Ultrasound Outreach and the Crisis in Haiti

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Alarming rates of maternal and infant mortality exist in the developing world, with no significant improvement over the past decade. Obstetric ultrasound may play a role in reducing these rates by identifying at-risk pregnancies and directing their deliveries to an inpatient setting where the ability to transfuse blood and perform a cesarean delivery exist. Recently, the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) formed an Outreach Committee with the mission of promoting the education, training, and availability of ultrasound in underserved communities around the world with the goal of enhancing maternal and perinatal health. This narrative represents an account of a recent trip to Haiti in January 2010. About 8 months ago, the ISUOG Outreach Committee planned a third trip to Haiti for the week of January 10–16, 2010. The purpose of this trip was to provide more training and education in the use of ultrasound in obstetrics and gynecology to a group of local physicians and midwives that work for Zanmi Lasante. Comprising 10 health departments and hospitals, Zanmi Lasante is a nongovernmental organization in Haiti that provides free medical and social care to the central plateau region, recognized as the poorest area of the country. The Haiti ISUOG outreach program has been a successful collaboration between ISUOG, Zanmi Lasante, Partners in Health, the Haitian Minister of Health, and General Electric Corporation. As part of this collaboration, 10 ultrasound machines were donated to Zanmi Lasante health centers, and 2 prior ISUOG outreach trips, in December 2008 and May 2009, provided basic training in ultrasound.

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The ISUOG outreach team for this trip included myself, Lisbet Hanson, MD, who accompanied me on all prior Haiti trips, and Mike Kammermeier, who heads the GE education team in the United States and who accompanied us on the previous trip in May 2009. We left the United States on Sunday, January 10, through Miami and landed in Port au Prince at 4:30 PM local time. As soon as we exited the plane, we were received by Zanmi Lasante personnel with a sign that read “ISUOG Outreach.” They picked up our luggage and escorted us through customs. A car that was waiting outside the Port au Prince airport drove us to our training site in Cange, a city about 40 miles up the mountains from Port au Prince. Given the poor quality of the road, the actual drive took approximately 2 hours 15 minutes. The Cange complex includes a small hospital, outpatient clinics, a school, a church, housing, and educational classrooms. The site itself, which progressively grew over the past 20 years, was built by Partners in Health and is currently run by the local organization of Zanmi Lasante.

Our week was planned as follows: 2 training days (Monday and Tuesday) for the physicians followed by 2 training days (Wednesday and Thursday) for the midwives. On the basis of previous requests from both the head of the obstetrics and gynecology residency training program in Port au Prince and the director of the only midwifery training school in Haiti, we had scheduled a series of exploratory meetings for Friday, January 15, at the General Hospital and the Midwifery School in Port au Prince. Both directors desired to establish ISUOG-sponsored ultrasound training for their residents and student midwives. We had also planned to spend Friday night in Port au Prince and visit some local markets before leaving for home on Saturday, January 16.

On our arrival to Cange on Sunday evening, we were met by the Haitian physicians, many of whom were part of our previous training courses and have become close friends of ours. We were happy to see them and sense their excitement for the upcoming training sessions. After a light supper of rice, beans, and plantains, we retired to our rooms. Lisbet had her own room, and I shared mine with Mike. My first order of business was to chase a reluctant lizard off my bed. We all had trouble sleeping that night as we were exhausted from the long trip and not fully accustomed to our new settings. The extensive outside noise of barking dogs did not help.

Our first training day began with breakfast on a balcony with a beautiful view of the mountains and a typical Haitian house with a banana leaf roof that could be seen in the valley below (Figure 1). This was followed by 2 hours of didactics, which included a pretest and the use of ultrasound in the first trimester. Hands-on training, which followed the morning didactic session, consisted of 3 ultrasound stations and included more than 50 pregnant women who waited their turn very patiently. Many of them walked for hours to reach the clinic that day. We were pleased to realize that several of the physicians had attained a fairly high level of ultrasound training and could easily serve as trainers in the future. We specifically mention Dr Eddy Jonas, Dr Christophe Milien, and Dr Renel Saintard, who we felt had developed extensive expertise and technical knowledge of ultrasound. After this exhausting hands-on session, we ate a late lunch around 3 PM and reconvened to the classroom for another round of didactics focused on how to optimize the ultrasound images with hands-on scanning on a phantom that Mike brought with him.

Didactics for the second morning session on Tuesday included ultrasound in the second and third trimesters and the use of ultrasound in gynecology, with a focus on adnexal masses and uterine fibroids. The hands-on training, which...
followed the didactic session, was focused on gynecology and involved more than 40 patients with various abnormalities. The hands-on session on Tuesday took longer than expected as scanning at one station was halted due to a suspected diagnosis of advanced cervical cancer in a patient who presented with vaginal bleeding. This patient required medical assistance and thus was kept on the ultrasound table until transport to the hospital was made available. After the completion of the hands-on session, we had a quick lunch and returned to the classroom for the last session of didactics to the physicians. We decided to do the posttest then and provided a brief summary of the course with an interactive review. At around 4:48 PM, as I was asking if anybody had any questions, the ground shook violently.

We were initially all stunned for a moment and did not know what that was about but soon realized that it was an earthquake. A sense of panic prevailed in the room, followed by a scramble to the door. We ran outside the building and moved to higher ground. All cell phone communications were immediately lost. Internet access, which was only available at one location within the compound, provided the news that a major earthquake had devastated Port au Prince. Multiple aftershocks were felt throughout the night.

Many of the Haitian physicians who participated in our ultrasound training lived in Port au Prince and had absolutely no contact with their families. Tuesday evening was very eerie, as we walked in a daze within the Cange complex for most of the evening until we retired to our rooms.
in shock and disbelief. As we regrouped on Wednesday morning, the Haitian physicians had decided to drive to Port au Prince and check on their families and loved ones. We were offered by Partners in Health the option of leaving Haiti through a car ride to the Dominican Republic on Wednesday morning, but after a brief discussion among us, we quickly decided to stay and offer assistance in case casualties made their way to Cange. Aside from one or two local physicians, a pediatric emergency physician, and a visiting pediatric surgeon, we were the only physicians on campus. The midwife training session was canceled, and our focus was shifted from ultrasound training to providing emergency care to the earthquake victims.

It quickly became obvious that several victims would make their way up to Cange for care, given the total lack of medical support in Port au Prince. Most medical facilities crumbled, and a substantial number of physicians and nurses were missing. In planning for the influx of casualties, the church in the Cange compound, the only facility with a fairly open floor layout, was converted to a triage/emergency department area and was stocked with supplies (Figure 2).

Wednesday morning started with an emergency call to labor and delivery, where a twin pregnancy presented in labor after delivery of twin A and a stuck twin B in a compound presentation. With some obstetric maneuvering, twin B was safely delivered and provided with respiratory assistance (bag and mask with room air given a lack of oxygen in the delivery room) until she could breathe on her own. Our expertise in obstetrics sure came in handy, but we did not know what was to come later that day.

Casualties from Port au Prince started arriving later that Wednesday morning; they came in large numbers. All of the victims whom we saw had made the 2-hour journey from Port au Prince to Cange on dirt roads filled with large potholes (Figure 3), jammed in the back seats of cars, or on wooden doors on flatbeds of trucks (Figure 4) with broken bones, multiple bruises, deep lacerations, and open gaping wounds. The pain felt with each bump in the road must have been unbearable.

We recount the story of Mulatre, an 8-year-old boy who was the sole survivor in his family; he was brought up to Cange by his injured aunt. Mulatre, who sustained a fractured right humerus, kept us entertained with smiles and winces. He never complained about pain, even as we were casting his arm. It is hard to imagine what the future will bring for Mulatre. In a sense, he is lucky in that his injuries were fairly mild in the scope of what we had seen that day.

About 70 patients made their way to Cange on Wednesday and quickly filled the church grounds (Figure 5). Our care primarily focused on suturing deep lacerations, casting and aligning broken bones, dressing abrasions and deep wounds, starting intravenous fluids, and providing tetanus shots and antibiotics. Several patients recounted their horrific stories to us: a student nurse who was attending class on the fourth floor of the nursing school in Port au Prince when the earthquake occurred was the sole survivor of her class of 94 students. Two patients who were in the seminary when the earthquake hit were brought to us after being buried for 12 hours with two other bodies. One suffered minor injuries, and the other had major trauma to his right leg with compartmental syndrome. A father dropped his 7-year-old son off who sustained multiple deep scalp lacerations and a broken leg, to return 24 hours later with his injured mother who sustained chest trauma. We brought an ultrasound machine from the training site and put it to good use looking for free fluid in the abdomen and identifying flow in injured extremities. Treated patients who were stable with no place to go spent the night on the ground of the second floor of the church on sheets and cardboard.

The flow of patients was continuous throughout the next day. By Thursday evening, patients filled every corner of the church. Their cries for help filled the air and echoed throughout the church. Although we tried to provide some relief with morphine, the pain from most injuries was clearly too severe to treat. Dislocated hips and shoulders, major bone fractures, severely lacerated hands and feet, facial contusions, and deep puncture wounds—we felt so helpless.

After some discussion with Zanmi Lasante staff, ISUOG executive director Sarah Johnson, GE representatives, and our families, we decided to leave on Friday morning after assurance that...
Zanmi Lasante physicians were scheduled to return to Cange. Zanmi Lasante arranged for a car ride to the Dominican Republic, where we met a representative of Physicians for Peace, Ramon Lopez, MD, who escorted us through customs and kindly drove us to Santo Domingo. We briefly toured the city in his car and had dinner in a seaside restaurant, still numb from our experiences from the last 2 days. On Saturday afternoon, we took a flight back to the United States.

We owe thanks to many: first and foremost, ISUOG for its outreach activities and support throughout this trip. Also, Partners in Health/Zanmi Lasante staff who provided tremendous care; Sarah Marsh, coordinator of women’s services for Zanmi Lasante, who provided outstanding local organization and showed tremendous commitment and nursing care to our patients; Robert Sheridan, MD, the pediatric surgeon who happened to be visiting the compound and operated on many critically ill patients; General Brigadier Ron Sconyers and Dr Ramon Lopez from Physicians for Peace, who helped coordinate our trip back home; GE representatives Rex Widmer and Joseph Mansfield for providing assistance; John Kenerson, MD, Lisbet’s husband, who helped coordinate our trip back home; and certainly our families and friends as we put them through the worries of this tragedy.

Finally, thank you to all of our patients, who touched our lives in so many ways. We hope for their full recovery.