

graduates to work in the public sector following graduation. The program currently has a 97% success rate retaining nurses through their service agreement. The objective of this study was to identify job satisfaction and retention factors of scholarship recipients after graduation to evaluate the program, inform stakeholders, and advise future projects.

**Methods:** This was a mixed methods study consisting of qualitative interviews and quantitative surveys that evaluated job satisfaction, factors associated with retention and impact of the GAIA Nursing Scholarship Program. Participants included male and female graduated GAIA scholarship recipients working in the public sector across Malawi, with a representative convenience sample interviewed in person based on employer location. The survey was asked of all program graduates and completed by one-third of this population. We used thematic analysis to analyze qualitative interviews for themes on drivers of public sector retention. Kruskal-Wallis, Pearson correlation and chi-squared tests were used to analyze survey data. Participants signed an informed consent and the study was approved by the Committee on Human Research at the University of California, San Francisco (UCSF) and the College of Medicine Research and Ethics Committee in Malawi.

**Findings:** The study included 30 qualitative interview participants and 56 quantitative survey respondents. The majority of participants indicated they would like to stay in the public sector. Most cited unavailability of supplies, inadequate human resources and high workload as major challenges to their work. Those that indicated poor working relationships with management or coworkers were more likely to consider changing jobs. Low salaries, high workload, poor accommodations provided by public sector workplaces and a lack of appreciation were indicated as reasons nurses choose to leave the public sector. Participants felt supported by GAIA staff and expressed a desire to serve their communities by working in government supported health facilities.

**Interpretation:** There are non-remuneration strategies that low-income countries like Malawi can employ to retain nurses in the public sector. Adequate provision of human and material resources and proper accommodations can greatly improve job satisfaction and retention. Programs such as the GAIA scholarship program may also help increase retention by creating loyalty through careful follow up monitoring.

**Funding:** GAIA, USAID, and UCSF, Department of Global Health Sciences.

**Abstract #:** 01ETC085

### Medical and nursing students' intentions to work abroad or in rural areas: An eight-country cross-sectional survey in Asia and Africa

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**Background:** Migration of medical and nursing graduates from rural to urban areas or overseas greatly threatens health improvements in low- and middle-income countries (LMIC). Despite escalating efforts to enhance graduate retention, little is known about student migration intentions in nations most burdened by this "brain drain." Our objective was to assess medical and nursing students' intentions to migrate abroad or practice in rural areas, and identify any predictors of migration intentions.

**Methods:** We surveyed first- and final-year medical and nursing students at 16 premier government institutions in eight countries with critical health worker shortages (Bangladesh, Ethiopia, India, Kenya, Malawi, Nepal, the United Republic of Tanzania and Zambia). The survey contained questions to identify factors that could predict students' intentions to migrate. Primary outcomes were likelihood within five years post-training: (1) to migrate for work outside the country, or (2) to work in a rural area in the country. We assessed 14 predictors of migration intentions using multivariable proportional odds models. The study was approved by ethics review committees in each country as well as at Vanderbilt University, and all respondents provided informed consent.

**Findings:** Of 3822 students enrolled in first- and final-year medical and nursing classes, 3199 (84%) completed the questionnaire. Among respondents, 28% (870/3156) expected to migrate abroad, while only 18% (575/3158) anticipated a rural career. More nursing than medical students desired professions abroad (odds ratio, OR: 1.76; 95% confidence interval, CI: 1.25–2.48). Career desires before matriculation correlated with current intentions for international (OR: 4.49; 95% CI: 3.21–6.29) and rural (OR: 4.84; 95% CI: 3.52–6.66) careers. Time spent in rural areas before matriculation predicted the preference for a rural career (20 versus 0 years: OR: 1.53, 95% CI: 1.19–1.98) and against work abroad (20 versus 0 years: OR: 0.69, 95% CI: 0.50–0.96).

**Interpretation:** A significant proportion of students surveyed still intend to work abroad or in cities after training. These intentions appear to be identifiable even before matriculation. Adapting admissions standards to account for years spent in rural areas or applicant career desires before matriculation could promote greater graduate retention in the country of training and in rural areas. Strengths of the study include its uniquely large size in terms of countries, institutions, and students evaluated; inclusion of multiple degree programs and class years; systematic institution selection criteria; and high response rate. Future longitudinal research should clarify the relation between student migration intentions and ultimate behavior, while also examining the role of graduate migration from public to private or administrative sectors.

**Funding:** Vanderbilt University School of Medicine  
**Abstract #:** 01ETC086

### Effect of an educational intervention on occupational behaviors related to mercury use in artisanal small-scale gold mining communities

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**Background:** As small-scale gold mining increases around the world, so does the use of mercury in gold extraction. Mercury is a dangerous neurotoxin, and mining communities often engage in worst-practices, such as burning mercury indoors. Peer education within formal educational campaigns may provide a sustainable way to teach safer handling practices and extend appropriate technology, but its impact within a transient mining community has not yet been studied. We aimed to assess the effect of combined community health talks and peer-to-peer discussions on the occupational behaviors of transient mining communities.

**Methods:** This community trial took place across 8 mining communities (estimated 16,722 people) in the Health District of Saraya, located in southeast Senegal. The study consisted of a baseline survey and two post-intervention surveys, supervised by health district staff and Peace Corps Volunteers. All mining communities were exposed to a 3-week educational intervention consisting of formal health talks by community health workers, informal discussions by peer educators, and appropriate technology extension. Data collectors used a probability sampling technique to invite participants to the study. All working age members of the mining communities were eligible to participate in the survey. Informed consent was requested prior to administration of the survey. A 36-item survey on socio-demographic and occupational behaviors, modified from a United Nations Industrial Development Organization health assessment questionnaire, was translated and read aloud by data collectors. The primary outcome of interest was location of burning mercury. A multivariate logistic regression was performed using a dichotomous outcome to assess impact on burning location. The study protocol was reviewed by the institutional review boards at Ben Gurion University and the Senegalese Ministry of Health.

**Findings:** 599 responses were collected for the baseline survey (January 2013), and 557 for the first post-intervention survey (April 2013). These surveys did not vary by ethnicity, nationality or marital status, but varied by age, gender, education level, profession, time spent at the mine, mercury use and previous participation in a safe handling program. A significant association, controlled for significant confounders, was found between the community intervention and a reduction in burning mercury inside a home or shop (OR=0.83,  $p < .01$ ).

**Interpretation:** An educational campaign using peer educators may improve uptake of safer handling practices in small-scale mining communities. Limitations: the study lacked control villages to assess external influences on behavioral change; it also relied on self-reported outcomes. Strengths: the estimated effect is highly generalizable to other mining communities since the study population is transient in nature and unlikely to be biased by the strong rapport established between permanent residents and other stakeholders.

**Funding:** This project was funded by the U.S. Department of State.  
**Abstract #:** 01ETC087

### Second chance education in Zimbabwe: An inclusive model to achieve education for all

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**Program/Project Purpose:** Recent statistics indicate that approximately 30% of Zimbabwean children do not complete primary school, and only 68% graduate to secondary school. In response, in 2009, World Education, Inc./Bantwana (WEI/B) with support from Open

Society Initiative of Southern Africa (OSISA), developed and piloted a Second Chance Education program for out-of-school children in Zimbabwe to receive primary education and reintegrate into formal schooling. This accelerated learning model was piloted in non-formal community learning sites with trained community volunteer facilitators teaching an accelerated primary school curriculum.

**Structure/Method/Design:** In 2012, building on the results of the pilot, and in support of the Government of Zimbabwe's goal of Education for All, WEI/B, in partnership with UNICEF, USAID, the Education Development Fund and the Ministry of Primary and Secondary Education (MoPSE), initiated an in-school accelerated learning program (ALP) using a non-formal education model that utilizes methodologies and tools adaptable for the formal schooling system. The ALP model compresses the seven-year national primary school curriculum into three years and utilizes a participatory approach, incorporating multi-grade teaching and learning. ALP's objectives are to: 1) build the capacity of 600 schools in 32 districts to reintegrate 30,000 out-of-school-learners; 2) strengthen the non-formal education system to support Second Chance Education for hard to reach children and link them to formal delivery structures; and 3) test and finalize the ALP curriculum to enhance MoPSE standards and guidelines. To ensure sustainability, WEI/B's inclusive approach encourages the community to take responsibility and identify out-of-school children through community sensitization meetings. Teachers with experience in multi-grade teaching are selected by the school management committee, and given intensive training in the new accelerated learning syllabus. To ensure sustainability, MoPSE Provincial and District staff are fully involved in all stages of program implementation.

**Outcomes & Evaluation:** To date, the program is being implemented in 593 formal school sites, 20 community learning sites, and has reached 28,607 learners including 1,379 children who have been reintegrated into mainstream schooling. The WEI/B ALP tools utilized by facilitators include a compressed national syllabus, an ALP Student Handbook, and an ALP Facilitator's Handbook. All are currently being reviewed by MoPSE's curriculum board for approval for national roll-out. Based on the results of the Second Chance program, WEI/B contributed to the writing of Zimbabwe's first Non-Formal Education policy earlier in 2014.

**Going Forward:** The main challenge facing the program is the payment of school fees for children transitioning from ALP into mainstream schooling. WEI/B is engaging private-sector donors in Zimbabwe to contribute to these efforts and is working with MoPSE to take on the cost of teacher stipends.

**Funding:** The WEI/B ALP program is funded by UNICEF, the Education Development Fund and USAID/PEPFAR.

**Abstract #:** 01ETC088

### Mentoring to promote nurse-midwife retention in Tanzania

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**Program/Project Purpose:** In an effort to reduce maternal and infant mortality, Tanzania aims to increase access to skilled nursing and midwifery care. Evidence suggests strengthening clinical mentorship and supportive supervision of novice nurse-midwives will facilitate retention of them. The purpose of this poster is to discuss the development, implementation, and ongoing evaluation of a week long train-the-trainer program designed to improve the teaching, clinical supervision and mentoring capacities of nurses-midwives at two rural hospitals in Tanzania over a one year period.