Abstract
The United States President's Emergency Plan for AIDS Relief (PEPFAR) emphasizes health systems strengthening as a cornerstone of programmatic success. Health systems strengthening, among other things, includes effective capacity building for clinical care, administrative management and public health practice. Avante Zambézia is a district-level in-service training program for administrative staff. It is associated with improved accounting practices and human resources and transportation management but not monitoring and evaluation. We discuss other examples of successful administrative training programs that vary in the proportion of time that is spent learning on the job and the proportion of time spent in classrooms. We suggest that these programs be more rigorously evaluated so that lessons learned can be generalized to other countries and regions.

Keywords: HIV, Public Health Administration, Mozambique, Quality Improvement, In-Service Training

Comment on “Implementation of a Health Management Mentoring Program: Year-1 Evaluation of Its Impact on Health System Strengthening in Zambézia Province, Mozambique”

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The United States President’s Emergency Plan for AIDS Relief (PEPFAR) has moved from its initial emergency response in which HIV prevention, care, and treatment services were rapidly expanded through partnerships with countries, international organizations, and non-governmental implementing partners, to an emphasis on country ownership and sustainability with an ambitious agenda of demonstrating impact, efficient implementation of effective interventions, and ultimately, epidemic control. However, sustainable HIV prevention, care, and treatment programs will require improved healthcare systems. At a minimum, strong healthcare systems require human capacity for clinical care, effective administrative management, and facility infrastructure. While substantial attention has been paid to increasing the number of health workers trained to provide HIV-related clinical services, there remains a critical need for strengthening administrative and managerial skills at the facility level. Identifying effective methods to ensure that health facilities run effectively and efficiently can have substantial impact on creating well-functioning healthcare delivery systems.

In this issue of the Journal, Edwards and colleagues describe the implementation and evaluation of a novel health management mentorship program, Avante Zambézia, which was designed to improve 4 domains of nonclinical service health systems in the northernmost province of Mozambique; accounting, human resources, monitoring and evaluation (M&E), and transportation management. These areas for improvement were identified by provincial health authorities in Zambézia. The health management mentoring (HMM) program was developed by a non-governmental organization funded by PEPFAR and working with assistance from the Vanderbilt Institute for Global Health to provide district-level technical assistance for HIV care and treatment. The HMM program used intensive, on-site mentoring for clinic staff as they faced day to day challenges. As such, it kept personnel being trained in place and focused on the current workforce rather than the future workforce through formal full-time academic preparation. Importantly, the evaluation relied on quantitative outcome measures that demonstrated impact of the intervention and that can be used for ongoing evaluation and quality improvement. At one year in a single-arm pre- post-intervention study the intervention demonstrated evidence of improvement in some, though not all, of the health system strengthening indicators. While a purist could quibble with the use of a single-arm design and the short follow-up period, the results are compelling and strongly suggest the utility of the HMM approach for similarly resource-constrained regions. Nonetheless, the authors intentions to evaluate HMM more formally once quality improvement interventions are more consistent are welcome. But how does HMM fit into the larger world of methods for
building capacity for health systems in low- and middle-income countries (LMIC)? Field-based approaches to human resource development play a critical role in meeting the objectives of PEPFAR. Academic programs cannot fully meet these needs. Africa is greatly limited in the number of universities that offer degrees in health services administration, M&E for health, health policy and leadership, and public health and cannot meet the current demand for skilled managers and leaders. Furthermore, although academic training provides a valuable foundation for future work, postgraduate training is often needed for quality performance within the health sector. There is also the reality that many well-educated Africans leave the continent for better professional opportunities. Field-based on-the-job training reduces the disruption to service that occurs when staff attend off-site trainings. Further, training within the work setting, particularly under the guidance of a mentor or skilled supervisor, teaches methods to address specific workplace problems and provides support for developing problem-solving skills and effective solutions.

There are a number of examples of successful field-based approaches to improve management within healthcare settings. In Ethiopia, a mentorship program was used to improve hospital managerial quality. This approach used experienced hospital managers and administrators to work with local hospital directors and managers on-site for a full year. In addition to receiving one-on-one mentorship, local hospital managers participated in on-site professional development courses. From baseline to 10 months after program implementation, 60% of 75 indicators that spanned 6 domains (human resources, quality management, medical records and patient flow, nursing standards and practices, infection prevention and control, and financial management outcomes) demonstrated improvement.

The Makerere University School of Public Health developed a 2-year, postgraduate mentored fellowship to improve leadership and managerial capacity in order to implement and sustain HIV programs. Fellows are assigned to host institutions that were implementing HIV programs. At these institutions, fellows work closely with host and academic mentors in an apprenticeship role. The program allocates 75% of fellowship time to their field placements and 25% to academic instruction at the university. Coursework provides instruction in epidemiology, biostatistics, informatics, and leadership and management of HIV programs. Although the program evaluation has not included measures of improved health systems, it has had high program completion rates, and its graduates have obtained employment in senior management positions.

As an alternative model to the 2-year fellowship, Makerere University School of Public Health also offers an 8-month training program in M&E and continuous quality improvement for full-time mid- and senior-level management staff. In this program fellows work with academic mentors and institutional supervisors to enhance their skills through a combination of short modular coursework at the university interspersed with activity-based on-the-job training in either M&E or quality improvement. Although this program has not been formally evaluated, fellows reported improved skills. However, completion rates were lower than expected for trainees in M&E because participants obtained better employment opportunities prior to program completion. The Centers for Disease Control and Prevention-supported (CDC-supported) Field Epidemiology Training Programs (FETPs) aim to increase the number of skilled epidemiologists in LMIC through a combination of mentor-supervised and supported field-based and didactic training. FETPs provide 2-year post-graduate training in applied epidemiology and public health with an overall goal of improving health systems. Some FETPs are degree-granting programs and in this situation, programs are affiliated with a local university. Although FETP receive varying levels of support from CDC and with the exception of regional FETPs, they are country-owned, FETP residents are based within national ministries of health. To complete the program successfully, FETP residents must meet specific competencies. Although many of these requirements ensure competency in applied epidemiology, the FETP core curriculum also includes training in management and leadership and requires demonstrated competency in these domains. Residents have a 2-year commitment to the ministry of health after completing the program. A recent evaluation of 10 FETP identified substantial variation in program implementation and outcomes but overall found that graduates of the program remained in the ministries of health and that FETP was valued by the host countries as a means of developing public health capacity.

Another model of field- and competency-based training for health management is the Master of Hospital Administration program developed collaboratively with Jimma University, (where the program is based), the Ethiopian Ministry of Health, Yale University and the Clinton HIV/AIDS initiative. This program offers a 2-year executive style degree in which coursework is offered on campus in 3-week blocks interspersed with project-based assignments in the hospital where they are based. An important component of the development of this program was the government establishment of a new job category, hospital chief executive officer, thereby providing career opportunities for graduates. A less formal approach to addressing the shortage of skilled personnel for M&E was implemented in Botswana. The program was designed to create a new cadre of workers, district M&E officers who could relieve healthcare workers from the burden of reporting requirements associated with PEPFAR and other global health initiatives, thereby freeing them to provide clinical services. In this program, university graduates in social science were recruited and placed in health districts throughout the country. On-site training and mentoring were used to build M&E capacity of the officers. A qualitative assessment 3 years after implementation of the program was conducted to understand the program’s achievements and challenges. The program resulted in improved M&E capacity, data quality, management, reporting, and use, the initiation of district-led research, and health worker time for clinical care of patients. However, the assessment identified the need for greater clarification of roles and responsibilities, resources and equipment, stakeholder collaboration, and methods for retaining trained officers.

Although not all of these programs have undergone rigorous evaluation taken as a whole they do demonstrate that field-based training supplemented with coursework and
Mentorship can “move the dial” on capacity development. Academic institutions can strengthen field-based training through on-campus coursework, regional trainings close to facilities, on-site at facilities, or through distance-based instruction. To be most effective, mentorship should be provided by skilled personnel who understand the essential components of mentoring and can serve as a coach, counselor, advisor, and instructor to the trainees. Mentorship can be a powerful tool in promoting career development and skill building. At this juncture in PEPFAR as health systems strengthening is being increasingly emphasized, more resources should be placed on developing and measuring capacity development in essential components of health systems strengthening. Doing so will give countries a skilled workforce with which HIV and other diseases can be effectively addressed.

**Ethical issues**
Not applicable.

**Competing interests**
Authors declare that they have no competing interests.

**Authors’ contributions**
SKS and GWR wrote the article. HH researched other models of training, wrote that section of the editorial and approved the final manuscript.

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