

Diversinet Case Study

U.S. Army mCare for Wounded Warriors

Secure 2-Way Messaging Program Improves Care, Appointment Attendance

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[Abstract]

Secure mobile healthcare technology provided by Diversinet is helping the U.S. Army provide ongoing, enhanced case management for thousands of injured soldiers recovering at home. The Army's mCare program targets soldiers serving in the Community Based Warrior in Transition Units (CBWTU) program, which enables those with mild traumatic brain injuries (mTBI) and other wounds to receive medical care and perform military support missions as they heal.

A HIPAA-compliant, two-way messaging application based on Diversinet's MobiSecure® platform was proven during a one-year pilot program, continued and expanded under a five-year contract. mCare addresses the challenges of providing secure case management for geographically dispersed patients who require varied interdisciplinary treatments and use diverse mobile devices. With case managers finding it difficult to make weekly contact with their full case loads, mCare helps prevent injured soldiers from falling through the cracks. The program lets soldiers schedule appointments, and it provides appointment reminders, health-status questionnaires, injury-specific tips and general unit

announcements. The soldiers access a patient communication portal using their personal mobile devices. Case managers use an administrative toolbox.

More than 100,000 secure messages have been sent to more than 600 users since August 2009. Significant percentages of surveyed soldiers have rated the program highly for ease of use and helping them keep appointments. Some respondents have reported using mCare daily, and Army care team members have said the program helps them serve patients more effectively. Based on this success, in November, the Army awarded Diversinet a five-year contract to help expand mCare to serve as many as 10,000 soldiers.

[Body of case study]

The U.S. Army needed a secure, scalable and versatile mobile healthcare solution to enhance the rehabilitation of returning soldiers who serve in Community Based Warrior in Transition Units (CBWTUs). The CBWTU program offers injured soldiers from active and reserve units an opportunity to receive medical care and perform military support missions as they heal. The overall goals were to prevent “wounded warriors” from falling through the cracks and to improve and accelerate their recovery.

During a one-year pilot beginning in August 2009 and since then under a five-year contract for an expanding formal program, Diversinet’s MobiSecure® Health application platform has supported the Army’s mCare program, a two-way secure messaging application serving soldiers with mild traumatic brain injuries (mTBI).

The Army's Telemedicine & Advanced Technology Research Center (TATRC) faced unusual and significant challenges in developing mCare. The Army needed a wireless health application to strengthen case management for geographically dispersed patients requiring varied interdisciplinary treatment. Symptoms of mTBI, including headaches and depression, can hinder patient compliance with transition plans and interfere with remembering to keep appointments. Case managers, responsible for as many as 50 patients at a time, are not always able to fulfill the goal of making weekly contact, so they needed a more efficient and also meaningful method of communication.

Utmost security was needed to protect personal health information at rest and in transit; HIPAA compliance was essential. Additionally, soldiers had to be able to use the application on their own feature phones and smartphones.

The downloadable, HIPAA-compliant mCare application enables daily, two-way secure communication between soldiers and the Army's healthcare team. The application lets soldiers store their essential healthcare information on their mobile devices and use those devices to securely send and receive healthcare-related messages. Activities include scheduling appointments, as well as receiving appointment reminders, injury-specific wellness tips and general unit announcements. Soldiers also regularly complete health-status questionnaires.

Soldiers access a patient communication portal using their personal mobile devices. Once registered and authenticated, participants receive and reply to mCare messages and questionnaires in real time, with all data and responses remaining secure. Case managers use an administrative toolbox.

Regular patient responses enable Army care teams to monitor each soldier's progress in meeting recovery goals. The soldiers provide information on body weight, energy, sleep patterns, physical pain, mood, relationships, anger management and overall sense of well-being.

In addition to safeguarding all patient health data, mCare meets a key program requirement of availability across the very broad assortment of soldiers' mobile phones. Reflecting the depth and breadth of Diversinet's platform, mCare participants used more than 270 mobile brands and models during the trial, and the variety of devices has increased as mCare enrollment has grown since the pilot phase ended. Soldiers' carriers include AT&T, Sprint, T-Mobile and Verizon. While many participants use feature phones, smartphone operating systems used include Android, Apple iOS, Blackberry, Windows and Symbian.

TATRC has reported results exceeding expectations. Based on the success of the pilot, the Army contracted with Diversinet in November 2010 for a five-year continuation and expansion of the program. Goals include improving healthcare communications and outcomes for as many as 10,000 wounded warriors, including soldiers with injuries other than mTBI.

As of June 2011, more than 100,000 secure messages had been sent to more than 600 mCare participants, far surpassing the Army's initial target of 100 participants.

Empowering participants is another important outcome. Patients armed with relevant information gain a sense of sharing responsibility with their care team. As a result, soldiers have made it more of a priority to keep appointments and provide valuable feedback on their health.

Results of a survey presented by TATRC in July 2011 at the Healthcare Unbound conference showed that on a scale of 1 to 10, nearly 60 percent of respondents ranked mCare's ability to improve their CBWTU experience from 8 to 10. Additionally, more than 50 percent rated it in that range for improving their communications with their unit. mCare also got high marks from participants for providing valuable and relevant information, with more than 50 percent ranking it from 8 to 10 in this area.

mCare has performed very well in helping soldiers keep appointments. About 65 percent of respondents rated the program highly for improving their ability to attend appointments, 74 percent indicated they found the appointment feature user-friendly, and 85 percent rated this feature as mCare's most useful function.

Other features receiving substantial positive responses were unit announcements, favored by 45 percent of respondents; contacts, favored by 35 percent; and health and wellness tips, favored by 32 percent.

The survey also provided encouraging data on the system's usage. More than 35 percent of respondents said they use mCare daily, and 40 percent reported using it several times a week. In an indicator of increasing usage,

approximately 3,500 appointment reminders were entered into the system in April 2011, double the number for September 2010.

A soldier's own words are telling. "It prevents you from feeling alone; it just tells me I'm in contact," a survey respondent wrote. "This is a hard process and I know that I have issues that won't ever get fully resolved. But mCare is just comforting. When the messages pop up, you know someone's there."

Positive impressions of mCare extend to the Army's healthcare professionals. More than 40 percent of survey respondents on the care team agreed mCare allows them to provide information to their patients in an effective manner, while more than 35 percent of the care providers strongly agreed.

Further, more than 30 percent of the care team respondents agreed they have seen an improvement in the appointment attendance among patients using mCare, and about 25 percent strongly agreed.

The Army launched a 14-month clinical outcomes study in April 2011 to better gauge mCare's impact on CBWTU case management care and the overall well-being of "warriors in transition." The study also will evaluate the benefits of using mCare for soldiers with mTBI, compared with benefits for non-mTBI patients.

Hussam Mahgoub is responsible for corporate development, marketing and intellectual properties at Diversinet, which provides a patented, proven, secure application platform that enables healthcare organizations to rapidly deploy HIPAA-compliant mHealth applications to anyone, anytime, anywhere. He has more than 30 years of electronic product and service development experience in security, e-mail and EDI. Previously, Mahgoub held senior positions at Canada Post Corporation, Bell Canada and Bank of Montreal. He holds a Bachelor of Engineering, M.Sc. in Computer Science from McGill University, and M.B.A. from Ottawa University.

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