Guest Editorial

Nurses' requirements for information technology: A challenge for educators

1. Introduction

Computers are rapidly becoming an everyday tool for nurses. Many countries are driving initiatives forward on a national basis, for example in UK the National Programme for IT (NPfIT) is developing systems that include nationally available lectronic health records, networked services to support appointment systems (chose and book) electronic handling of a wide range of diagnostic tests and results (DoH, 2001). Access to information to support practice is also provided through the Electronic Library for Health. New Zealand has approached the situation differently (WAVE, 2001) considering the need for local customisation of the systems to be an important feature of their strategy. New Zealand also places information for clinicians and patients as a high priority.

As the role of the nurse develops, and they take responsibility for new areas of work their use of computer systems has the potential to increase further. Research carried out by Courtenay et al. (2006) identified that an inability to computer generate prescriptions was one factor that stopped nurses developing their prescribing role.

Patients are also driving the agenda forward without any need for government policy, as can be seen from recent, and forthcoming, editions of International Journal of Nursing Studies. As Alexander and Zeibland (2006) discuss patients are increasingly using the internet to find information elating to their own particular needs. They identify the key role that nurses are able to play in supporting patient in meeting their information needs effectively, and state that their education must prepare them for this new information role. Gilmour (2006) concludes that increasing equality of access for patients from diverse backgrounds is reliant on nurses' expertise in not only accessing but also evaluating online health information.

The power of the internet is raised by Hitosugi et al. (2007) who explain that there is a high suicide level in their native Japan, where an emerging phenomena is that of suicide pacts organised through the internet. While Japan is seeking to manage this through voluntary intervention by internet providers nurses, especially those working with vulnerable people, should be aware of this type of social development.

The value of the internet is not limited to patient information. Yu and Yang (2006) discuss the value of web-based learning for nurses, finding that nurses who work at village health centres, remote from education bases, valued the access that the internet afforded them. They also however identified that some nurses lacked the necessary computer skills to complete online courses. Im et al. (2006) explore the use of the internet as a research tool in their paper discussing the use of an internet survey with cancer patients.

In order for nurses to be able to work with these computer-based systems, and to be able to support their patients' effectively they need. at the very least to have the skills and knowledge to use information technology (IT) efficiently and safely. Nurses however have been found to have poor IT skills (Griffiths and Riddington 2001; Bond, 2004) and are resistant to the introduction of IT (Timmons, 2003). Kirshbaum (2004) found that nurses more frequently reported being wary of using computers than other healthcare staff groups and made more negative statements e.g. 'I avoid using computers whenever I can' and 'I feel uncomfortable about the thought of using computers'.

In the UK a National Audit Office report into the implementation NPfIT (NAO, 2006) considered that a lack of IT skills within the National Health Service (NHS) was a risk to the timely implementation of the programme.

Just what skills are needed is not universally agreed. The NHS (NHSIA, 2001) has published competencies required of nurses, which includes a range of knowledge

and skills falling under the remit of nursing informatics, including clinical informatics, information governance and information security, as well as basic IT skills. In spite of this the perception found in some studies (Murphy et al., 2002, 2004), is that all nurses need are basic IT skills.

One of the aims of Information for Health (NHS Executive, 1998) was to establish, among other things, a culture to ensure that NHS clinicians would be able to access the information that they need to provide effective patient care. In the case of nurses the evidence suggests that this culture is not yet established. I have recently completed two major pieces of work, that sought to explore why this is, and what it is that nurses want in order to engage with IT in their work.

One was undertaken in the UK, a doctoral thesis, (Bond, 2006a) which looked at how student nurses develop informatics skills and knowledge. The final phase of data collection included questionnaires to 132 final year students asking about their experience of using computers in practice. Group interviews were also held with 15 qualified staff who support students in practice to explore their attitudes to, and use of computers.

The second, supported by a Florence Nightingale Foundation Travel Scholarship (Bond, 2006b), was undertaken in New Zealand where a 5-week visit enabled me to talk to a nurses from a range of disciplines, mainly in acute hospitals, about their requirements both in what a computer system should provide, and what support they considered essential.

Nurses generally mentioned using a combination of computerised patient record systems and care planning systems. Fewer staff mentioned using computers to access evidence-based information, or information for their patients.

2. What nurses want

Generally nurses said that they wanted computer systems to make their lives easier. This includes saving time by automating tasks such as stock ordering. One essential element to meet this need is that systems need to talk to each other so that information from all points of care is automatically shared through the system, and data entry minimised.

Offering good quality decision support and access to evidence-based information was not a high a priority for many nurses, although it was considered a higher priority by those with nursing informatics expertise. Those who did want it, want it to be available when and where they need it, and for it to regularly updated.

A very important requirement was that computers need to be available wherever the nurse and patient are. Wireless networks and portable computers were suggested as the best way of meeting this need. Computers at workstations were not popular for several reasons, including the pressure to find a free computer at the end of shift to update records. Point of care data entry was not only seen as meeting nurses' requirements but also as having the potential contribute to improved patient care by allowing records to be updated contemporaneously when memories are fresh, a great improvement on handwritten notes being scribbled and kept until the nurse can get back to a free computer.

Passwords are a big problem for many nurses. Each individual system often requires its own login information, each renewable on a different cycle. Nurses were almost unanimous in wanting this simplified. The ideal solution was seen as each nurse having just one initial login giving entry to all subsequent systems.

Support was a frequently mentioned need. Nurses want help available that fits with their work patterns (e.g. on the ward) and that addresses immediate problems when they arise. Although training on systems was seen as important the need for ongoing support was also identified. Most nurses did not want this through manuals or computer aided learning programmes that they had to use in their own time. Those with poor skills, or a lack of confidence in their skills, were not comfortable with the idea of using a computer programme to learn how to use a computer. Nor was the ability to contact a helpdesk seen as meeting their needs, especially ones' that used voicemail as nurses were often not able to take a call-back, especially if it was some time after the initial query. The most popular support method mentioned was for a specialist nurse to be available to come and give one to one help when and where problems were encountered. A nurse was requested rather than an IT person because there was a feeling that a nurse would understand the context of the situation, what the nurse with the problem was trying to do and how they needed to do it. Nurses, especially but not only those who lacked confidence, did not feel that IT specialists 'talked their language' or saw their problems in the same way that they did.

The four biggest barriers to the use of computers that were identified were:

> The co-existence of paper-based systems, meaning that nurses did not have to engage with the computerised systems. This was seen as leading to computerised systems being incomplete and therefore promoting the use of paper-based systems.
> Systems being slow and not user friendly so that using the computer took longer than doing the same task did (or had done) in a paper-based system. Linked with this was a distrust of computers with the fear that they would increase workload by making tasks that were previously done by administrative staff part of the nurse's workload.
> Lack of support when and where it was needed. Nurses did not see waiting for help as being

acceptable when a problem was stopping them doing work that they needed to do.

Computers not being available where and when they were needed. A culture of using computers not being seen as being as important as giving patient case was often mentioned. Nurses keen to engage would like to have computers available at the bedside (or consultation room) so that they become part of care giving rather than part of a separate administrative workload.

Nurses tended to focus more on using systems than they did on accessing information to support care. Often there was a lack of awareness of what was available which would partly explain this; however, it is also likely to be attributable to a culture where spending time on a computer is not seen as being as valuable an activity as spending time with a patient, irrespective of what is actually being done in either case.

Student nurses had two priorities. One was developing the skills and knowledge they needed to be able to understand and use the available equipment and programmes effectively. In New Zealand I found that nursing informatics was embedded in pre-registration nursing curricula, basic IT skills however were not. Students who had poor skills, or low levels of confidence in their skills, wanted basic skills to be included as well. In England nursing informatics is not as well embedded, although programmes may include some basic IT skills. Nursing informatics expertise has been found to be lacking in UK course teams (Brittain and Norris, 2000; Murphy et al., 2004).

The second priority of students was to be encouraged to use computers in practice. Many students in my doctoral study (Bond, 2006a) reported that their mentors and other qualified staff that they worked with in practice settings had negative attitudes towards computers, poor skills and knowledge about what could be done with the computers available, and offered little support or encouragement to the student.

Two studies undertaken on behalf of the NHS Information Authority (NHSIA, 2004) found that informatics needed to be more fully integrated into both pre and post registration education. Both education and practice were seen as having a negative view of the relevance of informatics and IT within pre-registration programmes.

Three main types of nurses emerged from the information collected.

- *The Engagers. Nurses who used computers quite extensively*: As well as using the systems that they were required to use they also mentioned using computers to access research and library resources to support evidenced-based care. One nurse commented that she would not want to see nursing without good computer systems to support it. This group were more willing to tolerate imperfect systems and to see ways that they could be improved.
- *The Worried Willing. Nurses who would be willing to use computers, but felt that they lacked the skills to use systems confidently*: One nurse was finding that patients and families were using the internet for information and felt that they expected her to be competent as well. She considered that education programmes should be including this so that newly qualified nurses had these skills from the outset, and that courses should be available for qualified staff to catch up. This group struggled with imperfect systems and wanted access to help and support.
- *The Resisters. Nurses who did not want to use computers*: The comments from nurses in this group included that paperwork was easier before computers, and that with new computerised systems nurses were having to do work that ward clerks did previously. These nurses tended to see computers as taking nurses away from patient care. This group felt that poor systems justified their not using them.

3. Conclusions

Nurses do not only need to be able to use IT systems, they need to be able to work effectively with both information and technology. Nurses who are comfortable working with computers appear to be much more tolerant of failures in the systems and most importantly want to develop systems that meet their needs. The 'willing worried' nurses who feel that they lack skills but are willing to engage need support to do so that meets their needs. If this is achieved there is no reason to suppose that they will not develop into engagers.

Whatever the resisters may wish, computers are not going to disappear from healthcare, rather their use is going to increase. Changing the views of these nurses is a challenge for staff development. It is one that needs to be met however not only so that they can meet the needs of their patients, but also because these nurses can be the ones supporting students, or who provide the role models for students in practice.

Rather than taking nurses away from patients computers are becoming part of care giving. Nurses therefore cannot be allowed to start their careers as either the worried willing or as resisters. All newly qualified nurses should have the skills and knowledge to use information and technology effectively. The leaders in nurse education need to ensure that this is achieved.

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