

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.

Funding: UTHSCSA Center for Medical Humanities and Ethics, UTHSCSA Office of Undergraduate Medical Education.

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.

Funding: None.

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 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

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

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Background: Even with improvement in current chemotherapy regimens, acute leukemia remains an alarming problem and the second leading cause of death in children. Flow cytometry plays a vital role in the diagnosis and detection of this disease. At Texas Children's Cancer and Hematology Centers (TXCH), a multiparametric flow cytometry approach using six color panel and 33 basic antibodies is used for the diagnosis and follow-up of pediatric leukemias.

Objective: We investigated if the six-color 33 antibody panel may be reduced to a four color 18 antibody panel without compromising diagnostic potential of pediatric leukemias. Such a reduced panel may be cost effective and better for leukemia/lymphoma diagnosis in developing countries.

Design: Retrospective analysis of thirty cases was independently performed by three clinicians. The immunophenotypic expression of the 18 antibodies selected for the reduced panel was employed for diagnosis. The cases used for this study consisted of 11 patients previously diagnosed with pediatric B cell-acute lymphocytic leukemia (B-ALL), nine with T cell-ALL, and ten with acute myeloid leukemias (AML) using the 33 antibody panel.

Results: The diagnosis of both B- and T-ALL cases by using the 18 antibody panel matched with the previous diagnosis. While 50% of the myeloid cases were diagnosed as AML using the 18 antibody panel by all three clinicians, the remaining 50% cases were grouped mostly as T-ALL.

Conclusion: This study shows that pediatric B- and T-ALL can be diagnosed with the limited 18 antibody panel. However, immunophenotypic aberrancies of pediatric AML pose a challenge with the limited panel. Inclusion of intracytoplasmic staining should improve AML diagnosis.

Abstract #: 1.010_PLA

Public Health and malaria in Benin's lake areas: why does intermittent preventive treatment (IPTp) stagger?

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Background: Malaria is the leading cause for medical consultations (43% among the general population; 48% among children under five years), hospitalization (27% among general population; 48% among children under five years) in Benin (INSAE 2013: 170). Benin is a malaria endemic region. A lakeside area in Southern Benin where houses are built on water is a high malaria transmission area, where pregnant women are at particular risk. Malaria is associated with maternal anemia and low birth weight, high risk factors for perinatal death, morbidity and mortality. According to the World Bank, 37% of Benin's population lives below the poverty line with a per capita

annual income of only \$750; households spend approximately one quarter of their annual income on the prevention and treatment of malaria (World Bank 2014). The WHO preventive strategy comprises monthly administration of IPTp during antenatal consultations from the second trimester of pregnancy up to delivery (WHO 2014). While Benin's Demographic and Health Survey indicates antenatal clinic attendance is 87%, only 27% of pregnant women had at least one dose of IPTp (INSAE, 2013: 125). Although the Benin government makes IPTp free, women incur a user fee for antenatal consultation which is the only means to access IPTp. Decision-makers in Benin assume user fees promote efficiency and do not affect women's antenatal consultation attendance, believing populations understand the risk associated with pregnancy and make antenatal consultation a priority. The objective of our research was to determine the accuracy of these assumptions and their effect on public health care.

Methods: A unique set of key informant interviews with government decision-makers, pregnant women and in-depth direct observations in hospitals in Benin's lake region were conducted from June to August 2015.

Findings: The assumptions concerning user fees are misplaced and shed light on the distortions between public health policies and their representations of pregnancy and malaria in pregnancy. The findings also clarify the unintended effects of user fee policies on the uptake of IPTp in Benin's lake areas.

Interpretation: Interviews were transcribed and analyzed through content analysis.

Funding: York Incentive Grant, Faculty of Health (York University).

Abstract #: 1.011_PLA

Clean cookstoves and pneumonia prevention: A mathematical model to investigate the relationship between coverage and efficacy

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Background: Pneumonias remain one of most significant causes of mortality and morbidity in young children worldwide. In recent years, the prospects for preventing pneumonias have markedly improved, partly owing to a renewed focus from the global health community to encourage cleaner burning stoves and fuels. Several lines of evidence, considered in concert, suggests that the efficacy of these interventions may well be determined not only by household-level use but also community-level coverage. Thus far, relatively few efforts have sought to characterize such an association. This project develops a mathematical model to analyze the theorized relationship between coverage and efficacy for liquid petroleum gas (LPG) as a cooking fuel and the prevention of pneumonias in young children.

Methods: The mathematical model employs a modified mass balance approach to simulate concentrations of airborne fine particulate matter (PM_{2.5}). Indoor and outdoor concentrations are a function of a household's use of either biomass or LPG, as well as the mix of both stove types in the community. LPG coverage is modelled from 0% (the counterfactual) to 100%. Computer