Exposing Schistosomiasis Research in a High Prevalence Setting – Kisumu, Kenya

Rebecca Gwaltney

Introduction
• Schistosomiasis is a chronic neglected tropical disease, caused by trematode parasites of the genus Schistosoma.  
  • It is a major global health concern – at least 200 million people are affected and 600 million people are at risk worldwide.  
  • Schistosomiasis is a disease of poverty that disproportionately affects children in sub-Saharan Africa – disabling symptoms of infection include anemia, malnutrition, stunted growth, and impaired cognitive development.
• Schistosomiasis is widespread around Lake Victoria in western Kenya – over 9 million people are at risk in 56 districts.
• The Kenya Medical Research Institute/Centers for Disease Control (KEMRI/CDC) Neglected Tropical Disease Branch has a number of ongoing studies addressing this major public health issue in western Kenya.

Objectives
To observe the ongoing research studies at the Kenya Medical Research Institute/Centers for Disease Control (KEMRI/CDC) Neglected Tropical Disease Branch relating to schistosomiasis.
To increase my understanding of schistosomiasis in a high prevalence setting, from the perspectives of research, clinical practice, and public health.
To develop a lasting network of contacts within the schistosomiasis research community at KEMRI/CDC.

Field Work and Sample Collection
Several KEMRI/CDC studies require the collection of samples in the field – including urine, stool, and blood.
Other data collected for studies includes anthropometric measurements, physical exam for hepatosplenomegaly, ultrasound imaging, and household hygiene questionnaires.

Parasitology Studies
Stool samples are prepared and examined in the KEMRI/CDC Parasitology lab, using the Kato-Katz method.
Light microscopy reveals the presence or absence of schistosome eggs in the feces. Egg count is used as a proxy for intensity of infection.

Immunology Studies
Blood samples are processed in the Immunology and Flow Cytometry labs for a variety of experiments.
In one study, schistosome antigens are introduced to the blood samples and then cultured for observation of the immunological response to the parasite antigens.

Conclusion
Throughout my experiences observing each of these research groups and engaging with these communities, my understanding of schistosomiasis in a high prevalence setting was dramatically increased.
I learned many laboratory techniques, qualitative measures of assessing the burden of schistosomiasis, and study designs. I also developed relationships with the schistosomiasis research community at KEMRI/CDC, which I hope to draw upon in the future.

Acknowledgements
• University of Massachusetts Medical School (UMMS) – Global Health Pathway
• Kenya Medical Research Institute/Centers for Disease Control (KEMRI/CDC) Neglected Tropical Disease Branch
• Dr. Ann Moormann – UMMS
• Dr. Michael Chin – UMMS
• Dr. Maurice Odiere – KEMRI/CDC
• Dr. John Michael Ong’echea – KEMRI/CDC

References