media campaigns.Through the new virtual library configuration, the GANM will be better equipped to strengthen access to resources, knowledge, and best practices to build the capacity of the global GANM community.

**Source of Funding:** None.

**Abstract #:** *1.061_HHR*

### Teaching Global Health Nursing: The Process of Integrating Nursing Training into the Clinical Education Partnership Initiative

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**Program/Project Purpose:** Nurses make up the majority of the healthcare workforce. For this reason, the Clinical Education Partnership Initiative (CEPI) expanded its model of medical training to include University of Washington nurses, specifically graduate students in nurse practitioner, midwifery and community health nursing programs. With an eye towards education, multidisciplinary collaboration, and strong local partnership, the UW nursing/CEPI partnership has been able to better engage providers and staff of various clinical backgrounds and specialties in and around Naivasha, Kenya. This has strengthened the capacity of nurses at the Naivasha Sub-County Hospital and surrounding community and has created a uniquely sustainable introduction to global health nursing for the students from UW.

**Structure/Method/Design:** CEPI started in 2012 building off of a longstanding research partnership between the University of Nairobi (UoN) and the UW, through the Medical Education Partnership Initiative (MEPI). CEPI allows UW residents, medical students and now nurses to partner with UoN trainees and Kenyan providers at Naivasha Sub-County Hospital in clinical practice, health education and quality improvement initiatives. It has trained 2 cohorts of faculty-supervised nurses for 4-week rotations each August. Trainees have ranged from undergraduate students, to community health Master of Nursing (MN) students, to Doctorate of Nursing Practice students in midwifery and nurse practitioner programs specializing in pediatrics, adult-gerontology, family practice and mental health. In addition to the focus on building partnerships, trainees completed pre-departure activities, submitted reflective journals, facilitated continuing medical education (CME) sessions, and wrote a final report for a grade.

**Outcome & Evaluation:** Nursing trainees have facilitated 18 CME and health education trainings, participated in 2 public health programs, and initiated 5 hospital-focused quality improvement projects. They've also established lasting partnerships with Kenyan colleagues that have continued after the study abroad ended. 25% of UW nurses from the first cohort returned to work at Naivasha this year, and more are expected to in the near future.

**Going Forward:** Nursing rotations are limited to once a each year but moving forward the goal is to rotate nurses through with residents year-around. The next step is to also partner UoN graduate nursing students with UW nursing trainees.

**Source of Funding:** None.

**Abstract #:** *1.062_HHR*

### Global Child Health Curricula: A Systematic Review

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**Background:** Global child health (GCH) education is becoming an increasingly important component of paediatric training. Over the past 10 years, the number of medical programs offering GCH tracks or elective courses has significantly increased. This rising demand highlights the need for thoughtful assessment of GCH curricula.

**Methods:** A systematic review of Ovid MEDLINE and EMBASE databases concerning GCH curricula was conducted. Three search themes were used: curriculum, global health, and paediatrics.

**Findings:** A total of 416 records were identified for initial screening and of these, 28 were included in our final analyses. All GCH curricula identified were designed for one or more audiences within the medical profession, with 96% of curricula aimed at medical residents. Strikingly, we did not identify any published literature on curricula that were designed for health professionals other than physicians. Key curricular components included domestic and/or international field experiences (78% of identified curricula), followed by didactics in various topics related to GCH (48% of identified curricula), and scholarly projects (43% of identified curricula). The topics deemed important were ethics and cultural awareness (68%), diagnosis/management of common pediatric tropical diseases (64%), and global child survival/mortality and morbidity (55%). Most papers recommended teaching these topics via didactic methods (80%). Great variability was noted among the methods used to evaluate both trainees and programs. Funding and financial support was noted as a major barrier to implementing a GCH curriculum in the majority of published records (71%).

**Interpretation:** While there is some consensus among published reports, variability in curricula still exists, especially among program and trainee evaluation methods. Given the interdisciplinary nature of GCH, it is noteworthy that no peer-reviewed literature exists regarding GCH curricula designed for interdisciplinary trainees. The findings from this study will inform future educational endeavors that aim to design and evaluate a novel curriculum in GCH.

**Source of Funding:** None.

**Abstract #:** *1.063_HHR*

### 3D Printing to Repair, Modify and Create Medical Equipment in a Resource Limited Setting

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**Program/Project Purpose:** Clinicians and technicians working in low resource settings have limited technology. They must be innovative to care for a diverse patient population with a wide breadth of

Annals of Global Health, VOL. 83, NO. 1, 2017
January–February 2017: 18–58

disease. Significant limitations in hospital supply chain, budget and personnel make obtaining and repairing needed equipment challenging. We hypothesized that 3D printing technology could empower clinical care providers to design and manufacture simple, inexpensive products on-site to provide better patient care.

**Structure/Method/Design:** A commercially available 3D printer was installed at the United Mission Hospital in Tansen, Nepal. Over three months, local biomedical equipment technicians were trained in design specifications, 3D modeling, and printer operation. Product function ranged from supporting hospital infrastructure to direct patient care. As the technicians gained experience, video tutorials for the CAD software were created in Nepalese for the first time to allow training of others across the country.

**Outcome & Evaluation:** Hospital employees designed, manufactured and implemented a wide array of parts with marginal material costs ranging from USD 0.14 to 1.71. A simple push-button was produced to repair a broken pulse-oximeter. A respiratory tubing adapter was designed and installed, restoring function to a bubble CPAP system. Both technologies are currently in use in patient care. The city weather station, maintained by the hospital, was repaired by replacing the lost weather vane with a newly designed, 3D printed vane. The station now reports regional weather to weatherunderground.com. A custom fit protective case was manufactured for the only functional spirometer, protecting the USB ports from debris and damage. Finally, a custom mounting system was designed for an ultrasonic depth sensor, providing real-time assessment of the hospital's water supply.

**Going Forward:** Installation of a simple 3D printer and training in CAD software has proven beneficial in a resource limited hospital in Nepal. With a brief, dedicated training experience, local biomedical technicians learned to identify simple needs, modify and repair existing technologies, and custom design new parts. The hospital now funds its own material supplies for the printer as new projects are explored. The digitization and local manufacturing has equipped staff to innovate and improve medical care in resource-limited environments.

**Source of Funding:** Private donations; Solidworks provided a foreign license to their software.

**Abstract #:** *1.064_HHR*

### Training Trainers to Deliver Leadership Development Programs: Lessons Learned from Capacity Building in IPPFARO Learning Centers

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**Program/Project Purpose:** The USAID-funded Leadership, Management & Governance Project (LMG) trained trainers within four Learning Centers (LCs) of the International Planned Parenthood Federation Africa Regional Office (IPPFARO) to deliver the Leadership Development Program Plus (LDP+) to improve service delivery. The goal is to institutionalize the LDP+ to scale up effective interventions, increasing utilization of family planning and reproductive health (FP/RH) services in Sub-Saharan Africa.

**Structure/Method/Design:** The LDP+ supports health workers to learn and practice leadership, management, and governance (L+M+G) skills. Teams learn practical skills to overcome challenges by developing shared visions, analyzing inhibiting factors, thinking collaboratively, and planning innovative solutions, and apply these skills by implementing 5-8 month service delivery quality improvement projects. Teams use strategic problem-solving to identify a workplace challenge and its obstacles and root causes, then select specific measurable results and priority actions that can be taken to achieve the desired clinical outcomes. The LDP+ provides guidance on engaging relevant stakeholders and governing bodies to achieve scale-up.

The LDP+ training of trainers (TOT) was delivered to LCs in Uganda, Ghana, Mozambique, and Cameroon. Once trained, facilitators delivered the program with local teams, choosing a priority health challenge (primarily related to increasing the number of clients receiving FP/RH services), then developing, implementing, and evaluating action plans to improve quality of and access to facility services.

**Outcome & Evaluation:** Facilitators from three of the four countries successfully replicated the LDP+ with multiple branches of their IPPF Member Association (MA). In addition to delivering the program in 11 branches in Uganda, Reproductive Health Uganda (RHU) delivered TOTs in Tanzania and Malawi without external financial or technical support. Multiple teams met or exceeded the targets in their original action plan, selected a new challenge, and developed a new plan. Team success was quantitatively evaluated by comparing baseline and target indicators.

Program participants have strengthened capacity to overcome challenges and deliver better health services, and transferred that capacity building approach to other teams of providers.

**Going Forward:** IPPFARO is institutionalizing the LDP+ as a tool the LCs will continue providing to regional MAs, including as a financial mobilization strategy. The team-based approach is a demonstrated way to build sustainability.

**Source of Funding:** USAID/GH.

**Abstract #:** *1.065_HHR*

### State University of New York (SUNY) Global Health Institute (GHI) Virtual Grand Rounds Forum Fosters Collaboration and Innovation across the SUNY Network

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**Program/Project Purpose:** The State University of New York (SUNY) is the largest public university system in the United States. The SUNY Global Health Institute (SUNY-GHI) was formed in 2014 to provide a mechanism for global health programs at the SUNY Academic Health Centers to foster collaboration and