HealthManagement
Promoting Management and Leadership

Volume 1 / Issue 5 2005 - eHealth Develpoments

RFID: Revolution in the Health System

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Today, radio frequency identification (RFID) is increasingly being used in hospital management. RFID increases patient safety and ensures process optimisation. For example, its possible uses range from following up blood bags and locating devices and patients with simultaneous monitoring of cardiologic values to improving patient care and controlling bed management effectively. Information forum RFID has published a practical study on this subject entitled “RFID for the Healthcare Sector”, which can be downloaded free of charge from www.info-rfid.de.

RFID is an auto-ID technology that enables contact-free transmission and reading of information stored on a microchip. This means that data transfer takes place without visual contact via magnetic and electromagnetic fields and individual products or elements thus become clearly identifiable. Until now, the technology has been extensively used in warehouse management, but it also provides a clear added value for hospitals.

Reducing Costs - Increasing Quality

The market for RFID hardware and systems in the health sector is set to increase by a factor of 20 over the coming years, according to the market research institute IDTechEx. Investments of around 1.6 billion euros are forecast for this sector in 2016.

These figures are not only projected for the usual areas of shipping and retail. Experts believe that the pharmaceutical and healthcare sector is next among the various industries using RFID.

Within the healthcare industry, the advantages of this wireless technology and the scope of its uses are enormous. RFID enables the localisation and clear identification of persons and objects. Radio chips also help in optimising processes in hospitals and improve monitoring of blood bags and medicines. In the field of access management, RFID can control access to rooms, data, systems or devices, and even the control of beds and laundry can be arranged more efficiently.

Labelling of medicine is becoming ever more important in counterfeit prevention. Here, RFID makes a significant contribution to patient safety. Radio technology enables clear identification of medicine and complete and permanent data comparison along the entire delivery chain. A study by the Fraunhofer Institute for Software and Systems Engineering shows that RFID can contribute considerably to improving quality, saving time and reducing costs. The technology thereby offers great chances for optimising our health system and improving patient care. Multiple pilot applications also show how efficient RFID can be in everyday clinical use. Based on new reforms, hospitals are now ultimately aiming to reduce costs while at the same time increasing the quality of medical standards.

Personalised Patient Medication and Patient Identification

Since autumn 2006, the University Hospital of Jena has been using an RFID-based tracking system for medication administered to patients in intensive care. The system used monitors the movement of medication from the hospital pharmacy to the point at which it is administered, taking care of all documentation.

This has increased quality of care for hospital patients, as well as efficiency of patient management. Upon admission, patients are issued with an

armband with an RFID transponder on which a numeric code is stored. Care workers can read this code using a handheld scanner, and call up the corresponding patient data.

Medication from the hospital pharmacy is also fitted with a transponder. Via the handheld device, the respective information can be called up and assigned to patient data. In this way, administration of drugs can be monitored and incorrect administrations avoided. This is expected to lead to savings via reduced capital commitment, less wastage of medicine and avoidance of lengthy procedures.

A similar project was recently completed at the Kantonsspital St. Gallen. Studies are currently underway to see the contexts in which the technology is actually used there.

Performance Data Monitoring

Today, a great deal more work is being carried out on RFID systems for follow-up of pharmaceutical products and monitoring of performance data. In cooperation with Deutsche Post World Net, for example, a company has developed the RFID sensor tag, which enables exact temperature control and documentation of shipments during the entire transport.

To enable this, all products are fitted with transponders and scanners at various transit stations. All information relating to goods is fed directly into a computer system, as temperature fluctuations can have a negative impact on the shelf life of pharmaceutical products.

For this reason, the performance data on the RFID sensor tag are available via each read point for sender, recipient and carrier. This enables the condition of the medicines to be checked at any time; medicines that have been spoiled due to unsuitable transport conditions are a thing of the past.

Process Control with RFID

During a pilot project, a ward in the Städtischen Kliniken in Bielefeld had an RFID transponder fitted to each bed, enabling clear identification via radio.

All admissions and discharges, as well as beds being prepared, were issued with scanners that registered the beds and forwarded the data to corresponding software. If a bed was to be cleaned, staff could see immediately for how long and how intensively the bed had been used.

Automatic instructions were also given regarding the necessary preparation measures and any repairs required. RFID increased bed occupation rates as well as reducing costs and improving cleaning procedures. Furthermore, maintenance management was optimised.

Above and beyond the scope of the global project of the “electronic health card”, RFID can make a significant contribution to optimising health care and improving patient care.

According to the study “Monitoring eHealth Deutschland 2007”, only two per cent of German hospitals are using RFID as of today, while every fifth hospital is planning to use it. Manufacturers and providers from industry, political decision-makers and hospitals must cooperate in order to create all personnel, organisational and technical conditions for a as wide as possible use of RFID in the health system, and thus support the necessary reforms in the health system via the use of information technology (among other factors). Only in this way will RFID technology find its way into the health sector.

Published on : Wed, 28 Sep 2005