

# Experiences at the sharp end of risk

Christine Clark reports from a meeting at which participants were told that hospital trusts should take on the challenge of designing for safety

Patient safety was put into sharp relief by the personal experiences of two individuals who set the scene for the conference.

Amanda Cale, managing director, Classy Glass and Awards Ltd, described how her father, Charles Bootle, had died after a series of events arising from methotrexate treatment for arthritis.

At the age of 71 he developed severe rheumatoid arthritis affecting most of his joints. He was referred to a consultant but the waiting time was considerable and so he sought private medical treatment. After blood tests and a chest X-ray he was prescribed a weekly dose of methotrexate.

Some time afterwards he became breathless with moderate exertion. Thinking that this might be due to one of his medicines, he asked his wife to draw up a chart listing them all and their side effects, using the information leaflets in the packets. He concluded that the most likely cause was methotrexate and consulted his GP, who decided that he needed oxygen and referred him to the accident and emergency department of the local hospital. After initial assessment he was admitted for a presumed chest infection.

The weekend passed and it was noted that "the patient says methotrexate is causing the problem". The following week a bronchoscopy was carried out and Mr Bootle's breathing continued to deteriorate. He was scheduled for transfer to the intensive care unit (ICU) but there was no bed so he remained on the ward. A new type of oxygen mask was available but nurses were not allowed to use it on general wards. At this point steroid treatment was started and Mr Bootle was provided with an airbed as he was becoming sore. One week after visiting his GP he was transferred to the ICU, sedated and artificially ventilated. By this time he was very sick and the family was told that there was little hope of recovery.

Mrs Cale told the staff that she had looked up methotrexate on the internet and was surprised when the doctors said they had been doing the same thing. She noted that lung complications with methotrexate were rare. Shortly afterwards Mr Bootle died.

Mention was made of a yellow card and in the discussion that followed the doctors said that many drugs had nasty side effects and if patients were told about all of them they would be worried. Asked where the main

weaknesses in the system lay, Mrs Cale said that they were lack of communication and lack of knowledge (about methotrexate side effects and appropriate treatment).

Carol Black, president, Royal College of Physicians, said that methotrexate was a good drug when used correctly with appropriate monitoring. Failure to do this was unsafe and "bad medicine". Patients should be given information and allowed time to consider it and discuss it with their families, before embarking on treatment. It is important to be honest with patients and provide information that they can comprehend, Professor Black added.

## Overdose

A tenfold overdose given to a baby had turned out to be "a negative learning exercise" for Suzette Woodward, assistant director of patient safety, NPSA. At the time Ms Woodward was a senior staff nurse in a paediatric intensive care unit. Most of the patients received a minimum of five to six intravenous medicines and these were always assembled by the bedside nurse. There were frequent interruptions.

One evening, when Ms Woodward was on night duty, she checked a series of medicines that had been drawn up for a patient by another nurse in the usual way. One of the medicines was a new product that was dosed by body weight and given by infusion over 24 hours. During the ward round later she noticed several of the staff looking at the infusion pump and looking at her. The doctor turned off the pump and whispered "too much fluid". After the round it was explained that a tenfold overdose had been made up and the patient had received the 24-hour dose in just over two hours. The likely effects were abdominal pain and liver damage.

Ms Woodward said she felt physically sick as she turned over in her mind what had happened. The other nurse refused to speak to her and blamed her for the incident. She blamed herself and also the other nurse. "I no longer felt proud to be me and I did not want anyone to know what a dreadful nurse I was," she said.

Her line manager told her that she should have known better and that she had let them all down. She was most irritated that Ms Woodward could not explain how it had happened. There was no investigation of the incident and "there was no learning to be had" from it.

Fortunately, the patient recovered unharmed and afterwards Ms Woodward double-checked everything she did. It was only much later that she learnt that incidents do not "just happen" and formed the view that she was "set up to fail".



In the discussion that followed Ms Woodward said that the responsibility of the organisation to support staff involved in incidents should be emphasised and the use of the NPSA incident decision tree would help with this. In addition, she made a plea for a new system of working that does not require nurses to calculate complex paediatric doses.

Peter Homa, chief executive, St George's Hospital Trust, added that there should be better training for staff and that trusts should take on the challenge of designing for safety.

## In brief

### Global patient safety challenge

Talking about the global patient safety challenge, Sir Liam Donaldson, Chief Medical Officer, said we should be hard on ourselves and expect the public to be hard on us if we fail to learn and let the some incidents occur again and again.

### Package design

Talking drug packs that would say the name of the product when opened was one of the options considered by Phoenix Pharma when it came to redesign its packaging, according to Steve Watkin, managing director, Phoenix Pharma. Radio frequency identity chips and EAN 128 barcodes were also considered but innovative use of colour and label design was eventually chosen.

The conference, entitled "Patient safety 2004" was organised by the **National Patient Safety Agency**, and took place in Birmingham on 24 and 25 February.

# Lessons to be learnt from other industries

It is natural to compare health care with other hazardous industries but there are not always direct parallels, said James Reason, Emeritus Professor, University of Manchester. Health care is often compared with the air transport industry — indeed, anaesthetists have described themselves as doing the take-offs and landings while the surgeons are responsible for the in-flight entertainment.

There are two ways to look at human error. The “person approach” is deeply rooted in our culture and it says that the reason for an incident lies with an individual performance failure. Remedial measures, such as re-training and “fear appeal” posters are directed at the individual and not at the situation in which the incident occurred. Crucially, this approach divorces people from the context in which the error was made, explained Professor Reason. The systems approach says that people at the sharp end are inheritors of accidents that are waiting to happen rather than instigators. Remedial measures involve examining how the barriers in the system failed.

Both of these are extreme positions and what is needed is a sensible “person approach” embedded in a sensible “systems approach”, suggested Professor Reason.

One of the biggest differences between health care and aviation is that aviation was predicated from the outset on the notion that errors would occur. Consequently, there has always been a strong emphasis on the possibility of failure and on training people to cope with it. In health care, practitioners go through a long and arduous training and there is an expectation that they will then get things right. This has led to the development of an organisational culture in which discussion of errors and near misses has not been the norm.

Another difference is that there have been huge wake-up calls in aviation after major incidents.

The system view of incidents inevitably demands to know which of the defences failed and how. Although some events are triggered by an unsafe act by an individual set against background of latent problems, some occur with no contribution from individuals. The King’s Cross underground disaster in 1989 is an example of such an incident.

In other areas, similar situations recreate and reinforce the same kinds of bad events. In health care, some of these are simple, for example similar-looking labels; others may be considered as an insidious accumulation of fault lines, such as the repeated accidental intrathecal administration of vincristine.

Fatal accidents occur in aviation at a frequency of less than one per million miles flown. It is less well-known that aviation has a higher rate of “lost-time injuries” (for example, due to back injuries in baggage handlers) than most other industries — even

higher than logging. It is clear that different standards apply in different parts of the industry, and Professor Reason wondered whether there were also subcultures in health care.

Another difference between health care and aviation or the nuclear power industry is that in the latter two the job is “standard” whereas in health care it is complex and diverse. Jobs could be broken down into three components, he said: maintaining control under routine conditions, maintaining equipment and handling emergency conditions. The latter two provided most opportunity for error. Health care work was more like the aircraft maintenance engineer’s work than the airline pilot’s job, he concluded.

There were numerous other factors that made health care different, including the vulnerability of patients and the fact that health-care is delivered by one to one or by few to one whereas nuclear power for example is delivered by few to many. In addition health-care staff are often prepared to “go the extra mile” to provide a service.

What is needed is a balance between the person and systems models, he argued. Excessive reliance on the system models leads to “learned helplessness,” he said, and has also

been described as “a bungler’s charter”, because it encourages individuals to disclaim responsibility. Moreover, professionals at the sharp end need to be able to identify error-prone situations and take the appropriate action. Many professionals acquire this kind of ability over time but could be helped to develop it earlier.

## Three bucket model

Professor Reason put forward the idea of the “three bucket model” to help to identify potentially risky situations. This says that three factors contribute to the likelihood of an error — the individual, the context and the task itself. If each of the three is represented by a bucket, there can be a certain amount of “bad stuff” in each bucket. For example, in the first “self” bucket, the individual can be stressed, tired or emotional, in the context bucket there can be noise and interruptions and in the task bucket there can be complex calculations or operations.

In any situation the likelihood of an error is a function of the amount of bad stuff in all three buckets. Full buckets do not guarantee an error and neither do empty buckets guarantee total safety but they provide a forewarning and prompt for extra vigilance.

## Benefits of openness and transparency

Patients in Australia had called for openness when things went wrong and this had given rise to the “open disclosure” initiative, explained Rohan Hammett, director, Healthcare Improvement Projects, New South Wales Institute for Clinical Excellence.

Patients involved in an adverse event — defined in Australia as any event that results in unintentional patient harm — need an apology, an explanation of what happened, necessary treatment, action to prevent recurrence and ongoing support. An open culture involves ongoing activity that meets the needs of patients and staff involved in adverse events; it is not a “one-off” activity. Patients may require ongoing support for as long as two years after the event, said Dr Hammett. The clinicians involved can find the effects catastrophic and often need support and advice. They also need recognition of the systems nature of events and for the peers not to see them as substandard practitioners.

In Dr Hammett’s experience, open communications increased trust between all parties, decreased anger, increased safety, permitted quicker investigations and possibly decreased litigation. “People sue because of anger, lack of acknowledgment and a desire to find out what happened,” he added.

The Australian open disclosure programme has involved wide consultation and



**Dr Hammett: patients need an apology and an explanation**

painstaking development of standards on which all stakeholders agree. (See the Australian Council for Safety and Quality in Healthcare website [www.safetyandquality.org](http://www.safetyandquality.org).) The biggest challenge in implementing the scheme is the readiness of institutions.

“As long as you continue to jail clinicians [in the UK] you will have difficulty getting them to co-operate with open disclosure initiatives,” said Dr Hammett.