information
edge

Nursing Informatics:
Opportunity knocks in an industry disrupted by IT

EXECUTIVE SUMMARY

Clinical transformation is one of those health-care-industry buzz-phrases that has actually become an authentic description of what provider organizations are undergoing today. This is an IT-enabled phenomenon, of course, as all SI members know intimately. There's no clearer evidence of this factor than in the explosion of nursing informatics, a professional role that takes a dollop of nursing care, mixes in a cup of IT and blends with a good dose of project management. Bake for a few years and, voila, you have a delicious, clinically transformed provider organization. Please excuse the metaphor, this is the November issue and the holidays are here.

Nursing informatics has become the catch-all phrase for a critically important function in this critically important transition: ensuring that best clinical practices are in place when an organization implements clinical information systems. The nurse informaticist is one who understands the patient-care process first and foremost and is also IT-savvy enough to guide its automation. Few jobs are as significant these days in making IT work in the clinical setting. Given this demand and the fact that nurses are already in short supply, it's not surprising that there's also a shortage of nursing informaticists.

To get a snapshot of where nursing informatics is, we interviewed some of the leading national experts in nursing informatics to determine how they define this new role and how leading delivery systems utilize it. While nursing informatics is helping change the way we deliver care in this country, it's also changing the face of nursing, creating new, dynamic leadership positions at provider organizations, academia, vendors and consultants. As technology disrupts healthcare, it opens the door of opportunity for nurses everywhere.

Expanding universe

"Nursing informatics is very much expanding," says Joyce Sensmeier, RN, VP of informatics at the Healthcare Information and Management Systems Society (HIMSS) in Chicago. "I've been in this specialty since 1986, when I was a computer-system trainer. Even in the last five years there are more roles—and existing roles have expanded for nurse informaticists, from the director level to the VP," she says, adding that HIMSS counts 2,000 nurses as members, 10% of its total.

The American Nurses Association first developed the scope and standards of practice for nursing informatics in 1992, revised it in 1999 and is currently revising it a second time. "That's a marker of how the substance of the specialty has

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Joyce Sensmeier, RN, VP, Informatics, HIMSS, Chicago

matured," says Sensmeier. Also, more nurses are pursuing education in informatics, from training certificates to formal master's degrees. "When I first started it was on-the-job training."

Driving all this is the huge number of clinical systems being implemented at hospitals and health systems. The HIMSS Leadership Survey last spring found that many of these organizations are looking to fill roles of clinical champions and others to perform clinical transformation. Critical to successful adoption of those systems is to be able to understand, analyze and improve clinical workflows. "You can't just leave it to the IT team and physicians," says Sensmeier. Nurses provide input at the beginning of an IT implementation, leadership, implementation support and they reach out to other nurses to get system buy-in and ultimately user adoption at Go Live.

The professional attributes of nursing argue for a central role in IT, she says. "The nurse interacts with so many other team members *and* is an advocate for the patient. He or she has a 360° view of everything associated with patient care. In understanding patient safety, for example, nurses have been safety champions. We understand the importance of collaborating with peers and physicians. I think we will see tremendous growth in nursing informatics with more nurses getting involved in national activities, creating a collective voice, more papers, presentations and participation in national advocacy groups, standards and certification panels. There's an awakening in nurses."

Underscoring this trend, Sensmeier cited last month's TIGER (Technology Informatics Guiding Educational Reform) Summit in Bethesda, Md., which brought together various nursing specialties to examine changes in curricula and practice in response to the deluge of clinical IT systems hitting the industry. The summit's theme is that informatics will be to the 21st century what the stethoscope was to the 19th and 20th.

What's in a title?

While new roles for nursing informaticists seem to pop up daily, hospital HR departments haven't been able to keep up with all the new job titles and pay rates, according to Mimi Hassett, MS, RN, FHIMSS, director of clinical informatics at Berkshire Health Systems in Pittsfield, Mass. She highlighted changes in the nursing informatics role and title in an audio conference for Scottsdale Institute entitled "A Case Study in Defining the Nurse Informatics Specialist Role." [Members can access this presentation and audio file on the SI website at www.scottsdaleinstitue.org, Sept. 19, 2006.]

Mimi Hassett, MS, RN, director, Clinical Informatics, Berkshire Health Systems, Pittsfield, Mass.

"These new roles are often difficult to define for an HR department," says Hassett. "What is the job? Are we setting up a new position or is it a job that somebody's already doing? It could be data analysis but in a project management role," she says, adding that director positions are often used as a catch-all title.

Another factor that shapes the job is an organization's reporting structure. Nursing informatics bridges both the clinical and IT spheres. "Should nursing informatics be placed in IT, nursing or business? If it resides in the IT department, most work will be specific project management work. If it's in the clinical department the focus is more on workflow or change management, the user experience rather than the system. If nursing informatics is in a specific department there's much more of a business-objective focus as opposed to an application focus. Where the individual is placed depends on where the focus is," says Hassett.

The nursing informaticist role also depends on the organization's culture and whether it fosters cross-departmental association. Organizational readiness is an issue. For example, the more automated an organization is the easier it is to cross boundaries. Communication can be a challenge for nursing informaticists depending on the corporate culture also. Hassett says informal communication is important to the development of the credibility of the nursing-informaticist role with outlying departments and areas. Formal kinds of communication can be embedded in governance structures like a project steering committee, which can distribute minutes of meetings to all staff.

Hassett says communication with IT is necessary on a number of levels. "The technology will change as quickly as you learn it. You need to develop a way of talking to your technical folks on what the priority is from a clinical perspective, which is information. On the technical side the priority is to keep everything running."

The ability to develop alliances is also a critical part of the job, best achieved through informal networking. "Administrative alliances are key because none of our projects is free from a resource, educational or capital standpoint," she says. Hallway and telephone conversations, "email with punch" are all important. "It's talking to the right people at the right time in the right place."

Regarding the future of the nursing informatics role, Hassett says, "The real problem facing nursing informatics is marrying the technology to the workflow and enhancing the user experience with technology. You have to be cost-conscious, consumer-driven and web-connected. You need to manage and schedule in a virtual environment. In the end, the title doesn't restrict the type of work being done."

A thousand flowers blooming

Like many leaders in the field, Colleen Prophet, RN, MA, director of nursing informatics at the University of Wisconsin Hospitals and Clinics in Madison, was in nursing informatics before it was called that. She's witnessed everything change. "There are so many roles for nursing informaticists within healthcare organizations—it's an incredibly broad field covering everything from medical informatics to human-factors engineering," she says. Also, nursing informaticists hold corporate leadership roles at clinical IT vendors, work in the consultant ranks helping with system design and development and implementation, and serve as educators.

"It's a role that supports so many aspects of patient care. Automation is a foundation and tool for quality, but informatics brings it to life," notes Prophet. Early in the use of IT in healthcare, nurses were hired to work with computers and IT staff; it was a matter of how clinicians could adapt to the computer. Today informatics is in ascendance and it's a matter of how IT can enable patient care and safety. It's a paradigm shift so permeating care that, she says, "We need to learn to use IT as the finance and banking industries do."

Colleen Prophet, RN, director, Nursing Informatics, University of Wisconsin Hospitals & Clinics, Madison

The change reflects computer evolution generally. Original systems were created in a hierarchy for dichotomous, binary thinking. Mainframes then made it possible for single decisions. Now it's exponentially more sophisticated.

"Clinicians live in the gray world, not black and white," says Prophet. "Computers today allow them to maneuver through that gray world. The evolution to PC-based systems has suited them. Clinicians are very good at adapting to technology, but when you think about how they make decisions new systems allow much more of the maneuverability they require. In old systems you went to the lab system to view the lab results, now you go to the EHR to see lab results plus a patient's fluid balance and nursing interventions. You obtain data and decision support from computers with the patient at the center of it all."

Nursing informaticists are the chief translators in this world. "It's a change from teaching clinicians how to use computers to designing computer systems to serve the clinician. Among other things, that involves an ongoing dialogue with vendors, which is another major advance. We have lots of partnerships with vendors," Prophet says.

Not geeks

Clinical process is the sine qua non of nursing informatics, a fact borne out daily at hospitals whose somewhat cumbersome inpatient systems nevertheless are quite successful because their design matches best clinical practices. "Even very good software will fail in an environment that lacks good processes," says Prophet, and that's why the role of the nursing informaticist is to ensure that automation software resides within a fundamental understanding of evidence-based best practices. "The bulk of the work doesn't involve automation, it's to support best practices. Some of the best informaticians are not computer geeks. Informatics people are extremely well grounded in practice. An understanding of a particular system is not informatics," she says.

Prophet feels like she's seen it all: After a stint at the University of Iowa Hospitals and Clinics, which favored a build-your-own IT approach, she went to a national for-profit hospital chain that outsourced its IT, then moved to a vendor of an integrated, multi-facility system before assuming her current position at yet another leading academic medical center. "What's been useful to me is not detailed knowledge of how a system works, but lots of experience with lots of clinicians in lots of settings. It's allowed me to come to a more strategic conceptual view—with grounding in excellent clinical systems, not exact specifications of functionality," she says.

Today nursing informatics is more multidimensional than ever. "It's an incredible career choice, the field is so broad. So many organizations need expert clinicians to drive automation," declares Prophet, adding that a big influence has been the development of standardized clinical nomenclatures like NIC (Nursing Interventions Classification) and NOC (Nursing Outcomes Classification) which are accepted by the ANA and used to build clinical content in systems. But that's not all. It is only with the availability of powerful databases in recent years that healthcare organizations have been able to tap the potential of those standardized nomenclatures. "What's helped us is not having to

develop clinical databases from scratch. It's a huge advance in the field of informatics."

A good fit

At many large provider organizations, nursing informatics has matured from IT origins.

"When I started working in the IT department 22 years ago, it was a very new area," recalls Judy Murphy, RN, VP of information services at Aurora Health Care, a 14-hospital, 120-clinic, integrated delivery system based in Milwaukee. Today nursing informatics covers three areas at Aurora: 1) *Education*—working with undergraduate nursing programs to ensure an understanding of computers is part of the core curriculum. There are also Masters and Doctoral programs that specialize in nursing informatics. 2) *Research*—examining how clinicians use computers and how that changes nursing practice and patient outcomes. 3) *Applied Informatics*—informatics used directly in care delivery. "That's where I fit," says Murphy. Aurora is developing and implementing clinical systems and one of the ways informatics is used is in the adaptation of workflow when using computer systems.

Judy Murphy, RN, VP, Information Services, Aurora Health Care, Milwaukee

Aurora has clinical staff, including over 6,000 nurses, doing online documentation and eMAR. In 2007 they are implementing CPOE at three of 14 hospitals and rolling out bar coding for both patient ID and medication ID. Aurora is also committed to embedding evidence-based knowledge into care planning, so nurses will be able use the computer to review what they need to do and chart against the plan of care as they execute it. They are also using evidence-based knowledge to inform their order sets for CPOE.

"The biggest new area of research," says Murphy, "is to determine what we do as nurses that make a difference—discovering new evidence-based nursing knowledge. For example, a patient having an MI should be on aspirin. As an industry we haven't spent as much time looking at nursing interventions as we have on physician interventions. One way computers can help is in collecting the kind of data that tells us, when nurses do intervention A versus B, which is better? There's a fair amount of research going on and we're building up a good database of knowledge, yet, we're just at the beginning. It's a young discipline."

Murphy says that young discipline faces a big challenge in meeting demand for nursing informaticists because, while there are three or four times as many nurses as doctors, there's already a shortage of nurse informaticists. Education has ramped up to do its part. "When I first started there were only two master's programs. There are 40 to 50 now, including online distance learning options. Yet, there's still a shortage and job opportunities for trained or experienced nursing informaticists abound. In some cases across the country we're doing implementations without trained personnel. We need people—not just to help with implementations but to ensure system integration with workflow and processes," she says.

The nursing-informaticist role can fall under different models, she says, including reporting under nursing, under IT, or joint-appointed under a combination of the two. "We have all of those models at Aurora. I'm in the IT department with a

Academic affiliates of the health system include the University of Missouri-Columbia School of Medicine, Sinclair School of Nursing and School of Health Professions. Other affiliates of the health system include Rusk Rehabilitation Center in Columbia, Mo., Capital Region Medical Center in Jefferson City, Mo. and Cooper County Memorial Hospital in Boonville, Mo.

Welcome George Carr, CIO, and the entire University of Missouri Health Care team.

staff of 150. Some are programmers with IT background, others are clinical staff working as business analysts. There are 15 nurses, a couple of radiology techs, pharmacy techs and health information management people. A physician works in the department to provide a bridge with clinical staff. We also work with nurses who have been taken out of their traditional patient-care roles but who continue to report under nursing at their individual hospitals, and serve as liaisons to IT during implementations. They're our feet on the street. They're also the leave-behind for ongoing support," says Murphy.

She dismisses the potential for departmental turf battles that such a structure might foster. "It works great here. These implementations are way too hard for anybody to get fussy about who does what. It's about people, process and technology. IT knows how to configure software; nursing informaticists know people and processes. It's a real nice pairing."

Still, she suggests the bigger burden may fall to nursing informatics. "There are a lot of IT people who can learn the healthcare side of things, but I'd submit that's a lot harder than the other way. Healthcare is so complex. A lot of systems are real-time interactive. Introducing technology is so disruptive. Clinical systems are not like an admitting department or patient accounting, which are very logical. That's why hiring sophisticated nurse informaticists is now considered part of the cost of clinical-IT implementation."

Spokes of the wheel

A thousand-plus miles to the east in Boston, nursing informatics is playing a big role at Partners Healthcare System, a traditional leader in clinical IT.

"Where we're really seeing an impact is in documentation decisions in the in-patient

Cindy Spurr, MBA, RN BC, corporate director, Clinical Systems Management, Partners Healthcare System, Boston

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setting," says Cindy Spurr, MBA, RN BC, corporate director of clinical systems management at Partners. That's where nursing informaticists are extremely valuable because they have a good feeling for nursing and for IT. "The nurse is one member of the care team who understands all the spokes of the inpatient healthcare process while maintaining an overall IT view, which is extremely useful," she says.

Spurr uses her nursing degree to lead clinical IS efforts with a team of 120 staff; four out of five of her corporate managers are nurses. The team is dispersed across implementation and support of CPOE, medication administration, ambulatory record, documentation and the clinical data repository. "None of them have the title of nursing informaticist except for one person, our official nurse informaticist who actually works in our Clinical Informatics, Research and Development group. She is critical to us for our major initiatives and research," she says.

Patricia C. Dykes, RN, DNSc, senior nurse Informaticist, Partners Healthcare System, Boston

That person is Patricia C. Dykes, RN, DNSc, Partners' corporate-level Senior Nurse Informatician. Armed with a doctorate from Columbia in 2004, she focuses about equal time on informatics research and as an expert consultant in clinical

documentation for the whole health system. The remainder is spent on emerging technologies.

For example, she just completed research on digital-pen technology that allows electronic capture of the information patients write down about their symptoms on standard waiting-room questionnaires. Still under analysis is research about the use of handheld devices for capturing nurse patient-assessment data.

It's the combination of this type of research and the ability to make a difference for nurses caring for patients that Dykes finds compelling. "This is a very exciting time for nurses, who are experts in workflow and hold the knowledge of clinical processes," she says, adding that for the first time major IT vendors are beginning to understand the vital role nurses play in applications development. "Nurses are positioned well to identify and correct systems flaws before they become barriers to HIT adoption and lead to workarounds."

Dykes also chairs the HIMSS Nursing Informatics Committee, which strives to promote and support the field of nursing informatics through knowledge sharing, advocacy, collaboration, innovation, community affiliations and advisement on public policy issues. The HIMSS nursing informatics community conducts research on nursing informatics trends nationally and internationally and is active in developing tool sets in areas like project management. Resources developed by the HIMSS nursing informatics community are

available on the HIMSS website (http://www.himss.org/ASP/topics_nursing Informatics.asp). HIMSS also just published a textbook entitled *Nursing and Informatics for the 21st Century*, edited by four prominent nurse informaticists: Charlotte A. Weaver, RN, PhD; Connie W. Delaney, RN, PhD, FAAN; Patrick Weber, RN, MA; Editor, Ms. Robyn Carr.

Conclusion

Ultimately, nursing informatics is about advocacy and empowerment for nurses, says Spurr. "It's a double-threaded trend," she says. "Nursing informatics is helping implement clinical systems and nursing itself become more comfortable with computers. Nursing informaticists are conveying to nurses on the floor how technology can really help them and they're building confidence in the nursing profession to stand up and say this is what we need, this is how we practice. They don't look like deer in headlights anymore. Nursing informaticists are seen as advocates—very much depended upon in a positive way."

Spurr says nursing informaticists are helping nurses realize they don't have to be afraid of technology, unlike physicians who gravitated to IT more easily—Spurr claims physicians' vaunted resistance to IT is really about change, not technology itself. "That's also because in the past we've focused IT people with clinical backgrounds on doctors. We're finally doing that with nurses. Now, nursing as a science and practice is really beginning to recognize and capitalize on the value of IT."

Resources developed by the HIMSS nursing informatics community are available on the HIMSS website (http://www.himss. org/ASP/topics_nurs ingInformatics.asp).

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