



# THE JOURNAL

of the New York State Nurses Association

SPRING/SUMMER 2006

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## Nursing Informatics

- **Community Readiness for a Computer-Based Health Information Network**  
*by Naomi E. Ervin, PhD, RN, APRN-BC, FAAN; and Michelle M. Berry*
- **An Innovative Approach to Educating Nurse Informaticians**  
*by Martha Kelly, EdD, RN*
- **The NurseResponse Emergency Database: Lessons Learned**  
*by Tina Gerardi, MS, RN, CAE*
- **Tales from a Public Health Disaster**  
*by Ruth Whittaker, RN; Jane S. Falvo, RN, BS; Judy Hoberg, RN, BSN; Kelly Jeanne Young; and Thomas Lowe, MPH, RN, COHN-S, COHST*



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**SPRING/SUMMER 2006, VOLUME 37, NUMBER 1**

■ Editorial .....	3
■ Community Readiness for a Computer-Based Health Information Network .....	5
<i>by Naomi E. Ervin, PhD, RN, APRN-BC, FAAN; and Michelle M. Berry</i>	
■ An Innovative Approach to Educating Nurse Informaticians .....	12
<i>by Martha Kelly, EdD, RN</i>	
■ The <i>NurseResponse</i> Emergency Database: Lessons Learned .....	16
<i>by Tina Gerardi, MS, RN, CAE</i>	
■ Tales from a Public Health Disaster .....	18
<i>by Ruth Whittaker, RN; Jane S. Falvo, RN, BS; Judy Hoberg, RN, BSN; Kelly Jeanne Young; and Thomas Lowe, MPH, RN, COHN-S, COHST</i>	
■ Bibliography: Nursing Informatics .....	22
■ What's New in the Healthcare Literature .....	23

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## ■ EDITORIAL

### Using Your Voice: Publishing Your Perspectives

This issue of the *Journal of the New York State Nurses Association* focuses on both nursing informatics and nurses' involvement in disaster planning and management. Frankly, this issue has two themes because we did not receive enough articles on either topic to focus on just one of them. Both themes are critical, however, for communicating areas of nursing practice that will influence nursing in the future.

We hope that this issue of *Journal* will inspire authors to submit articles on these topics for future publication.

Nursing informatics is critically important because the healthcare system is moving toward adoption of Electronic Health Records (EHRs). Naomi Ervin and Michelle Berry describe efforts to determine community readiness for a computer-based health information network. Martha Kelly explains how one school is preparing nurses to meet the current need for RN specialists in informatics.

The U.S. government plans to build a national electronic health infrastructure over the next 10 years (United States Department of Health and Human Services, 2004). Billions of government and private dollars are being spent on this effort. The ultimate, and soon to be accomplished goal is that all healthcare records will be computerized.

One of the main purposes is to improve the quality of health care by preventing medical errors. Universal electronic records will allow computerized data to be aggregated and compared across agencies and localities, measure the quality of care, and demonstrate what works and does not work to improve quality.

One implication of this plan is that healthcare facilities in New York State must be prepared to document nursing data using computer hardware and software. Many issues need to be addressed to prepare for these changes in healthcare documentation. Additional articles are needed to help nurses deal with this major change. Topics might include how the use of EHRs will affect nursing practice in New York State; strategies to improve nurses' computer and information management literacy; the need for computerized systems that can record nurses' diagnoses of human responses, nursing interventions, and patient outcomes that are sensitive to changes in the quality of nursing care; the use of standardized nursing classifications in computer software; ways to prepare for implementation and confidentiality of EHRs; examples of what nurses have learned from implementation of EHRs; and how nurses are being taught about EHRs.

The importance of disaster planning and management in the computer age is highlighted in the article by Tina Gerardi. Disaster planning through computer databases such as New York's *NurseResponse* makes it possible to quickly and efficiently match nurse volunteers with the needs of people who are in the midst of a disaster.

The stories describing the experiences of nurses in the aftermath of Hurricane Katrina can inform future volunteers. One of the proposals before the 2006 American Nurses' Association (ANA) House of Delegates was to recognize and honor nurses who respond to emergencies and disasters and to strengthen relationships of the ANA with the American Red Cross and governmental agencies during times of disaster.

*Continued—*

Nurses have long had a social contract with communities to provide nursing care and organizational skills when disasters occur. Future *Journal* articles are needed on community and agency-based disaster and emergency planning so that nurses' accomplishments and experiences can be used as guidelines for disaster planning. For example, articles could provide examples of state and national policies that define employers' legal and moral obligations to release nurses from work to respond to calls for nurse volunteers and could describe use technology such as personal data assistants (PDAs) and text-messaging phones to communicate during disaster events. Craig Mundie, chief technology officer for Microsoft, has stated that one of the 10 forces that have flattened the world was the "diffusion of personal computers, fax machines, Windows, and dial-up modems. . . to create the basic platform that started the global information revolution" (Friedman, 2005, p. 53).

During this new information age, nurses are able to learn about and respond to disasters almost immediately, wherever and whenever they occur. The Internet is a potent, useful tool for disseminating both truths and untruths (Friedman, 2005, p. 433). We have seen this happen with the World Trade Center attack in September 2001, the Indonesian tsunami in December 2005, and Hurricane Katrina in August 2005. Nurses can harness the power of technology to collaborate globally with colleagues and the public to promote health and respond to disasters.

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Georgia Millor, DNS, RN  
Guest Editors

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## Community Readiness for a Computer-Based Health Information Network

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Michelle M. Berry

### Abstract

The need for timely and accurate communication among healthcare providers has prompted the development of computer-based health information networks that allow patient and client information to be shared among agencies. This article reports the findings of a study to assess whether residents of an upstate New York community were ready for a computer-based health information network to facilitate delivery of long term care services. Focus group sessions, which involved both consumers and professionals, revealed that security of personal information was of concern to healthcare providers, attorneys, and consumers. Physicians were the most enthusiastic about the possibility of a computer-based health information network. Consumers and other healthcare professionals, including nurses, indicated that such a network would be helpful to them personally. Nurses and other healthcare professionals need to be knowledgeable about the use of computer-based health information networks and other electronic information systems as this trend continues to spread across the U.S.

The need for timely and accurate communication among healthcare providers has prompted a call for the computer-based patient record (Institute of Medicine, 1991). A computer-based patient record, however, is only one part of a system needed by health and human service professionals to better serve their clients.

Elderly individuals, for example, may change their places of residence and healthcare sites due to changes in their health status and physical needs. They may move from home to hospital, to a skilled nursing facility, to a rehabilitation unit, to an assisted living facility, to a long-term care facility, and back home where they receive home healthcare services. Their healthcare data needs to move with them.

A computer-based health information network allows the sharing of information and data by the various agencies and individuals providing care to the same person (Maglaveras, Chouvarda, Koutkias, Meletiadiis, Haris, & Balas, 2002; Takada et al., 2005). The readiness of the general public and healthcare professionals for computer-based health information storage and exchange no doubt varies from community to community.

The purpose of this article is to report findings of a study conducted to assess whether members of a particular community were ready for a computer-based health information network to facilitate delivery of long term care services. Planning and implementing a computer-based health information network would be difficult, if

not impossible, without community acceptance for such an innovation. Rogers (1995) emphasized the need to collect data about how individuals perceive an innovation. In this study, the innovation was the use of a computer-based health information network to collect, store, and share healthcare information.

### Background

The Computer Network Committee was formed in an upstate New York community in June 1998. The interdisciplinary committee was composed of members representing over 30 individual organizations. Nurses on the committee included a nurse faculty member from the local state university school of nursing,

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*The mission of the committee was to develop and maintain a computer-based information system for facilitating timely and efficient delivery of long term care services.*

a nurse from a local hospital, and representatives from various organizations. Representatives of other organizations and coalitions included an association of 11 nursing home facilities, a coalition of 15 home health care agencies, the rural library association, and county government health and social service agencies.

The mission of the committee was to develop and maintain a computer-based information system for facilitating timely and efficient delivery of long term care services. The goals of the system were: 1) to allow information sharing among and between providers; 2) to facilitate more efficient service delivery to the clients by reducing duplication of information; and 3) to generate reports on client characteristics to assist in identifying service gaps. The committee was interested in obtaining funding to pursue the proposed project.

During the committee's discussions, the group began to question its assumptions about how comfortable consumers and professionals might be about using the computer to build and share patient or client information. In order to obtain accurate data about the readiness of the community to use a computer-based health information network, the committee conducted a series of focus group sessions. Findings from the focus groups were to be used to further the work of the committee, including the possible development of a grant application to fund an information network.

## Literature Review

Some countries have implemented computer-based health information networks. Models and applications of information systems have emerged from Germany (Bergmann, Bott, Hoffmann, & Pretschner, 2005), Greece (Malamateniou & Vassilacopoulos, 2003), Italy (Ricci & Serbanati, 2005), and Japan (Takada, et al., 2005).

Although these countries have implemented several aspects of electronic information sharing, few studies have reported about attitudes or perceptions of various

stakeholders. Innovation diffusion theory posits that exposure to an innovation will have little effect unless individuals perceive the innovation as relevant to their needs and consistent with their beliefs and attitudes (Rogers, 1995).

The few published studies on this subject have demonstrated positive views of computer-based networks from older individuals and medical professionals (Morin, Tourigny, Pelletier, Robichaud, Mathieu, Vezina, et al., 2005; Rogers, Agius, Garwood, Rector, Chen, Hussey, et al., 2004). One study found that individuals were willing to share information over the Internet but also were concerned about security of the data (Carroll, Zimmerman, Rivara, Ebel, & Christakis, 2005).

## Method

The current descriptive study used the focus group technique (Krueger, 1994) for collecting information from 28 participants during five sessions. Focus groups are homogeneous groups usually composed of six to 10 individuals who agree to provide their perceptions and views in a non-threatening atmosphere. Questions provide the structure for focus group discussion (Burnes & Grove, 2001). Permission to conduct the study was granted by the Institutional Review Board of Binghamton University, New York.

## Setting

The study was conducted during 2000-2001 in County A and County B, one a mixed urban and rural county and the other a rural county, located on the border of New York and Pennsylvania. In 2000 the population of the County A was 200,536 and the population of the County B was 51,784 (U.S. Bureau of the Census, n.d.). People from both counties are likely to work, shop, and access medical services from the same urban core of the larger county.

According to the 2000 U.S. Census, residents age 60 and older comprised 17.6% of the population in County B and 20.7% in

County A. Both of these percentages were higher than the state (16.8%) and national (16.2%) levels (U.S. Census Bureau, n.d.). Mirroring the rest of the nation, the 85-and-older population segment showed the greatest growth in both communities, increasing by approximately 33% between 1990 and 2000. These individuals are the most likely to suffer chronic illness, disabling conditions, and functional decline.

## Sample

Convenience sampling was used to recruit 28 individuals who participated in five focus group sessions. Participants were recruited by committee members through word of mouth and invitations to individuals who were known by committee members. There were three professional groups: attorneys, physicians, and members of a home health care coalition. Two consumer focus groups drew participants from the two counties.

A total of 16 consumers (7 men and 9 women) participated in the two consumer focus groups. Fourteen were over 60 years old. The other participants were in their 40s or 50s. All except the two youngest members were retired or semi-retired. Five had incomes over \$30,000, six had incomes of less than \$30,000, and five did not answer the question. The consumers had access to computers in a variety of locations, including home, library, work, relatives' homes, and senior centers.

Five male attorneys participated in the attorney focus group. One was employed by local government; the rest were in private practice; and all were in their 40s. All attorneys had access to computers at work and home. The physician group consisted of one retired female and three males, with ages ranging from 40s to 70s. All had access to computers at work and home. None of the physicians or attorneys reported their incomes.

The professionals from the home health care coalition represented a group of licensed and certified home care agencies. There were three members, with one male representing a

government provider and two females from licensed home care agencies, both of whom were registered nurses. The participants had access to computers at home and work and ranged in age from 30s to 50s.

## Procedure

Questions used in the focus group sessions were developed by the computer network committee members. Three groups used a set of 10 questions and the attorneys' used a set of nine questions. Every group was asked, "How do you currently use computers in your life?" For consumers, two key questions were: "If a system was available to get information about your health, what information would you be willing to put in the computer?" and "What information about yourself would you be willing to provide for a computer network linked to health and human service agencies?" For the professional groups, questions included: "How do you currently collect information from clients and other providers?" "If a computer network was available, would you use it?" "What are your concerns about having client/patient information on the computer?"

Network committee members who volunteered to conduct the focus groups were trained by the committee chairperson, a registered nurse who had previously conducted focus group sessions. The training followed the steps and techniques presented in Krueger's publication (1994). Volunteers were given information about the philosophy of the non-threatening atmosphere and about how to organize and conduct the sessions. They also were given time to role play conducting a focus group.

Two committee members conducted each focus group. One member facilitated discussion and wrote group members' answers on flip charts while the other member took notes and operated the tape recorder. The focus group sessions were held in various locations at convenient times for the participants. Participants completed consent and demographic information forms before each session. Each session lasted about one hour.

## Findings

The major findings from the focus groups are summarized below, using broad topics derived from the questions.

### **Current Computer Use: All Groups**

The 28 focus-group participants identified involvement in 22 computer activities, some wide-ranging enough to include activities such as entertainment and Internet searches. One consumer did not use personal computers. The other 27 focus group participants used computers with varying degrees of enthusiasm. One participant (an attorney) used personal computers grudgingly; the other participants who used them expressed a high degree of integration of personal computers into their lives, especially the physician group. Physicians

reported using technologies such as hand-held computers and, on the whole, were the most informed and enthusiastic about the use of computers. All participants who used computer technology expressed interest and positive attitudes.

### **Current Computer Use: Professional Groups**

All members of the professional groups used handwritten paper documentation in their practices. They also, however, had integrated some computer technology into their practices. Physicians used hand-held computers and coding software. They anticipated using a software package that would include voice-activated word processing, record keeping and organization, billing, and ICD-9 coding capabilities.

Attorneys used e-mail, fax, and computer discs to exchange information with clients and for group editing of documents with colleagues. In the future, they speculated posting educational information on Web sites, widening their practices geographically, and being able to increase personalization of service.

Home care coalition members used both telephone and personal interviews for data collection. Transfers of initial information were occasionally done by fax. Data were collected on paper and then entered into a computer by support staff. A paper copy of a care plan was placed in an agency chart and the home of the client. Coalition members cited many computer uses, including billing, service delivery tracking, budgeting, staff scheduling, doctors' orders, and accessing Medicare forms.

### **Concerns: All Groups**

Confidentiality and security were by far the most talked-about concerns and were raised as issues in all focus groups. All participants in the professional focus groups said they would require assurance that all agencies involved in a computer network would adhere to security standards.

A second concern among all groups was the accuracy of shared information. The question, "Where will accountability lie for accuracy of data?", was raised in all groups, and there was speculative discussion about whether every agency in the network would have the ability to add or edit patient information or only have the ability to read it.

The concept of informed consent was discussed at length. Questions included: "For what length of time would consent be valid?" and "Could the network expand without the knowledge of clients?". Attorneys were cautious on the matter. Medical professionals considered informed consent to be critical. Consumers recognized their right to be informed.

The consumers expressed an interest in the reasons for having a health information network and had a variety of opinions about what information should be posted on a network. Without reassurances of security of information, some consumers stated they would be unwilling to provide any personal information unless their identity was obscured. Others said they would be willing to enter diagnoses, blood type, organ donation information, and prescribed medications but were not willing to disclose financial information or social security numbers.

**"If a system was available to get information about your health, what information would you be willing to put in the computer?"**

Standardized questions were thought to be easier for a consumer to use than an expectation of narrative in which they were to enter technical information about their health and care. It was recognized that compatibility and standardization of software would be necessary.

**Concerns: Attorneys**

Attorneys expressed caution about sharing information via computers. They were concerned about their professional liability in protecting clients' interests and stated that there was very little information they would advise clients to share on computers. The attorneys did, however, recognize the advantages of a network if client consent was obtained.

The information age has raised the bar for client expectations: They expect more to be done more quickly. Attorneys wondered whether information filed on a network would be admissible in a court of law. They believed that there were legitimate reasons for omitting personal financial information from records. Attorneys' other concerns were more technically oriented, such as viruses, hackers breaking in to obtain information illegally, and system crashes.

**Concerns: Coalition Members**

Home care coalition members were concerned about provider bias in approaching a client if a great deal of information was provided prior to the first visit. They also questioned the assumption that computerization would make things easier. In fact, they said, new problems frequently are created with the addition of technology.

They expressed concern that wider access to information could lead to new and unfamiliar competitive practices in the home health care industry. For example, using the information on the network, a provider could send a direct mailing to competitors' clients, offering "better" services or lower prices.

To eliminate the risk of misunderstanding and improve accuracy across agencies, focus group participants identified the need for a universally accepted terminology among network members. They raised concerns about the usefulness of the network information, as clients' conditions, especially among the elderly, may change quickly. Accuracy could be affected by client confusion, the complexity of systems or service delivery, and lack of information about agencies involved, both past and present. The participants wondered who would be responsible for keeping the data current.

**Concerns: Consumers**

Consumers were concerned about elderly people having difficulty using hardware, e.g., the keyboard is too sensitive; the mouse is difficult to control with accuracy. Individuals with impaired vision would need special hardware. Costs of hardware, the complexity and perceived difficulty of using a variety of software packages, and fear of losing important data were raised as issues.

Consumers were asked: If you don't use a computer, what would entice you to use it? They suggested free hardware, sufficient instructional support, and the desire for change and socialization.

**Concerns: Physicians**

Participants in the physician group were the most familiar and involved with using computer technology in their professional lives. They recognized system crashes as problematic and the cost of storing information as prohibitive to good record keeping. A tangential concern was how outcome-oriented practice evaluation raises the ethical dilemma of patient care versus profitability, and whether a network would be used in such an evaluation. Would insurance companies use outcomes data to drive and control medical practice, thus establishing mandatory costs per condition?

**Desired Outcomes: All Groups**

Consumer education through greater access to specific information and increased use of e-mail was viewed as having potential benefit. In general, greater time efficiency for all involved was also noted, as was the potential for increased accuracy through sharing information.

**Desired Outcomes: Attorneys**

Attorneys expressed a willingness to share information that is already public, such as Medicaid eligibility, nursing home admissions processes, and newsletters. They also agreed that a network would be useful if they had access to information early in a client relationship, making it possible for them to solve problems more easily.

**Desired Outcomes: Coalition**

Coalition members expressed potential positive outcomes of sharing information about clients. If a client could provide his or her information once and all the providers on the network had access to it, it would be a benefit to the client. Client information would also provide easy access in less time for providers. Documenting the clients and their caregivers' perceptions of the clients' comparative health, including mental status, would be necessary, as

the two views frequently vary. Other desirable outcomes identified were improved time management (especially in a nursing staff shortage), more data provided for analysis, and improved client education about services. Having information prior to seeing a client was seen by some in this group as very useful. Reduced duplication of collected data, the ability to plan appropriate responses to client needs, reduced time coordinating across agencies, and better use of everyone's time were all cited as potential benefits. Additionally, data derived from tracking open cases at a particular level of disability in a specified geographic area would provide aggregate statistical information that could further improve the efficient use of staff time.

**Desired Outcomes: Consumers**

Consumers believed the Internet had brought families closer together, especially through e-mail and the ability to send greeting cards, photographs, and messages. They would like to see information posted on a network that would enable them to evaluate a provider's performance, to see Meals on Wheels menus, and learn about educational and recreational opportunities. Voice activation was seen as desirable, especially for the elderly and disabled.

Attorneys expressed caution about sharing information via computers.

*Physicians were the most enthusiastic about the possibility of a health care network. They speculated that kiosks could be placed in waiting rooms for patient data entry.*

### **Desired Outcomes: Physicians**

Physicians were the most enthusiastic about the possibility of a health care network. They speculated that kiosks could be placed in waiting rooms for patient data entry. They could e-mail information to patients to add to or reinforce advice given in person. E-mailing test results and medication refills would free up office staff from spending time on the phone.

The physicians noted that many malpractice claims are the result of lack of communication between physicians and patients, particularly in the gathering of historical information. They stated that data management that improved the effectiveness of gathering historical information from patients would be beneficial. Specifically, they wanted the network to contain information on allergies, immunizations, chronic diagnoses, medical and social risk factors, demographics, drug interaction notices, reliable information from other providers, and links to other pertinent agencies.

Future uses of computerization mentioned by the physician participants included the evaluation of their practices, improved patient care by changing from traditional treatment protocols to outcomes-based treatment, safeguards against mistakes such as medication errors, and easy access to answers for clients' non-urgent questions.

Physicians stated that computer data entry by patients or clients would be useful, as they might be more comfortable disclosing personal or embarrassing information on computer than face-to-face. They said computerized information about the family unit would be valuable, as it is otherwise time-consuming to obtain. The physicians noted that making the consumer the starting point of information gathering was of interest to potential funding sources for the computer network. Especially in public health, a network would be an excellent tool for education and outreach.

Physicians said that a computer system networked among all the agencies would be

very useful. For example, the care plan of a person receiving home health care would be available to emergency room doctors if that person came in for treatment. A non-networked personal computer, physicians noted, was barely worthwhile.

### **Discussion**

Rogers's research on diffusion of innovations provided the basis for a broader perspective in examining findings from the focus group sessions. Rogers identified four main elements in the diffusion of innovations: the innovation, communication channels, time, and the social system (Rogers, 1995).

A computer-based health information network was the innovation addressed in this study. Communication channels and time were not addressed directly in the study, but some aspects of these elements were addressed by participants, such as having access to information on a timely basis. The social system was addressed in our study as different parts of the community: professionals and lay individuals.

The comfort level with the use of computers was high for almost all focus group participants. Even the two individuals who either did not use computers or did so only with hesitation were quite familiar with the technology. All groups spent a noteworthy amount of time discussing technical issues, which further points toward a high comfort level, sense of control, and general understanding of computers. This conclusion is supported by the fact that 22 different computer-related activities were reported by the 25 focus group participants. Only two participants did not use a computer.

The Computer Network Committee members were pleasantly surprised by the consumers' enthusiasm about using computers. Focus group members were not a random sample of the population, so they might not have been representative of the counties' populations. In addition, focus group

participants lived in an area that at one time had a large number of residents employed in the computer industry.

The computer use and the number of computer-related activities cited by almost every individual in the focus groups demonstrates widespread use of computer hardware and software. A crucial mass of users for acceptance of an innovation has been identified in the S-shaped diffusion curve at 10% to 25% (Rogers, 1995).

Computer users, or adopters, in this study comprised 92.9% of the focus group members. This level of adoption demonstrates that a critical mass of users may be present in the geographical area to make acceptance of a computer-based health information network feasible. However, the method by which the convenience sample of the groups was constituted would make generalization inappropriate.

Despite the significant amount of time spent discussing issues of security associated with computerization of information, the level of confidentiality and security of traditional hard copy medical records was not discussed. Is this information more or less secure than if it were kept on a computer?

An issue in this instance is not use of computers and the software, but what types of information would be made available through the network. Piracy of computer-stored personal information and the effects of computer viruses and worms are frequently highlighted in the news. The focus group participants were aware of these issues and expressed concerns related to them.

Security of personal information is of concern to healthcare providers and consumers around the world (Luxenberg, DuBois, Fraley, Hamburg, Huang, & Clayton, 1997; Maglaveras et al., 2002). This issue continues to be unresolved and will need to be effectively addressed before universal acceptance is achieved (Institute of Medicine, 2001). One suggestion is for patients themselves to

manage access to virtual patient records during health visits (Geissbuhler, Spahni, Assimacopoulos, Raetzo, & Gobet, 2004).

A network in Sweden has been described as both an online Web application and an offline system utilizing personal digital assistants (PDAs). This system was applied in a home care district with an existing fiber-optic network infrastructure connecting all locations (Hagglund, Scandurra, Mostrom, & Koch, 2005). This system may not have been completely secure, but it offered availability even when computer networks were not working because of power failures or other difficulties.

Participants in the home healthcare focus group raised the issue of how to keep healthcare information current on network systems. Parameters and rules would need to be established before networks could be implemented. Frequent evaluation would be necessary to ensure that the network was beneficial for patient care and to preserve providers' confidence in the system.

The attorney and physician focus groups concluded that clients most likely to benefit from a healthcare information management system would be individuals without families or support systems to advocate for them. Consumers differed from providers, however, in their views of the usefulness of a computer-based health information network. Many stated that a computer network would be very helpful to them personally.

Physicians showed the highest degree of confidence in a computerized information management system, indicating that they would be potential leaders in implementing such a network. This finding that physicians would be potential leaders in implementing a computerized information network has not been reported uniformly (Cochrane, 1999), but differences may be expected in different communities at different points in time. Consumers were both cautious about confidentiality issues and desirous of improvements in the management of the medical records for themselves and their loved ones.

In the study communities, physicians may be considered early adopters or early majority adopters in the social system of healthcare providers (Rogers, 1995). Physician support and acceptance would be necessary for the widespread use of a network that would depend upon accurate and timely updates of medical information.

The growing elderly population in these upstate New York counties foreshadows a future need for health and human services that span the continuum of care. The continuing nursing shortage emphasizes the need to explore how information can be collected and maintained more efficiently and accurately for continuity of care across agencies, care settings, and multiple health and human service providers.

Computerized information systems for patient care are a current reality, but have usually been built around the needs of one agency or

a few networked agencies. The need for community-wide information technology systems has been recognized, but resources have not always been available to close the gap (Milio, 1996). Access to information about individual consumer of health care will improve continuity of care and may reduce the cost of care through decreasing the duplication of activities to obtain needed information.

## Conclusion

Information technology is a key component to maintaining healthy communities. Access to information provides empowerment for both communities and individuals (Milio, 1996). Resources to bring networked systems to communities, however, have not always been equitably distributed. Nurses and nursing organizations can be among those advocating for communities that do not have access to the infrastructure needed for computer access.

Most patient information is still stored in paper form, even though a growing body of evidence indicates that information technology leads to improvements in safety, timeliness, efficiency, and equity (Institute of Medicine, 2001). A national health information infrastructure would go beyond the electronic health record to provide information needed for tracking trends in the use of health services and the availability of health providers. Nurses could seek opportunities to become involved in information infrastructure projects that would affect their communities.

By educating community members, the Computer Network Committee (CNC) study planted seeds for future work related to a computer-based health information network. As the study was nearing completion, some members participated in applying for funds to the Robert Wood Johnson Foundation for the Community Partnerships for Older Adults (CPOA) Program. The application was one of 13 in the U.S. to receive funding. Two of the six active committee members became core committee members of the CPOA grant administration.

Subsequently, the CNC became inactive without the original objective having been achieved. A computer-based health information network is still recognized as a need in the community, however.

Readiness to support and use a computer-based health information network varies among communities. Nurses with knowledge of computer networks are needed to build networks that include information for both nurse researchers and nurse providers. For example, aggregate data about changes in nursing practice could be part of a national information network. At a local level, nurses must play a role in identifying what aspects of a computer-based health information network are needed and what aspects are acceptable.

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## An Innovative Approach to Educating Nurse Informaticians

Martha Kelly, EdD, RN

### Abstract

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.

As the profession of nursing has evolved, it historically has emphasized patient-centered care. The advent of the information age has allowed nursing to continue this focus, but requires that practice, education, and research be supported by means of the collection, management, and dissemination of information-using technology.

Nursing informatics is a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information and knowledge to support nursing practice. Nursing informatics facilitates the integration of data, information, and knowledge to support patients, nurses, and other providers in their decision-making in all roles and settings. This support is accomplished

through the use of information structures and information technology (American Nurses Association, 2001, p. vii).

The informatics nurse or "informatician" serves nursing and society by assuring that health-related data are accurate, timely, and confidential. Today, nurses are in positions where they must select and install information systems, resulting in a need for a knowledge base that supports the analysis, design, implementation, testing, and evaluation of systems within the healthcare environment.

Informaticians work at a system-wide level and also with nurses who work directly with clients. This may be either at the bedside or in a community setting. Nurses and clients are supported by the nurse informatician so that they may become users of knowledge as they use documentation systems and databases to

gather aggregate data and information. This specialty area, which originally focused on the contributions that technology could add to nursing practice, today includes not only the management of data but also the information and knowledge needed to support the delivery of nursing care.

The Pace University Lienhard School of Nursing (LSN) and the Ivan G. Seidenberg School of Computer Science and Information Systems (CSIS) have formed a partnership to ensure that students are accomplished in computer and information sciences as well as in the science of nursing. The Collaborative Nursing Informatics Program (CNIP) enriches students' backgrounds and education and provides a basis for their future coursework and clinical experiences.

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## Historical Background

The Institute of Medicine has established goals and a strategic action framework for healthcare information and technology. Goals for action include the use of electronic health records (EHR), interconnecting clinicians with consumers to allow for seamless movement within the system, informed consumer choice, and timely reporting of health findings. Desired outcomes are safety, effectiveness, patient/family centeredness, timeliness, efficiency, equity, and global connectedness. Policy recommendations include incentives for the development of data repositories, inclusion of the processes and outcomes of the advanced practice nurse (APN) in the EHR, the development of new collaborations, and the use of standardization and compatibility in coding schemes (McBride, 2005).

## Educational Context and Program

Pace University includes six schools with campuses in New York City, Westchester County, and Newburgh, N.Y. The university offers a wide range of programs for a diverse population of nearly 15,000 students. LSN is located at the New York City and Pleasantville campuses. Programs of study are available for a four-year bachelor's degree in nursing (BSN), a BSN completion program for RNs, a combined degree program for non-nurse college graduates, an accelerated BS/MS program for RNs, a bridge program for nurses with a baccalaureate outside of nursing, and master's degree programs in specialty areas such as Family Nurse Practitioner, Psychiatric Nurse Practitioner and Nursing Informatics.

LSN initiated the Collaborative Nursing Informatics Program (CNIP) in 2001. The program was conceived to prepare graduates who possess the skills required to support both nursing science and computer and information science. The program was developed to prepare graduates to support and facilitate the design, organization, and management of data and to retrieve data in an informed way. Ultimately, this activity supports both decision-making and knowledge development.

Students in the program must meet all university and LSN graduate admission requirements. Upon completion of the program, graduates are eligible to take the Nursing Informatics Certification examination administered by the American Nurses Credentialing Center (ANCC). The program is also open to students who have already earned a master's degree in nursing and have a post-master's Certificate of Advanced Graduate Studies (CAGS).

Both full-time and part-time study sequences are available. Students in the master's program must earn 36 graduate credits; 15 of these credits are CSIS courses. Students in the CAGS program earn 24 graduate credits that include 15 credits of CSIS coursework. A list of master's and CAGS courses appears in Table 1.

## Program Design

Most CNIP courses are Web-assisted. This affords students the opportunity to meet course requirements through face-to-face meetings and online. Students meet approximately one week per month for a face-to-face class. All other course requirements are accomplished

**Table 1: Collaborative Nursing Informatics Program Curriculum**

Course	Credits		
	Didactic/ Clinical	MS	CAGS
Analysis of Concepts of Primary Health Care	3	X	
Decision Making in Health Care Systems	3	X	
Advanced Nursing Research	3	X	
Elective	3	X	
Object-Oriented Concepts & Development	3	X	X
Database Management Systems	3	X	X
Information Systems Analysis & Design	3	X	X
Business Data Communications	3	X	X
Information Systems Project Management	3	X	X
Informatics in Nursing and Health Care*	2/1	X	X
Nursing and Health Care Systems Assessment and Development*	2/1	X	X
Capstone: Nursing and Health Care Systems*	1/2	X	X
<b>Total Credits</b>	<b>36</b>	<b>36</b>	<b>24</b>

*\*Practicum courses totaling 200 hours of on-site clinical experience*

online, where students review case studies, complete reading assignments, and participate in asynchronous discussion boards.

The online component allows students to have the independence and flexibility to complete course requirements. The opportunity for face-to-face dialogue supports socialization with faculty and other students for an enriching experience.

## Specific elements of program design

Students in the MS programs take four core courses required of students in all LSN graduate nursing programs. They focus on advanced nursing research, decision-making in healthcare systems, analysis of concepts of primary health care, and a graduate nursing elective of the student's choice. The core courses facilitate professional socialization and allow interaction among students from other master's-level

programs, such as the Family Nurse Practitioner, Master of Arts in Leadership, and Psychiatric Nurse Practitioner programs.

Students enrolled in the CNIP also take courses with students majoring in information systems so they can share skills, information, knowledge, and strategies. CSIS coursework focuses on project management for information systems development, information systems analysis and design, database management, telecommunications, and business data communications. Table 2 illustrates the CSIS courses and their overall purpose.

After completing their CSIS coursework, students enroll in three culminating specialty nursing courses that provide a total of 200 hours of clinical practicum work. These clinical practica enable CNIP students to apply the skills learned in didactic coursework in a variety of clinical settings, including home care, acute care, and long term care, plus nontraditional settings, such as corporate and information departments and centers.

The final three nursing courses cover the topics of informatics in nursing and health care, nursing and healthcare system assessment and development, and a capstone course.

Nursing Informatics in Nursing and Health Care may be taken by other master's-level students as an elective, as the use of nursing information systems has become important in all practice areas. The purpose of this course is to explore the applications of nursing informatics in nursing and the healthcare environment.

Nursing and Health Care Systems Assessment and Development assists students to participate in Request for Proposal (RFP) assignments, project management activities, and other clinical applications. The course focuses on the assessment and development of information systems relevant to nursing and health care.

The capstone course, Nursing and Health Care Systems, provides an opportunity for students to implement, synthesize integrate, and evaluate knowledge and skills they have acquired in previous informatics coursework. Students complete a research-oriented project that is relevant

to informatics issues in a variety of healthcare environments. Through the project, students are guided in developing expertise in a selected area of nursing practice by examining related knowledge and theories and developing advanced skills in the collaboration and application of the research process for advanced practice.

**Clinical evaluations**

The last three courses, all of which have clinical components, are evaluated using the LSN clinical faculty model. Faculty are assigned to no more that six students and make a minimum of two site visits every term. During site visits, clinical faculty meet with students and their onsite preceptors.

To ensure program quality, student evaluations are done in conjunction with the clinical preceptor, who uses the criteria noted in Table 3. The use of clinical preceptors has enriched students' experience and allowed them to build working relationships with experts in their selected area of practice. Student experiences are designed to focus on the application of information systems to nursing systems. All students who take the clinical courses are graduate students. Some, however, have experience with information systems as part of their practice and others have experience solely as end users. Students' places of employment are not used for their practical clinical experiences.

**Clinical placements**

For clinical placement, consideration is given to maximizing students' exposure to changes in the informatics environment, while meeting the needs of partnering institutions. Students' experiences have been in both acute care and community settings and have included a wide range of practice skills.

For example, students have participated in software and product implementation and evaluation in community health nursing. Others

<b>Course Title</b>	<b>Overall Purpose</b>
Object Oriented Concepts and Development	Elements of programming
Database Management Systems	The theoretical and practical aspects of file and database management
Information Systems Analysis and Design	Software engineering best practices for systems
Telecommunications	Protocols and standards, network management
Information Systems and Project Management	Planning, organizing, and controlling for system development

Students are evaluated on the level of their ability to:
<ul style="list-style-type: none"> <li>■ Design software to meet a current informatics issue or problem.</li> <li>■ Demonstrate knowledge of decision support systems in information systems integration.</li> <li>■ Apply knowledge acquired from the System Development Life Cycle and project management to a current issue or problem in informatics.</li> <li>■ Demonstrate understanding of the social impact of computers.</li> <li>■ Identify opportunities for the role of computers to increase access to health care.</li> <li>■ Apply current legislation and regulatory requirements for information systems implementation and integration in a variety of settings.</li> <li>■ Apply evidence-based methods/design to a research-oriented or interactive design-oriented, technology-enhanced capstone project.</li> </ul>

have participated in the development and use of wireless communication in patient care while others have worked in project management, systems planning, and systems design for an entire healthcare system.

Students may be placed in both nursing and information departments of a facility, depending on the organizational structure. One student was assigned to the nursing department and nursing informatics division while collaborating with vendors for a trial implementation of wireless technology. This included planning implementation, hands-on site visits, data collection, and evaluation of the project.

Students who have been assigned to departments of information systems have participated in project management activities.

Other students have worked with community-based organizations to develop software for use by the community health nurse. This required content expertise, program expertise, and knowledge of coding systems.

### Consulting with the experts

The role of the nurse informatician continues to evolve and activities associated with the role continue to be refined. Technology continues to influence how nurses practice and educate. Because of the rapid changes in the field, LSN created an advisory board to facilitate dialogue among practice professionals and nursing educators about informatics issues and their impact on nursing.

The advisory board is composed of leaders from the metropolitan New York nursing informatics arena, along with CNIP alumnae and

faculty. The board discusses issues that support the needs of the students, the program, and the practice arena. Input from this group is used to revise and update the CNIP to assure the preparation of skillful nurse informaticians.

## Conclusion

Job opportunities in the Nursing Informatics field continue to increase. The results of a 2004 survey of nurse informaticians conducted by the Healthcare Information and Management Systems Society indicated that nurses come to this specialty with many different educational and clinical backgrounds (Sensmeier, West, & Horowitz, 2004).

The nurses who responded to this survey worked in many settings, including hospitals, corporations, consulting firms, and academic and government facilities. Respondents from the New England and Middle Atlantic regions tended to earn higher salaries. Approximately 75% of the respondents were involved with clinical documentation systems, such as clinical information systems, nursing documentation of electronic medical records, data repositories, and wireless technology.

The need to prepare nurses who are grounded both in nursing and computer science and information systems is reflected in all our practice areas. The expanding role of nurse informaticians provides a great opportunity for nursing to help shape the future of health care.

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## The NurseResponse Emergency Database: Lessons Learned

Tina Gerardi, MS, RN, CAE

### Abstract

After Sept. 11, 2001, it became evident that there was a need in New York State for a database of registered nurses who would be able to volunteer in public health emergencies. The New York State Nurses Association worked with the New York State Department of Health to develop the *NurseResponse* program, which eventually registered more than 1,000 RNs. Although the system was not used for the Hurricane Katrina disaster, that event demonstrated that *NurseResponse* could be activated on short notice when the need arose.

During the dark hours that followed the terrorist attack on the World Trade Center on Sept. 11, 2001, registered nurses across New York State all were asking the same question: "How can I help?"

That question was particularly poignant for members of the New York State Nurses Association Delegate Assembly, who were gathered that day for a meeting at the NYSNA upstate headquarters. The DA members from the metropolitan area were desperate to return to the city to check on their families and to offer their professional assistance.

This was not easy, however. All roads into the city were closed and public transportation was shut down. The nurses didn't know whether they would be allowed through barricades or allowed near the disaster area if they didn't have documentation to prove they were RNs.

In the weeks that followed, it became apparent that both survivors and rescue workers needed healthcare services. The state had no way to identify licensed registered nurses who were available to serve in emergencies, their areas of expertise, or how to contact them.

Different emergencies require nurses with different skills. At Ground Zero, for example, nurses with the ability to organize and set up triage stations turned out to be more valuable than those with highly developed clinical skills.

Depending on the nature of the emergency, nurses might be needed with education and experience in pediatrics, clinic management, mass immunizations, trauma, home health, acute care, burn care, or psychiatric-mental health care. Nurses with experience in public health, decontamination, and similar areas would be able to assist in support and educational roles.

### Filling an information gap

With a \$100,000 grant in federal emergency preparedness funds, NYSNA worked with the New York State Department of Health (NYSDOH) to set up an emergency database of New York registered nurses. The program, titled *NurseResponse*, was launched in the fall of 2003.

It was planned that the database would be used:

1. To recruit volunteers for specific response roles; for example, to identify nurses who would be qualified to staff mass vaccination sites or other similar clinics, and;
2. To identify nurses who would be willing to respond to a public health emergency at the time of the event.

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*In the weeks that followed, it became apparent that both survivors and rescue workers needed healthcare services.*

Registered nurses were able to sign up for the program at the NYSNA Web site. To enroll, volunteers had to provide contact information, a New York State RN license number, certifications, specialty areas, experience, and be available to respond to emergencies.

In an emergency, the plan was that NYSDOH would notify NYSNA about the need for RNs. NYSNA would then search the database for nurses who would be able to provide the assistance required. Because of the need to verify licensure, the database was limited to registered professional nurses licensed in New York State.

*NurseResponse* was promoted through the NYSNA newsletter and Web site. In 2004, the New York State Education Department began including flyers promoting the program in re-registration mailings to RNs. As a benefit to enrollees, the 2005 grant provided funds for SED to issue identification cards free of charge to nurses who enrolled in *NurseResponse*.

## The challenge of Katrina

The first opportunity to put *NurseResponse* into action came in September 2005, when Hurricane Katrina hit the Gulf Coast. Once again, New York nurses wanted to help. During the week after the storm, the number of RNs in the *NurseResponse* database nearly doubled, from 600 to more than 1,000. Nearly 1,300 nurses had enrolled by the end of 2005.

NYSNA activated the *NurseResponse* database and contacted volunteers to determine who could be mobilized immediately. Within 24 hours, nearly 100 volunteers had contacted their employers and were ready to be deployed. Unfortunately, no calls came from the federal government for New York State volunteers.

Over the course of the next few weeks, it was learned that federal agencies had decided to bypass systems for identifying volunteers

and equipment that had been established by the states. Instead, the Federal Emergency Management Agency (FEMA) opted to create its own system of volunteers. Unfortunately, this resulted in delays in getting needed volunteers to the victims of the disaster.

It was demoralizing for New York nurses to watch hurricane victims plead for help on their television screens, knowing that they were ready and willing to volunteer but were not contacted. This did not deter RNs, however, from seeking other avenues to volunteer in the Gulf Coast region through their involvement in Disaster Medical Assistance Teams (DMAT) and the American Red Cross.

Although many New York RN volunteers were upset and even angry about the federal response to Hurricane Katrina, it was heartening to know the *NurseResponse* system could be activated within hours of a disaster and that nurses were ready, willing, and able to be deployed.

## Transfer to NYSDOH

In April 2006, the *NurseResponse* database was transferred to the NYSDOH, thus allowing the Department of Health to directly access RNs, as well as other licensed medical professionals, who had volunteered to assist in times of emergency. Nurses who sign up for the program now also are required to apply to the NYSDOH Health Provider Network (HPN). Nurses who signed up for *NurseResponse* prior to April 2006 need not re-register for *NurseResponse* but must register for the HPN.

This change ensures the coordinated deployment of all healthcare professionals if there is an emergency. It also ensures that RNs are protected from liability. In April 2004, the Department of Health received an opinion from the Attorney General's office that Public Officers Law § 17 applies to professionals enrolled in a state-sponsored volunteer database.

Under that law, the state provides defense and liability coverage to state employees for acts or omissions that occur when they are acting within the scope of their employment or official duties. The definition of employee includes volunteers "expressly authorized to participate in a State sponsored volunteer program." By enrolling in the state program, volunteers are afforded defense and indemnification when they are activated and deployed.

In the event of an emergency, NYSDOH will initiate the activation of volunteer practitioners and direct the deployment of practitioners in the event there are multiple, simultaneous demands from different parts of the state. Participating volunteer practitioners will then provide services under the direction of the state, city, or local health department or emergency management office or hospital to which they have been deployed.

NYSDOH restricts access to the volunteer contact information in the volunteer database to prevent the unnecessary disclosure of this information. Restricted information includes a volunteer's business or personal pager, business or personal cell phone, home phone, and home address. By enrolling in the volunteer program, nurses authorize the NYSDOH to share information related to licensure status, credentialing, and hospital affiliation with the agency or organization to which they may be deployed during an emergency.

## Conclusion

The development of the *NurseResponse* program provided a unique opportunity for NYSNA to work with the state government in establishing an essential service to the public. It also increased an awareness of the role RNs play in emergencies and the need to include them in any coordinated response.



## Tales From a Public Health Disaster

### New York RNs share stories of caring in the aftermath of Hurricane Katrina

#### Introduction

When Hurricane Katrina slammed into the Gulf Coast in August 2005, the need for healthcare professionals was immediately evident.

New York registered nurses were among those who responded to the call.

The following stories are told in the nurses' own words. Whether they were part of a Disaster Medical Assistance Team like Thomas Lowe or assigned to shelters by the American Red Cross like Jane Falvo and Kelly Jeanne Youngs, each has a unique perspective on what it means to practice nursing in difficult and sometimes horrendous circumstances.

They exemplify the spirit of nursing for all of us.

#### Today There was Hope

*By Ruth Whittaker, RN*

I parked my car that first day in the front lot at the shelter. It was 7 a.m. and already there were 500 people in line. The heat and humidity promised another 100-degree day. I walked through the crowd. I remember their faces. Some were lined in pain, filled with tears and confusion. Some were contorted in anger. Most just stared into space, exhausted and overwhelmed.

Every single person, however, who looked at my name badge and saw "Red Cross RN" had a change in facial expression. They would nod, smile, or make direct eye contact. There was an expectation from everyone that I would make a difference. Today would be better. Today there was hope.

They saw "RN" and believed that this was a person trained to save lives, make a way when it seemed impossible, to solve problems and ease their pain on all levels – physically, emotionally, mentally, and spiritually.

I am trained to care, respect, and to help. But how could I do that? I prayed and the answer came, "with compassion." So I listened to their stories of great loss and we cried together. We prayed for the dead and I felt their pain. We laughed at nothing while holding hands waiting for food. We worked together with patience to find a place to live or get medical supplies. We hugged and kissed when we said goodbye. My education and job description had prepared me. I'm an RN.

Ruth Whittaker is a psychiatric RN at Southside Hospital, Bayshore, N.Y.

#### Disco Shelter Alexandria, Louisiana

*By Jane S. Falvo, RN,BS*

Along with the rest of the nation, I watched the incredible scenes of destruction from New Orleans in the wake of Hurricane Katrina. When I saw the victims wading up out of the water to the Highway 10 overpass, it was time

for action. As an RN, my skills were needed and I could not sit still and watch that kind of human suffering without volunteering.

The opportunity presented itself through the ANA and the Louisiana Department of Public Health. One simple phone call opened the door to two of the most incredible weeks of my life at the Disco Shelter in Alexandria, La. I have never worked harder (12+ hours a day for 7 consecutive days), cried and laughed more, or met more incredible people during any other 14-day period in my life.

We dismantled the shelter to move it across town to an unused air force base; set it up again and then had to expand it to accommodate more people when Hurricane Rita threatened. Most importantly, I had the privilege of experiencing nursing at its finest. We worked with nurses from all across the country who had never met each other but banded together to get the job done. Our common motivation was to be of service and care for the victims of the worst hurricane in history.

The shelter was reserved for people with special medical needs. We had patients on dialysis, oxygen, drug withdrawal protocols, and HIV treatment. Quite a few people were mobility-challenged in wheelchairs or roundabouts. One of the medical challenges was to stabilize the diabetics, cardiac, HIV, and pulmonary patients after they had been without their medication for days. When you are running, climbing, or swimming for your life, grabbing medication bottles is not the priority.

Along with shock, disbelief, despair, and depression, we witnessed some truly courageous examples of human spirit.

H.R. was a recent above-the-knee amputee from the ravages of diabetes. She was alone, without friends or family. People with medical needs or disabilities were first instructed to go to the Superdome. They were allowed to be accompanied by only one caregiver (this was before the dome was opened up to the general public). H.R. did not have anyone in town to accompany her, so she arrived at the dome alone.

Her experiences over the next few days, as a woman alone in a wheelchair in the dark, were at best terrifying. But when I met this courageous woman a week later, she was busy getting on with life and looking for a place to live and work. She was also busy sharing information on apartments and possible employment opportunities. Not only was she moving forward, she was willing to help others move in that direction too. She was a real inspiration to me then and now.

Over the two-week period, I functioned in many varied roles. I was social worker, case manager, family locator, travel agent, and educator along with the most important function: listener. These wonderful, lost people had stories to tell about their recent experiences and also about their lives, family, and friends prior to the hurricane.

Caring through the establishment of interpersonal relationships is a therapeutic modality. The willingness of so many Americans to leave their families, homes, and jobs to help others speaks well of the spirit and nature of our countrymen.

The special contribution of the nurses at the Disco Shelter was their therapeutic use of themselves to heal and help others. This experience reminded me of why I became a nurse and why I love this profession and my fellow nurses. Where else can you give so little, in comparison to the rewards of knowing you've made a difference in another person's life? It was an experience that has profoundly affected me and I'd do it again in a flash.

*Jane S. Falvo* is a critical care nurse educator at Albany Medical Center in Albany, N.Y.

## Angels Among Us

*By Judy Hoberg, RN, BSN*

Working in Mississippi after Hurricane Katrina struck was an experience I will never forget. I responded to the relief effort as an American Red Cross volunteer.

After my arrival and processing, my assignment was changed from community outreach service to health services. I was assigned to work at a shelter as a nurse. I spent my first night in Mississippi at the Naval SeaBees Base, where I ate dinner and went to sleep with over 650 other

volunteers waiting to be deployed. There were many groups stepping up to volunteer their services.

The next morning after a half-mile hike to the shower and a long wait in line, I was finally ready to head out to my first volunteer assignment. I was sent to the Christus-Victor Lutheran Church in Ocean Springs, Miss., where an American Red Cross shelter had been set up. There were some 90 residents there, in addition to the ARC volunteers, the free medical clinic staff, the Christian Appalachian Project, Americorps volunteers, and the staff and members of the church. We all were working together for one common goal: to help the many disaster victims meet their basic needs and to help them regain some control and order in their devastated lives.

Shortly after my arrival, I realized that there are indeed angels among us. I listened to many tell of how they survived, how they had been helped, and how many of them were now helping others as they stayed at the shelter. I especially remember the trips to surrounding communities, such as Biloxi, Gulfport, Pascagoula, Gautier, Pass Christian, and other areas where teams of volunteers would distribute food, water, blankets, and supplies. We provided medical care, tetanus and hepatitis vaccines, and many hours of physical labor to assist in the clean-up. There was never a lack of things to do.

At the shelter, I spent my time assisting residents and volunteers with their medical needs. We shared many good times and some trying ones too. It was hard when I wanted to help but the needed supplies were just not there. Then suddenly, in the next truckload of donated items, I would find what I was searching for: a crib, a walker, a nebulizer, diabetic supplies, or a special formula for that frail newborn. Yes indeed, the angels were among us.

I remained at Christus-Victor until it closed. The residents had either returned to their homes, had temporary housing, or had transferred to other shelters. I was then sent to work at Gautier Convention Center. It was a much smaller ARC shelter, but still had many needs.

At Halloween, the community wanted the children to have trick-or-treat, but that was a little hard to do when there were so few families at home. So they had a "trick-or-trunk," a party in the parking lot where kids went from car to car for treats, had their faces painted and enjoyed many other fun activities. The donated candy and supplies arrived just in time for a wonderful night of fun. I guess even angels enjoy a little fun.

I remained there until the shelter was closed and returned home after 30 days. It was a little hard to come back to all the comforts of home, when I know there are many still in need. Do your part, volunteer, and remember the angels among us.

*Judy Hoberg* is a public health nurse/clinical care coordinator with the Allegany County Department of Health.

## Survivors of the Storm

*By Kelly Jeanne Youngs, RN*

I remember watching TV and not being able to take my eyes off the horrific scenes I was witnessing. Entire communities were under water.

There was no electricity, no food, no clean water, and nowhere for the people to go. It was total devastation.

The next thing I remember was the immense desire to go there and help. I got “the call” to help after church the Sunday before Labor Day. I was in Alexandria, La, by Wednesday.

As a critical care nurse, I agreed to work in a special needs shelter. Words cannot describe my initial emotions walking into that shelter. I did not know what to expect, what I’d be doing, or what my resources would be. None of that mattered, or was even given another thought, once I began work. There was a job to do.

The shelter housed evacuees with chronic medical conditions. Many of them were not well controlled and there was ample opportunity for teaching. The shelter was now their home. In their own homes, the evacuees had a choice about whether to take their medications or check their blood sugar. In the shelter, it was up to me to educate them about the importance of compliance and follow-up.

The medical team comprised mostly of volunteers from all over the country. There were a few Louisiana public health nurses in the beginning, but they returned to their routine jobs once the volunteers arrived. The volunteers came from a variety of backgrounds, but very few of us had had any experience with this type of work! We learned as we went along. Documentation systems were created, health records were established, and the evacuees received the medical care they needed.

As a volunteer, I also functioned as a discharge planner, social worker, and client advocate – all roles familiar to a nurse. I did what I needed to do to move the clients through this phase of their lives. They were either reunited with their families (sometimes as far away as Nevada) or helped to establish new residences. Countless hours were spent on the phone trying to locate family members who were separated at the Super Dome in New Orleans.

Evacuees on hemodialysis needed treatment in the community and residences near the treatment center. HIV clients needed follow-up care. Many of the residents of the shelter were from downtown New Orleans where they had walked wherever they needed

to go. They were now uprooted from the only life they had known and were looking for residences and services in rural Louisiana.

Looking back, the people and their perseverance touched me the most. Many of the survivors of Katrina, who had lost everything, still had their spirits and their faith, intact and renewed. Evacuees helped each other find apartments and jobs. They saw this as a new chance, as another lease on life. They had survived the storm, and now they could make it through the muddy water.

**Kelly Jane Youngs** is the staff development coordinator of the Springs Nursing Home and Rehabilitation Center in Troy, N.Y.

## NY-4 DMAT Deployment to Louisiana

*By Thomas Lowe, MPH, RN, COHN-S, COHST*

Even before Hurricane Katrina hit the Gulf Coast, the Federal Emergency Management Agency (FEMA) put Disaster Medical Assistance Teams (DMATs) from all over the United States on alert. This was in addition to the teams already on a scheduled alert as part of the U.S. readiness plan.

I belong to NY-4 DMAT, one of two DMAT teams in New York State. NY-2, the other New York team, was the first to “go out the door,” as it is called when a team is deployed. As a Level 1 team, NY-2 carried a full cache, consisting of a basic load (supplies and equipment to sustain the team for 72 hours without outside assistance), a patient load (medical supplies and equipment sufficient to care for the influx of disaster patients over a 72-hour period of time without outside intervention) and a pharmacy cache that will support patient care during that same 72 hours.

The equipment, tents, generators, meals ready to eat (MREs), water, and other supplies are transported in box trucks to the disaster site.

The 23-person team included physicians, physician assistants, nurse practitioners, registered nurses, paramedics, pharmacists, psychologists, administrative personnel, logistics personnel, communications and security personnel, and several other mission-

specific personnel. They were deployed to a hard-hit area of Jefferson Parish to assist the West Jefferson Medical Center. I was designated as the team commander for this mission.

We left for Louisiana in the early morning on Sunday, Sept. 4. The team flew into Houston airport and drove to Baton Rouge, arriving at around 9:30 p.m. The first four days were spent in staging, or preparing to be assigned to a mission. During this time, our team took on the responsibility of keeping the billeting area clean and neat and ensuring that incoming teams had a place to bed down. As team commander, I met with other team commanders to develop health and hygiene policies and procedures for the staging area, participated in member-initiated training, and attended daily situational report (SITREP) briefings at the Management Support Team (MST).

At 9:10 a.m. on Friday, Sept. 9, during my morning team briefing, I was notified that NY-4 would be “out the door” to the West Jefferson Medical Center to relieve NY-2. Two of my team members had been reassigned to the MST to assist with operations there, so I left with a team of 20 to relieve the NY-2 team of 35! Augmentation of NY-4 came from the California 4 DMAT and the Minnesota 1 DMAT, as well as a specialty team from Boston.

While the NY-4 team is classified as a level 4 team, meaning it has no equipment and lacks both experience and sufficient personnel to roster a full team, the 20 people deployed to West Jefferson Medical Center were seasoned professionals. They meshed instantly with the augmentation teams and effected a seamless transition when relieving NY-2.

The mission at West Jefferson Medical Center was to alleviate the surge of patients into the stricken 320-bed hospital. NY-4 continued the operation established by NY-2 in triaging every patient who presented for care to the medical center. This was accomplished in medical tents set up on the front lawn of the center.

All patients, whether they came on foot, by car, or in an ambulance, were first seen at the DMAT medical tents. Most patients were triaged, treated, and released (known as “treat and street”) and never set foot inside the Medical Center. This process allowed only the most severe cases to be seen and treated in the hospital. A triage, treat, and release system

in a disaster of this magnitude was necessary because, while the hospital was structurally sound, it lacked staff to care for the patients. To compound the situation, a vast majority of the staff had either lost their homes, had been evacuated to remote areas, or had left Louisiana all together. The staff members that remained were homeless or had not been allowed to return to their homes because of flooding. They were being housed by the hospital in patient rooms, further limiting the hospital's ability to care for patients who had to be admitted.

Deployment to disaster areas requires team members to adapt to austere environments while practicing the best possible disaster medicine. DMAT teams worked 12 hours on and 12 hours off, 7 days a week. The temperature often rose above 105 degrees. The treatment tents had air conditioning, but its efficiency was compromised by the constant movement of staff and patients through the doors. During the afternoons, it was not unusual for the temperature inside the tents to register between 90 and 95 degrees. There was little cloud cover and sunburn was a constant threat. When the sun went down, the mosquitoes came out and feasted on anyone not wearing insect repellent!

During our rotation, we saw people who had been without their medications for over two weeks and were severely compromised and those with wounds that had been infected from wading through contaminated flood waters. We treated infected insect and spider bites; dog and cat bites from abandoned and scared pets; aggravated asthma; and an assortment of sprains, fractures and scratches.

As folks tried to repair their houses and recover their personal effects we began to see trauma from falls off rooftops, chainsaw lacerations, dehydration, heat exhaustion, and the usual sprains and strains. Also presenting were troublesome cases of dysentery, respiratory illnesses, and a rash that became known as "Katrina Bumps." The Katrina Bumps rash probably was caused by a pathogen in the contaminated flood waters many of the people waded through, worked in, or were trapped in before rescue teams found them.

During the rotation at West Jefferson, our team saw about 200 medical and trauma patients per day. We also provided vaccinations as part of a public health initiative. Hepatitis A, Hepatitis B, and tetanus toxoid were given to all public safety, emergency workers, and residents who were returning to the area and would be exposed to the flood waters and destruction left by Hurricane Katrina. At the height of the program, we inoculated more than 2,000 people in 10 hours. Later in the week, the public health department issued a CDC directive requiring us to screen for risk factors and provide vaccines to those with greatest risk. We continued to screen close to 1,000 people a day, but the number of actual vaccinations dropped off to around 200.

**We treated infected insect and spider bites; dog and cat bites from abandoned and scared pets; aggravated asthma; and an assortment of sprains, fractures and scratches.**

The people in the area were very grateful for the assistance our DMAT teams were able to provide. Even though many of them had lost everything, their Southern hospitality was ever present. The Parish President (similar to a county executive in New York), who had lost his home in the flood, served our team freshly made jambalaya and gumbo on Sept. 11 in memory of what we went through on 9/11!

The chief medical officer of the hospital, also a victim of the flood waters, attended every briefing and visited our medical compound often, just to ensure we had what we needed to provide the best care. While our team was in staging, a Boy Scout troop from Richardson, Tex., camped out at the location and cooked and served three meals a day. A church, hearing that teams were sleeping on the hard gymnasium floor, donated several dozen air mattresses so team members could get a decent night's sleep.

Patients who came through our tents showed resilience and fortitude. Shop owners, restaurant workers, and others brought water, snacks, and little goodies to share with us. But the rest of the country, which was listening to slanted, sensational news broadcasts, heard only of the shootings, rapes, and lootings being done by relatively few people.

Safety was a constant issue on deployment. The National Guard, Blackwater Security, Federal Protective Services, Louisiana State Police, local sheriffs, and our own team security personnel "kept our back" at all times. At the first hint of danger, our Management Support Team would

withdraw teams from harm's way. I know of two teams in New Orleans that had to leave immediately when the evacuees began to fire weapons and threaten them.

Lessons learned will be discussed for months, perhaps years, to come. One thing is certain: what local, state, and federal governments thought was an adequate disaster management plan was woefully inadequate. Responses and actions at all levels were ill timed, slow, or nonexistent.

More than 9,000 responders were mobilized to help in the rescue efforts as the storm hit, with more alerted to backfill on rotation. But response modes, perfectly adequate in previous disasters, were quickly overwhelmed. The Red Cross and the Salvation Army did not get into some of the hardest-hit areas until three weeks later, with their forces depleted by the sheer magnitude of destruction.

Commanding the NY-4 DMAT team was a rewarding experience, thanks to the professionalism and "can do" attitude of the individuals with whom I had the honor to be deployed. With a new hurricane season beginning, the work is not over. Whatever occurs, NY-4 will be ready to help recovery efforts.

**Thomas Lowe** is Health and Safety Representative for the NYSNA Economic & General Welfare Program in New York City.

## BIBLIOGRAPHY: Nursing Informatics

For our readers who would like to learn more on the subject of nursing informatics, the NYSNA Nursing Library has compiled this list of books, articles, journals, and Web sites to explore.

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Top drawer. Summer institute in nursing informatics 2005. Baltimore, MD, July 20-23, 2005. Breaking the barriers of healthcare informatics: people, process & technology. *CIN: Computers, Informatics, Nursing*, 23(5), 233-5.

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*CIN: Computers, Informatics, Nursing*. Hagerstown, MD: Lippincott Williams & Wilkins. A Wolters Kluwer Company.

*Online Journal of Nursing Informatics (OJNI)*. Kittaning, PA: OJNI Corp. [www.eaa-knowledge.com/ojni/](http://www.eaa-knowledge.com/ojni/)

### WEB SITES

Alliance for Nursing Informatics  
[www.allianceni.org](http://www.allianceni.org)

American Medical Informatics Association, Nursing Informatics Working Group  
[www.amia.org/mbrcenter/wg/ni/](http://www.amia.org/mbrcenter/wg/ni/)

American Nurses Association Nursing World  
[www.nursingworld.org/rnindex/nit.htm](http://www.nursingworld.org/rnindex/nit.htm)

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[www.ania.org](http://www.ania.org)

Health Sciences Library, University of Buffalo, Buffalo, NY  
<http://ublib.buffalo.edu/libraries/units/hsl/internet/informatics.html>

International Medical Informatics Association, the Special Interest Group on Nursing Informatics  
[www.imia.org/ni/](http://www.imia.org/ni/)

Resources for Nurses & Families. Nursing Informatics and Technology  
<http://pegasus.cc.ucf.edu/~wink/informatics.html>

# WHAT'S NEW IN THE HEALTHCARE LITERATURE

## Nursing Informatics

Stevens, K. R., & Staley, J. M. (2006). The *Quality Chasm* reports, evidence-based practice, and nursing's response to improve healthcare. *Nursing Outlook*, 54(2), 94-101.

The focus of this article is a review and synthesis of the major points of the Institutes of Medicine (IOM) reports published since 1990 on the quality of health care. The roles of nurses in the bridging the "quality chasm" are emphasized, along with specific suggestions for improving health care. Evidence-based practice is a key ingredient in the recommendations. A second area that needs improvement is the use of informatics, which is one of the core competencies for health professions stated in the 2003 IOM publication *Health Professions Education: A Bridge to Quality*. The volume of information and evidence being produced requires that nurses be able to quickly and frequently access information to use in their practice. This article is a good reference for practice committees, inter-professional quality committees, and faculty who are interested in how to facilitate adoption of practices that will improve the quality, and perhaps the quantity, of care in all healthcare settings.

McBride, A. B. (2005). Nursing and the informatics revolution. *Nursing Outlook*, 53(4), 183-91.

This article provides a succinct yet comprehensive overview of the impact information technology (IT) is soon to have on the nursing profession. The author served as a scholar-in-residence at the Institute of Medicine when it was developing its health quality initiatives. She defines seven areas in which IT shows promise for transforming nursing practice: safety, effectiveness, patient/family centeredness, timeliness, efficiency, equity, and global connectedness. Electronic transmission of healthcare information will allow nurses to interact with patients on an almost continual basis, facilitate communication among healthcare practitioners, and expand patient education options. She also summarizes the barriers to achieving these goals. Information systems traditionally have been financially driven, based on reimbursable procedures and treatments rather than on patient responses and outcomes. Concerns about confidentiality have made healthcare facilities and providers reluctant to share patient information. Nurses often are not part of the decision-making about IT systems, even though they are the largest group using the systems – leading to investments in systems that may impede rather than assist nurses in providing patient care. Finally, the article discusses the need to make the use of computers and personal digital assistants one of the core competencies required of nursing students. The author concludes with several policy recommendations designed to overcome barriers to informatics in health care.

Lea, D.H. (2006). Expanding nurses' roles in telemedicine and genetics services. *American Journal of Maternal Child Nursing*, 31(3):185-189.

This article presents nursing roles in telemedicine and genetics services. Telemedicine offers a promising solution to delivering comprehensive genetics services to children and families when travel, distance, and shortage of genetics professionals interfere with access. Nurses are already using telemedicine to provide nursing and healthcare services but have become involved in the delivery of genetics services via telemedicine only recently. Involving nurses in the development of telemedicine systems for genetics services is essential as they serve as a vital link between the patient, the healthcare system, and the community. Some of the emerging nursing roles in telemedicine include genetic family-health risk assessment, evaluation and counseling at the advanced practice level and at the primary care level, referral, participation in genetic evaluation and counseling, and family- and community-based care coordination and management. The Genomics Nurse Case Coordinator role as described by Lea and Monsen (2003) is presented as a means of further expanding the maternal-child health nursing role in supporting women and families to manage their own genomic health. Telemedicine offers nurses an opportunity to assure and provide quality genetic healthcare tailored to the individual and family's specific needs within their own community.

Peck, A. (2005). Changing the face of standard nursing practice through telehealth and telenursing. *Nursing Administration Quarterly*, 29(4), 339-343.

This article provides brief definitions of telenursing and telehealth, how these systems are used, and why healthcare providers should invest in them. Telenursing is the use of technology to deliver nursing care and to practice nursing. It allows a nurse to remotely monitor, educate, collect data, intervene, manage pain, and support patients and families. Telehealth, a broader term than telenursing, can save money and improve care through more timely and accurate patient follow-up and coordination. Data from telehealth systems can be delivered to providers through the Internet, personal data assistants (PDAs), laptops, telephones, and video. The use of telehealth will allow a smaller nursing workforce to provide more care to a complex patient population. Barriers to telenursing include licensure and reimbursement. The issue of multi-state licensure has been extant for several years and is still unresolved in some parts of the country. Who will pay for telenursing is an issue that may be resolved as the amount of inpatient care continues to decrease. The lack of a universal electronic health record system is perhaps the major barrier to more extensive use of telenursing. The author pointed out that nurses have and should continue to be involved in bringing telehealth into the mainstream of health care.



## Call for Papers

The Fall/Winter 2006 issue of the *Journal* will focus on the topic of:

### Nursing and Healthcare Policy

We are seeking articles on the role of nursing in the development of healthcare policy, particularly within New York State. Authors are invited to submit articles on topics such as nurses' involvement in policy development; the inclusion of policy and legislative content in nursing education; and specific proposals related to nursing practice.

### Deadline for submission: October 1, 2006

It is preferred that manuscripts be submitted via e-mail as Microsoft Word documents (.doc) or Rich Text Format (.rtf) attachments. Detailed author's guidelines are available on the NYSNA Web site, [www.nysna.org](http://www.nysna.org), by clicking on "Media Center" and "Publications." Or, contact the NYSNA Communications Department at [communications@nysna.org](mailto:communications@nysna.org) or 800-724-NYRN (6976), Ext. 275.

## Information for Authors

Contact the NYSNA communications department at [communications@nysna.org](mailto:communications@nysna.org) for a copy of our author's guidelines, or visit the "Publications" area of NYSNA's Web site, [www.nysna.org](http://www.nysna.org)

## Upcoming Conferences

### September 6-11, 2006, Philadelphia, PA

"Leading the Way to Excellence in Nursing Practice," Academy of Medical-Surgical Nurses 15th Annual Convention. Contact: AMSN National Office at 866-877-2676 or [www.medsurgnurse.org](http://www.medsurgnurse.org).

### September 11-15, 2006, Tempe, AZ

EBP Mentoring Workshop, Arizona State University College of Nursing Center for the Advancement of Evidence Based Practice. Contact: CAEP at 480-965-1196 or e-mail: [caep@asu.edu](mailto:caep@asu.edu).

### September 13-16, 2006, San Antonio, TX

Emergency Nurses Association Annual Conference. Contact: ENA at 847-460-4009 or [www.ena.org](http://www.ena.org).

### September 14-16, 2006, Dallas, TX

"New Horizons in Pediatric Nursing," 22nd Annual Pediatric Nursing Conference. Contact: 856-256-2300 or [www.pediatricnursing.net](http://www.pediatricnursing.net).

### September 22-24, 2006, Boston, MA

American Nephrology Nurses' Association Fall Meeting for Nephrology Nurse Managers, Advanced Practice Nurses and Clinicians. Contact: ANNA National Office at 888-600-2662 or [www.annanurse.org](http://www.annanurse.org).

### September 27-30, 2006, New York, NY

National League for Nursing Education Summit. Contact: [www.nln.org](http://www.nln.org).

### October 4-6, 2006, Denver, CO

10th Annual Magnet Conference. Contact: American Nurses Credentialing Center, [www.nursecredentialing.org](http://www.nursecredentialing.org).

### October 5-8, 2006, New York, NY

"Bright Lights, Bright Future," Annual Convention of the New York State Nurses Association. Contact: 800-724-NYRN, (6976), Ext. 303 or [www.nysna.org](http://www.nysna.org).

### October 27-30, 2006, Kansas City, MO

Society of Urologic Nurses and Associates 2006 Annual Conference. Contact: 888-827-7862 or [www.sunu.org](http://www.sunu.org).

### November 1-4, 2006, Annapolis, MD

"Enhancing Healthcare Through Transcultural Nursing," 32nd Annual Conference of the Transcultural Nursing Society. Contact: 888-432-5470 or [www.tcns.org](http://www.tcns.org).

### April 12-14, 2007, Providence, RI

"Building Communities of Scholarship and Research," 19th Annual Scientific Sessions, Eastern Nursing Research Society. Call for abstracts deadline: Sept. 15, 2006. Contact: 215-599-6700 or [www.enrs-go.org](http://www.enrs-go.org).

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