

# Shaping the future of pharmacy — the benefits of automation

Speakers at the “Robotics 2007” meeting described the impact of automated systems on their pharmacy departments. Christine Clark reports

**W**eaknesses of the previous medicines storage system at the Countess of Chester Hospital were emphasised to Don Hughes (then director of pharmacy at the Countess of Chester, now director of pharmacy at Glan Clwyd Hospital, Conwy and Denbighshire) by a selection error that resulted in the accidental administration of two doses of suxamethonium instead of Syntocinon (oxytocin) to a woman postpartum. To improve medicines management the Medi-365 system was installed in the accident and emergency department (*Hospital Pharmacist* 2007;14:333).

Evaluation so far shows that there have been savings in nursing time and changes in the way that pharmacy staff time is used since the system was installed. Stockholding in the A&E department has also been reduced. The time taken by a nurse to access a medicine has fallen from 203 seconds to 46 seconds. This saves nearly 18 minutes of nurse time per hour or 7.1 hours of nurse time per 24 hours. The pharmacy receives daily automatic orders from the system and an assistant technical officer delivers the items and refills the Medi-365 drawers.

A&E staff have welcomed the system and commented that time is no longer wasted searching for medicines because the system can indicate immediately what is available and where it is. Another finding is that the use of pre-packs of antibiotics and analgesics have increased since installation of the system. Mr Hughes explained that this is because supplies frequently ran out during the weekend in the previous system, but now the stock levels match the need. In summary, Mr Hughes said that the system is robust, incorporates customised decision support and provides detailed management reports with full audit trails.

## — Decreased turnaround time

Rapid growth in the number of inpatient prescriptions and the need to reduce turnaround time for discharge prescriptions

“Robotics 2007” was held in Birmingham on 26 September. The theme was “Shaping the future of hospital pharmacy”. Christine Clark is a freelance journalist.



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Mike Welsby: discharge prescription turnaround time has halved since installing the robot

(TTOs) were two of the main drivers for automation at Whiston Hospital, Merseyside, explained Mike Welsby, medicines information pharmacist at St Helens and Knowsley Hospitals NHS Trust. “Between 850 and 1,200 inpatient items are dispensed each day and we had terrible difficulties at the higher level,” Mr Welsby said. The RoboPharma robot was selected because it met the required specification best. Two features that are particularly attractive are that

it can hold bottles as well as boxes and that it includes a labelling system.

The robot at Whiston Hospital comprises two units, each with 1,000 teflon-coated, 1.2 metre channels. There are four delivery points in the dispensary and one in the night store for on-call use. This can be activated remotely and has made it possible to “dispense from the living room”, noted Mr Welsby. The robot holds 5,500 packs and more than 1,100 lines — amounting to stock for about one and a half weeks. Liquids, cytotoxics, refrigerated items and controlled drugs have been excluded.

The RoboPharma robot is filled manually from the rear. Packs are identified by scanning the barcode, the appropriate channel is illuminated and loading is confirmed on the computer touch-screen. At Whiston Hospital the filling process takes just under 10 seconds per pack, which is considerably faster than filling traditional shelves, Mr Welsby said. The robot can deliver eight packs in four seconds and the delivery rate is unaffected by filling.

Now 82 per cent of all dispensed items comes from the robot and dispensing error rates and TTO turnaround time have halved since it was installed. The impact on staff has also been positive, noted Mr Welsby. Staff have more time for clinical activities and for work in the aseptic unit, overtime has decreased and staff morale has increased.

## Medicines management should be fully automated

A “fully robotised” medicines management system is needed to allow pharmacy staff to move from managing the organisation’s medicines to managing patients’ medicines, according to Ron Purkiss, clinical director of medication management and pharmacy at Sheffield Teaching Hospitals NHS Foundation Trust.

Professor Purkiss envisaged that within five to 10 years it should be possible to have a system in which fully automated prescribing, dispensing and administration systems work as a single, auditable process. It might also be possible to automate processes related to examinations, tests, diagnoses and the reporting of results. At present, 20 per cent of tests result in no action and 30 per cent of X-rays are not reported to the person who requested them, so an automated system could bring considerable cost savings by preventing unnecessary orders, he explained.

Good electronic communication would be essential to underpin all future developments. In particular, communication between primary and secondary care needs to be improved. Increased use of mobile and remote technology should make it possible to prescribe for anyone when required, Professor Purkiss said. Finally, fail-safe systems would be critical. “At present we tend to replace one set of errors with another. The ideal way to streamline the process is to install decentralised dispensing robots in ward areas,” he suggested.