

### Measuring the Cross-cultural Adaptability of a Graduate Student Team from a Global Immersion Experience

L.B. Glickman<sup>1</sup>, V. Rowthorn<sup>2</sup>, J. Olsen<sup>3</sup>; <sup>1</sup>University of Maryland, Baltimore, Maryland, USA, <sup>2</sup>University of Maryland Carey School of Law, Baltimore, MD, USA, <sup>3</sup>University of Maryland School of Social Work, Baltimore, MD, USA

**Background:** This study measured the cultural competency skills for two groups of unmatched graduate students to determine if a global immersion experience improved student cross-cultural adaptability as a component of cultural competency skill development. Experiential learning through global immersion may promote these skills, needed to meet the healthcare, psychosocial, legal, and related needs of the 21st century client.

**Methods:** With a non-randomized cohort design, there were two groups of unmatched volunteer graduate students with international travel background from a US University. One group reviewed an online educational module, and participated in campus activities and an experience in Malawi; the other group reviewed the module only. The students were assessed in the pre- and post-immersion time frames using the Cross-Cultural Adaptability Inventory (CCAI™). The tool, a “culture-general instrument” assessed emotional resilience, flexibility openness, perceptual acuity, and personal autonomy.

**Findings:** Comparing total scores on the Index pre-immersion (baseline), there was no significant difference between the groups. Comparing both groups’ total scores post-immersion, there was a significant difference. There was a significant difference for the experimental group between the pre/post immersion total scores but not for the control group. Comparing both groups’ post immersion, there was a significant difference between the groups. Comparing both groups’ component scores, there was a significant difference in emotional resilience and perceptual acuity for the experimental group only. Comparing both groups’ component scores, there was no significant difference in the personal autonomy and flexibility openness variable.

**Interpretation:** This study showed that participation in a 6-week global immersion experience compared to education only made a greater change in the development of cross-cultural adaptability for a graduate student team. It verified the existing literature for a heterogeneous team of graduate professional students. This is important information for future health and human services students who have a passion for international travel. Educators may consider this information when evaluating the potential global immersion experiences for curricular planning, for administrators who will focus on the cost-benefit of the experience, for clinical and community partners and the informed public who may have an interest in the cultural sensitivity of current and future healthcare and human services professionals.

**Source of Funding:** None.

**Abstract #:** 1.053\_HHR

### Strengthening Indigenous Training Capacity in Biomedical Engineering and Technology in Sub-Saharan Africa: A Replicable Model

K. Utan, S. Goldfrank; American International Health Alliance, Washington, DC, USA

**Program/Project Purpose:** In many low-income countries (LICs), over 95% of medical equipment in hospitals is imported. Much is out of service, yet could be easily repaired at minimal cost by trained professionals. A survey of 52 African hospitals conducted by Carleton University in Canada revealed that medical device maintenance services at 85% of these facilities had trouble finding qualified engineers and technicians locally. Biomedical engineers and technicians in LICs face similar challenges as other health cadres: inadequate qualified personnel to meet existing needs, limited educational opportunities and in-service training, absence of regulatory bodies, brain drain, and competition with the private sector for the limited pool of skilled professionals.

**Structure/Method/Design:** In 2013, the American International Health Alliance (AIHA) launched the first biomedical partnership project in sub-Saharan Africa ever supported by the President’s Emergency Plan for AIDS Relief (PEPFAR) to help Ethiopia meet the demands of its technology-driven healthcare system, particularly in the context of providing high quality HIV/AIDS-related diagnostic, treatment, and care services. Using AIHA’s comprehensive and holistic twinning model, Ethiopian partners at Jimma Institute of Technology and Tegbar-Id Polytechnic were linked to US counterpart institutions to rapidly train and deploy skilled biomedical technicians and provide ongoing in-service training for practicing professionals. In 2015, Addis Ababa Institute of Technology joined the partnership.

**Outcome & Evaluation:** Jimma has graduated 257 biomedical engineers, with 91% employed at Ethiopian health facilities. Tegbar-Id has graduated 261 biomedical technicians, with 95% similarly employed. Partners conduct annual surveys to determine graduate skill gaps and have thus far provided training to fill said gaps for 181 graduates and 35 faculty. Partners adapted the curricula from a more theoretical approach to problem-based learning, which better prepares graduates to perform required tasks. Faculty in-service training and providing skills laboratories have helped partners better integrate graduates into the healthcare system. Based on the success of this project, AIHA launched similar partnerships in Kenya and Uganda in 2015. Responding to local needs and context, these new national-level projects focus on strengthening in-service training capacity.

**Going Forward:** Institutional twinning partnerships are an effective, adaptable method of developing biomedical technology training capacity in LICs and should be explored to support health systems and improve quality of care.

**Source of Funding:** PEPFAR, HRSA, CDC.

**Abstract #:** 1.054\_HHR

### Assessment of Acute Obstetrical Needs and Evaluation for the Role of Point-Of-Care Ultrasound in the North East Department of Haiti

D. Gomes<sup>1</sup>, S. Kendall<sup>1</sup>, B. Kaufman<sup>1</sup>, A. Aluisio<sup>2</sup>, C.M. Bloem<sup>1</sup>, V. Thomas<sup>1</sup>; <sup>1</sup>SUNY Downstate Medical Center, Brooklyn, NY, USA, <sup>2</sup>Brown University Alpert Medical School, Providence, USA

**Program/Project Purpose:** Point-of-care ultrasound (POCUS) implemented through task shifting to nontraditional users has

potential as a diagnostic adjuvant to enhance acute obstetrical care in resource limited environments with limited access to physician providers. This study evaluated acute obstetrical needs and the potential role for POCUS programming in the North East Department of Haiti.

**Structure/Method/Design:** Data was collected on all women presenting to the obstetrical departments of the two largest public hospitals in the North East region of Haiti: Fort Liberté and Ouanaminthe. Data was obtained through a retrospective review hospital records from the 1 January through 31 March 2016. Data on demographics, obstetrical history, suspected diagnoses, clinic care and outcomes were gathered using a standardized tool by trained study personnel. Diagnoses *a priori* defined as those which could be assisted in making through the use of POCUS included multi-gestations, non-vertex presentation, cerebropelvic disproportion, placental abruption, placenta previa, abortions, retained products and ectopic pregnancy.

**Outcome & Evaluation:** Data were collected from 589 patients during the study period, Median maternal age was 26 years, and median gestational age was 38 weeks. The most common reason for seeking care was pelvic pain (85.2%) Sixty-seven (11.5%) women were transferred to outside facilities for higher-level of care. Among cases not transferred, post-partum hemorrhage, infant mortality and maternal mortality occurred in 2.4%, 3.0% and 0.6% of cases, respectively. There were 69 birth events with suspected diagnoses that could have benefited from POCUS use. Between hospital sites, significantly more cases had the potential for improved diagnostic with POCUS at Fort Liberté (20.7%) than Ouanaminthe (7.7%) ( $p < 0.001$ ).

**Going Forward:** POCUS has potential to impact the care of obstetrical patients in the North East Department of Haiti however, given limited available human resources, performance by non-physician providers will be necessary. Future programs will be needed to evaluate the feasibility of task shifting and the sustainable impacts of acute obstetric POCUS in Haiti.

**Source of Funding:** DAK Foundation.

**Abstract #:** 1.055\_HHR

### A New Cadre of Health Worker: Meeting Health Organization Capacity Needs in East and Southern Africa and the United States via a Leadership Development Fellowship program

J. Gomez<sup>1</sup>, B. Bush<sup>2</sup>, H. Anderson<sup>2</sup>; <sup>1</sup>Global Health Corps, New York, NY, USA, <sup>2</sup>Global Health Corps, New York, USA

**Background:** Building strong health systems to achieve the Sustainable Development Goals requires a human resources for health (HRH) strategy that recognizes and addresses non-clinical capacity gaps at health organizations. Leadership development of non-clinical health workers is limited in implementation and discussion, resulting in a lack of data. We present initial findings from Global Health Corps' (GHC) efforts in this area.

**Methods:** We analyzed four years of health organizations' applications to GHC, identifying capacity needs in Burundi (BI), Malawi (MW), Rwanda (RW), Uganda (UG), USA and Zambia (ZM).

Health organizations represented NGOs, Ministries of Health and research institutions. GHC placed co-fellows (national and international) in organizations for one-year of service, with leadership development programming. Fellows were selected on technical proficiency and leadership potential (65% female). We report fellow application numbers, and subsequent fellow workplace contributions (from supervisor survey) for 2012-2015 fellowships. We separately examined alumni survey responses (73% response) as a cross-section of current sector and region of fellow employment, to estimate retention in public health.

**Findings:** Demand: Applications from health organizations for GHC fellows totaled 670 (2011-2014). The functional needs of actualized fellowships ( $n=458$ ) were Program management 33.6% ( $n=154$ ), Monitoring and Evaluation 23% ( $n=106$ ), Communications 7% ( $n=32$ ), Development/Fundraising 5.9% ( $n=27$ ), Health education 4.4% ( $n=20$ ), Policy development 4.2% ( $n=19$ ), Supply chain management/procurement 3.7% ( $n=17$ ), and Other 15% ( $n=83$ ).

**Supply:** Applications for fellowships from individuals (2011-2014) totaled 17855 (4% BI, 10% MW, 21% RW, 20% UG, 30% USA, 4% ZM, 11% Other). Following fellowships, a yearly average 89% (range: 87%-94%) of supervisors at health organizations reported that fellows "contributed positively to the success of their organizations."

**Retention:** Available alumni data from first three years (2012-2014) of fellows show 71% ( $n=150$ ) continuing work related to public health, and 89% ( $n=133$ ) of that subset continuing to work in GHC country regions.

**Interpretation:** Our data demonstrate a consistent demand for, and supply of, non-clinical health leaders to fill capacity gaps at health organizations in East and Southern Africa and the USA. This should spur continued discussion around tracking non-clinical skills in HRH and the role of leadership in public health employment retention, health organization outcomes and population health impacts.

**Source of Funding:** "None".

**Abstract #:** 1.056\_HHR

### Ultrasound Use in Resource-limited Settings: A Systematic Review

R. Gopaul<sup>1</sup>, G. Bearman<sup>2</sup>, M. Stevens<sup>2</sup>; <sup>1</sup>Virginia Commonwealth University Health System, Richmond, VA, USA, <sup>2</sup>Virginia Commonwealth University School of Medicine, Richmond, USA

**Background:** Over the past decade, Ultrasound machines have become smaller, less expensive, more reliable, durable and user-friendly making ultrasonography an ideal imaging modality in resource poor settings. We conducted a literature review to examine the use of ultrasound in resource-limited settings, with emphasis on common applications, barriers to implementation, and impact on clinical decision-making and patient disposition.

**Methods:** Literature review. We conducted a PubMed and Cochrane Central search on the clinical use of ultrasound in the developing world. Search terms included ultrasonography, developing countries, resource limited, remote setting, poverty, and low