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Global Grizzlies 2016: Arusha, Tanzania
Madison Schwarzkoph
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Introduction:

Summer 2016 I had the incredible opportunity to travel to Africa to volunteer in local hospitals and clinics in the city of Arusha, Tanzania. I traveled as part of a group called Global Grizzlies consisting of ten pre health professional students from the University of Montana. October 2015, I was lucky enough to be selected to be a part of this group whose goal is to independently plan and fundraise for a volunteer trip abroad in the upcoming summer. The previous year's group selected us after an application and interview and helped guide us through the process of planning and fundraising for our trip. Although we are recognized by the university as a student group we receive minimal funding and guidance as the point of the group is to put most of the responsibility of planning the trip and fundraising ourselves.

My background as a Global Public Health minor prepared me for some aspects of the trip but it is impossible to measure everything that I learned while in Tanzania. Having the opportunity to see health care in a completely new setting was extremely eye opening and humbling. I learned first hand some major differences between healthcare in the US versus my location in Tanzania and learned how both countries could learn from each other to provide the best healthcare possible. In the following paper I will elaborate on the clinical aspects of the trip I found most important and learned the most about through a recount of my personal experience and brief research I conducted post trip. My purpose is to educate through my first hand experience of healthcare in Tanzania while providing insight into why I believe volunteering abroad will make me a better healthcare provider in the United States.

Tanzanian Hospitals and Clinics

Overall I had a very pleasant and educational experience at the clinics I volunteered while in Arusha. The hospital where I spent most of my time was called Levulosi Hospital but I also spent some time in a clinic focused on maternal and child health called Ngarenarok Clinic. During my few days at Ngarenarok, we mostly helped local medical students with young child check ups. We filled out booklets that mothers brought with them for weight and vaccination updates and made sure the child was on the right track for growth and immunizations. It was great working with students our age from Africa. We had an interesting time learning each other's languages and how healthcare varies between our countries. One of the most fascinating topics to them was the amount of school we have to go through to become a

doctor and the amount of money that doctors get paid in the US. In Tanzania students go straight from secondary school to medical school. They were appalled that we had to complete four years of undergraduate school before even attending medical schools. They also mentioned that they were aware of their lack of pay compared to our doctors. Doctors in Tanzania make an annual salary of about 1 million shillings according to a recent news article (Venas News, 2014). For comparison that is equal to approximately 2237USD. Nurses make about half that of doctors in Tanzania. The article also mentions that Kenyan doctors make much more than their neighbors in Tanzania (Venas News, 2014) In comparison an article in the United states claims that doctor salaries can range from \$174,000 to \$413,000 for primary care to orthopedic physicians respectively (Friedman, 2014).

At Levolosi hospital I, a few other Global Grizzly members, and other volunteers staying at our same volunteer complex created great relationships with the doctors and nurses. The head doctor, Dr. Alexander, gave us daily lessons on a different health topic and made sure that we were able to see and help with what we wanted. He made it clear to make the hospital our home and repeated “karibu,” meaning welcome, assuring us that if we were not supposed to be somewhere someone would clearly let us know. I volunteered and observed in several areas in the hospital over the three weeks I spent there. My first few days I helped in the maternity ward where I helped nurses birth babies and was even able to watch a cesarean section. Other days I helped with bookkeeping during appointments in the HIV clinic and observed wound dressing, walk in clinic visits, dentistry, and minor surgery. I took a small notebook with me everyday to take notes while in the clinic and later journaled more personal information in my travel journal at night. I believe both aspects were very important in my growth and learning in the four weeks I was there

Maternal and Antenatal Care

One of the first lessons from Dr. Alexander was on pregnancy and the exam he and the nurses perform before the moms give birth. He described the way the baby presents in the cervix and how he knows whether he needs to perform a cesarean section or if the mother can have a natural birth. Some of the positions he noted that might cause concern would be feeling feet or a face, or if the mother has had a previous cesarean section due to incompatibility of the size of the baby with the mothers birthing canal. We asked if women received anything to control their pain

but he almost laughed at that. Women did receive an epidural before cesarean section of course which was performed by trained nurses. Another critical maternal health issue we discussed was the risks and signs of preeclampsia. One of our jobs in the maternity ward was to round with a doctor and take and record the women's blood pressures which, after our lesson from Dr. Alex, we learned was very important.

Preeclampsia is defined as an abnormally high blood pressure in a mother that had previously been normal (Mayo Clinic, 2017). The increase in blood pressure normally occurs around twenty weeks of pregnancy and is usually diagnosed when the patient's blood pressure is above 140/90 more than once at least 4 hours between check ups. A mother diagnosed with preeclampsia must be closely watched as the symptoms can be dangerous for both the mother and the baby. A study near Moshi, Tanzania which was fairly close to our location in Arusha showed an increased prevalence of preeclampsia in women who had a history of preeclampsia, were overweight, or had a history of diabetes (Mahande et al., 2013). Second occurrence of preeclampsia shows an even greater risk for the fetus. Some major implications if preeclampsia goes untreated is lack of oxygen to the fetus due to constriction of placental arteries and full blown eclampsia where preeclampsia symptoms are more severe and accompanied by seizures. Depending on how far along the pregnancy is, early delivery or cesarean section may be necessary to save the life of the mother and baby. Another study from Moshi showed that maternal disease was one of the top explanations behind infant death and preeclampsia or eclampsia were factors in 90% of all maternal disease cases (Mmbaga et al., 2012).

We truly realized the impact maternal conditions like preeclampsia have on patients and healthcare providers when after one day at the clinic there was a stillbirth and a premature baby born that did not survive. I am not sure if preeclampsia was a factor in either case but one of the doctors in the room was very frustrated and explained to us that he wishes people could see unfortunate events such as this and claimed that if they could just afford an ambulance for their hospital those babies may have survived. If a patient did need to be transferred from Levolosi Hospital to St. Elizabeth Hospital, the local referral hospital, the doctors had to call a taxi or ask the patient if they could find a means of transportation. This leads to unideal situations that may have been prevented by a quicker transport. Tanzanian government has put the responsibility of purchasing emergency vehicles to the local governments but do encourage them to buy for rural areas as well as the urban locations (Azania Post, 2017). Local

governments are not receiving tax money for this process. This causes a major obstacle as an ambulance can be very expensive to buy. One website shows the cost of an ambulance in Dar es Salaam to be 45m Tshillings or about \$20,000 USD (UsedCarsTZ, 2017).

Situations such as this may also be avoided if proper screening and check ups are occurring. Only about 43% of women in Tanzania have access or make use of antenatal care (WHO, 2015a) Also less than half of births in Tanzania happen in the presence of a healthcare provider (WHO, 2015a). Increasing the surveillance of mothers and babies before during and after birth may cause significant increase in positive outcomes.

Respiratory Infection

Another one of the most notable lessons from Dr. Alex was that on the presence and issues dealing with tuberculosis and other respiratory diseases such as pneumonia. When I visited Tanzania in May and June it was winter for Africa so to the locals, the rainy weather we had most days was very cold for them and led to higher incidence of respiratory diseases. In fact most of the outpatient clinic visits I witnessed were for respiratory complaints. In Tanzania, tuberculosis has an incidence rate of 164,000 per year and mortality rate of 30,000 (WHO, 2015b). In both cases this includes patients with both HIV and TB. Tuberculosis is hard to control because of how easily it is spread. Someone simply needs to inhale a droplet containing the mycobacterium to become infected. A person may then develop the tuberculosis disease or have a latent tuberculosis infection where the bacteria are in the lungs but are inactive (CDC, 2016). Someone with a latent infection only has a 5-10% chance of developing the disease but risk increases for a person who is immunocompromised. Tuberculosis is curable with antibiotics but presence of resistant strains are becoming more prevalent as the treatment course can extend several months (CDC, 2016). If patients are not taking all of their medication or not taking it properly this can increase resistance and make TB an even greater problem.

Besides tuberculosis general respiratory infections were a common complaint and I did witness several cases of pneumonia in children. One child with HIV had a dangerous type of pneumonia called pneumocystic pneumonia which generally occurs in immunocompromised patients. From what I witnessed I was not surprised to later discover that lower respiratory infections are the leading cause of death in children under 5 and is the second leading cause of death in adults second only to HIV/AIDS (WHO, 2015a).

Surgical Infections

Another major concern we had while volunteering and shadowing in the minor surgery and surgical suite was the infection prevalence. They did their best to make sure all of the equipment was sterile but the environment that surgeries and procedures were performed seemed concerning. Surgical suites were open to the outside and surgical fabrics were washed and hung outdoors to dry. Doctors almost always wore gloves especially during procedures. Although the doctors at Levolosi denied a problem with infection I did witness some patients come to the clinic with infected wounds from previous procedures. Mawalla et al. found a common prevalence of surgical site infection in a hospital not far from Arusha; most commonly *Staphylococcus aureus* and *E. coli* were the main infectious agents (Mawalla, Mshana, Chalya, Imirzalioglu, & Mahalu, 2011).

To combat some of the issues they saw with surgical infections, a group from Harvard implemented a checklist system in several hospitals around the world and found that the complication rates dropped from 11% to 7% and death rates dropped from 1.5% to 0.8% (Haynes et al., 2009). This follows the trend that Atul Gawande also noticed in his book *The Checklist Manifesto* that proved following a specific procedure every time and checking items off a list lead to a decrease in infection rates. In a place like Tanzania where it would be easier to implement a checklist rather than expensive equipment and un reusable sanitary materials this idea could help drastically.

HIV/AIDS

The final area we were able to observe in Tanzania was the HIV clinic. There is a 4.7% adult prevalence of HIV/AIDS in Tanzania with only 53% of patients taking antiretroviral medications (AVERT, 2016). USAID provided the drugs at Levolosi Hospital and the main doctor I shadowed in the clinic felt that without the help from USAID HIV would be an even greater issue in Tanzania and specifically the region they serve (USAID, 2016). Some of the issues I noticed were a lack of equipment as well as cultural interference. The days I shadowed in the clinic, the doctors were not able to perform CD4 counts of their patients because their machine was not working. This makes it harder for the health providers to prescribe the right dosage and types of antiretroviral medications. There were a few cases where the doctor translated for me the patients' concerns and how she tried to address them. One woman came in

who, at her previous visit, had a CD4 count of one. She was afraid to tell her husband about the diagnosis but realized her kids may also have the disease and wanted to make sure they could get treatment. The doctor told her to monitor her children's health and to bring them in on kids day at the clinic for examination. A Masaai man came in that day who was hoping to marry a young woman, his first wife, who was HIV negative and told the doctor he did not plan on telling this woman his status. The doctor strongly opposed this suggestion and told the man it was his responsibility to tell the woman and he needed to be using condoms. When translating the doctor, was very upset with the man because he was not planning to follow her instructions. These patient visits gave me some brief insight into some of the problems health professionals from Tanzania and around the world might be having while diagnosing HIV as well as making sure all those with HIV receive proper treatment.

Discussion

Volunteering in Tanzania allowed me to experience an international form of medicine very different to that which I have been exposed to most of my life in the United States. I was also lucky enough to see a variety of areas of healthcare in the single hospital and absorb the important aspects of each. From all the areas I was able to see I found what doctors in each specialty found was most important and believed needed the most work in their countries. In outpatient clinics the doctors were most concerned about respiratory infections like pneumonia and tuberculosis. Wounds and infection were also common problems and were often worse off than they might be if patients had come to clinics sooner. In women's health the focus is primarily on antenatal care as well as pregnancy and labor complications. Some difficulties in these areas is making sure mothers receive proper care and examination throughout all stages of pregnancy and delivery. I was not exposed to and did not think to ask about contraceptive strategies. Doctors were excited to prove their competence in surgery and did so very well. There did not seem to be a concern for infection among the doctors at the hospital but making sure there are proper procedures in place in the future may allow for even lower infection rates from their hospital. The HIV clinics were constantly busy from open to close. Healthcare providers here stressed the importance of knowing your status as well as letting others know which proved to be hard in a culture with a stigma against HIV and that with a more male dominated society, especially within the local tribal groups such as the Masaai.

Personally the biggest struggle for me was feeling unnecessary or unable to help. For my future career path I hope to be able to become a doctor and physically help the patients through examination, prescription and surgical intervention. It was important for me to realize though that many of the issues I noticed while I was there were not simply solvable with prescription or surgery. There are always social, cultural, and economic aspects of healthcare that are just as important and need to be addressed. At this point in my career I do believe I have enough knowledge to make an impact during a volunteer trip through these more social aspects. My advice to future premed global volunteers is to research the issues of the volunteer country prior to the trip and even have a plan for a project going in. By connecting to previous volunteers or the physicians of the hospital, volunteers might be able to provide help in crucial ways that are not just hands on and physical.

I believe it is crucial for future doctors to recognize the other aspects of medicine that are not just the biomedical subjects we are so educated in. The bottom line is that the patients one serves as a doctor are humans which are much more complex than the anatomy and physiology they are made up of. The doctors and healthcare professionals in Tanzania were a fantastic reminder of the passion one should have for helping patients. Several doctors were aware they could be paid more in other professions but they wanted to help their community and loved the medical field. One doctor even admitted he wished he could be an orthopedic surgeon but knew the need for obstetric surgeons so chose the career path he did. Volunteering abroad gave me the opportunity to see health issues I might not as often experience in the United States and become aware of issues across the globe. All of my combined experience and personal growth will make me an even better doctor in the future.

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