

For Immediate Release

September 30, 2011

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Multi-sector Collaboration Brings Better Technology to Trauma Victims

SAN ANTONIO, Texas – A collaboration among a medical device innovator, the U.S. Army Institute of Surgical Research (ISR), the nonprofit National Trauma Institute and the State of Texas enters its final phase as the FDA-approved Wireless Vital Signs Monitor (WVSM) begins clinical trials this month in the Memorial Hermann Medical Center emergency department and on Houston Life Flight. This clinical trial will determine the benefits of WVSM over existing systems.

The WVSM is small and light, weighing a little over a pound, whereas monitors in use now are bulky and provide medics with only a basic set of vital signs, not real information about the status of the patient. In this clinical trial, the WVSM will be strapped onto the patient's arm and used to keep tabs on the trauma victim during emergency air transportation and in the ED. The device uses a wireless technology to transmit vital signs to a PDA, smart phone or laptop, and the receiving station then analyzes the data and runs algorithms to help medical personnel determine if and when emergency intervention is needed.

“If a patient has lost a lot of blood, standard vital signs may not fully represent how he is doing,” explained José Salinas, Ph.D., Research Task Area Program Manager, Combat Critical Care Engineering at the ISR. “Our bodies compensate for blood loss through different mechanisms that can mask the true severity of the injury.” Dr. Salinas’ team explored many different approaches for calculating need for lifesaving interventions to arrive at algorithms based on artificial neural networks.

In military settings, the WVSM will also serve the crucial function of passing on information about patients throughout the evacuation chain. From point of injury to helicopter evacuation to combat support hospital and through higher levels of care, the monitor will store all data and interventions from the moment it is strapped onto a wounded warrior.

The device’s clinical trial phase caps a long process that was supported by a grant from the Texas Emerging Technology Fund (ETF), awarded to the nonprofit National Trauma Institute (NTI) to manage the innovation partnership between Dr. Mark Darrah at Athena GTX, who developed the device, and Dr. Salinas at the ISR.

The clinical trials will continue throughout 2012, measuring “time to first intervention” in the emergency department. “If we can show that the wireless system decreases the time to first

intervention, we can make the case that it will also lead to better patient outcomes,” said John Holcomb, MD, FACS, Director of the Center for Translational Injury Research at UTHSC Houston. Dr. Holcomb, an NTI board member and retired U.S. Army Colonel, was part of the development team for the WVSM system while he was commander of the ISR. Dr. Holcomb was instrumental in bringing this state-of-the-art medical device research and development to the State of Texas.

The National Trauma Institute managed development of the WVSM through a grant from the ETF, a pool of resources designed to give Texas an advantage in developing and commercializing promising technologies. For more information on Athena and the Wireless Vital Signs Monitor, visit www.athenagtx.com.

Since 2008, the National Trauma Institute has awarded \$4 million to 16 studies now taking place in 20 states. NTI’s next trauma conference, to be held in May 2012 in San Antonio, will focus on technological advances in the treatment of trauma and offer insights gleaned from its first funded studies. Learn more about NTI at www.nationaltraumainstitute.org.

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