

and nutritional supplementation. The effect of these centers on child development outcomes are unknown.

Methods: We conducted 255 in-home surveys across eight communities in Estancia from September 2015 through February 2016. Two of the eight communities surveyed had CDH-sponsored CICD's. We collected the following information: sociodemographic including factors influencing poverty; food security using the Latin American and Caribbean Household Food Security Scale, which incorporates food availability, access, and allocation of food within the household to estimate vulnerability (ELCSA has been internally and externally validated across Latin America); dietary diversity using a 22-item food frequency questionnaire adapted to the local diet; child development using Ages and Stages (available in Spanish and validated in low and middle-income countries), and child anthropometric data (weight, length/height). Using SPSS software, we analyzed the impact of early child development centers on nutritional status and achieving age-appropriate developmental milestones.

Findings: Children attending CICD's had statistically significantly better communication scores, fine motor skills, social interaction skills, and problem solving. There was no association between attending CICD's and improved gross motor skills. Additionally, children who attended CICD's appeared to have improvement in their weight-for-age Z-scores.

Interpretation: Children who attended CICD's in Estancia, El Salvador had better nutritional status and developmental measures than those who did not attend. The dual focus of the CICD's on nutrition and early stimulation/education may provide a useful model for mitigating the effects of poverty on child development and nutritional outcomes in rural El Salvador and similar settings.

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Abstract #: 2.007_PLA

Evaluation of the Health Impact of a Water, Sanitation and Hygiene Intervention in Mugombwa Refugee Camp

M. TatabMentan¹, S. Marquez², G. Hamra³, A. Asmare⁴, N. Ugabinema⁵, B. Nsanzumuhire⁵, G. Gitau⁵; ¹Drexel University Dornsife School of Public Health, Philadelphia, PA, USA, ²Drexel University, Philadelphia, USA, ³Drexel University Dornsife School of Public Health, Philadelphia, USA, ⁴World Vision Ethiopia, Addis Ababa, Ethiopia, ⁵World Vision Rwanda, Kigali, Rwanda

Background: Globally, refugees constitute approximately 32% of “forcibly displaced” persons. Water, Sanitation, and Hygiene (WASH) interventions are of high importance in emergency situations because of the health impact of poor water, sanitation, and hygiene practices. In 1994, 42,500 deaths of Rwandese refugees in the Democratic Republic of Congo were caused by water-related parasites. Health outcomes in these situations can be improved by increasing access to clean water, adequate water supply, access to sanitation facilities and improved hygiene practices. Studies have shown that WASH interventions can decrease the incidence of diarrheal disease by 15%-50%. Currently, 70,711 refugees are in emergency situations in Rwanda. Gihembe, Kigeme, Kiziba,

Mugombwa, Mahama, and Nyabiheke are refugee camps in Rwanda where displaced persons are hosted. Presently, 8,492 refugees live in Mugombwa refugee camp. This camp has undergone a water, sanitation, and hygiene intervention organized by World Vision Rwanda. This intervention was designed to increase access to clean water, sanitation facilities and improve hygiene practices at the individual, household, community and institutional level. The purpose of this study was to evaluate the health impact of a WASH intervention in Mugombwa refugee camp in Rwanda.

Methods: This study used a mixed methods approach consisting of twenty survey questionnaires, ten key informant interviews and two focus group discussions to examine the health impact of this WASH intervention on the incidence of diarrheal disease.

Findings: Study findings indicated that all of the participants had access to clean water in the camp. Participants also reported practicing proper hygiene at critical points. Health center data showed that the overall incidence of diarrhea had decreased in the camp. Damaged water pipelines, insufficient access to soap for handwashing were identified as barriers faced by refugees living in the camp.

Interpretation: Study findings suggested that refugees living in Mugombwa have access to an improved water source, an adequate water supply, and sanitation facilities. These results also indicated that hygiene promotion initiatives have affected hygiene practices of these refugees. These findings were useful in identifying factors such as water pipeline issues, a limited supply of soap, socio-cultural norms that influence water supply, sanitation and hygiene practices of these refugees.

Source of Funding: Dornsife Global Development Scholars Program.

Abstract #: 2.008_PLA

Transforming Global Health Education with the Utilization of Simulations and Workshops

M. Mankbadi¹, A. Sterling¹, S. Du², A. Diaz¹, P. Patel¹, M. McGee¹, V. Vudatha¹, E. Wellings¹, N. Spitzer¹, B. thiel¹, J. Simms-Cendan¹; ¹UCF College of Medicine, Orlando, USA, ²UCF College of Medicine, Orlando, Florida, USA

Program/Project Purpose: Previous studies have investigated the utilization of the IFMSA (International Federation of Medical Students' Associations) model, the Latin American SOCEM (Sociedades Científicas de Estudiantes de Medicina) model, and curriculum changes as a method to addressing education on global health topics, particularly neglected tropical diseases (NTDs). However, little has been done on the integration of simulations and workshops in graduate education as a means of addressing the knowledge gap in global health education. While these issues may be encountered by students in future clinical settings they are currently rarely encountered in the United States. As such, the skills necessary for these situations are not a part of the fundamental medical education.

For the past 6 years the global health organization at UCF College of Medicine, MedPACt, has held an annual global health conference. All of these conferences have included an element of simulation education. Here, we present a variety of simulations in

a global health workshop as a means of teaching multifaceted issues of tropical diseases and health issues associated with climate change.

Structure/Method/Design: Simulation topics have historically been based on the global health principles of disease management, cultural humility, interdisciplinary collaboration, ethics, and socio-cultural issues. This case study provides insight into how the potential applications of simulations and workshops on global health issues can be widely adapted to educational programs.

Outcome & Evaluation: Feedback was obtained regarding simulations focused on NTDs. Participants reported that these simulations improved their medical knowledge of NTDs, interpersonal communication skills, critical thinking skills, and cultural humility.

Going Forward: Overall, these simulations are low-budget effective tools to supplement global health education. They can easily be adapted for use in conferences, health professional education, and patient advocacy, making them relevant for training in a wide variety of settings.

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Applying Interprofessional Global Health Principles to a Local Student-Run Free Clinic to Address the Health Care Needs in Apopka, Florida

S. Du¹, P. Patel², A. Diaz², V. Vudatha², M. Mankbadi², M. McGee², A. Sterling², F. Villanueva², E. Wellings², J. Simms-Cendan²; ¹UCF College of Medicine, Orlando, Florida, USA, ²UCF College of Medicine, Orlando, USA

Program/Project Purpose: In July 2016, the University of Central Florida College of Medicine's global health organization, MedPACT, in collaboration with the Farmworker Association of Florida initiated a local clinic for an underserved community in Apopka, Florida. Our community need assessment identified healthcare obstacles that patients faced including transportation difficulty, scheduling conflicts, and language barriers. 30.5% of patients had not seen a doctor in more than 1 year, with some reporting up to 20 years gap between doctor visits. Global health principles obtained from previous Dominican Republic (DR) medical service trips were applied to our local population.

Structure/Method/Design: 183 patients were served over two days by 120 providers, including faculty and students from UCF Colleges of Medicine, Nursing, Social Work, and Physical Therapy, UF College of Pharmacy, and volunteer physicians. The breadth of services provided included internal medicine, rheumatology, dermatology, occupational health, obstetrics, gynecology, ophthalmology, pediatrics, physical therapy, pharmacy, and social work.

An open-source health records system was adapted for Apopka, allowing users to edit forms and concepts, and implement in areas with no Internet connectivity. This allowed us to keep records of all patients and establish better continuity of care.

Outcome & Evaluation: Barriers to healthcare were strikingly similar between the DR and Apopka service trips. Both populations spoke predominantly Spanish and Creole, allowing students opportunities to confront language barriers and improve cultural humility

skills. A distinctive advantage of the local clinic is the ability to provide consistent continuity of care. In Apopka, providers were able to prescribe medications, refer patients to KNIGHTS Clinic, and provide social services which was not possible in the DR.

This interprofessional event allowed students to gain mentorship and first-hand exposure to clinical care in underserved populations as part of their professional development. Interdisciplinary teams were challenged to work together and combine their unique strengths towards addressing each patient's overall needs.

Going Forward: Sustaining this clinic on a quarterly basis will allow for a continuous network of care and utilization of social programs and establish a paradigm integrating healthcare with inter-professionalism, education, and research that can be applied to other local and global student-run free clinics.

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Traffic-related Air Pollution and Parent-reported Behavioral Problems in Low Income School Children in Quito, Ecuador

S.D. Yonts¹, K. Khan², M. Weigel³, N. Castro⁴, G. Arias⁴, E. Landuzari⁴, R. Armijos⁵; ¹School of Public Health, Bloomington, Indiana, USA, ²Indiana University, Bloomington, USA, ³Indiana University, Bloomington, Indiana, USA, ⁴Universidad San Francisco de Quito, Quito, Ecuador, ⁵Indiana University Bloomington, Bloomington, USA

Program/Project Purpose: Long-term exposures to traffic-related air pollutants are associated with chronic health conditions including cancer, cardiovascular, and respiratory outcomes as evident in epidemiological literature. Limited information from mechanistic and epidemiological studies indicate that air pollution may also affect the nervous system leading to mental and behavioral problems in vulnerable populations. We used an established cohort in the Quito Metropolitan District (QMD) consisting of children living in low, medium, and high PM_{2.5} exposure zones to explore the relationship of traffic-related air pollution with behavioral problems reported by mothers in late childhood.

Structure/Method/Design: We leveraged the infrastructure of an ongoing prospective study on air pollution and cardiorespiratory outcomes in low-income communities in Quito to recruit 174 mother-children pairs during the summer of 2016. Here we present the preliminary data gathered from mothers of low (Alangasi; n=64), medium (Cotocollao; n=60), and high (El Camal; n=50) PM_{2.5} exposure zones via interview using the Spanish-version of Child Behavior Checklist (CBCL).

Outcome & Evaluation: Children from the three exposure zones did not differ significantly on most of the sociodemographic characteristics except, children from El Camal were significantly older and had lower frequency of home ownership. Reliability analysis of the CBCL subscales indicated that both externalizing and internalizing subscales had high Cronbach's alpha values (0.84 and 0.83 respectively). Attention, social, and thought problem subscales indicated high to moderate reliability (Cronbach's alpha values 0.81, 0.66, 0.60 respectively). The internalizing behavior score was positively