

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.

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

J.A. Cook¹, D.T. Olson², S.W. Jennings³, K.M. Kelly³, L.N. Potter³, K. Sanogo¹, N.C. Warner¹, G. Bearman¹, M.P. Stevens¹; ¹VCU Health, Virginia Commonwealth University, Richmond, Virginia, USA, ²Virginia Commonwealth University School of Medicine, Richmond, Virginia, USA, ³Virginia Commonwealth University School of Engineering, Richmond, Virginia, USA

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.

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

Lambert longombe¹, Celestin Banza¹, Karen Cowgill², Ben Nemery³; ¹University of Lubumbashi School of Public Health, Lubumbashi, DRC, ²Seattle University, Seattle, WA, USA, ³Catholic University of Leuven

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.

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

Michael Cabbage¹, Kenneth McClain², Michele Redell², Judith Margolin³, Reshma Kulkarni⁴, Tatiana Goltsova⁴,