

## CHAPTER 2

# Information Needs for the Healthcare Professional of the 21st Century

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### CHAPTER LEARNING OBJECTIVES

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1. Describe informatics competencies essential for the graduate nurse.
2. Understand the process of knowledge generation and management.
3. Review the importance of informatics in nursing workflow.
4. Describe a common change model, the Plan-Do-Study-Act model, and explain how it can be used in a healthcare setting.
5. Review ongoing educational needs for the nurse in the field of informatics.

### KEY TERMS

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Clinical decision-support systems (CDSS)

Continuing education

Data

Information

Information literacy

Information management

Information systems

Knowledge

Knowledge creation

Nursing informatics

Plan-Do-Study-Act (PDSA)

### CHAPTER OVERVIEW

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The world of technology in health care has undergone a profound shift over the past several decades. Technology that was once limited to use in a hospital-based critical care unit may now be seen in the homecare setting, or even delivered via a mobile application on a smartphone or tablet. In addition to proficiency in patient care skills



**FIGURE 2-1** Today's nurses must possess competence in patient care, communication, and data management.

Source: © iStockphoto.com/hocus-focus

that have long been associated with the profession of nursing, such as injections and dressing changes, today's nurse must possess a degree of competence in patient care, communication, and data management technologies. Assisting the newly graduated nurse to acquire this varied skill set has also changed the face of prelicensure nursing education. This chapter reviews expectations for informatics content within nursing curricula and discusses selected examples of how informatics technologies can influence the daily workflow for nurses. Specific ways in which informatics is commonly used in healthcare settings to improve patient care, such as the Plan-Do-Study-Act model of quality improvement (QI), are presented. Finally, the chapter describes the integral role that information technology (IT) may play in a nurse's continuing education.

## PROGRAM CURRICULAR CHANGES

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Recent generations of nurses, born with their hands on computer keyboards and mobile devices, may seem to readily integrate IT into their nursing practice. Exposure to common software applications such as Microsoft Word or PowerPoint, which some nurses may have encountered initially only in the practice setting, is now offered in many elementary schools. This phenomenon has radically altered the expectations for content that needs to be included in curricula for the baccalaureate-prepared nurse (**Table 2-1**). The American Association of Colleges of Nursing (AACN, 2008), in *The Essentials of Baccalaureate Education for Professional Nursing Practice*, summarizes the need for informatics content in curricula: “Knowledge and

### Table 2-1 AACN Essentials of Baccalaureate Education for Professional Nursing Practice. Essential IV: Information Management and Application of Patient-Care Technology

Demonstrate skills in using patient-care technologies, information systems, and communication devices that support safe nursing practice.

Use telecommunication technologies to assist in effective communication in a variety of health-care settings.

Apply safeguards and decision-making support tools embedded in patient-care technologies and information systems to support a safe practice environment for patients and healthcare workers.

Understand the use of clinical information systems to document interventions related to achieving nurse-sensitive outcomes.

Use standardized terminology in a care environment that reflects nursing's unique contribution to patient outcomes.

Evaluate data from all relevant sources, including technology, to inform the delivery of care.

Recognize the role of information technology in improving patient-care outcomes and creating a safe care environment.

Uphold ethical standards related to data security, regulatory requirements, confidentiality, and patients' right to privacy.

Apply patient-care technologies as appropriate to address the needs of a diverse patient population.

Recognize that redesign of workflow and care processes should precede implementation of care technology to facilitate nursing practice.

Participate in evaluation of information systems in practice settings through policy and procedure development.

*Source:* American Association of Colleges of Nursing. (2008). *The essentials of baccalaureate education for professional nursing practice*. Retrieved from <http://www.aacn.nche.edu/education-resources/baccessential08.pdf>

skills in information management and patient care technologies are critical in the delivery of quality patient care” (p. 4).

Nursing education programs are working to implement health informatics education into present curricula, but this can be a difficult process. Time constraints and a shortage of nursing faculty with health informatics expertise have been cited as barriers to full integration of health informatics content in programs of study in the United States and abroad (Bartholomew, 2011). In a study of 186 students enrolled in health-care professions in the United Kingdom, 61% reported that they desired more training in the use of clinical **information systems** (Bartholomew, 2011). It is essential

that students understand that working with health information technologies (health IT) tools is a meaningful component of the professional nurse's skill set. Exposure to an academic electronic health record (EHR), and repeat opportunities to develop competency in use of the EHR, have been cited as important throughout the curricula. These exposures may be important approaches in assisting nursing students to meet the evolving health IT expectations in healthcare settings (Gardner & Jones, 2012).

## **INFORMATICS COMPETENCIES AND THE TIGER INITIATIVE** \_\_\_\_\_

There are many different specific functions in the nursing informatics discipline, each with its own necessary competencies and responsibilities. The Technology Informatics Guiding Education Reform (TIGER) Initiative, formed in 2004, is a sustainable relationship between the Alliance for Nursing Informatics (ANI) and many other nursing organizations such as the American Nurses Association (ANA), the American Organization of Nurse Executives (AONE), and the AACN. The purpose of the TIGER initiative is to “identify information/knowledge management best practices and effective technology capabilities for nurses” (TIGER Initiative, 2007–2013). It was developed in response to the national goal of expanding the EHR to all citizens and in recognition of the nurse's role in meeting that goal. At its summit meeting, held in October and November 2006, a 3-year action plan was developed, detailing strategies to better prepare nurses to practice in an informatics-rich environment. Nine collaborative teams were created to address the action plan in specified areas, and each team developed a report describing the background and strategies for future work in its area. TIGER's activities have continued, including the creation of a comprehensive document designed to define the informatics competencies practicing nurses would need (Technology Informatics Guiding Educational Reform, 2009). Recommendations from the initiative are grouped into three levels: basic computer competency, information literacy, and information management.

### **Basic Computer Competency**

The TIGER Informatics Competencies Collaborative (TICC) recommendations for basic computer competency are based on modules from the European Computer Driving License Qualifications (ECDL, 2013), which were developed in Europe to help provide standards for competency and routes to develop competency. The major computing functions covered in the ECDL include working with different hardware

and operating systems, developing a file management system, working with printers and other output devices, protecting computers against malicious software, using word processing and spreadsheet software programs, finding information on the Internet, and collaborating via Internet-based and mobile technologies including social media, cloud computing, and shared calendars.

The full ECDL course requires more than 30 hours of study and is relatively expensive, so the TICC highlights four specific modules for nurses: Basic Computing Concepts, Using the Computer and Managing Files, Word Processing, and Web Browsing and Communication. This recommendation is based on relative importance, and the TICC recommends that all nurses have the complete competencies for the ECDL or a similar certification. Resources other than the ECDL include Computer Skills Placement (<http://www.csplacement.com>), a computer competency learning and skill assessment course, and the Healthcare Information Management System Society (HIMSS, <http://www.himss.org>), which offers the Health Informatics Training System (HITS) program and certification (TIGER, 2009).

### Information Literacy Competency

TICC defines **information literacy** as “the ability to identify information needed for a specific purpose, locate pertinent information, evaluate the information, and apply it correctly” (TIGER, 2009). The process can be expanded into the five basic steps shown in **Box 2-1**.

#### Box 2-1 Five Steps to Information Literacy

1. Determine the nature and extent of the information needed.
2. Access needed information effectively and efficiently.
3. Evaluate information and its sources critically and incorporate information into knowledge base and value system.
4. Individually, or as a member of a group, use the information effectively to accomplish a specific purpose.
5. Evaluate the outcomes of the use of information.

#### Assessments of Information Literacy

The American Library Association (ALA) Information Literacy Competency Standards for Higher Education

<http://www.ala.org/acrl/standards/informationliteracycompetency>

Information Literacy in Technology (iLIT)

<http://www.ilitassessment.com/>

## Information Management Competency

**Information management** is defined as the process of collecting data, processing, and presenting and communicating the data as information or knowledge (TIGER, 2009). This process is the initial step in the data-information-knowledge-wisdom continuum. Systems that perform this function are known as information systems, and the most important for nurses are those that pertain to EHRs, (EHRs; also called electronic medical records (TIGER, 2009). The current EHR standard is the EHR System Functional Model provided by the American National Standards Institute (ANSI; TIGER, 2009).

The ECDEL provides the ECDEL-Health syllabus that focuses on the core information management competencies needed in healthcare environments. The ECDEL syllabus includes four categories: Concepts, due care, user skills, and policies and procedures. For pre-licensure nurses, the recommended skill set includes understanding the purpose and types of health information systems (HIS), adhering to confidentiality, access, and security protocols, using an HIS effectively and safely, understanding how to navigate an HIS, and using decision support, clinical guidelines, and other features of an HIS to provide safe patient care. Based on this framework, the TICC has issued competency statements that pertain to each competency, which can be found on the TIGER Initiative website.

## KNOWLEDGE MANAGEMENT AND TRANSFORMATION \_\_\_\_\_

The creation of knowledge is the first step in using IT efficiently and effectively. One thing healthcare practices do very well is create **data**. Detailed records are kept of patient histories, diagnoses, treatments, and the effects of treatments. With the help of IT, the data can be used to create a wealth of knowledge to improve the quality and efficiency of care. IT is the foundation of EHRs and **clinical decision-support systems (CDSS)**, technologies that continue to change the way health care is provided.

The **knowledge creation** process begins by structuring raw data into understandable, meaningful **information**. The next step is to turn that information into knowledge that can be used to support decision making. Graves and Corcoran provided a classic definition of **knowledge** as “information that has been synthesized so that relationships are identified and formalized” (1989, p. 230). For example, information is a series of a patient’s vital signs. Knowledge comes with the formalization of rules to guide the interpretation of those vital signs. The utility of any knowledge is directly dependent on its perceived accuracy and validity. In the past, validity was

based on the opinions of a few well-respected experts. However, with the advent of computing and the information age, validity is largely becoming based on the size and representativeness of the dataset upon which the knowledge is based. As healthcare providers (HCPs) continue transitioning to EHRs and other health IT languages, the breadth of available data will continue to increase, as will the need to interpret and synthesize data to create new knowledge and refine knowledge already in circulation.

The creation of knowledge from raw data is the foundation of informatics. It is a continuous process that requires the tools provided by IT and the expertise and interpretive skills of the practitioner. The efficacy of knowledge is directly related to the breadth of the data from which it is derived. As time progresses and the adoption of technologies such as the EHR continues, this process will become more important and more efficacious, and the skills required for knowledge creation will become more and more integral to the nursing process.

## **NURSES, INFORMATICS, AND NURSING WORKFLOW** \_\_\_\_\_

Health IT has a profound effect on the way that nurses provide care for patients, regardless of the location of that care. In many cases the effects may be negative, by reducing the efficiency of nursing care processes, also called nursing workflow. Because workflow issues are so important, an entire chapter is devoted to the topic later in the book. However, a short description is warranted here to emphasize the role that nurses have when using health IT.

Quantitative research methods are often used to evaluate the implementation of informatics tools in nursing workflow, because these methods can describe details such as cost, time, and other factors that are often associated with health IT use in organizations. However, a more comprehensive understanding of the scope of health IT implementation in nursing workflow requires an assessment of the attitudes and perceptions of the nurses who will work directly with the technology. This type of information may be better captured with the use of qualitative research methods. In complex bedside procedures, such as the administration of intensive insulin therapy (IIT) in the patient with diabetes who is experiencing a hyperglycemic crisis, the use of a computer-assisted clinical decision-support system may be helpful. In a qualitative ethnographic study of 49 instances of nurses who used such a system embedded in a provider order-entry system to administer IIT to patients, researchers found that nurses felt that the documentation associated with use of the system presented a hindrance to patient care, but valued its ability to recommend insulin dosages based on their data input (Campion, Waitman, Lorenzi, May, & Gadd, 2011).



**FIGURE 2-2** Describing the impact of health IT implementation upon nursing workflow necessitates assessment of nurses' attitudes and perceptions about the use of technology in patient care settings.

*Source:* © iStockphoto.com/EricHood

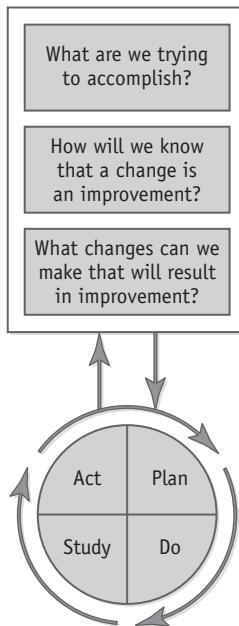
Health information exchanges (HIEs) are high-level systems that are designed to promote the rapid sharing of data across facilities. Although technological factors may certainly be essential in the success of an HIE, understanding how the HIE impacts users is also important. Unertl, Johnson, and Lorenzi (2012) conducted a 9-month qualitative ethnographic study, gathering data from six emergency departments and eight ambulatory clinics in the Southeastern United States. They found that HIEs were incorporated into workflow in user-specific roles; for example, nurses reported frequent access of HIEs to confirm patients' reports of care at other



facilities within the exchange (Unertl, Johnson, & Lorenzi, 2012). Additional positive impacts of HIEs upon workflow were noted by participants in other ways, such as how they assist in medical decision making by supplying essential information when laypersons were unable to do so and facilitate referrals and transfers to other facilities.

In addition to providing practitioners with a more thorough dataset on which to base their clinical decisions, IT can be used to look at and improve the operating processes of organizations. These types of organizational improvements are often based on models of incremental change and analysis such as the Plan-Do-Study-Act (PDSA) model.

The **Plan-Do-Study-Act (PDSA)** model is a cyclical process that is made up of alternating phases of enacting changes and then assessing the effects of those changes (**Figure 2-3**). It is one of the models incorporated by the Institute for Healthcare Improvement (2012) as a framework in guides that organizations can adopt to promote system-wide changes. The first step of a PDSA cycle is to determine what



**FIGURE 2-3** PDSA Model used in health care.

Source: <http://www.ihl.org/knowledge/Pages/HowtoImprove/default.aspx>. Reprinted by permission of Institute for Healthcare Improvement.

**Box 2-2 Case Study: The Plan-Do-Study-Act Model**

To illustrate how the PDSA Model works, consider the example of a particular group of residents. In this group, 34 residents took part in the Clinical Preventive Services Practice Improvement Model (CPS PIM) from July 2006 to June 2007. During their first block, each resident conducted five patient chart reviews, asked five patients to complete the CPS PIM patient survey, and met with clinic leaders to complete the CPS PIM systems survey (Oyler & Vinci, 2008). Once the data were amassed, they were broken down into groups. Data points included patient demographics, outcome measures (e.g., body mass index [BMI]), processes of care measures (e.g., whether height was recorded, whether a breast cancer screening was performed), and systems enhancements (e.g., whether records contained up-to-date medicine lists, if smoking cessation counseling was provided) (Oyler & Vinci, 2008). With the data broken down and categorized, the residents were able to easily see places where improvements could be made. In this case, the residents noticed that only 4% of patients met the goal for a BMI of less than 25, only 30% of patients' charts documented tobacco cessation counseling, and 20% of patients reported difficulty obtaining medication refills (Oyler & Vinci, 2008).

With key issues identified, the residents began to develop QI goals, which included: (1) increase the percentage of charts that had height recorded as a step to increase BMI screening, (2) increase the percentage of patients receiving smoking cessation counseling, and (3) improve the refill process. Once the goals were articulated, the residents were charged with developing and enacting a plan to achieve them and then reporting the results of their actions. To address the BMI issue, the residents worked with nurses to make height a part of their triage process, posted BMI charts throughout the clinic, and educated other residents on the importance of calculating and documenting BMI (Oyler & Vinci, 2008). These changes increased the documentation of height from 11% to 88%, and the documentation of BMI from 4% to 79%. To address the tobacco counseling problem, the residents again worked with the nursing staff, encouraging them to document smoking status and to provide patients who were currently smoking with a "readiness to quit" pamphlet. These changes improved documentation of smoking status from 41% to 67%. To address the problems with prescription refills, residents worked to educate other residents on how the prescription refill process works, placing a particular emphasis on the need to update the medication lists that the medication refill center uses whenever medication changes are made in the plan (Oyler & Vinci, 2008).

There are several important things to note from this example. From the very beginning, with the data-gathering phase, the goal was to get information on how the clinic operates from all viewpoints: from inside through looking at the charts, from the patient's view through the patient survey, and through the clinic management's view through the systems survey. This breadth of perspective is important because it shows that the different aspects of care are interrelated and interdependent. Along with a holistic view of the clinic, there must also be open and constructive communication between the different members of the team; the doctors and the nurses must be on the same page with each other, and also with the patients and the administrators. The problems to be addressed and the goals to be achieved should be well defined and specific so that they can be measured, and the plan of action must be understood and integrated by all the members of the team. The PDSA model is designed to be a continuous, cyclical process. As changes are implemented, they should be studied and analyzed and new changes should be planned and implemented on a consistent basis.

changes need to be made. Perhaps an HCP is not meeting benchmarks and needs to adjust his or her process to try to improve performance. Once the HCP knows what changes need to be made, he or she needs to determine how to measure the effectiveness of the changes. This could be achieved with any number of various metrics, depending on the specific situation. Once the HCP has a firm “Plan”, the next step is to put it into action, or the “Do” phase. In this phase the changes are enacted and the HCP works for a set period of time with them in place. At the end of that time, the team comes together to study the results of the changes made in the “Do” phase. If the changes are found to be effective in addressing the issues defined in the “Plan” section, then the changes will be implemented permanently. If they are not, then the process begins again with a new planning stage.

The PDSA model shines because of its simplicity, but determining how to introduce it and utilize it in a clinical environment can be difficult. For this reason, the American Board of Internal Medicine (ABIM) created the CPS PIM (Oyler & Vinci, 2008). Given to internal medicine residents during their second postgraduate year, the CPS PIM is a quality assessment and improvement curriculum (QAIC) that is made up of two 1-month rotations. In the first month, the residents perform PIM chart reviews and patient and system surveys. During the second month, the data gathered are analyzed, and the residents use the PDSA cycle to enact changes that address areas where there is potential for QI (Oyler & Vinci, 2008).

## QUALITY IMPROVEMENT TECHNIQUES AND NURSING INFORMATICS \_\_\_\_\_

Any system designed to assess and improve quality of care must begin with a thorough breakdown and understanding of the aims of the organization. The Institute of Medicine highlights six main aims of HCPs: effectiveness, safety, efficiency, patient-centeredness, timeliness, and equitability (Hughes, 2008). The QI system then must develop measures of quality that reflect these aims. Because of the complex and unpredictable nature of health care, measuring quality can be difficult; it is particularly hard to attribute the outcomes of treatment to any one particular cause. Another factor is whether an error or adverse event is likely to occur or is a rare, exceptional event (Hughes, 2008). Several groups have attempted to address this issue by researching, vetting, and endorsing measures of quality that have proven valid and reliable within a healthcare setting. The Agency for Healthcare Research and Quality (AHRQ) is the primary of these, and a breakdown of these measures can be found on its National Quality Measures Clearinghouse website (<http://www.qualitymeasures.ahrq.gov/>).

Using clinical guidelines, HCPs can begin to assess quality through benchmarking. With internal benchmarking, HCPs compare their current performance to their past performance. This is helpful in identifying best practices within an organization. In external benchmarking, performance is compared with those from other HCPs to see where it stands with respect to the community as a whole. Sources for comparative data for external benchmarking include the AHRQ's annual *National Healthcare Quality Report* and *National Healthcare Disparities Report*. There are also other more nursing-specific sources, such as the ANA's National Database of Nursing Quality Indicators (Hughes, 2008).

Quantitative measures of quality are useful, but they do not provide the entire picture. In order to use them to their fullest potential, a thorough understanding of the structures and processes that make up the workflow of the organization and an open and collaborative team approach to QI are vital. This is where continuous quality improvement (CQI) systems come in. With CQI systems, the belief is that there is always room for improvement in every aspect of the process. They are holistic systems that focus on every aspect of an organization and strive to make improvement the primary purpose of the organization. This includes defining processes, honing organizational management, working in teams, gathering and assessing data, and translating those assessments into changes in the function of the practice (Hughes, 2008). The continuous nature of these types of systems means constantly re-evaluating and assessing the changes made in the past. These systems are some of the most team-oriented, requiring a large commitment from the organization's leadership and its constituents, but can produce amazing results if implemented by a willing and committed staff. A detailed list of QI strategies and tools can be found at the AHRQ's website ([http://www.innovations.ahrq.gov/innovations\\_qualitytools.aspx](http://www.innovations.ahrq.gov/innovations_qualitytools.aspx)).

## **ONGOING EDUCATION AND NURSING INFORMATICS** \_\_\_\_\_

**Continuing education** is required for all nurses to stay current in practice, meet their state-mandated continuing education units (CEUs), and fulfill requirements for certification/recertification in specialty practice. For example, 30 states in the United States require CEUs for renewal of the registered nurse (RN) license. Some states have special requirements for CEUs including education on human immunodeficiency virus/acquired immune deficiency syndrome, professional practice, pain management, bioterrorism, domestic violence, and reporting to public health authorities (ANA, 2011). For nurses with national certification in specialized nursing areas or in advanced practice roles, CEU requirements are more extensive and vary by the certification.

**Table 2-2 Resources**

Resource	Internet Address
Agency for Healthcare Research and Quality: Quality Measures Website	<a href="http://www.qualitymeasures.ahrq.gov">http://www.qualitymeasures.ahrq.gov</a>
Agency for Healthcare Research and Quality: Patient Safety Website	<a href="http://www.patientsafety.gov">http://www.patientsafety.gov</a>
American Library Association Information Literacy Competency Standards for Higher Education	<a href="http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm">http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm</a>
American Nurses Association States Which Require Continuing Education for RN Licensure	<a href="http://nursingworld.org/MainMenuCategories/Policy-Advocacy/State/Legislative-Agenda-Reports/NursingEducation/CE-Licensure-Chart.pdf">http://nursingworld.org/MainMenuCategories/Policy-Advocacy/State/Legislative-Agenda-Reports/NursingEducation/CE-Licensure-Chart.pdf</a>
ECDL Foundation	<a href="http://www.ecdl.org/programmes/ecdl_icdl">http://www.ecdl.org/programmes/ecdl_icdl</a>
TIGER Initiative	<a href="http://www.tigersummit.com/About_Us.html">http://www.tigersummit.com/About_Us.html</a>

As clinical evidence rapidly evolves, an efficient means to gain access to education is available through the use of IT, particularly online programs offering CEUs (see **Table 2-2**). Many professional nursing organizations, for-profit companies, and universities offer quality educational material online (see the companion website to this text for resources). Nurses who wish to take CEUs by using online resources need to make sure that the CEUs will meet the requirements of state licensure or certification.

Online CEU offerings can take different forms: text documents with examination questions returned to CEU provider by email, fax, or U.S. mail; asynchronous webinars with embedded examination questions that upload to CEU providers; synchronous webinars with question-and-answer sessions; and interactive tutorials with embedded questions that upload to a CEU provider. The ANA hosts Twitter chats occasionally found at #ANACHat; nurses who Tweet can participate in the discussion and earn free CEUs. Podcasts are also methods by which nurses can obtain CEUs.

Even complete certificate programs are available online from organizations such as the Institute for Healthcare Improvement's *Open School*. Completion of a series of asynchronous tutorials in patient safety and QI provide, at the time of this writing,

26 hours of continuing education with a certificate of completion for nurses and other HCPs. Certainly, universities offer certificate programs online such as post-master's certificates in nursing education, **nursing informatics**, and geriatrics.

Other methods of professional development may not provide CEUs, but they can help clinicians stay abreast of developments in their areas of interest. For example,

### **Box 2-3 Case Study: Establishment and Utilization of the IT/Nursing Workflow Group**

When change is inevitable for an organization, such as in a product, process, or pathway, it is in the best interests of the organization to include in the process of change those who would be defined as end users. The end user is someone who actually touches or uses whatever is being addressed. Involvement of end users assists in streamlining changes and creates an environment of appreciation and ownership that yields a greater volume of interest and increased morale.

Shannon's hospital is planning to upgrade the EHR admission assessment and charting workflow for nurses, and he is charged with getting direct care nurses involved in the process. Collaborative communication with a senior IT applications analyst resulted in a formal meeting for direct care nurses, held in a location away from the nursing units. Shannon schedules monthly meetings, allotting 4 to 5 hours for each, in order to provide an opportunity for the direct care nurses to voice concerns with the current charting and help make decisions regarding desired upgrades.

Several months before the scheduled upgrade, Shannon requested the nursing directors to ask each nursing manager to recruit a staff nurse to participate in the monthly meeting. Desired participants were described as direct care nurses who would be willing to speak up in a group of their peers and give honest input. Each would need to be proficient with EHR charting.

Each month the senior applications analyst worked with Shannon to establish an agenda for the meeting to coincide with the upgrade timeline. It was imperative that this group remained on task in order to meet the overall goal for the organization. Participation flourished in the beginning as workflow was redefined.

During the meetings prior to the upgrade, Shannon and the direct care nurses validated that there were several ways in which to chart multiple data elements. Identification of these multiple elements became a high priority, along with streamlining charting by nursing within the EHR. Duplication and cumbersome charting in the EHR were identified as nursing dissatisfiers, and as such became of high importance to nursing and hospital administration. The direct care nurses were glad to see that their concerns were heard and that they were trusted to work toward problem resolution.

Over the period of 9 months, Shannon was able to lead the direct care nursing workflow group in offering invaluable input into how nursing staff charts in the EHR. They minimized and streamlined charting pathways and gave input on the training materials for the upgrade roll out. Over time, staff nurse participation decreased and those who persisted brought vital worth to the project. These individuals also stepped up to assist in facilitating the education of their peers throughout the organization. This well-organized group created an improved charting path that was embraced by other bedside nurses throughout the hospital.

web-conferencing or voice over Internet with Skype or other methods can connect nurses to specialists in their areas of interest. With smartphones and/or Internet access, nurses can follow twitter feeds from universities, federal agencies, and well-respected healthcare organizations. From this simplest form to more complex adaptations, IT will remain an important means for nursing collaboration and maintaining continuing education.

## SUMMARY

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Nurses and other HCPs use health IT in all aspects of providing patient care. There is no choice about being competent with basic computer skills and with information management skills. The nursing informatics competencies are identified in *The Essentials of Baccalaureate Education for Professional Nursing Practice*, by the TIGER Initiative, and revised *Nursing Informatics: Scope and Standards of Practice* are under review at the writing of this book. Informatics competencies are required to improve nursing workflow and care delivery processes. Nurses who are competent users of technology can also keep themselves abreast of changes in practice by engaging in continuing education using interactive Internet- or mobile-based education.



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