



US DEPARTMENT OF DEFENSE

# BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

## Hemorrhage Control and Resuscitation Evaluation of Junctional Hemorrhage Control Devices

Junctional hemorrhage control devices are critical for controlling hemorrhage in high-level traumatic injuries. As new junctional tourniquet designs emerge, it is critical to assess their safety and efficacy in environmental conditions that exist at the point of care and en-route during patient transport. Researchers at the Naval Medical Research Unit–San Antonio, sponsored by the DHA RDA Directorate and the Marine Corps Systems Command, are evaluating the performance of four different commercially available, FDA-approved truncal/junctional hemorrhage control devices that aim to occlude blood flow at pressure points located near the torso, inguinal, and axilla regions. An initial phase of the study evaluated the performance of various junctional tourniquet designs during applications to a Multiple Amputation Trauma Trainer® during simulated operation conditions. Device stability during transfer and the effect of altitude on the devices (as some are pneumatic) were examined. Additional testing evaluating the tourniquets during extended application times and during simulated patient transport is underway using a SynDaver™ Synthetic Human, a human tissue equivalent manikin model with a circulatory system and heart pump. Performance metrics include application times, contact pressures, and most importantly, whether the device is able to achieve and maintain occlusion.