

## Previously Funded Graduate Student Research Project Abstracts (2013)

### Leveraging evidence based system-related strategies to improve medication safety in Ethiopian emergency departments



**Ephrem A. Aboneh**, Graduate Student in Social & Administrative Sciences, School of Pharmacy

**Mentor:** Michelle A. Chui, PharmD, PhD, Assistant Professor, Social & Administrative Sciences in the School of Pharmacy

**Abstract:** Background: Multiple system-related hazards exist in hospital emergency departments that are associated with increased risk of medication errors. Hospitals in the US and other developed countries have successfully implemented strategies that may be leveraged to support patient safety in hospitals in developing countries. Objectives: To identify hazards, strategies, and recommendations to improve medication safety at Black Lion Hospital in Ethiopia. Methods: Extensive literature review, observation and two sets of interviews, guided by the SEIPS Model, will be employed at the Black Lion Hospital in Ethiopia. Data will be collected and analyzed using rigorous qualitative methods in order to develop a set of recommendations.

### Risk of environmental exposure to emerging bat viruses in Uganda



**Andrew J. Bennett**, Ph.D. Student, Comparative Biomedical Sciences

**Mentor:** Tony L. Goldberg, Ph.D., D.V.M., MS, Professor of Epidemiology, School of Veterinary Medicine

**Abstract:** Emerging infectious diseases pose serious threats to public health, and efforts to conserve global biodiversity alike. Many emerging viral pathogens have their origins in the Pteropid fruit bats of the Old World, but direct transmission from bats to people remains rare. Human outbreaks of the Filoviruses, Ebola and Marburg, are often linked to contact with wildlife that have become infected through poorly understood natural associations with the Pteropid bats that serve as viral reservoirs. A likely source of recent outbreaks of viral hemorrhagic fever in great apes is

environmental contamination of shared food sources by infected bats shedding virus in urine, feces, or saliva at fruiting fig trees (*Ficus* spp.). I will examine the potential for environmental transmission of RNA viruses from the Pteropid bats of Kibale National Park, Uganda, to a well-studied chimpanzee troupe, through non-invasive sampling of bat saliva deposited on the forest floor in discrete ‘wadges’ of macerated fruit pulp and saliva. This would be a new direction for UW-Madison’s Global Health community, addressing the harrowing rise in viral hemorrhagic fever incidence in Uganda, with the Global Health Institute’s philosophy that animal and human health are irrevocably linked. This project would develop an entirely new method for observing the upstream mechanisms of viral transmission from bats to people, expand UW-Madison’s global health presence in rural Uganda, and promote a new, non-lethal bat surveillance strategy to monitor emerging viral threats to Uganda’s people and wildlife, exemplifying the Global Health Institute’s vision for ‘One Health,’ through the preservation of human and animal life.

### **Application of feminist intersectional approach to health behavior change model: interdisciplinary theoretical integration**



**Yangsun Hong**, Ph.D. student, School of Journalism & Mass Communication

**Mentor:** Shawnika Hull, MA, Ph.D., Assistant Professor, School of Journalism and Mass Communication

**Abstract:** This study attempts to apply the Intersectional theory from women’s studies to the Integrated model of HIV prevention behavior change from health communication field. The theoretical and empirical integration will be beneficial for both models. First, it includes the social and contextual structures and limitations in health communication model that may be strongly related to adoption of health behavior, but many healthcommunication models have less considered. This study explores whether the effects of intersection of identities (e.g., Race \* Gender \* Income) can also be captured by psychological predictors (attitudes, perceived norms, and self-efficacy) of the integrated model, and whether the intersectional effects influence behavior in ways consistent with the theoretical model (i.e. mediated through the predictors). Although intersectional research has focused on predicting the inequalities of health status across populations such as HIV status based on the perspective of public health, I would argue that intersectional effects also explain the differences of adoption of preventive behaviors such as HIV testing with the lens of public campaign.

## Effects of friend networks on sexual debut among secondary school students in Malawi



**Jinho Kim**, Ph.D. student, Department of Sociology; Center for Demography and Ecology

**Mentor:** Monica Grant, Ms.C., Ph.D., Assistant Professor, Department of Sociology

**Abstract:** In 2003, the concept of combination prevention approach was initially introduced as a strategy to combine evidence-based, mutually reinforcing biomedical, behavioral, and structural interventions, and since then, much attention has been paid to this approach. Despite such attention and interest, little is known about the effects of combined HIV/AIDS

prevention efforts. In response to the urgent need for rigorous study on the effectiveness of the combination approach, a research project was initiated by Africa Future Foundation in partnership with Daeyang Luke Hospital in Malawi and Korea International Cooperation Agency (KOICA). This project focuses on examining the combined effects of three different HIV/AIDS prevention strategies (i.e. HIV/AIDS education, male circumcision, and conditional cash transfer) among secondary school students in Malawi. This research setting provides unique opportunities to examine adolescents' sexual norms, behaviors, and networks in school context. Examining school context is tremendously important because the high HIV prevalence rates in sub-Saharan Africa including Malawi appear to be closely linked to the majority of teenagers experiencing early sexual debut. Among many dimensions of school context, my focus lies on the role of friend networks in influencing students' sexual behaviors. In consultation with the Africa Future Foundation team, I developed a module of friend networks and added it into the existing questionnaire for follow-up survey which is scheduled to begin this June. Through my study, I expect to contribute to an understanding of the mechanism where friend networks influence students' sexual attitudes and behaviors.

## Thailand's rural primary healthcare expansion and its ongoing impact on health, mortality, and social enfranchisement



**Stephanie Koning**, Ph.D. Student, Department of Population Health

**Mentor:** Ajay K. Sethi, Ph.D., M.H.S., Associate Professor, Population Health Sciences

**Abstract:** I am proposing to study the impact of Thailand's rural primary healthcare expansion on maternal and infant mortality

and the social enfranchisement for ethnic minorities. Using mixed methods, I will determine whether the intervention in highland ethnic minority villages, beginning in 1985, had the following effects: 1) an immediate or lagged increase in hospital childbirths; 2) an increase in child birth registration; and 3) a reduction in maternal and infant mortality. This research has important implications for global health research and utilizes an interdisciplinary approach to study the social and political motivations behind changing health behaviors, the broader impacts of health system reform, and the protection of human rights through health promotion. Furthermore, it innovatively mixes epidemiological, demographic, and social research methods in the development context and merges a broad range of information sources. In order to complete this study, I am requesting funding to support the cost to travel to Thailand and meet with colleagues and mentors, conduct an exploratory pilot study, finalize my dissertation research aims and methods, and find a research assistant.

### **Uganda environmental pathogens and ecosystem services**



**Gail Rosen**, Ph.D. Student, Population Health Sciences, Nelson Institute for Environmental Studies

**Mentor:** Tony L. Goldberg, Ph.D., D.V.M., MS, Professor of Epidemiology, School of Veterinary Medicine

**Abstract:** Forests provide critical ecosystem services, including water purification. With forest fragmentation occurring globally, it is unclear how such services can be preserved. I propose a holistic, interdisciplinary approach to examining the value of small forest fragments for reducing pathogens in surface water. The study takes place in western Uganda, where forest

fragments persist in low-lying areas through which water flows and where the water-borne pathogen burden in people and animals is very high. The overall objective is to determine whether small forest fragments in this highly relevant setting have value for reducing water-borne pathogens. I hypothesize that even small forest fragments can act as “filters” and that passage of water through forest fragments improves water quality with respect to pathogens. This proposal, with its innovative “one health” approach to ecosystem changes as upstream determinants of health, is an excellent fit for the Global Health Institute’s focus on the role of “healthy places” in public health. Furthermore, this proposal is highly relevant to water sanitation and sustainability, both GHI priority topics.

## Characterization of emerging arboviruses in Santa Marta, Colombia



**James Weger**, Graduate Student, School of Veterinary Medicine, Department of Pathobiological Sciences

**Mentor:** Jorge E. Osorio, SVM,- Department of Pathobiological Sciences

**Abstract:** Mosquito-borne viruses, or arboviruses, are an increasing public health threat and comprise some of the most medically relevant viral pathogens. Arboviruses include Dengue, West Nile, Yellow fever, and Venezuelan equine encephalitis virus, among others. These viruses, specifically Dengue,

represent a massive threat to public health and relevant epidemiological data is necessary for continued understanding of transmission dynamics, predicting outbreaks and development of an effective vaccine. Colombia represents a unique environment for the study of arboviral pathogens and is home to all of the aforementioned viruses. In order to study the current status of arboviruses we will perform human dengue fever surveillance in northern Colombia. In addition, we will isolate mosquitoes from the area and test them for a panel of arboviral pathogens in order to understand infection rates in the vector. These studies will foster global collaboration and an increased epidemiological understanding of extremely important viral pathogens.