Medical School Rotation in Manguzi, South Africa

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Since the beginning of medical school I was hoping to go on a rotation to my home country, South Africa. I had traveled there several times since moving away when I was three and a half, but each time had just been to visit my family outside of Johannesburg. I had never traveled there on my own or experienced much outside of the places I went with my family. But, medical school was a perfect opportunity to spread my wings, so to speak, during my own adventure in South Africa. Preparations started in my third year of medical school with determining where I would like to go. I applied for the rural location in Manguzi, Kwazulu-Natal, South Africa because I did not want to go to the hospitals in Johannesburg and Pretoria that were huge, urban medical centers. Thankfully I received my choice of locations. Roxy Stiles and Maggie Nielsen, two of my classmates were also assigned to Manguzi so we started putting our plans together to get there.

The first hurdle we had to overcome was transportation. It was recommended we use Adoption Airfare to buy our plane tickets. This proved to be slightly cheaper than buying them ourselves. The next transportation choice was how to get from the airport in Durban to rural Manguzi, a 5 hour drive. Public transportation was limited to buses and minibus taxis. The other option was to rent a car and drive ourselves. Buses were difficult to arrange from the United States, so that was out. Minibus taxis have been used by other students in the past, but none of them had good experiences. Minibus taxis originated as a transportation option for poor workers in South Africa. It has since become slightly better regulated, but there are still many problems with this transportation medium. South Africa has very high car accident and car-involved death rates and much of it is centered on the minibuses. They are often overloaded, drive above the speed limit so as to increase earning potential, and are often not serviced correctly. On top of this, multiple taxis would have been required to go from Durban to Manguzi and their schedules are more centered on when the taxi is full and not when a certain time has been reached. There have also been stories of gangs being involved with the minibuses. European tourists supposedly love minibuses and the sub-culture that they represent, and they have improved greatly in the modern day, but having spent some time in Johannesburg (which is definitely a world all its own in South Africa), I was adamant that I was not going to take a minibus taxi to get to Manguzi. The rental car was the only remaining option, and although it was the most expensive, it also provided us with the most freedom once we reached Manguzi itself. With our transportation arrangements settled, it was just a matter of getting paperwork and other small arrangements ready before we started our long journey to Manguzi.

The month-long stay in Manguzi was an amazing experience. It was challenging in many ways as I will attempt to detail, but overall I would do it all over again. The time in Manguzi was so amazing that it would be a wonderful opportunity to be able to return one day as a physician and work there. Much of the challenge was living in a small space with 2 other people that are not strangers, but also not family or people I've spent very much time with. There was also the fact that the three of us had to keep each other in mind when it came to plans for the evenings and weekends. However, we all enjoyed the trip and, I believe, it was a great experience for all of us.

To better learn from my experience, I came up with three particular questions I was hoping to get answered through my experiences in Manguzi:

1. Better understand the impact of HIV on the population of Manguzi and how it affects family dynamics, work force, culture, etc.
2. Understand the affect chronic infections like HIV and Tuberculosis have on healthcare practices.
3. Determine the effects of limited resources on the care for these chronic illnesses (eg. HIV and TB) and how it affects the rest of the hospital's services.

Collecting actual data for these questions would be difficult, since they were based more on my observations than hard numbers, but I hoped that a full month of observing and experiencing the healthcare that was offered there would be enough to answer my questions.

HIV is a huge problem in Manguzi and the surrounding countryside. Tuberculosis is also very prevalent, but many times happens as a secondary illness of HIV infection. The times were very rare when we would see an HIV negative patient. It happened, though rarely. From my experience, I believe that we got a biased view of the northern Kwazulu-Natal population and that it seemed as if everyone was HIV positive. However, that same experience can be had here, where it seems that every single person has diabetes and hypertension simply because that is what we see most commonly in the hospitals and clinics. From what I could see of the day-to-day habits of the people of Manguzi, their lives were not affected much by their HIV status. They continued to buy and sell their goods, work, and live relatively normal lives. In that sense, it was as if they did not have the disease, and in truth, many were so well controlled with ARVDs (anti-retroviral drugs) that it was more a chronic disease than it was a death sentence. The difference came with quality of life when the disease was not well controlled. Most of the patients we saw ranged in age from their 20s to 50s and many of them were suffering from the severe negative effects of HIV. The problems ranged from gastrointestinal diseases to full-blown fungal meningitis to rampant disease processes involving with tuberculosis. Many of the problems they were having medically could be solved if they could get their viral load and CD4 count up, giving the body a better chance of fighting off these other infections. Many times these diseases are due to opportunistic viruses and bacteria that are present in our environment but would not pose a problem if it weren't for these people's severe immunocompromised states. A large part of the problems that HIV posed in Manguzi was that there were occasionally shortages of key ARVDs that are supplied by the government. In many other instances, patients had the correct drugs, but they were not taking them. Poor adherence could be attributed to the lack of education about the disease, but part of the problem, I noticed, also seemed to be that people did not realize how serious the repercussions would be if they did not take their medication faithfully. This was a case where ignorance was not bliss.

Estimates are that 38.7% of people in Kwazulu-Natal, the province that Manguzi is located in are infected with HIV (1). Life expectancy is equally dismal at 43 years (1). With this very high prevalence in the local population, it was sometimes odd to see that people were just living their lives as if it was just another card they were dealt. Couples lived together and both partners were affected by HIV, yet they didn't seem to be suffering emotionally from their disease. Many households were broken, though, with the mother or wife left to care for the children while the father was either elsewhere or dead. This,

I know, affected the children especially because the mother was left to care for the whole household (1). The children had to grow up more quickly and take more responsibility in the home. Obviously employment for those suffering from HIV was negatively affected. This was especially true when compliance with medications was poor and they were always sick or if the patients were permanently disabled because of their diseases. However, despite all of this, life seemed to go on. The people of Manguzi are overall very poor, most living off of the food that is farmed in the local area. Unlike other parts of South Africa, there is tourism here, but it seems to pass through Manguzi, only stopping long enough for petrol (gasoline) at the gas stations. Because of these and other social issues, the day-to-day survival took precedence over caring about their HIV status or their health. Many were responsible for the children of those that were already very ill or dead and this also took much attention away from their ailments.

With such a high prevalence of both HIV and TB in the Manguzi community, the healthcare offered by the physicians and staff at Manguzi Hospital was affected, sometimes negatively. Because Manguzi Hospital is government run, their stock of medication, supplies, and other resources were not always adequate for the patient load. An example of this was a shortage of one of the commonly used HIV medications. It was not delivered in one of the regular shipments to the hospital and therefore any refills that patients using that drug needed were not filled and they needed to be switched to other medications. Many times these medications were second-line and therefore not as effective. The physicians did what they could to provide the best care for these patients, but with this shortage it was not always possible.

Besides medication shortages, the overall emotional toll on the caretakers at Manguzi Hospital was also influenced by the high prevalence of HIV and TB. Spending much time in the male medical ward, I sometimes saw the sadness the physicians exhibited, but it would soon pass because he found small moments to get happy about. At Manguzi Hospital, there is a noticeable disconnect between the emotions of the physicians and the constant death and suffering that they witnessed. This, I believe, is necessary for them to continue the work that they do. Several patients died during my month in Manguzi, but if we dwelled on their death, dozens of other patients would suffer more. Throughout my month though, the physicians remained motivated and positive, telling jokes and laughing and finding moments in the day to enjoy their work. They were motivated by a love for their work and what it meant to truly be helping the downtrodden. They were not motivated by money, because they could probably make more money if they decided to go to private hospitals. These physicians, the full-time Manguzi physicians, were there because they loved what they were doing, despite the hardship.

As mentioned above, the resources of Manguzi Hospital were sometimes lacking. In one of the morning reports, the pharmacist mentioned that medication stocks were at 89%, meaning 11% of the medications were not in stock, and some of those drugs were very important to the patients suffering from TB and HIV. Because of this, immediate care of these patients was negatively affected, but the long term outcome of the patient and their long term care would also be affected by this shortage. If they happened to run out of some of the more useful medications and a shipment was not quick in coming, who knows what service might be lacking. A good example was a severe shortage of fentanyl, a drug commonly used for anesthesia. They had to switch to a less often used drug that they were not as

used to using, and this sometimes did not work as well as fentanyl did. Other resources were also lacking. One that was very noticeable, especially in the Emergency Department, was the presence of a good X-ray machine and technicians able to take proper x-rays. Ultrasound was also lacking. In the US, ultrasound has become a very common part of the Emergency Department and can be used to more quickly diagnose or rule out pathologies. In Manguzi, there was only one ultrasound technician and the machine was not useable by the physicians because it was not allowed out of the radiology department. On top of this, the training among the physicians was sometimes also variable. Some were very good at ultrasound and others did not even know where to begin with the study. These different resources, both in equipment and training, did affect the care. It sometimes stretched out the stay of the patient to hours when it could have taken minutes to determine what their problem was and treat them accordingly. However, overall, the physicians managed very well and the patients were always very grateful for any small amount of care they could get. So, the care of the patients continued to the best of the physicians abilities, despite the lack of resources. They became very good at improvising and doing things in different ways to get to the same result or a similar result. They also relied much more heavily on their physical exam findings, something that I feel is sometimes lost in this country.

As I spent my month learning from the physicians and being immersed in rural South African medicine, I was better able to appreciate the difficulties they practice with as well as the fortitude it takes as a physician to work in such an environment. I had many great clinical experiences, but some stood out to me above the others. For several days out of my month I spent time in the male medical ward, a place where the patients are kept for several days because of the severity of their illnesses. I don't recall any one of them being HIV negative and many had TB on top of their HIV infection. They were some of the sickest patients I have ever encountered in my medical training, and what's worse, there wasn't just one, there was a whole ward full of them. These patients, although they were suffering, taught me many things about what can happen because of HIV and TB. I learned more about looking at physical exam findings beyond just the basics that are so commonly emphasized here in the States. There, the breathing pattern was not just tachypnea (rapid breathing), but I saw findings such as Kussmaul breathing (a sign of metabolic acidosis). The physician I worked with those days helped me understand that the way in which the person was breathing could give him ideas about the particular etiology of a disease, such as which part of the lung was affected (small alveoli or large bronchi). It was a very sad place to work every day, and it did wear down on the physician I worked with and myself, but it was a very rewarding experience clinically.

Having come from South Africa originally, I was much more accustomed to the cultural differences that were present than perhaps my two classmates were that went with me. I feel that I was able to become accustomed to Manguzi relatively quickly because of my past experiences in South Africa. Two cultural experiences come to mind that stood out. The first is the medical culture of South Africa. Here in the States people seem much more afraid of death and therefore the medical culture is geared towards keeping people alive as long as possible, despite it possibly being less about living than it is about simply staying alive. Here, end of life care has become a large focus and sometimes the focus is to prolong life as long as possible and delay the inevitable. In Manguzi, death was a daily occurrence. It was sad when it happened, but it didn't seem to be as feared as it is here. The families, friends, and

church groups would come in and spend time with their loved ones, many times saying goodbye to them knowing they won't survive much longer. However, life went on. I think some of the reason death was handled differently in Manguzi is because they encounter it so much more frequently. To them, death is simply another part of life, a reality that I aware of but still processing (especially with how it will shape my clinical practice in the years to come).

My clinical practice will definitely be affected by the experience I had in Manguzi, South Africa. Going into Emergency Medicine, I will be seeing many patients during the first days of their disease's presentation. I will need to be ready, just as the physicians in Manguzi, to be exposed to death and suffering on a regular basis, but not be phased by it, because if I am, my other patients will suffer because of it. Education of the patients will be just as important and has shown to be beneficial (2). I will need to do my best in order to educate the patients on their level, whether that's providing them with resources to study on their own or to take extra time to talk with them. Since much of my exposure in South Africa was connected with the high prevalence with HIV and TB, it could be said that increasing testing for it might help, but it did not seem to be as beneficial as it would seem at first (3). However, ongoing engagement of the family and patient in the care of the disease does seem to be beneficial (4). Because of this, as a future Emergency Medicine physician, I could try to promote follow-up with the patient's primary care physician in such a way as to help them achieve a successful level of management of their disease. Another practice that might be helpful would be to promote support groups led by lay people (5). Not only could this offload much of the responsibility of the ED onto other entities in order to conserve resources, but it might help the patients themselves greatly.

The month I spent in Manguzi was an incredible experience. I met many great friends that I hope to keep in touch with over the years. I had many clinical encounters that I have not had here and these will all have a great impact on my future clinical practice. I appreciate all of the help I received from the staff at KUMC and I hope that I can continue my international medical travels for many years to come.

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