



St. Clair Hospital
The Healing Power of Our Community

St. Clair Hospital Saves Lives with Socket Mobile and Hospira



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– Tom Ague
COO and EVP, St. Clair Hospital



When nurses give pills, intravenous fluids or other medications to patients, there are many risks involved, such as providing the wrong type of medication, the incorrect dosage or administering it at the improper time. The Institute of Medicine estimates that more than 44,000 Americans die each year in hospitals from medical errors, with 7,000 resulting from medication-related errors alone.

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*— Jim Kohler
Associate Director, Point of Care Solutions
Hospira*

St. Clair Hospital of Pittsburgh, a 331-bed independent community hospital, is proactively reducing medication errors with its innovative Five Rights Medication Verification System, which enables nurses to confirm in real time, right from a patient’s bedside, that they are correctly administering medications to patients. The system has enabled the hospital to identify and prevent 5,000 potential medication errors each year. Besides saving lives of patients, it also saves time for nurses, so they can give more attention to patients in their care.

BRINGING TECHNOLOGY TO THE PATIENT BEDSIDE

The Five Rights Medication Verification System checks five conditions whenever a medication is administered. Specifically, it aims to ensure that the right patient receives the right medication and the right dose at the right time, using the right form of administration.

At the heart of this system is the Socket SoMo® 650 handheld computer, a durable Windows Mobile powered device designed specifically for business deployments. Inserted into the SoMo 650 is a Socket CompactFlash RFID Reader-Scan Card 6M. The first system of its kind, the CompactFlash RFID Reader-Scan Card is a small plug-in card that provides both RFID (Radio Frequency Identification) and bar code scanning capabilities. Running on the SoMo 650 is VeriScan software from Hospira, a global specialty pharmaceutical and medication delivery company.

Before administering medication, nurses first read the RFID tag in their badge to log in. They then scan the bar code on the medication package and the RFID tag in a patient’s wristband. The data is sent wirelessly from the SoMo 650 over the hospital’s Wi-Fi network to the main clinical database, where the information is compared with the doctor’s latest orders.

Voice commands on the SoMo 650 immediately announce “Patient identification confirmed” or in the case of discrepancies, “Access denied.” Information is also presented on-screen, including a photo of the correct patient, which was taken during the patient’s admission to the hospital. Since the SoMo 650 is connected to the hospital’s wireless network, nurses know immediately about any new medication orders, order changes or cancellations.

DUAL TECHNOLOGIES

In the past, nurses scanned bar codes on their ID badges, patient wristbands and medications using a bar code scanner connected to a laptop computer, which they pushed around on a cart. However, the carts were so large and awkward that nurses rarely used the system. Now with the SoMo 650, nurses find the system simple to use and extremely easy to carry — it even fits in a pants or jacket pocket.

“The key part of reducing medication errors hinges upon nurse adoption. If a nurse doesn’t use the technology every time, you won’t get the results you are looking for,” said Rich Schaeffer, CIO and VP of St. Clair Hospital.

By using RFID technology, nurses can quickly and easily scan their badges and patients’ wristbands by simply waving the SoMo 650 within 3 inches (8 cm) of the RFID tag, and the CompactFlash RFID Reader-Scan Card 6M will instantly read the information. Unlike bar code scanning, no line of sight is needed, so nurses can read data without removing blankets or bothering sleeping patients to turn their wrists. Eliminating physical con-

tact also helps to prevent infections from spreading. Besides patient identity, the RFID wristband can also hold other critical information such as drug allergies.

"With the bar code, you had to twist the wristband until the bar code was facing you, then you had to aim the scanner, and if the badge wasn't flat, maybe you wouldn't get a good scan," described Tom Ague, COO and executive VP of St. Clair Hospital.

By making data collection easier, RFID technology has helped nurses to accept the technology. "As busy as nurses are today, every little step you can save is very important to them, and it drives adoption of technology," Schaeffer said.

RFID technology, however, is not always practical to deploy. "Sometimes it makes sense to use bar code technology, while other times RFID makes sense," Ague commented. Like most hospitals, St. Clair Hospital cannot afford to repackage inpatient medications with RFID tags, because most medications administered in the hospital are dispensed one dose at a time. The U.S. Food and Drug Administration already requires hospitals to label drugs with bar codes. As a result, the CompactFlash RFID Reader-Scan Card 6M was the perfect solution for St. Clair Hospital, with its dual RFID and bar code scanning capability. Ague foresees the co-existence of the two technologies in healthcare.

CHOOSING THE RIGHT HANDHELD COMPUTER

When St. Clair Hospital first deployed the VeriScan system in 2004, they used consumer-grade Pocket PCs from HP and Toshiba, which they weren't completely happy with. As a result, St. Clair Hospital is now deploying the SoMo 650.

"Over the years, we tried a number of devices and in spite of the many refinements, our nurses found there was still a significant amount of room for improvement. The SoMo 650 provides the features and the flexibility that is needed in healthcare and does it in a package that can be supported at an enterprise level," remarked Jim Kohler, Associate Director of Point of Care Solutions at Hospira. Easy to customize and pre-loaded with Socket software, the SoMo 650 is a practical and cost-effective solution for business deployments.

Schaeffer echoed Kohler's sentiments. "We are strong believers that mobile computing is a necessity to bring safety to the patient's bedside. The lightweight design of the SoMo 650 enables the nurse to carry the device to the bedside and use it for every medication administration, eliminating the risk of errors," he said.

"We evaluated multiple devices, but the SoMo 650 is the only one that was durable enough for a hospital environment, but also easy to use and non-intrusive for patients. The bright screen and strong wireless connectivity, even when roaming on networks between access points, have made this a very popular device with the nurses," Schaeffer added.

The SoMo 650 handheld computer's fast 802.11g Wi-Fi technology with fast-roaming capability was very important for nurses at St. Clair Hospital, who continually move between different locations and need to keep a constant, seamless connection wherever they go. With its fast roaming Wi-Fi radio, the SoMo 650 can switch between access points in less than 200 milliseconds.

Bar Codes



RFID Tags



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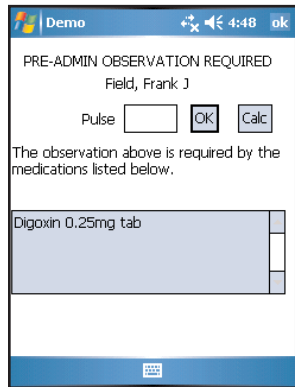
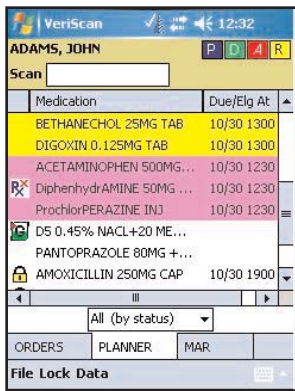
*— Rich Schaeffer, CIO and VP
St. Clair Hospital*

"This is a significant advantage for our nurses because as they move about the nursing unit, the Pocket PC must transition to the next closest access point. Any latency in establishing that connection costs the nurse time while they wait for the connection, which is frustrating for them," Kohler explained. Besides wait time, there is also the risk of connection loss when using other handheld computers that lack fast-roaming wireless capability.

STREAMLINING OPERATIONS AND SAVING LIVES

Before St. Clair implemented VeriScan, only one in every eight medication errors was identified, with only 600 errors reported annually. Now, 5,000 potential medication errors are identified and prevented each year. Nurses are also more aware of potential errors and how to avoid them.

"Prior to using VeriScan, someone had to have known that an error occurred. We now have information on how often error reporting probably didn't occur, or even that the nurse wasn't willing to admit he or she had made a mistake," Ague explained.



Besides improving patient safety, the system also saves nurses time by automatically documenting when medications are administered, relieving nurses of tedious paperwork.

“It saves staff nurses time, so they have more time at the patient bedside and more time with patient visitors. We also see the fact that VeriScan is identifying 5,000 potential medication errors every year. Studies show that medication errors cost anywhere from \$2,000 to \$5,000 each, due to increased length of stay, altered level of care and lawsuits. Eliminating those errors is key,” Ague said.

Eliminating medication errors also saves hospital staff the time and effort of documenting mistakes, which involves a lot of paperwork. With most medication errors eliminated, the need to re-educate nurses in error prevention is also minimized.

St. Clair Hospital has deployed VeriScan to all of its 16 nursing units, with six to eight devices per unit. Ague estimates that the hospital saves more than \$500,000 annually from medication errors prevented by VeriScan.

St. Clair Hospital is already interested in expanding VeriScan to check blood transfusions and laboratory specimens as well.

St. Clair Hospital has received the 2006 Distinguished Hospital Award for Patient Safety™ from HealthGrades, ranking the hospital among the top five percent of hospitals in the United States for patient safety outcomes.

CUSTOMER AT A GLANCE

- Organization: St. Clair Hospital
- Founded: 1954
- Headquarters: Pittsburgh, Pennsylvania, USA
- URL: www.stclair.org
- Primary business: Independent community hospital

PARTNER AT A GLANCE

- Organization: Hospira
- Founded: 2003
- Headquarters: Lake Forest, Illinois, USA
- URL: www.hospira.com
- Primary business: Pharmaceutical and medication delivery company

CHALLENGE

Prevent medication errors at a patient's bedside

SOLUTION

- Socket SoMo 650 handheld computer
- Socket CompactFlash RFID Reader-Scan Card 6M
- VeriScan software from Hospira
- RFID-enabled patient wristbands and staff badges
- RFID printer-encoder

RESULTS

- 5,000 potential medication errors are prevented each year, saving lives. The hospital also saves more than \$500,000 annually from potential lawsuits, extended stays, and extra care
- Automatic charting gives nurses more time for direct patient care
- Preventing errors eliminates a lot of paperwork required to document mistakes, as well as the need to re-educate hospital staff in error prevention
- Nurses are becoming more aware of potential errors and how to avoid them
- Minimizing physical contact prevents the spread of infections



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