

## Nursing Informatics; is IT for All Nurses?

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**Abstract.** Given the definition of nursing informatics it should be a core activity for all nurses, and seen as a tool to support high quality care giving. Three studies reported in this paper show that this is not the case. Qualified nurses are perceived as having poor skills and knowledge, and as being resistant to IT as it takes them away from patient care. Educators share this lack of knowledge, and neither academics nor students consider nursing informatics to be a clinical skill. In order to use computers while on placement students were found to need confidence in their skills, and to feel that the use of computers was encouraged. Socialisation into the profession is an important part of nurse education, and currently students are being socialised into a professional role where they are not encouraged to use computers, or to consider their use to be a key nursing task. If nursing informatics is to truly become a way of improving patient care this needs to be changed, and pre-registration education is a key place to start to bring this change about.

**Keywords.** Nursing Informatics, Informatics Knowledge, pre-registration education, computers, attitudes.

### Introduction

It seems difficult to argue that nursing informatics should not be a part of the everyday work of all nurses. In the UK, Government policy put information technology (IT) firmly on the agenda a decade ago with the publication of Information for Health(1), a seminal publication which radically changed the information culture, or at least the desired information culture, in the National Health Service (NHS). The aims included:

- Ensuring that professional staff have access to up to date information on which to base their practice.
- Speeding up, and easing, access to services for patients
- Improving communication flows of essential patient information including creating a national electronic patient health record system
- Ensuring that patients and carers are informed about the NHS and best practice in relation to their condition

Crucially the NHS identified that in order to deliver this agenda it was necessary to develop a culture where informatics skills were considered as a key skill for all professionals, and integral in all stages of clinical education. At around the same time as the publication of Information for Health in the UK (op sit) The Nursing Informatics group of the International Medical Informatics Association (IMIA) published its definition of nursing informatics (2)

*'the integration of nursing, its information, and information management with information processing and communication technology, to support the health of people world wide.'*

Murray(3) may have summed the position up accurately when he asserted

*'Nursing informatics is, or should be, at the heart of nursing - all nurses make use of information every second of every day - so informatics is for all nurses'*

In spite of this nursing informatics remains poorly understood by many nurses. A study reported in 2004(4) that nurses were wary of using computers more than other healthcare staff groups, and made more negative comments about their use, e.g. 'I avoid using computers whenever I can' and 'I feel uncomfortable about using computers'. Several studies(5, 6 7) have found that nurses have poor IT skills. Two studies (5, 7) reached this conclusion through comparison with European Computer Driving Licence competencies, the other (6) considered nurses' use of research databases CINALH and MEDLINE.

Informatics skills enable nurses to access and understand a range of information that helps to identify and understand the evidence base that underpins practice. The need for nurses to have clinical competency is central requirement of the nursing profession. In the UK this is a requirement of the Nursing and Midwifery Council's Standards of proficiency for pre-registration nursing education (8) which requires all education programmes to include clinical instruction, which it defines as "working as part of a team .. in direct care with a healthy or sick individual ... to plan provide and assesses the total nursing care on the basis of their acquired knowledge and skills." The importance of knowledge underpinning skills was also recognised by student nurses in a study undertaken by Pfeil(9) who considered that background knowledge an essential part of skills.

This paper explores nurses' attitudes to nursing informatics, and IT, and explores the relationship that student and educators see between nursing informatics and clinical skills.

## **Background to the research**

This paper draws on three separate pieces of research, one carried out by each of the authors. Each study includes nursing informatics, however they are not related, by which we mean that each was carried out independently of the others, and each project had it's own aims and objectives. All three pieces of research were undertaken in the same University in the South of England. Each of these studies provides a different lens to view the integration of nursing informatics into the role of the nurse.

Study one was the only research explicitly about nursing informatics. This research(10) was a longitudinal study exploring student nurses' experiences of using computers. This research supports the assertion that nurses are not well prepared for the nursing informatics agenda. The other two studies were looking at the use of clinical skills facilities for pre-registration nursing students from the perspective of staff (study 2) and students (study 3). Study 2(11) researched nurse educators' views on the use of practice skills centres, and what should be taught there. Study 3(12) explored students' views of how the use of practice skills centres had influenced their move into placement. These two papers help to start exploring the relationship, or lack of a relationship.

## **Methods**

*Study 1.* This research was a mixed methods, longitudinal study following a cohort of nursing students through their programme. This paper focuses on the final stage of the research, undertaken in the students' final year (2005). Questionnaires were completed by 129 students, these used a mixture of open and closed questions to explore students experience of computer use on practice placement.

Group interviews were also held with qualified staff in placement locations. In total 15 qualified nurses participated in three group interviews. These included senior staff as well as the nurses that the students would work alongside on their placements. Work areas included acute care, community and nursing homes. The interviews explored the nurses' perceptions of the use of computers in practice, and their own skills and knowledge.

*Study 2.*: This study, carried out in 2007, explored nurse educators views of what should be taught in a clinical skills facility by the use of a questionnaire based survey of nurse educators at a UK University. Questionnaires were distributed to 69 staff identified as being involved with the pre-registration nursing programme, and yielded 41 completed questionnaires, a 59% return rate. 66% identified themselves as Senior Lecturers. Senior staff (which included a broad grouping of Dean, Deputy and Associate Deans and Programmes Leaders to ensure that no respondents could be identified) accounted for 19%. The remaining 15% were clinical skills and other lab demonstrators. 66% of respondents had been in nurse education for over 5 years.

*Study 3.*: The final study was a mixed methods review also carried out in 2007, looking at first year pre-registration student nurses experience of using a clinical skills facility, and how this aided their move to practicing in the clinical environment. This study commenced with qualitative interviews with groups of students at three different clinical skills facilities managed by one UK University. The information shared in the group interviews was then used to develop a questionnaire for distribution to the whole cohort of students.

## Results

Study 1(10) confirmed the assertion of previous authors(4,5,6) that nurses have poor IT skills. In this study qualified staff self reported poor IT skills and little knowledge about IT systems. The students also reported that the nurses they worked with had poor skills and knowledge. Computers were available in clinical environments, but were mainly used for administrative tasks where their use was essential. Students tended to feel that anything to do with the computer was a low priority. Comments from qualified staff included:

*'Something about - on a busy surgical ward – sitting (at a computer), you feel guilty'*

*'patient care giving is a very direct physical contact thing isn't it, getting on a computer (is) a separate issue'*

*'they don't see it as part of clinical nursing'*

*"time on the computer is just time away from the patient, and I'm always going to put them first"*

Student nurses were asked about their self assessment of their skills, and the majority felt that they did have the necessary skills to use computer systems in their placements. This was not validated externally but the students' confidence in their abilities was found to be an influencing factor in their actual use of computers while on placement.

Two factors were found to be necessary for students to engage with computers. One was confidence in their skills. The other was feeling encouraged to use computers. Feeling encouraged was the more important factor. Students who did not think they had the skills reported low use of computers. Student who thought they did have the necessary skills, but who did not feel encouraged to use computers also reported low

use. Only students who felt that they had both skills and encouragements reported high use of computers. Unfortunately only around one third of students in the study felt that their mentors, and the placement culture, encouraged them to engage with computers whilst on the placement.

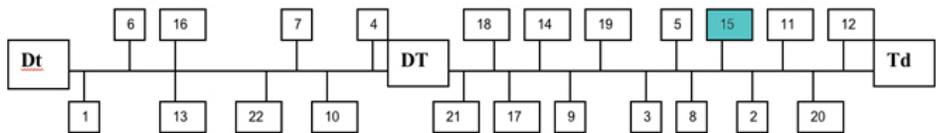
Study 2(11) explored nurse lecturers’ views on what should be taught in clinical skills facilities. Participants were offered a range of possible subjects and asked where they thought them to be best taught. There was uncertainty about where health informatics was best taught. 54% of respondents thought it was best done in a teaching room, one thought a computer lab, 20% thought both teaching room and skills lab and only 17% opted for the skills lab as being the best place to teach nursing informatics. Two people did not answer the question, and used the ‘additional comments’ box to explain that they did not know what health informatics was.

These results were used to develop a model of Doing and Theory. Doing (D) represents a practical skill, however acknowledging that in addition to the execution of the skill knowledge of underpinning theory is necessary in order to be able to undertake the skill competently it is represented as D(t) to acknowledge both components. Thinking (T) is at the opposite pole of the continuum, reflecting a strong theoretical base dominant over the doing component (fig 1).



Figure 1. Doing – Thinking continuum

The relative position of a range of topics, showing where respondents considered that health informatics lie is shown in figure 2. The position on the scale, rather than the reference number is the indicator of where participants thought health informatics sits on **this continuum**.



- |                          |                            |                          |
|--------------------------|----------------------------|--------------------------|
| 1. Injection Technique   | 6. Pulse Palpation         | 16. Catheterisation      |
| 13. Aseptic Technique    | 22. Blood Pressure         | 7. Early warning systems |
| 10. Drug administration  | 4. Communication skills    | 21. Professionalism      |
| 18. Anatomy & Physiology | 17. Holism                 | 14. Risk assessment      |
| 3. Numeracy              | 5. Mentoring skills        | 8. Health Promotion      |
| 15. Health Informatics   | 2. Healthcare ethics & law | 11. Nursing models       |
| 20. Psychology           | 12. Sociology              |                          |

Figure 2. Health Informatics position on the continuum.

This suggests that the nurse lecturers in this study see health informatics as being mainly a theoretical rather than a clinical subject.

This finding is similar to that found in study 3(12) when students were asked about the nature of health informatics. In this study students were given a list of topics and asked which they considered to be clinical skills. As can be seen from the results (fig 3) Health informatics was not perceived by many students to be a clinical skill.

<i>% agreeing</i>	<i>Clinical' Skill</i>	<i>% agreeing</i>	<i>Clinical' Skill</i>
98%	Aseptic technique	97%	Basic life support
92%	Moving & handling	87%	Care of the dying patient
79%	Medicine management	73%	Risk assessment
54%	Care planning	54%	Health promotion
47%	Communication skills	45%	Record keeping
34%	Empathy	34%	Health informatics

*Figure 3. Clinical Skills*

## **Discussion**

Neither nursing lecturers, nor students consider health informatics to be a clinical skill. It is possible that the lecturers influenced the students as both pieces of research were undertaken in the same organisation. That however would not account for the qualified staff in study 1 having similar views. The quotes from qualified staff show that some nurses see computers as detracting from patient care rather than contributing to it.

The image of 'the caring nurse' is one that is valued by many nurses, indeed part of the attraction of entering the profession, according to Beck(13), is the desire to indulge in human contact and a collective concern for the well being of others.

Nurses' professional identity is a central part of 'being a nurse', Schein(14) in discussing professional identity considered that a relatively stable and enduring group of attributes, beliefs, values, motives and experiences influence individuals' views of the role of the professional nurses. Maben(15) found that although newly qualified nurses wanted to deliver patient centred care and empower their patients they found themselves working in environments that did not support this. The unwritten rules including an expectation that new nurses would 'fit in' and 'not rock the boat' were what dictated the culture. Roles such as information giving were not highly valued in this type of culture.

Students are socialised into the profession through their education, both in the academic setting, and the clinical setting. If neither promote nursing informatics as an integral part of the role of the nurse it can be little surprise that students qualify with the same belief set. Unfortunately they then become the practice, and possibly later the educational, role models who are socialising new students into the role of the nurse, and this cycle is perpetuated. Pre-registration education therefore is a key place to start to address this problem.

## Conclusion

The studies reported here suggest that nurses do not see nursing informatics as being part of clinical skills. It doesn't however explain why this perception exists. More research is needed to explore if the resistance to informatics arises from a perception that it is not part of a nurse's caring role, if it is a lack of understanding about what it is and how it can help nurses to give high quality care, or a lack of skills to actually use the equipment and programmes available. Whichever it is, if nurses are to benefit from computers in the workplace they need to embrace nursing informatics as a core nursing skill, that can improve patient care.

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