

Drs. John Lednicky and Greg Gray Offer Advice Regarding Controlling Infectious Diseases in Saudi Arabia

In April 2013, Drs. John Lednicky and Greg Gray were invited to serve on an advisory board to advise partners across the Middle East how to reduce the threats of infectious diseases during mass gatherings like the Hajj. Each year million of pilgrims travel to Saudi Arabia from more than 120 countries to perform ceremonial worship and sometimes large infectious disease epidemics occur. The mass gatherings advisory board meetings were held in Riyadh Saudi Arabia. Discussions led to University of Florida's generation of 5 new research proposals which the Ministry of Health is now considering for funding. The proposed research would help to reduce infections from respiratory pathogens like the MERS-CoV virus, zoonotic diseases such as brucellosis, and mosquito-borne diseases such as dengue and Rift Valley fever.



EGH Faculty and Students Collaborate on Animal Influenza Research in China

During the past year, Dr. Greg Gray, Dr. Song Liang, Dr. Gary Heil and PhD student Ben Anderson visited with research collaborators at Institute of Microbiology and Epidemiology (BIME), Academy of Military Medical Sciences in Beijing China. At BIME we are evaluating how well current diagnostic assays for influenza A viruses work on the newly emergent avian H7N9 virus which as of August 11, 2013 has infected at least 134 persons (45 deaths) in numerous provinces in mainland China. The UF team is also helping BIME investigators examine sera from hundreds of poultry and pig workers to see if there is evidence that H7N9 or swine influenza viruses have infected the workers. Dr. Heil and Ben Anderson assisted BIME researchers with adapting special influenza assays for these studies. Dr. Gray and Dr. Liang are assisting with data analyses, interpreting data, and drafting scientific manuscripts.



Global Pathogens Laboratory Team Partners with Mongolian Researchers in Showing that Horse Influenza Seldom Infects Man

After thousands of serological assays have been performed and thousand of questionnaires have been analyzed, researchers from EGH's Global Pathogens Laboratory and several national institutions in Mongolia have concluded that equine influenza infections are rare in man. The researchers followed 439 Mongolian adults from 2009 to 2011, many of whom had close contact with horses, for influenza infections. Despite identifying widespread human influenza infections in man and equine influenza infections among Mongolia's horses, there was little serological evidence of equine influenza infections among the rural people of Mongolia. These data suggest that equine influenza virus does not readily infect humans. This study was sponsored by the US Department of Defense.

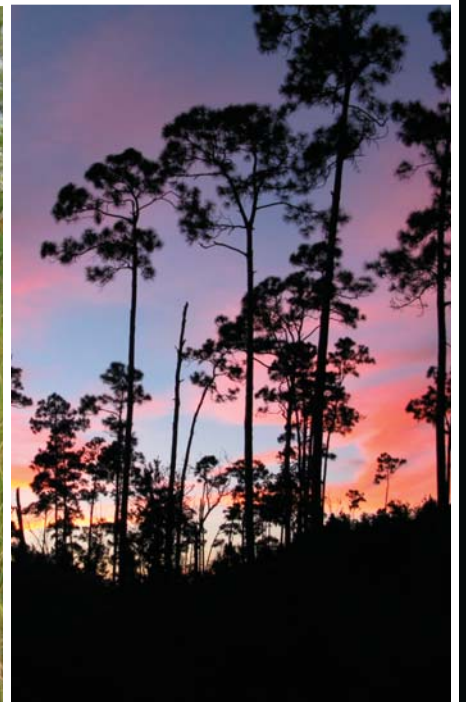


Using Evidence to Improve Sanitation Coverage in Tanzania

Safe water and basic sanitation are fundamental to environmental health. While we often take these for granted in the US, the same is not true elsewhere. Globally, over 2 billion lack access to improved and in Tanzania for instance less than 10% of rural households have adequate sanitation. This month Dr. Richard Rheingans (Associate Professor in Environmental and Global Health) will begin a collaboration with the Ministry of Health and Social Welfare (MoHSW) in Tanzania to evaluate its National Sanitation Campaign (NSC). The NSC is a multi-year \$15 million effort funded by the African Development Bank and the UK Department for International Development, designed to double the level of sanitation coverage and use in rural Tanzania.

The evaluation will focus on how the campaign is being carried out, whether it is successful in supply and demand for improved sanitation at the community level, and whether these changes result in changes in household behaviors. While sanitation may be considered a fact of life or human right, it has proven very difficult to raise sanitation coverage in many low-income countries. While sanitation is often provided as a public good in high-income countries like the US, in developing countries it often dependent upon individual households investing in infrastructure improvements. The expectation is that the results will provide the MoHSW with insights into where and how the program can be improved.

Dr. Rheingans and members of research group will be working with counterparts at the London School of Hygiene and Tropical Medicine (LSHTM). The evaluation is supported by SHARE a research consortium funded by DFID, including LSHTM, WaterAid, Slum and Shack Dwellers International, the International Institute for Environment and Development, and the International Center for Diarrheal Disease Research. UF PhD students Poulomy Chakraborty, John Anderson, and Deepa Pindola will also be supporting the project.



Mary Leigh Morris, EGH MHS Student, Conducts Field Practicum in Everglades National Park

Everglades National Park is believed to be home to at least 43 mosquito species as well as 15 mosquito-borne viruses; however, a systematic surveillance of these species and the viruses potentially carried by them had not been previously conducted. During my internship this summer I had the great opportunity to apply skills learned in my One Health coursework to a park-wide mosquito and mosquito-borne virus surveillance project with collaborators from Yale University, University of Miami, Florida Keys Mosquito Control District, University of Texas Medical Branch(UTMB), and Everglades National Park among others.

We set CDC light traps within five dominant plant communities – mangrove, hardwood hammock, cypress, sawgrass, and pineland - to determine patterns among mosquito species distribution, abundance, and composition. A representative sample was taken from each trap, and all specimens within that sample were identified to species. These specimens were placed in pools of 50 or less according to mosquito species, trap location, and date set and shipped to UTMB for virus isolation and identification. At the time of my departure we had collected more than 40 CDC light traps, processed more than 85,000 mosquitoes, identified 30 mosquito species, and shipped 494 pools to the virus lab for ongoing testing.

We hope this project will provide baseline data on mosquito species and virus distribution for further surveillance efforts, especially in light of habitat changes that will occur as part of wetland restoration efforts and climate change effects in the area. I am very thankful to have participated in such a valuable and unique field experience with a diverse, highly-skilled team of people in such a beautiful setting as the Florida Everglades. This project focused not only on vector and virus distribution but also on the habitats most likely to harbor these vectors and viruses, with aims to better assess human and wildlife exposure to mosquito-borne viruses. The time spent studying all these factors made even clearer to me how important a multi-disciplinary approach such as One Health is to addressing today's public health needs.

- Mary Leigh Morris



EGH One Health doctoral student conducts research site visit to the Dominican Republic

Helena Chapman, MD, MPH, doctoral student in the Department of Environmental and Global Health (EGH), visited the Dominican Republic (DR) as a first site visit for her doctoral research in Tuberculosis (TB). She met with TB and public health experts at health institutions in Santo Domingo, Santiago, and San Pedro de Macorís. During her visit, she presented the medical conference, “Your future in medicine as collaborative partners in One Health”, to over 100 fourth-year medical students and faculty from the Iberoamerican University (UNIBE) School of Medicine, in Santo Domingo. She also prepared two academic workshops, “Techniques in Professional Development”, including strategies for preparing theme-based articles and for developing a curriculum vitae, to over 200 medical students from four Schools of Medicine, located at UNIBE School of Medicine in Santo Domingo and Universidad Central del Este (UCE) School of Medicine in San Pedro de Macorís. In addition, while she was in San Pedro de Macorís, she was invited to speak on the Milenio Caliente local radio station (103.5 FM) about the “One Health” concept. She also accompanied health teams to visit two rural (batey) communities for health outreach activities and to tour an animal processing plant for observation of the management of agricultural production as key components to the EGH One Health program.



Michael von Fricken, EGH PhD candidate Conducts Malaria Surveillance in Haiti



High quality data and surveillance will be essential in guiding future conversations about malaria eradication for the island of Hispanola. Using serological detection methods, researchers from the Department of Environmental and Global Health (EGH) at the University of Florida, hope to capture a broader window of malaria exposure in Haiti, which will provide valuable insight on malaria transmission dynamics and the appropriateness of targeted interventions. Working alongside research assistant professor, Dr. Bernard Okech, EGH doctoral candidate Michael von Fricken’s dissertation will focus on previous exposure rates, the prevalence of protective genetic factors, and treatment contraindications for Haiti’s national malaria drug policy.

Over the past three months, UF’s malaria team was able to enroll over 1,000 participants from clinics, schools, and communities in Port-au-Prince, Gressier, Leogane, and Jacmel, with each site representing a variety of environmental and demographic characteristics. The success of this project was made possible through the combined efforts of the Haitian Ministry of Public Health and Population (MSPP) and crucial collaborating partners on the ground. During the month of May, Michael worked alongside Christianville’s nursing staff, administration, and volunteers to screen over 570 school children from the Christianville School. This data, in turn, will be shared with the MSPP, scientific communities around the world, and most importantly, the communities that participated in this important research. By providing stakeholders with robust baseline data, UF researchers will be able to quantify the impact of future interventions in these areas.

The entire study falls within 30 square miles, capturing the epicenter of the 2010 earthquake and roughly 30% of Haiti’s population of 10 million. Preliminary data suggests major regional differences in protective genetic factors and risk of infection, despite the proximity of the sampling sites. However, these sites are separated by vast mountain ranges, rolling valleys, and coastal plains. Haiti’s unique topography represents the biggest barrier to accurate surveillance. Policies must be tailored by geographic variation instead of departmental lines, due to the influence altitude, vegetation, rainfall, temperature, and population movement can have on disease incidence.

If malaria is not a significant cause of fever in Haiti, efforts must be directed towards investigating other possible sources. The documented absence of active malaria infections during the month of May, suggests seasonal trends of malaria transmission in Haiti linked with rainfall. While there is still much to do, working with the Haitian government and maintaining strong partnerships with well-established NGOs will continue to bring us closer to achieving our ultimate goal of malaria eradication in Haiti. Funding for this research was provided by the Armed Forces Health Surveillance Center, Global Emerging Infections Surveillance and Response Division (AFHSC-GEIS). - Michael von Fricken

Photographs



EGH PhD student, Helena Chapman (right) poses in front of her poster at USF Research Day in Tampa. Also pictured (left to right) Ana Santos, Dr. Sally Coovert, and Dr. Robert Nelson.



EGH PhD student, Moise Ngwa (bottom, right), and EGH Associate Professor, Song Liang (bottom, second from right) pose with staff from the University of Maroua in Cameroon. Dr. Liang and Ngwa visited Cameroon in April 2013 to collaborate on research projects with university officials.



(left to right) Dr. Breakmo, Assistant Delegate and Cholera Data Manager, Moise Ngwa, Dr. Djao, Regional Delegate of Health for extreme north Cameroon, Dr. Song Liang.



(left to right) Moise Ngwa, Dr. Mbam Mbam, WHO representative for Cameroon, Dr. Etundi, Director of the Cameroon Ministry of Health, and Dr. Song Liang.



(left to right) Dr. Song Liang, Dr. Ako, Director of the University of Maroua, Extreme North, Cameroon, and Moise Ngwa.



Members of the Healthy Gulf Healthy Communities team, supported by NIEHS, include academic scientists working side-by-side with community partners. Seafood workers from Apalachicola Bay and stone crabbers from Steinhatchee join UF researchers to conduct outreach at the 2013 Florida Folk Festival. With over 20,000 in attendance, festival-goers had the opportunity to learn about UF efforts to discern seafood safety following the Deepwater Horizon oil spill in the Gulf of Mexico, ask questions, and chat with watermen, and enjoy samples of fresh-shucked oyster, grilled oyster, and tasty shrimp boiled up Apalach style.