



Healthcare

Jacobi Medical Centre



Hospital gains efficiency with innovative RFID pilot

Jacobi Medical Centre provides quality healthcare for more than one million New York area residents, and, with more than 800 beds, it is the largest public hospital in the Bronx. The hospital is in the midst of a modernisation program that calls for updating processes and constructing facilities such as a new patient tower. As part of this upgrade, Jacobi Medical Centre decided to improve its system for retrieving patient information using identification numbers.

Patient Identification

Medical staff use patient identification numbers to retrieve information about a particular patient. Each number corresponds to a patient file in the hospital's computer database system. Traditionally, the basic patient information, i.e. name, date of admission and medical record number (MRN), was printed on a label and inserted into the pouch of a plastic band attached to each patient's wrist. Hospital caregivers either used MRN's to find a patient's paper files or entered this MRN into their computers to pull up relevant data. Paper files and manual data entry, however, often lead to errors and inaccuracy.

Examining the Options

Although Jacobi Medical Centre considered moving to a bar code-based system, which it uses in other parts of the organization, the hospital determined that wristbands embedded with radio frequency identification (RFID) chips – in addition to bar codes – would make more sense. Bar code labels can wrinkle, tear or become scratched, causing them not to scan properly. Additionally, medical personnel need direct access to the wristband to scan the bar code, whereas RFID chips can be read through clothing or blankets causing less disturbance for the patient.

The hospital decided that the MRN should be stored on the RFID chip, but that it should also be printed on the wristband as a bar code, as well as in human-readable format. Information such as the patient's name, date of birth, and gender would be included on the wristband only in human readable format. Using the R2844-Z RFID-enabled printer from Zebra Technologies, this information could be printed and encoded onto the wristband in one pass through the printer.

By keeping the bar code and human readable form of the MRN, which is the key to all patient information, it enables hospital staff to use it, in a backward-compatible fashion with existing Jacobi Medical Centre lab, billing and pharmacy information systems.

Finding the right partner and solution

Jacobi Medical Centre needed outside expertise to reach its technology goals in designing a wristband solution. Working with Siemens Business Services, the hospital established the parameters for how patient information would be collected and entered and how identification numbers would be assigned. Next, the necessary software was developed to allow the R2844-Z RFID printer to print the patients' information on the RFID wristbands, and was then integrated into the hospital's portable computers along with the user interface for reading them.

A 200-wristband pilot was then launched to test the solution at the Jacobi Medical Centre in actual stations that had wireless connectivity. Hospital personnel were equipped with extra-light RFID-enabled tablet PCs that immediately identified patients by reading their RFID wristbands. Staff could then access and update patient information from the central database via the wireless network. The hospital's new patient tower has been designed to include wireless connectivity throughout, allowing for the expansion of the RFID wristband program.

“I thought, ‘If I can just wave the PC over the patients wrist and bring up the problem list, medications, allergies and other critical information, it will simplify patient identification and save clinical-staff key-strokes’ ”– Daniel Morreale, Chief Information Officer for Jacobi Medical Centre.

‘It does work. It saves keystrokes and is an effective clinician timesaver’

Solution technology...

R2844-Z RFID printer/encoder
RFID-enabled Tablet PC
RFID wristband
Wireless network

Siemens Business Services integrated RFID functionality into Jacobi Medical Centre's existing character-orientated software application through direct linkage to the windows-based front end that runs on the PC. The new RFID components for the creation of the patient wristbands and for the transmission of data from the RFID chip to the existing hospital application were developed using Microsoft.NET framework for easy integration with future applications.

The final diagnosis

With the introduction of RFID, Jacobi Medical Centre has eliminated the bulk of its paper forms while also ensuring that the information used by its medical staff is always up to date. Having the new system in place will dramatically reduce errors in drug prescription, increase hospital security and help the organisation reach its goal of preventing patient identity mix-ups.

Emergency treatment will be faster too, because hospital personnel will be able to gain access to patient records more quickly for better service. Clinicians have endorsed the pilot program and want it expanded because it makes the handling of administrative tasks simpler than with the paperbound system.

Staff will no longer have to return to a nurse's workstation to obtain patient data, so accurate information will be available without any lag time. The new system is especially convenient when updating information across work shifts and generally allows caregivers to spend more time with patients and less on administration. Plus, doctors and nurses can use the new platform for wireless database access to order lab tests, enter notes on treatment, update medication administration right from the bedside and so on.

Jacobi Medical Centre is exploring not only expanding the solution to the new site, but also using RFID technology to do things such as tracking blood for transfusion and monitoring surgical instruments.



R2844-Z printer at a workstation

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