Evelyne Ntam
BWB Rwanda Journal

Friday, June 8, 2012

I am glad that I decided to come to Rwanda with Buckeyes Without Borders this summer. There were four other people I was going on this trip with. Cara Whalen is the group leader and the one that organized this trip. She is in the last year of her physical therapy program and will be starting her PhD soon. She is also the vice president of Buckeyes Without Borders. William Brigode just completed his first year of medical school and he is the treasurer of Buckeyes Without Borders. Elena Moore and Kristi Sturgill just completed their first year of their occupational therapy program. I was really looking forward to working with and learning from everyone. We were doing the logistics and planning for this trip for months so it was nice to finally be travelling.

When I got to the airport Friday morning, I met up with Elena and William. Kristi was going to meet up with us as well. Cara could not get the same flight as us so we were going to meet her in Canada. Elena had the big bag we were going to be checking in that had supplies and many things we wanted to donate like toothbrushes and toothpaste. I was unsuccessful in being able to get OTC medication donations from CVS so I went to Kroger (since their store brand is the most affordable I have seen around) to buy some bottles of Tylenol, Ibuprofen and Aleve (Aleve is their favorite pain reliever) to donate. I had to bring these to Elena to put in the big carry on suitcase.

Once we got in line to get our boarding passes, Elena said "everyone, make sure you have your yellow fever vaccination cards!" I freaked out, because of course I forgot to pack that with me! I had to call my friend Maria, who was the one that dropped me off at the airport, to get to my apartment and find the card to bring it to me. I was lucky that Maria had an extra set of my keys and that our flight was changed from 10:30am to 11:00am. She got back to the airport just in time for me to make it through our gate just as people started to board!

I had to get seven vaccinations for my trip to Rwanda. First was the yellow fever vaccination, because everyone has to have proof that they got this before entering the country. I had to get my third Hepatitis B, the first in the series of Hepatitis A, Meningococcal, Polio, Typhoid (the oral since it lasts for 5 years), and Tdap (since the last one I had did not have pertussis in it). I got 3 vaccinations on one day (yellow fever, Hep A and Hep B) and got the other 3 (Meningococcal, Polio and Tdap) two weeks later. Since typhoid was oral I started to take it a couple days after my first set of vaccines. I did not gets sick after the first set of vaccines, but I got very sick after the second set. After getting all these vaccinations I am definitely ready to travel to any developing country! I also had to make sure to bring my anti-malarial medications (Malarone 250/100mg, 1 pill a day starting a day before traveling and

continuing until finished) and anti-diarrheal medication (Cipro 500mg, 1 pill bid x 3 day for infectious diarrhea).

It was going to take us about 24 hours to get to Rwanda. From Port Columbus International Airport, we were taking a flight to Toronto, Canada then to Montreal, Canada then to Belgium and then finally arrive in Kigali, Rwanda late Saturday night. Going through customs in Canada, having layovers and changing flights was a hassle. Cara wanted us all to be on the same flights and that is why we had this route. If I had to do it again I would choose a route that did not require so many layovers. It was still nice to be in Canada and Belgium even though we could not leave the airport to enjoy each country. Since I did not get any sleep the night before, I easily fell asleep on each flight! I loved how all the flight attendants, pilots, airport workers, etc., spoke more than one language. Everyone assumed that I spoke French so they would automatically start speaking in French to me! I would just answer in English though. I was disappointed in myself for not being able to continue learning French and Spanish so that I could be fluent in those languages as well. It's definitely a disadvantage for me. The total cost of the flight was about $2300. Sort of expensive since we were only going to be in the Rwanda for a week, but I knew it was going to be worth it.

Saturday, June 9, 2012

I was very relieved once we arrived in Kigali, the capital of Rwanda! The weather was cooler than what we were experiencing in Columbus (about 75 degrees) and the air did not seem any different. I have some friends that have been to Nigeria and they would complain about how thick the air was and how hard it was to breath at times, perhaps due to pollution and humidity. We met Zachary (one of the directors of the Ubumwe Community Center, UCC) at the airport and Charlene. Charlene used to be a gorilla keeper at the Columbus Zoo. She currently runs a program called Partners in Conservation (PIC, an organization to help preserve the gorillas and wildlife in Rwanda) and helps to raise money for the UCC. There were other people from the Columbus Zoo that were on our same flight and she was meeting up with them. Zachary helped us arrange a van to get us to our hotel.

We arrived in Rwanda around 8pm. It was already very dark outside and the streets were busy with people. Their traffic lights were interesting, because when it was red or green it had a countdown in that color and the direction arrows that people were allowed to go in or not. There were also a lot of roundabouts. The name of the hotel we were staying in that night was called the Umobano Hotel. The hotel was nice and pretty. They greeted us with a tropical mango drink before we checked into our rooms. I was hesitant in drinking it, because it had ice in it, but Charlene told us it was safe to drink since it was a nice hotel. Charlene and the other people from the Columbus Zoo were staying at the same hotel as well. For precautions sake we still did not brush our teeth with the water from the sink. It was nice that we had free wi-fi at the hotel so I made sure to send my family an email telling them that I arrived in Rwanda safely.

Sunday, June 10, 2012

Today we woke up early to enjoy the buffet style breakfast that the hotel was having. We were seated outside and the landscape was beautiful. They had a pool and a tennis court. They even had grey crowned cranes, the national bird of Rwanda that were walking around freely and eating crumbs that had fallen from people's tables. The bird's wings were either clipped or pinned down so they were domesticated and not able to fly away. I definitely did not feel like I was in Africa while being at this hotel!

Zachary came to meet us at the hotel this morning after we had breakfast. He also arranged for us to get a van to take us to Gisenyi, which is about a 3-hour drive from Kigali. Before we left the city we made sure to exchange our money. $1 was approximately equal to 610 Rwandan Francs (RWF). I made sure to bring enough money to be able to buy gifts for family and friends.

The scenery to Gisenyi was beautiful. All the roads in Kigali were nicely paved and even the one leading to Gisenyi. Along all the roads were drainage ditches on both sides. I believe they are used to prevent flooding and maybe even to collect rainwater. We were driving along a mountain and there were mountains and hills and trees everywhere. Very breathtaking! There were sections of the roads where there was no railing and it felt like we could have easily fell several dozen feet down into the trees! There were also people walking along the roads.

We stopped twice along the road. The first time was to take a bathroom break and get some water. A bottle of water was about $0.50. The second time we stopped was because of a cycling race that was occurring. The cyclist were coming down the mountain area and the police were escorting them to make sure the roads were clear throughout the path they were talking. All the cars and motorcycles stopped at the side of the road. I did not count how many cyclists were in the race, but it was a promotion for the naming ceremony of one of the gorillas.

We were very excited to have arrived once we got into Gisenyi. Just like any other city there were tons of people, motorcycles and shops around. Also, all the roads were no longer paved. There were tons of rocks of all sizes and dirt. I can only imagine how horrible the roads will be when it would rain! I guess the rocks help for the roads to not get that muddy. There were still a lot of mountains and trees around. Our hotel was gated and it was called The Presbyterian Guest House. The landscape was very pretty. The hotel was not your typical hotel that is several stories high. There were separate one-story buildings of various sizes. One building was the office. There was a guard dressed in a blue uniform that was stationed by the front of the office. Another building was the restaurant with a kitchen attached. They also had a banquet hall next to the office. Where we were going to be staying was down some stone steps all the way in the back. Our place was cute. It had three bedrooms with two twin-sized beds with mosquito nets above them in each room

and also a full bathroom that had a water heater inside. The common area had 5 chairs and two tables.

After we dropped our bags off at our house, we went to the restaurant to get some lunch. The set up was buffet style. The food was decent. There was rice, pasta, beans, steamed vegetables (carrots, eggplants), cassava, plantains and the meat (most likely beef) was in a tomato stew). The dinner was not very expensive, and would cost a little bit more if you got meat or a soda. It came out to be about $3. After we ate we went to the Ubumwe Community Center (UCC). The UCC is a center for children and adults that are mentally and physically disabled. There was a sign there that read "disability is not inability". I really appreciated this sign. The center tries to help those that are disabled to become independent by teaching them skills that can help them generate money for themselves. It seems like Rwanda is moving forward when it comes to caring for people with disabilities and making sure they are included in society. After the genocide in 1994, I can only imagine that there were a lot of people that became mentally and physically disabled as a result. The other director of the center is named Frederick. In 1997 when Frederick was 15, rebels hacked off his hand with a machete because he refused to kill all the other 18 passengers on the bus with him. He is a very inspirational person. He never knew how to paint before this incident, but today he paints with the nubs of his arms and the proceeds from his paintings helps to raise money for the UCC. Both Frederick and Zachary come to Columbus, Ohio a lot. In September, the Columbus Zoo holds an event called the Rwanda Fete, which helps to raise money for the UCC and PIC.

After we left the UCC we decided to walk all the way to Lake Kivu. We had no idea where we were going, but we knew the general direction we had to walk in to get there. Kivu Beach is nice, clean and beautiful! We took tons of pictures there and even caught a wedding going on. The Beach was about a 10- 15-minute walk from our hotel. When we got back to our hotel we saw a white guy reading a book at the outside table of the restaurant. We found out that he was Australian and his name was Jack. Jack has been backpacking across Europe and Africa for the past year and plans to continue for another 8 months. He stopped through in Rwanda, because he really wants to reach the Democratic Republic of Congo (DRC) and see the active volcanoes there. The DRC borders Rwanda to the west and parts of both countries are separated by Lake Kivu. We all wanted to try out a local place for dinner, and Jacks suggested this place down by Kivu Beach called Tam Tam. The city was packed with hundreds of people! We did not know that there was a music festival going on that was in promotion for the local beer called Primus. Tam Tam is gated and the guards did not want to let me in, because I look Rwandan! Not sure if they were trying to discriminate, because they were packed, but this really made me mad! The people I was with were like she is American, she is with us, and then they let me in. I did not care to be there after that! I did remember that in DC there are clubs that do discriminate based on dress code (and probably even looks). We ordered chicken and fries and it was good. When we left the restaurant, the area was not as packed as before with a lot of people. It was also very dark since the streetlights were limited. That was a crazy yet fun adventure for our first day in Gisenye.

I was the first one to shower in our bathroom tonight and I thought it was going to be simple. The hot water never came on. This meant I was forced to take a cold shower! I did not know why it was not working since we had a hot water heater and the hot water in the sink worked. The water did turn warm for about 30 seconds. We all decided to suck it up and enjoy cold showers for the rest of the week!

Monday, June 11, 2012

I woke up at about 7 am this morning to get ready for our day. It was going to be our first day at the UCC. The van was going to pick us up and take us to the UCC by 8:30am so we needed to be done with breakfast before then. My breakfast was okay. The menu was simple: omelet (with or without tomatoes and onions), bread or chapati (a type of pancake), tea (African or black) and coffee. I got the omelet with tomatoes and bread and African tea. Their African tea has ginger and milk in it. Since I am slightly lactose intolerant I had my tea without milk.

On our drive to the UCC we made sure to take a lot of pictures. I saw about two pharmacies on our way there. We also realized again how very close we were to the DRC border. Literally as we turn into the short dirt road leading to the UCC, the gates for the DRC border is right there. There were also a lot of people travelling back and fourth.

Our main objective at the UCC today was to get to meet some of the people and ask Zachary some of the questions we had about the UCC pertaining to our professions (Pharmacy, Medicine, Physical Therapy, and Occupational Therapy)

Answer to Physical Therapy and Occupational Therapy Questions:

- The age group at the center is from about 3/4 years old to 40s and there is one lady that is in her 70s that is there mainly for the social aspect. In town, many people are in their late teens/ early adult age.
- There are about 50 children and 50 adults at the center.
- Physically disabled people usually have trouble with using the restroom and mentally disabled people usually have issues with
- People are at the center from 8am to 12pm if they have a way home and do not live far. Others will be at the center from 8am to 4pm if they live far and need the van to take them home.
- The deaf people at the center use international sign language (or American sign language) so that after they graduate from the center they will still be able to communicate with others
- Every January they take on new kids. They can't have more than 30 children in the classroom at a time.

- Children take about 3 years to go through the program then take a test (a basic communications test) so that they can excel in the regular schools. Children with multiple disabilities may take longer than 3 years.
- There are 12 boys and 14 girls that are deaf
- There are some people that stay at the center longer so that they are not left alone at home
- Public schools are free, children only have to buy uniforms and school supplies. Some very poor families may not be able to afford this. Private schools usually have fees attached to them. The center also charges a fee, but many people are too poor to pay.
- There is a campaign going on in the country (approximately 5 years old), that tries to portray disabled people in a positive aspect so that society does not think of them as useless
- There are approximately 10 centers like this in Rwanda
- They only have a few wheelchairs at the center. They get support for crutches, there are crutches made locally. Arm crutches are used more often than hand crutches. Locally made wheelchairs also hold up better on the roads in this country.

Answers to Pharmacy Questions:

- There are bout 7 epileptic patients at the center (2 girls, 5 boys)
- They get their medications for free at the pharmacy, dispensary (clinic) or hospital (government pays for it)
- The country has universal healthcare called Mutual Health Insurance. It cost about 3,000 RWF a year (about $6). The rich pay about 6,000 RWF, the poor pay about 1,500 RWF and the very poor do not pay anything. The pricing scale is based is set by someone who go from house to house and observes the people in the village.
- Medication issues are not a problem at the center. Their biggest need is usually first aid items.
- People do not have an issue going to the hospital for serious problems
- Pharmacies are at shops in the community, at hospitals and at dispensaries where people can get medications. There are also private clinics available.
- Vaccination status of everyone at the center is not really known, but newborns usually get their routine vaccination schedule. There are healthcare workers that go around to do vaccinations.
- Minister of health have trained people in villages to help during normal cases of birth delivery if a women is unable or too far to get to the hospital.
- There are no pharmacies in the villages. There are about 3 pharmacies in Gisenyi (Rubavu, Lago, Vinca), 1 main hospital, 2 government owned clinics and 3 private clinics.
- HIV/AIDS is an issue. They have HIV prevention talk with the people with disabilities. There are clinics and free medications available for people HIV/AIDS (free through the government). There are also associations that

people can join that act like support groups where people can have group discussions.
- Many people use Western medicine. Traditional medicine is usually used only when the Western medicine has failed. In the villages, many people may use Traditional medicine more only, because Western medicine may not be readily available.

Responses from some Patient Interviews

Benjamin is an epileptic patient raised in Congo. If he forgets to take his medications he gets seizures several times a week. When he gets a seizure he first sees darkness and then blacks out. When he wakes up he doesn't know where he its and he is confused. He can't hear anything when having a seizure. He started having seizures when he was 1 or 2 years old. He falls down often and doesn't feel anything. He feels pain after due to falling and shaking. The main reason he forgets is because he thinks he had taken it, but doesn't remember. Benjamin gets angry easily or talks too much. He said just thoughts in his mind also gets mixed up. He lives with his mother. There is a parents association at the UCC. People at the clinic train patients on how to take their medications and what to do when the patient is having a seizure. Other triggers include when he is really hot our really hungry. The center feeds patients in the morning with porridge. They also feed everyone lunch at 12. He is also sad that he can't drive because of his epilepsy. We asked him to bring his medication the following day. He takes Tegretol 300mg three times a day (am, lunch, before bed). We tried to look for a pillbox for him at the local stores but couldn't find any. We decided to make a monthly schedule for him so that he can check off the three times he takes his medication each day. We sent a copy to Zachary so that each month when Benjamin completes his schedule Zachary will print him out another copy.

Jean Claude is a 21-year old epileptic patient. He has had seizures since he was 8 years old. When he gets seizures he falls down fast. He takes one pill in the morning and three pills at night. One of the medications is Phenobarbital. He only forgets to take his medications when he runs out. He has to pay about 300 RWF for a 3 months supply. He was taking traditional medicine before he started going to the hospital. After he started taking medication, he did not have another seizure for a year. When he is having a seizure he shakes, pees, and bites his tongue. He may feel dizzy if he does not take medication with food. Most families in Rwanda do not eat breakfast and some schools only supply lunch and dinner. He is said that he is not allowed to drive at all.
- Zachary also told us that the staff gets trained on how to take care of epileptic patients. Handicap international also has a program where they send people around to educate them.

Dada (or Tumunde) is a disabled 29-year old female. She is wheel chair bound due to athetoid cerebral palsy (?). She feels the same every day with no problems. Her

knees hurt sometimes, also her upper thighs, left hips (dislocated?), back and arms. She complains of heart problems and chest pain. It may be due to acid reflux, but need a doctor to confirm it is not a more serious issue. She does not take any medications. We decided to make her a wheelchair cushion and a back cushion so that she can sit better in her wheelchair and this will hopefully help with her body pain. We took measure of her seat.

Ngabo (Alex) is a disabled 16-year old boy. He is also wheelchair bound, because is disabled at knees. May be due to spastic diplegia (cerebral palsy? Not enough oxygen at birth? Premature?) He does not like using a walker and he has a wheelchair at home. He is able to push his wheelchair by himself. He is not feeling any pain anywhere yet. He has a worm infestation in his feet and it has spread to his knees. They call these types of worms amavunja, and it usually only bothers people who are forced to live in very unsanitary conditions. At the center they clean it with peroxide. His back muscles are weak because he has been sitting his whole life. He does not complain of breathing problems. We decided to make him a wheel chair cushion/ booster since his chair is big for him and his posture would be better if he were higher up in his seat. We took measures of his seat.

Jean Paul is an 18-year old boy with pain in his genital area. He does not have an insurance card to go to the hospital or money to pay a doctor. His pain began in 2008 and happens frequently and suddenly. It is really hard for him to urinate. He feels pain inside, back (kidneys?) and shoulders (referred?). He has never taken medicine to treat the pain. We decided to donate money so he can get an insurance card and get checked by a doctor.

After we completed the interviews of most of the people at the center, Frederick took us to the market. We were looking for salt and sugar for the oral rehydration therapy workshop we were going to have for the teachers. Death due to dehydration is something that can easily be prevented or halted using ORT. The market was packed with a bunch of different booths with just about everything people might need. Frederick had to tag along with us, because of course we needed a translator. We were able to buy the sugar at the market but had to go to the "white man store" for the salt. Since Rwanda banned plastic bags we decided to package the salt and sugar in plastic cups covered with aluminum foil.

After we left the market, Frederick took us to one of the local pharmacies that he said was the best. I was very excited to go. It was called Pharmacie Vinca. The two ladies there did not speak English so Frederick was the translator. One was a certified pharmacist and I believe the other lady was the technician. I wanted to ask them a lot of questions, but unfortunately they did not seem very open. They did allow me to take pictures with them and take pictures of some of the medications they sold. None of the drugs were written in English, but I did see something that looked like acetaminophen suppositories on the shelf. We did see a couple of patients come in to buy some medications. The technician would then write some records in a book they kept. I would have loved to be able to interact with them

longer. Maybe if I spoke their language they would have been more open. I do not want to say this visit was a complete failure, but I did hope to make a stronger connection so that future students would be able to visit them as well.

When we went back to the center we were able to buy the items that the adults make during class. This included dolls, picture frames, jewelry, etc. I think we spent about $600 as a group purchasing things. The money either goes to the center or the individual people who make them. We all also made sure to buy some of Fredericks's beautiful paintings.

Tuesday, June 10 2012

We were very excited about today since we were going to be getting a person tour of the local hospital called the Gisenyi Sector Hospital. Zachary and Frederick joined us there as well. The hospital was one-story buildings throughout the area. Some were connected in some way. We observed a few buildings that were being taken down in order to be prepared. We later learned that they were still rebuilding from the destruction caused by the genocide. We also saw their ambulance, which was a pretty cool thing to see. We were hoping that the sirens would go off so that we can see what it sounded like. We imagined the sirens would be similar to those that are heard in England, or some other European country.

We met up with Dr. Emmanuel, an OB-GYN, and Dr. William, the hospital director. I believe they refer to themselves with their first names. Even though we got there early (about 9 am) we had to wait about an hour and a half before we met up with Dr. Emmanuel. He had such a boisterous personality that we all really enjoyed! He was an old friend of Zachary and so that is why we were able to get a personal tour. After he greeted us he said he just finished doing surgery on a clubbed foot. It was interesting that we did notice quite a few people in the city with a club foot boot or boots. We were very honored that they would take time out of their very busy schedule for us. I know Cara had corresponded through email with him prior to us coming to Rwanda. The Gisenyi Sector Hospital is a district hospital that started out in 1930 as a dispensary (or clinic) [a website I found with more pictures of the hospital: http://onegooddeedkc.org/news/?p=497]. They have just about every profession represented at the hospital. There was pharmacy, ophthalmology, physiotherapy (they did not separate this profession into physical and occupational therapy like we do here in the US), radiography, pediatrics, surgery, etc. Dr. Emmanuel told us that he studied at the National University of Rwanda. We did not ask Dr. William where he studied at, but he was very nice. They both seemed very westernized. There were about 16 doctors (2 are female) at the hospital, over 100 nurses and only 1 qualified pharmacist. The hospital is very close to the DRC border so they get a lot of patients from there as well. People from Congo will pay 100%, but people from Rwanda may pay about 15% since they have the mutual insurance coverage. The district authority pays for the very poor or indigent population to get treated. They said even if someone is very poor they would not be turned away. The

minister of health pays for cases that are very expensive. There are about 220 beds at the hospital.

The hospital delivers about 20 babies a day at the hospital (wow!) He said that the youngest baby he has delivered was 34 weeks. I think he probably misheard this question. When we went to the NICU some of these babies looked much younger than that. He also said they usually observe the mother for about 6 hours before she is discharged. We were able to see the room where the mother's are with their babies. I would not be surprised of some of usually there longer than that before leaving. He also told us that Family Planning is something they teach women about so that they can discourage a lot of children being born to one family. He said that some people go to the Hot Springs, because they think it can cure everything. They may soak in it and even drink the water. He said it is not very medicinal.

We were able to see their lab where different serology and biochemistry things are done. They said that the World Health Organization is in the process of turning their labs into a standard lab since they are so close to the DRC border and they can make a huge impact on the whole population of the city. We got to meet a patient who had to get their arm and leg amputated since they were in a very bad motorcycle accident. We also walked through a room where a patient was getting a fistula cleaned out. We also saw dental surgery occurring, and the child was crying very loudly! Another cool thing we got to observe was a real life endoscopy. The doctor said the patient's stomach was not completely emptied of food so he could not see very well. He assumed the patient may have an adenocarcinoma, but was going to see him again tomorrow, in hopes his stomach will be empty, to confirm. Dr. Emmanuel had to leave us, because he was needed elsewhere, so we went to observe a physiotherapy treatment occurring. There are 3 physiotherapists at the hospital. It is definitely a service that is needed and greatly appreciated.

The last thing we got to observe was the pharmacy. I also got to meet the only certified pharmacists there and his name was Eric. We did not have that much time to stay and chat, but he seemed very nice and open. I read somewhere that there were only a little over 300 pharmacists in Rwanda (they have a population of about 11 million). They definitely have a great need for pharmacists! The pharmacists there do schooling for a total of 6 years, which awards them a bachelor degree. Eric said he was in the private sector before coming to the hospital. Eric took us to the stock room, which was packed with boxes of medications. They get their medications from the district pharmacies (supply chains) that then get their medications from the central supplier CAMERWA. I believe CAMERWA makes sure that they have all the essential medications usually in generic form. Eric said there aren't really any medications they are in short supply of. We got to observe medications being dispensed and Eric said it was the nurses that help with the dispensing and counseling. There were about 8 nurses/ technicians there. He is usually called on when there is something that is hard or confusing.

Frederick told me that this was the hospital he was being taken care of after his hands were hacked off and Dr. Emmanuel was the one that repaired them with stitches.

I really enjoyed going through this hospital and I think it will be a great idea if students from OSU can do rotations there. There are very open and nice and students can definitely make an impact.

After we left the hospital we went to an African Arts Gallery Shop. They had the most beautiful things there and I wish I could have bought everything! I definitely made sure to get a few gifts for my friends and family.

Once we left the African Arts Gallery Shop, we went on home visits. The first person we saw was a lady named Denise who was practically home bound due to a spinal cord injury from being hit in a car accident. Her home was a one-bedroom space and it also had a closet. She depended a lot on her daughter for dressing and even bathing. Cara was able to tell her ways she could sit in her and being supported by pillows for her back so that she can ease her back shoulder and leg pain. She said she had a friend in the neighborhood that was a physiotherapist and he would visit her sometimes and help her through certain exercises. Cara was also hoping that Denise would want to be more independent so she wanted to get a bath chair and bathing stick for her.

Wednesday, June 11, 2012

Today was our second day at the UCC and fifth day in Rwanda! Every day is filled with new and exciting things. When we got to the UCC we planned several events for the day. First, William was going to do hearing assessments since there are about 20 deaf students at the center, and then we were going to teach some of the teachers at the center an ear cleaning technique. Lastly, we were going to go on home visits.

As a first year medical student, William was pretty knowledgeable. William was able to use an otoscope to check the inside of the ear to check for any damage to the ear. He would then use a tuning fork to see if any of the children had residual hearing in either ear. He was also able to see if the people were deaf, because of obstruction or because of any possible nerve damage. We did not do the hearing assessment in order to definitively label the children, but just to get an idea of who can possibly benefit from a hearing aid. Cara was hoping to set up a connection with an organization that is based on in Europe, but has branches out in Rwanda where they do hearing testing and hearing aids for many people in Rwanda. They do not have a branch in Gisenye yet. It will be great if they can come to the UCC and test everyone officially and fit him or her for hearing aids. We hope our assessment can encourage this organization to come to Gisenyi. Even though there are about 20 deaf people at the center, only about 10 were found to have residual testing. William was also able to test the teacher who is deaf. There are about 6 other students that use to be at the

center but now go to inclusive schools and they also came to get their hearing tested.

After we did the hearing testing we taught the teachers an ear cleaning technique called wicking. We made the materials out of big cotton balls and coffee stirrers. We had to tell them that this technique is used when someone's ear is leaking. We also told them how it is not really good to put small things in your ears such as cotton swabs, because you can unknowingly damage your ear or even push the wax further inside. Even though we know q-tips are not good, a lot of people still use them.

Cara then wanted to introduce this program called Embedded Arts to the UCC. This is the main project she is working on for her thesis. The program tries to encourage movement in disabled people that are normally restricted in their movements. It is a computer program and people are pretty much drawing or painting using a sensor. You can place the sensor pretty much anywhere on the body such as the head, hands, arm, stomach, etc. Any place you want to increase tone and strengthen muscles. The program also captures movement. Cara was hoping it could be used as an exercise program for some of the people at the center. Not only did Zachary and Frederic try it out and loved it, but we also had two other students at the center try it out. One was a little girl, about 4 years old, named Chantal who has taught herself to eat with her feet since her hands have restricted movements. The other person to try it was Carine, who is wheelchair bound and has limited use of her hands. Everyone really seemed to like the program and hopefully they continue to use it even after we leave.

We then walked over to the wood market. At this market, they cut wood and make different things out of wood such as bed frames, desks and drawers. We needed the wood to make the wheelchair cushions for some of the people at the center. After we left the wood market we went on a few more home visits. One young man named Dominic was about 16 and seemed to be autistic. The parents said they never heard about autism and even when we were at the hospital the previous day they said they never heard about autism either. It is definitely something that is not as widespread there as it is here in the US. Perhaps diet may be a contributing factor for it being more common in the US. Cara went over different ways for the parents to interact with him and calm him down and massage him. The other person we visited was a wheelchair bound boy named Jean Paul. Cara went over the best way to lift him in and out his wheelchair so that the person that is caring for him would not hurt himself or herself. We also decided to make a wheelchair seat for him. We also went to visit someone else who was suffering from a spinal cord injury, but unfortunately the medicine they take for pain puts them to sleep very easy. They were asleep when we got there and did not have another day to go back and visit them. We then walked back to the UCC to wait for the van to take us home.

Since I am very much interested in Public and Global Health, I made sure to ask Zachary some questions that I was curious about while we waited for the van to come.

Public Health Topics and Answers from Zachary:

Water: The water comes from a private company that purifies the water from the river. Many people have access to water, but not everyone has indoor plumbing. At the UCC, they are able to collect rainwater. Once the rainwater supply runs out then they will switch from getting their water from the private company. People in remote villages have wells where they can get water.

Personal Sanitation: At the UCC, they held a program to teach people to wash their hands after using the restroom, but not everyone does it. They usually have soap in the bathrooms at the UCC, but people usually steal it. Not everyone brushes his or her teeth. Those that can't afford a toothbrush may use a makeshift brush from a twig.

HIV/AIDS: They have sexual and reproductive health, and STI posters in the adult classroom of the UCC. Every Thursday at the UCC they talk to people at the center about HIV/AIDS, talk to teenagers about how their body grows, and they talk about condom use. Many people (especially the younger generation) use condoms, but culturally people shy away from the topic. There are local health centers where people can get tested for free. You can also call volunteers from these health centers to come and test people at your site. Volunteers also have public health events where they test people.

Malaria: The government has given out free malaria nets to everyone. It is a must that everyone has one over his or her beds. Local health agents also go house to house to make sure everyone has one. If they found out someone sold their net, the person would be fined.

Smoking: You cannot smoke around people or anywhere indoors countrywide. The cost of a package of cigarettes is expensive. You also have to be 18 and older to buy cigarettes.
Worms: The hospital prescribes medicine to treat it. Many people are infected with intestinal worms. Zachary goes to get treated every 3 months for worms.

Driving: Not a lot of accidents because police and army officers are everywhere. They will easily pull anyone over who is speeding. You have to be 18 years old to get a license. There are many motorcycles around and both the driver and passenger usually wear helmets. Motorcycles are used a lot more, because they are cheaper and easier to get to places where roads are not paved. (A motorcycle taxi may cost someone $1, but a car taxi will cost someone $10 to get a ride to the same place). When driving you should always carry around you license, registration, and insurance. Everyone who has a car must have insurance or the will be fined $200. There are traffic lights in Kigali, but not in Gisenyi or many villages. If you hit a streetlight you will be fined $200. You will also be charged $200 if you drive without

a license and your car will be confiscated. You will get a ticket of $20 if you are driving without a seatbelt, $20 if you park badly, and $100 for speeding.

Alcohol: You have to be 18 years old to buy alcohol, but it is not really enforced.

Air Pollution: There is not much outdoor air pollution. Many people are not really concerned with indoor air pollution. Many women still cook on traditional stoves, because electric stoves are expensive. At the UCC, they use traditional stoves that are heated with coal and they have windows in the kitchen that allows for air pollution to leave out. For rich people, electric stoves may just be around for show and they may have house servants do the cooking on traditional stoves.

Trash: Rwanda band plastic bags countrywide. The country is fairly clean with little to no trash on the streets. There is a company that takes trash to a landfill. There are street cleaners in Kigali and they even wash the trees. People pay a small amount of money (1000 RWF = 1.6 USD) to get their trash removed a month. The UCC pays 10,000 RWF= 16 USD to get their trash removed at the center. The company comes around twice a month to remove the trash.

Thursday, June 12, 2012

Zachary promised to take us to the Congo border today to see if we can take some pictures. Of course we were not allowed past the gate, but some of the officials said we could take pictures of ourselves around here, but not facing Congo. We saw a guy there with an Ohio State t-shirt so we made sure to take a picture with him. Congo is going through a war so it is not really safe for many people to go there. There are even many refugee camps for displaced Congolese people here in Rwanda. From where we were standing we could see into the country. It did not seem as clean or orderly as Rwanda. This of course must be due to the war.

When we arrived at the UCC a mother was waiting to see us with their child. Half of the child's face was paralyzed. The child's name was Thompson and he was 4 years old. He looked to be no more than 1 or 2. He had a pattern of an 8 month old perhaps. He did not walk and did not crawl for too long. He could stand a bit but did not like doing that for too long. The child could see out of one eye, but he could not hear. His left eye seemed like it was a bit delayed. When William looked into his ears with an otoscope he said he saw either partial obstruction or earwax in the left ear and he could not see very well into the right ear. We could not really hear the baby's voice, because his throat is partially closed. The mother said he was actually born a day late and he was of a normal size and she had no problems with his birth. She also confirmed that he did not cry when he was born. He does cough a lot. There was not really anything we could do. Cara did go over some techniques she can do to stimulate him, such as giving him massages and other things to do when he starts to grind his teeth.

As students of occupational therapy, Elena and Kristi wanted to make a special spoon for Chantal so that she can use her hand to eat. To make this they used a regular metal spoon and wrapped around this moldable plastic that Chantal can cuff in order to get the spoon to her mouth to eat. Once they were done making the spoon for her, the people in the kitchen made another plate of food for Chantal to test out the spoon. It worked wonderfully and she really enjoyed using it. They were going to make another spoon for her so that she can have one for home and one for the center. They made sure to video record this.

Kristi and I were in charge of doing the Oral Rehydration Therapy workshop with the teachers at the center. Since most of the teachers do not speak English, we had Frederick translate for us. We taught them how they can tell if someone is dehydrated and how to make the ORT solution (8 teaspoons of sugar, ½ teaspoon of salt and 1 Liter of water) in order to prevent this person, usually a child, from dying from dehydration. We had them measure out their own mixtures to take home. They did not mix it with water though. They asked some really good questions during the session. Some questions included are the measurements different for an adult versus a child. The answer was yes, you would make 3 liters for an adult instead. They also asked how long would the solution last. I encouraged them to not mix the salt, sugar and water until you need it. I had made a mix the previous night and brought it to the classroom so that people can taste how it is. It was important for them to know that it should not be salty at all. They really appreciated this demonstration since no one has ever really told them about this. One of the teachers asked if he could keep the mixed solution I made since he knew of a young girl in his neighborhood that seemed to be very dehydrated. We bought enough salt and sugar for over 100 people and left them along with teaching materials for the center. We hope that they can hold similar workshops for other families around.

While at the center, we made the wheelchair cushions. We used foam, vinyl, wood and duct tape and a staple gun to hold everything together. It definitely looked well made and we hoped the people would really appreciate them.

We did not do any home visits as planned, because the lady who was previously asleep the day before was not home at the time. We did go to the market, because I wanted to buy some fabric to make a dress for my sister. Frederick had Vincent, one of the adults at the UCC, to make them. He sews really fast and said he would have them done by Friday afternoon.

Friday, June 13, 2012

Today was our last day at the UCC and I was really sad about that. It felt like the week went by so fast! The main things we had planned for the day was giving out the toothpaste and toothbrushes that Kristi's doctor donated. They were able to donate 100 of each, which was just the amount we needed for everyone at the

center. Cara also bought some toys for the children at the center were going to give to Zachary for them. One of them was Jenga, which I love. I did not know that Jenga was the Swahili word " to build". Swahili is another language that many people in the area speak. We also planned to hand out the wheelchair cushions that we worked so hard making and finding materials for during the week.

The people who got the wheel chair cushions really appreciated it. The one's we made cushions for were Dada, Carine, Ngabo, Pascal (an adult who sews beautifully) and Jean Paul (from home visit). We hope that it will help their posture in the wheelchairs and also have them feel more comfortable. We also made sure to show Frederick and Zachary how the wheelchair cushions are made just incase they might want to make one for someone else who might need it. When we passed out the toothbrushes, everyone was so very excited. Zachary pointed out that this might be the first toothbrush and toothpaste that any of them may have ever owned.

Zachary wanted to take us to this place called the Cooperative Center. Some adults who have graduated from the center and are now independent may join a cooperative, which is almost like a group business venture, so that they can sell the items they make and ear money. We made sure to buy more items here as well!

We also got to visit the Imbabazi Orphanage (www.Imbabazi.org) that was started by a lady name Ros Carr. Her story is a wonderful one. She has a memoire called Land of a Thousand Hills that Cara, Elene and Kristi have read. I hope to read it this summer as well. The orphanage is about a 1.5-hour drive away at a place called Mugongo. We were able to see the Volcanoes a little better up here. After the Rwanda genocide, there were thousands of children that were left orphaned and she took in about 400. These children included Zachary and Frederick. Today there are probably about 50 children still at the orphanage and the youngest is 11. Most of them are away at boarding school so we did not really get to meet any of them. Since Rwanda is trying to close down all the orphanages by 2015, they are planning to turn the area into more of a tourist spot. There was a young lady that was in the Peace Corps that was living there and she gave us a tour of the area. I have always dreamed of being a Peace Corps member, but I feel like I may never have time, since there is so much that I want to do and accomplish as well. When I asked her what her thoughts were on the closing of orphanages, she did not think it was a good idea. The children are going to be placed in the homes of some living relatives or who is willing to take them in. She felt that a lot of the girls may be turned into house slaves and not encouraged to go to school. I hope this is not the case.

After we left here we all went to a nice restaurant called La Corniche. We were going to treat Zachary, Frederick and our driving Wachu to dinner. The food was a lot and delicious. It was a great way to spend our last night in Rwanda.

Evelyne Ntam

Treatment of Epilepsy Patients in Developing Countries And the Role of Pharmacists

There were 7 epileptic patients at the Ubumwe Community Center in Gisenye, Rwanda. We had the pleasure of meeting and interviewing two of them. Benjamin was an older gentleman who started having seizures when he was about two years old. He was currently on Carbamazepine 200 mg three times a day and only had seizures when he forgot to take his medicine. Jean-Paul was a 21-year-old epileptic patient who started having seizures when he was about eight years old. He did not have a seizure for over a year once he started on Western medication (Phenobarbital) after all the traditional medication he was taking did not work. After meeting and talking with these men, I was very interested in learning more about treatment of epilepsy in developing countries like Rwanda.

According to the Epilepsy Foundation, epilepsy is also known as a seizure disorder and is defined as "a medical condition that produces seizures affecting a variety of mental and physical functions". The World Health Organization also adds in that epilepsy "is the most common serious brain disorder worldwide with no age, racial, social class, national nor geographic boundaries." Even though there are over 50 million people suffering from epilepsy worldwide, 80% of these people are living in developing countries (Merson et al, 2006). This high percentage may be due to the fact that a major cause of seizures and acquired epilepsy is central nervous system infections such as malaria, viral encephalitis, and severe meningitis (Singhi et al, 20011). These diseases disproportionately affect people living in developing countries. To help alleviate this

burden, the Institute of Medicine and WHO, not only suggested to control infectious and parasitic diseases to prevent epilepsy in these areas, but they also recommended prenatal care, safe delivery of the baby, fever control in children, reduction of the causes of brain injury, and genetic counseling for potential parents who have epilepsy (Merson et al, 2006).

Furthermore, epilepsy can be effectively prevented and treated at an affordable cost (WHO.org). All patients with epilepsy are recommended to be on pharmacological treatment and with adequate treatment the majority of epileptic patients can remain seizure free (Merson et al, 2006). However, about 90% of epileptic patients living in developing countries who need medication to treat their epilepsy do not get treatment. This may be due to ignorance, fear, illiteracy, cultural attitudes towards the treatment, reduced availability of the drugs and inability of individuals or healthcare systems to pay for treatment (Merson et al, 2006).

According to Farkondeh et al, one way to reduce the treatment gap that is present in developing countries is to increase the access of antiepileptic drugs by including them on the WHO Model List of Essential Medicines. This will allow quality antiepileptic drugs to be readily available, accessible and affordable to the people who need it most (Farkonde et al, 2009). Farkondeh et al also add in that the WHO Model List of Essential Medicines "guide the procurement and supply of medicines in the public sector, reimbursement schemes, medicine donations, and local production of medicines". This is good to know because the first line antiepileptic medications carbamazepine, valproate, phenobarbital, and phenytoin are all included in the WHO Model List of Essential Medicines (Farkondeh et al, 2009). These drugs are also included in the national

formulary list of a majority of countries around the world. This indicates that the "treatment of epilepsy is considered essential throughout the world, and the availability of [antiepileptic drugs] has been identified as a top priority" (Farkondeh et al, 2009).

The role of pharmacists in the healthcare system is to ensure the safe and affective use of medications. WHO recommends a ratio of 1 pharmacist per 2000 people (Azhar et al, 2009). Rwanda, for example, has a population of about 11 million and a little over 300 pharmacists. This is about 1 pharmacist for every 36,000 people. Pharmacists can play a major role in helping epileptic patients manage their medications by recommending and dispensing the appropriate medications, providing follow up and monitoring of treatment, making sure these patients avoid adverse drug events and minimizing adverse drug reactions, and providing information and education to patients and caregivers (Dua et al, 2006).

In conclusion, epilepsy is a major global healthcare issue that every healthcare professional should be knowledgeable about. Since epilepsy disproportionately affects people in developing countries, the World Health Organization (WHO), along with the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IPE) started the Global Campaign against Epilepsy in 1997 "to improve acceptability, treatment, services and prevention of epilepsy worldwide". It is my hope that with continued awareness, many people in developing countries who need pharmacological therapy to treat their epilepsy will be able to have access to it and that there will be an increase in pharmacists in developing countries since they have the capability to play a vital role in the medication management of epileptic patients.

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