

Army Team Wins DOD Award for Satellite Communications (SATCOM) Project

Stephen Larsen

Not too long ago, it took hours for deployed medical personnel to transmit digital X-ray or computed tomography (CT) scan files in Iraq and Afghanistan. Now, it takes minutes, allowing wounded Soldiers to receive more timely medical care. This revolution in medical care is thanks to the Joint Telemedicine Network (JTMN) project, for which the JTMN implementation team was honored with the DOD Chief Information Office (CIO) 2009 Team Award at the Pentagon Oct. 28, 2009.

LTC Tony Allen, Theater Radiology Consultant, views digital CT scans in Iraq thanks to the JTMN. (U.S. Army photo.)



JTMN implementation team members include LTC Nanette Patton, U.S. Army Medical Department (AMEDD) Deputy Chief Information Officer for Business and Theater Systems Integration and the project's sponsor; LTC Alfred Hamilton, U.S. Central Command (CENTCOM) Medical Chief Information Officer and the project's operational sponsor; Salvatore Granata, project lead for Product Manager Defense Wide Transmission Systems (PM DWTS), part of the Defense Communications and Army Transmission Systems Project Office, Program Executive Office Enterprise Information Systems (PEO EIS); MAJ James Morrison, Task Force 44 U.S. Army Medical Command (MEDCOM) G-6, who represented the medical community in Iraq; MAJ Jack Leech, Health Information Systems Officer (HISO) for Combined Joint Task Force-101 in Afghanistan; MAJ Dan Bridon, HISO for Task Force 30 in Afghanistan; 1LT Peter Winkel, Task Force Medical J-6; and Liz Snyder, Project Manager for PM DWTS' prime contractor DRS Technologies Inc.

The Telecommunication Problem

The need for the JTMN emerged when Hamilton went to Iraq and Afghanistan for 60 days in 2007 and visited military health care facilities and providers throughout the theater. He asked the providers a simple question: what information technology support did they need to help them provide the best medical care possible?

"We went through their concerns and a picture emerged," said Hamilton. That picture clearly showed that the existing in-theater telecommunication infrastructure was not sufficient to support critical medical situations. It took an average of 4.5 hours to transmit a single full-body CT study of traumatically wounded service members from one medical facility to another, and more than an hour to transmit a single digital



JTMN implementation team members are shown after winning the DOD CIO 2009 Team Award at the Pentagon Oct. 28, 2009. Left to right: Salvatore Granata, project lead for PM DWTS; MAJ James Morrison, Task Force 44 MEDCOM G-6; LTC Alfred Hamilton, CENTCOM Medical Chief Information Officer; Liz Snyder, Project Manager for PM DWTS' prime contractor DRS Technologies Inc.; LTC Nanette Patton, AMEDD Deputy Chief Information Officer for Business and Theater Systems Integration; and 1LT Peter Winkel, Task Force Medical J-6. (Photo by Jessica Wainwright.)

chest X-ray. In many instances, patients being evacuated would reach the next echelon of care before transmitted medical data and images got there.

Hamilton captured all this information in a Joint Urgent Operational Needs Statement (JUONS) that he wrote, in which CENTCOM identified the requirement for a SATCOM capability using very small aperture terminals (VSATs) with sufficient bandwidth to expeditiously transmit critical medical data and images. In response to the JUONS, the JTMN project started in October 2008 with the JTMN implementation team, including members who collaborated from worldwide locations such as Fort Monmouth, NJ; MacDill Air Force Base, FL; Falls Church, VA; Germany; Kuwait; Iraq; and Afghanistan.

The JTMN Solution

The JTMN implementation team's solution included modifying existing VSATs in theater to handle greater bandwidth capacity, repurposing VSATs no longer needed in Iraq for use in Afghanistan, providing additional VSATs throughout the theater, and upgrading the Landstuhl, Germany,

hub to link the network back to CONUS. The team successfully achieved initial operational capability for the system in March 2009 and since then has been working to expand and improve the system.

Patton noted that the team overcame multiple obstacles in implementing the project, including time zone challenges, a 100-percent turnover of key project personnel, contracting delays, transportation issues, supply chain failures, and satellite bandwidth shortages. She called the experience "the best of times and the worst of times. Overcoming all those obstacles—that's why it was the worst of times—and working with the team—that's why it was the best of times," Patton said.

One significant obstacle that the team overcame was the failure of an aging satellite providing temporary Ku bandwidth for the JTMN until the launch of a new satellite. "There are only so many birds [satellites] over Afghanistan, and everyone is trying to use them," explained Granata. "These satellites were not meant to last as long as they have, and we've had three instances where the orbit of a satellite

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deteriorated and we had to move to an interim satellite to keep the network running while we arranged getting on another satellite for a long-term solution.”

Thanks to the team’s ability to react calmly and work together to overcome these obstacles, deployed medical personnel now can transmit 250-megabit digital X-ray or CT scan images within about 5 minutes via JTMN. “This allows radiologists to view the images before the patient arrives at the medical treatment facility,” said Patton, “and enables the medical team to provide more effective care during the ‘golden hour’”—the time period from a few minutes to an hour following traumatic injury, during which there is the highest likelihood that prompt medical treatment will prevent death. “Having the images at the medical treatment facility before the wounded Soldier arrives allows the medical team to proactively

have a game plan when the wounded Soldier arrives,” added Morrison.

According to Bridon, another benefit is that JTMN’s video teleconferencing (VTC) capability allows remote teleconsultation with medical specialists at other locations—in theater, Germany, or back in CONUS. Morrison added that, in addition to enabling teleconsultation, JTMN’s VTC allows distance learning and remote training. The JTMN also allows technicians from other locations to perform remote diagnostic maintenance services on their radiological equipment. “These JTMN capabilities have reduced our need to put people at risk by having to send them out on the roads to do maintenance or to get training,” Morrison said.

Morrison and Bridon both appreciate that JTMN now allows medical personnel in theater to transmit electronic

medical records detailing past medical history, medications, immunization records, laboratory data, and radiology reports—even in austere regions of Iraq and Afghanistan where the telecommunications infrastructure is not well developed. “JTMN also allows us to do automated ordering of Class VIII medical supplies [medicines, medical equipment, and dressings] using Web-based tools,” said Morrison.

A Team Effort

The process of implementing JTMN was “a roller-coaster ride,” Patton said. “Some teams implode when there’s all that pressure to overcome so many obstacles, but we kept it all together. Life threw us some curveballs, but we adjusted and improvised.” Added Hamilton, “Our team was just a perfect team. Everyone had a role and they were all intertwined and just clicked.”

Bridon said that when he and the Task Force 30 MEDCOM team arrived in Afghanistan in May 2009, JTMN was up and transmitting at only three sites in Afghanistan. Over the following 6 months, he and his team worked to triple the number of JTMN sites—despite very difficult and dangerous conditions in theater—and have many more sites in various stages of implementation and planning.

“Our wounded warriors benefit by the proliferation of JTMN and continue to receive improved care at all echelons, in and out of Afghanistan. All of that gain makes the long hours, grueling travel, and high stress worth it. Our brothers- and sisters-in-arms deserve it,” concluded Bridon.

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CPT John Lavoie (left) and SGT David Leach, Task Force 30 MEDCOM, pose proudly next to one of the JTMN VSATs in Afghanistan. (U.S. Army photo.)