Campaign for Nursing Curriculum Reform In Information Technology: Got IT?

Part I: IT and Health Care

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Most Americans today recognize that their health care has changed dramatically in the past few years. Advances in information technology (IT) have influenced everything from appointment reminders to telephone prescription renewals. IT is revolutionizing the business and practice of health care, and one would have to be asleep to discount or deny the inevitability of this continuous rapid change. Yet, as the federal government has cranked up its attention to lend a greater focus on the use of IT in health care delivery, health profession educational systems are falling short of the momentum they need to meet the challenges ahead. What was once considered on the horizon, somewhere off in the future, is now in our face – and it will soon be required rather than optional that graduates of nursing programs understand and apply information technologies in all aspects of nursing practice. Additionally, it will be critical that they assist in developing new technologies as they proliferate in health care environments. Using e-mail and word processing computer applications will not be sufficient technologies in nursing curricula.

Confronted with a new-age agenda for health care IT and feeling pressure from the federal government's recent announcements, several nurse experts in informatics and computer technologies have been meeting to promote these events as a nursing education "wake-up call." With a goal of transforming nursing education to embrace informatics knowledge and skills, these experts have taken up the cause to inform nursing leaders that the years ahead will unleash unprecedented activities in the fields of informatics, clinical practice, clinical education and simulation, and consumer involvement with decision-making. These fields share a common knowledge base but branch into diverse webs of technology development – each with significant potential impact on patient care.

It is essential that educators examine what they teach and how to better prepare nursing students to function in an electronic work environment in which patient records exist only in a digitized medium. In past years, faculty have only given lip-service to acknowledging the dynamite potential of these new technologies, and although several academic programs across the country have grown informatics specialists, there have been only incremental steps toward producing the necessary number of specialists and faculty to prepare undergraduate level IT-literate graduates for the workforce. These advanced professionals and all nurses will face the industry's demand for greater numbers of IT-competent individuals to meet the goals of the new informatics agenda.

The Historical Trajectory to Real Time Today

As originally defined, the development of nurses in the field of nursing informatics is less than 15 years old. Graves and Corcoran (1989) released descriptions of the field of nursing informatics, and Shamian and Aharoni (1991) proposed the concept of "informatization," which would show how integration of elements of informatics results in the synergistic use of computer science, information science, and discipline specific science in the generation of new knowledge. These were only a little more than a decade ago. Books were published to teach the nursing professional what existed and what could exist with their participation in using informatics (Hannah, Ball, & Edwards, 1994; Saba & McCormick, 1996). Turley (1996) offered conceptual models of the intersection of disciplines to define nursing informatics. Early guidelines for curriculum development published by Ronald and Skiba (1987) spawned an initial generation of computer applications in nursing courses worldwide. From these core elements, educational efforts emerged to describe faculty and clinical staff development (Ronald & Skiba, 1987), characteristics and attributes of learners (especially their anxiety related to using technologies) (Feeg, 1984), education and curriculum at multiple levels of practice (Gassert, Mills, & Heller, 1992; Graves, Amos, Huether, Lange, & Thompson, 1995), and a corporate and academic partnership to prepare faculties to teach nursing informatics courses (Skiba, Simpson, & Ronald, 1992).

The rapid deployment of computer systems in hospitals and health care environments over the past decade did, in fact, prompt organized nursing groups in education and practice to spawn documents from discussions with experts. In 1994, the ANA convened a panel of informatics experts to develop the *Scope and Standards of Practice for Nursing Informatics* (NI). In 1995, the ANCC created a Board Certification exam for Informatics Nurse Specialists. In 1997, the National Advisory Council on Nurse Education and Practice (NACNEP), established by Title VIII of the Public Health Service Act, and the Division of Nursing recognized the need to identify initiatives that would aid nurses to use technology. Their report acknowledged how NI is dynamic and constantly changing to reflect the maturation of the specialty. It highlighted the need to identify and incorporate informatics skills and competencies for all levels of education: basic, grad-

uate, post-graduate, specialization, and continuing education. Since this report, numerous studies have documented the importance of preparing informatics specialists (Carty & Rosenfield, 1998; Gassert, 1998; Staggers, Gassert, & Skiba, 2000). Other studies have identified four levels of informatics competencies for nurses (Staggers, Gassert, & Curran, 2002), information technology skills needed by nurses at time of entry into work (McCannon & O'Neal, 2003), and a survey of 672 baccalaureate and higher degree schools of nursing to determine what specific skills were being taught (McNeil, Elfrink, Bickford, Pierce, Beyea, Averill et al., 2003). In addition, ANA revised the *Scope and Standards of Nursing Informatics* in 2001 to refer to changes in the discipline and to identify beginning competencies for all nurses.

In a recent report by the Institute of Medicine (IOM) (2003) entitled, *Health Professions Education: A Bridge to Quality,* the IOM stated that doctors, nurses, pharmacists, and other health professionals are not being adequately prepared to provide the highest quality and safest medical care possible. The report recommends that educators, licensors, and accreditation bodies ensure that students develop and maintain proficiency in five core areas, one of which is using information technology. "Without a basic education in informatics, health professionals are limited in their ability to make effective use of communication and information technology in their practice" (IOM, 2003, p. 86). Organized nursing groups such as the American Association of Colleges of Nursing (AACN) and the National Institute of Nursing Research (NINR) have identified "essential" competencies and research areas for nurses that included recognition of information technologies (NINR Priority Expert Panel on Nursing Informatics, 1993). It is significant to note how recently these events occurred and how outdated their recommendations are in light of the new call for IT solutions for today's problems. The need for curriculum reform is upon us, and how we fare in this revolution of information technology will be a function of how we step up to the plate.

This call for curriculum reform is not original or new, and it is occurring against the background of the AACN's recommendations for structural and role change with the "Clinical Nurse Leader" role (AACN, 2003-2004), where all nursing roles will need IT skills. This revolution is different and is about core cultural change in our teaching approaches. Today we are challenged by the complexity of health care, the complications of privacy and security of information, the idiosyncracies of billing and payment, and the wide-open possibilities of health care choices. There are new stakeholders that include increasingly sophisticated consumers and a broad range of government overseers who try to maintain a necessary role in developing fair policies that promote efficient systems and safe care. In addition, many federal agencies, who relate directly and indirectly with health care delivery systems, are in the process of meeting, cooperating, formalizing processes, standardizing languages, and producing reports that will emphasize the "e" in e-Health initiatives.

These new reports and infrastructure recommendations will yield prolific developments in the industry that will pass by clinicians and end-users if they are not in *ready mode.* Ready mode means having a critical mass of technology-savvy users, a significant number of seasoned technology nurse

developers, and a leadership core in nursing that envisions the roles required and will commit resources. Many nurses are playing a role in the deliberations that will shape the electronic health initiatives of the next 10 years. Nursing leaders, particularly in clinical environments, must be present and prepared to partake in high-level discussions regarding the integration of IT into the nursing practice domain. Fluency in IT is a necessary skill for the nursing leadership, as is the expertise and knowledge of business, finance, and management. The nursing informatics community will need to look to the profession as a whole and influence change not only with the nursing leaders of today, but also the educators who will produce IT-competent nurses of the future. This effort includes the commitment of current faculty to gain the competencies expected of its students.

IT Data Delivery: The Silver Bullet of Health Care

Simpson (2003) argues that "how" data are represented in automated systems is tantamount to defining what "is" the process of health care and how it is delivered by nurses. He warns that with the nursing shortage looming ahead of us, IT is increasingly being "touted as the silver bullet." Although the promise of IT can make a difference to further the practice of nursing, he says that few would disagree that nursing has been traditionally slow to adopt important technologies. "Nursing must embrace the new technologies and use them to ensure that its unique contributions are recognized and advanced" (p. 118). Early attempts to incorporate clinical information systems were met with faculty resistance and lack of support (Jones, Skiba, & Phillips, 1994). A promising new venture to transform nursing education at the baccalaureate nursing level takes place at the University of Kansas School of Nursing, where faculty have started using a full clinical information system to teach assessment, planning care, evaluation-based case studies, electronic patient records, and expert reference data with Web access (Connors, Weaver, Warren, & Miller, 2002). In addition, the Johns Hopkins School of Nursing has recently partnered with the Eclipsys Corporation to re-engineer both undergraduate and graduate curricula by accentuating the integration of IT and nursing education. (Johns Hopkins University School of Medicine, 2004). Other programs are beginning to find integration of IT, possibly with partner activities of hospital institutions or vendors (Warren, Fletcher, Connors, Ground, & Weaver, 2004). The challenge is that IT movement into the health care industry is slow compared to that of the government and the provider.

Part II of this article will focus on the U.S. government's involvement with IT in the health care industry.

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References

American Association of Colleges of Nursing (AACN). (2003- 2004). *The clinical nurse leader: Developing a new nursing role.* Retrieved October 15, 2004, from www.aacn.nche.edu/NewNurse/index.htm

Carty, B.,. & Rosenfield, P. (1998). From computer technology to information technology. Findings from a national study of nursing education. *Computers in Nursing, 11,* 122-126.

Connors, H., Weaver, C., Warren, J., & Miller, K. (2002). An academic business partnership for advancing clinical informatics. *Nursing Education Perspectives, 23*(5), 228-233.

Feeg, V. (1984). *Effects of "hands-on" intervention on computer anxiety.* Poster presentation at the Region 6 meeting of Sigma Theta Tau, Pittsburgh, PA.

Gassert, C. (1998) The challenge of meeting patient's needs with a national nursing informatics agenda. *Journal of the American Medical Informatics Association, 5*(3), 263-268.

Gassert, C., Milles, M., & Heller, B. (1992). Doctoral specialization in nursing informatics. In P. Clayton (Ed.). *Proceedings of the Annual Symposium of Computer Applications in Medical Care* (p. 263-267). New York: McGraw-Hill.

Graves, J., & Corcoran, S. (1989). The study of nursing informatics. *Image, 21*(4), 227-231.

Graves, J., Amos, L., Huether, S., Lange, L., & Thompson, C. (1995). Description of a graduate program in clinical nursing informatics. *Computers in Nursing, 13*(2), 22-33.

Hannah, K., Ball, M., & Edwards, M. (1994). *Introduction to nursing informatics.* New York: Springer-Verlag.

Institute of Medicine (IOM) Board on Health Care Services.(2003). In A. Greiner & E. Knebel (Eds.). *Health professions education: A bridge to quality.* Washington, D.C.: The National Academies Press.

Johns Hopkins University School of Medicine. (2004). *Hopkins & Eclipsys working to re-engineer nursing curriculum with clinical IT.* Retrieved October 15, 2004, from http://www.son.jhmi.edu/newsandmedia/newsdetail.asp?ID=216

Jones, A., Skiba, D., & Phillips, S. (1994). Creating a 21st century learning lab environment for nursing. In S. Grobe & E.S.P.Pleyter-Wenting (Eds.). *Nursing informatics: An international overview for nursing in a technological era.* North Holland, Canada: Elsevier.

McCannon, M., & O'Neal, P. (2003). Results of a national survey indicating information technology skills needed by nurses at time of entry into the work force. *Journal of Nursing Education, 42*(8), 337-340.

McNeil, B.J., Elfrink, V.L., Bickford, C.J., Pierce, S.T, Beyea, S.C. Averill, C., et al. (2003). Nursing information technology knowledge, skills and preparation of student nurses, nursing faculty and clinicians: A U.S. Survey. *Journal of Nursing Education, 42*(8), 341-349.

National Advisory Council on Nursing Education and Practice. (1997). *A national informatics agenda for nursing education and practice. Report to the Secretary of the Department of Health and Human Services.* Washington, D.C.: U.S. Department of Health and Human Services. Health Resources and Services Administration.

NINR Priority Expert Panel of Nursing Informatics. (1993). Bethesda, MD: National Institutes of Learning.

Ronald, J., & Skiba, D. (1987). *Guidelines for basic computer education in nursing.* New York: National League for Nursing.

Saba, V., & McCormick, K. (1996). *Essentials of computers for nurses.* New York: McGraw-Hill.

Shamian, J. & Aharoni, I. (1991). The roles and responsibilities of chief nursing officer, and of chief information officer in relation to nursing informatics. In E. Hovenga, K. Hannah, R. McCormick, & J. Ronald (Eds.). *Proceedings of the Fourth International Conference on Nursing Use of Computers and Information Science* (pp. 137-141). New York: Springer-Verlag.

Simpson, R. (2003). Got Technology? How IT can - and can't - make a difference in the nursing shortage. *Policy, Politics & Nursing Practice,4*(2), 114-119.

Skiba, D., Simpson, R., & Ronald, J. (1992). Health Quest/HBO nurse scholars program: A corporate sponsorship with nursing education. In J. Arnold & G. Pearson (Eds.). *Computer applications in nursing education and practice.* New York: National League for Nursing.

Staggers, N., Gassert, C., & Skiba, D. (2000). Health professionals' views of informatics education: findings from the AMIA Spring 1999 Conference. *Journal of the American Medical Informatics Association, 7*(6), 550-558.

Staggers, N., Gassert, C., & Curran, C. (2002). A delphi study to determine informatics competencies for nurses at four levels of practice. *Nursing Research, 51*(6), 283-390.

Turley, J. (1996). Toward a model of nursing informatics. *Image: Journal of Nursing Scholarship, 28*(4), 309-313.

Warren, J., Fletcher, K., Connors, H., Ground, A., & Weaver, C. (2004). The SEEDS Project: From healthcare information system to innovative educational strategy. In P. Whitten & D. Cook (Eds.) *Understanding health communication technologies* (pp 225-231). San Francisco: Jossey-Bass Publishers.

Additional Reading

Murphy, J., Stramer, K., Clamp, S., Grubb, P., Gosland, J., & Davis, S. (2004). Health informatics education for clinicians and managers – What's holding up progress? *International Journal of Medical Informatics, 73,* 205-213.

Thompson, T.G., & the U.S. Department of Health and Human Services. (2004). *Decade of health information technology: Delivering consumer-centric and information-rich health care. Framework for strategic action.* Washington, D.C.: U.S. Department of Health and Human Services. Retrieved October 15, 2004, from http://www.hsr-net.net/nhii/materials/strategic_framework.pdf

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DEAN'S Notes™

Army Nurse Officer Honored, Promoted

Within 2 weeks, Maj. Gen. Gale S. Pollock, FACHE, assumed the position of Commanding General of Tripler Army Medical Center, Honolulu, HI, and became the 22nd Chief of the Army Nurse Corps.

On July 26, 2004, Pollock was promoted from colonel to major general all in one day at the Military Service for America Memorial at Arlington National Cemetery, Washington, D.C. It is unusual but not unprecedented to be promoted two ranks up, according to the Army's General Officer Management Office. She was then given the title of Chief of the Army Nurse Corps. Two weeks later, on August 11, Maj. Gen. Pollock assumed the position of Commanding General at Tripler.

Pollock now adds these to her growing list of titles, including Commanding General, Pacific Regional Medical Command; U.S. Army Pacific Command Surgeon; TRICARE Senior Market Manager, Hawaii; and Professional Filler System (PROFIS) Commanding General, 18th Medical Command.

Pollock received a Bachelor of Science in Nursing from the University of Maryland. She attended the U.S. Army Nurse

Gale S. Pollock

Anesthesia Program and is a Certified Registered Nurse Anesthetist (CRNA). She received her Master of Business Administration from Boston University, a Master's in Health Care Administration from Baylor University, and a Master's in National Security and Strategy from the National Defense University. She is also a Fellow in the American College of Healthcare Executives. Her past military education includes Senior Service College at the Industrial College of the Armed Forces, the U.S. Air Force War College, the Interagency Institute for Federal Health Care Executives, the Military Health System CAPSTONE program, the Principles of Advanced Nurse Administrators, and the NATO Staff Officer Course.

Pollock joined the U.S. Army to "take care of Soldiers." Her older brother, Robin, was injured during the Vietnam Conflict, but he came home alive. She resolved to make sure that someone else's brother or sister or mother or father would come home alive.

"The reward for taking care of people that we do – the Heroes that we care for – there's just nothing that feels better than working with these Soldiers," Pollock said.

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