

Recipes for risk reduction

The sixth annual conference held by Hospital Pharmacist on 31 October was entitled "A spoonful of sugar: recipes for risk reduction". The one-day event drew together speakers whose sessions analysed the reasons for medication errors and ways to reduce them. Debbie Andalo, Beverley Harrison and Diane Langleben report

Conference chairman, ROBERT MCARTNEY, President of the Guild of Healthcare Pharmacists and clinical pharmacy specialist for Wales, told delegates at the Hospital Pharmacist annual conference that medication errors occur on a regular basis.

"You can't be on the wards all the time to prevent the errors when they occur because they occur 24-hours a day, seven days a week.

"Pharmacists, doctors and nurses have been playing a key role in preventing medication errors over the years, particularly in the United States, and so have David Cousins and David Upton in the UK." [The former during his time as chief pharmacist, Southern Derbyshire Acute Hospitals NHS Trust, and the latter, during his time as director of pharmacy, Glenfield Hospital, Leicester.]

KEYNOTE ADDRESS

The keynote address was delivered by Professor DAVID COUSINS, head of safe medication practices at the National Patient Safety Agency (NPSA). He reminded the audience that the Department of Health aims to reduce the number of medication

errors in the National Health Service by 40 per cent over the next three years and that the chief pharmacist has called for a wide scale investment in systems to identify and outlaw mistakes.

Professor Cousins said that his organisation would only publish around six medical safety alerts a year, and it was relying on trusts to build the infrastructure needed to improve safe practices and reduce errors.

"Whether or not you are a senior pharmacist, you have got to get involved in these systems for reporting incidents. You have to create a culture where you are committed to improving the system, he said."

Professor Cousins, who until September was chief pharmacist at Southern Derbyshire Acute Hospitals NHS Trust, said that systems remain under-developed and there are few trusts with committees that focus on the safe practice of delivering medication rather than the effectiveness and safety of individual medicines.

"I want to see every trust set up a safe medicines practice committee which would have a key role in collating medication errors and coming up with solutions to prevent them recurring."

According to Professor Cousins, these

committees will have to examine error reports and come up with local action that can be fed back into practice within the individual trusts. He does not want chief pharmacists telephoning the NPSA and saying: "This is a problem, what are you going to do about it?"

He told the conference: "The solutions are going to come from practice — from the NHS bottom — it's not always going to be top down."

He suggested that some of the problems and solutions could be posted informally on the NPSA website so that ideas could be shared among trusts. Also, trusts should not be scared about the number of medication errors they record. He said: "The more reports the trust has the better, because it provides the material needed for learning.

"In the end, you are trying to come up with examples of safe medication practice within each area of your trust. I am not interested in the processes but rather the solutions."

He reiterated that the Government wants to see a 40 per cent reduction in the number of serious errors in the use of prescribed medicines in the NHS by 2005. Adverse events occur in around 10 per cent of hospital admissions and there are an estimated

850,000 adverse events every year. They cost the NHS £2bn a year in additional hospital stays alone. Medication errors account for around 25 per cent of incidents which threaten patient safety, he told the conference.

Professor Cousins revealed that the national reporting system of adverse events — first proposed by the Chief Medical Officer, Professor Liam Donaldson, in his report "Organisation with a memory" — is due to be up and running by next year. The data, which are expected to be collected electronically, will be collated by the NPSA.

Although, so far, there is no formal definition of a medication error, it could be described as "a preventable event to do with medication that potentially could create patient harm", said Professor Cousins.

The NPSA has been looking to industry for lessons it can learn in recording adverse events. The airline industry, he revealed, discovered that, if you can create the right culture, you can focus on learning from mistakes. The airline industry discovered that, as the volume of safety reports increased, so

the number of significant events decreased.

"This is the message which we have got to get over to the public — reports are good because they give us the learning material to improve our systems. We have got to change the current culture and work on that," said Professor Cousins.

He went on to say that the culture change also had to occur across the health professions. Nurses and pharmacists were good at reporting medication errors but there was still reluctance from doctors to get involved.

He said: "Maybe we need to take a Dictaphone approach with the medics — they must feel comfortable that they are not going to be hung out to dry if they make a report."

Professor Cousins outlined current work being carried out by the NPSA. There was a review under way which was looking at medication labelling and packaging. He revealed that the standard black and yellow labelling on NHS medication was being withdrawn.

He said that he was involved in implementing the safe intravenous chemotherapy guidelines and, he admitted, ministers were

"obsessed with action and compliance".

He went on to reveal that the National Prescribing Centre review of Controlled Drug regulations — which was triggered by the Shipman mass murder case — was expected to report its findings at the end of next year.

The NPSA was also committed to ensuring that any of the standards it set for safe practice were evidence-based. He told the audience: "We have to establish what safe practice really is — we can't leave it to hearsay any longer." However, he reiterated that the main role of the NPSA was to collate and focus on the reports of medicine errors and drive down the number of serious errors to "acceptable levels".

By 2005, the Government expected the number of serious errors to be less than 5 per cent. He stated that the target could only be achieved through partnership. "We are in this together," he concluded.

Why do medication errors occur?

Doctors should be taught the basic principles of prescribing as part of their medical training. This would help reduce the number of medication errors in hospitals, according to London hospital pharmacist and leading academic Dr BRY-ONY DEAN.

Dr Dean, who is principal pharmacist, clinical services, and director of the academic pharmacy unit at the Hammersmith Hospital, London, also suggested that there should be more opportunity for doctors to discuss medication errors. However, she said that the vital key to reducing medication errors was to create a safety culture in trusts where all staff are aware that mistakes happen and that they can take active steps to help prevent them occurring again.

Her comments follow a study she carried out on inpatients at a 550-bed London teaching hospital between October and December 1999, which looked at the reasons behind prescribing mistakes (*Lancet* 2002;359:1373–8).

Dr Dean explained the thinking behind her research. She said: "I wanted to look at the psychological theories of human error. Errors do occur and people will always make errors, but what we need to do is understand why they happen and how we can prevent them from resulting in harm."

She decided to apply the "accident causation model" developed by James Reason — commonly used in non-medical high-risk environments — to see how it could be used to prevent prescribing errors.

The Reason model accepts that failures occur when individuals work at the "sharp end" of industry — that could be pilots in the

airline industry or doctors and nurses in the NHS, she explained. However, these active failures occur as a result of error producing conditions and latent conditions within the organisation, which should be the targets for error reduction.

Mistakes often happen because people have "slips and lapses" in concentration or memory. However, they can also be attributed to physical working conditions, working relationships or an individual's sense of well-being. Errors could also be due to staff applying inappropriate rules when making decisions or staff being asked to take on a job which is outside their normal routine, she

explained.

Dr Dean put the model to the test by asking hospital pharmacists at the teaching hospital to identify potentially serious prescribing errors. The pharmacy staff discovered 88 cases and were able to identify the prescriber in 53 (60 per cent) of them. Errors were made by all grades of prescriber across all clinical specialties. Prescribers were asked to take part in follow-up interviews to try and discover why they had made the mistake, and 44 agreed to do so (83 per cent).

Semi-structured interviews were conducted by researchers within 96 hours of the error occurring to find out the reason why. The errors were then analysed using the accident causation model.

One of the main causes for error was a slip in concentration — the prescriber had intended to prescribe one drug but prescribed another. It was also common for the prescriber to forget that the patient had discontinued a particular drug, she told the conference.

Other reasons for mistakes focused around the details of the prescription — doctors often referred to drugs by only their name, with no details of dose or route of administration. The doctors reported they had undergone little training at medical school about how to prescribe and how to find out information about drugs and their impact. She said: "There are gaps in their medical school training. Training on how to prescribe would be helpful."

Mistakes also happened when doctors had to cover for colleagues, her study revealed. "It wasn't an issue for them about

workload, but rather about their knowledge of the patient and not knowing what drugs they had been started on," she explained.

Junior doctors also felt little responsibility for prescribing. "They felt that, if the consultant had told them to put a patient on a certain drug, then it was the consultant's responsibility. It was interesting that they didn't feel they had any personal responsibility."

Doctors also were not generally aware that prescribing mistakes can be made. "They didn't think, what is an error and what can I do about it. There isn't really any

mechanism for feedback and reflection on errors in the medical profession."

Mistakes often happen because people

have slips and lapses in concentration

Dr Dean said her study reveals the need for medical schools to discuss the issue of prescribing errors and make it part of med-

ical student training. The study also shows a need for good practice in hospitals, particularly with documentation, and the creation of more opportunities for prescribers to review and discuss medication errors.

She concluded: "The key, however, is to create a safety culture, so that people are aware that errors occur and that something needs to be done about them."

Reducing medication errors in paediatrics

Dr JAMES ROBERTSON, associate specialist, paediatrics, revealed two major initiatives at Arrowe Park Hospital in the Wirral which, together, have resulted in a reduction in the number of errors in paediatric prescribing.

The hospital was forced to look at its reporting of clinical incidents after it hit the headlines following the death of a baby.

Dr Robertson told the conference: "Due to a dose calculation error, an overdose was administered to the baby who died two weeks later. The autopsy showed that the death was due to an unrelated cause."

Following the media publicity, staff were reluctant to report errors. Therefore, the trust overhauled its reporting system in an attempt to encourage staff to come forward again.

It established a no-blame medication error reporting system where all errors were reviewed by a multidisciplinary team. A simple reporting form — which was anonymous — was designed, asking for brief details of the incident along with the hospital directorate involved, the date and the time of the incident.

According to Dr Robertson, the new reporting system has been successful and has led to changes. Morphine for all paediatric patients is now supplied in pre-filled syringes direct from the pharmacy; before the change, they were made up in volumes of 25mls using a formula based on the baby's weight.

A second example cited by Dr Robertson centred around dobutamine having the wrong protocol. Because of this, no-one used the protocol. All the infusion protocols have now been rewritten.

He said that pharmacy supplies of ethamsylate were sent back to the manufacturer after it was discovered that, although the box gave the correct concentration details, the information did not appear on the vials.

He described how there had been room for error in the way, for example, netilmicin was previously prescribed. The dose was calculated by the pharmacist and this depended on the drug level in the blood. This dose was then written in the notes and transcribed by the doctor. Under the new sys-

tem, the pharmacist writes the prescription.

The hospital has also taken another step to help reduce errors in paediatric prescribing by redesigning the computerised prescribing charts for paediatric patients.

"With the new system, the computer can work out the dose, the route, how often the medication needs to be given and when it should be given."

Weight- and age-banded computer prescribing decreases errors by over 75 per cent

He explained that the previous computerised system caused problems because the prescribing guide gave details in milligrams and kilograms, but medicines come in grams. Medication also comes in non-

uniform liquids, such as 100mg/5mls or 120mg/5mls. Moreover, children come in different sizes, and the giving time for medicines is not necessarily the same as that for adults.

"The new system, using a specially designed computerised paediatric prescription chart, has led to the right doses being given at the right volume via the right route at the right time."

Dr Robertson explained that they tested the success of the new system over a five-day period when they looked at prescribing errors based on information from the new pharmacy screens and those used under the old system. They also compared errors made by paediatricians with non-paediatricians.

For paediatricians, there was a 4 per cent error rate using the new system compared with 26 per cent using the old system.

For non-paediatricians, there was a 6.5 per cent error rate using the new system compared with 76 per cent using the old system. The majority of errors — 25 per cent — related to incorrect dosage while another 20 per cent was because of wrong frequency.

He told the audience "35 per cent of the errors could have been avoided if the new screens were used all the time."

The study has shown that weight- and age-banded computer prescribing decreases errors by over 75 per cent. He said: "The principles of weight- and age-banded computer prescribing can be applied easily to any computerised prescribing system."

Dr Robertson and his team also found that over half of the prescriptions from paediatricians were for only 14 of the available drugs. For non-paediatricians, 80 per cent of the prescriptions ordered were for only 10 drugs.

Dr Robertson said that at Arrowe Park Hospital, there are 1,508 drugs in the main hospital formulary, but in the past five years only 387 have been prescribed for paediatric patients. He believes that this justifies a separate paediatric prescribing system.

Benefits of web-based incident reporting

The chief pharmacist at a South Manchester hospital knows the details of a report into a medication error within a minute of it being submitted, thanks to a web-based hospital incident reporting system (HIRS).

At the same time as an e-mail report appears on the chief pharmacist's computer, the same e-mail, including basic information about the error, is also sent to the trust's clinical risk manager, the individual specialty nurse manager and clinical director or other consultant so that immediate action can be taken if necessary.

A more detailed report about the incident — accessible to the same team via a protected password — is available within a couple of hours after the incident has occurred.

Details of the web-based system were described by DAMIAN CHILD who, up until August, was principal pharmacist, clinical services, South Manchester University Hospitals NHS Trust. He is now director of pharmacy at the Salford Royal Hospitals NHS Trust.

He told the conference: "This is a huge improvement on the previous paper-based system where reports arrived in small bundles, at least one a month in arrears — if at all.

"The most useful aspect of the whole system from the trust perspective is the database that is automatically compiled as the reports are submitted. This has proved invaluable in highlighting what, at first case, appear to be "one off" problems in a single specialty, but turn out to be just one of many problems occurring across the whole of the trust."

The computerised reporting system, applying to both clinical and non-clinical incidents, was first introduced as a pilot between April and July last year, and went live across the whole trust in August 2001. The aim was to provide the trust with a clear framework for identifying, reporting, managing and preventing clinical and non-clinical incidents.

Staff can make a report by clicking the appropriate icon on the trust's intranet home page. The report form fits onto a single page and asks a series of questions about the inci-

dent, including its severity and whether the patient was harmed.

Questions also relate to what action was taken, whether the incident was resolved and what can be done to prevent it recurring. There is space on the page for the staff to make free comment.

Between April and August, there were nearly 2,000 clinical and non-clinical incident reports, of which 250 applied to medication incidents.

Of those 250 cases, 68 per cent were classified as "near misses", with 8.8 per cent resulting in patient injury and 8.4 per cent involving infusion devices.

The highest number of reports came from general medicine, and the majority of those were from the medical admissions unit. The pharmacy — including the dispensary — recorded the second highest number of reports.

Pharmacists were responsible for instigating most of the reports, with nurses coming second. Doctors tended to make fewer reports and those that were made came from consultants. Mr Child admitted: "It is difficult to believe that the house officers and

SHOs are not coming across medication-related incidents."

Prescription error and administration error accounted for most of the types of incident. Detailed analysis showed that drug overdose was common, with opiate overdose topping the list, followed by incidents involving heparins and insulins.

The web-based system provides the trust with invaluable information at the click of the mouse. However, the HIRS initiative does have problems:

- It requires comprehensive computer and network access
- Staff require training
- Staff cannot always access the system when they want to
- Reporting takes time and is the first thing to suffer when staff are under pressure
- There are concerns about confidentiality and sensitivity of data collected, and who has access to it
- There are concerns about workload implications

HIRS also has many advantages:

- More mistakes are being reported
- Fast access means prompt remedial action
- A comprehensive database allows interrogation to detect patterns
- There is improved awareness and understanding
- There is improved multidisciplinary collaboration in finding solutions to problems

But he added: "Despite the huge increase we have seen, the number of reports is still low. Getting patients more involved can only be a good thing; it has even been suggested that they should be able to report incidents themselves using bedside monitors and telephones.

"Increasing staff training is important, but we all recognise the need to ensure that an assessment of competence is the step that has been overlooked too often in the past," concluded Mr Child.

Just read the label!

A fundamental cause of medication errors is through not reading labels, but it is not a new problem, according to ALLAN KARR (pharmacy business services manager, University College London Hospitals NHS Trust).

Mr Karr's presentation focused on medication errors caused by poor labelling and poor product design. He gave examples of circum-

stances where ampoule labels had not been read. The first concerned an anaesthetist (at Brompton Hospital, London in 1981) who had mistakenly administered an atropine injection instead of neostigmine injection. The anaesthetist had complained that the atropine ampoules had been taken out of their original box and had been put back in the neostigmine box. A second example con-

cerned the administration of an injection of topical high-strength adrenaline solution to a child at a hospital in Florida in 2002. The child subsequently died.

Although much attention is currently being given to medication errors, pharmacists are still continuing to work within a "high-risk environment" that increases the potential for errors to occur. Why is this still the case?

Mr Karr said that there are a number of reasons that make the environment high-risk. First is the lack of specific guidance on the best type of labelling and package design in the Medicines (labelling) Regulations of 1976. Secondly, products are viewed in isolation by regulatory bodies and companies instead of within a product range. Looking at an entire range helps identify similarities between packaging and labelling that could lead to confusion during product selection.

Other reasons for the high-risk environment include difficulty in improving packaging on a global basis, and the failure of some companies to recognise the problems associated with similar looking brands. There is also confusion about who has responsibility for highlighting problems.

There is limited information available on medication errors associated with poor labelling and similar packaging, and this could be partly because we still live in a blame culture and data are difficult to collect.

"If you cannot measure it, you cannot manage it," Mr Karr said.

A study had been undertaken by his trust to determine the extent of medication errors caused by poor labelling and poor package design. The study also aimed to identify the products (and suppliers) that were associated with the most errors and to establish where errors were occurring. A questionnaire was sent to 100 hospitals between April and September 2000 asking for details of medication errors or near misses. A total of 33 hospitals responded and 130 reports were returned.

Over half of the reported errors (51 per cent) were submitted by inpatient dispensary staff. Of the remainder, 19 per cent of the reports were submitted by ward staff, 13 per cent by outpatient dispensary staff, 8 per cent by staff working in pharmacy stores or distribution, 4 per cent by theatre staff, and 1 per cent by intensive care staff (4 per cent of the reports were submitted from other locations).

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Mr Karr said that these findings most likely demonstrate that wards under-report medication errors, whereas pharmacists are proactive in collecting and reporting data.

An example of a medication error identified by the study concerned the administration of clomipramine 25mg capsules instead of chlorpromazine 25mg tablets to an elderly patient. This error had resulted from confusion between similar looking packs. Problems in distinguishing between different strengths because of pack similarities were seen with various products, such as pravastatin and paroxetine.

Mr Karr pointed out that manufacturers spend a lot of money aiming to make packs patient friendly but do not adequately consider the potential for confusion between products. The findings of the study suggest that similar looking packs should not be placed together on dispensary and ward shelves. Wards as well as pharmacy departments should be alerted to packaging similarities. Product storage areas throughout the supply chain should be constantly reviewed. He said that the introduction of

bar-coding systems in the near future should help reduce errors during product selection.

WEBSITE DATABASE

As a consequence of the study, a database has been developed to record similar information as in the questionnaire.

The database features on the front page of the website (www.UCLHSolutions.Com), and it is not password controlled. The aim of the database (ReadTheLabel) is to collect information on medication errors associated with poor labelling and poor package design from pharmacists and other health care professionals. Data taken from the website are available to manufacturers of products shown to be causing problems.

The database should, it is hoped, increase awareness of problem packs and lead to those packs being redesigned, said Mr Karr. The impact of a redesigned pack on the incidence of medication errors or near misses could also be monitored. The website includes an error report form to be completed as part of the monitoring process.

Mr Karr pointed out that the MCA and CSM have recently consulted on medication errors caused by similar packaging and poor labelling, and have produced best practice guidance in *Mail* (130, March/April, 2002). The document says that "the labelling of those medicines that have been implicated in a medication error will have their labelling reviewed as a priority in line with CSM principles. Any new labelling, or labelling changes, should take into account the principles before submission to the agency". Further guidance is being developed that will incorporate views of the Association of the British Pharmaceutical Industry and other leading experts. This guidance is expected to be launched early next year.

Looking to the future, Mr Karr said that the new guidance should be well received and should start to make a real impact on the incidence of medication errors.

Mr Karr concluded his session by referring to a published quote from six years ago pertaining to an incident then and that reiterates the message in his presentation.

Although labelling and packaging can be improved, each individual must take responsibility for reading the medicine label. The quote is published below.

"Neither doctor checked the labels of the contents.....with fatal results. However well an ampoule is labelled, the clinical outcome of any injection depends upon the correct drug being administered and the only way of achieving this is for the label to be read and re-read if necessary."

(*Anaesthesia* 1996;51:1-12)

How to pre-empt risk and manage it

According to JOHN DADE, senior pharmacist, critical care and risk management co-ordinator, United Leeds Teaching Hospitals NHS Trust, effective risk management is demanding and requires proper funding and clear structures to achieve effective changes.

He said: "Pre-emptive risk management cannot be achieved in a vacuum: information is essential. Adverse events have complex causes and often uncover bigger issues." He stressed that this can be overwhelming but that a large number of actions can be taken in order to minimise that risk.

At Leeds teaching hospitals, three pharmacists in the pharmacy clinical governance team, with specific risk responsibilities, work with other professionals and report findings to the drug and therapeutics risk management group and the trust risk group. They also have various sub-groups looking at policies in such areas as potassium injections, intrathecal administration, epidural anaesthesia, labelling, storage, drug calculations and nurse prescribing.

The medicines risk team reviews all medication-related incidents, liaises with the trust risk management group, gives feedback to the pharmacy department and the rest of the trust, provides education and training, publishes a newsletter and undertakes other projects, including a review of aseptic procedures and IV policies.

"To pre-empt risk, you must first understand the risks in your environment," said Mr Dade. He elaborated on the steps to be taken, such as having:

- An effective local risk management culture
- An error reporting system
- A rigorous system to review errors and to understand their causes (root cause analysis)
- A multidisciplinary review of risk issues and the methods to reduce them
- An awareness of lessons learnt elsewhere
- Information from the National Patient Safety Agency

Mr Dade said that multidisciplinary working is critical and cited the example of the

procedure for epidural infusions in Leeds. Because it is a high-risk procedure, a number of adverse events had occurred, such as incorrect preparation, incorrect prescribing, incorrect administration and poor supervision. Mr Dade explained that moving the preparation of solutions away from wards to the pharmacy department had had a major impact on the incidence of adverse events. However, reducing the other types of error had required change throughout the hospital.

He also believes that pre-emptive action is possible in many areas, such as:

- Predicting the risks when new products are introduced
- Reviewing the existing product range
- Considering risk when purchasing
- Considering risk due to storage of medicines on the wards and in the pharmacy
- Looking at broader areas of risk, such as infection control and documentation
- Establishing a risk assessment culture

Mr Dade went on to describe how new drugs are assessed at Leeds teaching hospitals. The system is based on that established by Paula Hayes at Alder Hey Children's Hospital, Liverpool where there is a risk assessment group for new drugs, consisting

of dispensary, purchasing and medicines information pharmacists. They meet monthly and review between 10 and 20 products. The review includes an assessment of the packs and labels. Each product is assigned a level of risk; if the product is deemed to have a medium- or high-risk level, the group seeks to reduce risk, by requiring more product information, asking for changes in labelling, and looking at storage. The group also reviews unlicensed drugs.

Mr Dade said that, at his hospital, the drug and therapeutic committee was starting to look at other issues. "Traditionally, the committee looks at efficacy, drug safety and cost-effectiveness. Now, because of the lessons it has learnt from risk management, it also considers such things as the quality of the product presentation, the product name with its potential for confusion, dosage and whether or not it involves a simple calculation or a complex administration technique.

Mr Dade said that risk can be anticipated in such areas as product names and gave the examples of the similarity between moxifloxacin and amoxicillin, Detrusitol XL and Doxazosin XL.

Confusion can also be avoided by separating products on dispensary shelves and auditing storage on wards. Mr Dade said: "Products that are similar in name or appearance, or that are dangerous, such as potassium, should be stored separately. Additionally, products should be stored in their original containers and not be decanted; products should not be returned to opened boxes. Storage facilities should be of a high quality, well organised and with plenty of space."

Purchasing at his hospital is undertaken by the Yorkshire NHS Trust Purchasing Consortia, a group which reviews over 1,000 product lines. Mr Dade said that a risk assessment tool is used as part of the contract adjudication process.

As with earlier speakers, Mr Dade reiterated the problem that poor labelling can cause and said: "We can examine the quality of labelling and use market forces to make manufacturers change."

According to Mr Dade, 20 to 30 per cent of nursing staff have difficulties with calculations and many of them respond poorly to

training. Risk can be minimised by dosing protocols and choosing products that require simple calculations and/or where the number of calculation steps can be minimised.

In summing up, Mr Dade stressed that pre-emptive risk management is achievable, but needs proper funding to give it

the staff, time and training required. He believes that pharmacists should not let themselves become overwhelmed by the problem areas as significant risk reduction is still possible by addressing the other issues.

He concluded: "Some risks are easy to correct but others, such as not reading

labels, the demands of customers, workload and staff not having the relevant skills, are more difficult.

"Pre-emptive risk management requires multidisciplinary working and is a long-term strategy and a key part of clinical governance."

Is electronic prescribing beneficial?

Electronic prescribing will help reduce the incidence of medication errors, but it will not solve all problems and might create new ones, according to Ms MARISA SAGRIPANTI (pharmacist clinical analyst, electronic patient record project, Guys and St Thomas' Hospital NHS Trust, London).

Ms Sagripanti told the conference that she had been working on an electronic prescribing project at her trust for the past 18 months, and this had involved looking at the use of electronic medicine administration records and electronic patient records.

She pointed out that electronic prescribing in hospitals encompasses both prescribing and administration.

WHAT ARE THE BENEFITS?

Ms Sagripanti said that the Audit Commission's document, "A spoonful of sugar", indicates that electronic prescribing can help prevent medication errors occurring. Ms Sagripanti went on to discuss the benefits of electronic prescribing. She said that one obvious benefit is the provision of legible and complete information, and another is the availability of clinical decision support software.

Clinical decision support software can provide timely information at the point of prescribing, which can help reduce the risk of an inappropriate drug or dose being prescribed, she said.

Clinical decision support screens can provide information on drug-drug interactions, drug-disease interactions, drug-duplicate interactions and dose ranges.

Drug and clinical coding devices are required for support screens to alert the prescriber to potential problems, for example, if a prescribed dose is outside the recommended range or an antibiotic is prescribed to a patient with a known allergy.

Treatment protocols and integrated care pathways (ICPs) can also be incorporated into electronic prescribing systems. An ICP determines locally agreed multidisciplinary practice for a specific patient and documents the care given.

A further benefit of electronic patient record systems is the availability of screens containing comprehensive patient information. Ms Sagripanti told the conference that 33 per cent of prescribing errors are caused by a

lack of patient information. Through electronic patient record systems, information can be provided on a patient's current health status, diagnosis, investigational results, microbiology and haematology reports, therapeutic drug monitoring data and current medication (including recent doses and dose calculations).

The provision of medicines information at the point of prescribing is another benefit of electronic systems, said Ms Sagripanti. A trust's formulary and guidelines can be made available to help with prescribing decisions. Information can also be sourced on product appraisals, drug updates, changes to licensed recommendations, latest news, and the electronic British National Formulary.

Ms Sagripanti warned that, in providing medicines information, the system has to be maintained and kept up-to-date. Information overload needs to be avoided as this makes it harder to keep the system up-to-date and makes information access difficult and time consuming.

ADVERSE EVENTS

Ms Sagripanti went on to say that electronic prescribing could increase the detection of adverse drug events (ADEs). She said that voluntary self-reporting of ADEs

could increase detection by 0.2 per cent, whereas the use of computer screening and chart review could increase detection by 10 per cent.

Electronic systems also enable identification of "who did what, when and why". The prescriber, pharmacist and nurse involved in a patient's care can be identified in addition to details of when medication was prescribed, administered, modified and discontinued. Ms Sagripanti said that the provision of such information gives a degree of security to the system and is useful for audit purposes.

The final benefit of electronic prescribing discussed by Ms Sagripanti concerned improved communication between primary and secondary care. Discharge letters can be sent electronically from hospitals to community pharmacists and general practitioners. However, interfacing fully with GP systems will take a few years to implement, she said.

WHAT ARE THE LIMITATIONS?

Ms Sagripanti went on to highlight the limitations of electronic prescribing. She told the conference: "Just because you can clearly read the information on an electronic prescribing system, it does not mean that the information is correct."

Electronic prescribing can create new problems, such as errors in drug selection. For example, in a computer search using "beclo", around 30 matches could be listed and there is a risk that a prescriber could select becloforte, instead of beclomethasone 100mcg, or the incorrect formulation.

Ms Sagripanti said: "We need to think about how drug lists are presented on screen to avoid selection errors being made."

A further limitation of electronic prescribing involves the software used. Ms Sagripanti said that software from the United States is readily available but is difficult to use within the United Kingdom because of differences in working practices between the two countries.

In concluding her presentation, Ms Sagripanti said that electronic prescribing has obvious benefits in reducing the risk of medication errors, but use by all trusts is some years away.

Concordance and Medicines Partnership

The final sweetener to the "Recipes for risk reduction" conference day was a session on "Preparing for concordance."

The presenter was Professor MARSHALL MARINKA, an independent consultant and past professor of general practice. He chaired the Royal Pharmaceutical Society working parties which produced "From compliance to concordance" and the "Concordance co-ordinating committee report." The recommendations from these groups led to the creation of the medicines partnership task force which Professor Marinka chairs jointly with Dr Jim Smith, Chief Pharmaceutical Officer at the Department of Health.

Professor Marinka stressed that concordance and compliance are not synonymous terms. His work in the area of concordance shows that 50 per cent of prescriptions are not taken as prescribed, and this is due to many factors. Examples that he cited include patients not being able to read labels, and the deeply held beliefs about medicines that patients often have.

Professor Marinka used his session to ask

the audience how the Medicines Partnership task force could help hospital pharmacists.

He was asked if the issue of concordance would not be better met if labels stated more than "As directed." He agreed strongly and added that if every pharmacist, doctor and nurse in their encounters with patients, asked them how they felt about taking medicines, and if there was anything distasteful about taking them, this would help.

"There is a considerable challenge. Patients on long-term medication often think that, if they keep on taking their medicines, their bodies will get used to them, so they give themselves a holiday from taking them. Another problem is that, when they begin to feel better, they do not know why they have to keep on taking their medicines. "There is no such thing as a non-compliant patient, but rather, a set of reasons why they apply conditions about taking their medicines. We now have a new respect about what the patient knows. They are experts about themselves and we ignore this at our peril," concluded Professor Marinka.

Question time

Conference 2002 concluded in its traditional fashion with a question and answer session. Bob McCartney chaired a panel comprising Damian Child, David Cousins, John Dade, Bryony Dean and Marisa Sagripanti.

Ian Simpson, Chief Executive at the College of Pharmacy Practice, asked the members of the panel for their views on the recent proposal from the Medicines Control Agency (MCA) on patient information leaflets (PILs). [The MCA consultation letter MLX 285 proposes that pharmacists should be able to photocopy or reproduce PILs without breaching copyright. European rules require pharmaceutical products to be packaged with an approved PIL and United Kingdom legislation means that it is an offence to supply medicines without one. However, pharmacists' terms of service often require packs to be split to meet the exact quantity prescribed, leaving residual packs which might not contain a leaflet.] Mr Simpson asked if the proposal would increase safety or increase risk.

Mr Child said that he thinks that more information is needed but that there are huge workload implications.

Professor Cousins said that the National Patient Safety Agency (NPSA) would be making a substantial response to the consultation document. He has reservations about the proposal and went on to say that chopping up blister packs in itself is not a good idea since some patients are known to take the tablets packaged in this way without

first removing them from the foil.

Mr Simpson agreed with Professor Cousins' comment and thinks that the proposal in the MCA consultation letter is impractical and unsafe.

Keith Farrar, chief pharmacist, Arrows Park Hospital, asked about the collection of information on pharmacists' interventions. He agreed with Professor Cousins that information should be analysed locally but believes that data about pharmacists' interventions

would be more effective if they are fed centrally into the NPSA.

Mr Child commented that there is a drawback to doing this, since not every intervention is recorded. "Recording every incident would take all day," he said. At his trust only 10 interventions per month are recorded.

Ms Sagripanti believes that electronic prescribing would help to identify and make reports but would not overcome pharmacists having to make interventions.

Dr Dean said that at her trust they had thought long and hard about pharmacists' interventions and decided that they should be recorded in the patients' medical notes.

Professor Cousins said that the problem with pharmacists' interventions is that it becomes a "stamp collecting" exercise, and saved for a rainy day to be used as a reason to employ more staff. He said: "If we are recording the same interventions, week in, week out, we now have an opportunity to change the system."

Professor Cousins was asked if the NPSA applies to the independent sector. He replied that although the NPSA is a government agency, it will work with other sectors. He is not sure if the NPSA will be collecting reports from the independent sector, but he hopes that they will do so. The NPSA was not seeking to exclude the independent sector.