



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Aeromedical Evacuation

Aeromedical Stabilization Evacuation System Prototype

Service Members who are severely injured in the field with traumatic brain injury (TBI) and/or spinal cord injuries (SCI) often need to be evacuated in order to receive the necessary medical care; however, the aeromedical evacuation environment itself represents a potential for increased injury due to the motion and turbulence associated with flight. This Phase III project was funded through the Office of the Secretary of Defense's (OSD's) Small Business Innovation Research (SBIR) program (topic number OSD09-H13, "Aeromedical Stabilization and Evacuation of Traumatic Brain and Spine Injuries"). The problem as defined in the solicitation is the need for a lightweight, component based system that will provide cervical spinal splinting and traction, and thoracic/lumbar splinting as needed. The Aeromedical Stabilization and Evacuation System (ASES) concept consists of three subsystems including a Patient Support Platform, a Comfort Mat System (CMS) and a detachable Aeromedical Equipment Module (AEM). The awardee, Techshot Inc.'s ASES, is a modular, scalable, mobile treatment system that provides splinting and cervical traction to securely transport patients. The ASES prevents secondary injuries, hypothermia, and bedsores during transport from the battlefield to hospitals stateside. The optional AEM provides a power and oxygen buss for aeromedical and Critical Care Air Transport (CCAT) equipment to serve the patient's needs as well as surrounding patient's needs without piling bulky equipment dangerously above the patient. This system provides a stabilization and traction platform solution for aeromedical evacuation with CMS using heated alternating pressure air bladders or gel technology to prevent pressure sores. The prototype system is designed to minimize motion, including torsion, on evacuated subjects with SCI, TBI, and polytrauma during fixed wing and rotary medical evacuations. Airworthiness testing of this prototype is ongoing at the US Army Aeromedical (USAARL) and Air Force Research Laboratories (AFRL). Prior to use within the Military Health System (MHS), the ASES will still need to be evaluated based on global performance criteria, such as compatibility with current En Route Care transport platforms, patient comfort and ergonomics, maintenance and durability, implementation, functionality, manufacturability, and cost constraints.

