Outcome and Evaluation: We reviewed the current curriculum to determine which courses would be the best fit for climate change and health education, where we noted that a freshman and a senior course had the most relevant course content. We incorporated short but relevant teaching points about climate change into these selected didactic and clinical courses. Within the first semester of implementation, all freshman nursing students and half of the senior class received one or more lectures on climate change and health.

Additionally, we piloted climate change and health as the focus for a senior-level community health course. Topics addressed in this course included climate science, effects of climate change on food systems, environmental health issues and climate change within the social determinants of health. Students worked with a non-profit that addresses climate change in Detroit, collaborating on the development of fact sheets targeted towards community members about health issues related to climate change, specifically on mold due to flooding and on heat emergencies.

Faculty development activities were also conducted. All faculty received information about climate science and health, curriculum insertion points, and resources for teaching climate change.

Going Forward: Our goals are to collect pre and post education data, as well as to develop metrics that measure climate change and health knowledge. As frontline providers for illnesses and injuries stemming from climate change, nurses must be prepared to address these increasingly common health concerns. Climate health education is relevant for nursing education globally.

Abstract #: *1.005_PLA*

Contributions of relationships to retroviral spillover risk and transmission potential in human networks in western Uganda

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Background: Although simplified representations of reality, network models in social, ecological, engineering, and medical fields have led to a number of important discoveries about the processes that underlie relational structures. In infectious disease research, networks have increasingly been applied to investigate the structure and dynamics of the relationships underlying these complex phenomena. This study uses multiple tools from social network analysis to explore the roles that social relationships play in contact events between humans and non-human primates, contact events within human populations, human retroviral infection status, and the potential transmission of infections across communities in western Uganda.

Methods: We collected survey and retroviral infection data from 720 individuals living in small agrarian communities near the forests of Kibale National Park in western Uganda from 2013 to 2014. From this data, we analyze: 1) the types of social characteristics and network properties that are predictive of human contact with non-human primates, 2) the types of social characteristics and network properties that predict human infection with retroviruses from non-human primates, and 3) the types of social characteristics and network structures that lead to human infection with HIV.

Findings: As forest cover has diminished, human and non-human primate communities have greater resource overlap and experience frequent inter-species contact events. Additionally, individuals in these communities are at a high risk for HIV infection. Both HIV infection and social network data provide an appropriate template for how a novel zoonotic infection with similar human-to-human transmission patterns as HIV would spread throughout these communities. In addition to baseline data on HIV infection status for each individual in this study, each individual was re-surveyed and re-tested 1-2 years following the baseline study to understand the rate of sero-conversion as well as the temporal nature of networks in these communities.

Interpretation: Analyzing the networks that link individuals is not only important for assessing the risk of infection with human and simian retroviruses, but is also necessary for understanding and preparing for future potential transmission scenarios of emerging retroviral infections in communities like the ones studied in rural western Uganda.

Abstract #: *1.006_PLA*

Evaluation of short-term education programs in rural southern Ethiopia

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Program/Project Purpose: Many global health trips attempt various methods of population education in an effort to eliminate health disparities with uncertain knowledge of overall efficacy. Our team set out to create an educational project focused on one specific issue that would be evaluated for long term effectiveness in order to have a better understanding of the success of our project. Our purpose was as follows: The high incidence of preventable illnesses in rural Ethiopia can be effected by student-run, short term, focused education programs. The educational team worked with community leaders and used local resources to create a sustainable education program for the community.

Structure/Method/Design: A one-week education program was enacted by UTHSCSA students in June 2015 focusing on the prevention and transmission of Trachoma. The populations included in the program were 30 members of an established "Women's Group" in the community, as well as 98 students in the 2nd, 3rd, and 4th grade at Common River (our community site). Before the program, a pre-test was administered to participants to evaluate the baseline knowledge of this preventable illness. Once the program was completed, a post-test was administered to evaluate changes in knowledge, and thereby the effectiveness of the program. All patients seen in the concurrent clinic were screened for Trachoma to help to track data on the disease in that community in future years.

Outcome and Evaluation: The overall trends in the data suggest an increase in knowledge of prevention and transmission of Trachoma from the pretest knowledge. Further testing will help to determine the long term effectiveness of the educational program (this trip occurs annually). The effectiveness of the program was increased due to well-established relationships with local community leaders and by targeting the education program to a specific patient populations.

Going Forward: The overall effectiveness of the educational project will be measured in a follow-up survey on a yearly basis. This will help us to understand the long-lasting effects of the education project and modify our projects accordingly.

Abstract #: *1.007_PLA*

Impact of chlorination of a gravity operated water distribution system on clinical incidence of diarrhea and fecal contamination in rural Honduras

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Background: The Global Health and Health Disparities Program at Virginia Commonwealth University (VCU) has a clean water project in the remote mountainous village of La Hicaca, Honduras. In 2014, chlorination of a cistern-based gravity operated water distribution system was initiated. The purpose of this study was to investigate the impact of water chlorination on the incidence of diarrheal illness and fecal bacterial contamination of the water system.

Methods: In June 2014, faucet water samples from twenty-eight cistern-supplied homes were obtained and cultures for E. Coli were performed. In June 2015, thirty-three adult residents of La Hicaca completed study questionnaires (representing 67% of all homes). Faucet water samples from 18 cistern-supplied homes were again cultured. A T test was used to compare mean numbers of bacterial colonies in samples from 2014 (pre-chlorination) and 2015 (post-chlorination).

Findings: The mean number of E. coli colonies between June 2014 and June 2015 decreased from 1,723 colonies/100 mL (SD 1,541) to 96 colonies / 100 mL (SD 179) (p = 0.0002). In 2015, two-thirds of samples contained no E. coli; whereas, E. coli contamination was universal in 2014. Eighty-two percent of residents reported fewer episodes of diarrhea in the past year and 18.2% reported diarrhea in the preceding 30 days. More than half (58%) of respondents preferred the taste of chlorinated water; a minority preferred the taste prior to chlorination (9%). Clay filter usage decreased to 44% in 2015 (previously all homes in the village used these filters). The odds ratio for not using a filter and self-reported diarrhea was 2.54 with 95% confidence limits (0.524, 12.367).

Interpretation: Chlorination of the water distribution system effectively reduced, but did not eliminate, E. coli contamination.

Ongoing diarrheal illness may be influenced by compromised integrity of the water distribution system or inadequate chlorination. The results of this study will inform our clean water efforts in the region.

Abstract #: *1.008_PLA*

Respiratory effects of charcoal and firewood on producers and urban-rural users in Katanga Province, Democratic Republic of the Congo, 2012-2015

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Background: Close to one third of the world population uses biomass or charcoal for cooking, heating, or lighting. Incomplete combustion may result in indoor air pollution if the smoke is poorly ventilated. In the Democratic Republic of the Congo, electricity and natural gas are rare and costly commodities. Many Congolese families use wood charcoal and/or firewood as their principal source of energy for cooking and heating. The process of transforming wood to charcoal is harmful to the environment and may be accompanied by adverse health effects of which producers and consumers are unaware.

The study aim was to compare the respiratory health of groups of people potentially exposed to pollutants derived from wood charcoal and smoke during production, handling, or use, by place of residence (urban or rural) and using current screening tools (spirometry, oximetry, fine particle capture, CO measurement).

Methods: This was an analytic cross-sectional study carried out in in the city of Lubumbashi and its environs. Included were 300 women − 120 urban and 120 rural users of charcoal and 60 urban non-users — and 100 males − 50 charcoal producers and 50 market farmers. The University of Lubumbashi Medical Ethics Committee approved the protocol, and participants gave written informed consent.

Findings: Preliminary results of a pilot study indicated that the percentage of pulmonary disturbance in female users in the urban setting was 73%, while that of female users in the rural setting was 57%, for a risk difference of 16.6 % (95% CI 7.2, 40.4). Of note is that there were a large number of respiratory complaints and poorer lung function tests (FEV1, FVC) in those exposed than in those unexposed or weakly exposed.

Spirometric and biological (urine and sputum) data, suspended fine particles, slow vital capacity, and the data relating to the 6-minute walk test for the full study sample, as well as the concentrations of carbon monoxide, are currently undergoing analysis and will be reported at the time of presentation.

Interpretation: Findings from this study will provide estimates of disease burden and guide development of interventions to mitigate harm in the affected groups.

Abstract #: *1.009_PLA*

Comparision of four and six color multiparametric flow cytometry panels to diagnose pediatric leukemias

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