“Earthquake” in Memphis

The Medical Education & Research Institute (MERI) have developed a training program to ensure an effective interface between civilians and the military in case of a disaster.

At the University of Memphis (UM), Wright State University National Center for Medical Readiness (NCMR), and the Medical Education and Research Institute (MERI), they knew the odds of experiencing a hurricane is much less than “experiencing” an earthquake. It was with this thought in mind that they developed a training program to ensure an effective interface between civilian and military operations in the event of a catastrophe requiring aeromedical evacuation.

Many lessons were learnt from hurricane Katrina, including the need for a military agenda for crisis management and the need to implement multiple exercises to strengthen civil-military cooperation and communication. The surprising nature of natural disasters and their catastrophic effects call for massive coordinated responses on short notice. The military has the manpower, equipment, training, and organization necessary to amass relief efforts required during catastrophic incident recovery.

Funded by a grant from the U.S. Department of Defense, the simulated earthquake scenario took place at the MERI with the sound of crashing furniture and falling ceilings, furniture was tossed about while the loss of electricity only served to amplify the sounds of “people” trapped under debris in the dimly lit building. Emergency sirens blared and suddenly there was the loud hum of military transport aircraft. Time was of the essence, and Memphis’ first responders and medical personnel prepared to maneuver themselves through the post-earthquake rubble.

All the simulators were used as the “walking wounded” in this “earthquake” exercise. Gaumard’s birthing simulator NOELLE® was in the throes of labor and hemorrhaging. Someone in this condition is not a candidate for military air evacuation because she isn’t stable. “Whenever you’re doing aeromedical evacuation, or leaving by air, you have to take into consideration the altitude changes. When you have altitude changes, a small air leak in the thoracic cavity can become significant and cause increased pressure on the heart leading to cardiac arrest” noted Ms. Brown, Simulation Education Coordinator.

Such was the chaotic scene which signaled the start of the training for a mass-casualty drill. Continuing through to April, this course, Civilian Aeromedical Evacuation Sustainment Training (CAEST) brings together both

military and civilians interfacing in a very stressful situation, and under less than ideal conditions. It also encompasses the use of both air evacuation and transport.

"We were not only looking at how to deal with a disaster within our community, but how to work with colleagues, and communicating effectively with our military counterparts," said Shirley Brown, MERI, Simulation Education Coordinator.

The MERI has been around since the 1990's, starting as a non-for-profit bio skills cadaver lab where physicians could come and practice skills on un-embalmed cadavers. Their body donation program, Genesis, has evolved over the years to include a wider audience which now incorporates human patient simulation as part of the teaching methodology. First responders, physicians, nurses, respiratory therapists and EMS students have all come to the MERI, along with attendees from over 28 different countries.

MERI conducts concurrent sessions, one group in the anatomical lab doing high risk, low volume skill sets, such as needle compressions and another group working with the simulators where they will have to employ all those skills. "I think the biggest thing we've learned is that having cadavers and simulators under one roof has opened up a lot of unique training opportunities, because it really takes both modalities to cover all the bases," says Brenda Belk.

MERI does not have a mobile RV, but they have taken 22 foot refrigerated trucks, loaded with anatomical donors, simulators and lab equipment all over the United States and Canada, recreating the lab environment in conference spaces, ballrooms, convention centers – wherever they are asked. This facilitates physicians who are unable to travel to Memphis.

" I like that we can use your simulators with a patient monitor, the hospital can use their equipment, their supplies and things in their own environment and people really get to learn what to do in emergency situations, and they are familiar with where they need to go and who's involved."

One of the many things that the Civilian Aeromedical Evacuation Sustainment training (CAEST) prepares civilian nursing and allied health, public health, and emergency responders to do is appropriately assess and prepare patients in pre-hospital, harsh environments, and clinical collection sites for aeromedical evacuation.

Not all medical equipment is transportable. Careful attention to the types of equipment approved for air transport, along with 'packaging' the patient differently to compensate for fluid changes and swelling are also addressed in this exercise. This fact was brought out after hurricane Katrina, when some patients were unable to be transported, and there were those who felt that the military was simply not accepting patients. CAEST also serves to compliment already existing military training. There are significant differences between military and civilian systems, such as communications, medical triage, patient evacuation and transfer protocols which are all addressed in this course.

In 2011, five year old HAL® S3005 and Susie® S2000 participated in a real-life terrorist exercise where participants were trained to improve clinical outcomes and enhance patient safety. "We've had pediatric fellows use the baby and the five year old in high risk, low volume incidences," said Shirley Brown, "such as seizures or cardiac arrhythmia, or conduct scenarios focusing on team dynamics and communication."

Communication between civilians and the military is very different, but through these kinds of exercises, it has been found that if they both adhere to medical terminology, everybody is able to understand and communicate in a respectful, clear and concise manner. It is all about working as a team.

To learn more about the MERI please visit www.meri.org.