Drivers of child feces disposal, food hygiene, and child mouthing behaviors were identified using the Integrated Behavioral Model for Water, Sanitation and Hygiene framework. Self efficacy, existing habits, perceived disease risk, and availability of child potties were drivers of child feces disposal behaviors. Gender roles, hot and cold weather, access to soap, fly covers, and gas supply, perceptions that storing food in a food rack was sufficient to keep food safe, and availability of a refrigerator were drivers of food hygiene behaviors. Caregivers said children always play outside and that it is difficult to control what they put in their mouth during play. Descriptive norms around child mouthing behaviors, lack of adequate support for supervision, lack of clean play spaces, and elders perceiving that eating soil was good for child health were drivers of child mouthing behavior. Mobile messages were developed targeting "System 1" drivers (relatively automatic, cue-driven drivers) of behavior change to leverage context changes, highlight descriptive norms around key behaviors, piggy back on to existing behaviors, and manage availability of enabling technology. Dr. Chobi, the sender of program messages, was well received and considered a credible source of health information. This study presents a theory and evidence-based approach for intervention development that can be implemented for the development of future Baby WASH mHealth programs in low-resource settings.

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A LONGITUDINAL STUDY OF CHRONIC LEAD EXPOSURE IN BENINESE CHILDREN

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Lead is a well-known neurotoxic metal. Children are particularly vulnerable to its adverse neurocognitive effects. Within a birth cohort, elevated Blood Lead Levels (BLL) (>50 μg /L) were observed in one-year-old infants in Benin in 2011-13. Sources of exposure included the presence of paint chips in the house and consumption of animals killed by lead bullets. We aimed to investigate lead exposure in the same children at six years of age in 2016-18. 424 children with BLL at one year of age and reassessed at six years of age were included in the analysis. Blood samples were drawn and analyzed by inductively coupled plasma mass spectrometry. The study took place in the district of Allada, Benin. We estimated geometric mean BLL. Using the Wilcoxon rank-sum test BLL between boys and girls are compared. The proportion of children with BLL above 50 μg/L and above 100 μg/L are described and compared at both periods. Among 424 children (208 boys and 215 girls), the geometric mean BLL in children was 56.5 μg/L (95% CI: 53.5-59.7) at one year of age, and 56.3 μg/L (95% CI: 53.9 - 58.6) at six years of age. The distribution of BLL between boys and girls was not statistically different at any given age. The proportions of children with BLL >50 μg/L at one and at six years of age were not statistically different (55.0% versus 59.7%, respectively; McNemar's p=0.1183). However, the proportion of children with BLL >100 μg/L was higher at one year of age than at six years of age (14.2% versus 8.3%, respectively; McNemar's p=0.002). Children continue to suffer from elevated BLL and thus constitute an important public health problem in this population of children, and deserves preventive strategies. Sources of exposure may evolve and merits further investigation.

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IDENTIFICATION OF COCCIDIAN ISOLATES PATHOGENIC TO HUMANS IN SOURCES OF POTABLE WATER IN CAPE COAST METROPOLIS, GHANA

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Water is a necessity of life. However, millions of humans die annually as a result of waterborne diseases, with 88% associated with unsafe water supply, poor sanitation, and lack of good hygienic practices. Possible contaminants making drinking water unsafe include microorganisms, chemicals and sewage. Most of the microorganisms that are present in water sources are a result of fecal matter contamination from sewage discharges, runoffs from animal lots as well as seepages from septic tanks. The aim of this study is to detect human-pathogenic coccidians, namely *Microsporidia*, *Cryptosporidia* and *Cyclospora*, in various potable water in Cape Coast Metropolitan District, in Ghana. A total of 100 samples from different sources of drinking water were sampled within the Cape Coast Metropolis for the detection of human-pathogenic coccidian taxa, including well water, pipe-borne water, boreholes, streams, underground water and harvested rain water. Each sample was initially stained with modified Zeihl-Neelsen stain and observed microscopically. Total genomic DNA of the various water samples have been extracted using the Ezup Column Blood Genomic DNA Extraction Kit in preparation of PCR-based taxonomic validation. Microscopy analysis revealed that about 60% of the samples collected were contaminated with microorganisms. The breakdown among coccidians was as follows; 23% *Microsporidium*; 13% *Cryptosporidium* and 11% *Cyclospora* oocysts. Other parasites of medical importance included *Sarcocystis*, present in 3% of the samples. These preliminary data obtained thus far suggest that water consumed by the majority of the Cape Coast population is contaminated with parasites and may be the predominant cause of diarrheal cases in the metropolis as well as of other asymptomatic infections. The study is to be expanded to PCR amplification and sequencing of the 18S rDNA and other *loci* and phylogenetic analysis.

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IDENTIFYING BARRIERS TO ADOPTION OF HOUSEHOLD DISINFECTION KITS FOR ENVIRONMENTAL INFECTION CONTROL OF CHOLERA TRANSMISSION

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Cholera is a disease resulting from infection by *Vibrio cholerae* that can cause death from dehydration if untreated. Environmental infection control interventions are key to interrupting within household cholera transmission in outbreaks and two approaches for household disinfection (HD) currently exist: 1) household spraying (HS), where a dedicated team sprays patients' households with chlorine; and, 2) distribution of household disinfection kits (HDK), which contain cleaning materials so that household members can perform disinfection themselves. Despite the fact that international agencies no longer recommend HS, this intervention remains widely implemented. Therefore the main objectives of this research are: 1) To identify the barriers for adopting HDKs by interviewing 15 key-informant responders on the decision-making and implementation of HD Interventions in their organization; 2) to assess the training of beneficiaries to use HDKs, an identified barrier to adopting HDKs; and, 3) to inform the ongoing discussion on HD interventions. To date, 10 of 15 planned key-informant interviews (KII) have taken place and whereas participants indicated many barriers that make the implementation of HDK difficult (e.g. context adaptability, uncertainty of the method, etc.), one commonly cited barrier was beneficiary training to educate households on how to utilize the kit appropriately. Trainings should be effective to prevent cholera but logistically feasible and therefore a trade-off between a fast, inexpensive and easy-to-implement training and an effective hands-on training should be considered. To assess the effectiveness of these two training modalities, we are planning a trial in Haiti in Summer 2019. Study personnel will visit households and conduct (before and after clean with HDK) household surveys and environmental sampling for *E. coli*on

Ahmadi S., Zoumenou R., Le Bot B., Durand S., Fievet Nadine, Ayotte P., Massougbodji A., Cot Michel, Glorennec P., Bodeau-Livinec F.

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