Fort Hood to RFID-Tag Medical Records

With more than 150,000 soldiers and their dependents using the base's six health clinics, the Army is seeking a better system to track their medical files.

By Beth Bacheldor

Aug. 1, 2006—Tracking thousands of medical records at several different clinics spread across a region can be a daunting task for any health-care provider, but the job is made even tougher when there's a constant turnover of patients. That's the challenge the U.S. Army has had at its installation at Fort Hood, Texas. The nation's largest active-duty domestic military post, Fort Hood occupies 339 square miles and supports more than 150,000 soldiers.

Now, with the help of 3M's Safety and Security Systems division, the military is preparing to attach passive RFID tags to all medical files at the post's six clinics. RFID antennas will be placed on shelves in rooms housing the clinic's files, allowing medical personnel to know the date and time a file was checked out and by whom, as well as the date and time the file was checked back in and the specific clinic and shelf at which it is located.

The RFID project is expected to achieve some very basic—and much-needed—benefits, says Dave Erickson, a 3M specialist in advanced software systems, also serving as program manager and principal investigator for the Fort Hood project. "The Army wants to improve their efficiencies in health-care delivery. If the records are where they need to be at the time of treatment, that'll improve the quality of health care delivered, improve operational efficiencies, reduce risks to patients and facilitate regulatory compliance around record retention and other issues," Erickson says.

"The primary objective of this effort is to validate the expected benefits that RFID can bring to document management in the medical records space," Erickson explains. "The system is expected to be a cost-effective bridge to the planned computerized patient record (CPR) and provide immediate impact as the CPR is developed and rolled out over the next several years. The RIFD system would provide a cost-effective way to manage the historic paper-based record for many years to come and allow the CPR to focus on the future."

Leading the efforts to track Army medical records through RFID technology is the Telemedicine and Advanced Technology Research Center (TATRC), a unit of the U.S. Army Medical Research and Materiel Command (USAMRMC). The three-year contract, valued at $3.76 million, follows an earlier pilot 3M and the Army conducted for more than a year at Fort Hood, involving the tagging of records of approximately 10,000 soldiers and some of their dependents. The pilot's mission was to demonstrate the ability of RFID technology to inventory the medical record collection continuously and automatically while still on-shelf. The RFID system used for the pilot was based on Philips' 13.56 MHz I-Code technology and included RFID interrogator antennas deployed on shelving and 3M custom-designed value-added components.

"We spent a lot of time understanding [Fort Hood's records] processes, and the value that an RFID system could bring," Erickson says of the initial pilot. "We were able to show them the capabilities from a technology standpoint, but we talked about scaling up to the full implementation so we could really determine the value."

Now the project has been given the green light, and 3M's labs have begun trying out different passive high-frequency and ultrahigh-frequency tags, including EPC Gen 2 UHF tags and a number of ISO-compliant 13.56 MHz tags. Erickson says the military plans to choose the frequency and standard to be used in August, then begin installing the tags by the fourth quarter of this year. The rest of the RFID infrastructure will be installed in the second quarter of 2007, with the project slated to go live by third quarter 2007.

The RFID tags will replace the bar-code labels now used to track medical records at Fort Hood. Medical personnel presently scan the bar codes with handhelds as files are checked in and out of records rooms, a process that tracks the clinic at which each transaction was carried out. "This provides granular visibility of the records, but only at the facility level," says Erickson. "And it is based on human compliance, so if someone doesn't scan the record when it is received, no one will know where the record went."

An RFID-based system would provide even more granular location information, tracking not only who checked out which file at which clinic, but also to which shelve and record room the file was returned. What's more, readers would be able to locate any records incorrectly filed on the shelves.

Under 3M's guidance, the bar-code labels currently in use will all be converted to RFID labels, after which Fort Hood personnel will affix the tags to files. Each tag will contain a unique ID number associated with an individual patient. Erickson says the Army and 3M have not yet determined where the association will be held—either in Fort Hood's Armed Forces Health Longitudinal Technology Application (AHLTA) records management system, or in a standalone database.

Erickson says 3M will "loosely integrate" the RFID system with AHLTA. "We won't be housing any sensitive data in the RFID system," he explains. "We just want to maintain the tracking information of the file, not who the file belongs to."

Ultimately, the system will be able to notify staff members automatically if multiple files belonging to the same patient exist and need to be merged. This can happen when a new file is created for a patient being treated at one clinic if the master medical record for that patient is housed in another location. Several alerting mechanisms are being considered, including e-mail, wireless paging systems and 3M's software Post-it notes, which automatically pop up on computer screens.