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**Abstract #:** *2.087_HRW*

### AIDS barefoot doctors in rural Kenya: A paradigm for sustainable public health impact

Mount Kenya University

**Purpose:** AIDS Barefoot Doctors [ABDs] constitute a cadre of grassroots health workers who are leading their communities in breaking the cycle of disease and poverty. Since 2004, 24 ABDs have been trained and empowered to improve public health through multi-faceted interventions. Context: SOTENI ["*All of us*" in Swahili] links organizations in Kenya and the USA. This network operates with a unified paradigm of sustainability, based on local leadership demonstrated by donation of property, democratically-elected managers, and community-wide engagement. The prevention and mitigation of HIV/AIDS has been a priority for three of SOTENI's "Villages of Hope," including Siaya County where HIV/AIDS prevalence is 3rd highest in Kenya.

**Design:** In 2004, 21 high-school graduates were trained in first aid, HIV/AIDS, and public health. Refresher courses have enabled them to respond to evolving priorities and opportunities. Program stakeholders are PLWHA and their households, their wider communities, international students, and commercial sex workers.

**Outcomes and Evaluation:** The ABDs have provided: Home-based care for persons living with HIV/AIDS [PLWHAs] and their households; Training, seeds, and other supplies for income-generating activities; Clean and safe drinking water; Holistic support for orphans and other vulnerable children; School-based and out-of-school behavior change communication; In-home treatment for endemic infestations of worms; Referrals for clinic-based services (e.g., prevention of mother-to-child transmission [PMTCT] of HIV, highly active antiretroviral therapy [HAART]); Male and female condoms; Family planning; and Commodities (e.g., bed nets, folate, water purification equipment). Eighteen of the original 21 ABDs continue their public health work. Factors promoting sustainability include flexibility in scheduling and programming, ABD-leadership, pertinent priorities, mentoring, job satisfaction, transportation, and partnering with local and international individuals and institutions.

**Going Forward:** SOTENI is addressing challenges of remuneration, HIV/AIDS donor fatigue, reporting (due to ABDs' limitations in English and computers); and quality.

**Funding:** This program has been supported by SOTENI, USAID, MAC AIDS, DANIDA, Positive Action for Children Fund [PACF], Government of Kenya, Mount Kenya University, and the University of Cincinnati.

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### Developing innovative and interdisciplinary global health training programs across all levels of medical education

*Daniel Young, Ashti Doobay-Persaud, Shannon Galvin, Robert L. Murphy; Northwestern University*

**Program:** Northwestern University provides innovative and interdisciplinary global health education opportunities for students at all levels of medical training ranging from pre-med, medical students, residents and fellows in graduate medical education (GME) programs, as well as physicians in post-graduate training programs. This innovative pedagogical approach requires collaborations beyond a single school and calls for interdisciplinary research and education programs in fields of public health, engineering, medicine, business, among others. The strategy provides opportunities for trainees to engage longitudinally with global health learning objectives and mitigates the weaknesses of short-term clinical experiences.

Global health programs across trainee levels at Northwestern focus on the following areas:

Pre-medical – Interdisciplinary global health minor Undergraduate medical education – Clinical electives, year-long fellowships, and research tracks; Graduate medical education – GME global health certificate for residents and Master of Science in Global Health Post-graduate medical education – Fellowship for post-graduate research.Training grants sponsored by NIH and other sponsors. CME credit for alumni

**Structure:** Provide faculty with dual-appointments, opportunities to teach in multiple programs, and protected time for clinical faculty. Establish memoranda of understanding with diverse network of global partners. Funding support for trainees. Externally sponsored-projects to support faculty research.

Institutional oversight to reduce risk, limit liability, and increase safety for students.

**Limitations:** The short time-horizon of a typical medical school or residency curriculum is a major challenge, where four-week clinical electives are often the maximum window of opportunity available to dedicate to an elective or research project. Maintaining faculty engagement, especially clinical professionals, requires a large faculty and diverse revenue streams from tuition, grants, and development dollars. Effort must be made to ensure that trainee learning objectives, global partner needs and institutional goals are identified and achieved.

**Going Forward:** Short-term clinical training in global health that are not integrated into the curriculum, while arguably attractive to medical trainees, do not provide meaningful opportunities to engage with global health and learn about the interdisciplinary nature of the field. Innovative academic programs need to provide multiple and

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varied global health education opportunities to all levels of trainees with programs crossing multiple disciplines, specialties, and schools.

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### Building a global health alliance of graduate students across disciplines

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**Program:** While students from a wide range of academic disciplines are working in global health, there lacked a community where they can come together to share their experiences and exchange ideas about the field. The Graduate Student Alliance for Global Health (GSAGH) was established at the University of Toronto (U of T) in 2009 by graduate students, with institutional support from the U of T Global Health staff and faculty. GSAGH aimed to unite graduate students with an interest in global health, regardless of discipline, and to create a collaborative environment for global health education, research, advocacy, and professional development.

**Structure/Method/Design:** Each year, a multidisciplinary executive team is selected to represent the large spectrum of fields that make up the global health graduate student body at the U of T. Two elected co-chairs provide guidance on planning and implementing various initiatives through out each academic year; including a graduate student-led mentorship program for undergraduate students, a series of professional development workshops and an annual research symposium.

**Outcome & Evaluation:** Since its inception, GSAGH have engaged over 100 students from 6 of the 14 faculties at U of T. GSAGH initiatives greatly complemented formal academic training provided by graduate study programs. The undergraduate mentorship program allowed graduate students to share their experiences and gain teaching experience, while undergraduate students were exposed to alternative career paths. The professional development workshops addressed skillsets students wanted but did not have access to through formal education. The research symposium provided students with an open platform to share their research, exchange ideas and hone their communication skills. Most importantly, GSAGH brought together students across the university and created a community for graduate students with a shared passion for global health.

**Going Forward:** Our strategic plan calls for expansion across U of T. One of our ongoing challenges is to engage students that are working in fields that are not yet recognized as global health. Given our success, similar student-led alliances could be created at universities across Canada or the United States to extend our interdisciplinary community.

**Funding:** None.

**Abstract #:** *2.090_HRW*

### The deepening global health workforce crisis: Forecasting needs, shortages, and costs for the global strategy on human resources for health (2013-2030)

*Richard M. Scheffler, Kate Tulenko et al*

Using a novel approach to estimate healthcare needs, this paper produces an estimate of health worker shortages using a new benchmark based on the Sustainable Development Goals (SDGs). This approach produces an estimated need of 46 million healthcare workers in 2013 and 54 million in 2030 globally. We then estimate the current stock of healthcare workers in 2013 and forecast the supply of healthcare workers to 2030. Next we look at countries that have a shortage of healthcare workers defined as [needs based estimate − supply estimate] for 2013 and 2030. In sum, we find a shortage of 17.6 million health workers in 2013 and a forecasted shortage of 18.3 million health workers in 2030.

There are important differences in these estimates by country income group. Although health worker shortages occur in all country income groups, low-income and lower-middle income countries have much larger and growing shortages. For example, in order to meet the SDG-based benchmark by 2030, low-income countries would have to increase their health worker stocks an average of 5.4% per year from 2013 to 2030, up from a curent average annual growth of 2%. Upper-middle and high-income countries tend to have shortages that are decreasing.

This paper makes an estimate for health professional education capacity and costs, concluding that the 2013 production of health professional schools per year is 2.4 million health workers per year at a total cost of $168 billion per year, about half of which ($80 billion) is for the production of physicians. This analysis estimates the incremental cost of pre-service health professional education to meet the SDG benchmark over the 2013 to 2030 time period, which would be $129.5 billion in low-income countries, $471.7 billion in lower-middle income countries, $317.8 billion in upper-middle income countries, and $2.9 billion in high-income countries.

The paper looks at the cost of two alternative healthcare team models − one team model based on a physician to nurse ratio of 1:4 and a second team model based on the team structure in the most efficient low-income countries. The paper concludes with discussion of policy suggestions and alternatives.

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