

CLINICAL OPINION

The Use of Ultrasound in Natural Disasters

Jose Leonardo Loiza

Assistant Professor, Associate Program Director, Family and Community Residency Program, Paul L Foster School of Medicine
Texas Tech University, El Paso, Texas, USA

Correspondence: Jose Leonardo Loiza, Assistant Professor, Associate Program Director, Family and Community Residency Program, Paul L Foster School of Medicine, Texas Tech University, El Paso, Texas, USA, e-mail: leonardo.loiza@ttuhsc.edu

ABSTRACT

During the tragedy in Haiti, I accidentally had the opportunity to perform a couple of ultrasounds that really made a difference for the patients I saw. In the next article I will share my unforgettable story that made me aware of the sum importance to learn about the use of these devices in those scenarios. I hope that my story will help the experts in ultrasound and the companies that build them, to develop guidelines and workshops to get knowledge in this wonderful piece of technology that I believe should be called the stethoscope of the future.

Keywords: Ultrasound, Disaster ultrasound, Handheld devices, Haiti ultrasound.

THE ROLE OF ULTRASOUND IN NATURAL DISASTER

I have been reading several reports about Haiti relief efforts from different non-governmental entities. I cannot believe that several months ago, Haiti was struck by one of the most devastating earthquakes known to human kind. That earthquake challenged the entire world in several ways. The leadership and organizing efforts to target different levels of help was a failure in the very acute phase of the disaster. Media reached there much faster than the rescue teams and well-organized medical teams. Water and food supplies took several days to arrive. One of the latest things I read was a web page that showed the donation of ultrasound machines to a Haitian hospital. I read 'Ultrasound' and recalled what happened several months ago.

I had the opportunity to be there by day seven. I started working in the only pediatric hospital in Haiti named St Damien Hospital, which went from being a 100-bed pediatric hospital to a general polytrauma massive unit with over 500 patients and only six doctors by the day I arrived with my buddy Dr. Marco Diaz. It was hell. Fractures, open wounds already infected, and the smell of gangrene was all over the place. Thankfully, by that night, a team of American orthopedic surgeons and another team from Italy were ready to provide surgical care. The hospital owned a power plant that gave us the luxury to have digital X-rays. However, the line of people was 24 hours behind.

The hospital had an ultrasound machine that was in a corner of a small ER, and no one of us attempted to use it at all. All we saw for the first 72 hours was earthquake related: Polytrauma, fractures, postsurgical care, and wound care.

Three days after our arrival (day 10 after the earthquake), we had enough manpower to set up a team to work in a community clinic in one of the crumbled neighborhoods: Christ Roi. This clinic by miracle was the only standing structure in

that community. Among the patients I saw that day, was a young pregnant lady who was very concerned because she had not felt the baby at all for a couple of days. I saw several pregnant ladies that day in advanced gestational age and with all of them



Fig. 1: One of the patients seen at the Christ Roi clinic, Haiti



Fig. 2: Ultrasound has confirmed normal fetal heart action



Figs 3A and B: Actual pictures of a patient with a molar pregnancy

I was able to hear the fetal heart sounds with my stethoscope. But with this young lady, I did not hear anything. I told her to come with me to the hospital, so I could use the ultrasound machine and evaluate her thoroughly. She gladly accepted and after one-hour trip to the hospital, I was able to determine that the baby's heart was actively and regularly beating. The baby was moving fine and the amount of amniotic fluid was normal. The happiness on her face was my reward of that day (Figs 1 and 2).

Pregnancy is not perceived as an illness and is a happy time for Haitian family. However, when bad things happen around a pregnant woman, her and the child's health become a concern.

Ultrasound is one of those areas where I have lots of room for improvement, but those very basic skills helped me to tell this distressed mother that her baby was doing fine. Under those circumstances, in the middle of deaths, crumbled homes, destroyed hopes and days of hunger, this child was a sign of hope, a gift from heaven.

Two days later, at the same community clinic, Marco saw another patient who was having abdominal pain and vaginal bleeding. She missed her last menstrual period and looked very pale. She was tachycardia and weak. We took her to the hospital and used the ultrasound machine again. I did not know what I saw, but I knew that it was not a baby. There was something

within her womb that was causing her those symptoms. Something that looked like punched holes inside her uterus. "...A mass??...Some bleeding inside the uterus...?" I thought, but was very hesitant or insecure to speak. For my relief, there was an Italian OB GYN who told us that it was a molar pregnancy. She took the patient to surgery and within hours she was in recuperation, waiting for some blood to be transfused. She did very well (Figs 3A and B).

In the middle of the rubble, devastation and hopelessness, this piece of technology offered us a way to bring joy, hope and happiness. Another patient, with a medical condition that had nothing to do with disaster, offered us a diagnostic tool to save her life. Next day, she told that she was grateful having survived two disasters i.e. the earthquake, and her 'bad spirit inside'.

I have been in other natural disasters where technology was only a dream. This time, I was glad to have technology and be able to help a couple of patients with it. I am happy to read in several papers or articles that several doctors took handheld devices with them. I think ultrasound experts should start thinking about protocols and devices to be used in disasters. I hope that my experience and thoughts will encourage the ultrasound experts to continue spreading the knowledge and sharing the skills in the use of these wonderful devices. I truly think that ultrasound should be used as a modern stethoscope and I am determined to learn how to use it.