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| MSPH internships, Diarrhea burden in older adults in Africa study: BSPH, IH |
| Body | ​**Diarrhea burden in older adults in Africa.**Several studies have examined the burden of diarrheal diseases in children < 5 years in Africa and Asia, most notably the GEMS project which identified rotavirus and *Shigella spp.* as major pathogens.[1]  There is little data however on the role of these or other enteric pathogens on disease burden among persons older than 5 years of age in these settings. Data from these subjects are difficult to obtain because they often live in remote areas, and in areas where laboratory facilities are limited. In our prior Cameroon studies, we employed the use of filter paper for stool specimen collection and preservation.  The studies took place in the Far North Region, based in Kousseri, a city across the Logone River from N'Djamena, Chad. The area is in the Sahel with many migratory people and is adjacent to Lake Chad.  The second study site is in the Littoral Region, based in Douala, a large port city with a large estuary.  Collection of filter paper stool specimen collection from patients in Cameroon offered a unique opportunity to understand the burden of shigellosis and other pathogens affecting persons > 5 years of age.[2]We have received funding to expand our surveillance efforts, building upon our existing study efforts in Cameroon, to include surveillance for adult diarrhea in all age ranges. Since 2020, we have been enrolling one age-matched, non-diarrhea patient control per case in our cholera and dysentery surveillance in Cameroon. We will conduct a prospective case control study in two regions of Cameroon, the Far North and the Littoral Region, to identify the model-derived Cq cut-off values for the detection of adult diarrhea-associated pathogens. These odds ratios are critical for determining the age-specific cycle threshold (ct) cutoff and to improve the IHME burden estimates, which currently rely on GEMS pediatric odds ratios (ORs). These may be high for older adults, resulting in an over-estimate of pathogen-attributed diarrheal deaths in older adults. IHME has also estimated a substantial burden for shigella, rotavirus and norovirus in older adults. The results can be rapidly shared with IHME to inform their model estimates.The primary outputs from this work will include 1) identifying model-derived Quantitative Cq cut-offs for adult diarrheal pathogens, including shigellosis and rotavirus, (and other etiologic agents) through prospective case-control study; 2) Basical epidemiological data in preparation for Shigella vaccine trials; 3) Improved burden of disease estimates for Shigella, Rotavirus, norovirus and other pathogens, by age, in two regions of Cameroon. We anticipate working with a student who will travel to Cameroon in summer 2023. Our expanded adult diarrheal study will begin enrollment in the Spring of 2023. Hopkins team members have worked closely to establish the lab capacity at this site for Shigella culture and whole stool storage. Team member(s) from JHU will travel to Cameroon for study initiation training and kick off in March 2023. The Johns Hopkins student selected will travel to Cameroon with other members of our JHU team in June. The team will work with the study team in Cameroon to ensure 1) enrollment is progressing in all age groups, particularly the elderly (>50 and in particular, ?70 years of age), 2) will aid in sample processing, and particularly, shipment to JHU and 3) Data management and analysis in concert with Dr. Debes and our TBD project manager.We are looking for a student who is available to start as soon as possible so they can spend some time in our laboratory to understand the study and facilitate troubleshooting if needed while in country. While this position will focus more on the surveillance and data management, given there is a large lab component, we want to ensure the student can help if and when issues arise. We hope to identify a student who can work with our team now under work study and prepare for the June trip. The student would travel in Summer of 2023 with study team members. We are asking for a commitment of a minimum of 10-16 weeks in-country but are open and encouraging of students who wish to spend more time working on our study.**\*Interested candidates should contact Amanda Debes at****adebes1@jhu.edu****.**1.            Liu, J., et al., *Use of quantitative molecular diagnostic methods to identify causes of diarrhoea in children: a reanalysis of the GEMS case-control study.* Lancet, 2016. **388**(10051): p. 1291-301.2.            Debes, A.K., et al., *Characterization of Enteric Disease in Children by Use of a Low-Cost Specimen Preservation Method.* J Clin Microbiol, 2021. **59**(12): p. e0170321. |