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# Nursing and e-Health

**Author:**

**Paula M Procter**

*Reader in Informatics*

*and Telematics in Nursing*

*Sheffield Hallam University, UK*

**In spite of being at the forefront of healthcare IT, the nursing profession has both abandoned and been overlooked by the former. Closer involvement is essential to make healthcare IT meaningful for practitioners and other professionals and above all, patients. The first steps towards this should be taken collectively by nurses themselves.**

#### Definitions

The World Health Organisation (WHO) defines e-health as "… the use of information and communication technologies (ICT) for health to, for example, treat patients, pursue research, educate students, track diseases and monitor public health." (WHO, 2010) Nursing is more difficult to define. According to the International Council for Nursing (ICN, 2010), “Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings.

Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles.”

Certainly, this definition gives an indication of the diverse range of nursing roles, and it is such diversity that causes some difficulties in determining collectivity amongst nurses. However, this issue is for later discussion.

Were Florence Nightingale alive today she would be a champion for e-health from a nursing perspective. It was she who invented the pie chart to demonstrate more clearly the issues of disease and public health in the Crimea.

#### Nursing: A Healthcare IT Early Bird …

Many working in the health industry consider the development of computer technology to support the delivery and evaluation of healthcare to be a very recent issue. However, this is far from the truth. Indeed, in the past, it was nursing which led the way in the clinical, managerial and educational use of computer technology.

In 1982, the first World Congress for Nursing and Information and Communications Technology was held in London, and attracted delegates from all over the world. It was this conference that resulted in the International Medical Informatics Association (IMIA) opening a Working Group specifically for nursing. This working group continues to be at the forefront of nursing informatics today.

At the 1982 conference, one of the key speakers observed: “Nursing is too big and too important to be left free-wheeling within the system [Health Services Computing] and the more effectively nurses grasp these systems, the more effectively will they be able to participate knowledgeably in the managerial and planning discussions.”

#### … But Bypassed in Years Since

However, nursing has since been left outside both the key discussions and system development. This is regrettable for the profession, and for patient care too. My purpose is not to dwell on the past, but to consider why the current position of nursing in healthcare computer systems

development is in the position it is and how this might be changed.

In my role as a teacher, I often use a particular paper from the 1982 conference by Constance M.Berg entitled ‘The Importance of Nurses’ Input for the Selection of Computerized Systems’ without informing the students of the publication date. We use this paper as a discussion trigger. Most students believe that it is a recent article in its description of nursing, and are shocked when they hear it is 28 years old.

#### Sadly We did Not Follow Berg’s Call to Make the Right Choice:

“The choice is there and the time to make the choice is now. The decision must be whether to act traditionally and have change thrust upon the profession [nursing] from the outside or to anticipate this revolution in nursing practice, familiarise nurses with it, and prepare them to take an active part in the introduction of computers into the nursing community.”

In general, nursing has covered its head and hoped that this new development would go away. We are now paying for the take up of this choice.

#### History Repeating Itself

Today, history seems to be repeating itself, for it was in the early 1960s that the WHO arranged international seminars on automatic data processing in healthcare; however, nurses were not invited until 1971.

At present, the voice of the nursing profession is minimal, if heard at all, across the entire spectrum of major system developments. Indeed, in the United States, many of those titled ‘nurse informaticians’ are gathering data and preparing statistical reports on care provision performance for marketing purposes – not quite what many of us early pioneers had in mind.

Over the past ten years, as we entered the 21st Century, there has been a paucity in champions for the nursing agenda in `ehealth. Even for the preparation of the next generation of nurs es, the number of undergraduate curricula with modules on ehealth can be counted on one hand.

#### Structural Change in Profession

Part of the reason for the ‘disappearance’ of the nursing voice in e-health may well be the massive and routine changes in nursing and healthcare provision over the past ten to twenty years. Job titles have changed. Job roles have changed. The way healthcare is delivered has, and continues to, change. Meanwhile, professional dilution has occurred and nursing has perhaps been the greatest net loss group.

#### Defining Nurse Roles

There are around 600,000 nurses and midwives registered with the Nursing & Midwifery Council (NMC) in the United Kingdom, a large workforce divided by the roles performed and the changes in operational and organisational management. Nursing tends to be identified not as a cost against particular patient care managed resource groups. Instead, costs tend to be included in the basic room and board for patients in secondary health care. This has aided in our lack of being called to account during periods of high resource measurement.

#### The Uniqueness of Nursing in the IT/Information Context

The focus in recent years has been on meeting government targets and reducing the costs of care. However, were an information map to be undertaken, it would become obvious that there is a unique function which is nursing.

Its uniqueness lies in the fact that nurses are the only healthcare professionals to interact with patients, their relatives and friends, on a 24 hour, seven days a week basis. As a result, any true system dealing with the delivery and evaluation of healthcare should start with nursing and build systems to support care delivery from that point.

In reality, implemented systems usually start with either finance, personnel or patient administration. This is clearly the wrong way round. Examples of areas where nurses have been at the forefront of development include the use of tele-nursing such as NHS Direct. However, even this exciting development has evolved into algorithm-following rather than an exploration of the full richness and diversity that it nursing.

#### A Serious Gap in Data Aggregation

The academic study of information systems suggests that all systems should start with Transaction Processing, where the basic data element is recorded as part of a required activity. After this, it is used in Management Information Systems to allow for aggregation and initial reporting in the form of a Decision Support System. In the latter, the basic data continues to be used but at this point, models can be included to test ‘What If…?’

scenarios to permit informed management decisions.

It seems as though the basic data need gets ignored somewhere along the line. If the original data is not being collected as a part of the process that is nursing documentation, then how can we be assured that any aggregation of data is going to be correct?

Coding data is frequently entered by second and third parties, rather than collected as a result of a required activity. This causes additional workload to 'feed' the computer system. Such overhead and its risks can clearly be noted in the collection of coding information. When administrative staff input the information working from clinical notes, the possibility for inaccurate transmission, let alone the lack of professional clinical input, is immense.

#### The Need for a Louder Voice of Nursing

Given major ongoing investments in healthcare IT and communications technology in Britain, not least in terms of the National Programme for Information Technology (NPfIT), it is a pity that the voice of nursing has not been louder.

No doubt there have been champions who have tried to conjure up support from within the nursing profession along with organisations like the British Computer Society Health – Nursing Specialist Group, the Royal College of Nursing – Information in Nursing Group, the NHS Connecting for Health Nursing National Clinical Leads. However, the numbers remain very low and the groundswell remains dormant while it should be at a tsunami alert level in order to ensure that systems implemented support safe practice for patients in our care.

#### New Technologies: From Process to Wisdom

A basic continuum may help in understanding the philosophy of professional involvement with new technologies.

The first step is a process where a series of actions, changes, or functions bring about a result – simple activity.The next is knowledge management, where a range of practices are used by organisations to identify, create, represent, and distribute knowledge for reuse, awareness and learning.

The third step, knowledge ontology, could be described as that traditionally listed within the branch of philosophy known as metaphysics; ontology deals with questions concerning what entities exist or can be said to exist, and how such entities can be grouped, related within a hierarchy, and subdivided according to similarities and differences, along the lines of care classification. This works in theory, but rarely in nursing clinical practice. Finally, we achieve wisdom – an ideal celebrated since antiquity as the knowledge needed to live a good life. In general, scholars have emphasised various combinations of the following: knowledge, understanding, experience, discretion, and intuitive understanding, along with a capacity to apply these qualities well towards finding solutions to problems.

In general, nursing has embraced new technologies where they have a direct positive value in patient care. However, this could be described as the care process; an advanced practitioner has raised their knowledge and practice to wisdom level. According to the American Nurses Association: Nursing informatics (NI) integrates nursing science, computer and information science, and cognitive science to manage, communicate, and expand the data, information, knowledge, and wisdom of nursing practice.

#### Information More Than Transcription

If nurses simply enter data into a form on a computer screen, we have only 'mechanised' health care. All that is achieved is the transcription of handwritten forms on to computer screens, without considering how the information is actually used.

There is no doubt that the transfer of forms onto screens is easy. In some types of organisations such as banking or warehouse distribution, it is also more than sufficient for implementation and use. The reason: paper documentation was extremely functional before the movement to computer use and/or system update.

Record keeping is one of the key requirements of nursing and is within the UK's Nursing & Midwifery Council's Code: Standards of conduct, performance and ethics for nurses and midwives. The recent In:Context project (http://incontext.intrica. net), where some 200 de-identified full patient case notes were obtained, made it clear that nursing documentation was poor.

Indeed, one reason why the nursing profession is reluctant to move forward in terms of information and communications technology implementation may be the fact that a poor manual system will become a poor or inappropriately-used technical system.

**Barriers to Nursing and Healthcare IT**

The barriers to nursing and informatics include the fact that it is seen as a cost rather than an investment; the applications are tactical rather than strategic; the impact is limited to the few showing interest rather than creating a pervasive approach; the view of IT as simply computing rather than considering multiple technologies; and finally, management tending towards delegation rather than leadership.

To overcome these barriers it is widely acknowledged that nurses need to be involved in the design, development, implementation and evaluation of clinical computer systems. Sadly this has not happened. So where do we go now?

**The Future**

There is a choice, but this is now much more severe than in 1982: either to continue to shy away from getting involved in the development, implementation and evaluation of healthcare IT or e-health systems and let nursing quietly disappear or, to get involved through building our knowledge base and working towards adding informatics wisdom to our professional knowledge. The latter would let nurses:

- understand and improve, influence and use new technologies and informatics, including remote care;
- find the most reliable sources of information to support evidence-based practice;
- guide patients through publicly available information sources;
- incorporate ICT into patient consultations;
- manage the nurse patient relationship when the nurse is not physically in the same place as the patient;
- perform a quick and accurate data entry at the point of care;
- understand the legal and ethical issues associated with
- managing and sharing patient information;
- extract data to support decisions and monitor the outcomes of practice;
- understand the role of technology in the delivery and organisation of care, and
- train other users such as patients and carers how to use relevant ICTs.

The final resolution around nurses and e-health will depend upon nursing itself. This is the 21st century and there are ever-more complex technologies just around the next corner, among them nanotechnology, biotechnology, RFID and remote home monitoring. These require to be used correctly for our patients' safety and care.

I can only hope, after working within the domain of ICT and nursing for the past thirty years or so, that nursing en masse will finally make the right choice.

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