Global Health Service Partnership: First Year Findings

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Abstract
The Global Health Service Partnership (GHSP) is a public-private-partnership between Seed Global Health, a US non-profit; Peace Corps, a US Government agency; and host country health education systems. The program attempts to address the global shortage of skilled health professionals by sending US doctors and nurses as medical and nursing educators to training institutions in Uganda, Malawi and Tanzania. The program has sent 73 volunteers of myriad specialties over two years to 13 institutions. Through volunteer self-reporting and stakeholder interviews, the program was evaluated for early quantitative outputs and

qualitative impact. Volunteers improved clinical and classroom teaching, new teaching methods, reduced local faculty workloads and modelled professionalism. Challenges cited included difficulty adapting to the setting and existing practice. GHSP is a new program whose full impact will be better understood over time. The first year revealed numerous opportunities for pedagogical innovation, professional modelling and infrastructure investment.

Introduction

Many models of engagement between global north and the global south healthcare entities/institutions have proliferated over the past two decades. Many aim to address disparities in healthcare access and outcomes between economically advantaged and disadvantaged populations through direct service provision, whereas others focus on biomedical or biosocial research. Few, however, focus primarily on improving the formal education and training of the next generation of the local healthcare workforce. To help address Africa's growing shortage of healthcare professionals, in 2012, Seed Global Health, a US-based not-for-profit, collaborated with the US Government agency Peace Corps to develop an innovative public-private pilot partnership called the Global Health Service Partnership (GHSP). GHSP sends US health professionals to serve as faculty for one year to resource-limited countries institutions to help train their future physicians and nurses.

According to a 2013 World Health Organization (WHO) report, 83 countries do not meet the minimum threshold of 23 health workers per 10,000 people needed to provide basic services (World Health Organization Global Health Workforce Alliance [WHOGHWA] 2013). The shortages are profound among skilled health professionals such as doctors, nurses and midwives. In Liberia for example, there are only 2.8 such skilled health professionals for every 10,000 people (Global Health Workforce Statistics 2014). Countries with a shortage of skilled health professionals not only lack enough doctors, nurses and midwives to provide care, but they have even fewer to teach their successors.

In many countries, the human resource gap in healthcare delivery is driven by persistently low production of newly graduated professional providers. Thirty-one of the 83 aforementioned countries are in Africa (WHOGHWA 2013), yet sub-Saharan Africa does not train enough medical professionals. The continent produces only 6,000 physicians and 26,000 nurses and midwives annually for a population of one billion (Frenk et al. 2010; Kinfu et al. 2009). This represents less than 2% of the current estimated deficit of 1.8 million skilled health professionals in the region (WHOGHWA 2013). Of the 2420 medical schools worldwide, there are only 168 medical schools in sub-Saharan Africa. Furthermore, 11 of the 47 countries in the region have no medical school; 24 countries have only one (WHO 2013). Within an already small pool of institutions, average annual class sizes are small, resulting in low total enrolment at a national level (Frenk et al. 2010; Greysen et al. 2011; Mullan et al. 2011; Soucat et al. 2013). High student attrition rates also contribute to the production shortage; and the dropout tendency has been associated with a lack of academic infrastructure, inadequate student mentoring and support and increasing cost of education (Chen et al. 2012; Soucat et al. 2013).

Shortage of healthcare professionals in these settings also results from emigration. A significant number of professionals seek careers in, or are actively recruited to, higher-income countries (Hagopian et al. 2004; Sawatsky et al. 2014). In a cross-sectional

survey of medical and nursing students, 26% of African medical students and 33% of African nursing students surveyed reported that it was very likely they would work abroad in the first five years post-training (Silvestri et al. 2014). Reasons for emigration include push and pull factors. Pull factors lure professionals away and are frequently defined as higher wages, better working conditions, better professional development and continuing education opportunities or active recruitment by institutions inside or outside of the country (Liese and Dussault 2004; Soucat et al. 2013; WHO 2013). Push factors drive health professionals from their current setting and include poor or unstable social, economic or political conditions in home countries.

The shortage of new practitioners coupled with internal and external "brain drain" of a country's brightest healthcare providers is problematic for health education systems. In many sub-Saharan countries, there is a crisis of a massive shortage of qualified faculty to staff medical and nursing schools. In a survey of sub-Saharan African medical schools, a majority reported a shortage of faculty in basic and clinical sciences, with substantial loss of staff over five years (Mullan et al. 2011). The nursing profession faces similar challenges. For example, in Tanzania, only 14 PhD-educated nurses work in the country, yet roughly 4000 new nurses graduate from training programs annually (Mselle 2015). The main issues challenging the physician and nursing production and retention of physician and nurse faculty include low salaries, increased teaching load, limited teaching resources and poor potential for career advancement (Mullan et al. 2011). In addition, there is little opportunity for faculty to develop and improve pedagogical skills (Greysen et al. 2011).

The Global Health Service Partnership

The broad aims of GHSP are to assist in increasing the supply of available healthcare providers and to enhance the quality of current healthcare education in regions of great need. GHSP is funded in part by PEPFAR, a US Government program organized primarily to combat the HIV/AIDS epidemic. Operationally, GHSP approaches potential host country Ministries of Health and Education to assess receptivity to the program. Once invited, GHSP works with school and faculty leadership at bi-laterally identified training institutions to further refine pre-clinical and clinical teaching investments for any given year.

Eligible US citizen physicians and nurses are recruited to serve as Peace Corps Volunteers (termed "GHSP volunteers") within these host African training institutions for a minimum of one full year. Physicians must be board-eligible or board-certified and nurses must have a Bachelor in Nursing degree, an additional advanced degree as well as a minimum of three years of clinical experience. Sites review the recommended candidates prior to final placement. As embedded pre-clinical and clinical-educator faculty, GHSP volunteers fully integrate into institutional roles, serving as lecturers, course directors and clinical mentors and supervisors.

All GHSP volunteers undergo a comprehensive orientation both in the US and in their host country. They are introduced to tropical medicine, refreshers on core clinical skills and procedures, challenges to working and teaching in resource-limited settings, the local health and education systems, local culture norms and basic language training. Seed provides technical educational and clinical support throughout the year of service, and offers debt repayment stipends of up to US$30,000 for each year served.

In its inaugural year 2013-2014, 169 applications were received, 52 offers extended and 31 volunteers (15 nurses and 16 physicians) placed in Malawi, Uganda and Tanzania at 11 host institutions. In its second year, the program expanded. While 179 applications were received and 54 offers extended, 42 (23 nurses and 19 physicians) were placed at 13 institutions in the same countries; this

included four first-year volunteers who renewed their service for a second term. In addition, Seed placed two physician educator volunteers in Uganda and Malawi outside of the GHSP program. Recruitment involved outreach through traditional Peace Corps mechanisms, specific invitations to US clinical program directors and medical and nursing national societies, presentations at national and regional conferences, media coverage and announcements through social media and selected mailing lists.

Of the GHSP nurse volunteers accepted in the 2013-2014 cohort, 47% had over 8 years of work experience; in 2014-2015, this rose to 60%. Nursing specialties in the first year included community/public health, medical surgical nursing, midwifery, paediatrics, perioperative nursing, psychiatric nursing and women's health. In the second year, nursing specialties added intensive care and emergency medicine (Table 1).

GHSP physician volunteers were bi-modally distributed in terms of clinical experience for both cohorts: most were directly out of residency/fellowship training, or approaching/in retirement. Physicians' specialties in both years included anaesthesiology, family medicine, internal medicine, obstetrics and gynaecology and paediatrics. The first year also included physicians trained in cardiology and psychiatry; in Year 2, GHSP deployed a pulmonologist, general surgeon and orthopaedic surgeon (Table 1).

Table 1. Placement of GHSP volunteers

Country	Region	2013–2014			2014–2015		
		MD	RN	Total	MD	RN	Total
Malawi		5	6	11	6	7	13
UM–COM	Lilongwe District	1	–	1	3	–	3
	Blantyre District	4	–	4	1	–	1
	Mangochi District	–	–	–	2	–	2
Mzuzu University	Mzimba District	–	2	2	–	2	2
Kamuzu College of Nursing	Lilongwe District	–	2	2	–	3	3
	Blantyre District	–	2	2	–	2	2
Uganda		6	5	11	6	7	13
Gulu University	Gulu District	3		3	3		3
MUST	Mbarara District	3	3	6	3	4	7
Lira University College	Lira District	–	2	2	–	3	3
Tanzania		5	4	9	7	9	16
MUHAS	Dar es Salaam Region	2	–	2	1	1	2
Mirembe School of Nursing	Dodoma Region	–	2	2	–	2	2
MVUMI Clinical Officers Training Center	Dodoma Region	1	–	1	1	–	1
Bugando	Mwanza Region	–	2	2		2	2
Sengerema	Mwanza Region	2	–	2	1	–	1
University of Dodoma	Dodoma Region	–	–	–	2	2	4
HKMU	Dar es Salaam Region	–	–	–	2	2	4

UM-COM: University of Malawi – College of Medicine; MUST: Mbarara University of Science and Technology; MUHAS: Muhimbili University of Health and Allied Sciences; HKMU – Hubert Kairuki Memorial University.

Note: The independently Seed-placed family medicine doctor and pathologist in Malawi (COM) and Uganda (MUST), respectively, are not included in the above table.

Methods

Volunteers self-reported teaching hours and a breakdown of specific educational activities on a quarterly basis. Additionally, 68 interviews and select focus groups were conducted with 110 stakeholders during site visits to Malawi, Tanzania and Uganda in 2014 (Table 2). Stakeholders included volunteers, students, local faculty and host leadership (e.g., Deans). The interview and focus groups followed structured interview guides that contained sections on: educational and clinical environment at the institutions; stakeholders experience's working with GHSP volunteers; volunteers' impact on students, faculty and institutions; and other impact on host sites.

Quantitative Results

In Year 1, 31 GHSP volunteers taught over 107 courses or workshops to 2853 trainees (Table 3 and Table 4). GHSP volunteers logged over 32,000 service hours, of which 60% were in classroom education, clinical teaching and/or mentoring. Physicians taught classroom and clinical courses on internal medicine, obstetrics and gynaecology, paediatrics, HIV management and general and child psychiatry. They also provided in-service and skills training on cardiovascular diagnostics, neonatal and paediatric resuscitation, ultrasound techniques and labour and delivery. Nurse volunteers taught a wide variety of classroom and clinical courses, including community health, health assessment, medical surgical nursing, fundamentals of nursing, midwifery, paediatrics, psychiatric nursing, sociology and medical anthropology. Nurse volunteers provided additional training on ultrasound techniques, paediatric palliative care and vaccination procedures.

Qualitative Results

Clinical mentoring and teaching were identified by the majority of local stakeholders as the most valuable contributions provided by GHSP volunteers. Local student stakeholders reported that GHSP volunteers left lasting impact, as demonstrated by their work ethic, their friendly and open approach to relationships with students and faculty and their humility in recognizing their limitations and desire to learn. GHSP volunteers were noted to have a different style of teaching from local faculty. Across all three countries, students described the volunteers' style as flexible,

Table 2. Composite of stakeholder interviews

Number	Stakeholder	Number	Interview type
12	GHSP physician volunteers	**12**	Individual
12	GHSP nurse volunteers	**12**	Individual
14	Members of nursing school/department leadership	**7**	Individual
		1	Group
10	Members of medical school leadership	**6**	Individual
		1	Group
9	Nurse counterparts	**9**	Individual
8	Physician counterparts	**8**	Individual
6	Additional physician faculty	**2**	Individual
		1	Group
22	Nursing students	**5**	Focus groups
17	Medical students and postgraduates	**4**	Focus groups
110	Total	**68**	Total

All eleven 2013–2014 GHSP sites in Malawi, Tanzania and Uganda were visited.

Table 3. GHSP Physician Volunteers: Courses, training and number of trainees by site – Year 1

Site	Course	Class year	# Trainees
Malawi Physician Volunteers			
College of Medicine	Introduction to pediatrics	3rd-year medical students	**92**
	Pediatrics and child health clinicals	3rd-year medical students	**22**
	General psychiatry	4th-year medical students	**92**
	General psychiatry clinical rotation	4th-year medical students	**96**
	Obstetrics and gynecology clerkship	4th-year medical students	**90**
	Obstetrics and gynecology clerkship	5th-year medical students	**72**
	BSc Obstetrics and gynecology specialist	Clinical officers upgraders (ob./gyn)	**8**
	BSc Pediatric Specialist	Clinical officers upgraders (pediatrics)	**12**
	Pediatric rotation	Interns	**30**
	Obstetrics and gynecology rotation	Interns	**30**
	Introduction to child psychiatry	MMed (psychiatry)	**3**
	Obstetrics and gynecology rotation	MMed (ob/gyn)	**3**
Tanzania Physician Volunteers			
MVUMI	HIV management	Not reported	**40**
	Pediatric history taking	1st-year clinical officer students	**50**
	Internal medicine 1	2nd-year clinical officer students	**45**
	Internal medicine 2	2nd-year clinical officer students	**45**
	Internal medicine examination review (2013)	3rd-year clinical officer students (previous academic year)	**45**
MUHAS	Introduction to clinical medicine	3rd-year medical students	**180**
	Introduction to clinical medicine	5th-year medical students	**200**
	Basic Cardiac Catheterizations	MSc Cardiology fellows	**8**
	Seminar series	MSc Cardiology fellows and faculty	**8/3**
	Advanced cardiac biographics	MSc Cardiology fellows	**8**
	Basic electrocardiography	Postgraduates, MSc Cardiology fellows and Critical Care nurses	**16/10/7**
	Complications of acute myocardial infarctions	MSc Cardiology fellows, ICU nurses and staff physicians	**5/14/8**
Sengerema	Obstetrics and gynecology clinical rotation	2nd-year assistant medical officer students	**20**
	Obstetrics and gynecology review	3rd-year clinical officer students	**123**
	Clinical Officers Review Course	3rd-year clinical officer students	**123**
	Pediatric Ward Rotations (treat & train)	3rd-year medical students	**20**
	Electrocardiogram (ECG) interpretation	Hospital physicians, AMOs and COs	**15**
	Surgical mentoring and teaching	Hospital physicians, AMOs and MMeds	**12/1/2**
	Ultrasound conference	Hospital nurses and technicians	**15**
	Neonatal Resuscitation	Labour and delivery nurses	**45**
	Neonatal and Pediatric Resuscitation	Mixed course (staff and nursing students)	**70**
	Labor ward in–service	Nurses	**45**

Table 3. Continued

Site	Course	Class year	# Trainees
Uganda physician volunteers			
MUST	Clinical skills in pediatrics	3rd–year medical students	**21**
	Internal Medicine Theory	3rd–year medical students	**40**
	Internal Medicine clinical 1 and 2	3rd–year medical students	**39**
	Chest X–ray tutorials	5th–year medical students	**10**
	Clinical skills in pediatrics	5th–year medical students	**21**
	Internal Medicine theory	5th–year medical students	**36**
	Masters in medicine	Postgraduates/MMeds	**8**
	Tutorials in pathology	Postgraduates/MMeds	**2**
	CAMTech Innovations Hack–a–thon project mentoring	Undergraduates	**3**
	Peace Corps Regional HIV Symposium	Outside students (not MUST)	**30**
	Portable ultrasound (VScan) training	Hospital staff	**27**
Gulu	Internal Medicine clerkship	3rd–year medical students	**73**
	Pediatrics and child health 301	3rd–year medical students	**73**
	Medical subspecialties	4th–year medical students	**60**
	Pediatrics and child health 501	5th–year medical students	**63**
	Internal medicine clerkship	5th–year medical students	**63**
	Internal Medicine rotation	Clinical officers students	**15**
	Intern case conference in pediatrics	Interns	**5**
	Internal medicine rotation interns	Interns	**8**
	Cardiovascular diagnostic training	Hospital staff	**23**

Table 4. GHSP nurse volunteers: courses, trainings and number of trainees by site – Year 1

Site	Course	Class year	# Trainees
Malawi nurse volunteers			
KCN	Infection prevention	1st-year BSN students	**70**
	Introduction to psychiatric nursing	2nd-year BSN students	**215**
	Medical surgical nursing	2nd-year BSN students	**221**
	Psychiatric mental health nursing clinicals	2nd-year BSN students	**48**
	Child health nursing 300	3rd-year BSN students	**166**
	Child health nursing 301 clinicals	3rd-year BSN students	**166**
	Low risk midwifery theory	3rd-year BSN students	**169**
	Low risk midwifery clinical (2013)	3rd-year BSN students (previous year)	**111**
	High risk midwifery theory	4th-year BSN students	**111**
	High risk midwifery clinical (2013)	4th-year BSN students (previous year)	**109**
	Rabies vaccination training	Health centre staff	**20**
	One Stop Center mentoring	Hospital staff	**6**
	Portable ultrasound (VScan) training	Nursing faculty	**7**
St. John of God	Psychiatric mental health nursing	1st-year students	**19**

Table 4. Continued

Site	Course	Class year	# Trainees
Mzuzu	Fundamentals of nursing I	1st-year BSN students	**53**
	Fundamentals of nursing II	1st-year BSN students	**52**
	Pediatric clinical precepting	1st-year BSN students	**6**
	Medical surgical nursing I clinical	2nd-year BSN students	**42**
	Medical surgical nursing II	2nd-year BSN students	**42**
	Pediatric clinical rotations	3rd-year BSN students	**32**
	Pediatric theory	3rd-year BSN students	**32**
	Multiple choice exam training	Nursing faculty	**4**
	NEPI Clinical Preceptor Course	Nursing staff	**47**
	Pediatric Palliative Care Day training	Nursing faculty	**5**
Tanzania nurse volunteers			
BMC	Midwifery 1	2nd-year diploma students	**32**
	Midwifery 2	2nd-year diploma students	**32**
	Medical surgical nursing 2	3rd-year diploma students	**35**
	Midwifery clinical precepting	3rd-year diploma students	**35**
	Maternal Child Health	3rd-year BSN/pre-service and 2nd-year BSN/in-service students	**31**
	Community Health	3rd-year BSN students	**24**
	Maternal and child nursing	BSN Education, 3rd-year	**27**
	Midwifery	In-service upgraders	**28**
Mirembe	First Aid & CPR	1st-year diploma students	**42**
	Medical surgical nursing 1	1st-year diploma students	**42**
	Medical surgical nursing 2	1st-year diploma students	**42**
	Community Health 1	2nd-year diploma students	**41**
	HIV	2nd-year diploma students	**41**
	Introduction to Primary Health Care	2nd-year diploma students	**41**
Uganda nurse volunteers			
MUST	Clinical skills lab	2nd-year BSN/direct students	**19**
	Health assessvment I	2nd-year BSN/direct and 1st-year BSN/completion students	**31**
	Health assessment II	2nd-year BSN/direct and 1st-year BSN/completion students	**32**
	Medical and emergency ward rotations	3rd-year BSN/direct students	**40**
	Medical Clinical rotation	3rd-year BSN/direct students	**30**
	Surgical Nursing 1	3rd-year BSN/direct and 1st-year BSN/completion students	**43**
	Advanced clinical skills	4th-year BSN/direct students and 2nd-year BSN/completion students	**26**
	Clinical rotations Emergency Ward	4th-year BSN/direct students and 2nd-year BSN/completion students	**26**
	Nursing Education	4th-year BSN/direct students and 2nd-year BSN/completion students	**26**
	Professional Nursing	4th-year BSN/direct students and 2nd-year BSN/completion students	**26**

Table 4. Continued

Site	Course	Class year	# Trainees
Lira	Introduction to nursing and clinical settings	1st-year BSN students	**50**
	Introduction to psychology	1st-year BSN students	**50**
	Microbiology	1st-year BSN students	**50**
	Psychopathology	1st-year BSN students	**50**
	Sociology and medical anthropology	1st-year BSN students	**50**

interactive, approachable and supportive; local faculty was described as more formal in manner and expectation. Students reported that volunteers' lessons emphasized practical and critical thinking skills over traditionally heavier attention to theory and "textbook learning."

Local faculty across all three countries reported that volunteers reduced stress on faculty by sharing the substantial workload and that their presence improved clinical and classroom training. Faculty also noted the volunteers' introduction of innovative teaching methods such as "meet the professor" rounds, and "morbidity and mortality" conferences. With respect to professionalism, local faculty noted that volunteers were consistently punctual to and attended all of their teaching assignments. They encouraged professional collegiality, which included encouraging local faculty to interact positively with students. They also impacted faculty career aspirations by motivating locals to continue with their own professional education. Volunteers were also noted to model inter-professionalism between nurses and physicians.

Both local and volunteer stakeholders reported the positive impact of participation in local cultural activities and social interaction with their colleagues. Several GHSP volunteers identified a positive change in their working relationships after they shared tea or a meal with a colleague or attended community and holiday events.

Local faculty, students and leadership and GHSP volunteers identified several challenges. All believed that language ability was a significant limitation. Students reported that volunteers' accents were difficult to understand. Volunteers felt incapacitated by not being able to communicate directly with patients. In some sites, local dialect was an informal language of education. While classroom and clinical teaching was in English, follow-up conversation would be in vernacular. GHSP volunteers reported frequently missing important parts of discussion.

Local faculty also noted differences regarding standards and expectations for formal grade evaluations; many expressed concern that testing and grading conducted by volunteers was too lenient. Volunteers acknowledged having different approaches to testing, yet believed they tested appropriately to material covered in lectures and lessons.

Another challenge reported by local leadership, faculty and students was the GHSP volunteers' lack of familiarity with the clinical setting. They noted that volunteers struggled with decision-making in a resource-poor setting; they did not understand referral systems, and had different clinical standards and protocols than those in use at their host site. All stakeholders noted that adapting to a resource-limited context took time and volunteers used different coping mechanisms to manage. A few volunteers were perceived to be too assertive, wanting to see quick change and displaying easy frustration with local infrastructure/resource challenges.

GHSP volunteers reported struggling to balance clinical and educational activities. Physicians, in particular, reported having a difficult time setting boundaries to prioritize education when clinical need was great. The

intensity and volume of patient care was overwhelming for many volunteers. Institutional leadership acknowledged a need to protect the volunteers from being completely absorbed by clinical duties and to preserve their function as teaching faculty. Nurse volunteers reported spending a larger portion of their time preparing for or providing formal classroom lectures than teaching at the clinical bedside.

A challenge commonly cited by both local partners and GHSP volunteers was limited available technology and public services. Electricity was tenuous at multiple sites and its loss made both patient care and classroom preparation difficult. For surgical, anaesthesia and obstetric specialties, it was especially challenging, as ventilators, suction and oxygen were often electricity-dependent. Internet was the other service of major concern and was often intermittent or slow. With a paucity of reference materials, journals and textbooks, access to the Internet was viewed as an essential teaching tool for all faculty. Several local leaders noted a need for a systematic "partnership inventory," as numerous organizations have funded isolated infrastructure improvements without necessarily considering the overall context and priorities of the institution.

Local stakeholders offered mixed responses as to whether the long-term presence of GHSP volunteers could impact recruitment and retention of students and/or faculty. Many reported the program would not address financial difficulties confronting students. Faculty specifically noted that recruitment and retention within the health education system is often out of their institutional control.

Unless otherwise noted, the key findings detailed were repeatedly reported across all sites and interviewee groups. When there was divergence in responses, it typically fell in one of three categories: country-specific (difference in response between countries owing to the impact of local issues and context); program-specific (difference in response between nurses and physicians); or population-specific (difference in responses between interviewee groups owing to role and perspective).

Discussion

GHSP's first year revealed a number of predictable findings. For example, it is not surprising that the greatest perceived impact was thought to be in clinical teaching and mentoring. In many African health education systems, faculty at medical and nursing institutions are supported by the Ministry of Education and are not necessarily responsible for any clinical- or hospital-based teaching. Meanwhile, staff doctors and nurses working in hospitals are supported by the Ministry of Health, and are often not tasked with prioritizing educating trainees as a part of their duties as direct service providers. Thus, clinical bedside teaching for students and fresh graduates falls in a grey zone not clearly addressed by either.

Specific to nursing, there is a historical precedent of nursing education focusing on classroom instruction over clinical mentorship. This need for clinical nursing instruction is increasingly recognized and there is a shift to help increase nursing training on the wards. GHSP could help provide innovation and structure to enhance this aspect of nursing education.

The first year also revealed numerous opportunities for pedagogical innovation and possible re-evaluation of current competency/examination standards. Local faculty and GHSP volunteers felt a clear tension regarding the assessment of students. Volunteers' perception of unnecessary high failure rates, punitive approaches to learning and a formal and rigid hierarchy between student and teacher all contributed to this tension. Students appeared to respond favourably to GHSP volunteers' relaxed and collegial style of instruction, and modelling of positive clinical reinforcement. With time, it is possible that this modelling could encourage behaviour change among local faculty and adoption of teaching

methods that appear to better bring out the capabilities of students, assuming they come to accept that competency is not compromised.

The GHSP volunteers and counterparts all acknowledged the need for more infrastructure investment. Volunteers noted the difficulty in teaching well without additional simple tools. For example, many sites made requests for LCD projectors and printers. The latter were needed to ensure text materials could be made available to all students. Practice manikins and skill-building equipment was also identified as a need. Several GHSP volunteers procured small grants from local Peace Corps funds or through Seed to help build skills labs and computer labs, purchase core equipment for wards or to provide books and other teaching materials. These examples illustrate a need to create a systematic process of infrastructure investment for each institution to support its teaching mission.

Conclusion: GHSP and the Global HRH Challenge

The GHSP experiment is young and limited in scope. Its hypothesis is that through dedicated, sustained and directed investment in specific educational inputs within an existing healthcare system, modest improvements in the quantity and quality of provider outputs can be achieved.

Addressing human resource challenges in resource-limited settings is a complex problem. There are many interrelated and entrenched influences including political, social and economic forces, which converge to perpetuate the crisis in these places. The crisis is especially urgent in Africa where a majority of countries lack the needed numbers and skill mix to address their current and future needs. Comprehensive, across-the-board solutions are lacking. Given the enormity of the problem, it is not surprising that many models attempting to address the crisis are narrowly designed to maintain a manageable focus, and therefore limited in potential for impact. Additionally, there is a predictable tension between an immediate, understandable moral compulsion to "simply" provide care (and possibly exacerbate dependency states), and a longer-term approach to building locally responsive, accountable and sustainable efforts.

GHSP's greatest impacts initially are likely to be at the level of individual interactions with students and locally vested faculty. It is too early in the program to appreciate, let alone measure, any downstream long-term effects of this educational investment. Anecdotes and qualitative assessment of stakeholders' experience provide some signals of impact and are important to improve the program iteratively. It is clear that there is a deep and abiding appetite within the African health education systems with which GHSP has partnered to improve teaching and training environment in real time on the ground.

Attending in real time to "lessons learned" provides opportunities to adapt, experiment differently and to strengthen our collaborations. Success with this model is dependent on mutual trust, joint investment in outcomes and combined interest in problem solving for small and large challenges. It is critical to partner with institutions genuinely eager for collaboration rather than receiving "charity." This shared commitment fuels local motivation, which can spur change. The critical truth in human resources for health capacity building is that it takes time. This is difficult, frustrating long-term and rewarding work for all stakeholders, which often is glossed over in today's easier celebrations of "global health." Success will need to come from programs building up from the ground and wider international policy changes.

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