

# Significance of Nursing Informatics Research Studies

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## Introduction

**N**ursing informatics is a growing field that was recognized as a specialty for registered nurses in 1992 (American Nurses Association, 2008). Nursing Informatics is guided by an information model (Graves & Corcoran, 1989) as a theoretical framework that deals with data, information, and knowledge creation. Based on the numbers of research abstracts and papers presented at various information technology (IT) conferences, nursing informatics is a growing area of research. Yet, there is still a tremendous need for research studies based on theoretical and conceptual frameworks to build a literature base to expand this growing science. A sample of research questions at different levels was suggested for research in nursing informatics in 2001 (Kaplan, Brennan, Dowling, Friedman, & Peel, 2001). These questions merit reconsideration in light of the explosion of informatics applications in current health care.



## Nursing Informatics and Nursing Science

**N**ursing science is the accumulated scientific knowledge that makes nursing unique from other fields (Barrett, 1997). Nursing knowledge is the base of nursing science; and to build upon this base, nursing knowledge needs to be further advanced. Nursing informatics is a subspecialty within the nursing profession (Brennan, 2002) and is part of nursing science (Graves

& Corcoran, 1989). Nursing informatics is an assembly of computer science, information science and nursing science which supports nursing practice (Graves & Corcoran, 1989).

**N**ursing informatics research studies can add to the body of nursing informatics knowledge in terms of understanding nursing phenomena such as nurses' beliefs, feelings, or actual use of information systems (IS). The contribution of research studies can also help to evaluate nursing informatics issues, such as gaining understanding of the potential barriers to IS use or factors that can foster nurses' use of IS in health care. In addition, research studies will provide the theoretical frameworks to explain nurses' phenomena in relation to technology.

### **Nursing Informatics and Nursing Discipline**

**A** discipline is "a branch of knowledge ordered through the theories and methods evolving from more than one worldview of the phenomenon of concern" (Parse, 1997). Nursing knowledge can be related to other discipline-specific knowledge because nursing incorporates concepts, principles, and theories related to the many other disciplines, such as the fields of economics, political science, administration, management, and computer science (Schlotfeldt, 1988).



**B**orrowing theories is necessary when we need an explanation of new phenomena that do not have any theories to explain them (Walker & Avant, 1995). Theories borrowed from other fields are useful when these theories are integrated in the context of nursing (McMurrey, 1982; Upton, 1999). Examples of these theories include: physics theories such as general system theory (Von Bertalanffy, 1951), behavioral theories such as beliefs theory (Ajzen & Fishbein,

1980) or self-efficacy theory (Bandura, 1997), informatics theories such as the technology acceptance model (Davis, Bagozzi, & Warshaw, 1989), and learning theories.

**I**ncorporating concepts from other disciplines into nursing informatics' research studies will extend the theoretical validity of new concepts to nursing (McMurrey, 1982). Borrowing these theories and adapting them to nursing will help to develop knowledge that distinguishes nursing as a discipline because it is derived from nurses' perspectives (Peterson & Bredow, 2004).

### **Nursing Informatics and Nursing Practice**

**N**ursing science is continuously expanding by building on existing nursing knowledge in ways that have significant implications for nursing practice. An understanding of different issues related to nurses and their use of IS will help in the development and introduction of IT in health care organizations and it will enhance the existing system. For example, evaluating the current systems in hospitals from nurses' perspectives will help to make the necessary changes to meet nurses' needs at work.

**N**urses' use of IT reshapes their professional environment and influences the way they work in such ways as accessing patient information from any location at any time (Priselac, 2003). It is important for hospital administrators and nurses' leaders to consider factors related to nurses' (IS) use, such as nurses' involvement in system development and implementation. It is essential to support nurses by adapting or restructuring the appropriate work environment to enhance their IT use. Additionally, nursing educators can design the essential educational and training programs for improving nurses' IS use. For example, in-service education and training on how to use the system will improve nurses' informatics skills and increase their self-efficacy to use IS efficiently.

**T**o design appropriate and effective IS for complex and dynamic socio-technical organizations, such as health care organizations, designers need to evaluate the existing system by understanding how the nurses, who are one of the largest group of users of IS, perceive the available IS (Kaplan, 1997; Taylor & Todd, 1995).

## **Nursing Informatics and Nursing Education**

**A** May, 2008 position statement by the National League for Nursing, as well as the 2007 Vision Statement of the TIGER initiative (Technology Informatics Guiding Educational Reform) give clear direction about the importance of informatics within nursing education. The importance of health care professionals' knowledge and skills in computer literacy, information management and use of health care technology have been stressed since the early 1970's, (Anderson, Gremy & Pages, 1974; Ronald & Skiba, 1987; Staggers, Gassert, & Curran, 2001; Staggers, Gassert, & Curran, 2002; NLN, 2008). However, until federal initiatives toward the adoption of the electronic health record in 2014 were made, nursing in general, and nursing education in particular paid scant attention.

**T**he call for the reform of nursing education to include the technologies necessary for practice in the 21<sup>st</sup> century is a further incentive to conduct informatics research within the nursing profession. Only with targeted, objective research findings that include practicing nurses as well as student nurses, will the profession be able to provide "...21<sup>st</sup>. century knowledge and skills for practice in a complex, emerging technologically sophisticated, consumer-centric, global environment" (Warren & Connors, 2007, p. 58). The challenge is upon us. Will nursing educators ignore it or embrace it?

## Nursing Informatics and Nursing Shortages

Lastly, IS are becoming a more common way to support nursing care. They will become more sophisticated as new systems are developed. Therefore, research on incorporating IS into nursing practice is needed. In the long run, the successful incorporation of IS in the nursing field could help alleviate the nursing shortage in several ways. IS can assist nurses in completing documentation and communication tasks, thereby giving nurses more time for direct patient care. Nurses in a qualitative study were interviewed six months after the implementation of laboratory order entry (Welychka, 1997). The nurses reported that the system saved them time so they had more time for patient and family teaching and attending in-service education. The use of IS in the field of nursing could also attract more people to the nursing profession because they are excited about using the technology as an adjunct to patient care, and the relief provided by successful use of IS could help retain nurses in the workforce.

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Final: June Kaminski