

**Jena University Hospital is installing a pilot RFID system to track medication from the time the hospital's pharmacy dispenses it until the patient receives it.**

By Rhea Wessel

June 9, 2006—Germany's [Jena University Hospital](#) has begun preparations to test a system using RFID to track medication from the point of dispensing in the hospital's pharmacy to the drug's administration to up to 24 patients in intensive care.

The hospital is designing the system together with [SAP](#) and [Intel Solution Services](#), based on SAP's NetWeaver software and its auto-ID infrastructure. Implementation of the system is expected to be completed by October, with eventual expansion to another 65 treatment units once the hospital assesses its server capacity and the results of the test.

The hospital is implementing the system to improve the efficiency of the treatment process and enhance drug-handling safety—i.e., to ensure patients get the correct doses of the right drugs. International studies show that one in 20 patients suffers from adverse drug effects, the hospital says, and a majority of these cases could be avoided. The system will record automatically all medication given to patients, including details about type, quantity and time administered. By using such patient data, collected anonymously via the RFID system, the hospital plans to study disease patterns and potential drug incompatibilities to help the staff come up with alternate treatments. In the first phase of testing, only antibiotics will be administered.

The hospital introduced electronic prescriptions eight years ago, followed by an individual-dose system two years ago, as part of a bid to reduce medication errors to a minimum. With those systems in place, the hospital now hopes to use RFID to eliminate all potential medication errors.

"We want to use the technology we have and look for the next step in the medication process," says Martin Specht, formerly a head doctor in the hospital's anesthesiology and intensive care clinics and today head of Jena Hospital's department of electronic data processing. In Germany, he explains, the average rate of medical errors is 5.1 percent, though its current drug-dispensing system can reduce medication errors to 2.4 percent. "RFID can eliminate that last 2.4 percent," Specht explains, "as the whole process will be electronically controlled."

The RFID medication tracking system will work in tandem with the hospitals' in-house transport system, a network of conveyor belts linking various medical units. After treating patients, doctors will prescribe medication in the usual fashion—by typing an order into the hospital's computer system. This order is transferred to the in-house pharmacy, where the correct medication dosage is then prepared for each patient.

Before the prescribed antibiotic leaves the pharmacy on an automatic transport belt, the pharmacist will apply an RFID tag to the sealed packet of an individual dose of medication. In addition, the box

## German Hospital Expects RFID to Eradicate Drug Errors

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transporting the bottles—as well as containers holding multiple items—will be tagged. Portal readers provided by Intel will read the tags as the medication leaves the pharmacy. At this step in the process, the exact pill count, its destination patient and other details will be transferred to a computer server.

As the antibiotics arrive at the intensive-care unit, they will once again be scanned with portal readers before nurses unload containers from the automatic transport system. The server will then be updated about the medication's arrival, after which the nurses will unload the containers and bring the appropriate medications to the patients' beds.

"We will know that this or that doctor prescribed this or that medication for this or that patient, as well as when the prescription was filled, left the pharmacy and arrived at the intensive-care station," says Dieter Melcher, a member of the hospital's IT staff who is working on the project.

Using handheld scanners, nurses will scan in their employee ID numbers, each medication to be administered and the case and patient numbers stored on RFID tags in the patients' bracelets. Medicine and patient IDs will be cross-checked, and the server will be updated that the antibiotics have been administered. At present, nurses manually double-check dosage amounts and medications using printed lists.

Melcher says tags, readers and other equipment for the project have not yet been selected.