This issue of the Journal focuses on the organisational aspects associated with the design, implementation and evaluation of clinical information systems. The technical features of clinical information systems often attract great attention, yet increasingly research is demonstrating that it is the complex interaction between the technical features of a system and the human, social and organisational dimensions which will determine whether a system will be used by healthcare providers, and whether it will be effective and safe (Massaro 1989; Ash 1997; Gosling, Westbrook & Coiera 2003).

IT failures in healthcare are well known to all. At conferences I regularly ask the audience whether they have worked in a healthcare organisation where an IT system has failed and invariably all hands in the room go up. Asked if technical problems were the main reason for failure, most arms go down. Many readers will know from direct experience that systems which are perfectly good technically can be disastrous when placed in real-world clinical settings. A frequent reason for this is that the system does not represent how clinical work is done, so it cannot easily be integrated into everyday clinical practice. Individuals will often use systems in quite unexpected ways, and the social and professional cultures of an organisation will also greatly influence if and how systems are used.

Our own research has provided some local examples of this issue. In 2001, we undertook an evaluation of the Clinical Information Access Program (CIAP [www.ciap.health.nsw.gov.au]) in NSW. This is an online evidence retrieval system aimed at providing all healthcare providers in public hospitals with access to high quality evidence at the ward level to support their decision making. Many states have similar systems, such as the Clinicians’ Health Channel in Victoria. From experimental studies we have demonstrated that when clinicians have access to these evidence systems they make more accurate decisions (Westbrook, Coiera & Gosling 2005). Yet, when examining how CIAP was used in the field, we found that there was enormous variation in rates of use (Westbrook, Gosling & Westbrook 2005). In some hospitals, clinicians used the system at very high levels and in other very similar hospitals, there were low rates of use. Following in-depth case studies at high and low use hospitals and a survey of over 5 500 clinicians across the state, it was clear that it was not the technical factors, such as IT infrastructure, that were driving this great variation in use; it was social, professional and organisational cultures (Gosling, Westbrook & Coiera 2003; Gosling & Westbrook 2004; Gosling, Westbrook & Spencer 2004; Westbrook, Gosling & Westbrook 2005). For example, high use hospitals demonstrated organisational cultures which valued an evidence-based approach to care. CIAP was used in real-time decision making and not confined to the retrospective review of cases, and nurses were encouraged to view evidence searching as a legitimate part of their clinical role. Active CIAP use was more likely to occur when clinicians believed they had the support of their supervisors and where they saw their colleagues using the system.

Most recently, there has been a flurry of research papers which present warnings of the potential dangers of poorly designed, implemented or evaluated clinical information systems (Ash, Berg & Coiera 2004). This has included a study at a paediatric hospital in the United States which found an increase in mortality following system implementation (Han et al. 2005). The reasons for this serious and unexpected outcome are complex, including factors such as the method and speed of implementation, along with a poor assessment of work processes prior to system introduction and how the new order entry system might impact upon these. Such studies highlight the vital importance of setting up evaluation processes prior to clinical system implementation.

The articles in this issue of the Journal draw attention to the important issue of the interconnection between the technical features of a system and the social and organisational environments in which they are deployed. This is an area of international interest as papers by Bertelsen and Nøhr (2005), Sørby and Nytrø (2005) and Ochieng & Hosoi (2005) illustrate. While we are often exposed to the experiences of our colleagues in the United States it is of particular interest to read of the Scandinavian experience with the implementation of electronic medical records. Australia and the Nordic countries have healthcare systems which have many similarities. Bertelsen and Nøhr (2005) present a fascinating study of medical secretaries, who perform similar functions to ward clerks in Australian hospitals. Their paper highlights how important work roles within healthcare organisations can be hidden and sometimes forgotten when considering the implications of clinical information systems implementation. Sørby and Nytrø (2005) report an observational study of doctors preparing discharge summaries in Norway. The findings are of relevance to many Australian hospitals which are in the process of implementing electronic discharge summary systems. Georgiou and colleagues (2005) present an Australian study which evaluates the impact of a computerised pathology order entry system on the work and relationships of staff within a major teaching hospital. This study builds upon their earlier research which showed that the introduction of these systems
can significantly improve laboratory turnaround times (Westbrook, Georgiou et al. 2006). Together, these studies illustrate the importance of taking multiple measures of systems impact in order to ensure that new clinical systems are used and deliver benefits to health professionals and patients.

References


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