



Role of information technology in nursing

Shahnaz ISMAILZADH^{1*}, Yousef MAHMOUDIFAR²

¹Student computing, Mahabad Branch, Islamic Azad University, Mahabad, Iran

²Department of Nursing, Mahabad Branch, Islamic Azad University, Mahabad, Iran

Received: 01.02.2015; Accepted: 05.05.2015

Abstract. Nursing information system development such as the impact on the workload, planning and working methods of communicating between multiple jobs care organizations to meet the challenges associated with it. This study aimed to investigate nurses' experiences of their impact on the performance of nursing is nursing information. Most nurses effect on speeding up information systems in nursing, having more time for patient care, easy exchange of information between parts had experienced. They believed that when clinical information into the computer at the same time they cannot care and there was duplication in data entry. Between some demographic characteristics of computer literacy and experience of nurses and there was a significant relationship. Information and communication technologies along with community-wide health promotion, due to a change in the quality of health care has become. The main field of application is remote care information technology, based on developments within health systems, and changing attitudes of health-oriented perspective, and a community-oriented and based on the quality of health services. Despite the widespread penetration of advanced technologies in the field of health, ranging from diagnosis and treatment - treatment and medical education ict because of the challenges facing not been able to find its place fully in this area. It seems that the complexity of science and technology in medicine, there is reasons ashtay performance information technology in the health care setting is difficult. The rapid growth and development of technology in all aspects of life affected areas, followed by a wave of changes that a large change in the leading countries in the field of public health and its use has created. Although many countries have the technology opportunities and benefits, but also its effects and damage that neglect of these issues in the field of health, sometimes it can be dangerous and irreversible.

Keywords: Nursing Information System, Information Technology, Nursing Employment, Experienced Nurses, Nursing Services, Performance

1. INTRODUCTION

Since health care is becoming more complicated and the boundaries between characters and various sectors are increasingly blurred, the ability to communicate effectively on patient care is more important than ever. Always take care of the quality of information available to nurses and nurses as collectors, manufacturers and users have been key patient information. In addition, the role of nurses in providing 24-hour care and coordination of care provided by other means the exchange of information is an important activity in nursing. Nursing activities generally include direct care to the patient, such as activities in the field of patient care, indirect patient care activities related to the registration or review patient information, activities related to the health unit and individual activities. The use of clinical information to nurses represents unique challenges in terms of complexity and the number of data required to display their potential. In this context, clinical information systems, including nursing information system improvements to meet the numerous challenges associated with the health care organizations, as surrounded by the workload, planning and working methods, personnel planning, linking multiple jobs, health care planning, prescription drug safety and clinical outcomes measured. Given that nurses are the largest group of end-users of clinical information systems understanding and satisfaction of use and application of information systems in addition to supporting patient care, clinical information systems will impact on the success or failure of the application. Study on the impact of

*Corresponding author. Email address: shahnaz.esmaelzade@yahoo.com

information systems on nursing activities has resulted in a variety of so that some of the changes in work patterns resulting from the implementation of an information system have been evaluated. But most studies have focused on changes in the document. In our country few studies in the field of nursing information systems, including comparative research on the items of information in a computer program for nurses, and nursing data classification structure of the system is done. However, studies have shown that the impact on nursing care is nursing information systems and how nurses have experienced this situation. The aim of this study was to evaluate nurses' experiences of their impact on the performance of nursing is nursing information. We believe that these results could have a profound impact on improving the quality of information systems and ultimately enhance the quality of nursing services.

2. METHODS

To find the studies and resources related to nursing informatics, in addition to the library to study, databases Ovid, Proquest, Science Direct and Pubmed and scientific information database (Sid) (Sid) was used. Search articles in English from 1976 to 2007 and from 1365 to 1388 Persian articles using key words informatics, nursing informatics and information systems was carried out. These words are often individually, and in some cases a combination of the two words are used. Since the beginning of the search for a certain time limit was placed, which were mainly related articles extracted for years.

About 147 titles, duplicate titles, and was eliminated. Emphasis on empirical studies and review articles in the field of nursing informatics anonymous, unscientific, such as the research agreement and other articles were not written in English and Persian were excluded. Finally, 42 articles and book your review in the field of nursing informatics were studied.

2.1. The Definition of Nursing Informatics

In general terms the science citation information alone is along with the other terms means the use of information technology in the field of science. In 1989, Graves and Kvkvan using a combination of computer science and information science and knowledge to help nursing management and data processing to information and knowledge to support clinical and nursing care designed defined. In 1994 and 1955 ad, America nurses association nursing informatics published objectives and standards, and in 2001 with the goal of integrating standard, nursing informatics as a specialty that integrates nursing science, computer and information management, data communication, education and nursing work pays introduced. Nursing informatics today means combining all aspects of clinical nursing information technology, management, research and education is well known and its features include the use of computer skills, knowledge and skills informatics is informatics.

3. APPLICATIONS

3.1. Application of Information Technology in the Area of Practice

Rich environment of health care technology requires the development of information systems and hospital data recording so that Mnjyr to improve the quality of the care. Electronic health financing systems (ehr), nursing information system (Nis), hospital information system (his), today, with a high diversity of patients and collection systems are used in hospitals. Now there are new technologies for remote patient monitoring, and development of science in nursing can telenursing with the patient's vital signs and information they need, he or remote monitor. This results in patients who are chronic health centers. Today in Iran in the axis of online health care education, advice and information offered. A Computer information systems at the bedside, decision support system (dss) that will be recorded and advice when needed will help to improve decision making.

3.2. Application of Information Technology in the Area of Education

One of the achievements of the information age, creating worldwide opportunities for academic study that nurses will benefit from this facility. In addition to the benefit of training services, patient education, public education, prevention, treatment and rehabilitation to the web or computer system in various sizes is provided. Access to resources and educational content at any time and place to save time and cost and create more opportunities to learn different ways to improve the quality of education and standard of staff training is complete. One of the systems used to improve the education of a nursing information systems (nis) is that guides nursing care and stored in the same system that nursing terminology and concepts to save them. These systems are small; the size of the mobile application will be available to students in the absence of access to the internet and libraries to receive guidance. Information technology and more opportunities to learn through a variety of methods to improve the quality of the education.

3.3. It Infrastructure

Facilitating the use of information technology in medical sciences requires the development of communication networks, systems such as help systems to detect, databases and interactive tools. Internet concrete example of a computer network that millions of computers around the world to connect with one another in real-time and non-real-time video and audio devices connected to live that requires having the proper equipment, such as hardware, software, internet connectivity and tools for transferring images. Communication networks for geographic areas covered by the local area network, metropolitan area network and international network are divided.

Given the above, despite different levels of infrastructure in different countries, to take advantage of it in medical sciences there. For efficient use of existing infrastructure needs to improve knowledge in the field of applications, needs and challenges are evident.

3.4. The Importance of the Use of Information Technology In Nursing

The nurse is an important member of the health care team. Nursing is helping healthy people or patients to perform those activities is to maintain and promote health. In the same way his duties in the form of medical care, caring, harmony, security, education, management and research does. This means that nurses in patient care and support, coordination between the patient and the physician, the patient and the patient's family, the transfer of the patient or client needs, management responsibilities and priorities to address patient and timely decision-making in emergency patients patient education in the field of care and to comply with the current problems, research on the nursing process and diagnosis and determine the care plan, nursing interventions classification, classification results of research on how to reduce care that has kept a number of days of hospitalization of a patient is active. One of the main criteria for the development, protection of human health. The potential of the information age infrastructure in the efficient use of time, money and energy to the development and improvement of quality in all areas of science as well as medical and nursing is. With the advancement of information technology and medical development and deal with the huge volume of information, the use of new technologies in order to optimize the benefits of information and a variety of explicit and implicit knowledge, and help in decision better. The direct interaction between science and technology experts and engineers, as well as medical, midwifery and nursing led to the adoption of high quality and a strong scientific basis for health systems to be accepted. Nursing result, improve the quality of health. Since the nurses, the most interaction with patients are more related to technology. Therefore, the use of technology to create a positive attitude in the productivity of nurses. for this purpose it is necessary for nurses involved in the initial design systems to take advantage of technology to improve the quality of care lead. nurses must be equipped to leverage it and the knowledge and skills in the use of computers in nursing informatics and nursing informatics knowledge to good

benefit. Nurses with experience in dealing with the presence of the official partners, are professional doctors and modern science in the field of remote health services is very valuable and lead to the correct information, such services are safe and useful public.

REFERENCES

- [1] Lee T. Users' Experiences Of A Nursing Information System In Taiwan: One Year After Its Implementation. *J Clin Nurs*. 2008; 17(6):763–771.
- [2] Urquhart C, Currell R, Grant Mj, Hardiker Nr. *Nursing Record Systems: Effects On Nursing Practice And Healthcare Outcomes (Review)*. The Cochrane Collaboration. Published By Johnwiley & Sons, Ltd. 2009. Available From: [Http://www.thecochranelibrary.com](http://www.thecochranelibrary.com).
- [3] Bosma Rj, Rood E, Oudemansvan S, Van Der Spoel Ji, Wester Jpj, Zandstra Df. Intensive Care Information System Reduces Documentation Time Of The Nurses After Cardiothoracic Surgery. *Intensive Care Med*. 2003; 29(1):83–90.
- [4] Korst Lm, Eusebio-Angeja Ac, Chamorro T, Aydin Ce, Gregory Kd. Nursing Documentation Time During Implementation Of An Electronic Medical Record. *J Nurs Adm*. 2003; 33(1):24–30.
- [5] Capuano T, Bokovoy J, Halkins D, Hitchings K. Work Flow Analysis: Eliminating Non-Value-Added Work. *J Nurs Adm*. 2004; 34(5):246–256.
- [6] Mann C. Commentary on Darbyshire P (2004). 'Rage Against The Machine?: Nurses' And Midwives' Experiences Of Using Computerized Patient Information Systems For Clinical Information. *Journal of Clinical Nursing* 2008; 2090-2091.
- [7] Lising M & Kennedy C. A Multimethod Approach To Evaluating Critical Care Information Systems. *Cin: Computers, Informatics, Nursing*. 2005; 23:27–37.
- [8] Mclane S. Designing An Emr Planning Process Based On Staff Attitudes Toward And Opinions About Computers In Healthcare. *Cin: Computers, Informatics, Nursing*. 2005; 23: 85–92.
- [9] Mcmanus B. A Move To Electronic Patient Records In The Community: A Qualitative Case Study Of A Clinical Data Collection System, Problems Caused By Inattention To Users And Human Error. *Topics In Health Information Management*. 2000; 20, 23–37.
- [10] Rotich Jk, Hanna Tj, Smith Fe, Bii J, Odero Ww, Vu N, Et Al. Installing And Implementing A Computer-Based Patient Record System In Sub-Saharan Africa: The Mosoriot Medical Record System. *J Am Med Inform Assoc*. 2003; 10(4):295–303.
- [11] Asaro Pv. Synchronized Time-Motion Study In The Emergency Department Using A Handheld Computer Application. *Medinfo*. 2004; 11(Pt 1):701–705.
- [12] Smith K, Smith V, Krugman M, Oman K. Evaluating The Impact of Computerized Clinical Documentation. *Comput Inform Nurs*. 2005; 23(3):132–138.
- [13] Poissant L, Pereira J, Tamblyn R, Kawasumi Y. The Impact Of Electronic Health Records On Time Efficiency Of Physicians And Nurses: A Systematic Review. *Journal of The American Medical Informatics Association* 2005; 12(5):505–16.
- [14] Müller-Staub M, Lavin Ma, Needham I, Van Achterberg T. Nursing Diagnoses, Interventions And Outcomes - Application And Impact On Nursing Practice: Systematic Review. *Journal Of Advanced Nursing* 2006; 56(5):514–31.
- [15] Ammenwerth E, Mansmann U, Iller C, Eichstadter R. Factors Affecting And Affected By User Acceptance Of Computer-Based Nursing Documentation: Results Of A Two-Year Study. *J Am Med Inform Assoc*. 2003; 10(1):69–84.

- [16] Stricklin Mlv, Bierer Sb, Struk C. Home Care Nurses' Attitudes Toward Computers: A Confirmatory Factor Analysis Of The Stronge And Brodt Instrument. *Comput Inform Nurs.* 2003; 21(2):103–311.
- [17] Lee T. Evaluation of Computerized Nursing Care Plan: Instrument Development. *J Prof Nurs.* 2004; 20(4):230–238.
- [18] Dillon Tw, Blankenship R, Crews T. Nursing Attitudes And Images Of Electronic Patient Record Systems. *Comput Inform Nurs.* 2005; 23(3):139–145.
- [19] Alpay L, Russell A. Information Technology Training In Primary Care: The Nurses' Voice. *Comput Inform Nurs.* 2002; 20(4):136–142.
- [20] Lee T, Yeh C, Ho L. Application Of A Computerized Nursing Care Plan System In One Hospital: Experiences Of Icu Nurses In Taiwan. *J Adv Nurs.* 2002; 39(1):61–67.