Risk management: CPOE and standardised substitution of drugs

When automating any system, expertise is essential in not only the subject, the new and old systems, but also in human behaviour.

Heleen van der Sijs PharmD — Stefanie Walk PhD

These talks presented different ways in which hospital pharmacists influence prescribers. Computerised Physician Order Entry (CPOE) generates a new problem as it solves existing ones: that of alert fatigue. As experts try to guide prescribing by introducing alerts, prescribers ask for alerts to be switched off because they feel overwhelmed. In Germany, attempts are being made to automate the substitution of non-formulary to formulary drugs, because switching of drugs is a time-consuming and error-prone process.

Low specificity of alerts, unclear and long-winded information make the process inefficient and time-consuming. Looking at the clinical decision support, prescribers were asked about 24 frequently-overridden drug interaction alerts: could these be turned off hospital wide? Answer: "No!" Next, an attempt was made to improve the content of alerts. Studies found that 50% of prescribers did not read an alert before deleting it; and nurses refused to take over alert handling for alerts with respect to drug administration times.

What should happen when a patient comes in taking a branded drug not used by the hospital? About 62,000 drugs are available in Germany, but a typical hospital drug formulary is restricted to about 3,000. Thus, millions of drugs are switched to comply with formularies. To accelerate and facilitate this process a 6-step decision algorithm was developed and tested by retrospectively applying it on 140 patients with more than 770 drugs. Because 98% of the drugs could successfully be switched with the help of a standardised interchange algorithm it was consequently implemented into a decision support system and is now being studied to see how its use is going. Much effort was put into gathering information about generic and therapeutic substitution, critical drug classes and dosage forms, and gaining approval by local clinicians.

It is difficult to find the best method of drug safety alerting. The Dutch experience is that adjustments may have unexpected results and should be monitored by outcome measurements. Decision support requires consultation, transparency, patience and then evaluation in a continuing cycle of development and improvement.

Delivering patient services – People vs Machines

Man or machine: who offers optimal patient care? A Welsh pharmacist argues that harmony between human and technical elements brings the best results.

Who's in control now?

Welsh hospital pharmacist, Mr Darrell Baker from Cardiff and Vale NHS Trust gave an entertaining presentation on the benefits of technology to pharmacy services. Mr Baker comes from a large Cardiff hospital with a staff of 12,000 serving a population of 2.5 million.

He is a great supporter of automated dispensing. Change in Cardiff was driven by several factors including increased demand for dispensing and growing drug complexity. Yet Mr Baker admitted evaluating the value of automation is often hard. "Practice is often very different to theory," he admitted.

The absence of a computerised physician order entry (CPOE) system has led Mr Baker and his colleagues to adopt other strategies to support the four-step patient care process: Prescribe – Dispense – Administrate – Monitor. He said automation with this process helps staff save time, improve care, work safer, and reduce costs. But he reminded pharmacists that they can not forget that patients do not follow every instruction from health staff. Therefore, the human element in care remains vital.

Seven habits of successful pharmacists

Borrowing from the best-selling book, *7 Habits of Highly Effective People* by Stephen Covey, Baker offered pharmacists seven steps to success automation:

1. Be proactive. Attempt to change what you can influence.
2. Begin with the end in mind.
3. Put first things first - look at your options and choose the best fit.
4. Think win-win: collaborate. Engage with other teams and inform them of the benefits. It is vital that you understand and address opposition to change.
5. Seek first to understand, then to be understood. Show empathy to your patients. Machines help dispense, allowing pharmacists to be more caring and communicative.
6. Synergise. Automation can improve information sharing between teams. For example, pharmacists understand not just what drugs patients take, but how they take them.
7. Develop staff ("sharpen your sword"). During an implementation carefully identify staff training needs and plan to improve.

Mr Baker closed by commenting that when implementing IT the end goal should be realising the full potential of your staff and patients. "It is not people vs machines. It is people and machines together improving safety, care and cutting costs!"

Questions from the floor

"How do pharmacists justify automation to the accountants?" Pharmacy staff need to embrace change and use technology to its full capacity to optimise the return on investment (ROI). Technology that is under-utilised may not be worth investing in. Secondly, it is vital that pharmacists

share cost-saving information with management.

"How does Cardiff deal with drug wastage stemming from automation?" Ward-based pharmacy teams need to stay awake and look out for wastage. Training helps staff be proactive, recycle and reduce waste.

Performance indicators in hospital pharmacy management

Performance indicators can supply a lot of detail; used with intelligence the right information can help your pharmacy achieve its chosen strategy.

Ana Ortega, PhD

This seminar contrasted how performance indicators have been developed and used in a private hospital in Spain and in a general hospital in The Netherlands. The key is to design an information system that can deliver useful indicators and then use them effectively in different pharmacy service areas such as stock held, pharmacist interventions, quality, etc.

Dr Ortega explained the place of pharmacotherapy within the whole electronic patient record and that many types of information are integrated electronically. For the pharmacy these are general hospital activity, pharmacy strategic data, general activity, purchasing, dispensing and consumption. Then there is consumption by department, suppliers' quality indicators and financial efficiency ratios. Key indicators can be compared for the corresponding month, financial or calendar year. This data can be searched for a range of things such as use of anti-infective drugs per unit or medication error and expenditure can be compared with invoices.

Armed with a PhD in cost-effectiveness of drug use, Dr Pieter Knoester was appointed Head of Pharmacy in January 2008, a new hospital board of directors started work in February and told him to reduce expenditure by Euros 150,000 in March! The staff reported high levels of stress, low levels of satisfaction and a lack of career development. Two technicians resigned.

He used performance indicators to get a grip on things, starting with a one-page summary to discuss with the board once a month. This meeting has developed from brief and hostile to longer and positive, as they have come to trust the figures. He himself has detailed figures available for all indicators. Indicators are tools, not goals, but each comes with its own target. Dr Knoester uses benchmarking to compare his pharmacy with others and balances input on finance, patient satisfaction, internal efficiency and staff satisfaction. In this way training can be justified by a more efficient workforce, for example. In his view, performance indicators are vital, but only as a means to realising your vision and strategy.

Antibiotic stewardship and the promise of new anti-infective agents

The use of new molecules should be tightly controlled. We have to optimise the efficacy of current treatments, rather than hope for new ones.

Santiago Grau, PhD Paul Wade, MSc

Dr Grau entertained the audience while informing us that 50% of antibiotic prescriptions are inappropriate; that antibiotic resistance has been identified as the 5th most important threat in the world [1]; that 25% of GPs' consultations concern colds and other respiratory diseases and 60% of these patients come away with a prescription and that 19% of casualty patients are suffering adverse drug reactions.

Prospective audits are the strategies that have shown the highest level of evidence in antibiotic stewardship. From many years of trying to improve antibiotic policies, his best advice was to work with the multidisciplinary team to achieve a consensus, rather than try and impose a policy. The introduction of a new antibiotic is a good opportunity to prospectively educate about forthcoming problems and restrict its use before these arise.

Mr Wade reminded us that complacency is not an option as "conquered" diseases return, resistance rises and few new antibiotics come onto the market. Since 1968 only two new classes of agents have been introduced, oxazolidinones and lipopeptides. Most antibiotics are "me too" drugs that extend the existent armoury but have strengths and weaknesses. Doripenem, ceftobiprole medocaril, dalbavancin, telavancin, oritavancin and iclaprim were reviewed in detail, see the EAHP website. Doripenem was approved in the US in 2007 and EU in 2008. Ceftobiprole medocaril was approved by the EMEA in November 2008 and is being fast tracked by the FDA. However, approval is being delayed for the others due to the need for further phase III trials. Regulatory requirements to only power studies for non-inferiority lead to a lack of strong evidence that new agents are "better" than their comparators. Further compounds are on the horizon, but with the global economic situation it is impossible to tell how soon they will become available.

If new antibiotics were to provide superior efficacy/effectiveness, be better tolerated, more convenient and cost-effective, this would be great, but in reality we need to optimise the efficacy of current treatments, rather than rely on the promise of new agents. So the lecture ended with suggestions on how to optimise use of the existing agents and an appeal not to overlook the traditional strategies of infection control and antimicrobial stewardship.

1. Yates RR. New intervention strategies for reducing antibiotic resistance. Chest 1999; 115(Suppl):24S-27S.