

Uganda Interdisciplinary Trip September 2011

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My international practicum experience was in Uganda, East Africa as a part of the first interdisciplinary group of the GISGH program. As such, our trip and experience was a bit different than groups prior to us. Our goal was to gain exposure in each of the areas we represented. The purpose of our excursion was to learn more about what the other disciplines do within the global health field and to see how we may compliment each other in future projects.

My goals for the trip were:

- 1) To interact with the other students and to discover new aspects of global health through these interactions
- 2) To learn about the culture of Uganda in order to gain insight into the problems and concerns of this population
- 3) To network and establish contacts in Uganda for future collaborations
- 4) To learn about the human-livestock-wildlife interface and how it impacts conservation, food security, and infectious disease epidemiology

Goal 1: To interact with the other students and to discover new aspects of global health through these interactions

Our group consisted of a veterinary student, a medical student, a nursing student, a PhD student in environmental health, a PhD student in epidemiology, and me. I'm a PhD student in Comparative and Veterinary Medicine and my area of study is applied ethology and animal welfare science. I found that we approached problems from very different perspectives. At first, I felt that we were all careful in our discussions but as time went on we felt more comfortable and had more open conversations. I now have more respect for what the others do and found that we can, and should, work together. One example is that I learned about James' area of study which involves biodigestion of waste. A future collaboration could be working on small scale farming operations to process animal manure to produce methane which can be used to provide electricity and using the treated sludge to fertilize crops for human and animal consumption. I didn't know anything about this until seeing and discussing it with James while in Uganda.

The other guests at the Mulago Guest house also added to my education. They were from all over the world, most were working at the Mulago hospital, and they had diverse backgrounds and experiences. I found talking with them over breakfast to be an excellent way to exchange ideas and perspectives on global health. Although I had read a lot about health care systems in developing nations, I don't think anyone can be ready for the reality. We all went to the hospital and saw the people waiting to be seen by doctors. We heard the rumors of the staff "stealing" supplies from the public hospital to equip their private clinics. We talked to Ugandans we met who relayed the reality of medical care in Uganda, that to get good care in the hospital one needed to bribe the doctors or wait and (possibly) get less appropriate care. These interactions brought home the fact that the problems of the developing world are too large for any one discipline to conquer alone. Only while looking at the entire picture can we affect change in the world.

Goal 2: To learn about the culture of Uganda in order to gain insight into the problems and concerns of this population

We accomplished this by not being "tourists". Our aim was to immerse ourselves in the culture. We went to an urban slum, Namuwongo, guided by people who had grown up there. We volunteered at orphanages taking care of abandoned, and sometimes sick, babies. We ate local food, rode public transportation, and walked the streets of Kampala. We talked to ordinary Ugandans about the health care system, the political system, infrastructure, and what they perceived to be the obstacles to development. There is no way to fully understand a country, her people, or their problems unless you see all she has to offer. Africa is a land of beauty and horror and everything in between.

Goal 3: To network and establish contacts in Uganda for future collaborations

This goal was accomplished by setting meetings prior to my visit with faculty of Makerere University Veterinary School and by spending an additional day with local veterinarians that I met at the beginning of the visit. I met with two faculty members of Makerere Veterinary School, Department of Wildlife Animal Resources Management; Dr. Ludwig Seifert and Dr. John Bosco Nizeyi.

Dr. Seifert heads the large predator project in Queen Elizabeth National Park. We discussed the challenges of wildlife conservation in Uganda. They include competition from humans and livestock for land use, infectious disease outbreaks due to human-livestock-wildlife interactions, and lack of funding for research. Lack of funding is, in part, tied to corruption in the government which has led many western donors to decrease or discontinue funding projects. We also talked briefly about poaching, a possible rabies variant that many of the animals survive after infection, and the ethical issues surrounding veterinary treatment of wildlife under observation, especially endangered species.

Dr. Nizeyi is the Uganda coordinator of the Mountain Gorilla Veterinary Project based in the Bwindi Impenetrable National Park. Many of the themes we discussed overlapped with Dr. Seifert's including human-wildlife competition for resources, infectious disease outbreaks due to human-wildlife interactions, and lack of funding for research. We also had a conversation about the pros and cons of eco-tourism. Of particular concern with gorillas is that they are highly susceptible to human diseases including upper respiratory infections and the ethics of treating the animals when they succumb to infection.

I also met with two local veterinarians; Dr. Bugembe Richard and Dr. Berna Nakanwagi. Dr. Richard has started an NGO called Sustainable Integrated Development Initiative for Rural Areas. I spent a day with him going to rural farms where he teaches people how to care for livestock after they are acquired through the NGO. This allows people living in extreme poverty to provide a more nutritious diet for their children through the milk and meat obtained from the livestock and to sell excess product to pay school fees for them. It is the beginning of a way out of the cycle of poverty for some rural children.

Dr. Nakanwagi operates a small animal veterinary clinic in Kampala. There are only a handful of such practices in all of Uganda. We discussed the limitations of veterinary medicine in Uganda including the lack of availability of appropriate medications and diagnostics. Few people keep "pets" and if they do, they don't always provide veterinary care to them.

I also had a tour of the Makerere University Veterinary School and Hospital. It was a good experience to see the equipment and facilities available to the students and to compare them to what we have here at OSU and in the US in general.

Goal 4: To learn about the human-livestock-wildlife interface and how it impacts conservation, food security, and infectious disease epidemiology

My main goal in Uganda was to find out the state of the livestock-wildlife-human interface, the problems and challenges of working in this area, some of the major infectious diseases of concern, and how all of this fits into the larger concept of global health. In my conversations with Ugandans in the field a couple of themes were recurrent. The need for sustainable agriculture to alleviate poverty and provide food security, the conflict between wildlife conservation and the local population, and the lack of funding for programs and research often tied to government corruption.

I found the discussion about the need for sustainable agricultural practices very forward thinking considering the extreme poverty of the country. One would think the people would want to increase yields quickly to feed everyone but this was not the case for the people I talked with. In fact, Dr. Richard and a colleague have formed an NGO to consult with the government to avoid contracting with companies like Monsanto who aim to export industrial agriculture policy

and technologies like GMO's to developing countries. After returning from Uganda I did a little research on this topic and found a United Nations report to the General Assembly from the Human Rights Council. The report outlined the general concepts of agroecology as a means to provide the developing world with sustainable agricultural practices. The goal is to reappropriate funds to agroecology techniques to ensure the right to food for all people (Schutter, 2010). I believe this approach is informally being practiced in parts of Uganda. I visited three orphanages and a girl's school that were raising a small number of individuals of multiple species, typically cows, goats and chickens. They used the manure to fertilize crops which consisted of matooki, yams and other root vegetables, green vegetables, fruit trees, and beans. A couple of places were also using biodigesters to convert the manure to methane for electricity. The left over slurry would then be used as crop fertilizer. These were small scale operations and a formidable obstacle is the initial startup funds to buy a cow or build a biodigester. Other improvements could include heat treating the manure or slurry used as fertilizer to decrease disease incidence. The ultimate goal for all of the institutions was self sufficiency with an eye toward future sales of excess product. Implantation of this type of system is an example of the need for an interdisciplinary approach; an agricultural scientist to give agroecology advise, an environmental health scientist to implement biodigester best practices, a veterinarian to ensure herd health, a welfare scientist to provide input on housing, handling, social grouping of livestock. Better nutrition for the children leads to better health and more productive adults. Additionally, any surplus money raised can be used to pay school fees to educate the children, which is the foundation for alleviating poverty. Lastly, this approach can be used to empower women, which is also important in poverty reduction and household food security (Gueye, 2000; Premchander, 2003). Empowering women can increase the household wealth, decrease child mortality, and decrease HIV infection rates among other things. I met a woman who had been widowed and was left with children and no source of income to care for them. She was given a cow and taught how to care for it. She now has 5 cows, has sold 3, produces enough meat and milk to supplement her children's diet of crops that she grows, and produces enough surplus product to sell in order to pay school fees for her children. This exemplifies how one cow can enable an entire family.

Conflict at the wildlife-livestock-human interface has multiple dimensions which include infectious disease transmission, crop raiding by wildlife, and ecosystem conservation. Infectious disease transmission between wildlife and livestock is the single most important constraint on the African livestock export trade because of the "Sanitary and Phytosanitary Measures" of the World Trade Organization (WTO) (Osofsky, 2005). These measures are in place to protect the livestock industries of the developed world from importation of economically important diseases such as Foot and Mouth disease (FMD), Rift Valley fever (RVF), and African swine fever (ASF), all of which are present in Uganda. Among the African intellectual class and others, the perception is that the West desires to conserve the African wildlife over the desire to support programs that promote livestock development and the people. Yet studies have shown that pastoralist practices of livestock production can aid in the conservation of wildlife and ecosystems (Osofsky, 2005). Climate change will only increase the risk of disease transmission. Wildlife, unless habituated, will tend to avoid interactions with livestock and humans, both spatially and temporally. But drought brought on by climate change, will increase the incidence of epidemics through increased contact between wildlife and livestock over resource competition (Osofsky, 2005). Zoonotic diseases are important in global health. An example from Uganda is the transmission of bovine tuberculosis from buffalo to cattle to people which is exacerbated by co-infection with HIV.

Another area of conflict at the interface is the effect of crop raiding on the local population, how it affects their attitudes toward conservation, and the risk of poaching because of the conflict. Studies of elephants have been used as a model for this type of conflict (HILL, 1998) but in Uganda gorillas, hyenas, and lions are also at risk (personnel communication Drs. Seifert and Nizeiyi). When wildlife exits the confines of national parks to forage they run the risk of being poached by the local people as both a food source and to protect their crops and property. An additional risk is infectious disease transmission. Mountain gorillas are an endangered species that is easily infected with human pathogens due to our close genetic relatedness to the great apes. Diseases such as scabies, upper respiratory infections (URI) and parasites often prove fatal to gorillas without intervention (Osofsky, 2005; Rothman, Bowman, Kalema-

Zikusoka, & Nkurunungi, 2006). This leads to an ethical debate over whether or not humans should intervene with the course of nature and treat sick animals. Ecotourism has also added to the burden of disease, on primates in particular, through close encounters between wildlife and humans. Finally, the indiscriminant use of antibiotics in many developing countries, the lack of appropriate sanitation leading to human waste in the water supplies, and the close association of wildlife and humans has led to an increase in microbial resistant infections in many wildlife species. This causes even more debate over the ethics of treatment as well as complicating further the treatment of disease in the field. Much more research in this area is needed but funding is scarce. In the case of carnivores, the domestic dog is important in the infectious disease cycle (Osofsky, 2005). Distemper and rabies are of particular importance. Rabies is also a significant health risk for the human population and the only effective intervention is mass vaccination which is not being carried out effectively in rural areas of Africa. Mitigating the wildlife-human conflict is complicated by social factors including religion, ethnicity, and cultural beliefs all playing a role in the conflict and its intensity (Dickman, 2010).

The last theme that recurred in my conversations with veterinarians and researchers was the lack of available funding. One reason often stated was the high degree of government corruption which has caused any available funds to be used inefficiently and has also caused many NGO's and government agencies to decrease support (personnel communications). Although I have no way to verify this particular claim, I did research corruption in Uganda and found that it has been documented at all levels of government and is pervasive (Chene, 2009). Nepotism and bribery are common and although the legal and institutional framework to fight corruption is in place it has not been effective. This is just another obstacle on the path to poverty reduction.

Uganda was a great location for the international practicum. The people were friendly, the food was excellent, and the accommodations at the Mulago Guest house exceeded expectations.

I would recommend the Mulago guest house to other student's in the program. It was immaculately clean, the staff was very friendly and accommodating, the breakfasts were adequate (the fresh juice and fruit were the highlights), and I enjoyed meeting the other guests in the house. All were from countries other than Uganda and were working in Mulago hospital on various projects. Interacting with them over breakfast added to the interdisciplinary aspect of the trip.

We didn't get to go to all areas of Uganda but we did travel to Masindi district in the northwest. Most major roads were well maintained but many roads were dirt or mud and had large pot holes, especially in more rural areas and parts of Kampala. I found getting around to be easy, even braving the boda boda's and mutatu's.

The interdisciplinary aspect of the trip was unique and educational. I think hearing about different experiences and interpretations of the same experience were invaluable. Everyone brought something different to the table and considering we didn't know each other before leaving we had little conflict and all became friends in the end. The goal of the GISGH program is to gain respect for each other and our respective disciplines and to acquire the skills needed to work together on large scale problems. I believe all required practicums should aim to be interdisciplinary. It is real world experience that can not be imitated by doing group projects in a classroom setting. I am proud to have been a part of this group. I have made friends and contacts that I hope to collaborate with on future projects after graduation.

One aspect of the experience that I feel could be improved upon are the requirements and preparation prior to the trip. Some members of this group were more prepared for the experience than others. I think participants should have completed a majority, if not all of the GISGH course work, before participating in a practicum. It makes for a well rounded student who can participate actively and effectively in conversations about health care policy and the problems inherent in working in a resource poor environment. Not everyone was equally prepared in this area, nor equally equipped to make the necessary adjustments in the field. Related to this, participants should have basic knowledge of the country to be visited. One should know who the president is, what type of government is in place, a little basic

history (all members of the group should have had at least a rudimentary knowledge of the Amin years), the GDP of the country, the major ethnic groups, and the most prevalent diseases present in the population. In addition, the student should be very well versed in their particular field. I think it would be a much better use of our time to prepare a brief report on the country we are to visit rather than doing all the USAID modules. They were not very informative, took a significant amount of time to complete, and added nothing to my knowledge base that I hadn't learned in my global health classes. Lastly, as an interdisciplinary group who didn't know each other prior to leaving so I think meeting a few times to discuss the trip, our expectations, problems with making contacts, etc would have enriched the experience. James did a great job getting this trip together and I think we all had a great time but for the next group I would advise more discussions prior to the trip so everyone feels invested and is comfortable with each other.

This trip was a life altering experience for me. It helped me organize my thoughts on where I want to focus my efforts after graduation and confirmed for me that my area of study does fit into the global health concept. I also gained confidence in my ability to work in a developing nation, to learn from professionals in other areas of research, to network and make contacts, and to see the larger picture. I also discovered how much I don't know and the areas I need to focus on until graduation. In a perfect world, everyone should have this experience.

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