

Hospital Uses RFID for Surgical Patients

A Taiwanese hospital is issuing RFID-enabled wristbands to identify surgical patients and record clinical data.

By Claire Swedberg

July 13, 2005—Chang-Gung Memorial Hospital, in Keelung, Taiwan, has begun issuing RFID wristbands to its surgical patients. The RFID-based system, provided by Precision Dynamics Corp. (PDC), of San Fernando, Calif., and Hewlett-Packard Taiwan Ltd., the Taipei-based division of the Hewlett Packard Co., allows the hospital to access and record patient data in the surgical room.

The PDC SmartBand, a wristband with an embedded RFID tag, is in use in the United States for applications such as age verification and contactless payments at sporting events (see Putting Drinks on the Cuff). While PDC has several pilot programs at hospitals in the United States, the company claims the Keelung Chang Gung deployment is the first surgical use of an RFID wristband in the health care industry.

Since April, surgical patients entering the Taiwan hospital have been given a SmartBand at the time of registration. On the front of the band is printed the patient's name and other information. An RFID 13.56 MHz chip embedded in the wristband contains encrypted medical data, such as the patient's blood type. Nurses and doctors in the surgical unit can read the wristbands with a Hewlett-Packard RFID interrogator, or reader, that attaches to an IPAQ HP pocketPC unit. The readers have a range of about 10 centimeters.

The wristbands allow hospital administrators to encrypt a portion of the data, so that if the wristband is lost, it cannot be deciphered by another party. In addition, some data (such as blood type) is read-only and cannot be changed, while other data can be updated by surgeons, nurses and other hospital staff, according to Mingpey Chou, the lead for HP Taiwan's RFID initiative. Currently, the hospital is using the system only in the surgical and recovery rooms, but, says Chou, "HP is planning with the customer to extend the application to other hospital areas."

In addition to manufacturing the reader, Hewlett-Packard also serves as the systems integrator, providing consulting services, solution development and solution devices. The latter include servers, computers, printers and special software that interfaces with Keelung's information system.

Two U.S. hospitals currently have SmartBand pilot programs underway, according to PDC president and CEO Gary Hutchinson. The first is Massachusetts General Hospital, in Boston, which recently completed a pilot program of laboratory reviews and equipment testing. The hospital will soon be entering Phase 2, which includes tests involving the matching of patients' blood types on the wristbands against blood to be used in transfusions in the surgical suite. The initial phase of the study, consisting of testing the wristbands and readers, began on March 1. The research phase and clinical implementation will begin in two to three weeks and will evaluate how much more effective and efficient RFID solutions are, compared with existing bar code ID systems, during blood transfusions of 100 patients.

Georgetown University Hospital, in Washington, D.C., has a similar pilot underway to use RFID wristbands

to replace a bar code system its oncology unit has been using. Bar coding, Hutchinson explains, has several weaknesses, including the inability to be read through clothing, or if the bar code is curved excessively on the patient's wrist.

Hutchinson predicts that within about a year, the health care industry will be able to use smart wristbands for tracking a patient's data throughout his or her stay in a hospital. The wristbands will be used in conjunction with RFID-enabled patient-monitoring devices, including those that measure a patient's blood pressure or enzyme levels. In a cardiac unit, for example, medical personnel would be able to update such tag data as a patient's enzyme level in real time.

Still, this information would not eliminate the need for the traditional paper chart that chronicles the patient's health history. "This would be limited patient data management to complement the [physical] chart," Hutchinson says. He indicates that PDC is working with patient-monitoring device companies to allow RFID devices to update the patient's data stored on the wristband's RFID tag.

"The Asian Pacific market is a long way ahead of the United States," Hutchinson says. "Markets outside the U.S. are embracing RFID technology much faster."

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