In Crossing the Quality Chasm, the Institute of Medicine (IOM) Committee on Quality of Health Care in America identified the critical role of information technology in designing a health system that produces care that is "safe, effective, patient-centered, timely, efficient, and equitable." A subsequent IOM report contends that improved information systems are essential to a new health care delivery system that "both prevents errors and learns from them when they occur" (Committee on Data Standards for Patient Safety, 2004). This review specifically highlights the role of informatics processes and information technology in promoting patient safety and summarizes relevant nursing research. First, the components of an informatics infrastructure for patient safety are described within the context of the national framework for delivering consumer-centric and information-rich health care and using the National Health Information Infrastructure (NHII). Second, relevant nursing research is summarized; this includes research studies that contributed to the development of selected infrastructure components as well as studies specifically focused on patient safety. Third, knowledge gaps and opportunities for nursing research are identified for each main topic. The health information technologies deployed as part of the national framework must support nursing practice in a manner that enables prevention of medical errors and promotion of patient safety and contributes to the development of practice-based nursing knowledge as well as best practices for patient safety. The seminal work that has been completed to date is necessary, but not sufficient, to achieve this objective. (Source: PubMed)

OBJECTIVES: The purposes of this article are to highlight the role of informatics in promoting patient safety and enabling evidence-based practice (EBP), two significant aspects for assuring healthcare quality; to delineate some challenges for the future; and to provide key recommendations for education, practice, policy, and research.

METHODS: First, we describe the components of an informatics infrastructure for patient safety and evidence-based practice. Second, we address the role of informatics in four areas: 1) information access; 2) automated surveillance for real-time error detection and prevention; 3) communication among members of the healthcare team; and 4) standardization of practice patterns. Last, we delineate some future challenges for nursing and for informatics and provide key recommendations for education, practice, policy, and research.

RESULTS: The components of an informatics infrastructure are available and applications that bring together these components to promote patient safety and enable EBP have demonstrated positive or promising results. CONCLUSIONS: Challenges must be addressed so that an informatics infrastructure and related applications that promote patient safety and enable EBP can be realized. (Source: PubMed)


The Institute of Medicine (IOM) Committee on Quality of Health Care in America identified the critical role of information technology in designing safe and effective health care. In addition to technical aspects such as regional or national health information infrastructures, to achieve this goal, healthcare professionals must receive the requisite training during basic and advanced educational programs. In this article, we describe a two-pronged strategy to promote patient safety through an informatics-based approach to nursing education at the Columbia University School of Nursing: (1) use of a personal digital assistant (PDA) to document clinical encounters and to retrieve patient
safety-related information at the point of care, and (2) enhancement of informatics competencies of students and faculty. These approaches may be useful to others wishing to promote patient safety through using informatics methods and technologies in healthcare curricula. (Source: PubMed)

The amount and complexity of information nurses are expected to manage continues to increase exponentially. Support has grown for integrated curriculum approaches that include appropriate content on the use of a variety of information formats and instruction using resource-based and process methods. Such teaching-learning approaches demand a major shift in educational paradigms and encompass resource-based learning, undergraduate research, service learning, inquiry learning, and problem-based learning. The implementation of an integrated curriculum promises advanced information skills, access, and use of available evidence to support clinical decision making and a foundation for lifetime learning. In this article, we argue that for information literacy to be enhanced, collaboration between teaching faculty and librarians must be fostered in meaningful ways. We report on the rationale of an integrated curriculum, changes to nursing education, and obstacles to the development and application of advanced information skills that exist within higher education and clinical settings. (Source: PubMed)

To move the healthcare industry into the 21st century, nurses must become savvy in the use of informatics to provide optimal care to their patients. However, the relatively few formal nursing informatics programs that exist across the country are simply not adequate to meet the demands of both new and existing nurses. Informatics competencies must be incorporated into nursing curricula at entry-level and via staff development to provide a ready workforce. Creative
faculty development strategies that capitalize on the concept of faculty as a community of practice are required to incorporate informatics competencies into nursing curricula. (Source: PubMed)


With the development and use of new strategies, practices, applications, and resources in technology, the teaching and learning context is shifting. Nurse educators are challenged to create instructional strategies that appeal to the newer generation of students and have the potential to enhance learning. Effective learning programs for these students require new digital communication skills, new pedagogies, and new practices. Nursing students should not be seeking the right answer as much as they should be seeking appropriate information and then developing approaches to issues or resolutions for problems. The focus of the teaching and learning context is shifting from the individual to the group, with the purpose of constructing new knowledge from available information. This article discusses the value of WebQuest activities as inquiry-oriented strategies and the process of adapting the WebQuest format for the development of a strategy called NursingQuest. (Source: PubMed)


Nursing is at the cusp of a truly revolutionary time in its history with the emergence of electronic health (eHealth) technologies to support client care. However, technology itself will not transform healthcare without skilled practitioners who have the informatics background to practice in this new paradigm of client care. Nurse educators have been slow to react to the matter of the necessary knowledge, skills, and practice competencies required for nurses to function as eHealth practitioners. Specifically, undergraduate nursing education must take a proactive stance towards curriculum development in the areas of eHealth and informatics. The purpose of this paper, therefore, is to propose recommendations about the review and redesign of nursing curricula in relation to nursing informatics. Recommendations include
increased information literacy education, interdisciplinary collaboration, and client-centred technologies. Recommendations for faculty development in nursing informatics are also provided. (Source: PubMed)


The use of the Human Patient Simulator (HPS) as the state-of-the-art educational technology has been documented in nursing literature. The next step is to establish evidence-based practices related to this unique form of educational technology. In particular, this project investigated the impact of this type of education technology on the perception of confidence and comfort levels of nursing students entering their first clinical experience as evidenced by their anxiety level. The study provided an opportunity to further explore assumptions and findings from a previous study related to the use of HPS in promoting confidence in first level baccalaureate nursing students (Bremner, et al., 2006). The previous study documented that a majority (61%, N = 55) of the students agreed or strongly agreed that using the HPS gave them confidence with physical assessment skills. Many of the students (68%, N = 55) also felt the experience with the HPS should become a mandatory component of the nursing curriculum. This second study had three major objectives: 1) to examine specific demographic information of first year baccalaureate nursing students participating in a study using the HPS; 2) to examine the effects on a HPS session on the level of anxiety of these students as they enter their first clinical experience; and, 3) to explore the relationship of learning styles, coping styles, and anxiety levels of students using this form of educational technology. (Source: Publisher)

practice database searching skills to students, a nurse educator partnered with a librarian to design, conduct, and assess instruction. The authors describe the creation, administration, and findings from the assessments and the implications for instruction. (Source: PubMed)


Recognizing the value of PDAs in clinical care, Ball State University (BSU) has implemented a program that introduces students to the potential of these devices for assisting the nurse at the point of care. Seeking out new ways to engage students and develop skills essential in the workplace, the nursing education program requested the assistance of University Computing Services to develop and deploy a mobile solution that could be used across all of its undergraduate and graduate classes. Initial project requirements included the following instructional resources: viewing text and video on mobile devices, Internet browsing, nursing medical resources, Web-based survey and quizzing, and a discussion forum. Based on the successful pilot and beta testing, PDAs will be used in subsequent courses in the undergraduate and graduate programs. Implementation began in the graduate program during the spring 2007 semester, and is planned to begin with the RN to BS program during the fall 2008 semester. (Source: QSEN Team)


A jointly funded partnership between the school of nursing at a large midwestern university and a premier health care information technology supplier represents a pioneering event for education and for the health care information technology industry. The impetus for this partnership arose from Institute of Medicine reports published in late 1999 and early 2001 addressing the quality, error, and waste in the health care system in the United States. The Simulated E-health Delivery System (SEEDS) provides opportunities based on best
practices in education to learn and practice clinical skills in a state-of-the-art environment using a live-production, clinical information system designed for care delivery. A pilot project that began with a small cohort of baccalaureate nursing students has been implemented and extended. SEEDS will also be extended to other health professional programs. (Source: PubMed)

Connors, H., Warren, J., & Weaver, C. (2007). HIT plants SEEDS in healthcare education. Nursing administration quarterly, 31(2), 129-133. By incorporating a clinical information system in the education curriculum as a teaching platform, the University of Kansas School of Nursing teaches nurses and other health professional students how to assess, plan, document and manage care in an electronic medium that develops healthcare informatics competencies. The outcomes of this integrated technology curriculum brings hope for transforming health professional education for 21st century practice and graduating a workforce with the leadership and competencies for improving quality and safety in patient care. It results in IT savvy healthcare providers who will cross the quality chasm. (Source: PubMed)

Cornelius, F., & Gordon, M. G. (2006). Introducing and using handheld technology in nursing education. Annual review of nursing education, 4, 179-192. This chapter describes the process used to introduce and integrate PDAs into the undergraduate nursing curriculum at Drexel University College of Nursing and Health Professions (CNHP) from faculty, student, and administrative perspectives. It discusses the components of a foundational course developed to facilitate the integration of the PDA, the process of gaining faculty support for a change in practice, tactics to ease the integration of a new teaching, and the lessons learned over a period of 3 years.(Source: QSEN Team)

Objectives: To investigate whether an information literacy programme for pre-registration nursing students at a UK higher education institution is effective in developing their skills and confidence: examines students' skill levels, factors affecting their confidence, and relationships between skills, confidence and demographic characteristics. Methods: Quantitative and qualitative techniques were used: pre- and post-tests to measure changes in students' skills and self-assessed confidence levels after two key sessions in their first semester (n = 29); semi-structured interviews to explore factors affecting confidence (n = 5). Results: Findings demonstrated positive impacts on skills and confidence. Key areas of skill development included: identifying journal articles, selecting search terms and evaluating website quality. Factors affecting confidence included: successful 'mastery' experiences in searching for information and the programme itself, especially small-group sessions, handouts and staff support. Evidence on links between skills, confidence and demographic factors was inconclusive. Conclusions: The study demonstrated the programme's effectiveness and identified areas for development, including the need to help students understand the relative merits of search engines and other sources. Evidence has contributed to a change in departmental policy, making attendance at sessions mandatory. Further studies have been recommended. (Source: PubMed)


The purpose of this paper is to present methodologies employed and experiences gained as a result of delivering a 12 week program to final year nursing students in Ireland. This program aimed to prepare a cohort of student nurses (n=41) to meet challenges offered by recommendations issued by the National Health Service Executive in Ireland. These recommendations focus on managing patient related data using Information Technology. Two pedagogical approaches were taken: web-based and classroom based. As this was the students' first experience with this type of learning, they consented to participate in a
survey on their experiences during this course. Responses were overwhelmingly positive. Furthermore, students displayed that they had engaged with the material provided for them and developed a deep understanding of the topic being studied. This was evident in their written formative and summative work. Recommendations from this program include preparing nursing students throughout Ireland to meet recommendations issued by the HSE and that these types of teaching strategies may be used to facilitate students develop a deeper understanding of a chosen subject. (Source: PubMed)


Little is known about nursing students' information literacy skills and perceptions of Web-enhanced educational approaches. This study examined graduating Bachelor of Nursing (BN) students' perceptions of a Web-enhanced learning environment, their computer literacy skills, and use of technology, and how these influenced their satisfaction. This Australian survey produced a 64% (n = 170) response rate. The 3-year BN program provides Web-enhanced learning opportunities by incorporating online activities and content such as quizzes, videos, and virtual laboratories that augment on-campus and off-campus learning approaches. Upon graduation, 61.4% of the students reported having competent information literacy skills. The quality and usefulness of the Web-enhanced material was rated fair to above average. The students' perception of technical and faculty support for Web-enhanced learning was low. Overall satisfaction with the Web-enhanced program was associated with level of information technology (IT) skills and perceived quality and usefulness of the Internet material. A regression analysis of factors contributing to students' overall satisfaction of a Web-enhanced learning environment (IT literacy skills, access, and perceived quality, usefulness, and support) accounted for 18.5% of variance. As more nursing programs use Web-based resources, greater attention should be given to the initial assessment and
development of students' information literacy skills. Students with good IT skills are more likely to perceive Web-enhanced material as useful. (Source: PubMed)


Quality and Safety Education for Nurses (QSEN) addresses the challenge of preparing nurses with the competencies necessary to continuously improve the quality and safety of the health care systems in which they work. The QSEN faculty members adapted the Institute of Medicine competencies for nursing (patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics), proposing definitions that could describe essential features of what it means to be a competent and respected nurse. Using the competency definitions, the authors propose statements of the knowledge, skills, and attitudes (KSAs) for each competency that should be developed during pre-licensure nursing education. Quality and Safety Education for Nurses (QSEN) faculty and advisory board members invite the profession to comment on the competencies and their definitions and on whether the KSAs for pre-licensure education are appropriate goals for students preparing for basic practice as a registered nurse. (Source: PubMed)


Giving our future nurses access to clinical automation tools proven to help deliver the most consistent, high-quality care to patients prepares them for success in real-world clinical practice. Determined to break new ground in nurse education, The Ohio State University (OSU) College of Nursing adapted a CIS for use in its medical/surgical (including high acuity) undergraduate curriculum. The pioneering program, now in its third year, is designed to create a realistic hospital environment combining core nursing and clinical competencies with technology for application in various classroom areas such as the skills
lab, clinical simulations using virtual cases and human simulators, and homework assignments. Students' clinical decision-making and care management processes are enhanced through informatics-facilitated practice. (Source: Publisher)

Teaching the highest quality and safest practice has long been a goal of faculty members in pre-licensure nursing education programs. This article will describe innovative approaches to integrating quality and safety content into existing clinical practica. The core competencies identified by the Quality and Safety Education for Nurses project—patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics—serve as the framework for the teaching/learning exercises. The strategies described require a shift in attention rather than changes in course content and can be included in any clinical rotation in an acute care setting. (Source:PubMed)

Effective and appropriate use of information and communication technologies is an essential competency for all health care professionals. The purpose of this paper is to describe the effect of an evolving informatics for evidence-based practice (IEBP) curriculum on nursing informatics competencies in three student cohorts in the combined BS/MS program for non-nurses at the Columbia University School of Nursing. A repeated-measures, non-equivalent comparison group design was used to determine differences in self-rated informatics competencies pre- and post-IEBP and between cohorts at the end of the BS year of the combined BS/MS program. The types of Computer Skill competencies on which the students rated themselves as competent (> or =3) on admission were generic in nature and
reflective of basic computer literacy. Informatics competencies increased significantly from admission to BS graduation in all areas for the class of 2002 and in all, but three areas, for the class of 2003. None of the three cohorts achieved competence in Computer Skills: Education despite curricular revisions. There were no significant differences between classes at the end of the BS year. Innovative educational approaches, such as the one described in this paper demonstrate promise as a method to achieve informatics competence. It is essential to integrate routine measurement of informatics competency into the curriculum so that approaches can be refined as needed to ensure informatics competent graduates. (Source: PubMed)


Progress West HealthCare Center (PWHC) recently opened a 72-bed green field hospital that uses technology incorporating patient- and family-centered processes to promote safe and efficient care. A key feature is integration of the various technologies with each other and with clinical processes. To facilitate better patient learning and educational opportunities, ceiling-mounted patient touch devices were installed in every room. These devices allow patients to search and choose education based on their diagnosis. Implementation of radiofrequency identification technology was implemented to support better patient flows. A hands-free device allows clinicians and patients to communicate with a touch of the button or a command of the voice. This system was integrated with physiologic monitors and the patient call system. (Source: QSEN Team)


Redefinition of roles and functions in the healthcare systems of the future requires embracing to the value of continuing education. Within this framework of healthcare professional education and continuing education, there are several core competencies described by the
Institute of Medicine (IOM) that form the foundation for practice for nurses and other healthcare professionals. An overarching sentence in the document says "All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics" (p. 45) These IOM core competencies are: (1) Common value for respecting patients' differences, values, preferences and expressed needs. (2) Ability to cooperate, collaborate, communicate and integrate care using interdisciplinary teams. (3) Knowledge of and willingness to employ evidence-based practice principles. (4) Capability to apply quality and safety improvement approaches in care. (5) Understand, value and use informatics to all areas of health care, to reduce errors, manage knowledge and information, and make decisions and communicate. In developing these core competencies in basic and continuing education, it is necessary to build an evidence base for education itself and demand that faculty are prepared for the future. A crucial need is for healthcare professional students (including nursing students) learn interdisciplinary collaboration in the education of patients. A global strategy, using these competencies for preparing faculty is necessary; and some models already exist that can be further developed to meet future needs that are informatics driven in our increasingly technological future care systems. (Source: PubMed)

Farrell, M. J., & Rose, L. (2008). Use of mobile handheld computers in clinical nursing education. *Journal of nursing education, 47*(1), 13-19. Personal digital assistants (PDAs) are increasingly in use in both clinical practice and nursing education as a method of providing timely access to resources at the point of care. This article describes the use of PDAs during the medical-surgical clinical component of a Bachelor of Nursing program in Australia. The aim of the study was to investigate whether PDAs would enhance students' pharmacological and clinical contextual knowledge and to identify issues associated with the use of PDAs in students' clinical experience. A mixed-method approach was used incorporating a quasi-experimental design with pretest and posttest of
pharmacological knowledge and focus group discussions. Students using the PDAs demonstrated a moderate increase in their mean score, which was double the increase in the control group. Findings from the focus group discussions indicated that students found the PDAs easy to use and perceived their use as beneficial to their learning in the clinical area. This study provides support for the ongoing implementation of PDAs into nursing education. (Source: PubMed)


Baccalaureate nurses must be prepared to meet information technology expectations for practice and future professional development. Therefore, educational programs must evaluate curriculum and student outcomes and address areas for improvement. Faculty members were surveyed regarding barriers and strategies for improving information technology outcomes. Project findings have educational, clinical agency, legal, and policy implications. (Source: PubMed)


*Teaching IOM* focuses on the core competencies derived from the IOM reports on quality and health care and how to use these reports in the classroom. The companion CD-ROM provides additional material for incorporating content into curricula and teaching-learning experiences. It includes PowerPoint presentations with notes on the book’s five major topics; healthcare safety, healthcare quality, public health safety and quality, healthcare diversity, and linkage between research and evidence-based practice. The content is appropriate for graduate or undergraduate students. (Source: QSEN Team)

The purpose of this study was to explore the perceptions of students lived experience using a palm hand held technical device (personal digital assistant) (PDA) in clinical practice at the point of care in undergraduate nursing clinical education. The authors recruited nursing students in the third and fourth year of nursing from an undergraduate baccalaureate program. Qualitative analysis of the focus groups data followed a procedure, audio review of tapes from focus groups, coding the transcriptions, identification of conceptual themes, and assignment of thematic construct utilizing NVIVO computer software. The four focus groups involved 28 students and from the data collected within the focus groups, the following themes were identified: information resource; retaining information; clinical critical thinking; professional image; communication skills; and quality of care. The integration of PDA technology into a clinical practicum was successful and positively viewed by the junior and senior students. The breadth and depth of information in this study supports the implications of the use of PDA's as a readily available resource at the point-of-care in many facilities. (Source: PubMed)


An emphasis on patient safety and an administrative mandate to have information systems in place in most health care agencies in the USA by 2014 has put pressure on nursing informatics programs to increase the number of graduates. At the same time a need for change in health professions education was emphasized at an educational summit sponsored by the Institute of Medicine. Interprofessional education (IPE) will help to provide needed educational reform in informatics and is defined as planned occasions when two or more professions learn from each other and about each other in a structured manner. This paper discusses an evolving interprofessional (IPE) model of informatics education that has been developed at the University of Utah. Because of interprofessional collaboration, faculty, students, and
support staff from both the medical and nursing informatics programs moved into a suite on the fifth floor of a state-of-art technology-rich health sciences education building. The co-located space has enabled the informatics programs to increase activities that promote interprofessional education. (Source: PubMed)

Gassert, C. A., & Sward, K. A. (2007). Phase I implementation of an academic medical record for integrating information management competencies into a nursing curriculum. *Medinfo, 12*(Pt 2), 1392-1395. This paper is the report of the first phase of a case study from the University of Utah to help students and faculty integrate electronic information management into the nursing curriculum. Cerner AES, a live-production clinical information system with an academic overlay, has been implemented into the first semester of an undergraduate nursing program. A consortium of schools that use Cerner AES collaborate in the design and implementation of forms used by students. The consortium also allows members to share strategies for using the system. By using the system students are developing needed informatics competencies for beginning level nurses. The paper discusses the implementation strategies used and initial results of this project. Plans for expanding the project throughout the nursing curriculum are also presented. (Source: PubMed)


Aim. This paper is a report of a study to identify the extent of postgraduate nursing students' information literacy skills in relation to electronic media and health information and barriers to accessing this information. Background. The Internet is a key source of information for a significant group of patients. However, there is evidence of quality issues with some Internet health information sites. Nurses need to be aware of the range and quality of online health information so as to assist patients and families to locate and evaluate relevant and current information. Method. A questionnaire designed to collect quantitative and qualitative data was posted to a convenience sample
of all students enrolled in a postgraduate nursing programme in December 2005. The response rate was 55.1% or 123 responses.

Results. Most respondents had Internet access at home and work and believed that access to online health information resources had improved their practice. However, some had difficulties in accessing computers at work and insufficient time to search for online health information. Concern was expressed about the quality of online information, but the majority of respondents did not assess patient use. Frequent users of online resources were more likely to assess patient use. Conclusion. The development of nursing competencies in accessing and using online resources is a key precursor to supporting patients and families' use of the medium. Access to Internet resources at work, along with training and time for searching, is necessary for the development of skills enabling effective use of information technology. (Source: PubMed)


AIM: To determine if the presence of mathematical and computer anxiety in nursing students affects learning of dosage calculations.

METHOD: The quasi-experimental study compared learning outcomes at differing levels of mathematical and computer anxiety when integrative and computer based learning approaches were used.

Participants involved a cohort of second year nursing students (n=97).

RESULTS: Mathematical anxiety exists in 20% (n=19) of the student nurse population, and 14% (n=13) experienced mathematical testing anxiety. Those students more anxious about mathematics and the testing of mathematics benefited from integrative learning to develop conditional knowledge (F(4,66)=2.52 at p<.05). Computer anxiety was present in 12% (n=11) of participants, with those reporting medium and high levels of computer anxiety performing less well than those with low levels (F(1,81)=3.98 at p<.05). CONCLUSION: Instructional strategies need to account for the presence of mathematical and computer anxiety when planning an educational program to develop
competency in dosage calculations. (Source: PubMed)


This study examined the relationships between the use of personal digital assistants and self-efficacy and the preparation for medication administration among second-year Bachelor of Science in Nursing students in a medical-surgical clinical environment. By using a controlled experimental method, the study attempted to support claims about the educational benefits of personal digital assistants which have generally been reported in more descriptive and anecdotal formats. The sample consisted of 36 students, of which two groups had personal digital assistants and two groups served as a control. The control groups were provided with paper resources equivalent to the software provided by the personal digital assistants. Findings showed a significant increase in self-efficacy in the groups with personal digital assistants. (Source: PubMed)


The purpose of this study was to determine whether nursing medication errors could be reduced and nursing care provided more efficiently using personal digital assistant (PDA) technology. The sample for this study consisted of junior and senior undergraduate baccalaureate nursing students. By self-selection of owning a PDA or not, students were placed in the PDA (experimental) group or the textbook (control) group, provided with a case study to read, and asked to answer six questions (i.e., three medication administration calculations and three clinical decisions based on medication administration). The analysis of collected data, calculated using a t test, revealed that the PDA group answered the six questions with greater accuracy and speed than did the textbook group. (Source: PubMed)

Front line of defense: The role of nurses in preventing sentinel events (2nd ed.). Oakbrook Terrace, IL: Joint Commission on the Accreditation of Healthcare Organizations.

Written especially for nurses in all disciplines and health care settings, this book focuses on the hands-on role nurses play in the delivery of care and their unique opportunity and responsibility to identify potential sentinel events. Topics include preventing medication and transfusion errors, as well as preventing suicide, falls, and treatment delays. New chapters address wrong-site surgery perinatal injuries or death, and injuries or death due to criminal events. Learn how to: better recognize the root causes of specific sentinel events; identify strategies to prevent sentinel events from occurring; and overcome obstacles in the areas of staffing, training, culture of safety, and communication among the health care team. (Source: Publisher)


Evidence is emerging that certain technologies such as computerized provider order entry may reduce the likelihood of patient harm. However, many technologies that should reduce medical errors have been abandoned because of problems with their design, their impact on workflow, and general dissatisfaction with them by end users. Patient safety researchers have therefore looked to human factors engineering for guidance on how to design technologies to be usable (easy to use) and useful (improving job performance, efficiency, and/or quality). While this is a necessary step towards improving the likelihood of end user satisfaction, it is still not sufficient. Human factors engineering research has shown that the manner in which technologies are implemented also needs to be designed carefully if benefits are to be realized. This paper reviews the theoretical knowledge on what leads to successful technology implementation and how this can be translated into specifically designed processes for successful technology change. The literature on diffusion of innovations, technology acceptance, organisational justice,
participative decision making, and organisational change is reviewed and strategies for promoting successful implementation are provided. Given the rapid and ever increasing pace of technology implementation in health care, it is critical for the science of technology implementation to be understood and incorporated into efforts to improve patient safety. (Source: PubMed)

Kelly, M. An innovative approach to educating nurse informaticians. *Journal of the New York State Nurses Association, 37*(1), 12-15. The need for nurses with expertise in technology and information systems is expected to increase. This article describes a collaboration between a university's school of nursing and school of computer science and information to prepare nurses who wish to become nurse informaticians. The specifics of the master's-level Collaborative Nursing Informatics Program are discussed, classroom and clinical experiences are described, and evaluation processes are summarized. (Source: PubMed)


It is time for a change in mindset in how nurses operationalize system implementations and manage projects. Computers and systems have evolved over time from unwieldy mysterious machines of the past to ubiquitous computer use in every aspect of daily lives and work sites. Yet, disconcertingly, the process used to implement these systems has not evolved. Technology implementation does not need to be a struggle. It is time to adapt traditional plan-driven implementation methods to incorporate agile techniques. Agility is a concept borrowed from software development and is presented here because it encourages flexibility, adaptation, and continuous learning as part of the implementation process. Agility values communication and harnesses change to an advantage, which facilitates the natural evolution of an adaptable implementation process. Specific examples of agility in an implementation are described, and plan-driven
implementation stages are adapted to incorporate relevant agile techniques. This comparison demonstrates how an agile approach enhances traditional implementation techniques to meet the demands of today's complex healthcare environments. (Source: PubMed)

Koeniger-Donohue, R. (2008). Handheld computers in nursing education: A PDA pilot project. *Journal of Nursing Education, 47*(2), 74-77. Interest in the use and application of handheld technology at undergraduate and graduate nursing programs across the country is growing rapidly. Personal digital assistants (PDAs) are often referred to as a 'peripheral brain' because they can save time, decrease errors, and simplify information retrieval at the point of care. In addition, research results support the notion that PDAs enhance nursing clinical education and are an effective student learning resource. However, most nursing programs lack the full range of technological resources to implement and provide ongoing support for handheld technology use by faculty and students. This article describes a 9-month pilot project for the initial use of PDAs by novice faculty and students at Simmons College. (Source: PubMed)

Lee, T. T. (2007). Nurses' experiences using a nursing information system: Early stage of technology implementation. *Computers, informatics, nursing: CIN, 25*(5), 294-300. Adoption of information technology in nursing practice has become a trend in healthcare. The impact of this technology on users has been widely studied, but little attention has been given to its influence at the beginning stage of implementation. Knowing the barriers to adopting technology could shorten this transition stage and minimize its negative influences. The purpose of this study was to explore nurses' experiences in the early stage of implementing a nursing information system. Focus groups were used to collect data at a medical center in Taiwan. The results showed that nurses had problems with the system's content design, had insufficient training, were concerned about data security, were stressed by added work, and experienced poor interdisciplinary cooperation. To smooth this beginning stage, the author recommends involving nurses early in the system design,
providing sufficient training in keyboard entry skills, redesigning workflow, and improving interdisciplinary communication. (Source: PubMed)

Nursing students' predispositions toward technology may be a factor affecting their use of technology in educational and clinical settings. A national survey was conducted to collect attitudinal measures toward technology and data on technology instruction to assist educators with developing information technology curricula. Outcomes indicate an overall positive attitude toward technology; however, participants reports of formal education in the use of technology applications are low. This shortcoming should be addressed through enhancement of nursing core curriculum. (Source: PubMed)

According to a recent American Hospital Association survey, 68% of US hospitals reported they had fully or partially implemented electronic health records in 2006. Three applications within the electronic record—computerized physician order entry (CPOE), electronic medication administration records (eMAR), and clinical documentation—are impacting patient safety by decreasing incorrect and unnecessary treatments and medications, as well as improving the timeliness of care. (Source: QSEN Team)

This editorial summarizes some of the key points and serves as an introduction to a special issue of the *International Journal of Medical Informatics*. The International Medical Informatics Association—Nursing Informatics Special Interest Group (IMIA NI SIG) traditionally hosts every 3 years a worldwide conference followed by an invitational post conference workshop. In 2003, the Conference (NI2003—the Eighth International Conference in Nursing Informatics) was held under the
legend, “e-Health for All: Designing the Nursing Agenda for the Future.” Following the main conference, recognized experts in health informatics were invited to discuss the theme of the Nursing Informatics Post Conference Workshop “Improving Patient Safety with Technology.” This issue congregates fifteen papers covering different aspects related to the use of technology to facilitate or assure the quality of care and patient safety, most of them under the nursing lens. (Source: QSEN Team)


This article gives an overview of the current use of handheld computers or personal digital assistants (PDA) in the healthcare realm. Specifically, PDA use in baccalaureate schools of nursing is targeted. The utilization of a PDA by nursing students at all levels of education is addressed and the benefits and limitations are identified. There is increasing information in the literature about PDA use with medical and nurse practitioner students, although information specifically related to baccalaureate nursing students remains limited. These schools lag behind other disciplines in utilization although no clear reason is evident. This author feels baccalaureate schools of nursing must begin to implement PDA use into the curriculum before graduates are left unprepared. (Source: PubMed)


With the rapid integration of information technology in the healthcare field, equipping nurses with skills to effectively use the technology is vital. Evaluations of nursing students' nursing informatics competencies are scarce in nursing programs as reported in the literature. The current study was implemented to evaluate the self-reported nursing informatics competence of undergraduate baccalaureate students upon admission and graduation in the years from 1997 to 2005 and to compare the differences between admission and graduation. The
Gassert/McDowell Computer Literacy Survey was used to survey 411 students on admission and 429 students on graduation from a baccalaureate nursing program. Results showed a significant increase during the 8-year period, both on admission and graduation, for reported level of experience with word processing, electronic mail, and World Wide Web. Areas of less experience that did not increase significantly were spreadsheet experience, database experience, and use of statistical programs. The nursing informatics competencies established for beginning nurses include databases, spreadsheets, word processing, presentation graphics, and keyboard skills. The results of this study indicate nursing education programs currently may not be providing beginning nurses with the tools needed to effectively and efficiently work in the technology-rich healthcare arena. (Source: PubMed)


Computer literacy and information literacy are critical to the future of nursing. The very nature of health care is being transformed in response to environmental drivers such as the demands for cost-effective delivery of high quality services and enhanced patient safety. Facilitating the quality transformation depends on strategic changes such as implementing evidence-based practice, promoting outcome research, initiating interdisciplinary care coordination, and implementing electronic health records. Information management serves as a central premise of each of these strategies and is an essential tool to facilitate change. This report of the analysis of qualitative data from a national online survey of baccalaureate nursing education programs describes the current level of integration of the computer literacy and information literacy skills and competencies of nursing faculty, clinicians, and students in the United States. The outcomes of the study are important to guide curriculum development in meeting the changing health care environmental demands for quality, cost-effectiveness, and safety. (Source: PubMed)

Because health care delivery increasingly requires timely information for effective decision making, information technology must be integrated into nursing education curricula for all future nurse clinicians and educators. This article reports findings from an online survey of deans and directors of 266 baccalaureate and higher nursing programs in the United States. Approximately half of the programs reported requiring word processing and e-mail skill competency for students entering nursing undergraduate programs. Less than one third of the programs addressed the use of standardized languages or terminologies in nursing and telehealth applications of nursing. One third of the programs cited inclusion of evidence-based practice as part of graduate curricula. Program faculty, who were rated at the "novice" or "advanced beginner" level for teaching information technology content and using information technology tools, are teaching information literacy skills. The southeastern central and Pacific regions of the United States projected the greatest future need for information technology-prepared nurses. Implications for nurse educators and program directors are discussed. (Source: PubMed)


Because healthcare delivery increasingly mandates data-driven decision-making, it is imperative that informatics knowledge and skills are integrated into nursing education curricula for all future nurse clinicians and educators. A national online survey of deans/directors of 266 baccalaureate and higher nursing education programs in the U.S. identified perceived informatics competencies and knowledge of undergraduate and graduate nursing students; determined the preparedness of nurse faculty to teach and use informatics tools; and elicited
perceptions of informatics requirements of local practicing nurses. Frequency data and qualitative responses were analyzed. Approximately half of the programs reported requiring word processing and email skills upon entry into the nursing major. The use of standardized languages and the nurse's role in the life cycle of an information system were the least visible informatics content at all levels. Findings have major implications for nurse educators, staff developers, and program administrators who are planning faculty/staff development opportunities and designing nursing education curricula that prepare nurses for professional practice. (Source: PubMed)

McNeil, B.J., Elfrink, V.L., Pierce, S.T., Beyea, S.C., Bickford, C.J. & Averill, C. (2005). Nursing informatics knowledge and competencies: A national survey of nursing education programs in the United States. *International journal of medical informatics, 74*(11-12), 1021-1030. An online survey of deans/directors of 266 baccalaureate and higher nursing programs in the U.S. was developed by informatics expert nurses. Participants (1) identified nursing informatics (NI) competencies and knowledge of undergraduate and/or graduate students in their nursing programs; (2) determined faculty preparedness to teach NI and to use informatics tools; and (3) provided perceptions of NI requirements of local practicing nurses. Frequency data and qualitative responses were analyzed. Approximately half of undergraduate nursing programs were teaching information literacy skills and required students to enter with word-processing and email skills. Least visible informatics content at all levels included the use of information system data standards, the Nursing Information and Data Set Evaluation Center criteria, the unified medical language system (UMLS), and the nurse's role in the life cycle of an information system. Almost 50% of respondents perceived faculty as "novice" and "advanced beginners" in teaching and using NI applications. Participants reported no future plans to offer NI training in their region. Findings have major implications for nurse faculty, staff developers, and program administrators who are planning continuing education opportunities and designing nursing curricula that prepare
nurses for use of the electronic health record and 21st century professional practice. (Source: PubMed)

Morgan, P. D., Fogel, J., Hicks, P., Wright, L., & Tyler, I. (2007). Strategic enhancement of nursing students information literacy skills: Interdisciplinary perspectives. *The ABNF journal: Official journal of the Association of Black Nursing Faculty in Higher Education, 18*(2), 40-45. Nursing students are required to keep abreast of evolving new health care information. It is important for nursing students to develop the skills and knowledge to access nursing and medical databases for their professional growth and development to perform evidence-based practice. A collaborative approach between faculty and librarians is one way to ensure the success of students in acquiring the skills on how to access and use new health care information. The collaborators of this paper discuss strategies of how to conduct database searches for research articles. This paper is written in collaboration with faculty, librarians, and a doctoral student who have experience teaching nursing students at a historically black college and/or university, or at minority serving institutions. (Source: PubMed)


The use and evaluation of an innovative Web-based technology and its suitability for promoting realism when interacting in clinical nursing situations are described. Also discussed are the development, implementation and evaluation of online role-play simulation. Student and faculty-centered insights are shared about the simulation and the technology supporting it. This Web-based learning experience validated literature review findings and offered new understanding about extended learning, projected realism, diversity, seriousness, non-verbal prompting, and evaluation. This simulation used the Fablusi platform in which students experienced the outcomes of their decisions and actions. This Web-based technology can be adapted for different student groups to enhance learning. (Source: PubMed)

The purpose of this pretest-posttest study was to determine the effect of a PDA-assisted documentation tutorial on fourth-year student nurses' (n = 56) attitudes toward computerized documentation, anticipation to exercise of professional judgment when documenting, and satisfaction with computer technology for documentation. Paired t test showed significant increases in anticipation to use professional nursing judgment and satisfaction with the PDA for documentation. Satisfaction with the PDA for documentation was positively and significantly related to attitudes toward computerized documentation (r = .46, P < .01), and satisfaction with a PDA learning tutorial (r = .46, P < .01). Attitudes toward computerized documentation, length of nursing experience, and satisfaction with the PDA learning tutorial predicted satisfaction with the PDA for documentation. Seventy percent of 213 comments about the value of the PDA were favorable. These findings indicate that the PDA may be a valuable documentation tool for teaching professional nursing judgment and documentation skills to undergraduate nursing students. (Source: PubMed)


Beginning nurses need informatics skills to work efficiently in an environment that increasingly relies on information technology to promote patient safety. In addition, a federal order mandates that all Americans have an electronic medical record by 2014. Nursing programs must integrate informatics content into their curricula to prepare nurses to use information technology. This article describes a baccalaureate (BSN) curriculum evaluation of nursing informatics content. Results can inform faculty about strategies that can strengthen informatics competencies. A research-based tool, based on the informatics competence work of Staggers, Gassert, and Curran, was developed to evaluate course syllabi. Although evidence of learning experiences related to computer skills was present, students were not
routinely exposed to computerized systems. No syllabi included evidence that addressed informatics knowledge competencies. We conclude that students received limited informatics exposure and may not be adequately prepared to use information technology. Recommendations for increasing nursing informatics experiences within a BSN curriculum are offered. (Source: PubMed)

Mechanisms are needed to evaluate the effectiveness of ever-increasing technological resources for nursing student use. The authors tracked the use of personal digital assistants versus textbook resources by junior-level baccalaureate nursing students throughout 1 semester. The authors discuss the results of that activity and provide a starting point for the evaluation of the use of personal digital assistants by nursing students. (Source: PubMed)

The purpose of this article is to describe the incorporation of healthcare informatics into the strategic planning process in nursing education. An exemplar from the University at Buffalo, the State University of New York School of Nursing, is interwoven throughout the article. The challenges and successes inherent in a paradigm shift embracing the multifaceted adoption of technology in higher education are illustrated. The paradigm shift that necessitated this change, the need for informatics standards and competencies identified by regulatory agencies and the relationship of the triad mission of the Academy which includes research, teaching and service are then elucidated. Information pertinent to the strategic planning process is described including the use of a strengths, weaknesses, opportunities and threats (SWOT) analysis to facilitate the integration of a healthcare informatics model into a nursing curriculum. (Source: PubMed)

This study has two main purposes: first, to identify and describe the computer skills required in nursing; and second, to find out what should be taught about information technology in nursing education. A three-round Delphi survey was carried out with a panel of experts representing nursing practice, nursing education, nurse students and consumers. The panel showed a consensus of opinion on 71% of the items included in the questionnaire designed for the study. The experts agreed that nurses must know how to use the computer for word-processing purposes, for accessing and using the hospital information system, and for e-mailing. Nurses must also be aware of system security and show a positive attitude towards computers. It is concluded that hospital information systems and nursing informatics should be integrated into laboratory and hospital training. (Source: PubMed)


Funding from the University of Massachusetts president's office allowed two campuses of the University of Massachusetts system to offer nursing faculty and students PDAs containing medical/nursing databases for use during their clinical rotations. A study was designed to explore student's attitudes toward the use of PDAs in a clinical setting and to determine if the manner in which the technology was introduced affected the formation of these attitudes. During the fall and spring semesters of 2005 to 2006, both sites used and evaluated the effectiveness of PDAs at the point of care, but the clinical course, faculty experience with PDAs, and method and stage of introduction varied on each campus. The University library acted as the public point of access for borrowing and technical support of the PDAs. All students were asked to complete a 21-question survey that collected quantitative and qualitative data about their attitudes toward the use of
PDAs at their clinical agency. Results of questionnaires relating to students attitudes to the PDA as a learning tool showed that there were differences in the student's perceptions and acceptance of the PDA as a learning tool. The results from the analysis of the data and suggestions for the possible reasons for the differences are explored. (Source: PubMed)


Health care delivery settings are redesigning in the wake of staggering reports of severe quality and safety issues. Sweeping changes underway in health care to address quality and safety outcomes lend urgency to the call to transform nursing curricula so new graduate competencies more closely match practice needs. Emerging views of quality and safety and related competencies as applied in practice have corresponding implications for the redesign of nursing education programs. Nurse executives and nurse educators are called to address the need for faculty development through strategic partnerships. (Source: PubMed)


Healthcare is evolving from a task-based industry to a knowledge-based one. To gain and retain value as intellectual capital, nursing likewise must evolve from a vocation of task performers to a profession of knowledge-workers. Information technology can transform nursing tasks into nursing knowledge. (Source: PubMed)


When educators are redesigning nursing curricula or developing courses for evidence-based practice (EBP), it is important to consider the essential role of informatics. Recent research affirms that an informatics infrastructure is an essential ingredient to EBP and patient
safety. This article provides a synopsis of the results of Tanner and others, as well as recommendations to prepare for EBP. (Source: QSEN Team)


Concerns about the quality and safety of health care have changed practice expectations and created a mandate for change in the preparation of health care professionals. The Quality and Safety Education for Nurses project team conducted a survey to assess current levels of integration of quality and safety content in pre-licensure nursing curricula. Views of 195 nursing program leaders are presented, including information about satisfaction with faculty expertise and student competency development related to 6 domains that define quality and safety content: patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. With competency definitions as the sole reference point, survey respondents indicated that quality and safety content was embedded in current curricula, and they were generally satisfied that students were developing the desired competencies. These data are contrasted with work reported elsewhere in this issue of Nursing Outlook and readers are invited to consider a variety of interpretations of the differences. (Source: PubMed)


According to the results of the Healthcare Information and Management Systems Society (HIMSS) 2004 Nursing Informatics Survey, nearly 75% of nurse informaticists are currently developing or implementing clinical information or documentation systems. The survey was designed to gain a better understanding of the background of nurse informaticists, the issues they address, and the tools they use to perform their jobs. In total, 537 responses were received for the
Web-based survey, conducted by HIMSS and sponsored by Omnicell, Inc, making it one of the largest ever surveys of nurse informaticists. This article details the path of nurse informaticists and their professional development. (Source: QSEN Team)


**BACKGROUND:** Despite its obvious need, a current, research-based list of informatics competencies for nurses is not available. **OBJECTIVE:** To produce a research-based master list of informatics competencies for nurses and differentiate these competencies by level of nursing practice. **METHODS:** After a comprehensive literature review and item consolidation, an expert panel defined initial competencies. Subsequently, a three round Delphi study was conducted to validate the items. Participants were expert informatics nurse specialists in the United States of America. **RESULTS:** Of the initial 305 competencies proposed, 281 competencies achieved an 80% or greater agreement for both importance as a competency and appropriateness for the correct practice level. Five competencies were rejected. Six competencies were considered valid competencies but the appropriate level of practice could not be agreed upon. Thirteen competencies did not reach any consensus after the three Delphi rounds. **DISCUSSION:** The Delphi study had a high rate of participation, demonstrating the great level of interest and need for a list of informatics competencies for nurses. Out of the initial 305 competencies, only 24 items were not validated. Respondents commented during each round about whether computer skills should be considered informatics competencies. The authors propose that computer skills, while not high level, are one set of tools within the larger category of informatics competencies. This sample of experts did not deem programming skills as necessary for informatics nurses. This research study is an initial effort to fill the void of valid and reliable informatics competencies. It is the first study to span four levels of nurses, create competencies for both entry-level and experienced informatics nurse specialists, and examine the
categories of computer skills, informatics knowledge and informatics skills. (Source: PubMed)

Valid and comprehensive nursing informatics (NI) competencies currently are lacking. Meanwhile, nursing leaders are emphasizing the need to include NI in nursing curricula, as well as within the roles of practicing nurses in all settings. This article presents the initial work of a team of NI experts toward development of a valid and reliable set of NI competencies. Previous work primarily has focused on computer-related skills, rather than examining a broad definition of informatics competencies. For this current work, NI competencies encompass all skills, not only computer-related skills, as well as knowledge and attitudes needed by nurses. The first two authors created a database of NI competencies from the existing literature. A larger panel of NI experts then affirmed, modified, added, or deleted competencies from this database. Competencies were placed into four distinct skill levels. Definitions of each skill level and an initial master list of competencies are provided. (Source: PubMed)

Health care leaders emphasize the need to include information technology and informatics concepts in formal education programs, yet integration of informatics into health educational programs has progressed slowly. The AMIA 1999 Spring Congress was held to address informatics educational issues across health professions, including the educational needs in the various health professions, goals for health informatics education, and implementation strategies to achieve these goals. This paper presents the results from AMIA work groups focused on informatics education for non-informatics health professionals. In the categories of informatics needs, goals, and
strategies, conference attendees suggested elements in these areas: educational responsibilities for faculty and students, organizational responsibilities, core computer skills and informatics knowledge, how to learn informatics skills, and resources required to implement educational strategies. (Source: PubMed)

Staggers, N. & Thompson, C.B. (2002). The evolution of definitions for nursing informatics: A critical analysis and revised definition. *Journal of the American Medical Informatics Association: JAMIA, 9*(3), 255-261. Despite the fact that nursing informatics is entering its third decade as a specialty within nursing, many definitions still exist to describe the field. This paper offers a rationale for a definition for nursing informatics and a critical analysis of past definitions. An organizing framework of technology-oriented, conceptual, and role-oriented definitions is used to critique these definitions. Subsequently, a revised definition is proposed. This evolutionary definition integrates critical concepts from past work and adds components that are currently missing—patients, information communication, information structures, and decision making. A separate role specification for informatics nurse specialists is provided. (Source: PubMed)

Sweeney, N. M., Saarmann, L., Seidman, R., & Flagg, J. (2006). The design, marketing, and implementation of online continuing education about computers and nursing informatics. *CIN: Computers, informatics, nursing, 24*(5), 269-279. Asynchronous online tutorials using PowerPoint slides with accompanying audio to teach practicing nurses about computers and nursing informatics were designed for this project, which awarded free continuing education units to completers. Participants had control over the advancement of slides, with the ability to repeat when desired. Graphics were kept to a minimum; thus, the program ran smoothly on computers using dial-up modems. The tutorials were marketed in live meetings and through e-mail messages on nursing listservs. Findings include that the enrollment process must be automated and instantaneous, the program must work from every type of computer and Internet connection, marketing should be live and electronic, and
workshops should be offered to familiarize nurses with the online learning system. (Source: PubMed)


In this paper U.S. nurses’ readiness to provide Evidence-Based Practice (EBP) as measured by their information literacy knowledge and skills is described. The Institute of Medicine directed health care providers to use EBP as a means to improve patient safety, efficiency and effectiveness of health care services. Information literacy has been identified as a nursing informatics competency for the basic nurse. As such, information literacy is an essential component in the application of EBP. The importance of developing information literacy skills is enhancement of the nurse’s ability to use current best available research literature in the conduct of EBP with subsequent improvement in nursing sensitive patient outcomes. This study describes the level of nurses' information literacy knowledge and gaps in their skills for identifying, accessing, retrieving, evaluating and utilizing research evidence to provide best care for patients. The value of this study is to increase awareness among nurse administrators, educators, and clinicians of the need for information literacy education to enable evidence-based nursing practice and to guide development of supportive curricula and professional continuing education. (Source: PubMed)


This column normally focuses on a specific clinical practice guideline (CPG). This month's column deviates from that practice to demonstrate how evidence-based practice (EBP) was integrated into the nurse practitioner (NP) curriculum at the University of Texas at Austin School of Nursing. Processes of EBP were linked to student clinical assignments across core NP clinical courses, culminating in a student-
published CPG. When students research and analyze available scientific evidence for a CPG, they learn to critically evaluate and logically organize knowledge for use in clinical practice, and those critical-thinking skills can lead to improved clinical reasoning and decision making. (Source: PubMed)


Due to a heightened interest in accelerated nursing programs, enrollment in schools of nursing is rapidly increasing. Nursing programs need to find more creative ways to reach and teach older, technologically savvy adult learners, who have different learning needs than traditional undergraduate nursing students. These students present new challenges to nursing faculty. Larger class sizes, prior academic accomplishments, and a shorter time frame for assimilation of the nursing role provide opportunities for creative course delivery. This article discusses how a change in course design, specifically a hybrid Web-based course, can address these challenges. (Source: PubMed)


When people become patients, they place their trust in their health care providers. As providers assume responsibility for their diagnosis and treatment, patients have a right to expect that this will include responsibility for their safety during all aspects of care. However, increasing epidemiological data make it clear that patient safety is a global problem. Improved nursing care may prevent many adverse events, and nursing must take a stronger leadership role in this area. Although errors are almost inevitable, safety can be improved, and health care institutions are increasingly making safety a top priority. Information technology provides safety benefits by enhancing communication and delivering decision-support; its use will likely be a
cornerstone for improving safety. This paper will discuss the status of patient safety from an international viewpoint, provide case studies from different countries, and discuss information technology solutions from a nursing perspective. (Source: PubMed)

Vanderbeek, J. & Beery, T.A. (1998). A blueprint for an undergraduate healthcare informatics course. *Nurse educator, 23*(1), 15-19. Healthcare informatics has been taught at the graduate level for a number of years. With the proliferation of computer uses and information management systems, all nurses must interface with computer technologies. Healthcare informatics courses can no longer remain limited to specialists at the graduate level. Undergraduate nursing educators must incorporate information management content into their curricula. The authors provide a detailed description of an undergraduate healthcare informatics course. (Source: PubMed)

Wakefield, A. B., Carlisle, C., Hall, A. G., & Attree, M. J. (2008). The expectations and experiences of blended learning approaches to patient safety education. *Nurse education in practice, 8*(1), 54-61. E-learning facilitates access to educational programmes via electronic asynchronous or real time communication without the constraints of time or place. However, not all skills can be acquired via e-learning, thus blended approaches have emerged, where traditional academic processes have been combined with e-learning systems. This paper presents qualitative findings from a study evaluating a blended approach to patient safety education. The 3-day face-to-face training in Root Cause Analysis supported by e-learning resources was designed by the National Patient Safety Agency. The study evaluated the efficacy of the blended learning approach, and explored how operational practices in NHS organisations supported staffs' skill in using electronic resources. Data collection techniques included pre and post-course Confidence Logs, Individual Interviews, Focus Groups and Evaluation Questionnaires. Students' views on blended learning varied. Some were positive, while others felt e-learning did not suit their preferred learning style, or the subject matter. Many students did not engage with the e-learning resources. Lack of awareness regarding the
e-learning component, combined with inconsistent access to computing facilities may have contributed to this. For this reason a series of recommendations are outlined to guide those wishing to adopt blended learning approaches in the future. (Source: PubMed)


It is unclear how current healthcare students based in the United Kingdom (UK) use information and communication technology (ICT) to support their learning and care delivery in practice environments. This position reflects the dearth of current empirical evidence that needs development in this rapidly changing field. Using focus group interviews involving 16 students from nursing and the allied health professions, to reflect the interprofessional nature of healthcare education, this research explored how students employ technology in placement settings. The students drew on networked resources for personal learning and gave examples of use to meet patient and user needs. Technology also provided a vehicle for communication with the University, though use was complicated by a number of issues. Access to computers and the Internet whilst in placement environments proved problematic for some, with the culture not seeming to support ICT use. Lack of time, attitudes towards computers and ICT skills also affected student engagement. These findings provide information to guide the development of ICT use in placement settings. (Source: PubMed)


The outcomes of an integrated technology curriculum give hope for transforming nursing education and graduating a workforce with the competencies and leadership for improving quality and safety in patient care. Collaboration will be the key to successful implementation across curriculum. (Source: Publisher)
Weaver, J.J., Fletcher, K.A., Connors, H.R., Ground, A. & Weaver, C. (2004). The SEEDS project: From health care information system to innovative educational strategy. In P. Whitten, & D. Cook (Eds.), *Understanding health communication technologies* (1st ed. pp. 225-231). San Francisco: Jossey-Bass. *Understanding Health Communications Technologies* provides a hands-on guide for students and professionals for effective investment in deployment of management of communication technologies in health settings. Employing case studies that enhance understanding and insight this book guides readers in appropriate technology selection, and long-term strategic management. This book provides an overview of the distribution and use of communication technologies within the health field and includes information about current and emerging synchronous and asynchronous health care communications technologies. It is filled with illustrative examples of real-life projects that have succeeded and provides lessons learned from projects that failed. The thirty-eight case studies cover topics such as management and operations, implementation, communication, outcomes, education, patient care, policy, unique applications, and technology. In addition, each case study includes discussion questions and references. (Source: Publisher)

Weaver, C.C. (Ed.). (2006). *Nursing and informatics for the 21st century: An international look at practice, trends and the future*. Chicago: Healthcare Information and Management Systems Society. With the first look at how and why information technology is evoking revolutionary changes in nursing at every dimension, this book chronicles the historical shift occurring in nursing linked to the explosion of electronic health record (EHR) national strategies and health policies occurring around the world. While the primary benchmark is the development and status of nursing in the U.S., there are in-depth and descriptive contributions from over 17 countries and 84 international authors. (Source: Publisher)


The rise of evidence-base practice (EBP) as a standard for care delivery is rapidly emerging as a global phenomenon that is transcending political, economic and geographic boundaries. Evidence-based nursing (EBN) addresses the growing body of nursing knowledge supported by different levels of evidence for best practices in nursing care. Across all health care, including nursing, we face the challenge of how to most effectively close the gap between what is known and what is practiced. There is extensive literature on the barriers and difficulties of translating research findings into practical application. While the literature refers to this challenge as the "Bench to Bedside" lag, this paper presents three collaborative strategies that aim to minimize this gap. The Bedside strategy proposes to use the data generated from care delivery and captured in the massive data repositories of electronic health record (EHR) systems as empirical evidence that can be analysed to discover and then inform best practice. In the Classroom strategy, we present a description for how evidence-based nursing knowledge is taught in a baccalaureate nursing program. And finally, the Bench strategy describes applied informatics in converting paper-based EBN protocols into the workflow of clinical information systems. Protocols are translated into reference and executable knowledge with the goal of placing the latest scientific knowledge at the fingertips of front line clinicians. In all three strategies, information technology (IT) is presented as the underlying tool that makes this rapid translation of nursing knowledge into practice and education feasible. (Source: PubMed)


Throughout the country, use of electronic health records continues to increase. For successful implementation of an electronic health record
system in an acute care setting, it is vital to educate and address the patient's perceptions about the use of technology when caring for the patient. This article describes the development of an educational sensitivity tool designed to enhance clinicians' simultaneous interactions with patients and computers in a midsize community hospital. The Patient First tool brings attention to the thoughts and perceptions a patient may have in various situations, promoting alternative solutions for staff to properly address the patient's concerns. A committee was developed to address concerns regarding the impact a computer at the bedside would have on patient and clinician interactions. One primary educational tool developed was the Patient First sensitivity presentation that cautioned and guided clinicians to be aware of patient perceptions. (Source: PubMed)


This study surveys computer courses in undergraduate nursing schools in Turkey. To accomplish this, the investigator gave an assignment to first-year students at the Ege University School of Nursing as part of a computer course in 2003-2004. The assignment consisted of having students use their computer skills and do research on the Internet to obtain information about computer classes at other Turkish nursing schools. The objective of this assignment was to correspond by e-mail with first-year students at these institutions. Because of this assignment, at least 70 contacts were established, and information has been exchanged between nursing students at 45 different universities in Turkey. This study shows that one method used by undergraduate nursing schools in Turkey to educate their students in modern nursing practices is to integrate computer courses in their curricula, thereby providing students important practical technology skills. (Source: PubMed)