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EDITORIAL

Why Nurses Need to Learn Informatics?

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Nurses need to learn informatics because there is no going back to paper charts. Electronic health records (EHR) and clinical decision support (CDS) systems are far from perfect, but they are revolutionizing the way healthcare is provided and documented. They promise to make nurses more effective and efficient in the care of patients; and nurses need all the help we can get! The patients are sicker, the work environments more complex, and the regulatory requirements more burdensome. All the while, nursing practice is becoming increasingly driven by evidence. In this critical developmental period in the field of Biomedical Informatics, nurses must provide a vision and speak with a strong voice to ask for systems that improve patient care quality and safety.

There are functional capabilities that EHR and CDS systems must have in order to improve outcomes. We must demand EHR that are securely available online, at all times, accessible from anywhere. Laboratory and radiology test results need to be readily accessible; clinicians should be able to prescribe medications and treatment electronically; alerts and reminders have to be context dependent; and all documentation has to be done electronically using standardized language. We must insist in systems that do not operate in silos, but instead are interoperable. Systems that can exchange information with each other, so that hospitals and clinics can share patient data as needed. We also need to ask for equipment that decreases errors by uploading information automatically to the patient's EHR and by using bar coding technology for medication administration and supply management.

EHR and CDS systems must be well designed and easy to use. Steve Jobs, one of the founders of Apple, suggested in his biography that, "The better the understanding of the human experience, the better the design"[1]. Bad design has been attributed to lack of end-user involvement[2]. There are many examples: from beds too wide for doorways; equipment installed in inconvenient places; and software that do not follow the workflow[2]. Health informatics products designed without providers working alongside engineers often lack usability (how well users can learn to use it and how satisfied users are with it).

Nurses spend most of our time caring for patients and families; therefore we have a deep understanding of the human experience in healthcare settings. We know the patients we care for day-in and day-out. We identify our unit's daily routines, and we recognize the workflows and the organizational rhythms. Therefore, we should be actively participants in the design, selection, and implementation of systems. However, in order to contribute effectively to these processes, nurses must be able to know the vocabulary and understand the issues.

Nurses can consider several levels of involvement in informatics. Nurse Informaticians have been certified in the United States (U.S.) since 1992. Informatics is defined as a specialty that integrates nursing science, computer science, and information science to manage and communicate data and information[3]. However, not all nurses want to work so closely with information systems. At the minimum, nurses "must be able to recognize the need for information, know how to obtain it, understand its use, and be able to evaluate it"[4]. The Technology Informatics Guiding Education Reform (TIGER) Initiative has called for changes in nursing education, suggesting that nurses need computer literacy (how to use computers, websites, and software), information literacy (how to find information), and information management (how to collect, process, and present information)[5].

In the U.S. the Quality Safety Education for Nurses (QSEN) has built on the TIGER competencies and is encouraging the educational system to embrace the fact that nurses are "knowledge workers"[6]. Knowledge workers are nurses who are able to question the phenomenon at hand (what is missing from this picture, what are the data elements of this situation), use morality to evaluate the phenomenon (evidence, advocacy, multiple perspectives), use plausibility to analyze the phenomenon (how the problem compares to theory and previous experiences), and preferentiality (individual preferences). As humans, we tend to focus on one or two of these elements, but all four are important in order to care for patients in today's fast pace and chaotic healthcare environment. Highly functional information systems that are well designed and used by knowledge workers can create value for the population, which is the focus of our care.

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