e-Learning and error

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Intervention to prevent errors in medication

Medication errors remain a major problem owing to the complexity of the process of prescribing and giving drugs. Experience in the UK can be considered representative of the issues surrounding medication errors that can be found in many national health systems throughout the world. For example, in studies of acute hospitals in the UK, about 10% of the patients on the medical wards experienced an adverse event, half of which were judged to be preventable. Overall, it was estimated in 2001 that the total cost to the National Health Service was about £1 billion a year.¹

The presently accepted way of looking at error considers two different aspects. The person-centred approach focuses on the health professional as the cause of the error, highlighting common human failings such as problems of inattention, forgetfulness and carelessness. Despite evidence to the contrary, this approach remains an all too familiar response to errors arising in the National Health Service. The UK Central Council for Nursing, Midwifery and Health Visiting has recorded its concern that nurses who made mistakes under pressure of work, and were honest and open about those mistakes to senior staff, have often been subjected to disciplinary action. Unfortunately, besides blaming individuals and opening them up to general censure, it contributes little to correcting the underlying problems that may exist. It is fortunate that, increasingly, the prevailing strategy is a systems approach. This tries to look at the error holistically, considering the wider issues that may also have an effect on the action taken. It accepts that all people are inherently fallible and that errors are inevitable. Consequently, it looks at what safety nets are in place to prevent errors occurring. Therefore, when an error occurs, it considers why the error occurred, as a function of the safety net not preventing the error, rather than just blaming the individual.² Even so, some errors contain a large component of individual blame and may

be a result, directly or otherwise, of an individual purposefully circumventing carefully constructed safety nets.

The Audit Commissions report *A spoonful of sugar*³ suggests that there are several ways in which the risk can be minimised, such as changing the risk management culture; induction and training; redesigning processes and using computer-based technology to reduce errors; and developing clinical pharmacy services.

Studies investigating e-learning and error have suggested that simple programmes may help to reduce basic core errors.⁴ In this edition, a further small-scale trial investigating the benefits of internet education and medication errors has been undertaken.⁵ As in other studies, it seems to be well accepted by those using the system to learn, and fulfils many of the criteria for successful adult learning. However, the proof of the effectiveness of the methods to prevent errors or cause changes in practice is less convincing. Franklin *et al*⁵ suggest that their intervention may be beneficial in improving non-intravenous medication administration errors, although how this is achieved and through what processes remains unknown. One can surmise that the use of the internet will help improve information flow and bolster some human failings such as a lack of appropriate clinical knowledge. It may help facilitate patient-related issues and improve the unit's overall knowledge base. However, the deeper effect such processes may have within the unit, such as promoting communications and allowing staff to question policies and procedures, remains unknown. Without larger investigations, it is impossible to predict the types of error that may be prevented or the group of people who may benefit most, and whether latent and dormant problems can be corrected. What is clear is that e-learning is only a part of the repertoire necessary to combat medication errors. Other interventions are also required to increase the number of barriers preventing harm to patients and to reduce the total

number of errors that occur, as well as the cost to the overall health economy.

Computer-based learning offers many valuable strategies to advance professional learning. It fulfils many principles of adult learning, including autonomy and self-direction, allowing people to work at their own pace and at a time of their choice. In addition, it is beneficial for the teaching institute as costs are reduced once a programme is set up. In areas of limited staffing (such as a National Health Service ward), all can participate rather than just a chosen few. The internet allows access to an endless number of health-related issues and papers, promoting independent adult learning.

Multiple different types of media can be incorporated into a module to make important points memorable. Assessment becomes easier to manage and feedback can be entered into as required. e-Learning is widely used in higher education and healthcare, with studies suggesting that outcomes between traditionally taught schemes and internet-taught schemes are similar. Even so, a balance should be maintained between face-to-face teaching and technology-based teaching and learning. Not all students can benefit from one form of teaching. Diversity remains important.

The use of computer-based technology has been widely welcomed within healthcare professions. However, the implementation of such technology, although reducing one set of errors, has resulted in a new set of problems. Such technology is unlikely to be the overall panacea. With medication safety there is no one size fits all. Each intervention made will prevent only a certain number of errors. Training and education can help only so far.

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REFERENCES

- 1 Vincent C, Neale G, Wooloshynowych M. Adverse events in British hospitals: preliminary retrospective record review. *BMJ* 2001;**322**:517-19.
- 2 Reason J. Human error: models and management. *BMJ* 2000;**320**:768-70.
- 3 Audit Commission. *A spoonful of sugar*. UK: Audit Commission, 2001.
- 4 Schneider PJ, Pedersen CA, Montanya KR, *et al*. Improving the safety of medication administration using an interactive CD-ROM program. *Am J Health Syst Pharm* 2006;**63**:59-64.
- 5 Franklin BD, O'Grady K, Parr J, *et al*. Using the internet to deliver education on drug safety. *Qual Saf Health Care* 2006;**15**:329-33.