IT for clinical practice in Scotland - friend or foe?

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Summary

Information is considered to be a key resource of the NHS and yet many argue that at ward level the information technology resources do not meet the demand of health care professionals. This article considers whether nursing information systems have yet to come of age and suggests that the onus is on the profession to foster a positive attitude towards computers.

15 references

A recent literature review by one of the authors identified that only limited research-based information is available on the use of information technology (IT) by nurses. To develop as a profession it is essential that all the information resources available to nurses are used and evaluated.

Ward Information Systems

It is expected that a good Ward Nursing Information System (WNIS) should support:

- care planning;
- clinical audit;
- staffing and rostering duties
- workload estimation/ patient costing.

Ward Nursing Information Systems have been used in Scotland since 1973. These systems have the facility to provide the components listed above. Used efficiently such an integrated system should promote and develop a quality service. This is achieved by reducing the time spent on routine administration such as ordering stores, staff Fostering, budgeting, and report writing. The time can then be devoted to nursing activities which will enhance patient care. This view is supported by the SAGNIS (Strategic Advisory Group on Nurse Information Systems) strategic statement.

The development of nursing informatics is necessary to meet the ever increasing information needs of purchasers and providers. But preparatory work must be done to ensure that the right system is developed and used. It is also doubtful that there is a clear understanding, even amongst nurses, as to the concept of nursing information. Work to classify nursing information and terminology has started.
The work of the nursing professions is varied and difficult to quantify: consider the work of a nurse in an acute medical ward compared with that in an accident and emergency ward, or a midwife in a labour ward. The need to cope with such diversity makes the development of a generic WNIS difficult. It must be recognised that each ward is different so that the software specialists tailor the WNIS to meet the specific needs. Increasingly NHS hospital Trusts are employing such specialists to work with the relevant health professionals to develop systems which meet identified needs and for which the staff feel ownership. Many Trusts have appointed a nurse as project leader/co-ordinator for the development of the WNIS with positive outcomes in terms of system design and acceptance.

Planning the system

Development of a system involves revisiting how each nurse spends his or her day, identifying the non-nursing duties and considering how these may be minimised, and the relevant ward data dealt with more efficiently. Ward management information systems, designed to enable better communication amongst staff and allow ease of access to relevant information by specified people, are currently being investigated. A prototype, generic computer assisted care plan demonstration package, 'AGNIS', allows nurses to see one version of a system and then consider its applicability in their work environment.5

Implementation

With the increasing use of computer technology in the wards, there are fears that patient care will be affected. In 1993 Grinnell argued that computers reduce professional care to a series of price tagged lists.' However, in the United States the implementation of ward based computers appears to have been successful.7

Barrett suggests that computerised nursing systems make fundamental assumptions about how nursing is practised8 Now that computer technology is being used increasingly at ward level, practitioners and educators must ensure that they are clear about how nursing is practised and ensure that the computerised systems reflect this. Rundell argues that many of the technological developments have been piece-meal and, that there is a credibility gap between the strategic plans of the NHS and the perceptions of staff at the patient's side.9 He says that many of these clinical information systems will fail as they have little of the soul and insight of the nurse practitioner.

In order for such innovations to be implemented satisfactorily staff education must be relevant. It is equally important to involve them in the development and/or evaluation of the software.10 Enabling staff to have some input into the programme gives them a feeling of ownership and helps to ensure that the system will meet all the identified needs. The nursing professions have all experienced examples of changes without consultation with staff, these include wards built with the doors too narrow to allow in a bed, and changing wards from the Nightingale style to four-bedded rooms with no consideration given to the staffing implications.

Potential users must be given time and tuition in using the software, then encouraged to evaluate it. Successful implementation and use is more likely if staff understand the system. If the nursing staff are well motivated and are allowed to see the benefits
of the computer as a tool to help care, management and provide educational support, then they are far more likely to accept this change.

**Computerised care plans**

In 1992 DiJerome found that the use of a computer care plan enhanced the health care team's ability to individualise care, and that the nurse case management system was a tool for providing comprehensive, co-ordinated and cost effective patient care. It should help nurses become more adept at meeting today's health care challenges. Nurses spend a large amount of their working day dealing with all types of information such as clinical records, haematology results, ward management material and so on. But how efficiently do nurses deal with this material and what proportion of their time is spent collecting and retrieving information? Processing information is important but it is only one of the nurse's duties. In order to maintain and, if relevant, improve standards of patient care nurses must use their time more appropriately, computerised care systems should contribute to this.

**Education**

The Project 2000 nursing courses and the 1992 pre-registration midwifery programme are founded on the view that we must prepare nurses for the future. Nurses will have at least two reasons for being computer literate: firstly using a computer will be part of their everyday professional life, secondly it is likely that they will embark on further studies and research which will require the use of computers as information seeking tools and for word-processing and data analysis.

Computer literacy is essential for nurse teachers, however, many lack the necessary computer skills and so are unable to meet this new demand. Thomas and colleagues explain computer literacy as a rank ordered list of competencies with the top three being fundamentals of data processing, a knowledge of the importance of nursing information systems and an overview of health care applications. But lack of such skills amongst nurse teachers is not an acceptable excuse for inadequate IT education of student nurses and midwives. The onus is firmly on the nurse teachers to upgrade their skills, become computer literate and integrate IT into the curriculum so that all students see its relevance and apply it in clinical practice.

Guidelines are being identified that will enable managers and educators to help nurses get to grips with implementing the SAGNIS nursing strategy: collecting, analysing, interpreting and using data and also to encourage them to use technology and information. For many, a way of introducing computers to the staff has been to introduce care planning, Fostering and other management tools to the ward as these are areas where nurses can see the practical relevance of the computer. The introduction of computers into the wards has mainly been service led, with the majority of the training being brought in as part of the package price. This provided a generic training for all, irrespective of background or needs.

Computer literacy goes beyond a basic knowledge of software on the ward. Any manager who wants to successfully introduce computer based information systems must also provide the necessary training and support for all staff. This may take the form of training in basic IT skills, followed by specific software training and should be individualised to each person's needs. Most managers having spent thousands of pounds on computers and software seem loathe to invest any money in education.
Yet the introduction of a new computer system brings with it a change in culture. It pays to invest in education for the staff and this can be provided in a number of ways. Research by Slaney and Hitchens in 1993 indicated that a cascade system training staff was not appropriate, as identifying the staff to take on this role was difficult and as the cascade progressed the quality of the training would be diluted. As a result they opted for a four-tier system of training. Courses were delivered by the project nurses to all new staff and to staff in wards awaiting implementation of the system. The first tier of training addressed the change of culture. In the second tier, all staff were provided with a basic computer awareness programme. Thirdly, senior staff received a one day tailored course on change management. The fourth tier involved training in the individual modules of the Nurse Manager System, which corresponded to staff grade. The end product proved to be quite successful, in that the quality and outcome of the education was improved and a system was introduced which could provide real benefits to nurses and to patient care.

Nursing terminology

Computerisation has forced the health professions to look at the language they use to define terms. Willis suggests that, in order for health professionals to realise the benefits of the Information Management and Technology Strategy for evaluating health care, such definitions must be computer compatible and nationally agreed. At a local level, nurses must be supported educationally and professionally and they must feel they have ownership of the strategy.

Introducing WNIS

The introduction of information technology to the ward areas in Scotland has been a slow process since 1973. But the use of a computer to retain patient case files and help with secretarial work has paved the way for computerised care plans and ward management information systems. Many nurses are not familiar with the technology and do not have the necessary IT skills, so they feel anxious when the subject of computers or IT is raised. This anxiety sets up a barrier and a resistance to change. During each step of the nursing process nurses are expected to document the activities and results for each individual patient on at least a per shift basis. There are many care plan programs available, depending on the needs of the ward and the hardware. It is argued that the very nature of a nursing care plan does not lend itself to computerisation. It may be that we must revisit the care plans and see how they can be amended to suit the computer and the nurses.

Evaluation

Computers have a variety of uses in the clinical setting, the use of bedside terminals to record patient data has also been discussed. It seems that, when given a choice, the nurses did not use the bedside terminals. Why is this the case? One suggested reason for this was that a centralised nursing station existed and as this was the 'hub' of the ward the nurses preferred to work there. The nurses seemed to follow an established routine for where patient data was recorded.

The significance of this is worth consideration because, as with any change, it is important to consider the factors that influence where and how we operate. It could be that there were other reasons for the nurses' preferred site for recording data. Was there less risk of distraction? Were the nurses intimidated by using the bedside
terminal? The nurses’ choice, to record the data in the office terminal, may have had more to do with routine, established patterns and confidence levels in using a computer than the office being the hub of the ward. Nurses are by nature conservative. With the increasing use of computer technology the time has come to consider critically why we act in the way we do and the influence our actions and customs have on patient care. Lack of success in the implementation and use of ward management information systems has been as much to do with the quality of the systems and change management, as with lack of training and support. There is an obvious lack of evaluation of ward information systems not only in Scotland but in the UK in general, this may in part be due to the highly commercial nature of these packages.

The way forward

We know that problems occurred with the implementation of early nursing information systems, many staff felt uneasy and lacked the necessary computer skills. Most systems were introduced without sufficient training and backup. Some of the systems were cumbersome, staff found them time consuming and failed to see the potential benefits. Once these systems were up and running little time, if any, was given to evaluating their use.

However, all is not doom and gloom, moves are afoot to introduce systems which reflect the work patterns of nurses and which meet the information needs of all concerned. Hospitals and software houses are now aware of the importance of collaboration in such a venture. Systems analysts and software programmers work with the staff to identify the requirements of systems, and to make them user-friendly and for multidisciplinary use.

Mee explains the success of one project to set up a database service to help hospitals exchange information and ideas on standards. The introduction of IT courses into pre and post-registration nursing courses and undergraduate an postgraduate nursing-related degrees highlights the priority that IT now has within the nursing professions. The setting up of the Nursing CTI in Sheffield and research into IT education available to nurses and midwives (Champion project) will go a long way to establish computer technology as a key resource for these groups. Anecdotal evidence suggests that many nurse teachers are keen to incorporate IT into their teaching. The author is also aware of two postgraduate students who are investigating the use of IT in nurse education. Many units have introduced computers, with other software, as a resource to facilitate the education and professional development of staff. Trusts are aware that staff are completing part-time courses and require access to computing facilities, this then has a cascade effect as staff develop computer skills and teach colleagues. Other developments have resulted in an increased use of computers by nursing and midwifery staff. As part of the CRAG - SCOTMEG Caesarean Section audit all consultant maternity unit labour wards in Scotland were given a computer and the Cochrane Pregnancy and Childbirth Database software. An NBS funded study to consider how labour ward midwives use computers to access this software is nearing completion. Other developments such as networking and the use of Internet will also impact on how nurses use computers. PREP encourages nurses to become computer literate and respond to changing professional demands.
Conclusion

In recent years there has been an upsurge of computers at ward level. Their introduction has not been easy, partly due to the limited software available in the eighties. Lack of change management and sufficient evaluation of the systems also led to unease and opposition. Ward based information systems have a place: but all the staff must be involved. The aim of every nurse must be to provide the highest quality care possible. Thus systems must enhance care and increase the productivity and creativity of their users. In spite of a slow start systems are now coming along which are user-friendly, effective and efficient. Progress has been slow but the collaboration, financial investment and education is beginning to pay off. It only remains for the users to evaluate and publicise these systems.

References

Glossary

CTI Abb. Computers in Teaching Initiative, that for Nursing and Midwifery is one of 23 funded by the Higher Education Councils in the UK.

CRAG Abb. Clinical Resource and Audit Group. Set up by the Scottish Home and Health Department it allocates funds for the audit of clinical activities.

Cochrane - Dissemination of evaluation reports and recent evidence of effective treatments to aid clinicians and service purchasers.

PREP Abb. Post-Registration Education and Practice. A term used for the UK Central Council’s requirements for maintaining registration and specialist practice.