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Nurses and Computers. An international perspective on nurses' requirements

Carol S. Bond

Institute of Health and Community Studies, Bournemouth University, England

This paper reports the findings from a Florence Nightingale Foundation Travel Scholarship undertaken by the author in the spring of 2006.

The aim of the visit was to explore nurses' attitudes towards, and experiences of, using computers in their practice, and the requirements that they have to encourage, promote and support them in using ICT.

Nurses were found to be using computers mainly for carrying out administrative tasks, such as updating records, rather than as information tools to support evidence based practice, or patient information needs. Nurses discussed the systems they used, the equipment provided, and their skills, or more often their lack of skills. The need for support was a frequent comment, most nurses feeling that it was essential that help was available at the point of need, and that it was provided by someone, preferably a nurse, who understood the work context.

Three groups of nurses were identified. Engagers; Worried Willing and Resisters. The report concludes that pre-registration education has a responsibility to seek to ensure that newly qualified nurses enter practice as engagers.

Keywords

Nursing Informatics, ICT, Attitudes towards computers. Education.

Introduction

In the UK the government made Information and Communication Technologies (ICT) a priority area when the National Health Service (NHS) published Information for Health in 1998[1] The strategy identified the need for computerisation of many support systems, including the introduction of nationally available electronic health records, networked services to support appointment systems, electronic handling of a wide range of diagnostic tests and results and a networked prescription service. Information for patients as well as professionals was a key element of the programme, the strategy stated:

'People need information about health and healthcare in many different circumstances. Patients want to know more about what is wrong with them and how they can best look after themselves. Carers or relatives or friends seek information on behalf of others'

Providing information to patients was seen as 'an integral part of the local clinical care process', it was however recognised that a culture change was necessary to achieve this aim.

The need for these developments to be managed nationally was identified, and they are currently being implemented through the National Programme for IT (NPfIT) and the Connecting for Health programme. This ambitious programme will see all patient administration, patient records (including nursing care records) and communication between professionals being computerised.

Nurses need to be engaged with these developments. At the very least they need to have the skills and knowledge to use the systems efficiently and safely. They need more than just the skills to use systems provided by the NHS. They also need to have the skills to support patients and their family/carers in meeting their information needs, and to have an understanding of the systems that will enable them to transfer their skills to new systems as they are developed.

Nurses however generally have poor ICT skills [2, 3, 4,] and are resistant to the introduction of ICT [5]. Heather Tierney-Moore, the nursing clinical lead for Connecting for Health has stated that

'The problem is that IT is a big turn-off for most nurses.... If things are branded as IT it's unlikely nurses will bother to pick them up, let alone engage with them,'

A National Audit Office report into the implementation of the National Programme [6] stressed that the lack of IT skills within the NHS were a risk to the timely implementation of the programme.

Just what skills are needed is not universally agreed. The NHS[7] has published competencies required of nurses, which includes a range of knowledge and skills, e.g. clinical informatics and information security, as well as basic IT skills. In spite of this the perception found in some studies[8, 9] is that all nurses need are basic IT skills.

One of the aims of Information for Health[1] was to establish, amongst 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.

Background to the Study

With the support of a Florence Nightingale Foundation Travel Scholarship a five week visit to New Zealand was undertaken to talk to nurses about their requirements both in what a computer system should provide, and what support they considered essential.

The study was undertaken in New Zealand for a variety of reasons. The New Zealand health system and culture is similar to that in the UK. The challenges faced, identified in the Health Information Strategy for New Zealand [10] are very similar challenges to the UK:

- an ageing population, which will increase the pressure on our health sector
- rising incidences of chronic diseases such as diabetes and cardiovascular disease
- the re-emergence of some diseases
- the emergence of new infectious diseases such as Severe Acute Respiratory Syndrome (SARS)
- new technologies that are making more effective treatments available, often at higher prices.

The IT systems underpinning the health care systems are also under review. The New Zealand strategy contains many of the same aims and initiatives as the UK. There are however subtle but important differences in focus. Whilst the UK is currently focusing on NPfIT commissioning and purchasing national computer and records system, New Zealand considers the need for local customisation of the systems to be an important feature of their strategy.

New Zealand is also putting information for clinicians and patients higher in the priorities than the NPfIT is. The initial launch of the New Zealand strategy was the 2001 WAVE - Working to add value through e-information, project which emphasised the information needs of clinicians. The 2005 Health Information Strategy for New Zealand[10] also makes the need for Consumers and their advocates to have access to information to make informed choices about health and independence a top priority.

New Zealand has the benefit of a lower profile of developments than the UK has. This meant that there was not the high level of critical news stories to influence nurses' reactions to IT developments and therefore there was clearly the potential for UK nursing to benefit from the experience of New Zealand nurses.

The Visit

Visits were made to specialist informatics groups, educational institutions and Health Board managed hospitals. These were on both New Zealand's North and South islands. In the time available for the visit it was not possible, nor was it the aim of the travel scholarship, to construct a rigorous structured research project. Several organisations hosted me for periods varying from a day to a week, and each visit reflected the local expertise and circumstances and therefore each was a unique experience. I am grateful to each for the programme that they put together for me. Because of the variety of locations visited the study tour was approached as 'conversations with nurses', rather than as a structured research project, although the underpinning ethical considerations were based on normal research ethics. The aim was to explore nurses' experiences and listen to their views and suggestions.

All participants were given a brief overview of the nature and purpose of the study tour, and permission was sought to take notes of conversations and in meetings. Anonymity was promised unless specific exceptions were agreed, therefore generally neither the location of the information gathered nor the name of participants has been identified.

The people who participated in the conversations fell into two main groups.

- Academics & specialists in health and nursing informatics
- General Nurses in practice.

Information from Nurses in Practice

I talked with approximately 50 qualified nurses about their computer use and wishes. Most qualified nurses were spoken to on a one to one basis, although small groups were used e.g. when speaking to staff in shared offices. Nurses came from a wide range of disciplines including community care, intensive care, day care, mental health, children's, acute medical and surgical areas. Nurses spoken to split into 2 distinct groups. Senior & specialist nurses (clinical specialists, nurse educators and clinical nurse leaders) and general nurses. I also met several larger groups of nurses in the invited lectures that I gave.

Initial questions were similar for each group, and conversations started with my asking about the nurse's experience of using computers, and the support they had received or felt that they needed. The conversations then developed according to the experiences of the nurses. Nurses generally mentioned using a combination of patient record systems and care planning systems. Fewer staff mentioned using computers to access evidence based information, or information for their patients.

One group of staff spoken to were educators in practice. These were employed by hospitals and did not have formalised links with higher education. This group were quite anti-computer. One thought that they belonged only in high dependency areas, but not in general wards. Several had the view that computers took nurses away from patients. On behalf of the staff they supported they also made the point that many nurses had poor IT skills, found online learning difficult, and that they had neither the computer access, nor the protected time, to use it.

The comments from nurses covered three main areas.

Systems in use

Often nurses did not feel that the systems in use meet their needs. One very heavily criticised problem was that there were often duplicate systems in use (especially paper and computerised systems) as systems did not have the ability to talk to each other. This was felt to be especially true for systems in different organisations (e.g. hospital and community) which made transferring patients time consuming. The need to enter the same data into different systems, or more than once, was also criticised.

In one location nurses had the choice of using a computerised patient care planning system, or a hard copy one. Most nurses, especially those who liked the computerised system, complained that they never knew where to look for information as not all the computerised records were printed out and put in the patient's file.

Some nurses, especially those who were uncertain about using computers or who found them complicated, felt that a familiar 'look and feel' would help them, the example given was if the navigation was similar to that in Microsoft programmes, as the nurse was familiar with them, but found the interface of professional systems to be cumbersome and difficult to learn.

Email was sometimes seen as a poor way of communicating; some general nurses felt that senior nurses expected them to use it too much. Many nurses suffered from a common problem for users of email systems, that of receiving too many irrelevant emails which had been copied unnecessarily to large numbers of people.

Nurses wanted systems that would save them time, eg send orders to pharmacy when a prescription is written, or identify equipment necessary for a care pathway and place the order automatically. Some nurses, especially those who were uncertain about using computers or who found them complicated, felt that a familiar 'look and feel' would help them.

Having to remember several passwords, all with a different length and expiry date was seen as a big problem, and as leading to writing them down or sharing other peoples logins rather than people logging out after use.

Equipment

In order to use computerised systems nurses wanted greater availability of equipment. Senior nurses generally had access to their own computers, however ward staff had to share, and in some locations nurses did not consider that they could access computers when they needed to. Nurses did not generally want more desk based systems. Computers that could be used at the bedside, or wherever else patients were, were in demand.

Skills

Some nurses felt that they did not have the skills, or the confidence, to use systems. This did not generally apply to senior nurses, or to nurses who had completed their training in the past couple of years.

Most nurses felt that more support needed to be provided. Training was available, and most nurses who mentioned skills did appear to know how to access training or the helpdesk in their organisation. The support available however did not meet the nurses' requirements, as it was not available at the point of need, or delivered by other nurses.

Nurses who considered themselves to have poor skills did not generally feel comfortable with worksheets or other written guidance. Computer based training materials, especially if nurses had to use them in their own time, were also unpopular.

Most nurses who mentioned the need for support wanted something available that fitted with their work patterns (e.g. on the ward) and that addressed immediate problems when they arose.

Information from health / nursing informatics experts

Nursing Informatics experts agreed that within New Zealand, as with England, nurses had a wide range of IT skills and informatics knowledge, but that many nurses lacked the skills and knowledge to fully engage with the informatics agenda.

Unsurprisingly the majority of experts saw the use of computerised systems as being beneficial to nursing. They were more aware of the potential for quality improvement, for example systems being used to provide reports on tests that were ordered but not carried out so nurses can check if anything is outstanding and what action is needed (although this was also seen as being a new nursing task that took nursing time). There was a strong view that new systems should promote change (quality enhancement) not just computerise the current way of doing things.

This group could see also scope for a range of improvements to the available computer systems. Practicality was high on the list. Equipment was seen as needing to be small but lightweight to make it portable around a ward. Wireless networking was considered a good way of enabling portability. Speed of the equipment and programmes was also important, the systems needing to be able to work at the same speed as the nurse.

The need for systems to support communication across the health sector was considered essential for sharing information about patients and to ensure that notes etc. would always be available when and where needed.

Nursing informatics experts felt strongly that managers also needed to be knowledgeable about IT. Support from the top was considered to be particularly important for the work culture to be one where computer use is seen as being a part of care giving.

Decision support systems were wanted, but with the proviso that they must be linked to up-to-date evidence, and have the ability to be updated rapidly.

What Nurses Want

Generally nurses wanted computer systems that would make their lives easier. This included saving them time by automating tasks such as stock ordering. One essential element to meet this need was that systems need to talk to each other so that information from all points of care were included, and that data entry was minimised.

Offering good quality decision support and access to evidence based information was not as high a priority for many practice based nurses, although it was considered a higher priority by the nursing informatics experts. Those who did want it, wanted it to be available when and where they needed it, and for it to regularly updated.

A very important requirement was that computers needed to be available wherever the nurse and patient were. 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 pressures to find a free computer at the end of shift to update records. Point of care data entry not only meets nurses' requirements but will also 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 were 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 wanted this simplified. The ideal solution was seen as each nurse having just one password that would give entry to all systems.

Support was a frequently mentioned need. Nurses wanted help available that fitted with their work patterns (e.g. on the ward) and that addressed immediate problems when they arose. 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. Nor was the ability to contact a helpdesk that would get back to them, often a couple of days after their enquiry, seen as meeting their needs. 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, and what the nurse was trying to do and how they needed to do it. Nurses, especially those who lacked confidence, did not feel that IT specialists 'talked their language' or saw their problems in the same way that they did. This supports a study carried out in 2003 with rural New Zealand health professionals, including practice nurses, by Janes at al [11]. This study found that many respondents reported having poor IT skills. These professionals reported that learning methods that included some social interaction were more popular than computer based learning.

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

- The co-existence of paper based systems, meaning that nurses didn't 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 care was often mentioned. Nurses keen to engage would like to have computers available at the bedside (or consultation) 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. Part of this may just be a lack of awareness of what is available, but part 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.

A thematic analysis of comments about attitudes to computers produced three distinct groups:

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 from the UK who fell into this group felt that New Zealand systems offered more flexibility than the systems experienced in the UK. Another commented that she wouldn't 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 were willing, but felt that they lacked the skills to use systems confidently. One nurse, who was finding that patients and families were using the Internet for information 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 programmes should be available for qualified staff to catch up. This group struggled with imperfect systems and wanted access to help and support that met their needs.

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 also tended to see computers as taking nurses away from patient care. This group felt that poor systems justified their not using them.

Before my visit to New Zealand a project was undertaken with an English hospital looking at nurses use of the hospital intranet. Nurses who participated in that study expressed very similar comments to the New Zealand nurses.

Conclusions

Many of the essential elements of systems identified by New Zealand nurses are already key elements of the UK National Programme for IT. These include the 'do once and share' concept, and having one integrated health record, available to all healthcare providers. The National Library for Health is also part of the National Programme, giving nurses access to reliable up to date information to support research and evidence based care.

There are however aspects of implementation that may not currently be present. Computing at the point of care was an important requirement. Achieving this may contribute to nurses seeing computers as being part of nursing care rather than being seen as a task that takes them away from patients.

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 want support that meets their needs. If this is met there is clearly the potential to shift these nurses into 'engagers'. There is also a risk that if their needs are not addressed they will join the resisters.

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. Including informatics targets in appraisal will be important to achieve this. The aim however must be to stop nurses starting their careers as resisters and seek to ensure, through effective pre-registration education programmes, that newly qualified nurses enter practice as engagers.

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Address for correspondence

Dr Carol S Bond. IHCS, Bournemouth University. B103, Bournemouth House, Christchurch Road, Bournemouth, England. BH1 3LH. Telephone +44 (0) 1202 504356. Email cbond@bournemouth.ac.uk