

Captain and champion: nurses' role in patient safety

Over the past decade, there has been increasing attention to issues surrounding patient safety and human error in health care and specifically in the critical care area. Adverse events have often been used as indicators of (a lack of) quality and safety in health service delivery. An adverse event has generally been defined as some injuries caused by health care management that prolongs hospitalization and/or results in disability (Thomas *et al.*, 2000). However, some intensive care unit (ICU) researchers have conceptualized adverse events slightly differently. Beckmann *et al.* (1996) examined ICU 'incidents', defined as 'any unintended event or outcome which could have, or did, reduce the safety margin for the patient (1996, p. 321). A total of seven Australian ICUs reported 610 incidents in one year, grouped into five categories: drugs and therapeutics (28%), procedures, lines and equipment systems (23%), patient management and environment (21%), airway and ventilation (20%), and unit management (9%). A small Italian study identified 67 unintended events in 38 ICU patients over a 4-week period (Capuzzo *et al.*, 2005). More recently, in a US study, Rothschild *et al.* (2005) identified that of 391 ICU patients, 79 (20.2%) had some form of adverse event. Thus, it appears that a significant proportion of critically ill patients will experience some form of adverse event during their ICU stay. So, what can we do to limit the risks our patients face?

While being careful is always important, exhorting nurses to be 'more careful' is an insufficient response. The Institute of Medicine's (IOM) report *To err is human* to the US congress in 1999 acknowledged the complex nature of

error and advocated a more systemic response. Errors occur as a consequence of multiple levels of system failure. Reason (2000) maintains that within a complex system, defensive barriers are designed to protect individuals from situations that predispose to error. Defences exist at organizational, managerial, technological and procedural levels. Individuals, especially nurses, and individual actions are often the last line of defence. The occurrence of, for example, a drug administration error represents failure at all these levels.

Incident reporting and the need to develop national incident databases was a major recommendation of the IOM's report. Aggregated over many institutions, databases allow researchers to more readily identify trends that may not be as evident in particular institutions. National trends can point to national remediation strategies including improved regulation, approval and the development of standards that, Bogner (2004) argues, have the greatest possibility of effecting systemic change. National incident reporting databases also allow specific institutions to compare their profile against the national profile, which may assist in targeting areas in need of improvement. The IOM report acknowledged a number of barriers to developing comprehensive national incident databases. The most significant of these are the risk of litigation and its associated culture of blame, that is, our tendency to over-emphasize the actions of individuals in isolation from broader contextual factors. Blaming individuals is the easy option. By attributing error to 'bad apples', we avoid the need to assess our own behavior and we avoid the need to reassess the systems we work

in, an exercise that can be costly and challenging at multiple levels of management. There is another way.

Errors rarely occur without warning. In aviation and other high-hazard industries, 'near-misses' are defined as events that if they had been allowed to proceed would have resulted in harm. In these industries, near-misses are routinely analysed because they represent system vulnerabilities or gaps in defensive barriers that can be addressed. Near-miss reporting has a major advantage over error incident reporting. Not only do near-misses expose system vulnerabilities before they lead to actual error but also highlight processes within the system that check against and trap potential errors before they result in harm. Because nurses are often the last line of defence in error scenarios, near-miss reporting is of particular relevance.

Nurses are ideally positioned to identify, analyse and act on near-misses. Nurses occupy senior organizational and managerial positions, participate and are located in quality-assurance departments, are extensive users of technology and are involved in the design and improvement of care delivery procedures, and their training in observation, evaluation and assessment specifically equips them with the skills needed to identify and analyse near-misses. Three changes are needed to strengthen nurses' capacity to act preemptively in error prevention. First, a greater awareness of error and its causes during nurse training are needed. Currently, under- and postgraduate nursing curricula in Australia do not specifically include modules or course work associated with human error and system vulnerabilities. However, recent

initiatives, such as the Queensland government funded Patient Safety Centre, have provided a vehicle for the service delivery sector to facilitate the inclusion of these concepts into nursing education. What seems to be required is a collaborative approach between health care organizations, human factors researchers and others experienced in safe systems development and educational providers to ensure that a theoretical perspective on human error is taught, but also that a patient safety culture emphasizing professional empowerment is imparted as part of professional development.

Second, the introduction of tools and processes for reporting and analyzing near-misses is important to facilitate proactive approaches to risk management. There are several tools, most notably the Veterans' Affairs Root Cause analysis framework (Bagian *et al.*, 2002), that could be modified to provide a near-miss analysis framework. In Queensland, as in many other states in Australia, training in root cause analysis has been adopted as standard practice for nursing managers. However, adequate time and resources must also be allocated in order to ensure that analyzing near-misses results in raised awareness and tangible

service improvements. Third, in order to proactively consider human error, nurses must recognize that health care delivery is a human endeavour and like all human endeavours, however well intentioned, is subject to human fallibility – accidents and errors do happen. Acknowledging human fallibility is the first step in preventing errors because this acceptance underpins a safety culture that legitimizes the recognition of near-misses and the reporting of error. What is required next is a whole of systems approach to managing or addressing potential errors. Nurses cannot afford to remain on the periphery of the patient safety movement but must actively engage with it at personal, institutional and professional levels.

Anne Miller
 Crit Care Cert., B.Soc Sc. PhD (Psych)
 University of Queensland
 Brisbane
 Australia
 E-mail: amiller@humanfactors.uq.edu.au

Wendy Chaboyer, RN, PhD
 Director, Research Centre for Clinical
 Practice Innovation
 Griffith University, Gold Coast
 Australia
 E-mail: w.chaboyer@griffith.edu.au

REFERENCES

- Bagian JP, Gosbee J, Lee CZ, Williams L, McKnight SD, Mannos DM. (2002). The Veterans affairs root cause analysis system in action. *Joint Commission Journal on Quality Improvement*; **28**: 531–545.
- Beckmann U, Baldwin I, Hart GK, Runciman WB. (1996). The Australian Incident Monitoring Study in intensive care: AIMS-ICU. An analysis of the first year of reporting. *Anaesthesia and Intensive Care*; **24**: 320–329.
- Bogner MS (ed). (2004). *Misadventures in health care: inside stories*. Lawrence Erlbaum Assoc, Mahwah, New Jersey.
- Capuzzo M, Nawfal I, Campi M, Valpondi V, Verri M, Alvisi R. (2005). Reporting of unintended events in an intensive care unit: comparison between staff and observer. *BMC Emergency Medicine*; **5**: 1–7.
- Reason J. (2000). Human error: models and management. *British Medical Journal*; **320**: 768–770.
- Rothschild JM, Landrigan CP, Cronin JW, Kaushal R, Lockley SW, Burdick E, Stone PH, Lilly CM, Katz JT, Czeisler CA, Bates DW. (2005). The critical care safety study: the incidence and nature of adverse events and serious medication errors in intensive care. *Critical Care Medicine*; **33**: 1694–1700.
- Thomas EJ, Studdert DM, Burstin HR, Orav EJ, Zeena T, Williams EJ, Mason Howard K, Weiler PC, Brennan TA. (2000). Incidence and types of adverse events and negligent care in Utah and Colorado. *Medical Care*; **38**: 261–271.