; evidence-based practice including good practice guidelines; clinical teaching methodologies; public health skills

Continued

Table 2, continued

Core Intervention Areas	Dimensions	Interventions
	Faculty and nursing tutor numbers	• Increased numbers and capacity through: 1. Master's in nursing and midwifery education with first cohort of 14 commenced in May 2012 2. Scholarships for BSc upgrading with education specialty component • Voluntary services overseas being considered
Instructional	Curriculum review and development	• 2-year master's in nursing and midwifery education with a 1-year exit of a postgraduate degree in nursing and midwifery education developed and approved • Preceptorship curriculum development under way • Review of the bachelor in nursing and midwifery curriculum under way
	Teaching and learning methodologies	• Blended learning (e-learning and face-to-face contact) • Strategic planning for SBT at MZUNI under way • Teaching and learning best-practice clinical sites

Continued

Table 2, continued

Core Intervention Areas	Dimensions	Interventions
	Clinical practice	• Situational analysis of additional clinical sites for consideration for placement undertaken (MCHS; MZUNI) • Draft framework for the development of teaching sites/wards in 4 districts (MZUNI) • Vehicles being procured to transport students to more remote sites
	Student enrollments	Scholarships provided to increase enrollments: • Master's program (KCN): 14 • Upgrading to BSc with education specialty component (KCN): 20 • Upgrading to registered nurse from enrolled nurse (MCHS): 30 • BSc in nursing (MZUNI): 20

TABLE 3. INTERVENTIONS AND EXPECTED OUTCOMES IN MALAWI, 2010–2015

Intervention	Selected Nursing School	Expected Outcomes by the End of 2015
Increasing the number of nurse tutors over the next five years by developing a one-year certificate program for nurses with a bachelor's degree and by developing a two-year program for nurses with a diploma	Kamuzu College of Nursing	• Increased number of nurse tutors: 40 nurse tutors produced (2011: 20; 2012: 20) • Career pathway developed for BSc to continue with master's degree • Increased retention through development of distance-based modules
Upgrading nurse-midwife technicians to a diploma-level nurse by developing a bridging program	Malawi College of Health Sciences/ Blantyre	• 50 nurse-midwife technicians become RNs • Nurses are retained at CHAM sites
Enhancing integration of clinical teaching through the development of a skills lab and orientation process for clinical preceptors	Mzuzu University	• State-of-the-art clinical lab site for faculty and clinical nurses to improve preceptorship • Increased number of clinical preceptors • Teaching wards established at selected central and district hospitals
Supporting the Nursing Council to implement transformational nursing education standards by evaluating the current pass rate for nursing licensure with recommendations for future changes	Nursing Council of Malawi	• Assessment of reasons for current pass/fail rate conducted • Recommendations for changes submitted

The inability to identify, recruit, and retain qualified faculty for both basic science and clinical courses is the most prevalent and tenacious challenge identified across TIs and limits the opportunities to expand training programs, increase enrollment, or improve the quality of the training. The PEPFAR/NEPI funds are targeted at addressing the issue of faculty and clinical preceptor training, recruitment, and retention, as well as strategies to increase the quality of nursing training and the professional advancement of lower nurse cadre to more advanced professional roles and responsibilities.

Independent of the GOM and PEPFAR/NEPI partnership, several individual TIs have implemented a range of pre-service reforms. For example, the Kamuzu College of Nursing has initiated major reforms at the undergraduate and postgraduate levels. At the undergraduate level, the training programs being offered at technician (certificate and diploma) and professional (bachelor of science or BSc and higher levels) were recently redesigned into a competence-based curriculum to align with community health needs. Kamuzu College of Nursing has recently started to offer a four-year BSc in nursing and midwifery program to accelerate the production of midwives. In addition, the BSc in nursing has started to offer three further options—community nursing, health services administration, and education. The graduates of the BSc nursing education program are deployed as tutors in CHAM nursing schools, thereby increasing the number of instructors in the colleges. The health services management graduates are deployed to health facilities to manage the institutions. The graduates of the community nursing program work with communities to promote disease prevention and are multi-skilled in nursing and midwifery. Future options are under discussion and may include adult nursing, community midwifery, child health, critical nursing care, theater nursing, adult nursing, and psychiatric and mental health nursing.

Important advances have been made in the use of innovative technological approaches within the teaching environment. For example, basic science and clinical and nursing materials (text and lecture notes) as well as test scores and other materials reporting academic progress are uploaded on the TI's intranet site for student access and use in "real time." Computerized models are used for laboratory training, including maternal deliveries and lung and heart sounds for clinical diagnosis. Video clips are available to instruct students on certain procedures such as integrated management of childhood illness.

Finally, the GOM has implemented strategies to recruit, train, and retain students and graduates from rural areas. It established a national policy that allots ten student slots per district for each entering cohort of nursing students enrolled in university programs. Advertisements for the various nursing training programs at professional and technician levels are placed in urban and rural areas using both print and electronic media. Specific colleges have outreach programs through their community nursing departments to engage potential entrants from rural areas. Clinical training sites are located in both urban and rural settings with the intent to provide nurses

with sufficient experience to address the health needs in both geographic areas and across diverse communities. These nurses also serve as role models in rural communities.

LESSSONS TO DATE

The partnership between the Government of Malawi and the PEPFAR Nursing Educational Partnership Initiative, as part of the broader PEPFAR collaboration in Malawi, has defined an effective model for tackling the chronic crisis of the shortage of well-trained nurses and midwives available to meet the health care needs of the population. The NEPI's focus on the quantity of professionals as well as the quality of their preparation has required a broad partnership that responds to Malawi's broader National Health Strategic Plan and Health Sector Strategic Plan to ensure conditions of employment, regulatory reforms and certification, and distribution of skilled professionals across the country are brought into the dialogue of preparing the nursing workforce. While still early in the NEPI collaboration, the progress to date has been highly regarded by the Malawi MOH and PEPFAR, and has yielded important lessons.

First, an initial assessment of the country's schools of nursing and conditions impacting the quality and successful completion of training was carried out in partnership with the MOH and NEPI. This assured engagement of the nursing institutions and their leadership from the outset and allowed the MOH to effectively target and prioritize investments based on good data. While the immediate benefit of NEPI will be an increase in the number of nurse tutors and well-trained nurses in Malawi, this work has highlighted the strengths, gaps, and opportunities to improve training outputs more broadly where other partners can also engage.

Second, the NEPI approach has built on the principle of country ownership and laid the groundwork for sustainability, ensuring that all activities undertaken are guided by and aligned with the MOH's broader strategies for addressing HIV/AIDS and wider ranging health needs of the population. The risks of fragmented, overlapping, or narrowly focused donor-supported efforts that may result in a transient benefit are minimized when support is strategically aligned within the country's Health Sector Strategic Plan (HSSP). Third, the strong support of both the Ministry of Health and PEPFAR for strengthening nursing education has raised the visibility of nursing as a vital profession within Malawi, along with nurtured inclusion of human resources for health as one of the priority objectives in the HSSP.

Looking ahead, thoughtful design should be given to the exit of NEPI at the end of the five-year period, with a full and seamless integration of nursing education into Malawi's annual planning and budget. Support provided by the MOH and PEPFAR should be sustained through the full project period to achieve the goals of NEPI in Malawi. While the primary focus of NEPI has been to support nurse training institutions, consideration of modest resource needs in the MOH

to keep data current regarding the training outputs and capacity building of nursing schools and universities could also strengthen this effort.

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AUTHOR CONTRIBUTIONS

Sheila Bandazi, lead author of the article, provided background information and materials on the current state of nursing within Malawi and the impact of historic and current reforms on the government ministries and educational institutions engaged in training nurses. She drafted and reviewed the manuscript.

Address Malata provided background information and materials on the current state of nursing education from a training institute's perspective and details on the implementation of NEPI interventions (as well as other donor project interventions). She drafted and reviewed the manuscript.

John Palen, corresponding author of the article, collected and synthesized materials provided by the coauthors and drafted the initial manuscript. In addition, he provided input from the

perspective of the US government on the NEPI and related activities and provided ongoing review and revisions of the article.

Deborah von Zinkernagel provided background information and materials on the US government's vision for providing resources to PEPFAR countries in scaling up the nursing and midwifery cadre. She also provided perspectives on the relations between PEPFAR and the Malawi government in the design, execution, and objectives of the NEPI, and participated in the drafting and review of the manuscript.

Jennifer Dohrn provided background information and materials on the design and implementation of the NEPI at the level of the target nursing training institutions in Malawi. She drafted and reviewed the manuscript.

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