ANIA
Where caring and technology meet

Nursing Informatics Today

The official publication of the American Nursing Informatics Association

1st Quarter, 2016 • Vol. 31, No. 1

2015-2016 Board of Directors

President
Charles Boicey, MS, RN-BC, PMP, CPHIMS

President-Elect/Conference Chair
Daniel Gracie, DNP, RN-BC

Immediate Past President
Patricia P. Sengstack, DNP, RN-BC, CPHIMS

Treasurer and Job Bank
Karen E. Zorn, MSN, RN, ONC

Secretary
Cheryl D. Parker, PhD, RN-BC, FHIMSS

Education Director
Brenda Kulhanek, PhD, MSN, MS, RN-BC

Research Director
Kathleen Hunter, PhD, RN-BC, CNE

West Region Director
Patricia Korolog Mulberger, MSN, RN-BC

Central Region Director
Nicole Mohiuddin, MS, RN-BC, FHIMSS, CPHIMS

East Region Director
Christy Jo St. John, MSN, RN-BC

Chapters Director
Diane Humbrecht, DNP, MSN, RN-BC

Editor
Elizabeth C. Elkind, PhD, MSN, MBA, RNC-OB

Assistant Editor
Denise D. Tyler, MSA/MBA, RN-BC

Peer Reviewers
Cecilia A. Boyd, DNP, MSN, RN-BC, APHN-BC, MBA, CCM
Debi Camp, MSN, RN
Athena Fernandes, MSN, MCP, RN-BC
Karen Pope, BSN/BA, RN
Meri Shaffer, BA, RN, COS-C
Florence Shrager, MSN, RN-BC

National Office

Account Executive
Thomas J. Greene

Association Manager
Miriam I. Martin

Director of Education Services
Rosemarie Marmion, MSN, RN-BC, NE-BC

Managing Editor
Katie R. Rayburn, ELS

Graphic Designer
Robert W. Taylor, Jr.

President-Elect's Message

Daniel P. Gracie

Launching Informatics into the Future

Daniel Gracie

As our conference draws near, I am very excited to have the opportunity to serve the premiere and largest group of nurse informaticists as ANIA President for the upcoming year. Our conference this year is a great example of the growth our organization and profession have seen in this ever-evolving field.

The **2016 ANIA Annual Conference** has some very relevant pre-conference topics to help you keep up with the field and enrich your practice. ANIA is excited to begin offering our Nursing Informatics Institute review course to help you prepare for certification. As health care continues to accommodate the patient at home, I'm thrilled to have our colleagues from **LearnTelehealth.org** presenting a great overview that will take you from the beginner to its importance in the boardroom. Two other pre-conference offerings that we have brought back due to strong demand and feedback are the writing for publication and career mapping sessions. As always, you don't have to pick just one; we will be recording these to be made available after the conference in our **Online Library.** This is another great way to stay current from the comfort of your couch or desk.

Every year, I'm amazed at the quality and variety of keynote speakers who are so excited to share their message with the largest organization entirely for informatics nurses. Kicking off our conference in 2016 is Keith Boone, also known as "the Motorcycle Guy." As we launch health care into the future, we see how important standardization and nomenclatures can be to nursing. Keith is a well-known speaker on this topic and is very excited to share his vision and the key role that nurses can play. I can't help but think how the famous phrase from informatics pioneer Norma Lang is becoming a reality:

> "If we cannot name it, we cannot control it, practice it, teach it, finance it, or put it into public policy."
> – Norma Lang

Kicking off our Saturday morning will be Kristi Henderson, a nurse who has done some fascinating work in telehealth, building on the importance to our practice. Quite often we hear buzzwords in our industry, and I'm thrilled that ANIA can offer such great speakers who put definition and meaning to these.

continued on page 9

IN THIS ISSUE

3 ANIA Financial Report

4 Fostering Therapeutic Communication While Inputting Data into the EHR CONTINUING NURSING EDUCATION

8 Regional News

10 Preparing Nursing Graduates for the Future

17 Robotic Nurses: They are Coming Soon!

20 Harbingers of Health Care Information Technology

© 2016 American Nursing Informatics Association

Editor's Corner

Exciting Publication News

Elizabeth C. Elkind

This year promises to be a busy year for ANIA as well for our publication. As we work toward our transition to a full journal, you will find that some information that used to be included in *Nursing Informatics Today (NIT)* will now be published on the **ANIA website.** The site will also be expanded. To facilitate this, we have recently established a Web Committee, which I will chair. The committee members are Cecilia Boyd, Heather Carter-Templeton, Jessica Lawrence, Thomas Zarra, and Charles Boicey (as the ANIA Board Liaison). We are just getting started, but you will shortly begin to see changes to the website.

Our Annual Conference is just around the corner, April 21-23, 2016. The conference will provide many wonderful opportunities to network with your nursing informatics peers from across the nation. Please note that there is a Pre-Conference Workshop on "Bridging the Gap Between Practice and Publishing" on Thursday, April 21, from 8:00 a.m. – 12:00 p.m. This is another opportunity for you to learn from seasoned authors and editors how to promote your knowledge sharing. It is also a great way to earn your continuing education contact hours for certification renewal. In the Exhibit Hall area, we will have a *NIT* booth again, so please stop by. We will be happy to discuss any projects and/or ideas you may have for articles.

I would also like to highlight the annual Maggie B. Cox Award for authors, which is open to our membership. This award is presented at the Annual Conference to a member who contributes to our publication. It is based upon the previous calendar year's publications. The ANIA Board evaluates each published article using the following criteria: 1) timely and useful for our members, 2) organization and interest, and 3) scholarly work with significant implications for nursing and health care informatics practitioners. The recipient receives a plaque and $1,500 award. This is another incentive for ANIA members to consider writing and submitting an article.

Hope to see you in San Francisco!

Elizabeth C. Elkind, PhD, MSN, MBA, RNC-OB
Editor
editor@ania.org

2016 Annual Conference
April 21-23, 2016 • Hyatt Regency San Francisco
Register Now
Bridging Informatics and Patient Care
SAN FRANCISCO CALIFORNIA
www.aniaconference.com

ANIA Financial Report

The American Nursing Informatics Association (ANIA) is a volunteer organization managed by Anthony J. Jannetti, Inc. (AJJ), an association management firm accredited by the AMC Insititute. AJJ's association management team carries out many of the responsibilities of ANIA, including planning and arranging the annual conference. One of the responsibilities that AJJ takes on that is not as visible as the conference is the financial management of the organization. The Account Executive of ANIA works directly for AJJ and oversees ANIA finances in conjunction with the AJJ accounting department. The Account Executive works closely with the ANIA Treasurer, who is elected by the ANIA membership. The Treasurer is actively engaged in the budget process, reviewing revenue, expense, and investment reports regularly; questioning any variances; and presenting reports to the Board for their review and approval. One of those reports is an annual review of the financial status of the organization, carried out by the independent accounting firm of LeRoy Thumlert & Co. The Board reviews this report annually, and a summary is presented to members.

The annual report for 2015 showed gross revenues of $602,951.54. This was 12% more than ANIA's budgeted gross revenues. These increased revenues for 2015 are attributed to several positive factors and fall into several broad categories (see Figure 1). While there are many sources that flow into each of these categories, a brief description of what constitutes each category follows: Education (53%), which includes conference registration dues and exhibit/sponsorship support; Membership (36%), which includes membership dues; Publications and Job Bank (6%), which includes *Nursing Informatics Today* advertising revenue and website sponsorships, plus royalties from our Job Bank; and Investments/Miscellaneous (5%), which includes income gained from interest and dividends.

The balance sheet shows revenues as well as expenses. ANIA tracks expenses using three broad categories: Education/Membership Services (61%), Central Office Management/Administrative Operations (32%), and BOD Strategic Planning (7%) (see Figure 2).

Education and Membership expenses are primarily the Annual Conference, monthly webinars through our Online Library, education services and accreditation, *Nursing Informatics Today* (ANIA's official publication), membership development, maintaining the ANIA website, chapter development, scholarships, regional events, and the monthly E-news.

Central office management/administrative expenses are composed of management fees for the National Office, which includes an Account Executive and Association Support Manager, a Comptroller, staff travel, postage and phone costs, any legal/accounting fees, bank and credit card processing fees, annual software fees, and fulfillment/information services (which include membership processing and monthly reporting).

BOD Strategic Planning expenses are made up of two annual board retreats, conference expenses, monthly conference calls, and strategic planning. An executive decision was made at the January 2015 retreat to meet at ANIA Headquarters in New Jersey to save on expenses for the second of the two retreats in August 2015. Savings come from audiovisual equipment and Wi-Fi services, catering, meeting space rental, and transportation.

ANIA exceeded the amount of revenues that were budgeted, which is fantastic news! Expenses for 2015 were also slightly more than originally budgeted; however, net revenues were better than expected at $35,921.51 (budget was -$322). Total assets at the beginning of the year 2015 were $1,003,738.53, and this increased to $1,070,448.05 by the end of the year. ANIA ended 2015 fiscally sound in operating revenues and also investments.

ANIA leadership continues to strive to be good stewards of its resources in order to carry out our strategic plan most efficiently and continue our mission of advancing the field of nursing informatics through communication, education, research, and professional activities.

Figure 1.
Revenue – $602,951.54

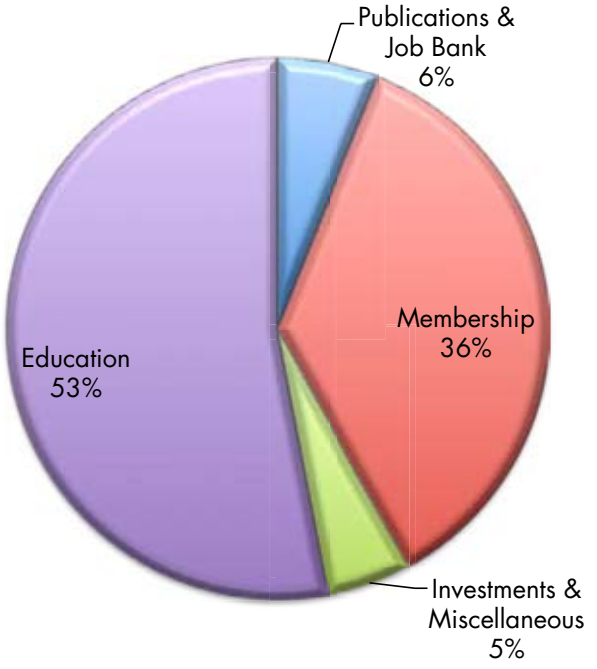
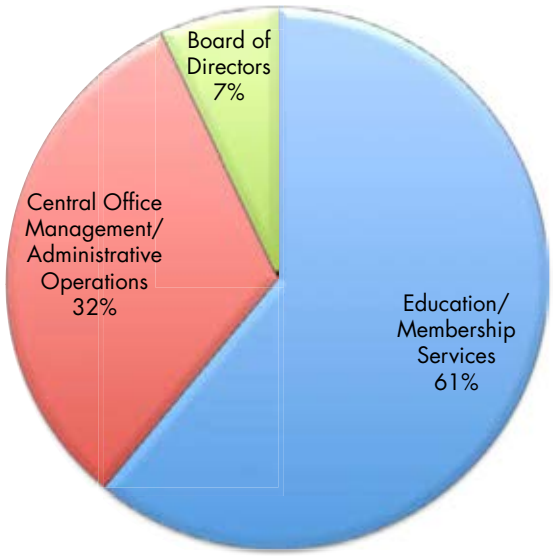


Figure 2.
Expenses – $567,030.03



CONTINUING NURSING EDUCATION

Instructions For Continuing Nursing Education Contact Hours

Fostering Therapeutic Communication While Inputting Data into the Electronic Health Record

Available Between:
March 31, 2016 – March 31, 2018

INFN1601

To Obtain CNE Contact Hours

1. For those wishing to obtain CNE contact hours, you must read the article and complete the evaluation through the ANIA Online Library. Complete your evaluation online and print your CNE certificate immediately, or later. Simply go to **www.ania.org/library** and select *Nursing Informatics Today*.
2. Evaluations must be completed online by March 31, 2018. Upon completion of the evaluation, a certificate for 1.3 contact hour(s) may be printed.

Fees

Member: FREE **Regular:** $25

Learning Outcome

After completing this learning activity, the learner will be able to explain the use of therapeutic communication while documenting in the electronic health record (EHR) during the patient encounter.

The author(s), editor, content reviewers, and director of education reported no actual or potential conflict of interest in relation to this continuing nursing education article.

This educational activity is jointly provided by Anthony J. Jannetti, Inc. and the American Nursing Informatics Association (ANIA).

Anthony J. Jannetti, Inc. is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

Anthony J. Jannetti, Inc. is a provider approved by the California Board of Registered Nursing, provider number CEP 5387. Licensees in the state of California must retain this certificate for four years after the CNE activity is completed.

This article was reviewed and formatted for contact hour credit by Rosemarie Marmion, MSN, RN-BC, NE-BC, Anthony J. Jannetti Director of Education Services.

Fostering Therapeutic Communication While Inputting Data into the Electronic Health Record

Heather Jean Curran

Electronic health record (EHR) use in health care is rapidly increasing; however, the impact of EHR technology on provider-patient communication is not well understood. A review of the literature from 2010 to 2015 was conducted. Common themes and recommendations from the literature review were compiled and condensed into an evidence-based approach to therapeutic provider-patient communication while inputting data into the EHR. The interviewing technique suggested in this article addresses necessary preparation for the client visit, desirable provider nonverbal behaviors, and techniques to increase patient interaction and satisfaction with the use of the EHR in the exam room.

The 2016 deadline for the end of Meaningful Use incentives is growing near and health care systems around the United States are increasing the presence of electronic health records (EHRs) (Centers for Medicare & Medicaid Services [CMS], 2016). As the use of technology increases, patients will undoubtedly feel the effects, but will they be good or bad? Of particular concern is patient-provider communication, which is affected by a number of factors, one being the recent introduction of technology such as laptops and portable electronics in the exam room for EHR documentation. Patients find providers most attentive when the providers are within close proximity to the patient, the patient is looked at frequently, and appropriate comforting touch is used (Khan, Hanif, Tabassum, Qidwai, & Nanji, 2014). Makam and colleagues (2014) found that 62% of health care providers reported their EHR acted as a barrier to making eye contact with patients, and 40% described a negative impact on patient-provider communication.

Background

The author worked at a primary care practice in rural Maine where the use of a laptop computer was required to access and input patient data during the patient history and physical exam. It was often problematic for the author and other providers to position themselves in a manner that maintained eye contact while simultaneously using the EHR, especially if the patient was accompanied by a caregiver or family members in the small exam room. The use of the touch pad on the laptop and menus in the EHR caused providers to frequently scan the screen after making eye contact with the patient. This created pauses in the conversation, potentially detracting from the patient's experience. Having hands occupied by typing on the EHR prevented the appropriate use of patient touch until after the interview. The laptop use was so problematic that the author abandoned it and took notes on paper, then completed all documentation after the patient encounter. This approach was time-consuming and its accuracy could be disputed. It is imperative that a solution to lack of eye contact and appropriate touch due to the EHR be found so that patient-provider communication is optimized.

What the Research Tells Us

The health care provider must learn how to effectively use technology without detracting from the provider-patient relationship. Providers specifically trained in computer-mediated interviewing may be less likely to negatively affect patient perception of communication during the office visit. The use of open-ended questions, maintaining eye contact before and after typing, and body language that implied the provider was listening can positively impact computerized history taking (Barker & Court, 2011). Some health care facilities may have exam rooms that are poorly arranged for maintaining eye contact while simultaneously inputting data and speaking with the patient. Additionally, an evidence-based approach to computer-mediated interviewing that optimizes eye contact and communication is lacking. This article describes exploration of the literature for an evidence-based approach to maintain optimal communication while using the EHR.

Literature Review

Pros and Cons of EHR Use

A review of the literature from 2010 to 2015 was conducted using Academic Search Premier; Biomedical Reference Collection: Comprehensive, Business Source Complete; CINAHL; Cochrane Database of Systematic Reviews; Health Source: Nursing/Academic Edition; Google Scholar; Medline; and Nursing & Allied Health Collection: Comprehensive. Review of these databases revealed that EHRs can have several positive impacts on patient care. When compared to traditional paper charts, EHR systems can aid primary care providers (PCPs) in monitoring patient information remotely, preventing errors, and identifying needed preventive care. A survey of 1,727 physicians working in primary care practices across the United States with EHRs in their office showed: 78% perceived a positive benefit to patient care, 81% had access to patient data outside the office, most had clinical decision assistance tools that prevented pharmaceutical errors or drug interactions (65%) or an alarm system that warned them of critical high or low laboratory values (62%), and 47% used their software to identify preventive care that was needed for their patients (King, Patel, Jamoom, & Furukawa, 2014). Only 30% of the physicians surveyed reported that their EHR improved communication with patients, primarily through the use of secured messaging like electronic mail linked to the EHR (King et al., 2014). Physicians were more likely to report EHR satisfaction if they had more than two years of experience using the system and especially if their EHR had a Meaningful Use component (King et al., 2014). *Meaningful Use* refers to the ability of an EHR to function as a tool that improves the value, safety, or delivery of health care to the consumer (CMS, 2015). One example of this is using the EHR to identify a patient or population that would benefit from a particular intervention. King and colleagues (2014) did not ask about negative effects of EHR use in their survey, nor was there any exploration of the small percentage of physicians who responded that their EHR did not improve patient care or they were uncertain of its effect.

There is a lack of exploration of the negative impact of technology in health care documentation. Buntin, Burke, Hoaglin, and Blumenthal (2011) conducted a comprehensive literature review on the topics of EHRs, electronic order entry, electronic decision-making tools, use of telecommunications for care delivery, and database or administrative functions in health care, and found that, of the 154 studies published from 2007 to 2010, 62% correlated the use of technology in health care documentation as beneficial to care delivery or patient satisfaction, 92% were mostly positive (though they may have reported negative incidental findings), and only 8% reported the negative impact of technology on patient care or satisfaction. Negative findings included: poor support from the EHR vendor, disruption of patient care while staff was oriented (in one study this increased falls), and health care environments that were not ready to implement an EHR (at one facility this was attributed to poor leadership, staff not being open to technology integration, poor planning of implementation, and EHR vendor failing to meet deadlines; at another facility, this was attributed to poor provider computer literacy) (Buntin et al., 2011). Other problems associated with documentation technology included: increased time spent on prescription writing, not using the EHR to communicate with or send patient information to other providers, lack of completeness of the patient chart due to the provider's failure to chart, fragmented records with some patient information being stored in paper charts, and decreased interaction with the patient as the computer (EHR) was introduced into care (Buntin et al., 2011).

EHR implementation can be problematic. Even if the EHR does improve patient care overall, the technology may not be used to its fullest potential or it may not meet expectations of the function of technology in health care. Stead (2010) discussed the aspects of a quality EHR systems, pointing out the following desirable characteristics:

- it includes complete data about patients' history and treatments,
- it is easily adaptable to new technology or patient care processes,
- it supports the provider in implementing evidence-based guidelines,
- it can identify health problems occurring in the local population,
- it provides remote support for patients,
- and it empowers patients to make care decisions, review their health records, and communicate with the health care team.

When eight large health care systems' EHRs were examined, many did not provide these desirable characteristics. For example, some lacked technical support, some increased delay of patient care delivery or wait times, and some were so cumbersome to learn that care was not being documented in real time (Stead, 2010). Without documenting during the encounter, the EHR provides no benefit from decision assistance tools that inform the provider of potential patient harms or benefits related to specific interventions (Francis, 2010). Additionally, if providers are not documenting in real time, the risk of recall or transcription errors increase (Francis, 2010).

Successful Application of EHR

Providers are more likely to effectively apply an EHR to their practice if they have been educated on its functions and know how to efficiently document care; the most effective way to do this is through a combination of computer-based, classroom style, individual learning sessions, and feedback about the efficacy of the providers' use (Goveia et al., 2013). The two areas in which EHRs are frequently underutilized are engaging the patient and increasing the ease of sending and receiving information between providers (Furukawa et al., 2014). Surveys mailed to PCPs across the United States from 2009 to 2013 showed that of the 78% of offices using EHRs during this time, only 39% had used the EHR to send or receive patient information (Furukawa et al., 2014). Only 40% of the offices' EHRs allowed the patient to have electronic access to their health information and, of these, only 50% used this tool to engage patients (Furukawa et al., 2014). Similarly, only about 33% of EHR systems with the ability to interact with patients via secure electronic messaging were actually using this function (Furukawa et al., 2014). Hamid and Cline (2013) studied providers in a small health care system that had reported negative impact of the EHR on provider autonomy and provider-perceived limited EHR usefulness; both findings acted as barriers to successful EHR implementation. In contrast, support from managers and education about the EHR were identified as facilitators to EHR implementation (Hamid & Cline, 2013).

Patient Satisfaction with EHR

Arguably more important than the providers' perceptions of EHRs is the care recipients' perception of EHRs and their impact on satisfaction with patient care. A survey of 6,598 United States adults from a vast array of socioeconomic backgrounds found that 87% of patients thought that their

Table 1.
Provider Approach to Interviewing While Using an EHR

Preparation	Orient all providers to the EHR functions prior to use with a patient present.
	Arrange the exam room so that the provider can reach both the patient and the computer (e.g., the computer placed at 90 degrees to the right of the exam table, with the provider on a mobile stool in front of the patient).
	Plan goals to accomplish during the visit before entering the exam room (like preventive health vaccines or blood work) to maximize allotted time and to ensure the provider understands which portions of the EHR are likely to be accessed.
	Assess the electronic record for completeness and update any missing patient information.
Nonverbal Behavior	Avoid multitasking. Focus on one task at a time (e.g., when speaking to the patient, give him or her full attention and when entering data in the EHR, concentrate on that to ensure accuracy).
	Make frequent eye contact with the patient before and after typing or looking at the EHR.
	Face the patient.
	Use appropriate patient touch during the visit to display concern or to comfort, like a hand on the upper back or shoulder of a crying patient.
Interview Technique	Ask patient permission before accessing the EHR or acknowledge the use of the computer.
	Engage the patient in the use of the computer by turning the screen to display test results while explaining their interpretation.
	Discuss patients' ability to electronically access the patient portal to view their health records securely on the internet. Explain that patients can view their records to ensure accuracy of patient data, summaries of care, and test results.
	Document in the EHR in real time to avoid errors, and to take advantage of decision assistance features of the EHR, such as prescribing tools that alert the provider to dangerous drug interactions.

providers were using some type of EHR for their patient information, and 81% of respondents with providers that used EHRs were satisfied with their care (Finney-Rutten et al., 2014). The correlation between provider EHR use and satisfaction with care was highest in the respondents who had the following characteristics: ages 35 and up, annual income of less than $50,000, Hispanic nationality, education level of some college or less, those who had an established PCP, and those with insurance; there was no significance of perception due to gender or employment status (Finney-Rutten et al., 2014). Liu, Luo, Zhang, and Huang (2013) found that overall, most patients were satisfied with provider use of EHRs during their interaction and that selection of a specific EHR is likely to lead to patient satisfaction if the following are considered: needs of the population being served, ease of implementation, positive impact on workflow, and features that are perceived as useful or time-saving.

Communication and Provider-Patient Relationship

Communication is a complex component of the provider-patient relationship impacted by the introduction of EHRs and computers in the exam room. Francis (2010) explained that the provider-patient relationship is based on both patient and provider trusting one another and warned that the increased availability of information through EHRs may harm this relationship by increasing criticism and analysis of interactions, inclusion of erroneous information, and the sharing of information that is perceived to be private. LaBlanc, Back, Danis, and Abernethy (2014) addressed this problem by asking patients to access their EHR on the internet and correct any erroneous information. Providers also have a responsibility to assess for information omitted from the EHR instead of assuming that patient records are complete (Lo & Parham, 2010). LaBlanc and colleagues (2014) suggested that communication with patients while providers used computers could be enhanced by positioning oneself within reach of the computer and the patient, ensuring the computer is not a barrier to eye contact, asking patient permission to access the EHR or explaining the use of the EHR, involving the patient in the use of the EHR by showing results or other data, and planning patient care objectives to address (like updating immunizations or needed health screenings) before the provider enters the exam room. These recommendations were based on a review of the literature, and the results of their implementation were not yet available at the time this article was written.

A study using videotaped patient visits from ten providers that were later analyzed for nonverbal behaviors revealed that providers spent as much as 49.6% of patient time looking at their computers and an additional 21.6% of the patient visit entering data (Montague & Asan, 2012). This is as much as 71.2% of the duration of the patient visit spent interacting with the EHR. There are three discrete manners in which providers use computers in the exam room: providers that focus on the patient, providers that focus on the computer, and providers that focus on both, but only

engage in one task at a time (Montague & Asan, 2012). Though all three approaches were associated with high patient satisfaction, the group that avoided typing while talking to the patient received the highest satisfaction rating; it was suggested that this approach (dividing the office visit into focused patient interaction and focused EHR interaction) would also minimize erroneous data entry and maximize eye contact with the patient (Montague & Asan, 2012). A similar study recorded the interaction of 23 providers with patients and found that the EHR use was an obstacle to patient care if it created long pauses in conversation and required the provider to spend prolonged time looking at the computer display (Street et al., 2014).

Patient Touch

The provider comforting the patient with touch can be an important part of nonverbal communication, when culturally acceptable. Khan and colleagues (2014) interviewed 120 patients using standardized questionnaires in a Pakistani family practice about their perceptions and preferences regarding touch by a provider. The majority of patients (83%) stated that touch was expected and it was a sign of comfort (36%), though it could also convey respect, healing, and understanding (Khan et al., 2014). Touch of the shoulder (76%) was perceived as comforting by most patients; however, touch of the knee or thigh was perceived as being uncomfortable (Khan et al., 2014). It is important for the provider to assess the appropriateness of comforting touch as an adjunct to communication before employing this tactic.

Montague, Chen, Xu, Chewning, and Barrett (2013) researched the effects of providers' nonverbal behaviors on patients' opinions of communication during the office visit and found that eye gaze and patient touch increased patient perception of compassion and understanding. The study videotaped the office visits of a total of 110 patients with any one of five randomly selected providers whom the patients had never met before. Length of time that eye gaze was maintained with the patient and the numbers of times that any social touches (e.g., hand on back, handshake) were used were recorded. Patients were then asked to complete a survey rating the empathy of the provider. Use of provider touch increased patient perception of connectedness, but this relationship decreased if touch exceeded three brief episodes, suggesting that touching the patient twice during the visit was optimal (Montague et al., 2013).

Creating an Evidence-Based Approach

The literature was analyzed for evidence-based suggestions for effectively communicating with patients while using an EHR. The common themes were incorporated into a systematic approach to maintaining therapeutic communication while using the EHR and are outlined in Table 1. This approach addresses necessary preparation for the client visit, desirable provider nonverbal behaviors, and specific interview techniques to increase patient interaction and satisfaction with the use electronic health record in the exam room.

Conclusion

Interacting with the patient and establishing a rapport is the foundation upon which effective provider-patient communication is built. Though the rapidly increasing use of the EHR in health care promises many benefits (like safer prescribing and warning systems to alert providers to critical lab values), one cannot ignore the potential negative effects. Research has shown that patients desire eye contact, comforting touch, and focused attention from their provider. Without the use of an evidence-based approach and incorporation of strategies like the ones suggested in this article, the EHR has the potential to detract from the provider-patient relationship.

References

Barker, F., & Court, G. (2011). PC-based note taking in patient-centered diagnostic interviews: A thematic analysis of patient opinion elicited using a pilot survey instrument. *Informatics in Primary Care, 19*(1), 51-54. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22118337

Buntin, M.B., Burke, M.F., Hoaglin, M.C., & Blumenthal, D. (2011). The benefits of health information technology: A review of the recent literature shows predominantly positive results. *Health Affairs, 30*(3), 464-471.

Centers for Medicare & Medicaid Services (CMS). (2015). *Clinical quality measures basics.* Retrieved March 1, 2016, from http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/ClinicalQualityMeasures.html

Centers for Medicare & Medicaid Services (CMS). (2016). *Medicare and Medicaid EHR incentive program basics.* Retrieved March 1, 2016, from http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Basics.html

Finney-Rutten, L.J., Vieux, S.N., St. Sauver, J.L., Arora, N.K., Moser, R.P., Beckjord, E.B., & Hesse, B.W. (2014). Patient perceptions of electronic medical records use and ratings of care quality. *Patient Related Outcome Measures, 5*, 17-22. doi:10.2147/PROM.S58967

Francis, L.P. (2010). The physician-patient relationship and a national health information network. *Journal of Law, Medicine, & Ethics, 38*(1), 36-49.

Furukawa, M.F., King, J., Patel, V., Chun-Ju, H., Adler-Milstein, J., & Jha, A.K. (2014). Despite substantial progress in EHR adoption, health information exchange and patient engagement remain low in office settings. *Health Affairs, 33*(9), 1672-1679.

Goveia, J., Van Stiphout, F., Cheung, Z., Kamta, B., Keijsers, C., Valk, G., & Ter Braak, E. (2013). Educational interventions to improve the meaningful use of electronic health records: A review of the literature: BEME guide No. 29. *Medical Teacher, 35*(11), e1551-e1560. doi:10.3109/0142159X.2013.806984

Hamid, F., & Cline, T.W. (2013). Providers' acceptance factors and their perceived barriers to electronic health record (EHR) adoption. *Online Journal of Nursing Informatics, 17*(3), 1-11. Retrieved from http://ojni.org/issues/?p=2837

Khan, F.H., Hanif, R., Tabassum, R., Qidwai, W., & Nanji, K. (2014). Patient attitudes towards physician nonverbal behaviors during consultancy: Result from a developing country. *International Scholarly Research Notices Family Medicine,* 1-6. doi:10.1155/2014/473654

King, J., Patel, V., Jamoom, E.W., & Furukawa, M.F. (2014). Clinical benefits of electronic health record use: National findings. *Health Services Research, 49*(1), 392-404. doi:10.1111/1475-6773.12135

LaBlanc, T.W., Back, A.L., Danis, M., & Abernethy, A.P. (2014). Electronic health records (EHRs) in the oncology clinic: How clinician interaction with EHRs can improve communication with the patient. *Journal of Oncology Practice, 10*(5), 317-321. doi:10.1200/JOP.2014.001385

Liu, J., Luo, L., Zhang, R., & Huang, T. (2013). Patient satisfaction with electronic medical/health record: A systematic review. *Scandinavian Journal of Caring Sciences, 27*(4), 785-791. doi:10.1111/scs.12015

Lo, B., & Parham, L. (2010). The impact of Web 2.0 on the doctor-patient relationship. *Journal of Law, Medicine, & Ethics, 38*(1), 17-26. doi:10.1111/j.1748-720X.2010.00462.x

Makam, A.N., Lanham, H.J., Batchelor, K., Moran, B., Howell-Stampley, T., Kirk, L., … Halm, E.A. (2014). The good, the bad and the early adopters: Providers' attitudes about a common, commercial EHR. *Journal of Evaluation in Clinical Practice, 20*(1), 36-42. doi:10.1111/jep.12076

Montague, E., & Asan, O. (2012). Considering social ergonomics: The effects of HIT on interpersonal relationships between patients and clinicians. *Work, 41,* 4479-4483. doi:10.3233/WOR-2012-0748-4479

Montague, E., Chen, P.Y., Xu, J., Chewning, B., & Barrett, B. (2013). Nonverbal interpersonal interactions in clinical encounters and

continued on page 16

Regional News

Upcoming Events

The ANIA 2016 Annual Conference will be held April 21-23, 2016, at the Hyatt Regency San Francisco. Please plan to attend. Visit **www.aniaconference.com** for updated information and to register. Tweet your excitement with hashtag **#ANIA16.**

Member Accomplishments

Angela Lewis, BSN, RN-BC, CPHIMS, FHIMSS, is now a Fellow in the Healthcare and Information Management Systems Society (HIMSS).

Angela Ridenour, BSN, RN-BC, recently passed the ANCC Informatics Nursing exam to become board-certified. She extends thanks to the ANIA e-list participants who shared the methods they used to study for the exam.

Send Us Your News

ANIA wants to hear from YOU! Please email us with details about what's new in your career. If you've recently won an award, obtained certification, or published an article, we want to know about it. Send your accomplishments to **ania@ajj.com** and we'll take care of the rest.

Chapters

Active Chapters

- **ANIA Bay Area (CA) Chapter**
- **ANIA Dallas/Fort Worth Chapter**
- **ANIA DelMarVa Chapter**
- **ANIA Florida Chapter**
- **ANIA Georgia Chapter**
- **ANIA Greater Delaware Valley Chapter**
- **ANIA Heart of America Chapter**
- **ANIA Houston Chapter**
- **ANIA San Diego Chapter**
- **ANIA South Carolina Chapter**
- **ANIA Tennessee Chapter**
- **ANIA South Texas Chapter**
- **ANIA Southern California Chapter**
- **ANIA Western Pennsylvania Chapter**

Developing Chapters

- ANIA Colorado Chapter
- ANIA NY Chapter
- ANIA Philadelphia Chapter

If you're interested in joining or forming a local chapter, please contact Diane Humbrecht at **chapters@ania.org**.

Regional Directors

As always, your Regional Directors want to hear from you! They are committed to helping you coordinate local events for networking and education. It all starts with an idea of what you need and a facility that will host the event. Contact your Regional Director to discuss your needs as an ANIA member, any concerns you may have, or services you might like to contribute (such as an article for publication or volunteer hours). ANIA works best when everyone is engaged!

West Region Director
Patricia Korolog Mulberger, MSN, RN-BC
Bigfork, MT
westregion@ania.org
West Region: International, AK, AZ, BC-Canada, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY

Central Region Director
Nicole Mohiuddin, MS, RN-BC, FHIMSS, CPHIMS
Lake in the Hills, IL
centralregion@ania.org
Central Region: AL, AR, IA, IL, KS, LA, MN, MO, MS, ND, NE, OK, SD, TN, TX, and WI

East Region Director
Christy Jo St. John, MSN, RN-BC
Richmond, VA
eastregion@ania.org
East Region: MI, IN, OH, KY, GA, WV, VA, NC, SC, PA, ME, VT, NH, MA, RI, CT, NJ, DE, MD, DC, and NY

Chapters
Diane Humbrecht, DNP, MSN, RN-BC
Philadelphia, PA
chapters@ania.org
Please contact Diane if you're interested in starting a local chapter or hosting a chapter event.

President-Elect's Message

continued from page 1

Our closing keynote is a well-known speaker and White House award winner, building on the messages from last year reminding us of why we do what we do – the patient. Mr. Hugo Campos will share with us his work on getting access to his data and the unique perspectives from the other side of health care information technology.

If you don't follow ANIA or any of these great speakers on social media, I highly encourage you to do so. They provide great updates, and you'll get a preview of the excitement that I have in welcoming them.

In closing, words cannot describe my excitement and passion in being a part of our industry's highly regarded professionals. If you are unable join us in San Francisco, follow along with updates from our social media accounts (see page 23 for links to ANIA on Facebook, Twitter, and LinkedIn), and browse conference offerings in the **Online Library.** Over the next year, ANIA will maintain its status and grow to meet the changing demands of nursing informatics.

Daniel Gracie, DNP, RN-BC
ANIA President-Elect
presidentelect@ania.org

Subscription Savings To *Nursing Economic$*

Nursing Economic$ – the single best resource for exploring key issues and trends in health care administration, economics, and policies – is pleased to offer ANIA members a 25% discount to the journal.

The journal features original research by the world's leading experts in health care management to help you improve quality of patient care services while containing or reducing costs. In addition, regular features on nursing informatics, leadership, innovations, staffing based on evidence, work/life balance, and innovations will give you vital information to turn data into knowledge and maximize your ROI. Visit **www.nursingeconomics.net/offer** and take advantage of this special offer.

Nursing Economic$ also invites ANIA members to submit manuscripts on informatics-related topics to the journal. Author guidelines can be accessed on **the journal's website.**

UNE Online
UNIVERSITY OF NEW ENGLAND

Graduate Programs in
Health Informatics 100% online

UNE Online, ranked one of the best universities in America by *U.S. News & World Report*, now accepting applications for Summer 2016.

Apply at go.une.edu/apply today!

The future of healthcare is here.

PROGRAM HIGHLIGHTS:

- **36-credit hour Master's program**
- **100% online - no campus visits required**
- **Dynamic faculty of practitioners, researchers & educators**
- **No GRE required**
- **Regionally accredited by New England Association of Schools & Colleges (NEASC)**

855-751-4445 | informatics@une.edu | online.une.edu

Preparing Nursing Graduates for the Future: Adding Informatics Education To Entry Level Programs

Carolyn Sue Watts

A rural community college desiring to add nursing informatics education to their practical nursing and associate nursing programs provided a project for a Masters of Nursing student. The purpose of the project was to integrate nursing informatics education into an already accelerated and shortened program. Although the research recommends core competencies for Bachelors of Science in nursing programs of study, the practical and associate degree graduates make up a larger segment of practicing nurses in the workforce with virtually no formal education in basic computer, information literacy, or information management skills. Ignoring the informatics education needs in practical and associate coursework contributes to a gap in education for all practicing nurses in using technology for safe nursing practice. The project addressed this gap by developing a program of nursing informatics education accommodating a seamless transition from the practical nursing level to the associate degree level. The project provided a foundation for safe practice as well as continuing education into the bachelor's degree level. The project developed leadership skills, used the latest research, and provided innovative modalities to educate students in key areas of nursing informatics. As a result of the project, graduates gained an understanding of nursing informatics and its importance to practice, the nursing profession, and its positive influence on the nurse-patient therapeutic relationship. Using the Technology Informatics Guiding Education Reform Initiative core competency guidelines and the Quality Safety Education Nursing framework recommendations, an introductory course was developed that prepared nursing graduates for safe practice and promotes lifelong learning.

The transformation of health care in the United States with the passing of Affordable Care Act (ACA) in 2009 directed attention to the use of technology to meet the goals and initiatives of improved health care for all. The ACA pushed for the use of electronic health records (EHRs) and its meaningful use by funding development and supplying incentives to the health care industry, changing the face of health care forever. Health care reform also highlighted the need for education reform to bring health care practitioners into the present age of technology in order to leverage its use to provide safe, cost effective care. Nursing, the largest and most trusted profession in health care, holds the promise of contributing to the success of health care reform, as demonstrated by its influence on patient outcomes over the years (Sensmeier & Murphy, 2014). Unfortunately, nursing as a whole has been lacking technology skills in the workplace, and gaps continue to exist in educational programs at all levels. The Technology Informatics Guiding Education Reform (TIGER) Initiative was formed to determine ways to improve nursing practice, including educational strategies in the use of health information technology. The vision of the TIGER Initiative, as stated in the latest

Capsule's **SmartLinx™ Medical Device Information System** delivers turnkey connectivity and bedside charting capabilities—complete with an early warning scoring system.

Learn about how SmartLinx can help improve the delivery of patient care at the 2016 ANIA Conference, April 21-23 in San Francisco. Visit with Capsule at booth 207/209 and discover the power of medical device data.

capsule
a Qualcomm Life company

CapsuleTech, Inc.
300 Brickstone Square
Andover, MA 10810 USA
978-482-2300
www.capsuletech.com

report *Collaborating to Integrate Evidence and Informatics into Nursing Practice and Education: An Executive Summary,* follows (DuLong, 2009, p. 6):

- Allow informatics tools, principles, theories, and practices to be used by nurses to make health care safer, effective, efficient, patient-centered, timely, and equitable.
- Interweave enabling technologies transparently into nursing practice and education, making information technology the stethoscope for the 21st century.

The American Nurses Association (ANA) and the TIGER Initiative have both stated that all nurses should have a basic education in nursing informatics to practice safely, but the research focus has been on educating nurses at the Bachelors of Science in Nursing (BSN) level, resulting in associate degree and practical nurses entering the workforce without nursing informatics education, contributing to a gap in the nursing profession's competent use of technology.

Challenges for Nursing Informatics Education

The ANA (2008) defined *nursing informatics* as "the integration of nursing science, computer information science, and cognitive science to manage communication and expand the data, information, knowledge, and wisdom of nursing practice" (p. 1-2). The TIGER Initiative included recommendations to advance nursing practice through core competencies for all nurses in nursing informatics. In 2008, the Robert Wood Johnson Foundation and the Agency for Healthcare Research and Quality collaborated to address this need and formed the Quality Safety Education for Nursing (QSEN), which outlined educational pursuits to improve nursing practice in six key areas (Spencer, 2012; Tellez, 2012). Informatics was one of those key areas. The American Association of Colleges of Nursing embraces QSEN recommendations, calling for all BSN educational programs to include nursing informatics into core curriculum. According to the Health Resources and Services Administration (HRSA) report of 2011 (2014), registered nurses (RNs) without a bachelor's degree represent 60% of all RNs taking the NCLEX-RN exam. In that same year, there were a total of 3.1 million registered nurses (not including practical nurses, which numbered approximately 690,000) (HRSA, 2014). Because of their lack of education in nursing informatics, associate degree nurse (ADN) and practical nursing (PN) graduates struggle to understand what nursing informatics is, why it is important to their practice, and how to use it proficiently in practice and in promoting lifelong learning.

Table 1.
PN and ADN Nursing Informatics Course Content

PN or First Year of ADN	Second Year of ADN
Module I	**Module IV**
*Basic Skills Self-Assessment	*Legal and Ethical Implications
*Basic Computer Competencies	*Cultural and Economic Considerations
*Information Literacy Competencies	*HIPAA Security Rule
*Introduction to Workbook	*Social Media
*PATCH Assessment Scale	**Module V**
Module II	*TIGER Initiative
*Introduction to Nursing Informatics:	*QSEN
*Electronic Documentation	*DIKW Continuum
*Computer History in Health Care, Nursing	*Future Trends in Technology
*Defining Informatics	*Nursing Process and Systems
*Defining Nursing Informatics	*PATCH Assessment Scale
*ANA Statement	
Module III	
*Terminology:	
*Technology Components	
*Hardware, Software, and Computing	
*PATCH Assessment Scale	

Integrating Nursing Informatics into Curriculum

The capstone project was designed to introduce nursing informatics content into the existing curriculum in both the PN and ADN programs of a rural community college in southern Ohio. The curriculum was reviewed to determine the logical placement of nursing informatics content to be added to facilitate learning and correspond to existing simulated academic electronic health record (AEHR) used throughout program instruction and simulation laboratory. The college uses SimChart as their AEHR for their simulation lab, which was developed by Elsevier and was utilized with the nursing informatics content being introduced to compliment class content (Elsevier, 2013). The course content covered nursing informatics definition, the history and importance to practice, as well as instruction on the electronic health record components of the electronic Medication Administration Record (eMAR), Bar Code Medication Administration (BCMA), Computerized Provider Order Entry (CPOE), Care Planning, and assessment documentation. A workbook was designed by the project learner to facilitate student self-assessment and reflection in an accelerated and compressed nursing program. The workbook followed the developed modules of informatics content. The college has a state-of-the-art simulation lab with computerized wireless mannequins. The AEHR was designed to be used simultaneously within the simulation lab during simulated assessments for real-time point-of-care documentation (Johnson & Bushey, 2011). The accelerated nursing programs consist of two years of instruction: the first year preparing PNs for licensure, leading into the second year for the ADN students. Nursing informatics content and the use of SimChart was introduced in the PN level or the first year of study for the ADN level. Informatics coursework continued into the second year with basic content on theory, ethical, legal, and regulatory considerations, and future trends, as well as continued simulation practice of all components in the AEHR (see Table 1).

Identifying Gaps in Skills And Knowledge

TIGER and QSEN recommend that all nurses have basic computer skills, proficiency in information literacy, and possess information management competencies. Basic computer skills include knowledge of computer software and hardware and the ability to maneuver programs for presentations, managing files, browsing the internet, and communicating with email. The competencies for information literacy refer to understanding what information is needed, how to access it, how to use it, and how to evaluate it for delivery of patient care. Information management describes the continuum of data, information, and knowledge with the collection of data, processing into specific information, and transformation into knowledge that can guide nursing care to improve outcomes (Tellez, 2012). Therefore, it was recommended that these entry level nursing programs incorporate informatics education throughout the course content.

To determine the individual learning needs of each student, an initial assessment of the level of computer literacy and information technology is a necessary first step (Finney-Rutten et al., 2014). A basic skills assessment tool was designed by the project learner to determine gaps in skills and education needs of the students. The basic skills assessment was guided by the TIGER recommendations and the QSEN guidelines. The basic skills assessment focused on the use of technology and basic computer functions. This tool served as a guide for the student and gauge for the instructor of where students need more support and instruction and was included in the workbook (Clancy, 2014). Resources were provided to point students to where they could find online assistance to improve skills (see Table 2 for the basic skills assessment tool). The **Pretest for Attitudes Toward Computers in Healthcare (PATCH Assessment Scale),** developed by Kaminski (2011), was also part of the student workbook and an important component for students to understand their knowledge of informatics and its importance to nursing practice. The tool has been tested and proved useful for determining computer skills, information literacy, and attitudes toward using computers and technology. It is well established that attitudes toward computers are directly related to competency in basic computer skills (Staggers, 2014; Vijayalakshmi, Ramachandra, & Math, 2014). An advantage of using this tool is that it contains a scoring system and includes an individualized interpretation for the student. It also provides space for the student to develop a plan of action and set goals for improvement. The PATCH Assessment Scale was used initially to assess student's attitudes and skills and again at the end of the first year to show improvements and needs. For students continuing on to the second year, it served as an update and an initial basis for self-assessment to encourage personal responsibility to continue working on weak areas. Incremental use of the PATCH Assessment Scale reflected the progress of student learning and the effectiveness of nursing informatics content. The PATCH Assessment Scale, along with the workbook, promotes the lifelong learning necessary with the constant changes in technology and health care.

The student population is mostly Appalachian heritage with low socio-economic status, a culture of using smartphones and the internet, but competency cannot be assumed (Finney-Rutten et al., 2014). The self-assessment tools may also be used by faculty to

Table 2.
Basic Computer Skills Self-Assessment

Basic Computer Skills	Yes	No	Not Sure
Can you locate and start a program?			
Are you able to navigate between programs?			
Are you able to save files to a hard drive or removable storage like a CD or flash drive?			
Are you able to exit or quit a program?			
Do you understand how to log off a computer?			
Can you explain the functions of computer hardware such as monitor, keyboard, or file storage?			
Word Processing Skills			
Do you know how to create a new document?			
Are you able to do the following?			
Save a document?			
Cut, copy, and paste text?			
Check your document with spell-check?			
Center text?			
Change the line spacing in a document?			
Set margins?			
Change the page orientation from portrait to landscape?			
Add page numbers?			
Insert headers and footers?			
Create a numbered or bulleted list?			
Insert or create a table?			
Insert graphics, images, or clip art?			
Spreadsheet Skills			
Have you ever used Excel?			
Can you use the Formula Bar to perform mathematical calculations?			
Can you use the built-in Function capability to create equations?			
Can you create charts?			
Can you sort and filter information?			

continued on page 13

Table 2. (continued)
Basic Computer Skills Self-Assessment

Internet	Yes	No	Not Sure
Can you locate a website given the address?			
Can you use a browser's capabilities to go backward, forward, reload/refresh, print, and stop?			
Can you use a web browser to follow links to another website?			
Can you save a website address in the bookmarks or favorites?			
Can you find information using a search engine such as Google or Yahoo?			
Can you download and save files, such as graphics, documents, or PDFs from the internet?			
Can you download and install software from the internet?			
Can you install and update antivirus software?			
Email			
Do you know how to set up an email account on Google or Yahoo?			
Can you read email messages?			
Can you compose and send email messages?			
Can you reply to an email message?			
Can you manage your email by moving messages between folders, forwarding messages, and deleting messages?			
Can you send attachments through email?			

determine their learning needs, as one of the barriers to nursing informatics education is the gap in knowledge of nursing educators (Tellez, 2012). A list of resources has been included for nurse educators needing support in teaching content.

Modules for Seamless Education

The Institute of Medicine's 2010 report *The Future of Nursing: Leading Change, Advancing Health* from the two-year study supported by the Robert Wood Johnson Foundation, noted the importance of improving the education of nurses to support seamless progression into higher education. The capstone project developed coursework that was broken down into modules: three for the Fundamentals level of the practical nursing program and two in the associate level of the program. The two levels were designed to stand alone as well as integrate seamlessly into each other for students continuing to the associate degree program, and make a smooth transition to one of several reciprocity agreements the college has entered into with other college BSN programs. The Introduction to Nursing Informatics course was based on QSEN strategies for learning knowledge, skills, and attitudes (KSAs) and the guidelines of the TIGER Initiative for core competencies (Tellez, 2012).

System View of Project Stakeholders

Stakeholders of the project were the students in the PN and ADN programs who graduated better prepared to practice safely in the workplace by having an understanding of nursing informatics and its technology components used in daily practice. The faculty represents another stakeholder of the project who benefited with a complete curriculum integrating nursing informatics, including syllabus, outline, and outcomes. The Director of Nursing also mentored the project and as a vital stakeholder, recognized the need for nursing informatics education to be included in the current curriculum to prepare graduates for nursing practice. The project mentor also showed vision for the future of the organization and the nursing profession by being motivated to lead this vision in welcoming the capstone project to add nursing informatics content (Tellez, 2012). The organization has a vested interest in increasing its value and reputation in the community as leading change and innovation in health care. The hiring facilities fall within the stakeholders of the community, who needed better prepared nursing graduates requiring less comprehensive training. Lastly, the patients in the community are the most important stakeholders who depend on nursing graduates to understand the importance of technology in practice and demonstrate competence in the use of technology to educate and direct patient care.

Project Conceptualization

The course content focused on the definition of nursing informatics, history and theory, and the use of clinical decision support systems in the EHR to guide nursing practice and safe patient care. The course was guided by the competencies recommended by TIGER and utilized the KSAs outlined by QSEN for educating nurses to promote lifelong learning (Spencer, 2012). Knowledge competencies of QSEN contained information on safe quality care while using the components of the EHR, such as electronic flow sheets and care plans, decision support systems, eMAR, BCMA, and CPOE. Skills competencies of QSEN included instruction in using technology and information management tools prior to giving care, such as hands-on training in the simulation lab and on SimChart. Attitudes of the QSEN framework provided the students with appreciation of technology as a tool in nursing practice and the need to continue advancing their skills with lifelong learning (Spencer, 2012).

Theoretical Concepts

Providing a basic history of nursing informatics, a clear definition, and theory behind using data to generate knowledge are important to incorporate into all levels of nursing education (Bowers et al., 2011). The theoretical framework chosen was the Nelson Model of Information Theory (2002). Nelson's Model expanded on Bruce Blum's Model (1986), which linked data, information, and knowledge concepts that had also been used beyond health informatics (Nelson & Staggers, 2014). Blum defined *data* as isolated components

with little meaning. *Information* was defined as a collection of data elements that provides output over time. *Knowledge* occurs when the data and information were shown to represent relationships, defining meaning between them. Nelson added to this by including *wisdom* in the continuum, defining it as using the knowledge gained to apply to human problems and their management. Nurses use the continuum of data, information, knowledge, and wisdom in practice and build on their own wisdom, as well as adding to the body of wisdom in nursing. The more knowledge a nurse possesses, the more wisdom is gained from the information and data. The theory fits well with the QSEN framework of KSAs and helps to correlate nursing informatics with nursing practice. The EHR becomes a tool to move through the data to wisdom continuum (Bowers et al., 2011). In addition, as the student understands this continuum and begins practice, using decision support adds to the knowledge and wisdom of the graduate by giving options based on evidence-based research. Ultimately, the reliance on the nurse's own accumulated knowledge and wisdom base will determine appropriateness of following the decision support system.

Project Implementation Supports Advancement of Nursing

The call for all nurses to have nursing informatics education and knowledge is the responsibility of all nurse leaders, especially education, administration, and informatics specialties of advanced practice registered nurses (APRN). The nursing informatics course content supported these recommendations and promoted lifelong learning through web activities, readings, lecture, and class discussion. Using the KSAs outlined by the QSEN framework, nursing advanced by showing individual nurses the importance of taking responsibility for continued education and advancement in technology skills (Spencer, 2012). A workbook was designed by the project learner to chart individual progress and for use as a reference for future study and self-assessment for personal advancement of skills.

Project Leadership

Interprofessional teamwork is the basis for solving all complex problems that APRNs will be called on to solve. It is most effective when each member understands the contribution of each other. Therefore, Interprofessional Education (IPE) is promoted as vital for APRNs to become socialized in their role as a team member on a variety of interprofessional teams (Farrell, Payne, & Heye, 2015). The capstone project helped immerse the project learner as leader into the role of an advanced practice nurse by the socialization process of working on the project with other APRNs. This learning process helped the project learner understand the professional values exhibited by the interprofessional team and guided thinking to include those values into the new APRNs' professional behaviors. Farrell and colleagues (2015) note that successful socialization into the APRN role helps one learn risk taking, how to overcome barriers, abandon comfort zones, and to give more personally to impact the nursing profession. The project learner demonstrated leadership in determining content needed to meet objectives and outcomes and presented the content for approval to the team with evidence-based research. Leadership was also demonstrated by educating the team on the importance of nursing informatics and using the latest evidence to summarize best practices for educating students in nursing informatics.

Collaboration with faculty, simulation technicians, instructors, and project mentor was needed on a regular basis to determine format of the syllabus, areas that could incorporate the nursing informatics education, how to integrate content with SimChart, and assessment of the levels of education and their learning needs for the modules. The faculty meetings were important to assure the content was not overwhelming for the student course load and corresponded to their level of education. Objectives and outcomes of the course were approved and the outline developed to support the modules.

Nurses' Roles and Responsibilities

A disservice is done to entry level nurses when they have no understanding of the system they will be expected to use once they are hired. Health care organizations will train and educate these new graduates, but only to the extent of what the organization and management believes they need to know for their institutional purposes, specifically limited to the systems they are using. Little attention is given to systems thinking when using technology in practice, how nursing informatics promotes safe care, and advances nursing practice (Dolansky & Moore, 2013). These facets of education are the responsibility of the nursing profession and should not be left for other professions and stakeholders who do not have nursing's goals and viewpoint at heart.

Using the knowledge gained by advanced practice education, the project learner assumed the role of change agent by identifying gaps in nursing education, developing skills assessment tools, and interpreting needed content to prepare graduates for safe practice. In the role of nursing informatics leader, the project learner used the project to focus on promoting the patient-nurse therapeutic relationship by emphasizing the importance of student education in evaluating online patient portals and educational materials. The project learner, as a nursing informatics specialist, was also responsible for evaluating the effectiveness of the project in the future through survey of students, graduates, instructors, and community employers.

Leadership Strategies for Success

Edmondson (2012) described *teaming* as the answer to the short-term team of individuals put together for a specific project completion, which then dissolves much like the capstone project in which a goal or project is completed in a short period of time. Traditional team structures that require time to create and meld together are not practical. The project learner was able to shift focus from composing and managing teams to inspiring and enabling team members to finish the project. Edmondson also offered some strategies for dealing with obstacles, such as emphasizing purpose, building psychological safety, embracing failure, and putting conflict to work (2012). Emphasizing what is at stake or why the project is important is a leadership tool for motivation. The project learner was able to build psychological safety by acknowledging that people will voice their opinion and disagree. When this happened, the project learner asked thoughtful questions, acknowledged lack of understanding about a topic (as in nursing informatics among faculty), and was prepared to show the project learner's own fallibility (such as lack of knowledge of nurse educator challenges). Embracing failures conveys the idea that we will learn from them because failures provide valuable information. The leader of teaming encouraged members to explain

patientsafe// solutions™

We believe Unified Clinical Communications result in better outcomes.

Visit us at ANIA to learn more in Booth 201

American Nursing Informatics Association
ANIA
Where caring and technology meet

why they have specific viewpoints and to show interest in one another's opinions to facilitate change and accomplish project goals.

Systems, Safety, and Continuous Improvement

The project learner used systems thinking to consider each team member's importance in the project and why they were needed to make the project successful. The simulation lab technician and instructors were necessary as the SimChart needed to be used more in the curriculum at the ADN level and during simulated assessments (Johnson & Bushey, 2011). The mission and vision of the organization was considered during the project conception and design. The project was also guided by the project mentor in considering her needs and responsibilities for the project. During the design of the curriculum, focus was on student success in transitioning to practice, as well as patient safety and quality outcomes.

Project Outcomes

The following were the planned capstone project outcomes:

Function as team leader and expert in nursing informatics to develop course curriculum to be introduced to a community college practical and associate degree nursing programs. The project developed content specific to the needs of the organization because of the ability of the capstone learner's skills to organize, direct, and lead the team with meetings and effective communication. The capstone learner functioned as expert in nursing informatics by introducing evidence-based guidelines of QSEN and TIGER into the curriculum (DuLong, 2009).

Develop and apply knowledge of curriculum design for nursing informatics content into existing curriculum. This outcome was met with the approval of the project mentor and the acceptance of the course outline, objectives, and outcomes. The project mentor was also satisfied with the inclusion of QSEN competencies, modes of instruction, the workbook toolkit, and the skills assessment tool.

Extrapolate from nursing educators in the area of simulation education, teaching environment, curriculum design, and student level of focus. The capstone project met the goals of the organization to introduce nursing informatics and harmonized with the simulation lab and SimChart being used in the programs. Faculty approved the organization of the modules into the two levels of nursing programs, and the capstone project mentor approved the content to reflect the amount and level of education for each program within the current curriculum.

Significance to Stakeholders And Nursing Profession

Project significance to graduate nurses was an understanding of nursing informatics and core competencies, which helped them view computers in the workplace as necessary and an important tool for safe practice. Nurse educators have the opportunity to increase their skills and knowledge in nursing informatics and evaluate the outcomes of students for years to come. They have an introductory course to build on as technology changes. The mentoring nurse experienced gratification of leading her faculty, students, and organization toward the goal of the nursing profession to have all nurses using technology to provide safe quality care (DuLong, 2009). Their example can be used to guide other nursing programs at any level of education. Nursing informatics education benefited the community health care providers by hiring better educated and prepared entry level nurses who required less training and time to acclimate to their clinical information system. Patients

in the community are benefited by having confident nurses who are practicing with proficient use of technology instead of being hindered by it. Patients served by these students in the future will also benefit from their knowledge in evaluating internet and website resources for the education of chronic illness and health promotion from reputable websites (Finney-Rutten et al., 2014).

Personal Advancement

The project learner used scholarship to thoroughly research the topic of educating entry level nurses in nursing informatics. All content was backed by evidence-based research that extended beyond the associate and practical nursing levels. A spirit of inquiry was needed to establish the informatics need for practical and associate levels of nursing students where there was little research available. Open-minded flexibility and adaptability was useful to understand the role of nurse educators and the barriers they face (Spencer, 2012). New modes of education were incorporated into the content to facilitate learning in a compressed curriculum, as recommended by the Institute of Medicine (2010).

Online learning programs associated with the SimChart and the simulation lab technology used the latest innovation, as well as the capstone content to impart skills in setting up patient portals and determining valid websites for patient education. The capstone project promoted lifelong learning for students and faculty as outlined in the QSEN framework and impressed on the capstone learner the importance of this concept in personal practice and individual goal development and attainment.

Conclusion

The nursing informatics capstone project involved developing and blending nursing informatics education into the current curriculum of practical nursing and associate degree nursing programs at a rural community college. Nurses at all levels are expected to use technology in caring for patients, and they need informatics competencies and familiarity with the electronic health record as well as computer literacy upon graduation. The capstone successfully integrated an introduction to nursing informatics into the current curriculum, despite the lack of examples in the literature at this level of nursing education. The project attempted to fill this gap with a course that prepared graduates for the workforce and lifelong learning through an understanding of why nursing informatics is important to safe practice and the advancement of the nursing profession. The project also provided an example for other educational institutions on how to introduce nursing informatics education at a small community college with strict budgetary, time, and content limitations.

References

American Nurses Association (ANA). (2008). *Nursing informatics: Scope and standards of practice.* Silver Spring, MD: Author.

Blum, B.L. (Ed.). (1986). *Clinical information systems.* New York, NY: Springer.

Bowers, A., Kavanagh, J., Gregorich, T., Shumway, J., Campbell, Y., & Stafford, S. (2011). Student nurses and electronic medical record: A partnership of academia and healthcare. *Computers, Informatics, Nursing, 29*(12), 692-697.

Clancy, T. (2014). Integrating AACN essentials, QSEN KSAs, and TIGER Competencies for nursing informatics. National nursing informatics deep dive program. *University of Minnesota School of Nursing,* 19-49.

Dolansky, M., & Moore, S. (2013). Quality and safety education for nurses (QSEN): The key is systems thinking. *The Online Journal of Issues in Nursing, 18*(3).

DuLong, D. (2009). *The TIGER Initiative – Collaborating to integrate evidence and informatics into nursing practice and education: An executive summary.* Retrieved from http://s3.amazonaws.com/rdcms-himss/files/production/public/FileDownloads/tiger-report-executive-summary.pdf

Edmondson, A. (2012). Teamwork on the fly: How to master the new art of teaming. *Harvard Business Review, 90*(4), 72-80.

Elsevier Inc. (2013). *SimChart brochure: Modern charting meets your classroom.* Retrieved from http://www.elsevieradvantage.com/article.jsp?pageid=10707

Farrell, K., Payne, C., & Heye, M. (2015). Integrating interprofessional collaboration skills into the advanced practice registered nurse socialization process. *Journal of Professional Nursing, 31*(1), 5-10.

Finney-Rutten, L., Agunwamba, A., Greene, S., Mazor, K., Ebbert, J., Sauver, J., & Dearing, J. (2014). Enabling patient-centered communication and care through health information technology. *Journal of Communication in Healthcare, 7*(4), 255-261.

Health Resources and Services Administration (HRSA). (2014). *The U.S. nursing workforce: Trends in supply and education.* Retrieved from http://bhpr.hrsa.gov/healthworkforce/supplydemand/nursing/nursingworkforce/

Institute of Medicine. (2010). *The future of nursing: Leading change, advancing health.* Washington, DC: National Academies Press.

Johnson, D., & Bushey, T. (2011). Integrating the academic electronic health record into nursing curriculum: Preparing student nurses for practice. *Computers, Informatics, Nursing,* 133-137.

Kaminiski, J. (2011). *P.A.T.C.H. assessment scale v.3.* Retrieved from http://www.nursing-informatics.com/niassess/PATCH_PersonalPlan_v3.pdf

Nelson, R., & Staggers, N. (2014). Theoretical foundations of health informatics. In R. Nelson and N. Staggers (Eds.), *Health informatics: An interprofessional approach* (pp. 18-39). St. Louis: Elsevier Mosby.

Sensmeier, J., & Murphy, J. (2014). Health policy and informatics. In R. Nelson and N. Staggers (Eds.), *Health informatics: An interprofessional approach* (pp. 397-409). St. Louis: Elsevier Mosby.

Spencer, J. (2012). Integrating informatics in undergraduate nursing curricula: Using the QSEN framework as a guide. *Journal of Nursing Education, 51*(12), 697-701.

Tellez, M. (2012). Nursing informatics education past, present, and future. *Computers, Informatics, Nursing, 30*(5), 229-233.

Vijayalakshmi, P., Ramachandra, R., & Math, S. (2014). Nursing students' attitudes towards computers in health care: A comparative analysis. *Journal of Health Informatics, 6*(2), 46-52.

Suggested Reading

American Nurses Association (ANA). (2010). *ANA policy and provisions of health reform law.* Retrieved from http://www.nursingworld.org/MainMenuCategories/Policy-Advocacy/HealthSystemReform/Policy-and-Health-Reform-Law.pdf

Carolyn Sue Watts, MSN, RN, *has been a nurse for 20 years, experiencing many EHR implementations from the VAMC in Cincinnati to rural county hospitals and home health agencies as an end-user and super-user. Her clinical experience covers telemetry, med-surg, ICU, home health, hospice, and psychiatric mental health nursing. She just earned her Masters in Nursing Informatics Degree from Excelsior College in October 2015 and is preparing for the Nursing Informatics certification exam in March 2016.*

Fostering Therapeutic Communication

continued from page 7

patient perceptions of empathy. *Journal of Participatory Medicine, 5.* Retrieved from http://www.jopm.org/evidence/research/2013/08/14/nonverbal-interpersonal-interactions-in-clinical-encounters-and-patient-perceptions-of-empathy/

Stead, W.W. (2010). Electronic health records. *Information Knowledge Systems Management, 8*(1-4), 119-143. doi:10.3233/IKS-2009-0140

Street, R.L. Jr., Liu, L., Farber, N.J., Chen, Y., Calvetti, A., Zuest, D., … Agha, Z. (2014). Provider interaction with the electronic health record: The effects on patient-centered communication in medical encounters. *Patient Education & Counseling, 96*(3), 315-319. doi:10.1016/j.pec.2014.05.004

Heather Jean Curran, MSN, BSN, FNP-C, RN, *is a BSN Nursing Instructor, University of Maine, Fort Kent, ME.*

Robotic Nurses: They are Coming Soon!

Jason R. Thrift

Every year, nursing students enter the first semester of nursing courses as the future of the profession. Each student has his or her own aspirations about where a career in nursing might lead. Discussing future trends in nursing then becomes a necessity to predict how the scope and practice of the profession might change in the years to come and what those students could expect to see. One question I ask of students at the start of the semester: "Could you ever see robots replacing nurses in the next hundred years?" Students typically respond, "A robot would not know how to care for a person." Then I ask what if that machine could know everything nurses know? What if it could be programmed to change a dressing or simply listen to a patient in need? Additionally, it never gets tired, it never calls out, and it never needs a salary or benefits. It only requires minimal maintenance and performs nursing duties effectively, utilizing the knowledge gained. Once students hear my discourse on this, they become uneasy. They begin to see that a robot could potentially take their place. Could robotic nurses be a future trend that alters the scope of practice in nursing by quantifying what nurses know?

Quantifying the Nursing Process

The nursing process is a fundamental tool utilized exclusively by nurses. Molding the principles of assessment, diagnosis, planning, implementation, and evaluation together allows nurses to better understand how to care for patients. The nursing process prompts nurses to meet a patient's basic needs utilizing critical thinking, problem-solving, and communication (Schneider & Ruth-Sahd, 2015). In essence, the nursing process is the method by which nurses know how to care for patients. Nurses are not necessarily objectionable to robots assisting them with patient care, such as with more rudimentary tasks like lifting, cleaning, or even medicating patients (Whyatt, 2014). Recent endeavors to quantify nursing have used those tasks to define what it is to be a nurse. Endeavors to quantify nursing work using the nursing process and related tasks allows the work to be programmable. If it is programmable, then it can be downloaded into the computational mind of a machine to be carried out just as readily.

Perceptions

Scholars are currently engaging in research to understand the implications of a robotic workforce in nursing. Metzler and Barnes (2014) suggest that Human Robot Interaction (HRI) allows for investigating personable interactions, such as in psychology, philosophy, or spirituality, that in turn weigh heavily upon what is perceived as traditional nursing values. Nurses follow a code of ethics that governs the way they care for individuals. The

WALDEN UNIVERSITY
A higher degree. A higher purpose.

TAKE THE NEXT STEP IN YOUR NURSING CAREER

Discover Your Program

- *Doctor of Nursing Practice (DNP)*
- *Ph.D. in Nursing*
- *Master of Science in Nursing (MSN)*
- *Bachelor of Science in Nursing (RN-BSN) Completion Program*
- *Post-Master's Certificates in Nursing*

ANIA Members may be eligible for a 10% tuition reduction.

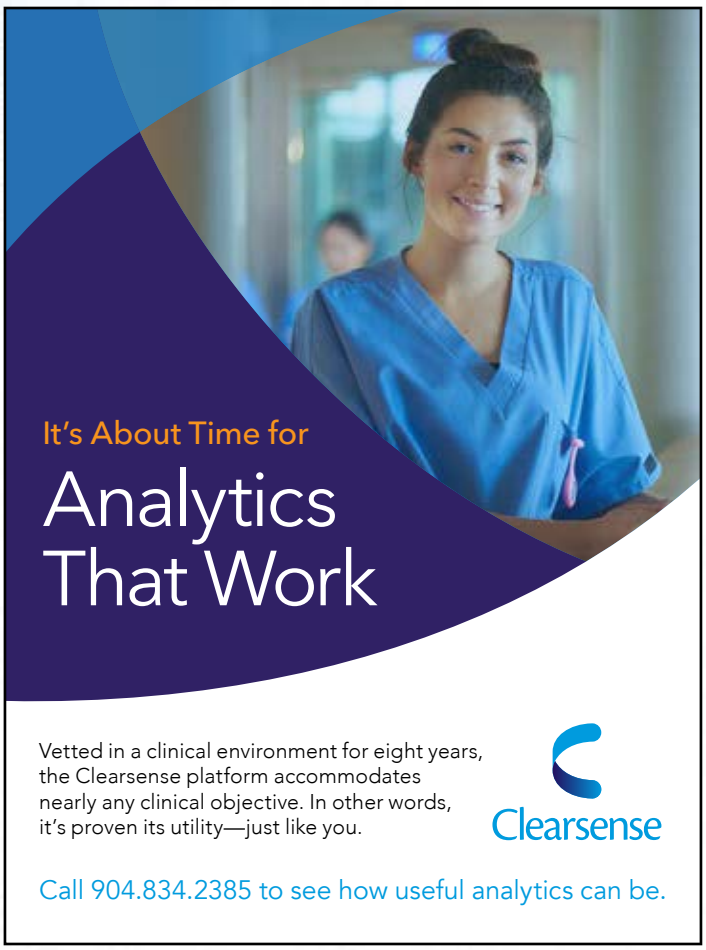
To learn more, visit **www.waldenu.edu/ania** or contact **Erin Lubin** at **855-591-7858** or **erin.lubin@waldenu.edu**

CCNE ACCREDITED

Walden University is accredited by The Higher Learning Commission and a member of the North Central Association, www.ncahlc.org.
Walden University's DNP, MSN, and BSN programs are accredited by the Commission on Collegiate Nursing Education (CCNE), One Dupont Circle, NW, Suite 530, Washington, D.C. 20036, 1-202-887-6791. CCNE is a national accrediting agency recognized by the U.S. Department of Education and ensures the quality and integrity of baccalaureate and graduate education programs in preparing effective nurses. For students, accreditation signifies program innovation and continuous self-assessment.

nurses' perceptions of an individual are as important as the code established to care for them. How do nurses perceive an individual and what he or she needs? How would a nurse typically define an individual? How is an individual's consciousness defined? At times, nurses are caring for individuals who cannot care for themselves, or for individuals who are unaware of the care that is needed due to substantial limitations in cognition. As far as the public is concerned, nurses are fully trained to take on this role as advocates for patients who cannot care for themselves, to assume their consciousness for them. Metzler and Barnes (2014) go on to say that in having a life-like robot caring for an older adult, consciousness can become skewed. The authenticity of how a robot would interact with a human patient becomes paramount and ambiguous due to the unreal nature of the machine, regardless of how accepting patients of all ages may perceive the robots (Metzler & Barnes, 2014). Despite the perceptions of individual patients to robotic nurses, hospitals' perceptions may play a bigger factor for utilization of a robotic nursing workforce.

One of the overarching themes presented here corresponds to how hospital organizations may perceive robotic nurses. The effects of cost containment, benefits, and salaries of the nursing workforce play a huge factor in the operating expenses hospitals must routinely evaluate. Furthermore, reimbursement to hospitals has become a focal point in the early 21st century. Reimbursements are happening now based on activities routinely performed by nurses, affecting quality measures, or meaningful use criteria. If one of these measures is not met, it can affect payment for services or even lead to fines (Simpson, 2011). If a robot can be programmed to do the same duty, flawlessly, then those issues of reimbursement could be rendered moot, at least in regard to nursing-related activities. But can a robot do the job? Some schools of nursing are already trying to do that today.



Robotics Become Academic

The University of Saskatchewan's College of Nursing held a contest to have their community nursing robots named (Dietrick, 2013). The college began utilizing Remote Presence technology to help with distance education for those who could not attend the university in person (Dietrick, 2013). The goal was to reach students where nursing education is unavailable in the hopes of increasing the numbers of health care workers in remote and rural locations (Dietrick, 2013). This is a prime example of how a robotic instructor can assist in increasing student enrollment. The cost of implementing such a device could become offset by the increased number of students to the university and thus the needed increase to the nursing workforce. The robot in this case is an indirect use for the educator. There is still a living, breathing educator at the controls from a remote location, working the robot to deliver educational needs to students during class. As stated previously, the robots were then named by the communities, to give a persona to the devices. In this case, the name IleXPERT was chosen, with IleX representing the community at large, and PERT being an acronym for "Professional Expertise Remote Technology" (Dietrick, 2013).

The Vision

The vision of this type of resource is of a very futuristic nurses' station – in the not-so-distant future – taking the IleXPERT from the context of education, and inserting it into the nursing workforce of tomorrow. You have several of these machines now engaging in the nursing workforce. Visualize a nurses' station one hundred years from now with a central hub staffed by three or four nursing informaticists. Over this timespan, the nursing profession has become more specialized. Human nurse specializations would call for specifics to the trade in order to operate the much more complex robotic nurses that now staff the nursing units of many hospitals. The nurses are fully trained clinicians, which now incorporates training in both computer and robotic technology. The central hub (formerly the nurses' station) would look sleek and sophisticated. Although still having many of the nuances of a traditional nurses' station, the hub would house far more computer technology. With tablet-based computer devices housing hundreds, if not thousands, of terabytes of storage for the data saturation of the time, a common nurses' station would have more processing power than that of current-day super computers. The tablets would be interchangeable and allow for portability at any moment, largely due to maintenance issues requiring human interventions. In an instant, a nursing informaticist could display a holographic representation of the robotic nurse, or a patient room, right at the central hub to acquire status. There would be little face-to-face patient contact with human nursing informaticists because the robotic nurses would perform the tasks as a Remote Presence device.

The unit may house 7-10 of these Remote Presence devices, scurrying down the hallways of a busy nursing unit performing all sorts of nursing tasks. They go from room to room delivering medications, helping patients with baths, changing linens, maybe even starting intravenous lines or inserting indwelling catheters. Then the Remote Presence nurse stands idle at the bedside as the human nurse working the controls from the nurses' station listens to a patient in need. The patient has a request to make of the doctor. Maybe the patient simply wants someone to listen as he or she needs to talk through a recent diagnosis, or even a loss of

control. The Remote Presence nurse is listening to the wailing of family members as they grieve for their loved one who recently passed away. The nurse is still present, however indirect it may be, and/or some hospitals may have completely replaced the nurse with a fully robotic nurse.

In these even more sophisticated units, the nursing informaticist acts solely as liaison between the robots and human patients, never truly interacting with the patients unless absolutely necessary. The primary reason being, through advancements in artificial intelligence and budgetary allowances that are based on quality and safety parameters, the robotic nurses become sentient beings performing nursing tasks readily with little to no human interaction necessary to meet compliance with regulatory agencies. All of those compliance measures are programmed directly into the robotic nurses, allowing for ease of use. With these robotic nurses, nursing informaticists would spend most of their time developing programming for the ever-changing needs of patient care. But the machines would be the nurse. The consciousness of the robot exudes its own empathy for the loss of the patient, as well as for the family's grief. It consoles them from a console. The robot's touch becomes second nature, just as if a human were interacting with them. Is the interaction real or programmed? In today's world, many would perceive the programmed nature, but this nature could be rendered moot in one hundred years.

Past Predicts Future

When you think about the progress that has been made in the previous hundred years, people traveling from the past to our present would have their minds blown. Computers did not exist. Cars were very different. The internet would have made no sense. Phones in the palm of your hand would seem like magic. Traveling to space (or even the moon), jet propulsion, nuclear energy, and skyscrapers and megacities in an interconnected world were all stories of science fiction during that time. We have lived in a world where many of these things named are taken for granted, simply part of our past, continuing on into our present. The world was a very different place back then, and nurses were also different. You would have never seen a nurse wearing a stethoscope one hundred years ago. Nurses today can carry out functions that only physicians were allowed to do then. Nurses were extremely subservient by comparison to today's standards. The autonomy and scope of practice has changed so completely that current nursing practice could quite possibly be unrecognizable to a nurse from one hundred years ago. So now is it so far-fetched to believe robots could replace nurses in the next hundred years? Perhaps it may not take that long to replace nurses. The process of replacing health care workers with robotic machines has already begun.

Machines Have Risen

At Spartanburg Regional Hospital System in Spartanburg, South Carolina, the Tug robot helps deliver medications to nurses' stations every day (George, 2015). Implemented in 2005, Tug helps ensure medications reach their destinations as scheduled (George, 2015). Having witnessed these devices in action, the cart-like robot rolls through the hallways delivering medications to nurses' stations multiple times per day. This was once a task performed by human pharmacy techs on a daily basis. Now, a machine does the job and quite effectively. The machine rolls up and waits for a human nurse to arrive and retrieve the medications. Once the nurse completes this task, the machine turns itself around and wheels back to the elevator from whence it came. The elevator doors open, the machine enters, and moves on to the next location for delivery. It is practical, efficient, replaces necessary humans, and it is here today. Science fiction has become science fact. Could a robot replace a nurse tomorrow?

Conclusion

As nursing knowledge continues to adapt and grow in the digital age, the quantifiable nature of that information will allow computer programmers to readily encode this knowledge by methods that streamline the nursing process. The programmability of this knowledge could be entrusted to a machine to perform the duties and responsibilities of a nurse. Robotics will continue to progress as researchers develop ways to map how consciousness works, ultimately leading to a revolution in technology that could see the birth of the first robotic nurse within the next fifty years, with a potential full-fledged robotic nursing workforce within the next hundred years. Organizations will weigh the pros and cons of such an endeavor, but as the needs of a society that is ever-aging continually increase and the human workforce of nursing continues to decrease over the next hundred years, robotic nurses could become commonplace. A robotic nurse could eventually be as common to see in a hospital as a nurse wearing a stethoscope is today.

References

Dietrick, K. (2013). Northern communities name their nursing robots. *SRNA Newsbulletin, 15*(3), 27-27.

George, D. (2015, March 11). *Hospital using Tug robots to deliver prescriptions to patients.* Retrieved from http://www.goupstate.com/article/20150311/ARTICLES/503111005?p=2&tc=pg

Metzler, T.A., & Barnes, S.J. (2014). Three dialogues concerning robots in elder care. *Nursing Philosophy, 15*(1), 4-13. doi:10.1111/nup.12027

Schneider, M.A., & Ruth-Sahd, L.A. (2015). Fundamentals: Still the building blocks of safe patient care. *Nursing, 45*(6), 60-63. doi:10.1097/01.NURSE.0000464987.77315.76

Simpson, R.L. (2011). Nurse informaticians critical to proving meaningful use. *Nursing Administration Quarterly, 35*(1), 82-84. doi:10.1097/NAQ.0b013e318203462a

Whyatt, J. (2014). Could a robot do your job? *Nursing Standard, 28*(34), 66-67. doi:10.7748/ns2014.04.28.34.66.s50

Jason R. Thrift, MS, RN, *is Lead Faculty, Accelerated Second Degree Program, Clemson University School of Nursing, Greenville, SC. He is the Webmaster for the South Carolina Chapter of the American Nursing Informatics Association.*

Don't Miss Our Next Certification Review Session

ANIA is pleased to endorse the Nursing Informatics Certification Review Intensive CE Series, developed by **Nurse.com.** This comprehensive online learning experience provides an extensive review in preparation for the informatics nurse certification exam. This six-week self-paced program combines online education with live webinars to provide you a flexible study solution that fits your schedule.

The next session begins on May 9, 2016, and will be completed on June 15, 2016.

ANIA Member: $340

Regular Price: $399

Register today. Not an ANIA member? **Join ANIA** and save 15%!

Harbingers of Health Care Information Technology

Karen R. Pope

Christine Gamlen

Harbingers are messengers, change agents, and the voice of the future. For this issue of Nursing Informatics Today, ANIA continues its quarterly interview column featuring a health care information technology expert speaking to one of today's many topics of importance and weight to nursing informatics.

This quarter, we had the distinct privilege of catching up with Christine Gamlen, DNP, RN, NEA-BC. Dr. Gamlen has an extensive clinical background and is a long-time proponent of leveraging technology to improve nursing workflow. She has held numerous roles in health care information technology leadership, including the first Chief Nursing Officer (CNO) for Vocera Communications, Inc. and the current CNO for West-Com Nurse Call. In 2013, she developed the Nurse Executive Technology Toolkit (NETT) as part of the Executive Leadership DNP project for the University of San Francisco, California. NETT was acquired by ANIA and launched in January 2015 and is an open source toolkit available on the **ANIA website.**

On Becoming Involved in Nursing Informatics

For those of us who have been in nursing for many years, there was no formal area for nursing informatics; it has sort of evolved. But if I look back on my roles in nursing, I always tended to lean in the direction of "How can we do this better? How can we be more efficient? How can we let nurses do what they went into nursing to do?" As a clinical nurse, I was always looking for opportunities for improvement and as I moved into management, I found myself looking for an answer to "How can we be smarter?" As technology became more prevalent, I was convinced that it was not going to go away and that we needed to leverage technology in that regard.

My background was primarily at teaching institutions – Banner, UCSF, and Stanford Medical Center. At one point, I transitioned to the IT department at Stanford. This was my first introduction to IT, but it was not until I stumbled upon a startup in the Bay Area that I started thinking that this was really interesting. They were looking for a nurse and I pursued that. I was hired on a kind of contractual basis because they did not really know what to do with a nurse and I certainly did not fully understand what to do with them in this new setting. The company was Vocera Communications, Inc., and I took that journey from startup as the first nurse hired, helping to transform them into a health care company. At the time, it was mostly engineers and salespeople. So I joined and we evolved. I helped create the deployment methodology, getting nursing involved and creating a team of nurses who started the training. I then moved to the pre-sales side and created another team of nurses and trained them to go out with the sales team to help connect with the clinical teams on sites. I was CNO at Vocera for four years of my time there. We went public while I was there, so I had the opportunity to see that entire phase. As the nurse in a role and setting, one just figures out how to add value along the way. This was way back 13-14 years ago and was clearly the Wild Wild West – and actually it still is to some degree.

And so I have been in that world ever since. I was in a health care executive role at Cerner for a time, and now I am at West-Com Nurse Call as the CNO. So much is different, but still kind of the same thing. Leveraging technology to help nurses do their job and also improve patient care is my goal. This is, very simply, what my core is, so I gravitate toward roles that allow me do that.

On Identification for the Need for Nurse Executive Information Technology Competencies and the Development of NETT

In my role with Vocera, I started working closely with nurse executives and it really began to amaze me that some of them would give their power to the IT side and let decisions about technology be made there instead of by the nurses who were going to be using the technology. I was intrigued by that but also frustrated. I thought, "No, you need to make these decisions with your nurses in mind as well as your patients."

As I thought about it, it became clear this was partly because of where their comfort level is. They did not grow up with technology playing this role. We went into nursing to be by the bedside. I began to realize that nurse executives are not as comfortable with technology, which led into the question of informatics competencies. What were the competencies? I began to focus on that on my journey. I went back to get my doctorate in nursing practice (DNP), with a focus on executive leadership. In that role, I had to come up with some type of quality implementation or project. I used that as a springboard to take a look at these competencies and see how I could improve them. And based on my involvement in the American Organization of Nurse Executives (AONE) and doing research on their competencies, I found areas that were not present and thought, "Oh great; I'll create a toolkit for these."

I interviewed 15 national nurse thought leaders across the country, asking them where they gain their knowledge, who they listen to, and which organizations they follow. I came up with a list of the people and organizations that help guide them to their objectives. Then I went one step further. Nurse executives – because they are digital immigrants and not natives – are not very comfortable with social media in general. I thought to engage them with social media in a meaningful way to educate them. I used Twitter, Facebook, and LinkedIn to connect to the people and organizations that could help educate nurse executives on health care and technology. It made sense to use a technology format for the toolkit, so I created a **website** with the help of my daughter

and another web master. I rolled it out to about 20 nurse executives across the nation and let them use it for three weeks. After that, they completed a survey and I collated and analyzed the information, which became the basis of my doctoral project. I presented NETT at HIMSS Nurse Executive Work Group and to members of AONE, where it was well accepted and was acquired by ANIA this past December.

On How to Access and Utilize NETT

I think the beauty of the NETT toolkit is that it is extremely flexible and dynamic. Every nurse executive has a passion for something in their clinical world. You might have one that excels at patient management or another who really likes the technical side. The toolkit is flexible so nurse executives can pick people or organizations, and after reading a little bit about them, decide who they want to follow on social media. They can follow someone in an area that they love or an area they would like to learn more about. Following them this way means they can access what they want on their own time. Few people have the time to go and do more education, but if you have Twitter, Facebook, and or LinkedIn on your smartphone, you can access updates any time. You can pick and choose what links you would like to follow to go deeper on a topic. The beauty of it is that it is like "one stop shopping." You can go in and pick and choose. Maybe after a month, you decide that some of the people you selected do not have a whole lot of interest for you, or they do not Tweet very much, so you go back and find something more interesting. It is very flexible in that regard and very nurse centric. The user can decide what they want to do and what to care about.

Since ANIA acquired the toolkit, you can access it from their website. It is located from the landing page under *Resources*. Once you select that option, you are taken right to my website. The beauty of what we created is that you don't have to join ANIA and no password is required. It is an open source kind of website that anybody can use. For those who do not have social media accounts, the first page explains each social media type. For example, you can select the Twitter button and it will take you to the Twitter website and you can create a login right there. It is the same for Facebook and LinkedIn. There is also a tutorial about using each of these on the first page as well. The next page is "People," for the people you want follow. This is followed by "Organizations." The last tab has schedules for webinars related to informatics.

In this whole transformation of health care that we are experiencing, the nurse executive is really seen as a critical component. Health information technology is a key enabler to achieve these goals. As nurse executives become more comfortable with this, they can then understand the power of technology and use this to help them with their nursing care and goals. It is also going to affect the adoptions of technology, because this does not happen unless the nurse executive believes it is important. It can be hard to keep nurses engaged with changing technology if the people at the top are not paying attention to it or becoming accountable for it. Nurse executives have a tremendous role in the success of clinical adoption of this technology. If nurse executives can recognize the importance of adoption, they can use their power and influences as role models to affect that change. The technology is not going away; it is only going to become more important. It is up to nurse executives to keep themselves educated and lead this transformation initiative. Many of these clinical and patient initiatives that nurse executives are challenged to manage can be found within this toolkit. They do not need to wonder where the can get extra information; it is right there on-screen with many opportunities. They can just pick one! They do not have to pick three or more. By picking just one today, they will be better off than they were yesterday!

On Advice for New Nurse Informaticists

What I have found is that many of the nurses who transition to a technical role – particularly in industry roles – let go of their nursing license because they do not think of themselves as nurses. I feel strongly about needing to maintain that core and I think of it as just another expertise. Much like a labor and delivery nurse has certain expertise, now there is a technology nurse to help educate the public on that. Keep your nursing license current. Continue to learn. I think joining ANIA provides a great wealth of education and networking opportunities. And, of course, using the toolkit we have been discussing will aid in that education. It can help a new

2016 Corporate Members

Find out how to become an ANIA Corporate Member.

GOLD LEVEL

API HEALTHCARE
A GE Healthcare Company
1550 Innovation Way
Hartford, WI 53027
www.apihealthcare.com
262-673-6815

capsule
a Qualcomm Life company
300 Brickstone Square, Suite 203
Andover, MA 01810
www.capsuletech.com
978-482-2300

Clearsense
1300 Marsh Landing Parkway
Jacksonville Beach, FL 32250
www.clearsense.com
904-834-2375

Extension HEALTHCARE
1950 W. Cook Road, Suite 101
Fort Wayne, IN 46818
www.extensionhealthcare.com
877-207-3753

Honeywell
9680 Old Bailes Road
Fort Mill, SC 29707
www.honeywellaidc.com
800-582-4263

MEDITECH
Reimagining healthcare.
Redefining productivity
One MEDITECH Circle
Westwood, MA 02090
www.meditech.com
781-821-3000

patientsafe// solutions
5375 Mira Sorrento Place, Suite 500
San Diego, CA 92121
www.patientsafesolutions.com
858-746-3100

UTHealth
The University of Texas Health Science Center at Houston
School of Biomedical Informatics
7000 Fannin Street, Suite 600
Houston, TX 77030
http://sbmi.uth.edu
713-500-3591

nurse who is moving in that direction to narrow his or her focus, which can be overwhelming when new.

I think this field is getting more exciting because over the last few years, most of the energy has been focused on the electronic health record (EHR). It has consumed all resources and finances. Now we are moving out of that stage. It's becoming about how we leverage this powerful thing called EHR to help nurses. It is kind of bringing that information back to the nurse at the bedside and using that as a single source of truth. This is all about leveraging technology to help nurses take care of their patients!

Karen R. Pope, BSN/BA, RN, *is a Clinical Informatics Specialist, Hoag Hospital, Orange County, CA.*

2016 Educational Partners

Premier Partners

UNE
UNIVERSITY OF NEW ENGLAND
College of Graduate and Professional Studies

716 Stevens Avenue
Portland, ME 04103
http://go.une.edu/health-informatics-nursing?src=ania
855-325-0896

WALDEN UNIVERSITY
A higher degree. A higher purpose.

100 S. Washington Avenue #900
Minneapolis, MN 55401
www.waldenu.edu/partners/ania
855-591-7858

Associate Partner

CHAMBERLAIN
College of Nursing

3005 Highland Parkway
Downers Grove, IL 60515
www.chamberlain.edu
888-556-8226

Find out how to become an ANIA Educational Partner.

The First RN Certification in Care Coordination is Here

The Medical-Surgical Nursing Certification Board (MSNCB) recently introduced the new **Certified in Care Coordination and Transition Management** (CCCTM) certification exam. The exam, accomplished in partnership with the American Academy of Ambulatory Care Nursing (AAACN), gives RNs who work in the CCTM role a recognized path to build and demonstrate their credibility and commitment to this practice. **Click here to find study resources.**

Your #1 Resource For Nursing Informatics

Do you know all the benefits of membership to ANIA? Here's an overview of what members receive:

- A network of over 3,000 informatics professionals in all 50 states and more than 15 countries.
- Education and networking opportunities via webinars and regional and local ANIA meetings.
- Reduced rate at the ANIA Annual Conference.
- Reduced rate for the *CIN: Computers, Informatics, Nursing* journal.
- Reduced rate for the *Nursing Economic$* journal.
- ANIA's quarterly publication, indexed in CINAHL and Thomson.
- Free CNE offerings.
- Membership in the Alliance for Nursing Informatics.
- Annual ANIA dinner during SINI.
- An active email list.
- An online job/career center.
- An interactive website, including an online membership directory, discussion forums, Online Library, and other resources.
- And more!

Spread the word about ANIA!
For more information, visit
www.ania.org/membership

New ANIA Organizational Membership Available

We're happy to announce a new opportunity for organizations to join ANIA and reap the benefits of membership while also saving big. This program allows an organization to purchase a "block" of 25 memberships at a discounted rate to distribute to staff. With the code provided at the time of purchase, up to 25 nurses can join or renew their membership with ANIA. This adds up to huge savings! Don't miss the chance to get in on the organizational membership program while it's hot. **Click here to see all the perks.**

Connect with ANIA – Your Social Media Committee at Work

Did you know you can connect with ANIA through social media? We have a Social Media Committee: Regina Wysocki, Cindy Russell, Heather Carter-Templeton, Mark Johnson, Angela Stephans, Julie Jones, Leta Cross-Gray, Rajesh Jacob, and Sanden Dority, along with our Board Liaison Chery Parker. You can connect with us through Facebook, LinkedIn, and Twitter.

Members participating in a **social media webinar** indicated that they consider themselves beginners or intermediate with social media. We also learned that Facebook is the most common channel used by members to engage with ANIA.

Over the next year, our social media team will be monitoring the engagement of ANIA "followers" through our social media channels. We will also be hosting polls and virtual asynchronous "chats," also called TweetChats, using these social media tools. We hope to become more familiar with our followers through these activities and we hope that you will join us in the conversations.

Also, we hope that you will join us in tweeting or posting information you gain at our upcoming annual conference in San Francisco in April. The hashtag **#ANIA16** can be used to share relevant information about the conference and connect with friends and colleagues.

We want to help you stay connected and know what is happening in the world of nursing informatics. We look forward to interacting with you via our social media forums this year!

Heather Carter-Templeton, Cindy Russell, Mark Johnson, Julie Jones, and Cheryl Parker

Want to be Friends?

Facebook is the hub of Internet social activity, and ANIA is right in the middle with a Facebook page that has over 3,400 fans. Nurses like you are connecting and chatting, and we enjoy passing on news you need. So please **visit the page,** "Like" us, and get in the loop!

Join Us for a Tweet

ANIA is also active on Twitter, where we have more than 1,900 followers. Are you one of them? Send us a Tweet at @ANIAinformatics and tell us how we're doing. Our Twitter feed broadcasts nursing news and updates on all things related to our specialty organization. Check out **our profile,** follow us, and add us to your favorite lists.

Network with Fellow Members

Join us on LinkedIn, where ANIA hosts a group of more than 3,000 members. Discuss the latest trends in nursing and informatics, and connect with members you may have met at regional or national events. Use these contacts to build your professional profile and garner endorsements and recommendations that will strengthen your network of opportunities. Visit **our group,** click the "Join" button, and participate in this enriching experience with us.

ANIA
www.ania.org

Connect with Us

1st Quarter, 2016 • Volume 31, Number 1

Nursing Informatics Today
The official publication of the American Nursing Informatics Association

Start Planning Today for the 2017 Conference

The ANIA 2017 Annual Conference will be held March 30 – April 1, 2017, at the Hilton New Orleans Riverside – New Orleans, LA. Please save the date and plan to attend. Keep checking **www.aniaconference.com** for updated information and registration details.

We hope to see you next spring in New Orleans to "Get Jazzed about Nursing Informatics."

Tweeting about the conference? Include **hashtag #ANIA17!**