Land of Trees – A Visit to Guatemala

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Anesthesiology residents at Albany Medical Center continue to show great interest in traveling to underserved countries to participate in providing medical care to the patients there. The most recent of these trips was to San Raymundo, Guatemala, in February 2013. Previous medical missions included trips to Haiti in the aftermath of the January 2010 earthquake and Ecuador in October 2010.

Guatemala: The northernmost of the Central American nations is located just below Mexico and north of Belize and El Salvador. The country consists of three main regions – the cool highlands with the heaviest population, the tropical area along the Pacific and Caribbean coasts, and the tropical jungle in the northern lowlands (known as the Petén). The land has 34 volcanoes; four of them are active. Once the site of the impressive ancient Mayan civilization, Guatemala was conquered by Spanish conquistador Pedro de Alvarado in 1524. Guatemala became independent from Spain in 1821. After independence it was ruled by a series of dictators. From 1960 to 1996, Guatemala underwent a civil war fought between the government and leftist rebels. Following the war, Guatemala has witnessed both economic growth and successful democratic elections. In the most recent election, held in 2011, Otto Pérez Molina of the Patriotic Party won the presidency. Guatemala is now a constitutional democratic republic whereby the president of Guatemala is both head of state and head of government, and of a multiparty system. The main language of Guatemala is Spanish and its people are primarily Christians (Both Catholics and Protestants). The name "Land of Trees" was coined by Spanish soldiers who had invaded Guatemala and had to travel and wage wars through its forests.

Finca el Paraiso Rio Dulce in Guatemala

Our medical facility was located in San Raymundo, a village about a two-hour ride from Guatemala City (the capital of Guatemala) and located 7,000 feet above sea level. Traveling from Guatemala City through the mountainous terrain to San Raymundo was a memorable experience. Indigenous folks had their humble homes tucked away in the mountains. We wondered how the natives survived there while we reminisced about our lives of comfort in the United States.

Upon arrival to the medical facility, we were happy to see the living quarters and the plentiful food provided to us by the organization Refuge International, our host, based in Longview, Texas. Their local team was very organized and had answered all our questions before we embarked on our trip to San Raymundo.

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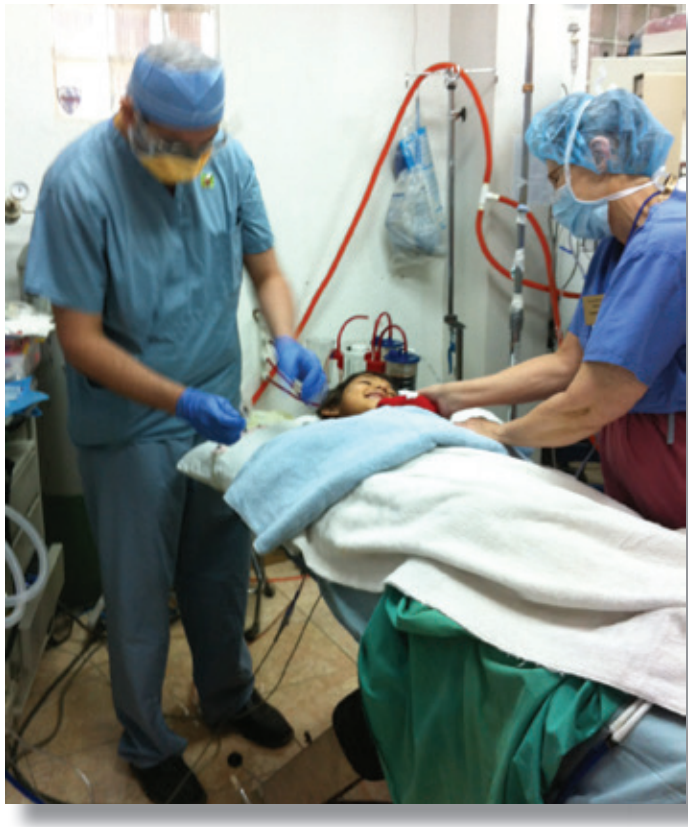
The hospitality, respect, and compassion they exhibited toward both their patients and their volunteers were remarkable.

Challenges faced when providing medical care to patients in underprivileged countries were similar to what most medical mission workers would face, such as minimal and outdated anesthesia equipment, inadequate patient monitoring tools, multiple O.R. beds in one operating room, inadequate ventilation of the operating rooms and long work hours. Hypobaricity and its impact on anesthesia was not a concern as we were working at no higher than 7,000-feet elevation. The patients possibly had higher hematocrits living at this altitude. Since laboratory work was not done preoperatively, we were not aware of their hematocrits. However, dehydration was evident clinically in all of our patients, possibly both from the high altitude and lack of potable water supply in these regions. Some members of our mission team complained of headaches and nausea for about two days after arrival in San Raymundo.

Gautemalan parents with child waiting to be treated at the San Raymundo Clinic.

Flexibility is often required of health care providers involved in a mission. Our anesthesia team certainly had to be flexible and was also fortunate when we were called upon to assist in other areas of health care, mainly primary care. The primary care service did not have a physician on its team, and the anesthesia team was consulted by the eager-to-learn medical



Dr. Thakrar administering anesthesia to a pediatric patient.

and nurse practitioner students. It was very satisfying for our anesthesia providers to be assets in the general health care of our patients. We provided fluid resuscitation in patients, including placing intravenous lines in severely dehydrated children with diarrhea. Often fluid resuscitation and treating gastrointestinal worms in children was all that was needed to see the them dramatically improve! As an example, the "Adios Lombrices" or "Goodbye Worms" project initiated and launched by Deborah Bell, RN, of Refuge International in 2007, has provided treatment to 600,000 children in four different departments (states) in Guatemala. Teachers provide education on good hygiene practices and administer Albendazole to all children aged 2 to 15 years, whether they were enrolled in school or not. (Many children do not attend school due to poverty.) Why worms? Even if worms don't "kill," they sap children of their energy and cause significant negative impact on growth. The program has been invaluable in improving the overall health of the native children, particularly their nutrition and growth and thereby preventing disease and mortality. In addition to managing the fluid status of the patients, the anesthesia

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providers used their knowledge of antibiotics for treatment of suspected infections in patients. The pharmacy worked well with us to make sound clinical judgment for antibiotic usage, keeping in mind we had no blood or other cultures to go by. Volunteers from our team also had the opportunity to deliver a baby.

There were two memorable cases the team reflected upon as examples of flexibility and using sound clinical judgment of all team members. The first was a patient who had a home delivery of her child a few days earlier. She was brought in by her family to our clinic with uncontrollable seizures. We immediately secured her airway, established intravenous access and sedated her with propofol and Versed. The next problem was her disposition. We could keep her at our facility, ventilate her and observe her for the night, but then what? With the help of Refuge International administrators, we managed to contact Guatemala City Hospital. An ambulance was dispatched and we transferred the patient there – a two-hour ride from our site. It should be stressed that this remains to be only a textbook scenario for our residents and medical students. They would not get to see a case of eclampsia of this magnitude. The maternal mortality in the U.S. is at 9.5 per 100, 000 versus 250 or more per 100,000 in Guatemala and other underprivileged countries.

Our second case occurred when the anesthesia team was called on to see a 19-year-old female patient. She had been seen a year ago at the same clinic in San Raymundo for an upper respiratory tract infection. Now she presented with a *one-year* history of intermittent fever, weakness and recent onset of diarrhea. It was shocking to witness her level of emaciation. She was now unable to get out of bed. Her HCT was 7 percent and her cardiac exam revealed a loud systolic murmur. Anesthesia was again consulted on this patient for I.V. access. We fluid-resuscitated her, including blood transfusion, and treated her empirically for possible endocarditis with Rocephin and an antifungal for any possible fungal infections. In addition, we took turns watching her all night and feeding her as she was too frail to feed herself. By the end of the following day, she appeared adequately resuscitated and the murmur sounded less intense. She became afebrile and was able to get out of bed! It was miraculous to see her walking out of the clinic led by the help of her father. She was sent home on an antibiotic course and advised to follow up with the local doctor. Refuge International will keep updating the anesthesia team on her status. Needless to say, we remained frustrated as we felt we could have done much for her if we were in the U.S.

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As the department of anesthesiology at Albany Medical Center continues to expand its overseas outreach program, it is the hope of this department that residents graduating from our program will continue to include this element of service as their future goal.

The members of the anesthesiology team at Albany Medical Center who went to San Raymundo this year are very thankful to Dr. Kevin Roberts, Chairman, for supporting our vision.