Novartis Trial Shows RFID Can Boost Patient Compliance

The study involved the hypertension medication Diovan in specially adapted RFID-enabled blister packs.

By Jonathan Collins

June 20, 2006—A recent European trial using battery-powered RFID tags embedded within medication blister packs has shown that monitoring patients' compliance with medication prescriptions can help them comply with their medication schedule—thereby improving the benefits of taking the drug.

From mid-October of last year to mid-May 2006, 20 pharmacies in the Netherlands dispensed Novartis' hypertension medication Diovan in RFID-enabled packages developed by Swedish RFID packaging specialist Cypak (see The Package Is the Computer).

The project, sponsored by Novartis, was conducted by ECCT, an Eindhoven-based provider of medical consumer electronic devices, as part of its ongoing development of an RFID-based system to measure therapy compliance objectively. According to ECCT, RFID offers the best technology with which to monitor and track a patient's compliance with directions for taking medication—especially if it can be integrated into the medication's packaging.

"Studies have shown that a system that uses the original packaging, in which the medication is dispensed, is the best way to encourage patients to adhere to a medication regime," says Willem Kort, ECCT's codirector.

The trial used Cypak's active RFID Intelligent Pharmaceutical Packaging (IPP) design, with each package storing the date and time a patient removed a pill. When the patient returned the empty package to the pharmacy, the pharmacist placed it on a network-connected Cypak RFID interrogator, which displayed details of when the medication had been taken. The data was also uploaded to a central database, making the information available to authorized personnel, including physicians and the patients themselves.

In addition to providing pharmacists and doctors a way to check if medication had been taken correctly—and helping them determine the need for further assistance and education if it had not—the data collected from the patients' medication packaging could also assist in clarifying what effect medication-taking compliance had on the treatment of high blood pressure.

"We combined compliance measurements with patient outcomes, and we concluded that compliance is definitely a major advantage," says Kort.

A second, larger trial—planned for September of this year—will initially include 10,000 patients and 200 pharmacies in the Netherlands. However, it could be expanded into other European countries, according to ECCT.

The next pilot will again be supported by Novartis, using tagged Diovan medication, but ECCT says the technology to be used for any deployment has yet to be determined.

"Cypak is excellent for direct trials with smaller numbers, but [for a rollout of the technology], we are working with Cypak, as well as with our own active tag design, to reduce the cost per pack," says Kort.

ECCT says it has begun developing an active 13.56 MHz IC, based on Philips' MiFare design, that can be directly embedded in medication blister packaging. The tag is set for completion in mid-2007. "[To keep costs down] RFID has to be part of the packaging that is included during the manufacturing process, not just an add-on," says Jos Geboers, codirector of ECCT, who explains that Cypak's active RFID technology costs more than the telemedicine system ECCT has under development.