Tags Track Surgical Patients at Birmingham Heartlands Hospital

The U.K. facility is implementing a system using passive HF RFID-enabled wristbands to track patients and procedures in two surgical wards.

By Beth Bacheldor

April 10, 2007—Birmingham Heartlands Hospital, located in the United Kingdom, is implementing RFID-enabled wristbands to track surgical patients and procedures in two of its surgical departments.

Part of the Heart of England NHS Foundation Trust, Birmingham Heartlands has 950 beds and, along with the Trust's other member hospital, cares for 84,000 inpatients and treats over 350,000 outpatients and approximately 140,000 accident and emergency attendees each year. Birmingham Heartlands is using plastic wristbands from Brenmoor, embedded with 13.56 MHz, ISO 15693-compliant RFID inlays, on all patients in its thoracic (chest) and ear, nose and throat (ENT) surgical wards.

The hospital first tested RFID in November 2004, working with RFID technology provider Safe Surgery Systems. In February 2007, the hospital contracted with the company once more to implement the Safe Surgery System RFID wristband solution in its thoracic and ENT surgical departments. According to Jeremy Turbervill, head of sales and marketing for Safe Surgery Systems, the company wished to help improve patient safety by ensuring that each patient receives the proper care. Though rare, U.K.'s National Patient Safety Association (NPSA) reports, there have been cases in which doctors have operated on incorrect sites on their patients' bodies.

The term "correct site surgery," the agency explains, refers to operating on the correct side of the patient and/or the correct anatomical location or level (such as the correct finger on the correct hand). In fact, the NPSA's National Reporting and Learning System pilot study, conducted in 28 acute NHS organizations between September 2001 and June 2002, recorded 44 patient-safety incidents related to the wrong procedure, site, operating list, consent or patient name and notes. A further period of testing and development, between November 2002 and April 2003, identified 15 patient-safety incidents linked to surgery at the wrong site. Of these, the NPSA reported, two led to the incorrect procedure.

The RFID wristbands are being issued to surgical patients, printed and encoded using an RFID wristband printer when the patients are admitted to the hospital. The RFID inlay embedded in each wristband, Turbervill says, is encoded with a patient's ID number, name, date of birth and gender. The patient inlay data is then associated with patient records held within back-end hospital systems, including the patient administration and surgical booking systems. A digital photograph is also taken of each patient, which is uploaded into the hospital's systems to further verify that person's identity.

Surgeons, anesthesiologists and pre-operative nurses have wireless personal digital assistants (PDAs) allowing them to view operating schedules and patient records. The PDA is equipped with either a Bluetooth-enabled RFID scanner or a Compact Flash Card RFID interrogator designed to fit into the CF card slot at the top of the

PDA. The wristband can be scanned through the hospital clothing, but the interrogator must be within about 10 inches to read it. Once the wristband is read, the system can pull up the patient's record. In addition, it can also access the patient's photo, providing another identification mechanism. As the patient goes through the various pre-operative checks, caregivers can utilize the PDA to update the individual's record, which can also be accessed by hospital staff from PCs in the wards.

The Safe Surgery System software uses a series of so-called traffic lights, which change from red to green as pre-operative checks are performed. Once all pre-operative checks have been completed and the patient is ready for surgery, the Safe Surgery System update's the traffic light to green, indicating the patient is ready for surgery.

When the patient is sent to the surgical ward, an RFID interrogator in the ward reads that person's wristband to retrieve the appropriate patient record, including the planned procedure. In addition, the Safe Surgery System records post-operative procedures. Once the patient is discharged, the RFID-enabled wristband is discarded.

RELATED_ARTICLES Each documented process is also date- and time-stamped, providing the hospital with information about the amount of time necessary to complete various surgical procedures, including the pre-operative and post-operative steps. The hospital can analyze that information to better understand how surgical operations are conducted, and where inefficiencies occur. What's more, the automatic coding and data capture of patient information—which used to be done manually—frees up nurses' time so they can spend it directly caring for patients.

It took the hospital about 10 weeks to implement the hardware and software, Turbervill says. Though no specific plans have yet been identified, he says, the Birmingham Heartlands Hospital plans to roll out the Safe Surgery System throughout its facility.

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