

# Patient safety: a medical student's perspective

Peter Calvert

Peter is a first-year medical student at Lancaster University. His interest in patient safety stems from three years of experience as an information analyst in a hospital risk management department. During this time, he produced patient safety reports, coordinated the policy approval system and helped to maintain a database of safety incidents, complaints and legal claims.

## INTRODUCTION

During the financial year 2008/09, 11,504 NHS patients were either killed or severely harmed by patient safety incidents in England.<sup>(1)</sup> Such figures, whilst not unexpected, are still shocking; almost 1,000 patients per month are seriously harmed or killed by an organisation which has the primary goal of helping and healing.

For a first-year medical student, my past experience in risk management places me in a relatively unique position. Yet, I find myself wondering: will I make a mistake and kill or seriously harm someone? It is a sobering thought for any person training for a career in healthcare. I have to assume that I will, at some stage, find myself involved in a safety-related incident with potentially serious consequences.

In this article, I intend to explore some of the issues surrounding patient safety, including medication errors, changes in working hours and the reporting and handling of incidents.

## 'NEVER EVENTS': THE STORY OF POTASSIUM CHLORIDE

Intravenous potassium chloride (KCl) is prepared as a 15% solution for dilution. Given as a bolus injection, it leads to cardiac arrest. The very presence on the wards of this preparation creates huge risks to patient safety. In the recent past, a 91-year-old patient died on a high dependency unit following administration of a bolus dose of KCl, rather than an infusion. The incident appeared to have been caused by poor communication between the ward sister and a senior student nurse – at inquest it was stated that the ward sister claimed to have asked the student to prepare the solution, not to administer it.

The dangers are not limited to communication failures or, as some would argue in the case of senior student nurses, failures of education. The packaging of a drug is also important. The formulation used in University Hospitals of Morecambe Bay Trust (UHMBT) is now distinctive, with the concentration clearly shown and the chemical symbol for potassium (K) being clearly marked (see illustration). The box in which it is presented is also clearly marked. This is an improvement from the past when boxes of potassium and saline for injection and drug preparation were presented in uniform packaging, leading to errors with the potassium being used as a diluent. National media interest in the KCl safety issue was prompted when

'celebrity' TV doctor Phil Hammond admitted to a close call with this mix-up in 2002.<sup>(2)</sup> It may be coincidence, but his report preceded the publication of a national safety alert from the National Patient Safety Agency (NPSA) by only a few weeks.<sup>(3)</sup>

These days, UHMBT and most other NHS trusts have potassium policies in place and often classify high-strength potassium as a controlled drug, thus reducing the risk substantially. Intravenous (IV) administration of mis-selected concentrated KCl is now considered a 'never event'<sup>(4)</sup> – a type of incident which should no longer occur, as effective preventative mechanisms should already be in place.<sup>(5)</sup>

### 'Never Events' as defined by the NPSA

- Wrong site surgery
- Retained instrument postoperation
- Wrong route administration of chemotherapy
- Misplaced naso or orogastric tube not detected prior to use
- Inpatient suicide using non-collapsible rails
- Escape from within the secure perimeter of medium or high security mental health services by patients who are transferred prisoners
- In-hospital maternal death from post partum haemorrhage after elective caesarean section
- Intravenous administration of mis-selected concentrated potassium chloride

Actual figures for the amount of 'never events' being reported are not yet available from the NPSA website. It is, however, stated that, whilst numbers are currently low, there is evidence of under-reporting.

## MEDICATION ERRORS: NEW DOCTORS

General Medical Council (GMC) research at three UK medical schools found that only 1 in 6 students from one university were able to successfully complete an eight-question prescribing test.<sup>(6)</sup> Professor David Webb, pharmacologist and former president of the Scottish Medicines Consortium, linked this problem back to changes in medical training which



occurred in the 1990s and left most curricula lacking in pharmacology.<sup>(6)</sup>

This alleged lack of training has been noticed by powerful figures within the medical profession – notably, in 2006, the chairman of the National Institute for Health and Clinical Excellence (NICE) pointed out that he could not be confident in the ability of new doctors to prescribe morphine.<sup>(7)</sup> This same report also pointed out that there is 'anecdotal evidence of medical students writing to their deans concerned that they are not going out into the world as safe prescribers.'<sup>(7)</sup>

Despite this, the GMC maintains that there is no current risk to patient safety arising from prescribing.<sup>(8)</sup> In December 2009, the GMC claimed that, whilst almost 1 in 10 prescriptions contains an error, very few would result in serious harm.<sup>(8)</sup> Whilst some may argue that newly qualified doctors are the most likely to make such mistakes, this report found that senior trainees were just as likely to err as their junior colleagues,<sup>(8)</sup> probably because of complacency rather than inexperience, although consultants were found to make the least mistakes.

The majority of errors are recognised before any harm can come of them, although there is evidence that some junior doctors may rely too heavily on this 'safety net'.<sup>(9)</sup> Encouragingly, the GMC has called for standardised prescription forms across England, which should improve the situation when doctors move between different trusts.<sup>(8, 9)</sup>

The World Health Organisation (WHO) is now backing the inclusion of patient safety on the undergraduate curriculum, as discussed in a recent *British Medical Journal* article.<sup>(10)</sup> The WHO, taking guidance from the Australian Council for Safety and Quality in Health Care, identified 11 areas of patient safety which they believe should be included from the beginning of medical education.<sup>(10)</sup> Whilst many of these areas focus on overall patient safety (eg learning from mistakes, engaging with patients, etc), one of them directly targets medication safety, showing that the WHO also takes this issue very seriously.

**WHO curriculum on patient safety**

- What is patient safety?
- What are human factors and why are they important for patient safety?
- Understanding systems and the impact of complexity on patient care
- Being an effective team player
- Understanding and learning from errors
- Understanding and managing clinical risk
- Introduction to quality improvement methods
- Engaging with patients and carers
- Minimising infection through improved infection control
- Patient safety and invasive procedures
- Improving medication safety

The GMC continues to revise the workings of undergraduate training with their 'Tomorrow's Doctors' guidelines. The latest guidelines, published in 2009, include a more thorough description of the requirement for prescribing competence upon graduation and also encourage doctors to appraise each others prescribing skills.<sup>(11)</sup>

These guidelines will take over from the 2003 version in 2011/12. Lancaster University is implementing a fifth-year 'Patient Safety Programme' (Liverpool University curriculum) which includes practice at writing prescriptions onto discharge letters and drug charts, as well as pharmacist-supervised

sessions covering insulin and fluid prescribing. The extensive pharmacological knowledge brought by pharmacists, along with their experiences of correcting erroneous prescriptions, is intended to reduce the number of prescribing mistakes made by future foundation year one doctors. The programme is not limited to prescribing training; it also includes ward- and lab-based expert-supervised skills and computer-based knowledge tests, which should further benefit patient safety.

*Editor's note on the story of potassium, courtesy of Dr George Lee, consultant cardiac anaesthetist, Manchester*

*Potassium (together with hypothermia, Mg and other additives) produces a diastolic, depolarised arrest of the myocardium and is used to prepare the heart for cardiac surgery.*

*This usually gives asystole, but a short burst of VF is sometimes seen just before asystole.*

*Many different formulations containing potassium have also been used.*

*Dr Lee tells the editor that the technique, known as 'cardioplegia', is the only significant British contribution to the development of cardiac surgery.*

*It was the idea of Dennis Melrose at the Hammersmith Hospital.<sup>(12)</sup>*

**THE EUROPEAN WORKING TIME DIRECTIVE (EWTD)**

The EWTD, which came into force in August 2009, sets the maximum number of working hours allowed in a week as 48.<sup>(13)</sup> It applies to all lines of work, but is especially relevant to healthcare practice due to the historical amount of overtime.

In theory, eliminating tiredness in healthcare should reduce errors and lower the risk of complaints about poor communication. Unfortunately, this may not translate into practice.

I recently read Max Pemberton's book 'Trust Me, I'm a Junior Doctor',<sup>(14)</sup> in which the author describes how the working hours of hospital doctors have been halved, but the number of doctors has remained unchanged. This means patients' access to the service provided by hospital doctors has also been halved. A Healthcare Commission report from early 2009 found that almost half (47%) of NHS employees feel that they are unable to perform their jobs adequately due to either lack of time or shortage of staff.<sup>(15)</sup> I am concerned that such staffing shortages may be contributing to the rate of patient safety incidents.

Additionally, experience during medical training is lost due to the restriction on working hours. In a recent online survey of 72 surgical trainees, over 90% felt that the EWTD would have a negative impact, both upon their training and upon patient care.<sup>(16, 17)</sup>

**THE EFFECTS OF MAKING A MISTAKE**

Adverse events do not just affect patients. Mistakes can have a great psychological toll upon any member of staff. Emotions, such as sadness, anger and depression are compounded by personal worries, ranging from the concerns about job security to how colleagues and the patient's family or friends may react.

We all make mistakes – 'to err is human' – and getting past the onslaught of subsequent emotion is one of the keys to being a good doctor. Possibly the most important aspect is to realise

that resigning will not make the NHS any safer for patients. On the contrary, if a member of staff resigns, the organisation will need to replace them, possibly with someone less experienced who has yet to witness a serious patient safety incident.

Learning from experience is one of the core components of the NHS Litigation Authority's risk management standards.<sup>(18)</sup> A good organisational risk approach is essential for dealing with all aspects of adverse events.

## ORGANISATIONAL HANDLING OF INCIDENTS

With the current emphasis on safety, every NHS trust now has a risk management framework, which includes systems for the reporting of incidents. Part of the inherent difficulty in such systems is that reporting relies upon staff completing forms. Aside from the extra paperwork, staff may feel that they are reporting their colleagues and this may put a strain upon their professional relationships.

Staff need to be made fully aware that they are reporting *the incident*, not the staff member involved. In the majority of cases, the staff member has done nothing deliberately wrong; indeed many incidents are caused simply by processes and systems which are in need of review.

It is important to emphasise that investigations into adverse events are not intended to place blame, but to determine which systems, practices, policies and guidelines could be improved upon to prevent other staff members from making similar mistakes. In general, staff are not subject to disciplinary procedures unless there is gross negligence on their part.

It is also helpful to publicise the anonymised results of such investigations locally for staff to reflect upon. Wider circulation can aid patient safety nationally. The Medical Protection Society's publication *Casebook* is a good example. *Casebook* consists of articles detailing legal claims made due to deficiencies in patient safety, followed by key learning points. If important lessons are learnt from our own mistakes, the next best thing is to learn from the mistakes of others.

### Immediate actions to take when patient safety is compromised

Below is a list of first-line actions staff should consider taking at the time of an adverse incident or near miss. The advice below is taken from both GMC guidelines and the author's personal experience.

1. The safety of the patient is paramount. Promptly ensure that they are safe and limit any further damage as much as possible.
2. In most situations, the patient should be given a full explanation and an apology (remember that an apology is simply an expression of regret, not an admission of liability).
3. Details of the incident/near-miss, along with any steps you have taken to resolve them, should be documented and reported as soon as practicable.
4. Think about your own feelings. If you are distressed, consider seeking assistance from the local occupational health service.
5. If you are unsure about whether a concern should be raised or how to raise a concern, consider speaking to an impartial colleague, your medical defence organisation or your trade union.

## WHISTLEBLOWING

One of the greatest difficulties arises when patient care has fallen below a reasonable standard and the organisation involved is making little or no effort to rectify the situation. Most healthcare professionals faced with this extraordinary situation would feel obliged to act on behalf of the patients in their care. However, this act, known as 'whistleblowing', may bring about unforeseen consequences.

In early 2009, a nurse was struck off for assisting with a Panorama undercover investigation into patient neglect at the Royal Sussex Hospital.<sup>(19)</sup> This report brought more publicity to the fact that whistleblowers may not have sufficient legal protection.<sup>(19)</sup> In this case, however, it is arguable that the method of disclosure was inappropriate. Although some medical establishments sympathise with her extreme actions, covert filming undermines the autonomy of patients in several ways – lack of consent and breach of confidentiality not least among them.

GMC guidelines state that the correct channels should be always followed – reporting to senior colleagues or to managers, directors and executives if the problem is not being dealt with. Personal and professional loyalties should be put aside in such situations – the first duty of a doctor is to the patient.<sup>(20)</sup> The guidelines also state that, as long as you believe that patients are still being put at risk (and as long as confidentiality is not breached), concerns may be made public. Again, it should be emphasised that this is a highly unusual situation to find oneself in; under normal circumstances, the organisation will have acted before such action becomes necessary.

Most NHS trusts have a local whistleblowing policy. Staff should familiarise themselves with this if they find themselves in a situation where whistleblowing may be required. Concerns remain, however, as there are various reports of healthcare staff whose careers have suffered after they blew the whistle on poor patient care, even via the correct channels.<sup>(19, 21)</sup>

## CONCLUSION

Learning from mistakes is an important way to improve patient safety. Many NHS organisations have already embraced learning from experience as a fundamental way of moving forwards. A number of professionals may view risk management systems as unnecessary bureaucracy. However, my experience in risk management has shown me that the developing culture of openness and honesty with regards to mistakes is a big step in the right direction. I feel confident that when I make that inevitable first error, I will be able to view it as a learning experience and hopefully bear witness to some improvements to prevent others from repeating my mistake.

## REFERENCES

1. Laurence J. 4,000 patients killed by NHS treatment errors. *Irish Independent*; 2009 [28th October 2009] Available from: <http://www.independent.ie/world-news/europe/4000-patients-killed-by-nhs-treatment-errors-1907480.html>

2. 'My mistake nearly killed a patient'. BBC News; 2002 [28th October 2009]  
Available from:  
<http://news.bbc.co.uk/1/hi/health/2050417.stm>
3. Potassium solutions: risks to patients from errors occurring during intravenous administration. National Patient Safety Agency; 2002 [7th December 2009]  
Available from:  
<http://www.nrls.npsa.nhs.uk/resources/?entryid45=59882>
4. Never events: Intravenous administration of potassium chloride. National Patient Safety Agency [7th December 2009]  
Available from:  
<http://www.nrls.npsa.nhs.uk/resources/collections/never-events/core-list/potassium-chloride/>
5. Never Events. National Patient Safety Agency [7th December 2009]  
Available from:  
<http://www.nrls.npsa.nhs.uk/resources/collections/never-events/>
6. MacRae F. Young doctors 'putting lives at risk' through lack of training in prescribing drugs. *Daily Mail*; 2009 [28th November 2009]  
Available from:  
<http://www.dailymail.co.uk/health/article-1126729/Young-doctors-putting-lives-risk-lack-training-prescribing-drugs.html>
7. MacRae F, Hope J. Hundreds dying because doctors lack training in prescribing drugs. *Daily Mail*; 2006 [15th November 2009]  
Available from:  
<http://www.seroxatusergroup.org.uk/Hundreds%20dying%20because%20doctors%20lack%20training.pdf>
8. Nearly one in 10 hospital prescriptions 'has mistakes'. BBC News; 2009 [8th December 2009]  
Available from:  
<http://news.bbc.co.uk/1/hi/health/8391667.stm>
9. Nurses spot doctors' prescribing mistakes to prevent lethal errors, says research. *Nursing Times* 2009 [8th December 2009]  
Available from:  
<http://www.nursingtimes.net/nursing-practice-clinical-research/clinical-subjects/patient-safety/nurses-spot-doctors-prescribing-mistakes-to-prevent-lethal-errors-says-research/5009245.article>
10. Ellis O. Putting safety on the curriculum. *Br Med J* 2009;b3725
11. Tomorrow's Doctors. General Medical Council; 2009 [2nd December 2009]  
Available from:  
[http://www.gmc-uk.org/education/undergraduate/tomorrows\\_doctors.asp](http://www.gmc-uk.org/education/undergraduate/tomorrows_doctors.asp)
12. Melrose D, Dreyer B, Bentall H, Baker J. Elective Cardiac Arrest. *Lancet* 1955;266(6879):21-3
13. What is the European Working Time Directive? Department of Health; 2009 [11th May 2010]  
Available from:  
[http://www.dh.gov.uk/en/Managingyourorganisation/Workforce/Workforceplanninganddevelopment/European\\_workingtimedirective/DH\\_077304](http://www.dh.gov.uk/en/Managingyourorganisation/Workforce/Workforceplanninganddevelopment/European_workingtimedirective/DH_077304)
14. Pemberton M. Trust Me, I'm a Junior Doctor. Hodden & Stoughton General Division; 2008
15. Serious concerns raised over NHS staffing levels. *http://www.inthenews.co.uk* 2009 [8th December 2009]
16. Surgical Training Seriously Compromised By European Working Time Directive. Royal College of Surgeons of England; 2005 [2nd December 2009]  
Available from:  
<http://www.rcseng.ac.uk/media/medianews/Surgicaltrainingcompromisedbyworkingtimedirective>
17. EWTD Opt Out Survey. SurgeonsNet [2nd December 2009]  
Available from:  
<http://surveys.surgeons.org.uk/results.php?sid=26372>
18. NHSLA Risk Management Standards. NHS Litigation Authority [8th November 2009]  
Available from: <http://www.nhs.uk/NHSLA/RiskManagement/>
19. Devlin K. NHS whistleblowers 'need greater legal protection' says BMJ. *Daily Telegraph*; 2009 [11th May 2010]  
Available from:  
<http://www.telegraph.co.uk/health/healthnews/5387640/NHS-whistleblowers-need-greater-legal-protection-says-BMJ.html>
20. Raising concerns about patient safety – guidance for doctors. General Medical Council; 2006 [11th May 2010]  
Available from:  
[http://www.gmc-uk.org/guidance/ethical\\_guidance/raising\\_concerns.asp](http://www.gmc-uk.org/guidance/ethical_guidance/raising_concerns.asp)
21. Stephenson J. Whistleblowing. *Br Med J* 2009 [11th May 2010]  
Available from: <http://careers.bmj.com/careers/advice/view-article.html?id=20000227>