Medical Education Partnership Initiative (MEPI): 2010-2015

Moving Forward Together towards an AIDS-Free Generation

PEPFAR U.S. President's Emergency Plan for AIDS Relief | NIH | HRSA Health Resources & Services Administration

"…it was evident to PEPFAR leadership that the ongoing and expanding needs of the HIV-infected community could not be successfully sustained without increasing the number of trained health professionals," Dr. Eric Goosby, former U.S. Global AIDS Coordinator

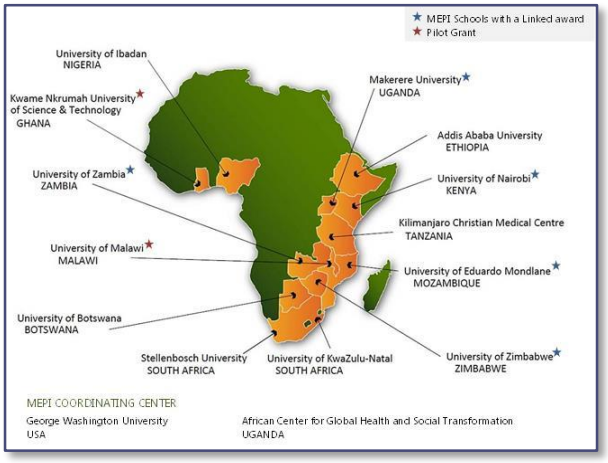
The President's Emergency Plan for AIDS Relief (PEPFAR) support to countries' national HIV responses has been a key driver in the global scale up of HIV services. As of December, 2014, PEPFAR is supporting anti-retroviral treatment for 7.7 million men, women, and children; providing HIV testing and counseling to more than 14 million pregnant women; and supporting more than 6.5 million voluntary medical male circumcisions. None of the PEPFAR achievements would have been possible without trained, dedicated human resources for health (HRH). For the past five years, the PEPFAR-funded Medical Education Partnership Initiative (MEPI) has been one of the flagship programs helping to assure there are adequate numbers of well-trained health care workers in sub-Saharan Africa who can provide the HIV/AIDS services needed to address the epidemic.

MEPI OBJECTIVES

1. Expand and/or enhance innovative medical education models that have the potential to improve the quality of clinical education and clinical care
2. Enable graduating medical students to remain in their home country to practice, serve as faculty, and conduct research related to HIV/AIDS and other locally relevant public health priorities
3. Enhance the recruitment and retention of qualified academic faculty through partnerships and research opportunities

OVERVIEW

FIGURE 1. MEPI NETWORK



MEPI was a five-year, $130 million initiative designed to develop, expand, and/or enhance models of medical education in sub-Saharan Africa. MEPI was funded by PEPFAR through the Office of the U.S. Global AIDS Coordinator (OGAC). The National Institutes of Health (NIH) also provided approximately $30 million to support clinical and research education related to non-communicable diseases and other priority health areas. The MEPI initiative was co-administered by the Health Resources and Services Administration (HRSA) and NIH with oversight from OGAC. All MEPI activities were aimed at improving the quality of education as well as increasing retention of graduates and academic faculty in host countries through partnerships and research opportunities. Cross learning and collaboration was led by a council made up of the principal investigators (PIs) from each school with support from a coordinating center.

MEPI IMPACT

To address the HIV/AIDS epidemic in Sub-Saharan Africa (SSA), health systems need adequate numbers of quality health care workers who are able to provide the full continuum of HIV services. Since PEPFAR's inception, the world has been experiencing a chronic shortage of well-trained health workers required to deliver key HIV and primary care services.

Over the last five years MEPI has helped to address this global health workforce crisis and in turn has contributed to addressing the HIV/AIDS epidemic in SSA. Through a combination of interventions, MEPI addressed the short-term health workforce crisis issues and assisted in laying the foundation for a stronger health care system. MEPI's accomplishments are described below around five key programmatic themes: Innovation and Capacity Building, Retention, Research, Communities of Practice, and Sustainability.

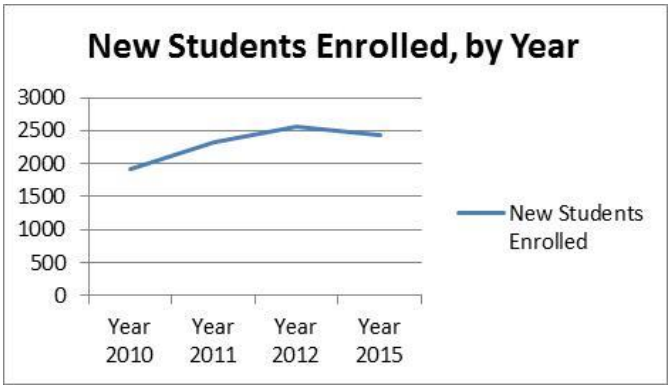
Specific examples of MEPI's impact include:

- In three countries alone, 54,000 individuals have received HIV-related services supported by MEPI-trained providers.
- A MEPI Network was created with 13 directly funded institutions in 12 countries that now fosters partnerships with more than 40 institutions around the world. More than 90% of new staff positions, initially funded by MEPI, will be sustained by local institutions, ministries or other grant funding.
- Research support to MEPI schools resulted in 376 original research publications.
- With MEPI support, more than 2,000 non-physician health care workers directly participated in HIV/AIDS care, treatment and prevention training.

Innovation & Capacity Building

MEPI's efforts to improve the quantity and quality of medical graduates were the key to enhancing the capacity of the health care system in general and its ability to provide HIV-related services in particular. The increase in medical school enrollment peaked at over 2,500 per year across the schools (Figure 2). These accomplishments were due, in large part, to increased faculty retention, updated educational approaches and enhanced access to technology. In addition, MEPI schools have undertaken curriculum reviews or developed new curricula, and implemented innovative in-service delivery methods to make training more relevant for students. For example, curricula were revised to reflect best practices in adult education, integrate simulation experiences, and leverage new mobile technologies.

FIGURE 2. ENROLLMENT TRENDS AT MEPI SCHOOLS 2010-2015 SOURCE: 2015 MEPI SURVEY DATA



Several countries whose number of hospital beds did not match the demand for clinical rotations now have simulation laboratories where students can practice their skills. High fidelity simulation laboratories also permit students to practice invasive procedures in the safety of a skills laboratory, improving the quality of care when the student is in the clinical setting. To complement this initiative, students were also supported to rotate through community sites which not only provided quality clinical practice to the students, but also brought care to rural areas.

Specific examples of how MEPI activities built capacity include:

- In Ethiopia, students who used to wait in lines all day at the library to use a text book now have access to current medical literature at their fingertips on tablets provided by MEPI.
- In South Africa, an eLearning strategy with online learning, 7,000 podcasts and a 'bring your own device' (BYOD) policy was implemented.
- In Uganda, the community based education and service curriculum, Community Based Education and Research Management Services (COBERMS), was expanded during MEPI to include research and management training. MEPI support facilitated an increase in the number of COBERMS sites by 270 percent, from the original goal of 60 fully operational sites to 162 sites in 72 of the country's 113 districts.

Overall, the **three most critical shifts in the quality of medical education were**: 1) Adoption of competency-based education. This prepares graduates to not simply know the information but be *ready to apply it in care situations;* 2) Integration of HIV/AIDS content and competencies into the training curriculum; 3) Addition of community based education, opening the door for contextualized clinical rotations and recruitment in traditionally difficult to serve areas. Together, these shifts provided the foundation for medical students to be able to provide essential HIV/AIDS-related services.

Retention

Retaining faculty at universities and graduates in underserved areas after graduation are critical components of training and maintaining a healthcare workforce. A shortage of professional development opportunities in many African medical education institutions consistently draws valuable faculty away from teaching. This 'brain drain' negatively impacts the quality of education because it leads to overcrowding in classrooms and inadequate clinical supervision and mentorship opportunities. MEPI's efforts to retain faculty included incentives such as providing computers and internet accessibility, supporting increased skills training in research, and supporting additional training and conference opportunities.

Many medical school graduates decline to work in rural areas where the needs are greatest, creating a maldistribution of providers. MEPI's approaches, closely aligned with the World Health Organization's Retention Guidelines, were guided by the expectation that students who come from, train in, and are comfortable in rural settings are more likely to return to these sites after graduation. Therefore, some MEPI schools offered preparatory education in rural areas to help make students more attractive candidates for medical school. In addition, MEPI schools recruited medical students specifically from rural areas and ensured more clinical training opportunities in rural sites. Graduate tracking also enhanced schools' ability to see if rural placements were effective in increasing the number of rurally-placed providers.

Specific examples of how MEPI activities improved retention include:

- In Tanzania, faculty incentives and recruitment efforts were credited with growing the faculty from 96 to 167 in less than five years.
- For the first time in the 90-year history of Uganda, students from all four curriculum years are traveling to work in more rural areas to provide services under supervision.
- Six of eight students who participated in a pilot cohort of rural, clinical care in South Africa returned to those communities to practice.
- In Tanzania, 97-100% of 2013 and 2014 graduates are being tracked through alumni associations, social media, and other approaches.

Together, these innovative investments in retention – both of faculty at universities and providers in rural areas - have yielded tangible progress in addressing both the faculty shortage and ensuring rural populations have access to services. **Overall, it was found that recruiting students locally and providing incentives for faculty can contribute greatly to retention.**

Research

The ability of local medical institutions to conduct regionally relevant research has two main benefits: 1) new, locally-relevant knowledge can improve care; and 2) it is an incentive to retain faculty and develop students at local training institutions. Upstream, investments in research provided opportunities for students to further engage with faculty. To increase research capacity, MEPI helped strengthen research governance and support structures and provided direct training in research methodology.

Specific examples of how MEPI activities improved research capacity include:

- Twelve MEPI-supported schools created research support centers to assist in grant writing, research design, protocol development, IRB/eIRB, compliance, faculty mentoring and to serve as clearinghouses for research opportunities.
- Approximately 35 percent of the 376 original research papers generated by MEPI schools were related to medical education research and 82 percent are first-authored by MEPI faculty.
- Ten schools reported 26 successful grant awards independent of MEPI funds.
- Enhanced research traineeships for 2,991 undergraduate, 552 postgraduate, and 129 PhDs students.

As part of the funding for co-morbid, non-communicable disease research, MEPI supported Linked Awards. Illustrative examples include:

- Through MEPI-funded research, University of Nairobi contributed to the reduction of pediatric mortality from dehydration and malnutrition from 11 percent to 6-7 percent at one of the District Hospitals.
- The MEPI-Cardiovascular disease (CVD) linked award program in Uganda incorporated a strong data element in its work that was shared with the Ministry of Health (MOH). This has served as a catalyst to develop policies related to NCDs into MOH programs.
- The MEPI mental health award in Zimbabwe contributed to the recruitment and retention of five lecturers and five MMed Psychiatry graduates over the 5 years of the project; a milestone from the 12 graduates since 1978.

MEPI has positioned many participating schools to expand their research footprint and to serve as focal points for developing similar capacity in other medical schools within the country or region. **Collectively, this level of ownership of the local research agenda is unprecedented in Africa and has effectively transformed the norms around scholarly productivity in MEPI-supported schools.** This puts African academics in a more strategic position to craft the future of their own health systems.

Communities of Practice

MEPI recognized early that advancements in medical education cannot be siloed from that of other health professions. This led to the development of MEPI-supported communities of practice, or groups of health care professionals that shared similar interests and interacted regularly to find innovative ways to improve medical education. Recognizing the importance of inter-professional collaboration, MEPI included nursing, laboratory, pathology, and other allied services essential to a functioning health system, in its programs. More than 1,660 nurses benefited from MEPI-sponsored trainings as did 212 midwives, 115 lab technicians and 38 pharmacists. These investments helped ensure that gains in health professionals' education were applied across the patient care setting.

In addition to communities of practice at the service delivery level, MEPI also fostered an international community of practice between the leadership at MEPI supported schools both in Africa and the United States, as depicted in Figures 3A and 3B[1]. As a result, durable south to south collaborations were established and African leaders increasingly began to turn to each other for technical assistance, troubleshooting, and support.

FIGURE 3A. SOUTH TO SOUTH COLLABORATIONS

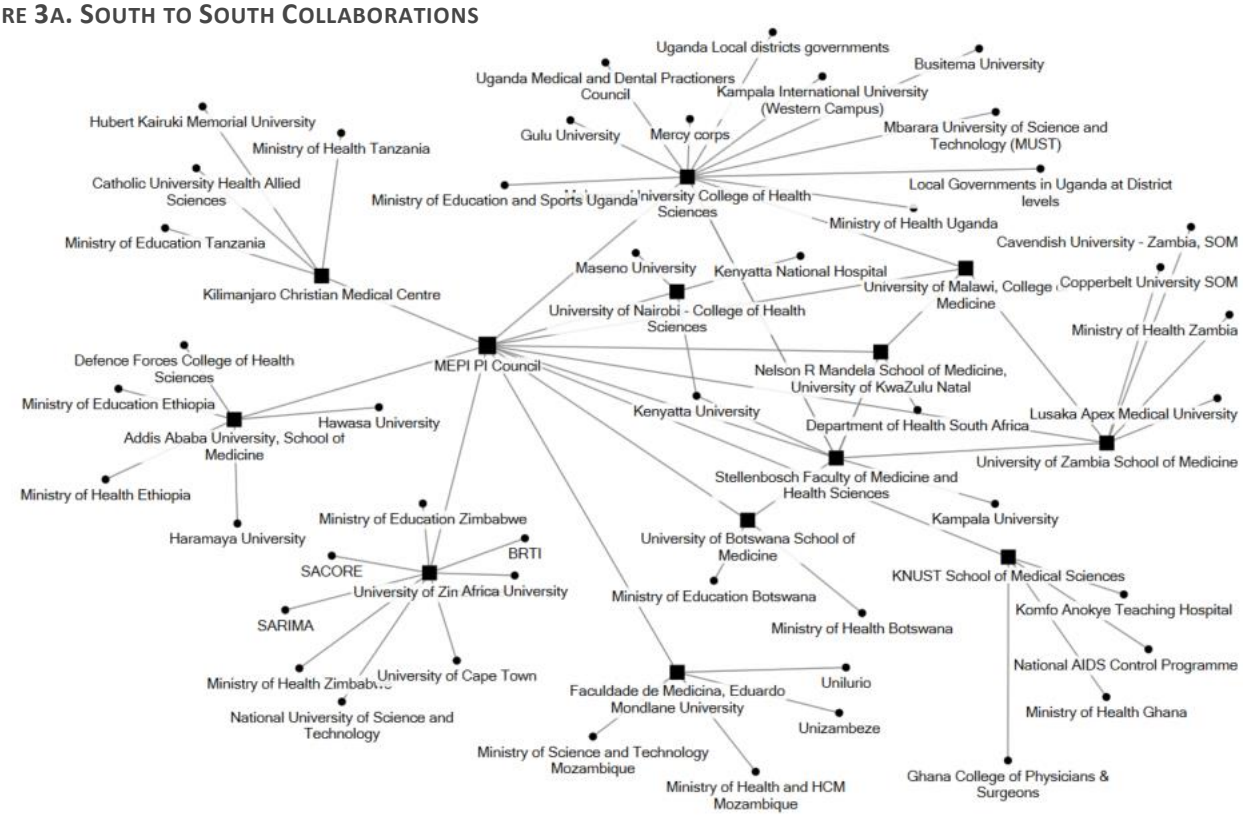
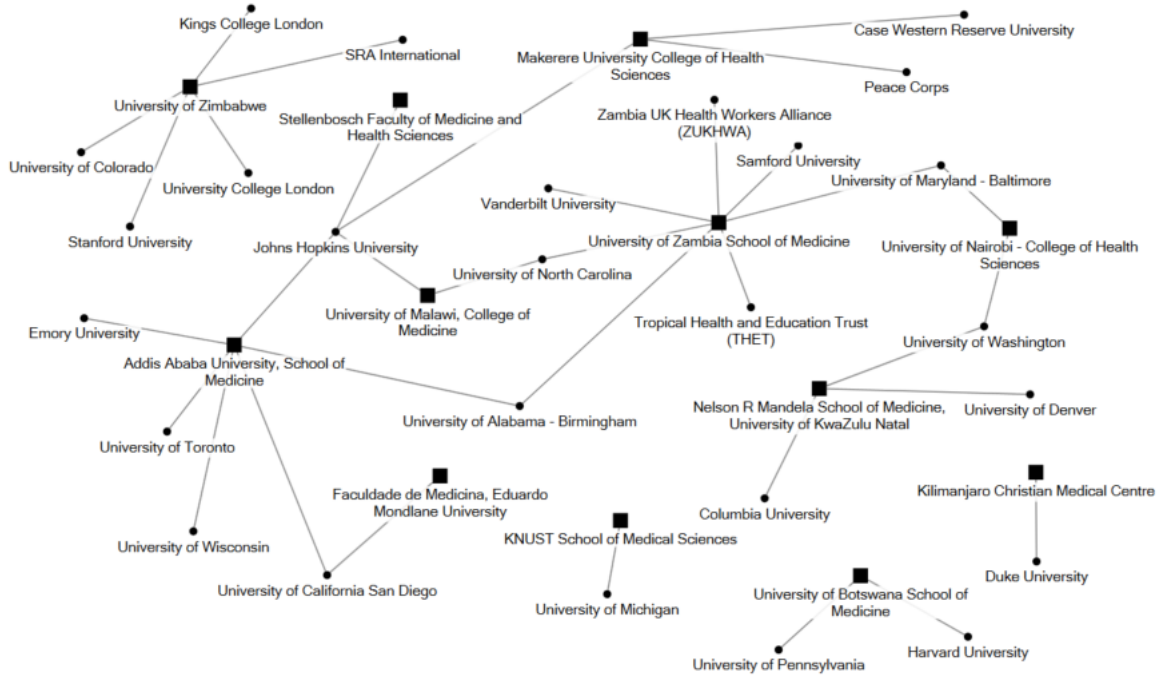


FIGURE 3B. NORTH TO SOUTH COLLABORATIONS



[1] *Source: Figures 3A and 3B Constructed by MEPI Coordinating Center from MEPI Schools Qualitative Data*

Specific examples of MEPI activities include:

- Outreach was supported electronically though the MEPI website where forums, webinars, and technical articles were accessed by users in over 192 countries. Monthly website access reached over 3,500 users.
- By year five, MEPI had formed eight technical working groups where educational leaders came together to share best practices and troubleshoot roadblocks, further enhancing the quality of medical education: 1) Community-Based Education; 2) eLearning Systems; 3) Graduate Tracking; 4) Research Support Center Creation and Utilization; 5) Competency-Based Education; 6) Medical Education Research; 7) Monitoring and Evaluation; and 8) Library Science.

Integrally linked to sustainability, MEPI nurtured the creation of partnerships, workgroups, and educational collaboratives that will ensure relevancy and quality moving forward.

Sustainability

From its inception, MEPI has focused on sustainability or ensuring the improvements spurred by the project are owned by the recipients and endure beyond the life of the initiative. Many MEPI programs have transitioned successful interventions to government and/or university ownership. While a quarter of the MEPI schools have received commitments of monetary support from governmental agencies to continue with MEPI activities, about two-thirds have received non-monetary support such as lab space, staffing and research training support. Six schools used MEPI funding to directly hire 51 staff for a variety of positions; all but four positions will continue through faculty, government or other funding. Each school has evidence of unique and creative approaches to ensuring MEPI's investments continue to benefit students, faculty, and ultimately, patients.

Specific examples of how MEPI activities have been sustained include:

- The University of KwaZulu-Natal (UKZN) in South Africa has signed a memorandum of understanding to ensure they will continue with MEPI's approach of moving teaching out of overcrowded classrooms and into community settings.
- The University of Zimbabwe has funded nine faculty and staff positions to continue MEPI's work in a newly established Department of Health Professions Education.
- MEPI developed clinical audit and health systems research training materials that are now being incorporated into government agencies in Botswana.
- The School of Medicine in Zambia is assuming responsibility for improving and maintaining internet operations and infrastructure.
- Maintenance for the computer-based classroom and other information, communication and technology infrastructure supported by MEPI has been transferred to Kilimanjaro Christian Medical University College's overall budget.
- A tablet system used in Ethiopia for curriculum support is being transitioned to a revolving fund so that more students can access the tools post-MEPI.
- Public servants in Malawi that were strategically hired by MEPI are now returning to their home agencies, infusing these public sector institutions with new skills and knowledge.
- Stellenbosch University in South Africa has established permanent positions for the faculty teaching in the new courses developed and implemented with MEPI support.

Across the 12 countries, the PI Council continues to gain strength and grow, integrating health professionals from other fields. It has affirmed its commitment and mandate to independently serve as a new African academic forum, continuing to facilitate innovation in the education of health care workers. **Together, the PI Council is charting the way to a strengthened health system to realize an AIDS-free generation.**

Impact on HIV/AIDS Services

Human resources for health (HRH) are central to the HIV response. Control of the HIV epidemic requires an adequate supply and appropriate skill mix of HRH available to provide quality HIV services along the continuum of care. By enhancing the number and the quality of health care professionals trained throughout 40 schools in sub-Saharan Africa, MEPI significantly contributed to the provision of HIV/AIDS services.

Specific examples of MEPI's impact of HIV/AIDS services include:

- The UKZN sponsored decentralized training to enhance pharmacy and nursing curricula with HIV/AIDS components.
- In Malawi, medical professions were trained in detection, diagnosis, and treatment of HIV-associated cancers. The services were implemented in three clinics reaching 15,000 HIV-infected women per year.
- The Kwame Nkrumah University of Science and Technology in Ghana developed guidelines and trained a variety of providers in standard operating procedures for emergency HIV/AIDS care. To date, an estimated 27,000 people living with HIV/AIDS have received treatment from MEPI trainees.
- In Uganda, all postgraduate students are now participating in managing HIV patients in in- and outpatient settings.
- MEPI trainees have had contact with more than 2,120 patients, or a quarter of HIV-infected patients, at Universidade Eduardo Mondlane in Mozambique.
- UKZN renovated and staffed pathology and histology labs. These diagnostic services accelerate appropriate diagnosis and treatment initiation.
- With MEPI resources, UKZN's HIV training was used to support the National Department of Health in providing training to nurses to initiate and manage medications for clients with HIV. This evidence-based task-shifting strategy addresses the shortage of medical doctors while expanded access to care.

The impact of investments in education and training are evident by the number of individuals who have received care by MEPI-trained providers. **The long-term impact of this evidence-based care has the potential to help reach epidemic control.**

Conclusion

"MEPI's concern and solutions for the impediments of the teaching and learning processes of medical education has enabled most students to overcome their academic challenges… it provides us ease of access to updated information about medical issues and gave us a new gate for the rest of the world and beyond."
- Zekarias Tsegay, Medical Student, Addis Ababa University, 2015.

Students and faculty who participated in MEPI programs are on the frontlines of HIV/AIDS care and are modeling evidence-based practices. MEPI optimized host-country leadership, collaboration and impact. As a result, this five-year program supported medical education by ensuring quantity and quality of healthcare workers, while filling health system gaps. Upstream, the related outcomes addressed threats to quality care in sub-Saharan Africa. MEPI struck a balance between accessing the technical expertise of high-income countries and grounding programming in locally-defined priority areas. Together, with local initiatives and other PEPFAR-funded projects, MEPI has brought the global UNAIDS 90/90/90 goal[2] within reach.

MEPI program details and accomplishments will be available in the forthcoming MEPI Year Five Report

[2] By 2020, 90% of all people living with HIV will know their HIV status. By 2020, 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy. By 2020, 90% of all people receiving antiretroviral therapy will have viral suppression.