

what exactly constitutes as “global health” and a comprehensive “global health education”.

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### Village health worker-delivered health literacy home talks successfully transfer knowledge

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**Background:** Village health workers (VHWs) are key to building health literacy in low resource areas. Basic knowledge acquisition is a prerequisite for making health-related decisions about chronic disease, cancer screening, family planning, and diarrhea. In partnership with Kisoro District Hospital, Doctors for Global Health staff designed health literacy talks to be given by VHWs to individuals at home (“home talks”) regarding these four healthcare topics. We evaluated the benefits of home talks through administration of pre and post tests.

**Methods:** VHWs in twelve villages visited approximately 20 homes with an evaluator who conducted pre and post tests in Rufumbira. Four available topics were listed and the subject was asked to choose two topics that appealed to her. The first chosen topic was given as a home talk (“index”), and the second chosen topic was treated as a control topic (“control”) with no talk given. A pretest was performed for both index and control topics. A posttest was administered immediately after the talk for the index but not the control topic. A delayed posttest was carried out two to five months after the talk for both index and control topics. Pretest and immediate posttest data were available for 156 subjects and pretest and long-term posttest data were available for 62 subjects. A paired sample t-test was used to compare pretests to immediate posttests and delayed posttests, respectively. Significance was determined at  $\alpha=0.05$ .

**Results:** Long-term knowledge regarding chronic disease increased on average by  $22.6\pm 15.7$  points ( $p<0.0001$ ) from baseline. Furthermore, long-term knowledge regarding diarrhea increased on average by  $23.529\pm 20.377$  points ( $p=0.0033$ ). Additionally, long-term knowledge regarding family planning and women’s cancer increased on average by  $36.04\pm 17.42$  and  $34.62\pm 32.96$ , respectively ( $p=0.0026$  and  $p<0.0001$ , respectively). There was a percent increase observed for all categories including chronic disease (163%), diarrhea (147%), family planning (150%), and women’s cancer (900%). Analysis of the control pre/post questions did not indicate a significant difference in any category tested.

**Conclusion:** Through delivering home talks, VHWs increased health literacy in this rural Ugandan population with low levels of education.

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### Knowledge and attitudes of out-of-hospital emergency nurses in Yerevan, Armenia

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**Background:** Emergency care in Armenia is in the early stages of development. The Emergency Medical System (EMS) in the capital

city, Yerevan, comprises a network of ambulance stations staffed by out-of-hospital physicians and nurses who respond to emergency calls. We designed a study to evaluate the knowledge and attitudes of EMS nurses regarding pediatric rapid assessment and resuscitation, as well as to identify specific areas for improvement in pediatric emergency nursing education.

**Methods:** We distributed a cross-sectional, anonymous, self-administered knowledge and attitudes survey regarding pediatric rapid assessment and resuscitation to all EMS nurses in Yerevan in July 2015. The IRB at Virginia Commonwealth University qualified this study for exemption.

**Findings:** The survey response rate was 87.5%. Of the 175 nurses who completed the 10-question knowledge test, 52% failed. The passing score was 7, and the mean score was  $6.03 \pm 2.36SD$ . Training in pediatric nursing and participation in pediatric continuing medical education (CME) were associated with significantly higher test scores (t-test:  $p = 0.039$ ,  $p = 0.001$ ). The number of years as a practicing nurse and number of years working in the EMS system also had positive effects on test score (one-way ANOVA:  $p = 0.003$ ,  $p = 0.003$ ). Questions regarding recognition of shock and initiation of neonatal and pediatric CPR were most frequently missed. Nurses who had pediatric-specific training were more likely to correctly identify shock signs and symptoms and know when to initiate neonatal CPR (chi-squared:  $p < 0.001$ ,  $p = 0.003$ ). Of the clinical skills assessed, nurses felt least comfortable with enteral tube placement, specimen collection, and spine stabilization. Nurses reported being least confident in their ability to care for neonates and infants. 79.4% of nurses indicated that they would benefit from further pediatric emergency training, and 86.1% agreed that knowledge from the Anglo/American Emergency Medicine system could improve pediatric emergency care in Yerevan.

**Interpretation:** There is a demonstrated need for additional pediatric emergency care training and CME for EMS nurses in Yerevan. Training EMS nurses along with out-of-hospital physicians would improve first-responder awareness of pediatric acute illness and patient care.

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### Factors that increase medical and nursing students’ interest in global health

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**Background:** The World Health Organization reported in 2013 that there is a growing shortage of healthcare workers involved in global health. Efforts to address this need will benefit from knowledge of which factors affect medical and nursing students’ level of interest in global health.

**Methods:** We submitted an online survey with 5-point Likert scale and multiple-choice responses to all medical and nursing students

enrolled at Johns Hopkins University during academic year 2013–14. Questions addressed level of interest in global health, prior global-health experiences (GHEs), and demographic information. Bivariate and multivariate logistic regression analyses were performed.

**Findings:** Of 519 respondents, 60% reported an interest in global health and 59% had at least one prior GHE. Bivariate regression found that age greater than 25 years, household income below \$100,000/yr, being female, and having prior GHE were significant for greater global-health interest. On multivariate regression, age greater than 25 years (adj. OR: 1.6, 95% CI: 1.1–3.3), household income below \$100,000 per year (adj. OR: 1.8, 95% CI: 1.2–4.3), and having prior GHE (adj. OR: 3.3, 95% CI: 1.6–8.4) remained significant. To elucidate which characteristics affect a GHE's impact on student interest, further analyses were run using only respondents with prior GHE. Bivariate and multivariate regression analyses using this subset population found that having a GHE with a research component (adjusted OR: 2.0, 95% CI: 1.1–3.6) and having more than one GHE (adjusted OR: 4.0, 95% CI: 1.0–16.3) were significant for higher interest levels.

**Interpretation:** Our findings indicate that increased age, lower household income, and at least one prior GHE are associated with increased global-health interest. Moreover, multiple GHEs and those with a research component are associated with greater global-health interest than other GHE characteristics. As such, efforts to increase the number of global-health professionals may benefit from: increasing student exposure to GHEs, incorporating research into GHEs, and targeting recruitment efforts to older or less affluent students. It is likely that students with a priori interest in global health may seek more GHEs, including research, than their counterparts. It is not possible to account for this influence or establish temporality in our study.

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### Henry ford health system global health initiative's "Research Training to Research Project Model"

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**Program/Project Purpose:** Many academic institutions in resource-limited countries consider building local research capacity a priority for health system strengthening and improved health outcomes. To address this need expressed by our collaborators, the Global Health Initiative (GHI) at Henry Ford Health System (HFHS) in Detroit implemented a "Research Training to Research Project" model. This model, part of our Medical and Research Education Exchange Program, aims to increase research knowledge and infrastructure at partner institutions, while improving international and interdisciplinary collaboration.

**Structure/Method/Design:** The model complements traditional education with research projects, allowing participants to implement lessons learned and gather relevant research data. Three-day

research workshops are taught through lectures and group activities. Students leave the workshops with increased knowledge and improved capacity to conduct research.

GHI/HFHS selected participating universities based on existing partnerships. Local faculty nominated participants. Curriculum was designed in collaboration with partners and instruction was provided by HFHS and local experts. This collaborative process contributes to local ownership and sustainability.

**Outcome & Evaluation:** We piloted this model in August 2014 with Université Quisqueya FSSA in Haiti. This first workshop highlighted research ethics and methodologies. After this training, participants conducted a healthcare utilization survey to apply their newly gained skills. We followed this successful pilot with two other workshops, one at Universidad Francisco Marroquín in Guatemala (March 2015) and one at Universidad Tecnológica del Chocó in Colombia (September 2015). These were adapted based on local interests. For instance, in Guatemala epidemiology and biostatistics were considered most needed, while in Colombia we focused on health disparities and community-based participatory research.

**Going Forward:** Challenges include:

- Difficulties with finalizing survey data collection and analysis process in Haiti.
- Limited evaluation data collection and delayed implementation of research project in Guatemala.
- Need for additional funding to implement follow-up projects and evaluate and disseminate results.

These challenges were addressed in subsequent workshops by ensuring a follow-up project was identified prior to the workshop and by providing remote assistance with data collection and analysis. Research workshops will continue to be offered in 2016 incorporating these solutions, including a "Train the Trainer" component to ensure sustainability.

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### Improving the Use of a Surgical Safety Checklist

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**Project Purpose:** The WHO Safe Surgery checklist was developed as a global quality improvement tool to improve team communication and reduce surgical complications in a variety of resource settings. A large academic hospital in Massachusetts introduced the surgical checklist in July 2014 to overcome major issues regarding patient safety in the operating room (OR). However, after 2 attempts at implementation, it failed to gain traction among staff. Our project aimed to uncover the barriers to successful implementation of the surgical safety checklist and provide recommendations for an improved implementation process.

**Methods:** We extracted data from the OR electronic record from October – December 2014, and observed OR cases. We conducted