Integration of an Operational Telemedicine System with a Bi-Directional Cross Domain Solution

TATRC's Operational Telemedicine Lab has partnered with Remote Diagnostics Technology (RDT) and General Dynamics to conduct technical research into establishing bi-directional medical communications across multiple security classification domains between medical personnel on site in an operational environment and clinical specialists at a Role III Combat Support Hospital or Role IV Medical Treatment Facility (MTF) ("brick & mortar" hospital). Bi-directional communications serve the purpose of providing contextual awareness of a patient's condition to the clinical specialist that uses this information to provide medical direction and guidance to the operational medical personnel. The capability to establish this connectivity will support the Department of Defense's Virtual Health initiatives and further enable Virtual Health support directly to the warfighter in ongoing operations. However, one of the most significant challenges is that the U.S. Army operates their operational network, the tactical radio network, as a classified network and the Garrison expertise within the Role IV MTFs, such as San Antonio Military Medical Center, use the unclassified network. Additionally, while deployed Role III Combat Support Hospitals generally have access to the classified "SIPRNET", the unclassified "NIPRNET" is more readily available to the clinical staff, is the preferred network for conducting

medical information exchange, and is the network on which the enterprise electronic medical record system resides. Senior Project Manager for TATRC's Operational Telemedicine Lab, Mr. James Beach stated, "Without the ability to securely establish a controlled medical information bridge between the security classification

Bi-directional communications facilitate tele-mentoring between forward deployed personnel and a provider in the fixed facility.

domains, the capability to leverage the entire medical enterprise to support ongoing operations through Virtual Health capabilities will be compromised."

The objectives of this project are to demonstrate the ability for bi-directional transmission of medical data, video, and audio with RDT's TEMPUS-Pro Operational Telemedicine System through General Dynamics' Tactical Cross Domain Solution (TCDS) that establishes a controlled gateway between the classified tactical radio network and the unclassified network. TATRC has used the TEMPUS-Pro and the TCDS in several medical information technology field evaluations involving medics from both ground and air evacuation platforms and from Roles I & II medical treatment facilities, but only to pass the field-generated DD1380 Tactical Combat Casualty Care Card to the AHLTA-T electronic medical record. The newly designed TCDS and direct interface to the TEMPUS-Pro device will enable the full use of the operational telemedicine system's inherent capabilities to connect forward deployed medical personnel with clinical specialists in CONUS-based hospitals to facilitate on-demand requests for advanced medical direction and guidance. During a technology assessment conducted in Redmond, Washington, MSG Kevin Ross, Combat Medic, described the benefit of this bi-directional connectivity, stating, "The reach-back concept … works because it gives the young soldier the ability to connect directly to a higher echelon of care and allow him to go through a step by step method of instruction that not only enhances that soldier's ability to perform the task, but greatly improves the survivability of the patient."

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An example of secure medical data capture on a classified network in an operational setting.