Background

Information and communication technologies (ICTs) are being rolled out rapidly in all aspects of health care (Tyrell 2002; van Bemmel & Musen 1997). Patient registration systems, business systems, and electronic patient record systems are coming to hospitals, to ambulatory care practices, and to most other health care organisations. For many, this modernisation cannot come too soon. After all, other service sectors such as travel, personal finance, and an increasing number of government departments use electronic systems as the backbone of their work, and could not envisage returning to manual methods.

For many health staff this is, however, an unwelcome and somewhat frightening initiative. Working with electronic systems is not merely modernisation for professional staff; it represents a totally new work paradigm. This comprises two dimensions: understanding and using computer technology, and learning how to record their clinical work in a structured and apparently impersonal format. Both these developments are at first sight hostile and unwelcoming. A second difference is that whereas staff in sectors such as insurance or banking will be using the new technology as the basis of their jobs, and are therefore both willing and able to be trained thoroughly in this area, in health care such activity is often but a part (though an important one) of their daily professional duties. Thus, health sector modernisation through computerisation can be seen as an agent of disempowerment and a threat for old and new staff alike.

Enabling and empowering staff

Clearly any process which makes staff feel uncomfortable is in itself detrimental not only to staff morale and well-being but also to the efficiency with which they work. Furthermore, enforced use of techniques for which there has not been adequate education in adjustments to working practice or training in the use of the technology means the technology will not be used efficiently. As a result staff may feel demoralised even to the point of seeking to leave their jobs, whilst inadequate or inaccurate recording in electronic record systems will challenge quality of care and has the potential for adversely affecting patient care.

Whilst there are many policies and programs designed to promote health computerisation and educational courses for health informaticians, there has been inadequate focus on end-users. An initiative developed by the author in Europe, however, has the potential to provide a solution to these problems internationally.

A health computer user qualification

In recent years a generic qualification for users of computer systems has cascaded rapidly across the globe. Emanating from initiatives in Finland and then in Italy, a generic qualification on the basic aspects of using computers was developed and became recognised as the European Computer Driving Licence (<www.ecdl.com/main/index.php>). This was highly successful, and has led to interest in most countries in the world, and has now become the International Computer Driving Licence (ICDL). This generic qualification has appealed equally to young persons leaving school or entering employment as an indication that they are ‘safe’ users of computer systems, and to mature staff moving to enter the electronic era in mid-career. Interest in the health sector has been strong in a number of countries, not least the United Kingdom, which has instigated a multi-million pound program over 5 years which seeks to assist nearly half a million staff to acquire this qualification (<www.ecdl.nhs.uk>.

The special needs of health

Valuable though the generic ECDL has proven, it does not totally meet the real needs of the health sector, including health professionals and records staff. This is for two reasons.

Firstly, health differs from other computer application domains. The nature of the applications is different in that they may be life-critical, yet at the same time the information and communication they convey are particularly sensitive whilst conveying a range of nuances of meaning (Roberts et al. 2000).

Secondly, health staff are different from many other end-users for a number of reasons: they are frequently mid-career and mature professionals; they are not solely (if at all) in-line employees but have certain personal autonomous responsibilities; and use of the computer system is not necessarily the focus of their work, though it is an essential component of their overall practice. In other words, they have a personal dependency upon the computer system though they do not use it all the time, and they cannot be naively directed as to how to change their work practice. Instead, the employing organisation has a duty of responsibility to enable them to practice appropriately, during and after the introduction of modern computerised systems.

In order to meet this need, a separate health-specific supplement to the ECDL has been suggested (Rigby et al. 1999). The author has developed this through analysis both of the distinct nature of health data and of health personnel, and in terms of the possible skills required (Rigby 2004). This strategy is aimed at addressing the difference between generic computerised information systems and personal health record systems, including:

- the life criticality of data
- annotation rather than deletion of inaccurate and erroneous data once recorded
- the fact that other data subjects are identified in a health record
- locally legislated requirements for, and modification to, the access of the data subject to their electronic record

Michael Rigby
• the rights of other data subjects such as health professionals identified in a patient record
• navigation of complex electronic records
• coding of data items previously captured as rich and structured text.

The curriculum for this would cover all those aspects of health information recording, processing and utilisation which, when computerised, differ from data produced using pen-and-paper methods. The subjects are likely to include:
• applications of computers in health
• the special nature of health data
• structured recording of health data
• ethical and legal issues of electronic records and data in health
• security
• citizens and consumers in health and e-health
• professional practice aspects for health professionals
• derived data uses in health care
• national and international variation.

International collaboration

There is already an international initiative to promote this idea. It originated from work in Ireland, was discussed within England, and has now been put to a consultational meeting of representatives from nine European countries who, in principle, warmly welcomed it. Separately, enquiries at a meeting of the chief executives of the national ECDL/ICDL licensing agencies attracted interest from around the globe, including Australia and New Zealand.

As a result of this positive response, a proposal has been put to the governing ECDL Foundation to establish a task group to define, pilot, and launch an intended ECDL health product. It is hoped that piloting of this proposed product would be able to commence early in 2005, for release by the end of that year. However, further systems analysis, design, and piloting work needs to be completed before this can be confirmed.

Conclusion

Whilst modernisation of health care processes through harnessing of computing, information, and communications technologies may be welcomed in most respects, it is a significant challenge for many established health staff. The general assumption that studying a computerised file or recording to it is similar to using pen and paper is as erroneous as suggesting that the use of keyhole surgical instruments is the same as open abdominal surgery. And as with that analogy, not only are the physical and cognitive skills significantly different, but also patients’ lives are potentially at risk. The mouse, keyboard, and computer screen are radically different from a pen-and-paper chart, and many health end-user staff are daunted at the thought of making the change without adequate preparation. The proposal for a customised Health Supplement to the ECDL/ICDL is intended as a means of bringing education, training and support to staff and thus protection to patients. Should plans go ahead as hoped, it ought to be available by late 2005 for local implementation.

References


Michael Rigby
Centrefor Health Planning and Management
Keele University, Keele
Staffordshire, ST5 5BG
United Kingdom
Email: m.j.rigby@hpm.keele.ac.uk