A LEADER IN MEDICAL INFORMATICS

CASE STUDY

Implementation of Mobile MedData® Enterprise at US Army, Fort Lewis, Washington

Client Profile

Medical Communications for Combat Casualty Care (MC4) Product Office
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Special Mission
Mobile Point-of-Care Solution to be integrated with Enterprise network of Joint Forces through HL7 interoperability

Size
Brigades: 8
Providers: 3,000

About MC4
Medical Communications for Combat Casualty Care, also known as MC4, is a specialized group, which studies and provides medical communication solutions for Combat Casualty Care. After carefully studying the requirements of the Combat Casualty Care, MC4 was considering to get a mobile patient charts solution, which can be taken to the battle field, with capabilities to read from / write to a Smart Card based patient record. The solution must provide for "handing over" the field transaction from the mobile device to the evacuation crew, and eventually, to the Army Medical Records, residing on secured Relational Database System, namely, Oracle.

Evaluating Mobile Point-of-Care integrated with EHR Solutions

MC4 Product Office chose Mobile MedData® Enterprise Edition, to fulfill the following objectives:

- The combat medics, who treat the soldiers on the battlefield, would be provided a software component on their Palm handheld for capturing the encounter details either at the point of care or immediately after providing the treatment. Under normal circumstances, the combat medic would use the soldier's dog tag to identify the person, pull out the relevant demographics records, and capture the injury and pertinent treatment. Alternatively, it was also planned to utilize a smart card based soldier's dog tag to identify the person by either inserting it in the SD Card slot on the Palm or scanning it using a bar code scanner attached with the Palm devices. This would load patient's demographics in the Patient Information Manager immediately, thus saving the time of patient identification and relevant data entry. All medics would "beam" their records to the ambulance staff, while evacuating a patient from the battlefield, which in turn, would be synchronized with the desktop based Patient Information Manager's encounter capturing module. All such desktop-based data would be amalgamated with the Centralized Server eventually.

- At each of the organizational units, including the base camps at the battlefield and the Army Medical Centers / Hospitals, the proposed application would facilitate export and import of medical records for the selected patients. This would make the data communication across the organizational units easy and transparent for the physicians and medics.

- All patient demographics data will always get "downloaded" to the Palms by the Server and all encounter data will always get "uploaded" from Palms to the Server.

- The proposed solution will provide integration of its data with the "Corporate" database and applications architecture, know as, Theater Medical Information Program (TMIP).

- The vendor must fulfill any changes to the off-the-shelf software for bringing the mobile initiative in tune with the security and integration requirements of the US Army and the Department of Defense (DoD).

Findings: Implementing Mobile MedData® at MC4

- A total of 135 mobile devices, 14 desktop-based modules and an Enterprise Server based integrated software solution was provided to pilot project participants belonging to a variety of medical services in Army Transformation at Fort Lewis, Washington.

- A list of changes requested from the functionality point of view, were logged, discussed, and accepted as Change Requests from the users. Mobile MedData was customized for these Change Requests, using Software Configuration Management procedures.

- Two "train the trainer" programs were organized by Medical Communication Systems, on April 24-28, 2001 at Fort Hood, Texas and on May 25-30, 2001 at Fort Lewis, Washington, which involved training group of people representing variety of medical services for using Mobile MedData.

- Mobile MedData provided a XML Server to achieve integration with TMIP.

- The pilot implementation will go live on August 15, 2001 at Fort Lewis, Washington.

An article, published by the US Army in one of their publications, provides more information on successful implementation of Mobile MedData, which is attached herewith on the next pages.

About MCS

MCS-Medical Communication Systems, Inc. is known for its CCHIT 2011 Certified, Awards winning Ambulatory EHR product – mMD.net EHR, and integrated Practice Management, Patient Portal, and Mobile Point-of-Care solutions. mMD.net EHR is a Microsoft .net and Internet browser based EHR, which is extremely easy-to-use, bundles SureScripts Certified e-prescribing, interoperates with any Health Information Exchange through HL7 CCD, provides integration of lab orders & results from LabCorp, Quest Diagnostics etc., and is being used by more than 2,000+ satisfied users.

Combat Casualty Care Goes Mobile

To help solve many of the current challenges facing the transformation of tactical healthcare to the Army's Objective Force, the Army's Medical Communications for Combat Casualty Care (MC4) Product Office has developed a prototype solution to record medical encounters on the battlefield. Dubbed the Army's First Responder, the hand-held, Palm-based medical application provides combat medics with easy a capability to record medical care and access reference medical information in austere environments.

Mobile computing applications can closely simulate the original paper form providing users with a familiar look and feel. Through the use of the latest technology, data storage is rugged, large, fast, and more efficient, using minimal power consumption. With modem or wireless communications tightly integrated, combat medics can stay connected to aid stations or other higher echelon facilities. By simplifying administrative processes mobile devices prevent routine tasks from overwhelming medical personnel. Few would deny that mobile medical devices provide impressive capabilities.

While traditional medical facilities have been focusing on automating patient records, dispensing medication, sample collection and viewing lab results, the requirements of the combat (field) medic vary widely. Mobility and tempo is the key according to the Army Medical Department Combat Developer.

"For the last 225 years the Army relied on a paper-based medical record system for documenting patent treatment on the battlefield," says LTC J. B. Crowther, MC4 Product Manager. Paper-based records were prone to loss, have a high error and illegibility rate, and are intrinsically inefficient for processing source data during deployments and field exercises. Through the National Defense Authorization Act of 1997 Congress has gone as far as mandating portable medical records for the Army. Even in peacetime, frequent movement of service personnel, increasing numbers and lengths of deployments, decentralization of treatment facilities, increased use of civilian healthcare facilities and non-interactive, non-interoperable health information systems have made the ability to maintain an individual's complete medical record nearly impossible. While the Army is responding with several initiatives, the implementation process has been slow. As a result several home-grown handheld medical applications have emerged. The principal problem with unit or locally developed or procured software is it fails to meet Department of the Army information security requirements, Federal The Health Insurance Portability and Accountability Act (HIPPA) guidelines and OSD acquisition specific regulations.

When a Combat Developer and Material Developer decide to deploy handheld devices, there are several requirements that must be met. First, the organization must have a manageable process for initial distribution. There must also be a manageable process for updates that allows users to retrieve and install the new device images without enterprise support involvement. There should also be a limited number of software images so that centralized support requirements are minimized.

Together with Medical Communications Systems of New Jersey, MC4 has repurposed one of the company's existing commercial-off-the-shelf applications to create Mobile MedData for MC4. The

lightly modified COTS application was structured around the previously developed MC4 product called the Electronic Field Medical Card but now contains many of the commercial features that have made MCS commercial Mobile MedData application a success. Medical Communications Systems is a medical information company specializing in software and telecommunications technology to enhance healthcare delivery. The company has been very responsive to the MC4 Product Office, according to LTC Crowther.

Although the MC4 prototype product is designed solely for echelon one and two health care providers, the Mobile MedData software may be configured for multiple environments and integrated with software such as mobileMICROMEDEX or e-physician to contain acute care information, drug interaction information, toxicology data, dosing information, treatment recommendations and a variety of medical reference guides and tools. MC4 plans to build standard images at its location on Fort Detrick while updates and enhancements distributed via the Internet. Users will easily be able to load their Palm devices with a new image update via the synchronization process.

For Army first responders, replacing the Field Medical Card (DD Form 1380) and providing the capability to print a chronological record of medical care on the SF600 were a top priority. Secondarily, the device enables accountability of medical supplies carried and consumed by the combat medic. An interface to the medical logistics system aids in the re-ordering process and further simplifies the combat medic's paperwork. Ultimately, the MC4 product will be integrated into the Army's Theater Medical Information Program (TMIP) to establish seamless visibility and management of patient information from the point of injury, during evacuation and at the Combat Support Hospital.

Mobile MedData for MC4 was deployment to the Army's Initial Brigade Combat Team at Fort Lewis. One hundred thirty-five Mobile MedData devices were issued to a variety of medical personnel participating in Army Transformation. LTC Crowther says, "This will give MC4 engineers, working with the MC4 Combat Developer, an opportunity to compare the software's utility with existing combat medic business processes. MC4 will be deploying an updated version to the 2d IBCT in March 2002.

By reducing the training requirements associated with traditional automated data collection methods and providing a higher level of portability than keyboard-based systems, Mobile MedData is designed to help Army combat medics be more productive. The stylus-based interface permits users to interact with the computer in a natural and familiar way, pointing and tapping directly on the screen. The stylus interface provides medics with other highly intuitive and efficient applications whether tapping to navigate through applications or selecting options from scrolling lists and checkboxes.

MC4 and Medical Communications Systems is also investigating the use of new Oracle tools for the Palm OS to provide tighter integration between Palm applications and a wide range of enterprise-wide Oracle databases. Combat medics and other field users will eventually be able to access any information available from the system at any time to make critical medical decisions. This information will be available at the point of use wherever and whenever needed. By aggressively exploiting new technology such as the Palm hand-held device, MC4 is able to provide combat medics exceptional tools to enhance patient care. MC4 plans to provide more capabilities to its users via wireless networking and by enabling Web applications to run on the handheld computer.

As with most technologies, there are possible drawbacks. As more military systems begin supporting mobile technologies, integrating handheld wireless devices into existing and planned infrastructure raises a range of issues from system compatibility to legal responsibility. Transferring software and files between devices and IT legacy systems is sometimes difficult. Although, with the military likely to require more mobile care in the near future, now is a good time to deploy a prototype project.