Joint Medical Operations-Telemedicine, Advanced Concept Technology Demonstration T2P2 Prototype Version

Background

Tripler Army Medical Center (TAMC) and the Pacific Regional Program Office (PRPO) have management authority over Project Akamai. Project Akamai is a Department of Defense (DOD) health project aimed at applying and assessing the issue of telemedicine and telecommunications technologies in the military Pacific Region. Project Akamai is a congressionally directed project, funded in Fiscal Years 93-99.

Project Akamai is tasked to conduct research to demonstrate and validate telemedicine prototype systems. In February of 1999, the Deputy Undersecretary of Defense for Advanced Technology approved the Joint Medical Operations - Telemedicine, Advanced Concept Technology Demonstration. The Pacific Regional Program Office was asked to provide candidate technology solutions in support of the program objectives and Critical Operational Issues. After a strategic planning process, PRPO and JMOT-ACTD signed a formal Memorandum of Agreement to provide management and engineering support, clinical expertise, risk mitigation strategies and potential candidate technology solutions for demonstration in ACTD activities. The Theatre Telemedicine Prototype Project (T2P2) was requested to be a candidate for participation and demonstration in Patriot Medstar 99. PRPO contracted to develop a prototype version of T2P2 that provides clinical reachback capability in support of Patriot Medstar 99 exercise conditions and communication topology. In March 1998, an integrated process team was organized for the integration and system development effort for the ACTD prototype version.

The project objective is to continue the use of T2P2 in a remote austere tactual environment, providing critical consultative capability for Referring Providers, enabling utilization of clinical expertise at a regional facility (currently TAMC), and efficiently sending the consultative information to the tertiary facility. The ACTD task provides for the design, developmental testing, training, maintenance, and materials to enhance the existing T2P2 and conduct demonstration modeling of this system in Patriot Medstar 99 exercise environments. This phase provided a laptop version of the system to support existing clinical capabilities in addition to a generic capability that covers various clinical conditions in the tactual environment. The system configuration will support remote capture of clinical information and images from selected exercise locations with structured clinical formats and capture capabilities of an ENT otoscope, digital camera, radiological film digitizer, and flatbed scanner. This version of the system will continue to provide the capability to track the status of a consult from creation to closure.

Organization

- COL Sarah Wright, Patriot Medstar 99 Demonstration Manager
- LTC Darrell Duncan, MB BS, ACTD Clinical Manager
- LCDR Tom Moszkowicz, ACTD Operational Manager
- SFC Reginald Fields, ANC, NCOIC, Theatre Telemedicine Team
- Kevin McGinty, Project Manager, Akimeka Inc.
- Dr. Eugene Vasilescu, Lead Project Designer, MicroClinque
- Kelly Pickard, ACCESS Radiology, Inc.
- Jack Gunther, IV&V, Booz, Allen & Hamilton
- Cynthia Kohuth, PRPO Clinical Director
- John Draude, PRPO Systems Engineer
- Clayton Rasberry, Project Manager, Akamai

Project Description

The T2P2 ACTD project provides direct and development support to the Joint Medical Operations-Telemedicine, Advanced Concepts Technology Demonstration (JMO-T ACTD) to support a demonstration of T2P2 in Patriot Medstar 99. The solution addresses the following critical areas:

A. Clinical Capabilities – T2P2 will provide clinical consultation capability in Dermatology, Orthopedics and a Generic clinical format for capture and processing of routine clinical requirements in support PM 99 testing of the clinical reachback capability.

B. PIC Interface – provide an interface to read information from a Joint PIC card to populate T2P2 consults in support of Patriot Medstar 99. This will provide T2P2 the capability to read demographic information from cards to populate and generate a consult. The capability was coordinated and integrated from products developed by the Naval Health Research Center to facilitate the integration of JCS card PIC reader utilization.

C. Advanced System Topology – An ACTD version of T2P2 will support the operational flow of consult information from the Echelon 1 to Echelon 4. These enhancements shall support the medical requirements to populate a consult with PIC card functionality with consult requirements, provide operational support for routine medical encounters in isolated areas, consolidate information for medical reporting and provide for the transfer of that information to the next required level of care. A generic function will support image acquisition from a film digitizer, portable CR device, digital camera, scanner and AMD video otoscope. Consults will be populated utilizing "PIC" technology and images transferred by JINX communication over low bandwidth FM signal, internet service provider and satellite to provide clinical reachback capability in support of PM99.

D. System Training – to provide and conduct training classes and documentation for Train the Trainer ACTD training representatives on the installation, use and system support. This training will be conducted at a selected site with training representatives and Theatre Telemedicine Team members from Tripler Army Medical Center.

E. Patriot Medstar 99 Engineer Support – Provide installation and system support of deployed T2P2 system at three requested sites in support of Patriot Medstar 99 requirements. Provide the necessary support at Tripler for processing exercise consults and support to the clinical team.

F. **Remote Communication Capability –** T2P2 will develop a functional capability that supports the utilization of ACTD technology to move consult information from selected sites to Tripler in support of the Patriot Medstar Exercise. T2P2 contractors and system engineers will investigate and present the feasibility to interfacing with the Extended Littoral Battlefield (ELB) system for movement of information from forward echelons. If required, T2P2 will provide a functional interface to the CSI Tactual Communication System (Jinx) to utilize low band FM transfer of information via SINGARS radio. In addition, a capability to accomplishing data transfer by simple disk transfer will be provided as a back-up means of consult movement.

Proposed Project Timeline

February 1999	Develop Requirements/Tasks for ACTD support
March 1999	Execute Contracts for required level of effort
29 March – 1 April, 1999	Attend PM99 Final Planning Conference
01 April – 30 April, 1999	Development of ACTD Version of T2P2
03 May – 14 May 1999	IV&V Testing of ACTD Version
17 May – 28 May 1999	T2P2 Training
17 May – 28 May 1999	Integration Testing in SPAWARS Lab
07 June – 11 June 1999	Packaging/Installation of T2P2 for PM99
14 June – 25 June 1999	Participation in PM99 Exercise
28 June – 02 July 1999	Equipment Breakdown and Shipment
July 1999	Lessons Learned/ System Evaluation
August 1999	Develop additional Requirements/Tasks

Performance Objectives/Deliverables

Overall Performance Objective

Overall Performance Objective is to provide T2P2 capabilities in a tactual environment in support of ACTD Critical Operational Issues and Objectives to provide a clinical reachback capability for far forward deployed units in Patriot Medstar 99 exercise.

Deliverables

Deliverable 1 – Develop a prototype version of T2P2 which provides the capability to utilize T2P2 at the Echelon 2 level. This will provide consult capability for existing Dermatology and Orthopedic Consultation with the addition of a generic consult format that will support multiple types of conditions.

Deliverable 2 – A T2P2 ACTD version will provide the capability to capture clinical and diagnostic quality images from a digital camera, ENT otoscope, Radiology film digitizer, and flatbed scanner in support of required clinical consults.

Deliverable 3 – Successfully participate in all required IV&V and Integration testing prior to demonstration of the system in a live environment.

Deliverable 4 – Successfully transport a T2P2 consult over required communication standards to Tripler Army Medical Center to complete the requirement for clinical reachback.

Deliverable 5 – Conduct effective user training for ACTD trainers and Theatre Telemedicine Teams on the developed ACTD prototype version.

Deliverable 6 – Provide engineering support at selected PM99 sites that provides a 24 hr support network to achieve a 85% RMA during required operational exercise objectives of the clinical reachback capability.

Summary

This development and demonstration project will provide a functional test of T2P2 in a far forward, deployed, tactual environment. In support of ACTD objectives to provide a clinical reachback capability, this version of T2P2 provides an application system candidate in support of Joint Medical Operations in Telemedicine. The successful use of T2P2 in an operational exercise can provide a critical capability for clinical reachback in a deployed area of operations. This project provided the technical and clinical knowledge for T2P2 continued design, development, demonstration, training, integration and modeling of this system in the JMO-T ACTD.