AN ABSTRACT OF THE THESIS OF

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In his work, *The Soul of Medicine: Tales from the Bedside*, Dr. Sherwin Nuland utilized narratives from his colleagues detailing their encounters with their most remarkable patients in order to characterize what he refers to as "the soul of medicine". However, the stories contributed focused on the practice of medicine within the United States, and therefore Nuland's work does not necessarily describe what is at the soul of medicine practiced in many other parts of the world. This thesis explores what constitutes the soul of medicine in a global healthcare setting by presenting stories from physicians who have practiced medicine in low-income countries. From these stories I argue that, although many differences exist between the cultures, resources, and circumstances surrounding medicine in the United States relative to poorer nations, there are some important commonalities that contribute to the soul of international medicine.

Key Words: Global Healthcare, Medical Humanities, Medical Mission, Humanitarian Aid.

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The Soul of Global Medicine:

Tales from the International Bedside

by

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I understand that my project will become part of the permanent collection of Oregon State University, University Honors College. My signature below authorizes release of my project to any reader upon request.

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Ryan Derrah, Author

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Introduction

Narratives are vital elements in healthcare, allowing providers to build detailed patient histories, understand a particular disease progression, and recall patients they have treated in the past. Through the exchange of these tales, healthcare workers are able to provide care for their patients, as well as advance the discipline of medicine and add to its growing history. Though a physician may have tens of thousands of patients throughout his or her career, it is only the most outstanding and intriguing situations that truly remain with them, and by examining these narratives of memorable patients one can obtain a glimpse of that which is of worth to the physician, and likewise to the practice of medicine.

Dr. Sherwin Nuland's work of creative non-fiction, *The Soul of Medicine: Tales from the Bedside*, presents stories of the most remarkable patients he and his colleagues have encountered during their time working in the medical field. This collection of tales ultimately tells a story about what many people refer to as the art of medicine, and allows readers to understand medicine in a much more human and holistic way—a way that transcends simply biology, anatomy and pharmacology. Nuland contends that many of the characteristics of physicians and elements of medicine illustrated in his manuscript—compassion, ingenuity, intuition, judgment—constitute what he designates as "the soul of medicine"[1]. Although a major contribution to the field of Medical Humanities, the view of medicine encompassed in Nuland's book emerges from a relatively limited perspective,

focusing on medical practice within the United States. This subsequently begs the question: What constitutes the soul of medicine in the remainder of the world?

Undoubtedly, there are themes of medicine that are universal, and therefore would be observed in the largest city hospitals in Los Angeles, as well as in a small community health center in rural Chad. But often the cultures, customs, resources, living and working conditions, poverty levels, and belief systems that physicians encounter while working in other regions of the world are entirely different than what their counterparts in the United States experience. These differences help build an alternate view of the soul of medicine, one from the perspective of a global healthcare worker. This thesis will attempt to supplement Dr. Nuland's characterization of the soul of medicine by highlighting the similarities and differences between the core aspects of American and global medicine through the telling of tales and lessons from physicians who have practiced in global healthcare settings.

The following tales were contributed by physicians from the United States who have worked abroad in global healthcare settings. All of the physicians attended medical schools and residency programs in the United States, and therefore their experiences working in foreign countries are framed by their previously held beliefs and biases surrounding the practice of medicine. Their stories can only be presented as recollections of the events that have occurred, observed through the filtered lenses of their own life experiences. The tales included in this thesis were solicited from and subsequently volunteered by physicians via email. The only instruction that participants received was to tell a story about the most memorable or remarkable patient that they have encountered during their time working in a global healthcare setting. In addition to the stories provided by physicians, I have included

two tales from my own experience as a student working in global medical settings. Following submission of narratives by the medical professionals, the stories were read, deconstructed, and rebuilt as I took on the role of narrator. The stories were in each case thoroughly rewritten with an eye toward creative storytelling and reader engagement. I have, thus, taken liberties with the stories in terms of how they are told, resulting in a collection of narratives based on, and inspired by, real life events.

Finally, it is important to note that a patient's experience with disease and treatment is, and should be, a private matter. In the interest of protecting the identity and confidentiality of individuals whose experiences of disease and illness have inspired the following tales, the names of patients, locations, and healthcare workers have been altered when appropriate. Although many details have been changed, the clinical elements of the medical cases and circumstances surrounding them have been preserved in hopes that the soul of global medicine contained within the tales may emerge.

A Note on Methodology

Physicians involved in the Oregon Health and Science University Global Health Program were contacted via email to ask for their participation in this project. Potential participants were asked to reply via email with a story of the most memorable patient they had encountered during their time practicing medicine in a global healthcare setting. Participants were instructed to remove any names or other information that could be used to identify the patient involved in the story in order to maintain confidentiality and adhere to privacy regulations. Those physicians who volunteered to contribute to this project responded with a narrative on their most memorable patient from their work in international

healthcare. These stories were read and analyzed individually, and then rewritten in order to ensure a consistent style and voice throughout the entire collection of stories. Finally, commentary sections were added to each tale in order to highlight salient points of each narrative.

A Tale from the Dominican Republic

Our twelve-passenger van bounced along a once-paved road situated on the outskirts of Santo Domingo. The street was packed with motorcycle taxis loaded with two or three passengers, pedestrians walking from here to there, cars and trucks of all makes and models, and randomly parked vehicles in areas that should have clearly been "No Parking Zones". As the van fought its way deeper and deeper into the maze of neighborhoods, the streets became narrower and the modern-looking two story shops and houses were replaced with smaller cinderblock structures.

The van was full of young pre-medical students from the United States volunteering with an international service organization that provides impoverished communities with mobile healthcare clinics, and pre-medical students with the opportunity to practice basic medical care in underserved populations. It was our first day of our first clinic, so my pre-med peers and I were all a little nervous, but excited about finally being able to experience global medicine and provide help in any way that we could.

At last the van shuddered to a stop in front of our destination, the local primary school, which consisted of a two-story building with metal bars on every window and no electricity. Since it was our first of three days working in this community, our job was to go from house to house asking if there was anyone who needed medical treatment and inviting them to the clinic held in the primary school during the following two days. After climbing off the van and congregating in the front hallway of the school, we were placed into our groups for the day. I was grouped with a pre-med student from Long Island, NY, a twelve year-old translator from Santo Domingo, and a woman from the community who was to act

as our guide. Our foursome, armed with our medical clinic invitations, several public health questionnaires, and a medical Spanish cheat sheet, departed from the school and ventured out into the streets.

Our guide led us out into the jumble of streets. She turned left down a side street, then a right, then left, left again, and right. I quickly became disoriented as every new avenue looked almost identical to the last. Entirely at the mercy of our guide, we ventured down a few more streets before coming to an incredibly steep and slippery stone stairway that descended more than a hundred feet down a hillside. As we cautiously made the descent, we got our first glimpse of the community we would be serving in. Between the hillside and river that ran just a short distance away were hundreds of dilapidated houses pieced together with plywood, crumbling cinderblocks, and corrugated tin. Some of the houses were hanging perilously off the side of the hill, while others were crammed along small paths that led down to the water's edge. We descended further down the stairway and into a degree of poverty we did not previously know existed.

As we approached our first house our guide yelled something to the inhabitants that my limited Spanish could not catch. A woman peered out the door, looking somewhat confused at what she was hearing, but when she saw two *Americanos* standing at her door wearing baby blue colored scrubs and holding a clipboard she quickly arranged a couple of plastic chairs on her front patio and implored us to sit down. After we introduced ourselves we asked the woman if anyone in her household was sick or needed any kind of medical treatment. Our translator informed us that the woman's granddaughter, whom she cared for, was ill, and when we asked her what the child was suffering from, the woman confidently stated, "*Gripe*". The flu. The woman pointed to each of the houses around hers, repeating

the word, *gripe*, as her finger was directed at each door. Everyone seemed to have the flu. Evidently flooding had occurred in the previous weeks and, as a result, influenza had rapidly spread among this overcrowded community. We gave her an invitation to the clinic the next day and distributed another to one of her neighbors. Unfortunately, we knew we did not have enough supplies to treat everyone who had the flu, and we were forced to move to the next group of houses.

We continued on. Our guide took us down a narrow alleyway, which turned out to be lined with even smaller alleyways. As we ducked down one of these lesser alleyways, we were greeted with laundry lines, chicken coops, and latrines, all crammed between several residences composed of plywood and corrugated tin. We ducked into one of the homes and found the person our guide had been looking for. In the small shack, an elderly man was lying on a padded mat with his left leg raised. A wound the size of a deck of cards was visible on his left leg: it penetrated so deeply you could actually see the periosteum covering the bone. Although the wound looked extremely painful, it also appeared to be fairly old, with signs of the body's attempt to heal the damage clearly visible. My partner and I started our spiel, while simultaneously examining the obviously tender wound. Fumbling through our Spanish phrases that we had learned in the past week, we desperately tried to forge a relationship, a rapport with this potential patient. In the end, the man accepted an invitation to the clinic held the next day. I really hoped that he would find a way to the clinic, and if he did, I hoped we would be able to do something for him with our limited resources.

Back in the maze of alleyways, our group turned a corner towards the river. After a short distance, the path became barely navigable, with only a narrow strip of dirt allowing passage amid pools of sewage-contaminated water that formed between the houses. We

could see various debris dried and plastered on the outer walls of these small homes, illustrating where flood waters had risen only weeks earlier. I could not imagine what it would be like to have my small, wooden, dirt-floored shack filled two to three feet deep with contaminated river water. Unbelievable. It is hard to comprehend how anyone could be able to live in such conditions, much less remain in good health. Nonetheless, the few residents that remained after the floods had receded claimed they were not sick, and we could not get them to accept any clinic invitations.

Our tour of the community resumed and we began scaling a steep path up the hillside, distributing invitations as we went. I felt like one of those street advertisers wearing a sandwich board and handing out coupons for 10% off a tanning package or flyers for the grand opening of a new restaurant. Hopefully our invitations would be of more use than one of those slips of paper. We handed out our final invitation to the mother of a small child with signs of malaria, and followed the steep path up and out of the neighborhood on the hillside.

Back at the primary school, I mingled with my pre-med peers, discussing all that we had encountered during our trip into the neighborhood. Our day had finally come to an end, and we all climbed back on our air-conditioned van. I felt exhausted from just a few hours of walking around the barrio, and I thought to myself, *the next couple of weeks are going to be tough*. But as I considered my struggles that day and the numerous discomforts I would likely face in the coming weeks, another notion crept into my mind. I wondered what it would be like if every morning I woke up to life in these conditions? It was difficult to imagine because in the back of my mind, I knew that in a couple of weeks, I would be on a plane headed back to my home. The realities of life in a barrio like this were only temporary for me, but for so many people, these were everyday truths.

I sat in pensive silence as our van bounced along the rutted road, ferrying us back to our accommodations.

Commentary on *A Tale from the Dominican Republic*:

It is an understatement to say that poverty is an enormous problem in low-income nations. According to former Secretary General of the United Nations, Kofi Annan: "The biggest enemy of health in the developing world is poverty"[2]. Although physicians working within the United States and other wealthy countries see the effects of poverty in their practice every day, the severity and prevalence of poverty in poor nations like the Dominican Republic is staggering.

Many of the residents of the neighborhood in Santo Domingo depicted in this tale would be classified as living in extreme poverty, subsisting on less than one dollar a day. In fact, I was surprised to learn that an estimated 50-60% of the residents of Santo Domingo live in similar situations, residing in slum-like neighborhoods on little to no daily income[3]. Furthermore, this way of life is not unique to the Dominican Republic. Worldwide, approximately one billion people live on less than one dollar a day (compared to the average U.S. citizen who lives on about $105 per day)[4].

Poverty has a number of adverse effects on health and wellness. Lack of resources result in unhealthy diets, which in turn cause malnutrition, and deficiencies in many different vitamin and minerals. Many impoverished peoples do not have access to, or cannot afford, clean water, and as a result, they ingest and bathe in water filled with contaminants and disease. Many ailments go untreated because families do not have the financial resources to seek out a medical cure. For many who live in poverty, treatment for non-emergent ailments

is not an option. Because of this, small illnesses or injuries continue to progress and worsen, eventually becoming so serious that the individual must seek out urgent medical treatment. An illness or injury that was once easily treatable becomes life threatening and much more complicated to treat. This is likely what had occurred to the man who had the deep wound on his leg. The initial injury was almost certainly severe and painful, but since it did not seem life threatening, and he did not have the means to pay for treatment, he was forced to allow wound to heal on its own. Unfortunately, the wound never fully healed, and the man was unable to regain the ability to stand or walk normally. Muscle atrophy and tissue death surrounding the wound permanently limited the strength and usefulness of the man's leg. There remains a high potential for infection of the wound. Both tissue death and infection could ultimately require the amputation of his leg.

Unfortunately, poverty often becomes cyclical. Impoverished children are frequently undernourished, resulting in physical weakness and stunted growth and development. Additionally, children of the poor may need to work during the day to help provide food and clean water for their family, and as a result, often do not complete their educations. Chronically malnourished and undereducated individuals will likely struggle to find consistent employment, and without a way of making a living, they will have few to no opportunities to escape poverty. This cycle continues for generations.

A Tale from Liberia

On December 24, 1989, Charles Taylor and his followers, The National Patriotic Front, invaded the country of Liberia and sparked the first Liberian civil war. This conflict would become one of Africa's bloodiest civil wars, lasting seven years, killing over 200,000 Liberians, and displacing over a million refugees.

At the time of this conflict, I was working with an international medical aid organization called Médecins Sans Frontières (MSF), more commonly known in the United States as Doctors Without Borders. MSF is a multinational, independent, international humanitarian organization that sends doctors, nurses, and other healthcare professionals to locations throughout the world that are in dire need of medical assistance. The organization provides aid to over 60 different countries, helping people facing various calamities including armed conflict, epidemics, natural disasters, and lack of access to healthcare. Typically, a healthcare worker with MSF will take a three-month assignment working in a foreign country, where he or she will partner with local physicians and healthcare workers, along with other non-native MSF workers, providing high-quality medical to those in need. After hearing of the outbreak of civil war in Liberia, I was not surprised when I was informed that my MSF team and I would be assigned to Liberia.

When we arrived in country, we found that the need for medical professionals was staggering. Most of the doctors had either fled the country due to the violence, or were on strike in protest, making our small team of international medical professionals the primary source of healthcare in a city of 50,000 people. The local healthcare workers that remained had been working almost continuously, spending most of their waking hours at the city

hospital, understaffed and undersupplied. It was in this environment that our team's first patient, a young boy, was brought to us with a serious chest wound.

The boy, who could not have been more than13 years old, was a child soldier who had had been shot in the chest. He came to us dirty, bloody, and barely clinging to life. In addition to his dirty and tattered clothing he was wearing ski goggles and an old rosary that was missing several beads. We later learned that the young boy wore these odd accessories for protection, believing that he would be shielded from bullets and explosions while they were in his possession.

Examination of the boy's chest revealed a very serious gunshot wound. We could tell that the bullet had ricocheted off another object before striking him in the chest since the entry site was irregular in shape with jagged edges, not the round shape normally consistent with a direct bullet wound. The bullet had gone on to pierce the heart, resulting in massive hemorrhaging and significant damage to the cardiac tissue. Blood was filling the pericardial sac that surrounds the heart, placing excessive pressure on the heart and impairing its ability to pump blood throughout the body. This grave condition, called pericardial tamponade, required immediate surgery to repair the hole in the heart and to remove the excess fluid from the pericardium. The boy was immediately rushed to the operating room.

Security and humanitarian projects have always had a complicated relationship. On the one hand, it is imperative that humanitarian projects remain distinct entities from any military organization or any group resembling a military. Utilizing the military resources of one side of a conflict may appear as a partnership or endorsement of the actions of that side, and may alienate the opposing side. This can result in only one side of the conflict receiving the benefits of the humanitarian aid. Access to healthcare should be a person's right, no

matter what side of a conflict they are on. However, the safety of aid workers also needs to be accounted for. If doctors and nurses are constantly in fear for their lives, they cannot effectively treat and heal those in need. Although it is not overly common, aid workers have been seriously injured and killed as a result of the dangerous environments they work in. The last twenty years has seen Spanish aid workers killed in Rwanda, Red Cross personnel slain in Chechnya, and MSF physicians assassinated in Somalia and Afghanistan, to name just a few of the casualties related to humanitarian aid projects.

So as we were heading to surgery, the thoughts of the safety of our young patient, as well as the safety of our team were in the back of my mind. We had no armed security, no one protecting us from the violence, no guards at the hospital gates. Our safety and security was linked—whether explicitly stated or not—to our effectiveness as doctors. Unfortunately, our first patient happened to have an extremely complicated injury and a poor prognosis. It was likely that the outcome for this patient would either be seen as a "black mark" or a "gold star" on our record, and this could determine our usefulness, and concomitantly, our level of safety, for the remainder of our time in country.

Although the boy was in grave condition, with no blood pressure and significant blood loss prior to surgery, the surgical procedure went quite well, and we were able to repair the damage and relieve the pressure on the heart. Despite the success of the surgery, however, the boy soldier was still very ill, and I was doubtful that he would recover from his injuries.

As I came out of the surgery, I immediately went to find the young boy's family in order to update them on the surgery and their son's condition. I found his father waiting in the lobby. A large, powerful, yet undernourished looking man, the father wore the same type

of grimy and threadbare attire as the young patient, a clear sign he too was a soldier. His hardened demeanor suggested he had spent many years as a soldier, and the prospect of the death of someone close to him was certainly not new. However, something in his eyes belied his hard-bitten persona, showing that the life of his son meant much more to him than that of any other comrade in arms.

I began my conversation with him by explaining that the surgery was successful and that much of the structural damage caused by the bullet was repaired. However, his son's condition was nowhere near certain. Due to the nature of the injury, significant blood loss occurred, and it was not clear whether his son would survive. I concluded by saying that we would continue to do everything that we could to help his chances of recovery, and then asked if he had any questions.

Somewhat shocked by the strong possibility of his young son's death, the father paused for a few seconds to gather himself. After a moment he looked at me, nodded that he understood, and then declared with certainty, "Man is not God." He shook my hand and sat back down in the lobby to await further news on his son's condition.

This response was definitely not what I was expecting. As a surgeon in the United States, the presentation of bad news or a poor prognosis is almost always met by the family's sentiment that the surgeon and their team will be able to work some kind of miracle in order to save their loved one. However, the father of this young boy in critical condition saw me not as some kind of miracle worker or some infallible medical expert, but as an imperfect human being, just like him, who was trying his best to save the life of his child. I do not know what it was that made this father express this belief. Maybe it was his way of coping with his grief by not allowing himself to even hope for his son's survival. Maybe it was

some kind of culturally specific attitude that I had never noticed. Maybe it was a lack of trust in the capabilities of humanity, forged as a result of the great atrocities he had witnessed. Whatever the case may be, those four words deeply affected me. The father's reaction to his son's condition was so different from what I had experienced in the US that it has stayed with me to this day.

Days ticked by and the boy's condition, to my great surprise, significantly improved. After a couple of weeks, the boy was well enough to go home with his father. I was overjoyed with the fact that this young boy had a new lease on life, and that I was able to be a part of that. In the city, the story of the child's survival spread, helping to prove to the citizens that our medical team was "useful", and that helped to ensure the safety and security of the team for the remainder of the three-month assignment. Some people in the city claimed that our work bringing the child back from the verge of death was indeed a miracle. However, I am inclined to believe that if it was a miracle, it was not a miracle of our making, for as the boy's father said, man is not God.

Commentary on *A Tale from Liberia*:

One of the most obvious differences between practicing medicine in the United States and practicing medicine in a low-income nation is the setting. It is true that dissimilar environments will show differences in disease prevalence, and that a physician working in the United States may only rarely observe diseases like dengue fever, malaria, or leishmaniasis, which are common in other regions of the world. However, it is in their political climates and cultures that the most striking differences between the United States and many poorer nations can be observed.

The United States is known for its relatively stable political situation. However, it is common for international healthcare workers to be tasked with operating in nations that are in the midst of political turmoil or war. Working in a warzone brings additional burdens that are rarely experienced in the United States. In addition to the increased severity and urgency of battlefield injuries, physicians must work in healthcare systems that are either overburdened or collapsing due to the conflict, turmoil, and political instability. A physician from the United States who is used to working with five or six other physicians and numerous other healthcare personnel may find themselves as the lone doctor in a hospital serving an entire city. The responsibility for caring for the injured and sick that had previously been shared between the physician and his colleagues in the United States, now lies solely on his or her shoulders.

However, the concern that is likely on the minds of most healthcare workers serving in a warzone is security. As was the case in *A Tale from Liberia*, many organizations choose to operate without a military security force in order to maintain their neutrality. This prevents alienation of specific populations, but leaves the aid workers in very vulnerable situations. Although security is an important concern for all hospitals in the United States, physicians in the U.S. do not have to worry about an artillery shell exploding in the emergency room or armed militants storming the medical facility. Most physicians in the United States will not have guns pointed at them, or bullets fired in their direction, but astonishingly, many healthcare workers serving in warzones have experienced these very situations. The role of an international aid organization is not to choose sides or to determine which group should be in power in a particular region. Rather, their job is to provide access

to medical care for the inhabitants of the affected region, regardless of their political affiliation.

It is largely due to the difficulties that arise from the differences in environments that many physicians and healthcare workers reach levels of burnout as their assignments come to a close, and consequently, they choose not to participate in future international assignments—a tragedy given the immense need.

A Tale from Nigeria

Port Harcourt is the center of Nigeria's oil industry. With hundreds of millions of dollars worth of oil passing through its ports every day, this natural resource has driven the economy of the region, and consequently has created some very wealthy individuals. However, as is common in many areas throughout the world where valuable natural resources are harvested, an incredible economic disparity separates the ultra rich and their startlingly poor neighbors.

During the late 1990's, I was working with an organization called Partners in Health in the city and outlying areas of Port Harcourt providing medical treatment to those who could not afford it themselves. One day, while our group was working in a hospital located near some of the more impoverished neighborhoods, two men arrived supporting a very battered looking man between them. After depositing the patient in an open examination room, the two good Samaritans explained that they had witnessed the man collide with a car while riding on a motorcycle. They said they did not know the man, but that he had been badly injured and needed to see a doctor.

We had observed an incredible number of traffic related injuries during our time in Nigeria. Due to lack of enforcement, the traffic laws are virtually non-existent, and as a result, head, neck, back, and internal organ injuries from car accidents are common. Regrettably, our patient appeared to be in much worse shape than the average person involved in a motor vehicle accident. His right lower leg had been broken, and he was in significant pain. Additionally, our examination showed that he had suffered a ruptured

spleen from the collision, and he was bleeding internally as a result. Surgery would be required to repair the fractured leg and to remove the ruptured spleen.

Unfortunately, another issue presented itself that further complicated the matter. Our patient had been coughing up bloody sputum, and was running a fever, both signs indicative of an active *M. tuberculosis* bacillus infection. Our patient had active pulmonary tuberculosis, and therefore would not be able to receive general anesthesia for his surgery.

Today almost all cases of tuberculosis are passed from individual to individual through tiny droplets of sputum containing the bacteria. Healthcare workers have a higher risk of contracting tuberculosis because of their increased exposure to infected individuals: rates of infection are up to ten times greater than in the general population. One of the methods for controlling the spread of tuberculosis in healthcare settings is to limit coughing and procedures that cause aerosolization of droplet particles from the lungs. This includes intubation, a method of inserting a tube down a patient's throat in order to maintain an airway—a required procedure for anyone undergoing general anesthesia. Intubation of a patient with active pulmonary tuberculosis would expel droplet particles from the patient's lungs, exposing the healthcare workers to tuberculosis. In addition, the instruments used and the operating room would be contaminated with tuberculosis, and subsequent patients would likely be exposed. In most cases of active tuberculosis, elective surgeries are postponed. More urgent surgeries are performed in negative pressure operating rooms with special filters on anesthesia equipment. Surgical personnel must also wear respirators during the procedure. Unfortunately, we did not have any of this equipment so we would have to find another way to treat our severely injured patient. We called in our anesthesiologist and once

he arrived, we began trying to figure out how we were going to proceed in the treatment of the patient.

Our anesthesiologist was a German national named Paul. Although at first glance Paul appeared to be a slight, unremarkable figure, he was actually an exceptional, world-class athlete. Paul was an ultra-marathoner. He loved distance running, and regularly participated in the unglamorous world of extreme endurance racing, where he trained for and competed in 30, 50, and 75-mile races. I often wondered how Paul found time to train for these impressive feats of endurance while simultaneously maintaining a successful medical practice, but it was obvious that his passionate dedication, work ethic, and physical and mental stamina were not limited to racing.

Initially Paul and I were stumped by the prospect of operating on our patient without general anesthesia. Anesthetizing the leg for surgery to repair the fracture was not difficult, and could be managed with the use of a spinal anesthetic to numb the lower extremities. However, the same method could not be used to access and remove the spleen because of its location. The spleen is located in the left upper quadrant of the abdomen, in close proximity to the diaphragm, and use of a spinal anesthetic in this region could paralyze the diaphragm and disrupt breathing. The chance of paralyzing the muscles involved in breathing put the use of a spinal anesthetic in this region out of the question.

We continued to brainstorm different solutions, but my knowledge of unconventional anesthesiology had long been exhausted, and I was basically useless in the problem solving process. Paul, on the other hand, was not giving up, and the doggedness and tenacity that drove him to complete incredible physical feats became evident as he paced around the room

absorbed in his thoughts. I jokingly asked one of the nurses if she knew of any good hypnotists that were available to help with surgery when Paul spoke up.

"That's it!" he exclaimed.

"Wait—you're not serious about the hypnotist, right?"

"What? Oh, no not at all." Paul said, slightly confused by my question. "I think I know how we can treat our patient. We could go with an intercostal nerve block!"

An intercostal nerve block consists of an injection of a local anesthetic into the nerves that run out from the spinal cord and along the rib cage. Intercostal nerve blocks are often used as a method for managing pain from fractured ribs and even from shingles. However, intercostal nerve block procedures are used in very rare cases as an anesthetic for thoracic and abdominal cavity surgeries. Paul suggested that by combining a spinal anesthetic to numb the lower extremities with an intercostal nerve block of the upper right quadrant of the patient's abdomen, we could successfully perform surgery to repair our patient's fractured leg and remove his ruptured spleen. All I could think was that Paul was brilliant for formulating this solution.

We quickly prepared for the surgery and got the patient into the operating room. As Paul was beginning to implement his clever plan, we realized an additional complication to our already convoluted surgical strategy—anemia. During our time in country we had found that many of our patients in Nigeria had low red blood cell counts likely as a result of poor nutrition, and our current patient was no exception. Inadequate consumption of nutrients like iron, folate, and vitamin B_{12} prompts decreased production of functional red blood cells, resulting in anemia. Low red blood cell counts meant low circulation of oxygen in the blood, causing symptoms ranging from weakness and shortness of breath to heart failure. For a

surgeon, operating on a person with anemia means moving quickly and limiting the loss of blood. We took note of our new time constraint and quickly began the surgery.

Luckily, the anesthesia worked just as Paul had planned, and the operation was smooth, efficient, and relatively quick. We were able to repair the fractured leg and remove the spleen, and although the patient would need to stay off his feet for a few weeks, he would certainly make a full recovery from his injuries.

Commentary on *A Tale from Nigeria*:

In the United States, medical supplies and resources are abundant. Hospitals have plenty of medications, a plethora of sterile supplies, and ample numbers of healthcare workers. Our laboratory tests are the fastest and most accurate in the world, and our imaging and diagnostic technologies are unmatched. However, many medical centers in low income nations are chronically understaffed and undersupplied. Imaging devices are either outdated or nonexistent, and even the most basic medical supplies, like disposable examination gloves, must be conserved or even reused. Transitioning from practicing medicine in the US to practicing medicine in the poorer countries is no simple feat. The combination of being on-call every day, without relief or backup, working with just the basic medical resources, and adjusting to new foods, new routines, new noises, and lack of sleep leaves doctors in these situations exhausted and frustrated. But more often than not, they find ways to succeed.

There are a few ways that global healthcare workers tend to circumvent the considerable obstacle of lack of resources. In some instances, organizations focus their energy and resources on treating a small range of ailments, like performing specific eye surgeries (as we shall observe in the following tale). This design allows organizations to

anticipate and prepare for their medical needs, and the physicians are able to provide high quality care to a specific set of patients. However, in many international humanitarian situations, visiting physicians must be able to treat and manage a wide variety of conditions. In these instances, physicians must rely on their ingenuity and resourcefulness in order to come up with ways of successfully diagnosing and treating their patients. In *A Tale from Nigeria*, the physicians were without the proper safety equipment and surgical environment to utilize general anesthesia on their patient with active tuberculosis. Nevertheless, they recognized what needed to be done and were able devise a method to safely treat the patient. Their approach required a much deeper understanding of procedures and the instruments involved, as well as an abundance of creativity. These skills, which in some ways have become undervalued in medicine following the introduction of the high-tech diagnostic equipment in the later part of the 20th century, continue to be vital to the practice of medicine in a majority of the world today.

A Tale from Guatemala

After a seven-hour flight from the U.S and an eight-hour bus ride from Guatemala City, our surgical mission team finally arrived in Nuevo Progresso, Guatemala. Though our travels had left us tired and feeling as if we had just been pummeled mercilessly, our spirits were high. This is where our team's battle against the growing epidemic of cataracts and blindness would take place. However, with the excitement came nervousness, and although the global medical organization that we were involved with had a long history of teaming up with local health care professionals and clinics to deliver care to the villagers in the region, this would be my first time practicing medicine outside of the United States.

The work during our two-week trip was divided into several three-day visits to different villages in the area, spending the first day screening potential patients for various disorders of the eye and using the second day to perform the corrective surgeries. The third day was used for follow-up appointments to remove bandages and address any concerns following the surgery. Our focus for the trip was on cataract surgeries, and our team of ophthalmologists, nurses, additional medical staff, and anesthesia providers was particularly well suited for this task.

A cataract is the clouding of the crystalline lens of the eye caused by the breakdown of lens proteins. Progression of the clouding results in blurry vision, and in advanced cases, blindness. Extended exposure to ultraviolet light, radiation, and corticosteroids have all been linked to the development of cataracts. Other risk factors include smoking, eye trauma, and family history of cataracts. Cataracts cause approximately half of the world's blindness, the majority of which occurs in poor nations. Increased risk factors in low-income countries

account for some of the differences in rates of blindness, however the disproportionate distribution of cataracts and blindness is mostly due to a lack of access to treatment options. Although removal of cataracts is a relatively safe and simple surgical procedure, the inability to access healthcare prevents millions of people from receiving this treatment. As a result, millions of people have blurry vision or blindness caused by cataracts.

Our first screening day went surprisingly smoothly. The organization we were working with had run many clinics in communities surrounding Nuevo Progresso, and consequently, they had developed a very organized and efficient method for screening as many patients as possible. The other surgeons and I took turns evaluating patients in the cramped, but adequate clinical space. Patients who were considered good candidates for cataract surgery were asked to return the next day ready for their procedure. We spent the entire day screening patients, and when evening came, we returned to our lodgings to rest up for the following day of surgeries.

The morning after our screening day, I could feel the excitement building in my team. We had all volunteered for this trip with the hope of helping to change people's lives for the better, and now we were actually going to do what we came to do. With the skills we had accrued, we had the unique opportunity to help (literally) to give sight to the blind. The patients deemed suitable for surgery during the previous day's screening showed up to the clinic with clean, washed faces as instructed, all eagerly awaiting the procedure that would improve or restore their vision. Each patient received eye drops and a shot of lidocaine under the eye or eyes that would be operated on. A queue of patients with watery eyes and partially numb faces formed near the door to the operating room, waiting for an ophthalmologist to call them in for their procedure.

In order to be as efficient as possible and to perform the most cataract surgeries each day, the three other surgeons and I would simply take the patient at the front of the queue, perform the necessary surgery, and then move on to the next patient in line. This process meant that it was likely that a patient would be operated on by an ophthalmologist he or she had never met. Similarly, surgeons would operate on individuals they had never previously met or examined. This is how I found myself calling the name Maria and seeing a young, eighteen year-old woman rise from the line of patients as she followed me into the operating room.

I was surprised to see such a young person with cataracts, since the disease is most often found in people over the age of sixty. However, in cases of eye trauma or exposure to corticosteroids, cataracts can appear in people much younger. Maria did not have a history of trauma or exposure, which left only one likely explanation: She had congenital cataracts affecting both eyes. She stated that she had started losing her vision a few years prior and now was only able to faintly see light. Her family had led her to the clinic because she could not make it on her own. Her eyes now contained very dense, completely white cataracts that filled her pupils. As she lay back in the examination chair, she continued conveying her story to us with a nervous, yet optimistic tone. I assured her that everything would be just fine and that she would be seeing again in a day or two. But deep down, I had some reservations about whether or not I could make good on that promise. Maria's dense cataracts posed additional problems for surgery. Dense cataracts are often more difficult to remove because of their size. Furthermore, congenital eye diseases that cause cataracts like the ones Maria had also have the ability to affect other structures of the eye. Unfortunately, the increased cloudiness in Maria's lenses prevented me from examining the posterior region

of her eyes, and therefore I could not determine if more serious eye problems existed. There was the possibility that, even if the surgery went off without a hitch and the cataracts were removed, congenital damage to the retina or optic nerve in each eye would still leave Maria unable to see. I was glad that Maria could not spot the concern I had on my face as we leaned her back in the chair and prepared her for the removal of her cataracts.

The surgery commenced, and it turned out to be challenging but uncomplicated. Her cataractous lenses were replaced with acrylic lens implants as is typical in cataract surgery, and each of her eyes was covered with a patch and metal shield to protect them. She headed home with her family, still blind, while I headed out to the bench to bring back the next patient for surgery.

The following morning was the post-op evaluation, and for a third straight day, Maria's family led her to the clinic. After guiding her and her family into one of the small clinical rooms, I took off the patches and shields covering Maria's eyes. Though limited by routine post-operative swelling of the eye tissues, her vision seemed to have been instantly restored. No longer blind as she had been for years, she wept tears of joy at the sights she was taking in. Tears welled up in my eyes too, as I realized how different her life would be now that she could see again. Studies have shown that blind individuals in low-income countries are rarely able to work, that they have less than half the life expectancy of their peers, and that they often experience a loss of social standing and independence. Although I had performed many cataract surgeries before, this one seemed more special than the rest. Maria and her family left our clinic, and for the first time in many years, Maria was able to find her way back home.

A couple days later, Maria returned to give me a gift, a purple and white handbag she had crafted in her home. On the side of the handbag she had embroidered in gold colored thread the words, *Siempre Recuerde Guatemala*—Always Remember Guatemala. I smiled, gave her a hug, and told her I would.

Now, when I think of Guatemala, I remember Maria.

Commentary on *A Tale from Guatemala*:

All good health care workers are compassionate. A desire to help others is part of the job description. However, there is something more that compels a handful of physicians and nurses to interrupt their lucrative and demanding careers and travel to remote corners of the world in order to care for those in need. Some may have an intimate connection with a certain region or population. Others may be seeking out an experience, hoping to see the world and broaden their horizons—a phenomenon called medical tourism that has been extensively critiqued. Still others may be driven by the desire to give out of their excess, understanding that to whom much is given, much is required. Whatever the case may be, it is important to realize that the vast majority of the healthcare professionals working on international medical teams choose to travel outside of the United States, to be uncomfortable, to feel cut-off and unfamiliar, in order to improve the lives of people who are in desperate need.

A Tale from Northern India

In the Indian state of Bihar, bordering the country of Nepal, lies the small town of Raxaul. During the late 1990's, a fierce civil war broke out across the border between the Nepalese government and Communist Maoist forces. Due to this conflict, a large number of refugees fleeing the destruction and chaos of the battles crossed the border into India and settled in and around the town of Raxaul. This sudden influx of people created an even greater burden for the already struggling healthcare system in the town, and the need for medical supplies and professionals became urgent.

I was working with an international medical aid organization at the time the civil war in Nepal broke out, and I volunteered to be a member of the team that the organization was sending to the India-Nepal border. In addition to delivering vital medical supplies, the job of our team was to work in the local Raxaul hospital providing care for the growing number of patients. Although we would regularly see and treat local residents, a majority of the patients we saw were refugees from the conflict areas who would cross the porous border in search of safety and medical treatment. It was with these patients that we had some of our most memorable encounters, including one that will likely stick with me for the rest of my life.

One particular day I evaluated the condition of a newborn baby girl brought in by her mother. The mother had crossed the border from Nepal seeking help for her daughter who was vomiting regularly and appeared malnourished. After talking more with the mother about her daughter's history and symptoms it became clear that the infant had not had a bowel movement since a couple days following the birth. These signs all pointed to a

congenital disorder of the bowels known as duodenal atresia. However, x-ray imaging would be required to confirm our suspicion.

Fortunately, the hospital had an old, but functioning, x-ray machine, and we were able to examine the girl's abdomen. The x-ray was able to crudely, but clearly, depict what is known as the double bubble sign, conclusive evidence of duodenal atresia. Duodenal atresia occurs when the upper portion of the small intestine, known as the duodenum, does not fully form, preventing the passage of food, fluids, and gases from the stomach to the small and large intestines, and ultimately out of the body. This blockage of the duodenum creates two large bubbles of air and fluid, one in the stomach and one in the portion of the duodenum preceding the blockage, resulting in the distinctive two black bubbles, or the double bubble sign, on the patient's radiograph.

Duodenal atresia is thought to occur in one out of every 6,000 newborns, and is fairly easily treated through a simple surgical procedure. However, without surgical intervention the newborn would undoubtedly die within weeks from dehydration and malnutrition. The surgery, called a *duodenoduodenostomy*, involved bypassing the blockage by surgically connecting the section of the duodenum above the undeveloped region with the section below it and removing the undeveloped portion. With the cause of the vomiting and malnutrition discovered, and the treatment plan decided upon, all that was left to do was get the parent's consent to perform the life-saving surgical procedure. However, this normally simple, almost trivial step turned out to be much more complicated than anyone on our team had expected.

Up to this point, the mother had been extremely forthcoming and cooperative with her daughter's medical evaluation. She had answered every question, permitted every test, and

was completely attentive as we explained her daughter's condition. There was no question that this mother loved her newborn daughter and wanted the best for her health. However, I was utterly confused to hear the translator convey the message that the mother could not give consent for the procedure. I blurted out, "why not?" in a less than respectful tone.

The translator relayed my question and revealed her response: "My husband is the only one who can make that decision. I do not have that kind of authority."

I was dumfounded. Our translator explained that these kinds of beliefs were not uncommon in the region, especially in some of the more conservative families. Though I wanted so badly to argue with the mother, plead with her, and convince her to consent on behalf of her daughter, our translator assured me that this was the way things were in this part of the world. All we could do was wait on a decision from the father, who was nowhere to be found.

A messenger was sent out to locate the father and summon him to consent to his daughter's lifesaving surgery. The father was a soldier fighting against the Communist forces in Nepal, and it took the messenger several days to make it across the border and locate him. Meanwhile, the newborn girl was struggling to survive. With each passing day, she grew weaker and weaker because the milk she was receiving was not able to reach the nutrient absorbing cells in her small intestine. In the United States and other wealthy nations the normal standard of care in this situation would be to administer total parenteral nutrition, whereby fluids containing all of the nutrients normally obtained by eating and drinking are inserted into the body intravenously. This bypasses the digestive tract entirely by pumping nutrients directly into the blood. Unfortunately, total parenteral nutrition was not readily available in the region, and the infant was forced to survive with what amounted to little

more than a digestive cavity, similar to those found in sea anemones and other species of cnidarians.

Days went by, and there was no sign of the father. No one knew if he was *en route* to the hospital, if he had been located, or if he was even alive given the fierce fighting that was occurring in Nepal. Then, only a day or so before the child would have been too weak and anemic to survive the necessary surgical procedure, the father appeared at the hospital. When I got word of his arrival, I sent orders to begin preparing the operating room for the girl's *duodenoduodenostomy* procedure so that we could quickly get her into surgery and fix the obstruction. I met the father in a waiting area in the hospital and quickly explained his daughter's condition, the surgical treatment that the condition required, and the urgency of the situation. I finished with: "We need your permission to perform the surgery for your daughter."

The father looked around at the others in the waiting room of the hospital, paused for a second, and then uttered one of the few Nepalese words that I had picked up in the past few weeks, "No".

I felt like I had just been punched square in the gut. After I recovered from my momentary shock, our translator struggled to keep up with the stream of questions issuing from my mouth. "What? Why not? She is going to die without this procedure. Don't you understand that?"

The father replied, "She is just a girl. She is not worth the trouble." And with that, the father, the mother, and their now terminally ill newborn daughter gathered their things and left the hospital.

We never saw anyone from that family again, and I would be surprised if that newborn had lived two more days after they left the hospital. Barring some kind of miracle, that girl is certainly not alive today, having succumbed to an easily treatable condition. If she had been a newborn boy, it is likely that the father would have done everything in his power to give his son a fighting chance at life. However, it was the absence of a Y chromosome, and its replacement with another X, that doomed this baby, and there was nothing the mother, or the hospital staff could do to save the child.

Our team had received cultural trainings before coming to India, and the topic of gender inequality and gender roles was discussed. During those sessions, everyone was in agreement that the only way we could effectively provide the type of assistance that the town of Raxaul needed was to be completely respectful of their community and to work within the context of their culture. But, as we were sitting in our cultural training meeting in the United States, I do not think any of us really understood how significant these cultural differences were, or realized the impact they might have on our team and our patients.

It is clear that, as a visitor to a culture different from my own, I cannot force my beliefs on the people I am trying to help and expect them to conform. Nor should I fool myself into thinking that my ways are somehow inherently better than their ways. As visitors, we must work through the avenues that are permitted by the customs and culture that we are arriving into, despite what we may hold as right and wrong.

But as I look back on that patient now with the eyes of a father of two daughters, I cannot help but question whether this is how it should be.

Commentary on *A Tale from Northern India*:

In *A Tale from Northern India*, the medical team from the United States was confronted with an unexpected ethical dilemma. As healthcare workers, they were tasked with improving health and saving lives. However, the role of an international aid worker is not to impose their beliefs on the host population, but rather to work within parameters established by local customs. When the values of international aid workers differ from the values of the population they are serving, the healthcare worker must adapt. In most cases, visiting healthcare workers have little problem conforming to the customs of the host population, but the case of gender discrimination and resulting infanticide that these healthcare workers faced was so incongruent with their own value systems that they resisted. In general, though we may feel that our ways or our beliefs are fundamentally better, we must be careful not to get caught up in this ethnocentric way of thinking.

However, there are some practices that are unacceptable no matter what culture is involved. Acts of genocide, discrimination, or infanticide, for example, are never tolerable. These appalling actions are violations of universal human rights, and many would argue that these rights take precedence over cultural norms and expectations, especially in the case of life or death. Some may reason that the healthcare workers in *A Tale from Northern India* should have intervened on behalf of this extremely sick infant, and cured her by performing the surgery. By allowing the father to refuse medical treatment for his dying daughter, these healthcare workers could be seen as professionally negligent, as complicit in this case of gendered infanticide.

As a visiting healthcare worker, it is extremely important to respect a patient's culture and beliefs in order to effectively treat them. However, these customs should not infringe on

an individual's basic human rights. Cultural practices that have either beneficial or neutral effects on health should always be observed and embraced, but it is often necessary to intervene in situations that are detrimental to health.

A Tale from Sri Lanka

It is often said that one of the primary problems with new physicians today is that students enter medical school wanting to do good in the world, and leave school wanting to do well for themselves. However, in my time working in global medicine, I have noted that many of the individuals involved in these types of programs have not followed this paradigm. Many of these medical professionals have chosen to go from a life of success and abundance, to a life of greater significance. This tale is about some of those people.

In 1999, only a few years out of my surgical residency program, I was working with the organization Médecins Sans Frontières (MSF) in the country of Sri Lanka. The Sri Lankan Civil War, a conflict between the two major ethnic groups of Sri Lanka, the Sinhalese and the Tamil, had been going on since 1983. This continuous fighting had caused many Sri Lankans to flee the country, including many of the physicians. The job of our group was to augment the community's anemic healthcare system by providing surgeons and access to surgical procedures.

The community we were located in was populated almost entirely by the Tamil people. However, the Sinhalese forces had previously conquered the town, and were at that time, in control of the region. Our medical team's offices, meeting area, and living quarters were contained in a large, but unimpressive compound, which was staffed by Tamil caretakers and cooks. All of our neighbors were Tamil. Tamil people ran the shops and markets. Nonetheless, the area was under constant patrol by the Sinhalese military, which maintained close watch over the Tamil residents in anticipation of an uprising from the occupied community.

One morning, just before noon, the loud crack of a gunshot sounded immediately outside our compound. A couple of the nurses and myself were up at the hospital concluding a surgery we had preformed earlier in the morning, but several of the other MSF team members rushed to the spot where gun's report seemed to have originated. They were astonished to discover a Sinhalese soldier lying on the ground, apparently shot in the head. Despite the gunshot wound to the head and an extensive loss of blood, the soldier was still alive. Margaret, the "Mission Leader" for our MSF team, instinctively moved into action and transported him to our hospital to be stabilized and treated.

Margaret was a forty-something year-old British woman who was on her third mission with MSF. After graduating from college and earning a Master of Business Administration, Margaret began a very successful and lucrative career in business. Known for her tireless work ethic and intense determination, it is no wonder that she quickly rose up through the ranks in her workplace and soon was leading her business to great success. As a result of her talent and hard work, Margaret accrued a great deal of wealth and was able to live the kind of comfortable and luxurious lifestyle that so many people dream about. But Margaret soon became disinterested in the life she had created for herself, and decided to move in a different direction. After stepping down from her position in the company she had helped rise to success, she decided to take her talents and passion and go to work as a field coordinator for MSF.

Margaret was a wonderful field coordinator. During our time together in country she took care of our team like we were her own children. She made sure we got enough to eat, and that we were adjusting well to our new environment. Her command of many languages often allowed her to communicate with the locals and coordinate our day-to-day activities. If

we came down with some form of illness she would personally tend to our needs. She was strong and fierce, often putting herself between us and anyone she saw as a potential threat to our safety. We all knew that Margaret had our best interests at heart. On top of all of this, she also helped serve as a go-between for the Sinhalese and Tamil leadership, helping to establish the dialogue and groundwork that would hopefully lead to peace between the two opposing sides. No matter how hard we worked, we were sure that Margaret was doing twice as much as we were.

After depositing the wounded soldier at the hospital, Margaret returned to our house and MSF headquarters to try to sort out what occurred to bring about the shooting of the Sinhalese soldier. What she found upon return was utter chaos. Sinhalese troops were swarming the compound, rounding up all of the Tamil workers and forcibly questioning them about what they believed to be an assassination attempt. Margaret immediately inserted herself into the fray, attempting to protect the Tamil workers from the accusations of the soldiers. Despite her protests and objections, the soldiers arrested a cook and a housekeeper, both Tamil workers from our compound. Determined to keep them safe and alive, Margaret followed the soldiers and their captives to the Sri Lankan prison. Margaret was convinced that the two Tamil captives would "disappear", or be killed even though they had nothing to do with the shooting. Because of this conviction, as well as her dedication to protecting those she was responsible for, Margaret remained at the sides of the cook and the housekeeper until they were freed the next day.

Margaret's actions through this entire ordeal were nothing short of heroic. She helped care for the injured soldier, protected her colleagues and others dependant on her, and demanded justice for the innocent. In my eyes, she was the ideal humanitarian aid worker,

embodying everything that MSF stood for. Although there are countless other aid workers who daily exhibit the same determination and sense of service, there will always be a special place in my heart for Margaret.

Meanwhile, at the hospital, a team of healthcare professionals including four Sri Lankan General Practitioners and myself were struggling to save the Sinhalese soldier's life. When the soldier was first brought into the Emergency Room where we were waiting for him, I noticed a slight hesitation in the four physicians as their eyes fell on the injured patient. They quickly glanced at each other after seeing the soldier with a severe head wound lying on the gurney. But as quickly as the momentary pause came, it was gone, and the four physicians sprang into action, performing numerous life-saving procedures. Fortunately, the soldier still had a pulse and was somehow breathing. However, he was unconscious and our view of the head wound was obscured by the large amount of blood. As the long, arduous task of stemming the flow of blood progressed, we were rewarded by a clear view of the wound. Although the bullet did considerable damage, the injury had not been catastrophic, and the brain appeared to be relatively unharmed. The patient was rushed into surgery to repair his fractured skull, clean the wound, and insert drainage lines to allow for proper healing.

As the surgery was concluding and one of the General Practitioners was closing the wound, my mind settled down enough to understand the look that passed between the Sri Lankan physicians. Initially I figured that they were just taken aback by the sight of the serious injury, but that was not the case. The four physicians were Tamil and they had been faced with caring for and saving a Sinhalese soldier. They were working to heal a member of the group responsible for the occupation of their city and oppression of their friends and

family. How could I have missed this? I recalled how, despite the momentary pause, the physicians worked tirelessly to save the man. The work the GPs did to halt the bleeding was exhausting, and crucial for determining the extent of the injury. The surgery was tedious, painstakingly slow, and delicate, but the hands of the physicians moved with such care and precision while they were assisting with the procedure that they could have been mistaken for a parent's hands carefully cleaning and bandaging a child's skinned knee.

I could not be more impressed with the Sri Lankan doctors. They were truly professionals whose level of care was not influenced by battle lines or ethnic divisions, and whose only conflict was with human suffering. Due to their ability, poise, and dedication, I consider them some of the greatest physicians with whom I have ever had the privilege of working.

Commentary on *A Tale from Sri Lanka*:

It is important to recognize and celebrate the individuals who dedicate their time to serving marginalized populations in dire circumstances. Their selfless actions and commitment to promoting the welfare of people around the world is, without a doubt, admirable and praiseworthy. However, we often mistakenly imagine that physicians and other foreign-national aid workers operate on their own, without any assistance from the local population. This is entirely incorrect. Although organizations may send physicians or nurses to help provide expert or specialized medical care, the majority of healthcare workers in medical mission settings are local people. For example, MSF employs over 20,000 local healthcare workers and only a few hundred foreign nationals in its medical clinics around the world[5]. Often physicians from the local population will work alongside physicians from

international medical teams. This was the case in *A Tale from Sri Lanka*. Local physicians working in local hospitals were supported by foreign national physicians in the hopes of saving the lives of local people.

Most medical missions are designed to be temporary. The vision of humanitarian organizations is not to set up hospitals run by foreign nationals, but to supplement the existing care and to support the healthcare programs already in existence. Aid is provided during times of dire need, such as armed conflicts, epidemics, or natural disasters, but when these calamities come to a close, the assistance also ends. Therefore, it is important that visiting medical teams do not simply take over when they arrive, and work without any input from the local population. This causes more harm than good by creating a vacuum of care when the team inevitably leaves. Instead, a partnership is required between the local healthcare workers and the visiting medical team.

Often there can be a feeling of superiority among international healthcare workers that is based on the belief that they are saviors for local population. However, we must remember that local healthcare workers were treating and caring for the ill and injured long before the visiting medical team arrived, and they will continue to do so after the teams leave.

A Tale from Libya

The most memorable patient I have ever encountered while working in global medicine is undoubtedly the ten-year-old boy that I met while working in Misrata, Libya.

February 2011 marked the beginning of what would become the Libyan Revolution and the overthrow of the government headed by eccentric dictator Momar Ghadaffi. The revolution brought relief from over 40 years of rule by the Ghadaffi regime, but it came at a steep price. It is estimated that tens of thousands of people were killed during the fighting and artillery shelling, and countless others were injured by the daily violence throughout the country.

I was born in Libya and came to the United States with my parents as a child. As a Libyan-American, I was deeply affected by the outbreak of fighting in my birthplace and hoped that this was finally the time that the Libyan people would be freed from the tyrannical regime of the dictator Ghadaffi. Knowing that some of my family and friends were still living in Libya, I felt a strong conviction to return to my home country to deliver medical supplies and provide whatever medical aid I could.

Before I arrived in Libya, the city of Misrata had been the focus of many of the attacks by pro-Ghaddafi forces. The deaths of 70 peaceful protesters in Misrata sparked widespread public outrage and discontent. Pro-Ghaddafi forces attempted to extinguish this upheaval by shelling the city with artillery for forty straight days. When I arrived, I was astounded by the state of the country. The city of Misrata, known as the business capitol of Libya, was filled with bombed out buildings and a crumbling infrastructure. The streets, normally loud and bustling with cars and pedestrians, were vacant in many parts of the city

due to fear of the snipers who would fire indiscriminately at civilians. Although the streets were bare, the hospitals and randomly scattered medical aid stations were filled beyond their capacity. Hallways were lined with makeshift beds to accommodate the overwhelming number of patients. Medical supplies and other essentials were at dangerously low levels, and medical staff and personnel were running on fumes.

But the city was not the only thing that seemed foreign to me. The practice of medicine in Libya was like nothing I had ever experienced in the United States. The volume of catastrophic injuries that streamed into the hospital, and the speed at which extremely invasive and complex procedures were performed was staggering. This was the "meatball surgery" that I had heard Alan Alda refer to on reruns of the TV show M*A*S*H. Surgeries were performed quickly with the purpose of simply stabilizing the patients. Aesthetic and cosmetic concerns were not addressed. Puddles of blood covered large patches of the floor, and the sounds of moaning could be heard throughout the halls. At first I was overwhelmed with the anguish and brokenness that I observed, but I eventually steadied myself and vowed that I would give all that I had to treat those injured in this revolution.

One of the first patients I met and began caring for was a young ten-year-old boy named Omar. Omar had been playing outside of his house in Misrata with a few of his friends one sunny afternoon when the government forces shelled the city. Without warning, shells began exploding on and around nearby buildings. Although explosions from government shelling throughout the city were not uncommon to hear during those days, the children had never witnessed blasts so close to them. The powerful detonating shells immediately signaled the end of playtime for the children, and they began to run off to their respective homes. However, before they could get to safety, a shell exploded only yards

from their feet. Two of the kids were killed instantly. Omar was knocked unconscious from the blast, and his devastated body lay in the street until the shelling stopped.

Omar regained consciousness a day later at a hospital in Misrata. The blast from the shell had mangled his left arm and blew the lower part of his left leg off. Shrapnel had peppered the left side of his torso and face, and burns covered large areas of his body. The surgeons and other medical personnel at the hospital spent many hours in surgery, and were able to save the boy's life, but his left arm, lower left leg and left eye could not be salvaged.

I first met Omar about two weeks after the explosion that terribly altered his life. When I came into the room that he shared with several other severely injured patients, I told him that I was a doctor and that I was going to care for him and help with his recovery. As he thanked me, I could tell that he was still in a great deal of pain. It broke my heart to see such a young child in such a terrible position. Then I asked him if there was anything I could get him that would make him more comfortable during his recovery. He instantly brightened up, and with his smile shining up at me from where he lay in his bed he hesitantly, but hopefully asked, "Could you bring a Playstation?"

I quietly laughed and returned the smile, knowing that my young cousins in the United States would without a doubt ask for precisely the same thing. "Of course," I replied. "*Inshallah*." God willing.

A few days later, I took a trip to the city of Benghazi to deliver medical supplies to some other hospitals. After completing my work, I began searching for Omar's request, and after a short time, I located a Playstation and some games. When I returned to the hospital in Misrata with the Playstation in hand Omar was elated, and a huge smile was stuck on his face for several days. In the weeks to come, he played his video games quite frequently, often

entranced by the machine. I regularly found myself sitting by his side playing him in one game or another, and despite the fact that he only had one arm, he almost always beat me. The distraction of the video games made him appear like any other ten year-old boy, but in reality, he was not. He was a ten year-old double amputee trapped in a warzone. Yet, despite the damaged state of his body, the sound of laughter and joy that Omar expressed each and every day confirmed that his spirit remained unbroken.

Currently we are waiting for an opportunity to bring Omar to the United States for additional treatment that will help him have a more normal life. We hope that Omar will be able to undergo various procedures to improve upon the life saving surgeries that the heroic doctors from Misrata performed, increasing long-term functionality of his body and decreasing the appearance of scar tissue and some of the more superficial injuries. We also hope to get Omar fitted for more functional prosthetics, which will greatly improve his quality of life. In the meantime, however, Omar has not just been playing video games. He has begun working with landmine awareness programs in Misrata, helping teach other kids his age about the dangers of landmines and other explosives.

To me, Omar is a symbol of both the devastation of the Ghadaffi regime, and the bright hope and optimism that many Libyans have for the future of their country.

Commentary on *A Tale from Libya*:

Practicing medicine in a warzone is something that most physicians in the United States have never experienced. The volume of incredibly severe injuries, combined with the overcrowding of hospitals, the lack of supplies, and the constant concern for the safety of your patients, your staff, and yourself is completely foreign. Despite the fact that the

circumstances in the United States are often strikingly different from those seen during armed conflicts, epidemics, or natural disasters, it is important to understand that the people living in these situations are no different, in many ways, than you or me. In this tale, the physician realized that the young boy, Omar, was just like the children he knew in the United States. Despite his devastating injuries and the terrible conditions, he had similar interests and hobbies to children his age around the world. It can be tempting to view people in heart wrenching situations as somehow different and distinct from yourself, imagining that you could never be in such a situation, but this thought process is both useless and disrespectful. People are people no matter where they are from or what they have been through, and in order to best care for them, healthcare workers must be able to connect with them on a personal, human level.

With the realization that the people caught in terrible conflicts and crises are real human beings like you and me, comes the responsibility to bear witness to and speak out about those crises. In many cases, members of international medical teams have the unique opportunity to spread the word about the atrocities and injustices that they have observed while on assignment. Many of the crises that international healthcare workers witness do not receive international attention, and it is the duty of the healthcare worker to shed light on these situations that are all too often covered up and ignored. International healthcare workers are charged with the job of treating, healing, and caring for those in need, and this includes advocating for their wellbeing. Whether it is a single physician speaking out about the discriminatory public health policies of a region, or entire organizations condemning episodes of genocide, the act of providing a voice to those who are not being heard is central to the role of international healthcare workers.

A Tale from the Narrator

In the eastern part of Santo Domingo, Dominican Republic, positioned on hillsides that fall away into the *Rio Ozama*, there is a barrio known as Gualey. The residents of Gualey live in extreme poverty illustrated by their small, shabby houses, cramped living conditions, limited protection from the elements, unclean drinking water, and lack of access to healthcare. In the summer of 2010, an organization that I was volunteering with hosted a mobile medical clinic in the community of Gualey in order to care for and treat those without access to adequate medical care. The clinic, which ran for three days out of a local church building, saw many patients, but there is one patient in particular that I remember more vividly than any of the others.

A woman came in to our examination area with her infant daughter tucked tightly to her hip. The pair settled into one of the small plastic chairs that was available, and a local physician and I began our usual line of questioning. The mother indicated that her daughter was the one who needed treatment, so we asked her why she brought her daughter in to the clinic that day. The mother lifted up her daughter's shirt to reveal a rash covering her front and back torso. The rash resembled many small bug bites accompanied by redness and raised skin. The small bites were scattered all over her body with greater concentration of bumps around the armpits and hands.

In truth, I was excited to see this rash because I had a fairly good idea of what it was. The tiny red papules were signs of scabies. Scabies is a disease caused by a species of tiny mites on the skin. The mites burrow into the skin of their host, causing symptoms consisting of widespread papules and itching. The condition is easily spread to other individuals

through contact with an infected person or items such as clothing and bedding that an infected person has touched. I remembered back to when I spent a summer as a camp counselor when I was sixteen. One of my roommates during the summer ended up getting scabies, and as a result, my four other roommates and I had to wash all of our clothing and bedding, as well as scrub "every crack and crevice" of our body with a special kind of soap. The camp staff took scabies very seriously because, if left unchecked, the mites could easily spread to everyone within the isolated camp. I recalled the cramped and unhygienic living conditions of Gualey that we had observed the previous day and imagined how easy it would be for the mites to run rampant in this overcrowded community. My arms and head began to itch just thinking about it.

During our conversation with the mother about the history of the rash, she revealed that she had attempted to treat the rash with an herbal remedy. Initially, the rash was less widespread, centered below the infant's right armpit. In an attempt to get rid of the rash, the mother gave her daughter a bath and scrubbed her with canelilla leaves, a common ingredient in a local herbal treatment called *mamajuana*. *Mamajuana* is a drink produced by placing certain types of bark, sticks, leaves, and herbs in a bottle and soaking the mixture in rum. Considered to be a cure-all throughout the Dominican Republic, *mamajuana* has been said to treat anything from the flu to erectile dysfunction. Regrettably, the canelilla leaves used to treat the infant's rash did not help. In fact, following the treatment, the rash began appearing in other regions of her body, eventually covering her torso just as we observed that day.

Herbal medical treatments have been employed for thousands of years. Ancient Egyptians, Babylonians, Indians, Chinese, and Native Americans all harnessed the biological activity of the secondary metabolites of plants as treatments for various ailments. Although

medicinal use of plants by humans is thought to have been going on since prehistoric times, one of the earliest written records of herbal medicine is an extensive list of Chinese medicinal herbs entitled *Pen Ts'ao*, produced around 3,000 B.C.E. Herbalism was also practiced by Greek, Roman, and Arabic scholars, as well as monks in Europe during the middle ages. Though some of the early ideas of herbal medicine may be seen as ridiculous by today's standards, like the notion that the appearance of a plant has an impact on its therapeutic use (yellow plants were used to treat jaundice, etc.), many of the medications currently used in medicine were first discovered and utilized by herbalists thousands of years ago. For example, morphine and codeine are derived from opium poppies, which were first used for pain relief over 5,000 years ago. In addition, the source of two antimalarial drugs, artemesin and artemerther, is the sweet wormwood plant which has been in use by Chinese herbalists for 2,000 years. Countless other modern products have originated from similar ancient medicinal practices.

Unfortunately for our young Dominican patient, the mamajuana did not help treat the scabies rash that she had acquired, and may have even exacerbated the situation. The mother's scrubbing with canelilla leaves likely helped spread the scabies rash to the rest of the child's body. The leaves would have easily picked up the infectious mites and eggs from the rash area and deposited them on previously unaffected areas of the skin. In this instance, the herbalism treatment had failed. Luckily, another solution existed. We are able to prescribe and provide the patient with Permethrin, a topical insecticide that would rid her of the scabies mites and the accompanying uncomfortable rash after only one or two applications. We suggested that the topical treatment be applied to the infected girl, as well as to other family members and individuals living in close proximity with the child, since

they too have likely come into contact with the highly contagious mite. Additionally, all bedding and clothing that the infant and others in close contact with the infant have used needed to be thoroughly washed.

When I look back on that patient, I cannot help but see the irony in the fact that the herbal treatment, intended to cure the child, actually resulted in an intensification of the infection. There seemed to be no logical reason why the leaves from the mamajuana mixture would have any beneficial effect on the rash. Maybe someone had told the mother that it would work. Maybe it had worked for her in the past. Or, maybe there were no other healthcare options available for the child, and the best thing the mother could do for her daughter was hope that the mamajuana remedy would have a positive effect.

At the same time this story makes me think of the countless numbers of effective herbal treatments that exist, most of which are likely unknown to pharmaceutical companies and western science. What if the mamajuana leaves had cured scabies? Would this be a better treatment than the drugs that are normally prescribed? Would we even know that such a treatment existed? Chances are we would not be aware of the cure. And what about the numerous other traditional treatments that are practiced in every corner of the globe? If it could be possible to cure scabies through an herbal treatment, is it not also possible that there could be a cure for some more serious illnesses? Maybe there is a traditional treatment effective at curing Alzheimer's or dementia? What about HIV? Tuberculosis?

It is odd to think that, although medicine has come so far since the time of Hippocrates, much of the future of medicine, and many of the imminent breakthroughs in science, may be the result of rediscoveries and refinements of ideas taken from largely forgotten corners of the world.

Commentary on *A Tale from the Narrator*:

The extreme levels of poverty observed around the world are heartbreaking. People live on barely any food, and contaminated water is a universal and deadly concern. Families are forced to live in tiny shelters. Diseases run rampant through communities, and relief is in short supply. Injustice is endemic, and the lack of opportunities for many marginalized people perpetuates the cycle of poverty. In many places hopelessness prevails.

However, it is vital to remain optimistic and hopeful while working in a global healthcare setting. The need for treatment is almost infinite, and it is impossible to help everyone, but just because aid workers cannot treat everyone does not mean that they should not treat anyone. Each year millions of people are treated by international medical organizations like Doctors without Borders, Partners in Health, and countless others. More and more communities around the world now have access to clean water due to sustainable water projects. These projects help to prevent dehydration and the spread of waterborne illnesses and parasites. Microfinance institutions are providing loans to small business owners, allowing entrepreneurs around the world to grow their businesses and provide for their families. Researchers and pharmaceutical companies continue to work to find cures for diseases like HIV and other afflictions that often disproportionately affect the poor.

Conclusion

The previous eight tales have presented several cases involving encounters with highly memorable patients in foreign countries. These stories tell of great joys, as in *A Tale from Guatemala*, and also tragedies, as was the case in *A Tale from Northern India*. The tales describe afflictions ranging from routine skin conditions, to life-threatening gunshot wounds, and take place in locations all around the world. Ultimately, these accounts give us a glimpse into the practice of medicine in a global healthcare setting.

When these tales of international medicine are compared to the practice of medicine in the United States, as represented by the tales from Dr. Sherwin Nuland's work, *The Soul of Medicine: Tales from the Bedside*, obvious differences can be seen on many different levels. International medical teams are called to work in some of the worst healthcare systems in the world, amid crumbling infrastructures, lack of medical supplies, corruption, and ethnic violence. They are asked to treat, heal, and care for the sick and dying during unimaginable conditions created by natural disasters and armed conflicts. In many cases, visiting healthcare workers are immersed in an unfamiliar culture filled with strange customs and values different from their own. They are always on call, and often carry workloads and responsibilities that are unthinkable in the United States.

Although the circumstances in each of these tales are very distinct, there are multiple features of healthcare that seemed to transcend the situation and environment, and are consistently observed in each of stories. Ingenuity allowed physicians to treat their patients in the often non-ideal situations in which they were working. Compassion was evident in the effort and care the healthcare workers gave each patient. And intuition and judgment were

called upon in order to determine the most appropriate course of action in each case. In his book, Dr. Sherwin Nuland also concluded that these four elements of medicine—ingenuity, compassion, intuition, and judgment—are components that are consistently observed in effective medicine, and therefore make up what he refers to as the "soul of medicine". Though the practice of medicine in global healthcare setting, in many ways, looks significantly different than in the United States, the soul of medicine that Dr. Nuland observes in his work is also evident in the stories found in this thesis, suggesting that these elements are vital to the practice of medicine around the world.

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