



Improving Medication Administration Records

FACTS

Customer: MediSystem Pharmacy, a Shoppers Drug Mart® Company, pharmacy service provider to long-term care facilities (nursing homes) in Canada.

Challenge: To improve the accuracy, efficiency and accessibility of Medication Administration Records (MARs) and to develop a more modern and reliable system for medication suppliers.

Solution: DIGIMAR, a digital electronic MAR system, developed by InfoMax Technologies Corporation, based on Anoto technology. Currently 1,100 pens are in use.

Benefits: Medication orders can be double-checked against MARs nearly in real time and any discrepancies can be spotted right away. The pharmacy can receive timely updates about changes in the residents' medication. All MARs can be retrieved and viewed on-line. Authorized personnel are able to monitor nursing activities closely. The end result is better quality of care and compliance.

"We've deployed the digital pen and paper system to over 90% of our clients and the system really works..."

Henry Leung, VP of IT at MediSystem

MediSystem Pharmacy, a pharmacy service provider to long-term care facilities in Canada introduced DIGIMAR, a digital pen and paper application in 2006. The application, developed by InfoMax Technologies, an Anoto partner, enables long-term care facilities to keep accurate and up-to-date records of all medication administered to residents (patients) in long-term care facilities.

A Medication Administration Record (MAR) is the record of the medication given to a resident at an assigned time and date. A MAR form must be completed and signed after every dose of medication that is given to the resident. In the past, paper records were used to document medication administration. These MAR forms were printed by the pharmacy and sent to each facility shortly before the beginning of next month's medication cycle. Nurses then documented each dose of medication given to a resident, using regular pen and paper. During the course of the month, any subsequent changes to medication orders were marked on the forms.

By the end of the month, copies of the MAR for each resident were faxed or delivered to the pharmacy for editing. This made it difficult, if not impossible, to monitor and keep all the information on the MAR forms up-to-date. There were always discrepancies as changes occurred in the resident's medication during the month.

With the digital pen and paper application developed by InfoMax Technologies, most of the discrepancies and errors are reduced, making the system truly viable.

"We've deployed the digital pen and paper system to over 90% of our clients and the system really works. Even though we have to spend time editing our computer records more frequently than before, we experienced fewer errors and discrepancies – not only compliance is greatly improved, but more importantly, all the residents benefit because the quality of care is improved", says Henry Leung, VP of IT at MediSystem.

Initially, a computer-based system with a touch screen was considered for a new and more efficient way of recording medication. This might look more impressive sitting on the medication carts which the nurses wheel around the wards as they check on each resident and administer drugs. However, a computer-based system is far less practical to deploy and use than Anoto Digital Pen and Paper technology, with the unique InfoMax

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data transmission appliance. This system does not require any change in workflow or change in staff behavior; nor does it require any special training, or IT support. Moreover, with this system, the staff's work is not interrupted.

The new solution

The digital pen and paper application consists of digital pens and forms with Anoto's unique pattern, and a dedicated InfoMax data transmission appliance which functions as a docking station for the pen.

Every month, nurses receive batches of MAR forms. The forms carry pre-printed resident information, including name, health ID, allergies, diagnosis, special dietary needs and of course, all the medication orders for the resident. When administering the medication, all the nurses need to do, is write their initials in a designated box with the digital pen. The digital pen looks and feels like any regular pen, but contains a tiny infrared camera and processor which enables it to "read" and digitize words as they are written on the MAR form.

At the end of their rounds, the nurses dock the pens at the nursing station and the data on the pens is instantly transmitted to the InfoMax Digital Pen Platform located at MediSystem's headquarters. At the long-term care facility, the staff periodically receives an automatically generated report, which highlights any inconsistencies, e.g. if a nurse has forgotten to give a resident a specific type of medication, or merely forgotten to sign it off.

The system can also generate other kinds of reports, such as "on demand PRN" reminders. Moreover, authorized personnel such as doctors and facility care managers can view the information stored in the InfoMax Digital Pen Platform database via the on-line portal if needed.

Key benefits with the digital pen and paper application

Residents of the facilities benefit the most, since the DIGIMAR application greatly increases the accuracy of a long-term care facility's drug administration. Checks and controls of medication are made easy, and errors and discrepancies are reduced, resulting in improved resident care.

Long-term care facilities' staff also benefits from the system. The once time-consuming MARs are now much easier to compile,

resident data is more accurate and up-to-date, and information is much easier to retrieve when needed.

MediSystem sees this system as an invaluable, yet easy-to-use tool for its facilities. Not only does it help long-term care facilities to handle its medication administration more efficiently, it also helps MediSystem to gain a competitive advantage over its competitors and consequently retain its clients. The benefits of the system simply outweigh its investment costs.

Implementation so far

As of Q1 2009, over 1,100 pens are in use at hundreds of locations on a 24/7 basis, and the number continues to grow as the technology gains recognition. MediSystem is printing over 100,000 forms with Anoto's pattern per month within the InfoMax application platform.

MediSystem has also implemented other digital pen and paper applications, including resident admission forms in long-term care facilities, which have been in use since July 2008. This is another cost-effective tool, since the same application platform and equipment are being used.

A special "Tamiflu dosage form" (for administering anti-influenza drugs to residents) was also implemented in late 2008. Instead of calling the pharmacist to calculate the correct dosage of the medication for a resident, the nurse would simply write all the information; such as age, weight, and laboratory data, with the digital pen on the Tamiflu form. The system contains built-in hand recognition functionality, and automatically calculates the correct dosage and prints a MAR form onsite.

Partner profile:

InfoMax Technologies Corporation, based in Toronto, Canada, is an Anoto partner. It is the leading digital writing solution provider in Canada with solutions in use by thousands of users on a 24/7 basis, based on the unique InfoMax data transmission appliance and InfoMax Digital Pen Platform. InfoMax has one of the largest installation bases of digital writing technology in Canada. Its roots began in IT consulting, making it one of the most comprehensive companies in the world of information communication and systems integration. InfoMax is dedicated to implementing Digital Pen and Paper technology and deploys digital writing solutions to principal Canadian businesses in healthcare and other market sectors.

www.infomaxcorp.com

Customer profile:

Founded in the late 1980s, MediSystem Pharmacy began as Queensway Centre Pharmacy, a small retail pharmacy in suburban Toronto in Canada. Its founder shifted the company's focus in the early 1990s to servicing long-term care facilities. On August 31, 2004, the company was officially listed on the Toronto Stock Exchange (TSX), trading under the symbol (MDY). In October 2006, MediSystem was acquired by Shoppers Drug Mart, the biggest pharmacy chain operator in Canada. Since then, MediSystem Pharmacy™ operates as a Shoppers Drug Mart® Company.

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