

interest in learning improved storage (47.1%) and disposal (49.3%) techniques. Variation in responses shows that education on what can be a poison and on improved storage habits may be important future research topics tied to new policies and interventions as part of the BCCDP.

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Abstract #: 02SEDH018

Assessment of diarrheal rates in a population of children in the Indian Himalayas: A student initiative

A.A. Kim, T. Wu; *University of British Columbia, Vancouver, BC/CA*

Background: The Spiti Valley is a highly underserved isolated desert mountain valley in the Indian Himalayas. Following a needs assessment identifying gastrointestinal diseases as a major health concern, sustainable programs were implemented at a local boarding school (Munsel-Ling School) in 2006 by the University of British Columbia (UBC), however, the long term impact of sanitation interventions in the community have not been rigorously addressed. This study evaluated the effectiveness of health education by assessing diarrheal rates, handwashing practices, and helminths infections by comparing it to data collected in 2011.

Methods: This cross-sectional study was conducted at Munsel-Ling School in India. Students 6-18 years of age at the school were recruited if they were participating in the annual health screens. Students who did not meet the aforementioned criteria were excluded. Students were also excluded if language barriers were present. 258 students completed a standardized survey that evaluated hand washing practices, helminthic infections and drinking water sources (independent variables). The survey also included the modified Bristol Stool Scale for Children to identify children with diarrhea and dysentery (dependent variables). The analysis divided students into 3 cohorts (grades 3-5, 6-8, and 9-10) and a univariate logistic regression was performed. Ethics approval was granted by the UBC Behavioural Research Ethics Board (BREB) [certificate number: H14-00823]. Written assent was obtained from both the student and principal if the participant was under the age of 14. Written consent was obtained from students 14 years and older before the survey was administered.

Findings: 51.9% of students reported episodes of diarrhea within the past 14 days using the modified Bristol Stool Scale for Children and WHO definitions and 17.4% reported dysentery. Predictive factors include age, cohort, and unsafe water sources. The oldest cohorts experienced significantly less diseases, with diarrheal and dysentery risk decreasing 11.8% and 8.9% for every year increase in age, respectively. Students who drank unsafe water had a 65% and 138% increased risk of diarrhea and dysentery. Handwashing before meals and toileting decreased diarrheal diseases risk by 78.3% but is not predictive for dysentery. Additionally, helminth infections were reported amongst 8.9% of the students. Diarrheal rates assessed amongst 126 students in 2011 reported 46.6% and 42.7% prevalence within the past 7 and 30 days respectively, and helminthes infections at 22.5%. Children are at an increased risk of malnutrition with diarrhea in many developing countries. It is anticipated that Munsel-Ling school will continue to deliver education surrounding good hygiene behaviour. Finally, the annual preventative anti-helminth treatment was shown to be beneficial in reducing the rates of self-reported helminth infections.

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Abstract #: 02SEDH019

The association between sexual behavior and disclosure of HIV test results in Central Kenya

C. Kingori¹, G. Mugoya², P. Ngatia³; ¹Ohio University, Athens, OH/US, ²The University of Alabama, Tuscaloosa, AL/US, ³African Medical and Research Foundation (AMREF), Nairobi, KE

Background: Globally, there are 35 million people presently living with human immunodeficiency virus (HIV). Young adults below 25 years disproportionately account for almost 50 percent of all new infections. Although overall HIV testing has increased, a majority of those tested are unaware of their serostatus, which may lead to transmission of HIV virus to unknowing sexual partners. This paper examines the association between sexual behavior and disclosure of HIV test results, in a rural setting in Central Kenya (Othaya constituency). Sexual behavior is conceptualized as condom use, number of sexual partners and relationship status.

Methods: 302 eligible participants were recruited for a cross-sectional study approved by the Ohio University's Institutional Review Board and the African Medical Research Foundation's (AMREF) Ethics and Scientific Review Committee in Kenya. Eligibility requirements included: 18 years and above, male or female, diverse ethnic and socioeconomic backgrounds and ability to understand English or Kikuyu (local dialect). Sampling of different clusters from six sub-locations in Othaya was undertaken. Each eligible person was explained the informed consent process and then administered the survey in private after the informed consent was signed. Descriptive statistics and logistic analyses were conducted to examine the association among study variables.

Findings: In the unadjusted analysis, among women (compared to those who had not had a sexual encounter in the past 30 days) who practiced safe sexual behavior, they were 10.13 times more likely to share their HIV test results ($p < 0.001$), while the association was not statistically significant for those practicing unsafe sexual behaviors. The association remained the same and became stronger for those practicing safe sexual behaviors when adjusted for possible confounders (OR= 12.03; $p < 0.001$). Among men, in the unadjusted analysis, those who practiced unsafe sexual behaviors were 7.95 times more likely to share their HIV test results ($p=0.02$), while the association was not statistically significant for those practicing safe sexual behaviors. A similar but stronger association was observed in the adjusted analyses for those practicing unsafe sexual behaviors (OR=38.76, $p < 0.001$) and not significant for those practicing safe sexual behaviors.

Interpretation: Based on the findings, a concentrated effort is needed focusing on men in that region to encourage safe sexual behaviors and minimize HIV transmission. Previous interventions have focused on females who readily receive HIV prevention information and services via Prevention-of-Mother-to-Child-Transmission programs and during prenatal and antenatal clinical visits. More needs to be done to increase male involvement in HIV testing and counseling programs to enhance safe sexual behavior, HIV testing and disclosure of results.

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Abstract #: 02SEDH020

Cultural norms, knowledge and attitudes regarding abortion in rural Ghana

T.R. Klc¹, S. Ames², D. Ansong³, O. Asibey³, S. Benson², T.T. Dickerson¹; ¹University of Utah School of Medicine, Salt Lake City, UT/US, ²University of Utah, Salt Lake City, UT/US, ³Kwame Nkrumah University of Science and Technology, Kumasi, GH

Background: In Ghana, maternal mortality is the second largest cause of female death, with induced abortion accounting for more than 1 in 10 maternal deaths. There is still an unmet need for family planning and maternal health services in Ghana. The aim was to qualitatively investigate knowledge of family planning services in conjunction with cultural norms, practices, and attitudes toward abortion in rural Ghana.

Methods: Community-based, cross-sectional qualitative study utilizing convenience sampling of women and men in the Barakese sub-district in rural Ghana. A focus group discussion was conducted to assess community healthcare workers' experiences with abortion. Semi-structured questionnaires were administered, coded, and assessed for relevant themes. Written informed consent was obtained. Approval obtained via the KNUST-KATH Committee on Human Research, Publication and Ethics and the University of Utah IRB.

Findings: 102 interviews were conducted: 56 women and 46 men between the ages of 18-75 were interviewed. Almost every woman (55) interviewed had been pregnant. Almost all reported some knowledge of family planning but felt there were several risks associated with family planning. Community health workers cited amenorrhea and perceived infertility as the most common reasons women stop using family planning. "The drugs made me have rapid heart rates, chest pains, and it was difficult to get pregnant. I was afraid that I wouldn't be able to have children again." Of the women interviewed, 21% reported having had an abortion. The main reasons cited for aborting were financial concerns (5) or young children at home (3). Of the women who had an abortion, two-thirds reported being unable to plan their pregnancy for reasons including ignorance to family planning methods and risks associated with family planning. These women (7) also felt that the best method of family planning was using the menstrual cycle. "It is best to only have enough children that you can give your best to." Among members in the community, 86% reported knowing someone who had an abortion. Most women induced an illness by various methods and then went to the hospital where a dilation and curettage would be performed for maternal indications. Overall, interviewees felt that abortion was wrong, but recognized that it was occurring in their community and that they would not treat a woman differently for having had an abortion. "We can likely reduce it, but we won't be able to eliminate it. Once they have in their mind that it is unwanted, they will do anything to stop it."

Interpretation: There is a significant knowledge gap between benefits and risks of birth control, prompting most women to avoid using it, leading to increased unplanned pregnancy and increased rates of unsafe abortion.

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Abstract #: 02SEDH021

Role of hands in diarrheal pathogen transmission in a threshold country

A. Kundu, University of California, Davis, Santa Clara, CA/US

Background: There is growing evidence supporting the role of dirty hands in microbiological contamination of drinking water during collection, transport, and storage. The impact of quantitatively evaluating microbial contamination on hands is important not only because hands are considered important vectors of diarrheal pathogen transmission, but have also been associated with stored water quality within the households. The present study was undertaken to investigate a quantitative relationship between fecal contamination on hands and in stored drinking water in semi-urban areas of Delhi, India.

Methods: To assess these associations, an investigation was conducted to enumerate the bacterial loads in terms of *Escherichia coli* on hands of mothers and children under five years old, in stored household water from 152 households, and in source water from peri-urban areas of National Capital Territory (NCT), Delhi. Data were also collected in the form of personal interviews from the mother of the children under 5 years old at each household in this observational study. In addition, samples from drinking water sources were also collected for the comparison with stored household drinking water samples. The Institutional Review Board of the University of California, Davis (UCD), approved the study protocol.

Findings: Fecal contamination on respondents' hands was found to be positively associated with fecal contamination in the stored drinking water ($p < 0.0001$). The levels of *E. coli* on respondents' hands were significantly associated with the prevalence of gastrointestinal symptoms within the households ($p < 0.05$). We found that presence of animals in the house was a significant risk factor associated with the higher bacterial levels found on the hand-rinse samples of the respondents ($p < 0.05$). It showed that living with domestic animals may pose a zoonotic transmission pathway for diarrheal disease pathogens, and that risk mitigation strategies could be beneficial to reduce the diarrheal disease burden from poultry and livestock exposure in the households.

Interpretation: The main limitation of the study was that diarrheal health outcomes, management practices, and hygiene behavior used in the models were self-reported by the respondents and may introduce bias and inaccuracy in the estimates. An effective point of use water treatment can help in reducing water-borne illnesses in developing countries. Our study has shown that hands may play a vital role and hence, future work should look into hands as an important role in disease transmission. Interventions could be targeted in terms of educational programs in schools and efficient hand-hygiene improvement programs at community levels to reduce the fecal contamination on hands. It is very important to conduct an interventional study to see the effects of hand-washing after getting an input from the community regarding interventions.

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Abstract #: 02SEDH022

Childhood lead exposure in a Vietnamese battery recycling village

M. Kushwaha¹, D. Havens¹, L. Tung², G. Croteau¹, C. Karr¹, W. Daniell¹, N. Diep²; ¹University of Washington, Seattle, WA/US, ²National Institute of Occupational and Environmental Health (NIOEH), Hanoi, Vietnam, Hanoi, VN

Background: Battery recycling and manufacturing are major sources of occupational exposure to lead. Residents of Dong Mai village in northern Vietnam have been involved in battery recycling since the 1970s. To address pervasive lead contamination a remediation plan was developed by Blacksmith Institute in collaboration with Vietnamese national and local authorities. This is an ongoing study with the primary aim of determining changes in child lead exposures after lead remediation activities and a secondary aim of identifying risk factors for childhood lead exposure.

Methods: All children in the village 6 years of age and younger were eligible and invited to participate in the study. No children were excluded. A total of 250 children participated in baseline measurements in December 2013; 209 of the 250 children participated in follow-up assessment in September 2014. Written informed consent was