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Crystal D. Figlietti
University of San Francisco, cfiglietti@gmail.com

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Developing an Electronic Health Record Training Program for New Employees

Crystal Figlietti, MSN, RN, PHN, CNL

University of San Francisco

School of Nursing and Health Professions

Brian Budds, JD, MS, RN

Committee Chairperson

Cathy Coleman, DNP, RN, CNL, CPHQ, OCN

Committee Member

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Section I: Abstract

In May 2015, an electronic health record (EHR) was implemented at an urban, long-term care facility. This facility is part of the county Department of Public Health (DPH) and was one of the last locations to implement the designated EHR system. The unique nature of the facility compared to the smaller, health care centers within the DPH network necessitated development of a customized training and onboarding program for new employees. It was not possible to duplicate an existing training program. The registered nurse (RN) informaticist assigned to the EHR used data from nursing staff surveys and information collected through a literature search to assist with developing a training program. Several "best practices" for training and instructional design recommendations based on adult learning theory were identified. The budget for the project was $26,649 which included establishing a mobile classroom, certification training for the informatics RN, and educational materials. The potential and perceived value for improved patient safety, nurse satisfaction, and interoperability among other facilities justified the initial program investment. The program established a channel for communication between departments regarding EHR access, training, and staff support. Tools were developed to track and document the onboarding process; these resources are available for future orientations and ongoing implementation and training needs. This paper will describe program development, tools, and best practices that directly impact the clinical and operational phases of onboarding for new technology deployment in a long-term care setting.

Keywords: onboarding, orientation, electronic health record, training, implementation, adult learning theory.

Section II: Introduction

Background

Hospitals are transitioning from paper-based documentation to electronic health records (EHRs). The switch to EHRs has accelerated in recent years due to federal requirements regarding reimbursements and incentives for EHR usage (Palumbo, Sandoval, Hart & Drill, 2016). In 2009, President Obama signed the American Recovery and Reinvestment Act (ARRA) which contained health care information technology provisions called the Health Information Technology for Economic and Clinical Health (HITECH) Act (Brusco, 2011). One goal of the HITECH Act is to establish a nationwide health information technology infrastructure to facilitate exchange of health care information among physicians and other health care providers (Brusco, 2011).

Effective use of the EHR might improve patient safety and quality of care (Bates & Gawande, 2003; Curran, 2016; Edwards, 2012; Institute of Medicine, 2003; Page, 2011) Training is a key component of learning effective use of an EHR and can focus on a new way of thinking instead of just learning a new set of skills (Edwards, 2012; Page, 2011). Fostering independence and self-direction while enforcing standardized use of the EHR will optimize the ability to share information among physicians and across health care organizations (Brusco, 2011; Spies, Seale & Botma, 2015).

Onboarding, also known as organizational socialization, is described as bringing a new hire into an organization and introducing the mission, expectations, and ideally establishing a personal connection (American College of Healthcare Executives, 2011; Bauer, 2010; Weinstock, 2015). Personal connections can facilitate organizational commitment which potentially increases job satisfaction and retention rates (American College of Healthcare

Executives, 2013; Bauer, 2010). Onboarding for technology applications refers to granting access, and scheduling training as close to the start date as possible (Weinstock, 2015).

The Society for Human Resource Management (SHRM) Foundation (Bauer, 2010) lists self-efficacy as a measure of successful onboarding. Through effective EHR training, clarification of charting expectations, and coaching opportunities, the new hire can achieve self-efficacy relatively quickly (Bauer, 2010). Coaching and monitoring after initial training also provides an information network to further support new hires.

Onboarding fosters acclimation to culture, expectations, and establishing a connection, while orientation is task-based and teaches skills to perform daily job duties (Bauer, 2010). Orientation is a period of time during which a new hire obtains training on specific job tasks, based on clinical roles, and represents one component of the onboarding process (Thompson, 2014).

Developing an EHR training program is unique for each organization. However, common elements exist across all settings such as the need for onboarding, training, and support. It can be assumed that, new employees appreciate clear job responsibilities and expectations (Joukes, Cornet, de Bruijne, & de Keizer, 2015). These elements can be presented during training and reinforced through personal coaching beyond the orientation period.

Setting

This project took place in an urban, long-term care facility with 780 licensed beds, one month after implementation of an EHR. The facility is a safety-net hospital and is part of the county Department of Public Health (DPH). Adoption of the new EHR offered many benefits to the patients, at the long-term care facility, as most of DPH's health care services were already using the system. Patients often seek a range of clinical care services at clinics throughout DPH.

The ability to easily exchange information through the EHR optimizes the time spent with physicians and assists with informed decision-making in support of treatment options (Meeks, Takian, Sittig, Singh, & Barber, 2014).

The facility can benefit from adoption of the EHR by way of incentive payments from the federal government offered through the Centers for Medicare and Medicaid Services (CMS) for adoption and "Meaningful Use" of a certified EHR (Blumenthal & Tavenner, 2010). The facility was motivated to participate in the incentive. The HITECH Act allocated billions of dollars over ten years as incentive payments to accelerate the adoption of EHRs (Blumenthal & Tavenner, 2010; Brusco, 2011; Jha, 2010).

The Department of Health and Human Services (DHHS) and CMS, with Congress, defined meaningful use objectives through three stages (Jha, 2010). Some measures to report over the three stages include: (a) ability to capture patient information such as vital signs, smoking status, and problem lists; (b) electronic prescription transmission and medication reconciliation; and (c) patient education and after visit summaries (Jha, 2010). The stages are sequential. The reporting periods for each stage must demonstrate that the facility is using a certified EHR to meet the objectives to qualify for incentive payments. The learning objectives of the EHR training program were based on CMS meaningful use requirements and especially patient safety around accurate medication reconciliation.

Local Problem

Post-implementation of the EHR posed a new challenge as there was not a system or process for onboarding new employees to the EHR. Approximately ten new staff members were hired each month and expected to utilize the EHR to perform some of their job functions.

Besides training and access concerns, providing timely and accurate support for the end-users was necessary.

The nursing informatics department managed many electronic communication and documentation systems. Prior to the implementation, the EHR was assigned to an informatics registered nurse (RN). The two informatics RNs and two certified nurse assistants (CNAs) at the facility collaborated with the information technology (IT) department to assist clinical staff with communication devices and technology applications utilized for patient care (American Nurses Association, 2015). The nursing education department was already responsible for in-person didactic training for RNs, licensed vocational nurses (LVNs), and CNAs and did not have the capacity to extend its services for EHR training and support.

The informatics RN was tasked with developing an EHR onboarding process to accommodate new staff joining the facility. Collaboration with the nursing orientation coordinator and other departmental leadership helped to create a process that could be integrated into existing orientation and training for each job category and role.

Intended Improvement

The aim of the project was to develop, implement, and evaluate an onboarding process for new staff who utilize the EHR as part of their job at a long-term care facility. This included: (a) facilitating access to the charting system, (b) training how to use the system, (c) introduction to meaningful use measures, (d) chart audits to determine weaknesses in documentation and follow-up to individual users, and (e) end-user support provided by the informatics RN through multiple interventions.

Review of the Evidence

Search strategy methods.

Multiple databases were utilized to research EHR training and onboarding, including: Scopus, PubMed, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete. The main search terms used were *onboarding, electronic health record, EHR, training, implementation, new employees, adult learning theory, learning theories, and orientation*. The limits were set to English, full-text, and peer-reviewed. The reference lists of relevant publications were searched to support the research topic.

The articles selected for inclusion focused on effective EHR training, adult learning theory as a foundation for educational programs, and onboarding best practices. Articles were excluded if they primarily addressed academic environments or EHR implementation preparedness.

Appraisal tool.

The Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Evidence and JHNEBP Non-Research Evidence Appraisal Tools were used to evaluate the studies selected for review (see Appendix A for JHNEBP evidence rating scales). The Johns Hopkins Evidence Based Practice Model (Figure 1) was utilized to illustrate the importance of education.

Figure 1. Johns Hopkins Evidence Based Practice Model

Best practices for EHR training and support.

Members of an Evidence-Based Practice Nursing Committee, in a rural hospital, gathered clinical staff from two specialty departments to learn from past, successful implementations (Laramee, Bosek, Kasprisin, & Powers-Phaneuf, 2011). The two departments with successful implementations were the hospital's emergency department and the dialysis unit with five satellite dialysis centers.

A descriptive, exploratory, qualitative research design employing focus group interviews was used. Forty volunteer participants attended one of 11 focus groups scheduled over six weeks. The focus groups utilized an interdisciplinary format wherein supervisors and staff were assigned to different sessions to promote open discussion.

The group discussions were audiotaped and multiple members of the research team analyzed the discussions using the intuit, analyze, and describe method (Laramee, Bosek, Kasprisin, & Powers-Phaneuf, 2011). Based on the focus group discussions, a seven-question Likert scale questionnaire was developed and distributed to staff in the specialty departments.

Four themes emerged as fundamental to the implementation and success of the EHR: (1) emphasize the benefits of the EHR to end-users by reminding them it becomes easier over time and takes repetition, (2) management should support staff and encourage self-empowerment with protected time to learn, (3) written instructions (workflows) and clear processes for many situations, and (4) 24/7, customer-focused EHR support knowledgeable about the system, and staff that possessed clinical experience.

The authors presented four recommendations for future EHR implementations based on past experiences from their organization. However, the results may not be generalizable to other organizations since specialty departments might not represent most EHR implementations.

Recall bias exists as the implementations were five to ten years in the past. The themes identified contributed to the conversation regarding informed EHR implementation and the need for excellent and effective EHR support.

Meeting staff needs through training.

Researchers at Kaiser Permanente, Mid-Atlantic States (KPMAS) initially conducted a mixed method study using data extraction from the EHR and provider surveys to identify a need for EHR effectiveness training (Bredfeldt, Awad, Joseph, & Snyder, 2013). A training development team designed course content based on: (a) common support questions, (b) operational efficiency training content from health care community, (c) recently added EHR enhancements, and (d) survey data from expert users (providers identified as meeting organizational targets).

The goal of the study was to evaluate the impact of training on two key EHR functions: medication and problem list management (Bredfeldt, Awad, Joseph, & Snyder, 2013). Based on the identified need for advanced training, a case-control study was conducted with 1:4 ratios (1 case to 4 control subjects). Thirty-six physicians attended both training classes and 144 providers were selected for data extraction. To be included in the study, providers needed to have at least 100 patient visits a month for 12 months (6 months pre-training and 6 months post-training). This ensured comparison of medication and problem list management over the same timeframe.

Training was divided into two training classes and used blended learning with short lectures and hands-on activities. The first class covered patient data such as: (a) problem list, (b) medication list reconciliation, (c) history, and (d) chart review. The second class was dedicated to efficiency tools: (a) progress notes management, (b) shortcuts and templates, (c) order entry shortcuts, and (d) utilizing preference lists. The post-training evaluations revealed a desire for

more frequent trainings on a wider variety of topics and stated hands-on activities were more valuable than lectures (Bredfeldt, Awad, Joseph, & Snyder, 2013).

The data extracted showed that class participants increased usage of the problem list by 2% and the medication list by 4%. Using the Wilcoxon sign rank test revealed that the problem list increase was not significant. A whisker plot was displayed to demonstrate the changes in usage rates between the participants and the non-participants; the rates of usage were higher both pre and post-training for participants.

To summarize, the authors developed efficiency training based on identified needs. The participants displayed slight increases in two documentation areas, problem list and medication list. Interest and positive responses to these classes illustrated the need to support and train staff as EHR enhancements were implemented and as skill levels advanced and users endeavored to achieve mastery.

Comparison of traditional instructor-led training and blended learning.

Edwards, Kitzmiller, and Breckenridge-Sproat (2012) used a mixed method approach for a study comparing training participants' satisfaction with traditional instructor-led (TIL) and blended learning (BL) methods. Data analysis was conducted with retrospective, comparative, descriptive, secondary data.

The TIL method, in this study, was conducted in a classroom, and started with in-person instruction followed by time to practice within the EHR training site. The BL combined a shorter amount of in-person instruction at the start and more time allotted for practicing. Computer modules were included in BL and post-tests were available online, 24/7, through the hospital's education system.

Satisfaction with training was assessed by an anonymous, electronic, self-report survey comprising 13 total questions: (a) nine Likert scale, objective questions, regarding course content and instructor effectiveness; (b) and three subjective questions to identify the most and least valuable topics covered in training; and (c) one free text question for suggestions or comments. The convenience sample comprised 85 new employees.

The data were analyzed using Grbich content analysis technique and Cronbach *a* was calculated (Cronbach *a* = .962) (Edwards, Kitzmiller, & Breckenridge-Sproat, 2012). Fifty-five surveys were completed (64% response rate), of which, 26 received TIL and 29 received BL. A *t* test of the mean survey results showed no significant difference between the satisfaction scores for both groups. The TIL group found navigation and hand-on practice most useful, while the BL group stated practice exercises and online modules most useful. Both groups suggested more time to practice.

Clearly, training is an integral part of EHR adoption and satisfaction. The study pointed out the importance of instructor satisfaction with BL training as it allowed for more one-on-one support during the practice sessions. Traditional and blended instruction must be explored further to create optimal learning programs to meet individual and organizational needs.

Effective onboarding methods.

Baldwin (2016) conducted a literature review for effective onboarding methods. Using multiple databases, the search revealed 25 articles selected for review and assisted with developing a structured, onboarding program for new employees to the computer tomography (CT) department of a hospital.

Onboarding, or organizational socialization, is the time that starts after a new employee joins an organization and continues while they learn skills and behaviors that help them adapt to

the new work environment. Multiple factors assist with acclimation to a new environment, such as, clear job expectations, meaningful training, and coaching or preceptorships (Baldwin, 2016).

According to the research, retention and organizational loyalty are also affected by onboarding. Familiarizing a new employee with the daily operations of an organization in an incremental and logical way, may assist with the perception of caring and is important for developing loyalty (Baldwin, 2016).

Baldwin (2016) presented a structured onboarding program, wherein support and guidance from current staff, reduced employee turnover and increased new employees' comfort levels. This was outlined in the twelve-week structured onboarding program the author developed for the CT department. An onboarding program that fosters independence and provides guidance is an optimal environment for new employees.

Best practices for training.

McAlearney, Robbins, Kowalczyk, Chisolm, and Song (2011), as part of a larger study investigating "best practices," conducted additional data analyses to focus on training practices. Particularly, training practices in relation to social cognitive theory and situated cognition theory (adult learning theory). In this qualitative study, the authors used a multiple-case study approach.

The locations selected as "best practice" sites were chosen based on being recognized as utilizing an EHR to adapt and transform patient care (McAlearney, Robbins, Kowalczyk, Chisolm, & Song, 2016). The Davies award from Healthcare Information Management Systems Society (HIMSS) and the Hospitals & Health Networks (HHN) "Most Wired" awards were used, with feedback and expertise from known professionals in the industry, to assist with the creation of a list of six health care organizations.

Forty-three in-person and telephone, interviews were conducted across the six organizations with administration, physicians, and technology personnel. The interviews were semi-structured with follow-up questions focused on implementation, training, and user support.

Six focus groups, comprised of physicians, were organized. A standardized focus group guide was used to cover implementation, training, and EHR use. Inductive and deductive methods were used to analyze the data after the transcripts were coded (McAlearney, Robbins, Kowalczyk, Chisolm, & Song, 2016).

Inductive methods were used to discover common themes across the sites. Themes were a "best practice" if at least three sites had the same topic. The themes were viewed through social cognition and situated cognition theoretical frameworks. Deductive methods were used by applying the theoretical frameworks to study propositions.

The five study propositions that contribute to better learning included: (1) emphasizing the positive impact of an EHR, (2) training that contains observation and hands-on activities, (3) clinical champions and positive role-models, (4) building on past computer experiences, and (5) social and cultural sensitivity (McAlearney, Robbins, Kowalczyk, Chisolm, & Song, 2016). The study propositions were supported by the resulting "best practices."

The seven "best practices" identified were: (1) leadership values training, (2) individualized computer skills assessments, (3) knowledgeable training staff, (4) trainings based on roles, (5) blended learning with multiple types of training offered, (6) one-on-one support, and (7) continued optimization training to reinforce charting fundamentals and help users attain mastery.

The results provided valuable insight into successful training practices when viewed through social cognition and situated cognition theoretical frameworks. Therefore, supporting

adult learners through an EHR implementation from initial training to subsequent trainings and ongoing support can best be attained, by addressing individual needs, through multiple training modalities to enable self-efficacy.

Adult learning theory and printed educational materials.

Mitchell and Courtney (2005) developed an informational brochure, based on Knowles Adult Learning Theory, for families with loved ones being transferred from the intensive care unit (ICU) to a general unit. A mixed design study was conducted to assess the usefulness of the brochure to meet the needs of families and nurses.

Knowles' Adult Learning Theory was selected for the design of the brochure because of the basis in humanistic theory and the cooperative relationship the teacher and learner share (Mitchell, & Courtney, 2005). Adult learning theory identifies six elements for optimal learning: (a) a desire to learn, (b) self-direction, (c) past experiences and role in current learning, (d) readiness to learn content that is relevant, (e) motivation, and (f) problem-based learning (Knowles, Holton, & Swanson, 2015; Mitchell, & Courtney, 2005).

An intervention group of 82 family members received the new brochure as part of an educational session conducted by a registered nurse (RN). A control group of 80 family members received the previous transfer instructions. Both groups completed a questionnaire one day after transfer from the ICU. The results showed the intervention group scored higher ratings across all levels of satisfaction regarding transfer, including understanding, preparedness for transfer, and less worry (Mitchell, & Courtney, 2005). Ninety-five percent (n=33) of the RNs reported the brochure was helpful with directing and structuring the discussion with families. The nurses also recommended it for all patient transfers.

In summary, designing educational materials, to accompany family discussions or training sessions, based on humanistic approaches, such as Knowles' Adult Learning Theory, can improve understanding and satisfaction.

Environmental factors and instructional strategies based on adult learning theory.

Freedman, Echt, Cooper, Miner, and Parker (2012) designed a qualitative study to explore the impact of environmental factors and instructional strategies on health education. Environmental factors include items like class furniture layout and social environment pertains to the atmosphere of the classroom, such as cooperative or competitive participation. Instructional strategies were based on Better Education and iNnovation (BEAN) Model developed by the authors from this case study. BEAN combines cognitive psychology, adult learning theory, environmental factors, and instructional strategies (Freedman, Echt, Cooper, Miner, & Parker, 2012).

The study was conducted at an adult literacy center in the Atlanta, Georgia area and explored types of environmental factors and instructional strategies that increased health literacy skills. Classroom observation and interviews were conducted with 21 adult students and three instructors. An observation tool was used to capture strategies used by the instructors and the students observed reactions were recorded during ten 2-hour sessions (20 hours). Classes were held twice a week for twelve weeks.

The environmental factors that facilitated learning and discussion were U-shaped seating and a collaborative classroom atmosphere. Students reported feeling welcomed and supported by the instructor and other students. The instructional strategies observed that were common among all three instructors were: (a) personal connection to students and responsiveness to their needs, (b) fostered independence and self-sufficiency, (c) multiple modes of presentation, such as

verbally, written, or video, (d) practical examples to facilitate understanding, (e) built on prior knowledge, and (f) presented material from multiple perspectives which encouraged new thinking (Freedman, Echt, Cooper, Miner, & Parker, 2012).

Health-related behavior changes were reported by the students at the end of 12 weeks. Some reported better adherence to medication, and were more comfortable discussing health concerns with providers. Most students expressed improvements with eating habits and increased physical exercise. Results from the study illustrate how deliberate design of the environment and instructional delivery can positively impact adult learners.

Fostering independence in adult students.

Postgraduate nursing students were invited to participate in research conducted by Spies, Seale and Botma (2015) to investigate ways to improve simulation learning. Data were collected during nominal group sessions (silent brainstorming) regarding perceived improvements to simulation experiences. Secondary analysis was conducted to determine if these adult learners displayed characteristics of adult learning theory.

The nominal group technique (NGT) allowed for each participant to contribute, by writing on paper during silent brainstorming, and all suggestions were written on a flip chart. Eighteen students participated in ten nominal group meetings that occurred one month after completing six simulation sessions. The meetings generated 26 suggestions for improvement wherein each participant selected and prioritized the top five suggestions using a five-point scale.

The authors used deductive interpretive reasoning to search for words and phrases in the data that reflected adult learning theory. The results were grouped into three categories: (1) simulation equipment, (2) demonstrated adult learner characteristics, and (3) did not demonstrate adult learner characteristics. The first category was not significant to the current study and

suggestions were not included in the results. The majority of suggestions fell into the last category and were further divided into dependent behavior, insecurity, and poor time management skills.

Contrary to what the authors may have thought about adult learners, the results pointed to more dependent adult learners than expected. Adult learners have past experiences that may be an obstacle to new learning. The authors recommended that nurse educators create learning activities that promote independence such as problem-based learning and personal reflection to incorporate past experiences and encourage new learning (Spies, Seale, & Botma, 2015).

Summary of Literature.

Multiple themes emerged from the literature review that were important to inform the development of the EHR training program (see Appendix B for evidence tables). For example, system functionality is a key part of training and charting fundamentals should be taught based on clinical roles. Users can gain advanced skills through ongoing optimization. Presentation and delivery of content should be culturally and socially sensitive to encourage student engagement. Finally, attention should be given to class furniture layout and fostering a cooperative atmosphere.

Knowledgeable support and on-going training should optimize EHR functionality based on users' needs, fostering confidence, independence, and self-efficacy. Support was an important theme that emerged in the literature search and involved both management and EHR coaching after training. Learning was further optimized when management emphasized the importance of EHR training and allotted protected time to practice new skills. The benefits of the EHR and clinical champions and super users assisted with staff engagement (Page, 2011).

Theoretical Framework

Development of the training program was based on Malcolm Knowles' Adult Learning Theory. Adults have varying years of experience with education, training, and employment which may prove challenging when teaching new topics. Any computer training may be viewed as difficult by people who are typically fearful of technology or not technologically savvy. It may also be viewed as time consuming and without value (Walsh, 2004). Addressing self-defeating behaviors and accommodating the needs of various learning styles must be part of instructional design (Morrison, Ross, Kalman, & Kemp, 2011).

Adult learning theory considers the unique characteristics of students and presents six principles that can benefit EHR training: (1) adult learners want to know how the content will benefit them and why they need to know it, (2) self-directed when content is perceived as necessary, (3) past experiences can be a resource and benefit to current learning, (4) motivation to learn is intrinsic, (5) readiness to learn if lessons are perceived as immediately applicable, and (6) problem-based lessons that apply to work scenarios (DeWitt, 2003; Knowles, Holton, & Swanson, 2015; Morrison, Ross, Kalman, & Kemp, 2011; Sengstack & Boicey, 2015).

Morrison, Ross, Kalman, and Kemp (2011) suggested being respectful of adult learners' time by starting and ending class as scheduled, and presenting clear objectives and class requirements. Learners appreciate knowledgeable and interactive instructors who are prepared and can guide them through a lesson, possibly with group activities, rather than simply lecture (Morrison, Ross, Kalman, & Kemp, 2011).

Section II: Methods

Ethical Considerations

The DNP Project Approval Form: Statement of Determination was submitted to the University of San Francisco School of Nursing and Health Professions on July 28, 2015 and was approved as an evidence-based change in practice project (see Appendix C). The approval excluded the project from further approval through the University Institutional Review Board for the Protection of Human Subjects (IRBPHS).

The author completed the National Institutes of Health (NIH), "Protecting Human Research Participants" online training module to further confirm the project was a performance improvement project and not a research project (see Appendix D). The project was presented to a Clinical Nurse Specialist (CNS) member of the ethics committee, at the facility, for guidance and assistance with the foundation and start-up of the project.

Ethical considerations of veracity and fidelity were discussed in each training session as related to the protection of patients' protected health information and protection of the digital signature of the individual nurse or physician. Protection of log-in credentials and vigilance with logging out of each computer session protected individual digital signatures and secured protection from potential erroneous documentation by unauthorized users.

Setting

The location of the improvement project was an urban, long-term care, safety-net hospital with 780 licensed beds. There are 13 units with varying specialties to serve the long-term, and rehabilitation, needs of the urban population. The patients may also be seen in other DPH health care locations for acute needs or specialty care such as dialysis or orthopedics. Populations served include both patients and work force; both groups are culturally diverse.

An EHR was implemented in May 2015 to replace much of the paper documentation. In March and April, approximately 150 ancillary clinical staff, 25 physicians, and 333 nurses attended EHR training. The training sessions, organized by clinical roles, were scheduled during regular business hours in three locations in the hospital. A trainer was accompanied by two or three support personnel (super users) who assisted and guided class participants to keep the pace of the class on schedule. Computer skills and proficiency varied among the current staff.

The three trainers and super users were assigned temporarily and served on the implementation project team, but returned to prior work duties and responsibilities after the EHR implementation. An exception was one trainer, a clinical nurse specialist (CNS), who filled the role of back-up trainer and support for the primary EHR trainer. During the implementation, one informatics RN served as an implementation and training coordinator, who later transitioned into the role of sole trainer post-implementation.

Planning and Intervention

Providing EHR training to new hires is critical for organizational and clinical efficacy. Effective training is crucial since poor training can have a detrimental impact on staff, patients, and hospital revenue (Sengstack & Boicey, 2015). There is a training development model known as “ADDIE” (analysis, design, development, implementation, and evaluation) that can serve as a guide (Hsu, Lee-Hsieh, Turton, & Cheng, 2014; Khalil & Elkhider, 2015; Sengstack & Boicey, 2015).

Existing orientation and training provided for new clinical staff is taught by nurse educators. Nursing orientation is typically two to four weeks. Nurse educators teach didactic classes, how to operate various technology applications, and a preceptorship assignment is created for a new nurse to partner with a more experienced nurse. The nurse educators are also

responsible for on-going in-person and online educational modules. They were not part of the EHR implementation team and were not specially trained to teach the EHR.

A special implementation team worked with the Chief Nursing Officer (CNO), Chief Medical Officer (CMO), and Chief Medical Informatics Officer (CMIO) to develop workflows and processes for smooth implementation of the EHR. One informatics RN and one CNS were on this team and trained as EHR trainers. The informatics RN transitioned to EHR trainer post-implementation with back-up support provided by the CNS.

During the EHR implementation training sessions, surveys were distributed to nurses to gather input regarding training length and topics covered (see Appendix E). Of the 333 nurses trained, 244 surveys were collected for a 73% response rate; the results were used in designing a training program that could be incorporated into the existing allotted time for nursing orientation.

Survey results indicated the length of the training was appropriate, however it was suggested the training be divided into two or more sessions. The results indicated that multiple modes of support, such as in-person and printable instruction sheets, were important to nurses. Survey results assisted with the post-implementation development of the training program (see Appendix F).

Although the EHR had been implemented at other DPH facilities, the long-term care facility was unique. Developing a customized training program to address specific workflow and facility processes was ideal. It was necessary to develop a training program and not duplicate an existing model. A review of the literature was completed to determine best practices and lessons learned from other facilities and desired characteristics of effective, satisfying training. Onboarding, EHR training, and adult learning theory were the main topics researched.

Coordination with the nursing orientation coordinator was critical to determine an EHR training schedule. While on orientation, two consecutive afternoons were deemed optimal for training nursing staff. The didactic classes were taught by nurse educators. The EHR training was scheduled after these classes and paired with nursing preceptorship. This allowed an introduction to the EHR with a preceptor prior to attending training in the computer lab.

Developing a training process and a program that could be reproduced for subsequent technology implementations was also a consideration. Training tools were designed that could be utilized for other types of training. The delivery option selected for the training program was in-person training followed by support by pager, telephone, email, website, or in-person. The EHR training introduced the system and taught key documentation functions (fundamentals of the EHR). Follow-up support was provided by the informatics RN.

Training Structure

Training was conducted in-person, with one trainer and one or more students. A typical class had eight nurses. Physicians and ancillary groups had less new employees starting throughout the year and these were typically scheduled as one-on-one training sessions. Training occurred in a computer lab equipped with 29 desktop computers, a projector and retractable screen, a printer, and a telephone (see Appendix G). The computer lab was established for EHR implementation and remains the main computer training lab for the hospital and other DPH agencies.

Besides the computer lab, there is a mobile classroom set-up (see Appendix H) that was developed based on organizational needs to provide efficient staff training near the point of service. The mobile classroom is transported with a cart and contains a projector, folding screen, surge protectors and power cords, eight laptops for students, one laptop for the trainer, and

requisite printed training materials. The mobile classroom can be set-up in conference rooms or in any department or unit requiring local training. The mobile classroom was not on the initial budget in the prospectus but can be found on an updated budget (see Appendix M).

The Intervention

Training for the EHR was scheduled during departmental orientation. Specific departmental orientation occurs after hospital-wide orientation. During this time, new staff members typically shadow experienced staff members. The EHR was introduced and formal training was scheduled to provide the knowledge and skills to use the EHR independently. Utilizing organizational workflows, training was focused on mock tasks that mimic actual scenarios (Edwards, Kitzmiller, & Breckenridge-Sproat, 2012). Role-specific, organizational workflows were developed prior to implementation of the EHR and supported role-based training.

Nurses typically receive an orientation of two to four weeks and EHR training was scheduled during the early part of orientation. Scheduling training during orientation places no burden on staffing requirements, since new nurses are not responsible for their own patient assignment. Ideally, nurses were on the floor shadowing an experienced nurse (preceptor) for two days prior to attending EHR training. This allowed exposure to the EHR in the actual work environment prior to practicing with mock patients in the training environment. Training, in the designated computer lab, was seven hours divided over two consecutive afternoons.

The first day of training, for nurses, was an overview of EHR functions, terminology, and how to navigate through the charting system. Individual computers were assigned and functions were demonstrated and projected on an overhead screen. Time was scheduled for practice of role-specific tasks in the training environment. Exploration in the training environment was

expected and encouraged. Reference guides, such as screenshots of common charting tasks, checklists for specific charting functions, and guides for common medication orders were provided for reference and reinforcement.

The second day of training covered functions in the organizational workflows. Twelve basic nursing workflows represent common scenarios such as, admission, discharge, immunization documentation, and medication verbal orders. Reference guides were provided and tasks were demonstrated to mimic tasks from the workflows. During the second day of training, EHR log-in information was provided. This sequence was intentional, so new nurses would not document in the EHR prior to training.

Curriculum and Training Agenda (see Appendix I)

It is important to create a welcoming environment. Training started with an introduction. The trainer introduction was followed by informing participants of the location of the nearest restrooms and announcing the length of the class and time of the first break. The internet resources were introduced next in addition to contact information for the informatics RN. Stating these key points at the beginning of the first class provided context. If daily printed hand-outs were misplaced, the documents could easily be retrieved from the intranet EHR website.

A brief introduction to meaningful use was given including reasons the organization was using the particular EHR. The students were asked to log-in to their computers. Originally, this step was already completed prior to students arriving and the EHR training application was already open. It was discovered that logging-in sometimes posed a problem and some reported difficulty remembering what the computer icon looked like. From that point forward, logging-in to the computer and into the computer application became a part of the first training day. By observing and assessing new employees conduct their log-in processes, the informatics RN can

identify those who struggled with the computer and those who were technologically savvy (Alpay, & Russell, 2002).

Once users logged-in to the computer application, the trainer pointed out the location of their unique digital sign-on. The importance of logging-out after each charting session was discussed and emphasized. Since the training environment allowed for anonymity, it was requested that users maintain a professional tone when typing notes into the mock patient charts. During the EHR implementation, an offensive name was used in place of a physician name and it was not possible to identify the responsible person. Since that time, a statement regarding respect and professionalism was added to the training to reinforce a civil and respectful work environment.

The training agenda was designed so there was a natural flow through navigation of the system with hands-on practice interspersed with demonstration on the overhead screen. The agenda also contained the RN trainer pager number and hours of operation. The current agenda differs from the agenda in the prospectus. This is in alignment with adult learning theory and a desire to focus on continual learning and relevant nursing tasks (Khalil & Elkhider, 2015; Sengstack & Boicey, 2015). Ongoing optimization can focus on advanced skills and functionality features as users become more confident in the system.

Throughout the two days of training, various printed hand-outs were presented to students as the topics were discussed. The hand-outs were study guides or reference sheets that reinforced the content. These were also available on the intranet EHR website. Select nursing workflows were distributed as hand-outs, primarily to introduce nurses to the format. Since workflows contained tasks assigned to physicians and unit clerks, they were not demonstrated

step-by-step. To maintain a nursing focus, specific nursing tasks, from the workflows, were taught during training (Stromberg, 2011).

The EHR training application contains mock patients with data, such as problem list, medication list, allergies, and past medical history. These data were placed by previous students and often organized and edited by the informatics RN. Prior to training, mock medication orders were created by the informatics RN for transcription training purposes. Students could also practice creating nursing verbal orders and a prepared list of medication orders was available for reference, if necessary.

On completing the second day of training, individual log-in and password information was distributed. Nurses could log-in to their production EHR account and customize and change their password. This also enabled additional assessment by the facilitator to observe the nurse logging-in to the application.

Nursing competencies (see Appendix J) were completed at the end of class and names were associated with faces so the informatics RN could anticipate learners who needed additional assistance (Westra & Delaney, 2008). This helped the facilitator identify the participants when they paged or called for support. Two main competencies were completed that covered documentation and medication transcription in progress notes and nursing verbal orders. The competencies were stored in a locked cabinet in the informatics office. Class attendance sign-in sheets were retained and a copy was stapled to the agenda and training plan. This serves as a record of the content taught during the training session. The attendance sheets were stored in a locked cabinet with the nursing competencies.

Tools

During development of the training program, tools assisted with training and follow-up support. Members of the informatics team were provided access to electronic versions of the tools on a shared computer drive. The following tools were also available in three-ring binders (see Appendix K) in a central location in the informatics office:

Training Plans – Training plan for each scheduled training (Gerzon, 2011). Plan includes: location of training, name of trainer, description of training, agenda topics, list of study guides, and list of equipment or training needs (see Appendix L)

Training – Binder for the trainer with expanded agenda and essential key points.

Day one binder – Agenda for two-day training, study guides, sign-in sheets.

Day Two binder –study guides, sign-in sheets.

Onboarding – Computer account information. Account request date, account completion date, and training date.

Audits – List of the audits conducted and frequency, instructions for running reports, standardized messages for secure emails to physician or nursing leadership.

Downtime Log – List of unplanned system downtime including date, time, who was notified and the type of notification. List of pager numbers and email groups with standardized messages for pager and email alerts.

Support Log – List with date, time, name of person who called for support, description of the support question or issue, area to mark if the question or issue was resolved or if further follow-up was required.

Expenses

Direct expenses for implementation of the project were $26,649 (see Appendix M). Train-the-trainer EHR training for three weeks - $5,500, informatics RN pay for three weeks of training - $8160, travel expenses for mileage and daily bridge tolls to and from training facility - $980, mobile classroom & nine laptops - $11,900, printed training materials - $109. The informatics RN developed training materials and provided training as part of usual job duties. The initial budget (see Appendix N) for the project, contained funds from the EHR implementation (2015) and projected meaningful use incentive payments for 2016 and 2017.

Indirect costs to use the computer lab and equipment were not included in the actual expenses as the computer lab was not dedicated to EHR training. The mobile computer classroom cart was considered surplus and was not purchased. Additional equipment was borrowed from the informatics and nursing education departments for the mobile classroom set-up.

The actual budget for the project did not contain the implementation or meaningful use incentive funds or include the labor costs for new employees' because the EHR training was part of existing orientation. The actual budget did not include recertification since the current EHR will likely be replaced within three years and the organization does not currently calculate the value of recertification. The project costs were for the first year only and subsequent annual costs were estimated to be minimal as the training and support were integral to the informatics RN's job duties and the cost of printing materials was minimal. Another large expense is not anticipated until new laptops are required or extensive training is necessary to learn a new EHR application.

Communication Matrix

Communication for the DNP project leadership was between the informatics RN (DNP student), Brian Budds, JD and Dr. Cathy Coleman. Organizational communication occurred between the informatics RN and the nursing orientation coordinator, CNO, CMIO, and CMO. The training topics were discussed with the CNO and CMO. Coordination of training schedules was conducted by the informatics RN and the nursing orientation coordinator. Scheduling training was between the nursing orientation coordinator, physicians' training coordinator, departmental supervisors, and the informatics RN. Responsibility and accountability for deliverables was finalized by the informatics RN and Brian Budds. Communication occurred in-person, through email, and by telephone.

Implementation of the Project

In June 2015, a month after the EHR implementation, new employees joined the organization. The group included staff that required EHR training. Departmental leadership contacted the informatics RN to request EHR access and schedule initial training. Communication occurred by email. Once a request was communicated, the informatics RN requested access from the vendor representative. Creation of a new EHR account took one to two days, followed by the informatics RN completing settings and basic user preferences for each user. The account log-in information was provided to the new users at training.

The training delivery model in the early months of the project was one eight-hour day or seven hours divided over two days. This depended upon the trainer's individual schedule. Typically, the CNS back-up trainer required one eight-hour day of training, due to other obligations and scheduling constraints. The informatics RN was the primary trainer and scheduled seven hours of training divided over two days.

Based on the survey data collected from April 2015 to September 2015 (see Appendix F), the preferred training schedule was divided over more than one day. Two days was determined to work well within the nursing orientation schedule. The preferred days for training were Wednesday and Thursday afternoons. Occasionally, this schedule was adjusted based on the availability of the computer lab and other obligations required of the informatics RN. Some training sessions were reduced to one afternoon for registry nursing staff who received more oversight than full-time staff.

During training, evaluation of log-in was observed (log-in to the computer system, and log-in to the computer EHR application). This allowed the trainer to see how easily new employees could follow instructions and to observe how long it took an individual to log-in. This was helpful for observing levels of confidence with the computer through direct observation without reliance on self-reporting. The trainer made it a point to learn the names of the students by observing their name badge or by individual introduction during training. During the log-in stage or at the end of the training session, during competencies, provided natural opportunities for rapport to be built.

The agenda presented with the Statement of Determination (see Appendix C) was first used for training new clinical staff. This agenda was borrowed from the implementation training sessions. It was determined, through chart audits and analysis of frequently asked support questions that the agenda needed to be revised to reflect the most pertinent topics of interest to staff (see Appendix I). The majority of newly hired staff were nurses and the questions they most often asked were about nursing verbal orders, transcription of medication orders, and documentation of immunizations. The new agenda not only focused on these topics, but it

considered adult learning theory and allowed more time for practice and a more logical flow to engage the students.

Since the EHR implementation in May 2015 until September 2016, 109 new employees have required access and training for the EHR. The majority of the new employees were nurses (95), unit clerks (4), dentists (3), pharmacy technicians (3), physicians (2), a social worker (1), and an occupational therapist (1).

Planning the Study of the Intervention

The intervention was developed to provide effective EHR training based on adult learning theory. The study of the intervention was conducted with the baseline data obtained from the 244 surveys collected during the months of April 2015 to September 2015 (see Appendix F) which provided baseline demographic, computer proficiency levels, and training delivery feedback. Direct observation was noted and evaluated while training 109 new employees during the period of June 2015 to September 2016. An additional survey, to evaluate EHR confidence levels was collected in February and March 2016.

Objective information was obtained through chart audits and support issues logs. To capture the information and track it in an organized manner, Microsoft Excel spreadsheets were utilized to log data. The spreadsheets were saved on a shared drive and were accessible to other members of the informatics team. Data were shared with leadership throughout the project to assist with staff follow-up and remediation. The tools utilized for tracking that did not contain patient health information were maintained in three-ring binders (see Appendix K).

Timeline

A Gantt chart was created for the timeline (see Appendix O). Selecting a topic for the project was a very natural choice, due to the need to develop an EHR training program directly

after the successful launch of the EHR in May 2015. The project started in June 2015 with the first group of new employees. Discussions with the department chair, Brian Budds, occurred prior to submitting the Statement of Determination on July 28, 2015 (see Appendix C).

In September 2015, Dr. Cathy Coleman was invited to join the committee. During the fall of 2015, the prospectus and qualifying manuscript for publication were submitted to the committee members. Training was conducted and EHR support for new employee was provided. During October 2015, the informatics RN attended vendor training (Train-the-trainer) to become a certified trainer for the EHR. In December 2015, the qualifying manuscript was submitted to *CIN: Computers, Informatics, Nursing* (CIN).

In February and March 2016, nursing staff on all shifts were surveyed regarding confidence with the EHR. Between March and April 2016, the informatics RN attended employer sponsored training for leadership and developed the training plan and handoff forms to facilitate standardization. In July 2016, the qualifying manuscript was accepted with revisions and resubmitted in September 2016 to CIN. In September 2106, a group of eight new RNs completed the same survey used to obtain baseline data. In fall 2016, communicated with committee chair regarding the project comprehensive manuscript. The complete final project comprehensive manuscript was submitted to Brian Budds on October 15, 2016. In November 2016, the qualifying manuscript was accepted for publication by CIN and will be published in the January 2017 issue (Volume 35, Issue 1).

Methods of Evaluation

Strengths, weaknesses, opportunities, and threats analysis (SWOT).

A SWOT analysis was conducted to determine strengths (S), weaknesses (W), opportunities (O), and threats (T) for developing an onboarding and EHR training program (see

Appendix P – SWOT Analysis). One of the main strengths of this project was that it satisfied an immediate organizational and operational need; an EHR training program for new hires did not exist. Other strengths included: (a) support of organizational leadership to develop an EHR training program, (b) clinical orientation schedule could accommodate EHR training, and (c) a dedicated computer lab for training with current, updated computer equipment and software was available.

One of the weaknesses of this project was the limited number of EHR trainers at the facility. Two trainers (one dedicated EHR informatics RN and one CNS alternate trainer) may not meet the demands of the incoming new staff members. Furthermore, newly hired staff may not be computer literate. Current job postings for nurses included maintaining accurate electronic medical records as a job requirement, however there was not a computer assessment incorporated into the hiring process. Individuals with suboptimal computer skills could require further training and additional support.

One important opportunity presented by this project was the ability to participate in the federal incentive program that provides financial incentives for qualified professionals who improve quality and care outcomes through “meaningful use” of a certified EHR. Interoperability, accessibility, and exchange of information through the EHR allowed the facility to connect and collaborate with partner organizations in the community. Improved technology for charting allows the facility to be a competitive employer striving to meet the expected standard of electronic documentation.

Last, the threats to this project involved both “meaningful use” and the recent conversion from ICD-9 codes (International Classification of Diseases) to ICD-10 codes. If meaningful use measures were not met or if the organization fails a CMS audit, federal incentive money could be

lost (Colligan, Potts, Finn, & Sinkin, 2015). The training program must include meaningful use measures and specific directions regarding where to document necessary information for ease of data extraction for reporting purposes. The new EHR was implemented in May 2015 and the deadline to start ICD-10 codes was October 2015. It was challenging for physicians to learn a new EHR and shortly after learn a new set of ICD codes. Documentation audits and follow-up with physicians after October 2015 included information regarding which patient records contained outdated ICD-9 codes after the October 1st deadline. Since billing is linked to having ICD-10 codes in patient records, instead of outdated ICD-9 codes, onboarding training had to incorporate ICD-10 topics after October 1, 2015 (Bowman, Cleland, & Staggs, 2015).

Evaluation by survey.

The program's effectiveness was evaluated through surveys provided to new employees at the end of training and a confidence evaluation was conducted nine months after initial training. Confidence was one key indicator of self-efficacy and a component of adult learning theory and effective onboarding. Nine months after initial training, nurses from each of the three shifts completed a survey to rate their confidence with the EHR application. Sixty-three nurses responded to the survey and rated their confidence with the EHR on a scale of 0 to 10. The results showed 92% of the nurses rated their confidence with the EHR as 5 or above and 70% rated their confidence as 7 or above (see Appendix Q).

Description of data analysis methods.

Data collection and analysis was performed using Microsoft Excel. Individual surveys were numbered in pencil in the top right corner and a corresponding number was entered into Excel. The survey questions were numbered according to the order they appeared on the survey.

Each answer choice was given a numerical equivalent from one to five. A data key was created and the data were entered in Excel on a master spreadsheet.

Each question represented one tab in the Excel workbook. The data and a corresponding graphical display were saved in the workbook. A small table was created for each question with the data key and the numerical equivalent. Data were extracted from the master list using COUNTIF function in Excel to display each answer as a percentage. The graphical displays were created from this table data. Graphs were transferred to Microsoft Word for simplicity (see Appendix F).

Survey findings.

Baseline data.

Baseline data collected from 244 nurses during training from April 2015 to September 2015 (see Appendix F) showed nurses had average computer skills. The majority, 60%, reported their confidence with a computer as average and 38% reported they were proficient with computers. While many nurses had experience with more than one EHR, the majority (47%), of respondents, only had experience with one EHR system. Reported age range for the majority, (82%), of nurses surveyed was between 30-59 years old. The remainder of nurses reported their ages as, 21-29 years old (11%), and 7% were over 60 years of age.

In response to the length of the training, 13% of nurses felt the training was too long with a close opinion between too short 42%, and adequate (“just right”) 45%. The training delivery preference (43%) was class content delivered over a few days. When asked about content, the following were significant as the most useful topics: overview, navigation, progress notes, or nursing workflows, the majority of the respondents, 31%, selected all of them, 29% selected overview, and 29% stated nursing workflows. Selected as the least important topics: overview,

navigation, progress notes, or nursing workflows; however, the majority said everything was useful and circled nothing. About half (*n*=111) of the nurses answered this question and 38% thought the nursing workflows were the least useful, while 30% thought the overview was the least useful.

A significant element of training is follow-up support. It was relevant to learn what nurses valued as most important for them to use the EHR for their job. When support options were presented: in-person, instruction sheets, computer lessons, or email support, the majority of nurses, 46%, selected all options with 40% selecting in-person. Clearly, a robust and responsive support structure was useful to them.

Confidence survey.

A survey, conducted nine months after the initial training, assessed nurses' confidence with the new EHR. Sixty-seven nurses completed the survey: 26 from day shift (7:00 am to 3:30 pm), 25 from evening shift (3:00 pm to 11:30 pm), and 16 from night shift (11:00 am to 7:30 am). Of the 67 nurses who completed the survey, 63 answered the question regarding confidence. The question asked the nurses to rate, on a scale of 0-10, their confidence with the EHR. The majority, 92%, rated their confidence with the EHR as 5 or above while 70% rated their confidence as 7 or above.

New employees.

In September 2016, a group of eight new RNs were hired. The training was conducted in a divided class structure with a new class agenda that focused on relevant nursing content. At the end of two days, the nurses completed the same survey used to collect baseline data. In contrast to the baseline demographic data, the majority of the new nurses were under 39 years old.

The results (see Appendix R) show the majority, 63%, rate their confidence with the computer as proficient. The results for experience with an EHR were similar to the baseline data and the majority, 50%, used at least one EHR system. The length of the training was reported to be appropriate ("just right") by 75% with only one person stating the class was too long and one stating the class was too short. The class was divided over two days and 75% of the nurses selected that the class should be taught over more than one day.

The course content that was important to the new nurses was in contrast to the baseline data. The new nurses valued the overview and system navigation more than the nursing workflows and progress note documentation. The least useful was reported to be nursing workflows.

The support that was important to the new nurses varied. Since the group was smaller, the data was easier to divide into groups based on selection of multiple answers. Of the eight nurses, two selected in-person support, two selected all options, two selected in-person and computer lessons, one selected instruction sheets, and one selected in-person, instruction sheets, and computer lessons.

Section IV: Results

Program Evaluation and Outcomes

Meeting the needs of new employees with an effective EHR training program was the overall aim of the project. The project sought to develop a channel for communication to flow from the informatics RN, nursing orientation coordinator, departmental leadership, and the EHR vendor's representative. The continuum of teaching started with access to the EHR system, followed by role-based training, technical support, and ended with remediation training and follow-up. The project succeeded in all areas. A channel for communication between

departments was established, access to the EHR was provided, training was delivered and evaluated, and support was responsive. Tools were developed to track and document the onboarding process and participants were engaged.

Onboarding and adjustment to a new job can be stressful. The informatics RN attempted to minimize the stress of using, possibly, an unfamiliar EHR by offering training that covered topics based on job functions. The role of the trainer is a guide during training and a coach after completion of training.

Cultural and social sensitivity began in training while observing an individual interact with the computer. Basic computer functions can challenge some individuals. The informatics RN was sensitive to the various levels of experience possessed by new employees. Direct observation assisted with tailoring teaching strategies to match the skill level of new employees. This was in alignment with adult learning theory and built upon past experiences to engage the end-user in learning new skills.

Training was adjusted over time to adapt to the needs of the staff. Through surveys, support issues logs, and observations during training sessions, the informatics RN could determine priorities for new employees. Observations during training assisted with developing a flow that allowed for maximum interaction with the EHR and less passive activities. Based on the support questions following training, it became clear which topics were more difficult than others. More attention was given to these functions in training and less frequent tasks were eliminated.

Support, following training, was an integral part of acclimating new employees to their new positions. Knowledgeable EHR support served to assist, not only the new employee, but also the organization. Managers and leaders could focus on other tasks and the informatics RN

coached new employees. This approach also fostered reinforcement of organizational standardized workflows and processes.

Since the implementation of the EHR and the start of the training program, an additional nursing progress note documentation tool was introduced. With the experience from implementing the EHR training program, the informatics RN could easily facilitate training for the new application utilizing the mobile classroom.

Section V: Discussion

Summary

An EHR training program was necessary to meet the needs of new clinical staff. Communication between departments was critical for gaining access to the EHR and scheduling training sessions. Success factors that proved crucial for success included customized training that addressed the needs of adult students; an approach that was culturally and socially sensitive, and prioritized tasks for each role. Adult learning theory was the basis for developing this training curriculum.

For the program to succeed, tools were developed to log, track, and report necessary information to other departments as needed. The tools were developed in Microsoft Word or Excel and were saved on a shared drive and three-ring binders. Since this was a new process, the informatics RN strove to document the steps to support reproducibility of tasks for other technologies or for back-up support personnel to easily determine the steps for each process.

Overall, the project to develop an EHR training project succeeded and provided the informatics RN with a template to build upon and refine. Inevitably, other technologies will be introduced at the hospital and other projects will need similar project management skills.

Barriers and Limitations

When developing any program that is new to an organization wherein a template to follow does not exist, there will be barriers to overcome and lessons to learn. One barrier to implementation of the training program was the limited number of trainers and support personnel. Aside from the informatics RN, the CNS provided training to new employees.

The informatics RN was rarely absent, however there were trainings, meetings, and other obligations that required the facilitator to be away from the hospital. On these occasions, the CNS became the default trainer and support person who carried the pager. The CNS had many obligations too and training and support could be a burden. If the CNS was not available, the CMIO carried the pager. The CMIO did not provide training to new employees, but answered support questions and functioned to trouble shoot technology issues.

If training was provided by the CNS, the session was typically scheduled for one eight-hour day of training, which was not ideal according to the survey data. This adjusted schedule was necessary since the CNS was busy with other obligations and this was easier to manage.

With one support person, the audits and follow-up could be delayed. Although, timely audits and follow-up are preferred, especially regarding medication orders, it is not always possible to remain current considering other projects, competing priorities and obligations assigned to the informatics RN.

Interpretation

The training program was obviously about the content, but it was also responsive to the people it supported. A collaboration emerged between the new employees and the trainer to determine the best delivery method for the content. That entailed evaluating training from many viewpoints that encompassed cultural and social sensitivities. As staff demographics change,

computer skills competencies improve, and technology progresses there will be opportunities to adjust and adapt training to continually improve the work environment.

Continuous evaluation of the appropriateness of the content can be monitored. Direct observation and periodic surveys will continue to supply valuable feedback to keep training relevant and not stagnant. As more facilities adopt or upgrade computer systems and develop training programs, there will be more literature and case studies to supply examples of best practices, lessons learned, and optimal training delivery methods.

Conclusions

In summary, overall response to the training program and support were positive. Nurses expressed confidence with the EHR. Physicians documented accurately and meaningful use measures were recorded for the majority of the measures. The informatics RN utilized resources available at the facility and expanded knowledge of training and onboarding through literature review to determine best practices for incorporation into the training program. The tools developed are currently being used for implementation of other technologies within the hospital.

During the next few years, the organization plans to implement another EHR, which will replace the current system and the nursing progress note documentation platform. When that occurs, the tools and skills developed through this project will be invaluable and reproducible. Ultimately, the staff will benefit from the ongoing training experiences and thus preferential attention can be focused on the staff learning needs rather than developing a training program for every technology upgrade.

Section VI: Funding

Funding for the training program was supported by the nursing budget. All funding for this project, training sessions, and training materials were provided by the facility for the author

while performing usual and expected job duties. The cost of certification training for EHR Train-the-trainer was included in the implementation project budget. No hospital funds were obtained for writing the DNP Comprehensive or manuscript preparation.

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Appendix A

You have our permission to use the Johns Hopkins Nursing Evidence-Based Practice Model and Tools as you describe in the survey. If you choose to use the Johns Hopkins Nursing Evidence-Based Practice Model and Tools in any other way, please submit another request for that specific use. You may not modify the model or the tools. All reference to source forms should include "©The Johns Hopkins Hospital/The Johns Hopkins University."

Johns Hopkins Nursing Evidence-Based Practice
Practice Question, Evidence, and Translation (PET)

PRACTICE QUESTION

Step 1: Recruit interprofessional team

Step 2: Develop and refine the EBP question

Step 3: Define the scope of the EBP question and identify stakeholders

Step 4: Determine responsibility for project leadership

Step 5: Schedule team meetings

EVIDENCE

Step 6: Conduct internal and external search for evidence

Step 7: Appraise the level and quality of each piece of evidence

Step 8: Summarize the individual evidence

Step 9: Synthesize overall strength and quality of evidence

Step 10: Develop recommendations for change based on evidence synthesis

- Strong, compelling evidence, consistent results
- Good evidence, consistent results

- Good evidence, conflicting results
- Insufficient or absent evidence

TRANSLATION

Step 11: Determine fit, feasibility, and appropriateness of recommendation(s) for translation path

Step 12: Create action plan

Step 13: Secure support and resources to implement action plan

Step 14: Implement action plan

Step 15: Evaluate outcomes

Step 16: Report outcomes to stakeholders

Step 17: Identify next steps

Step 18: Disseminate findings

Johns Hopkins Nursing Evidence-Based Practice
Appendix E: Research Evidence Appraisal Tool

Evidence Level and Quality:_____

Article Title:		Number:	
Author(s):		Publication Date:	
Journal:			
Setting:	Sample (Composition & size):		
Does this evidence address my EBP question?	☐Yes	☐No Do not proceed with appraisal of this evidence	

Level of Evidence (Study Design)

A. Is this a report of a single research study? ***If No, go to B.***		☐Yes	☐No
1. Was there manipulation of an independent variable?		☐Yes	☐No
2. Was there a control group?		☐Yes	☐No
3. Were study participants randomly assigned to the intervention and control groups?			
If Yes to all three, this is a Randomized Controlled Trial (RCT) or Experimental Study →	☐ LEVEL I		
If Yes to #1 and #2 and No to #3, OR Yes to #1 and No to #2 and #3, this is Quasi Experimental (some degree of investigator control, some manipulation of an independent variable, lacks random assignment to groups, may have a control group) →	☐ LEVEL II		
If No to #1, #2, and #3, this is Non-Experimental (no manipulation of independent variable, can be descriptive, comparative, or correlational, often uses secondary data) **or Qualitative** (exploratory in nature such as interviews or focus groups, a starting point for studies for which little research currently exists, has small sample sizes, may use results to design empirical studies) →	☐ LEVEL III		
NEXT, COMPLETE THE BOTTOM SECTION ON THE FOLLOWING PAGE, "STUDY FINDINGS THAT HELP YOU ANSWER THE EBP QUESTION"			

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Johns Hopkins Nursing Evidence-Based Practice
Appendix E: Research Evidence Appraisal Tool

B. Is this a summary of multiple research studies? ***If No, go to Non-Research Evidence Appraisal Form.***		☐Yes	☐No
1. Does it employ a comprehensive search strategy and rigorous appraisal method (**Systematic Review**)? ***If No, use Non-Research Evidence Appraisal Tool; if Yes:***		☐Yes	☐No
a. Does it combine and analyze results from the studies to generate a new statistic (effect size)? (**Systematic review with meta-analysis**)		☐Yes	☐No
b. Does it analyze and synthesize concepts from qualitative studies? (**Systematic review with meta-synthesis**)		☐Yes	☐No
If Yes to either a or b, go to #2B below.			
2. For Systematic Reviews and Systematic Reviews with meta-analysis or meta-synthesis:			
a. Are all studies included RCTs? →	☐ LEVEL I		
b. Are the studies a combination of RCTs and quasi-experimental or quasi-experimental only? →	☐ LEVEL II		
c. Are the studies a combination of RCTs, quasi-experimental and non-experimental or non-experimental only? →	☐ LEVEL III		
d. Are any or all of the included studies qualitative? →	☐ LEVEL III		
COMPLETE THE NEXT SECTION, "STUDY FINDINGS THAT HELP YOU ANSWER THE EBP QUESTION"			

STUDY FINDINGS THAT HELP YOU ANSWER THE EBP QUESTION:

NOW COMPLETE THE FOLLOWING PAGE, "QUALITY APPRAISAL OF RESEARCH STUDIES", AND ASSIGN A QUALITY SCORE TO YOUR ARTICLE

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Johns Hopkins Nursing Evidence-Based Practice
Appendix E: Research Evidence Appraisal Tool

Quality Appraisal of Research Studies			
• Does the researcher identify what is known and not known about the problem and how the study will address any gaps in knowledge?	☐Yes	☐No	
• Was the purpose of the study clearly presented?	☐Yes	☐No	
• Was the literature review current (most sources within last 5 years or classic)?	☐Yes	☐No	
• Was sample size sufficient based on study design and rationale?	☐Yes	☐No	
• If there is a control group:			
○ Were the characteristics and/or demographics similar in both the control and intervention groups?	☐Yes	☐No	☐NA
○ If multiple settings were used, were the settings similar?	☐Yes	☐No	☐NA
○ Were all groups equally treated except for the intervention group(s)?	☐Yes	☐No	☐NA
• Are data collection methods described clearly?	☐Yes	☐No	
• Were the instruments reliable (Cronbach's α [alpha] ≥ 0.70)?	☐Yes	☐No	☐NA
• Was instrument validity discussed?	☐Yes	☐No	☐NA
• If surveys/questionnaires were used, was the response rate ≥ 25%?	☐Yes	☐No	☐NA
• Were the results presented clearly?	☐Yes	☐No	
• If tables were presented, was the narrative consistent with the table content?	☐Yes	☐No	☐NA
• Were study limitations identified and addressed?	☐Yes	☐No	
• Were conclusions based on results?	☐Yes	☐No	

Quality Appraisal of Systematic Review with or without Meta-Analysis or Meta-Synthesis		
• Was the purpose of the systematic review clearly stated?	☐Yes	☐No
• Were reports comprehensive, with reproducible search strategy?	☐Yes	☐No
○ Key search terms stated	☐Yes	☐No
○ Multiple databases searched and identified	☐Yes	☐No
○ Inclusion and exclusion criteria stated	☐Yes	☐No
• Was there a flow diagram showing the number of studies eliminated at each level of review?	☐Yes	☐No
• Were details of included studies presented (design, sample, methods, results, outcomes, strengths and limitations)?	☐Yes	☐No
• Were methods for appraising the strength of evidence (level and quality) described?	☐Yes	☐No
• Were conclusions based on results?	☐Yes	☐No
○ Results were interpreted	☐Yes	☐No
○ Conclusions flowed logically from the interpretation and systematic review question	☐Yes	☐No
• Did the systematic review include both a section addressing limitations and how they were addressed?	☐Yes	☐No

QUALITY RATING BASED ON QUALITY APPRAISAL

A **High quality:** consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence

B **Good quality:** reasonably consistent results; sufficient sample size for the study design; some control, and fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence

C **Low quality or major flaws:** little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn

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JHNEBP Evidence Rating Scales

STRENGTH of the Evidence	
Level I	Experimental study/randomized controlled trial (RCT) or meta analysis of RCT
Level II	Quasi-experimental study
Level III	Non-experimental study, qualitative study, or meta-synthesis.
Level IV	Opinion of nationally recognized experts based on research evidence or expert consensus panel (systematic review, clinical practice guidelines)
Level V	Opinion of individual expert based on non-research evidence. (Includes case studies; literature review; organizational experience e.g., quality improvement and financial data; clinical expertise, or personal experience)

QUALITY of the Evidence		
A High	Research	consistent results with sufficient sample size, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence.
	Summative reviews	well-defined, reproducible search strategies; consistent results with sufficient numbers of well defined studies; criteria-based evaluation of overall scientific strength and quality of included studies; definitive conclusions.
	Organizational	well-defined methods using a rigorous approach; consistent results with sufficient sample size; use of reliable **and** valid measures
	Expert Opinion	expertise is clearly evident
B Good	Research	reasonably consistent results, sufficient sample size, some control, with fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence
	Summative reviews	reasonably thorough and appropriate search; reasonably consistent results with sufficient numbers of well defined studies; evaluation of strengths and limitations of included studies; fairly definitive conclusions.
	Organizational	Well-defined methods; reasonably consistent results with sufficient numbers; use of **reliable and valid** measures; reasonably consistent recommendations
	Expert Opinion	expertise appears to be credible.
C Low quality or major flaws	Research	little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn
	Summative reviews	undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results; conclusions cannot be drawn
	Organizational	Undefined, **or** poorly defined methods; insufficient sample size; inconsistent results; undefined, poorly defined or measures that lack adequate reliability or validity
	Expert Opinion	expertise is not discernable or is dubious.

**A study rated an A would be of high quality, whereas, a study rated a C would have major flaws that raise serious questions about the believability of the findings and should be automatically eliminated from consideration.*

Newhouse R, Dearholt S, Poe S, Pugh LC, White K. The Johns Hopkins Nursing Evidence-based Practice Rating Scale. 2005. Baltimore, MD, The Johns Hopkins Hospital; Johns Hopkins University School of Nursing.

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Attachment NK6aa, JHNEBP Non-Research Evidence Appraisal

JHNEBP Non-Research Evidence Appraisal

Evidence Level:_____

ARTICLE TITLE:				NUMBER:
AUTHOR(s):				DATE:
JOURNAL:				
☐ Systematic Review	☐ Clinical Practice Guidelines	☐ Organizational (QI, financial data)	☐ Expert opinion, case study, literature review	

Does review/expert opinion address my practice question?	☐Yes	☐No
If the answer is No, STOP here (unless there are similar characteristics).		
Systematic Review		
• Is the question clear?	☐ Yes	☐ No
• Are search strategies specified, and reproducible?	☐ Yes	☐ No
• Are search strategies appropriate to include all pertinent studies?	☐ Yes	☐ No
• Are criteria for inclusion and exclusion of studies specified?	☐ Yes	☐ No
• Are details of included studies (design, methods, analysis) presented?	☐ Yes	☐ No
• Are methodological limitations disclosed?	☐ Yes	☐ No
• Are the variables in the studies reviewed similar, so that studies can be combined?	☐ Yes	☐ No
Clinical Practice Guidelines		
• Were appropriate stakeholders involved in the development of this guideline?	☐ Yes	☐ No
• Are groups to which guidelines apply and do not apply clearly stated?	☐ Yes	☐ No
• Have potential biases been eliminated?	☐ Yes	☐ No
• Were guidelines valid (reproducible search, expert consensus, independent review, current, and level of supporting evidence identified for each recommendation)?	☐ Yes	☐ No
• Are recommendations clear?	☐ Yes	☐ No
Organizational Experience		
• Was the aim of the project clearly stated?	☐ Yes	☐ No
• Is the setting similar to setting of interest?	☐ Yes	☐ No
• Was the method adequately described?	☐ Yes	☐ No
• Were measures identified?	☐ Yes	☐ No
• Were results adequately described?	☐ Yes	☐ No
• Was interpretation clear and appropriate?	☐ Yes	☐ No
Individual expert opinion, case study, literature review		
• Was evidence based on the opinion of an individual?	☐ Yes	☐ No
• Is the individual and expert on the topic?	☐ Yes	☐ No
• Is author's opinion based on scientific evidence?	☐ Yes	☐ No
• Is the author's opinion clearly stated?	☐ Yes	☐ No
• Are potential biases acknowledged?	☐ Yes	☐ No
PERTINENT CONCLUSIONS AND RECOMMENDATIONS		
Were conclusions based on the evidence presented?	☐Yes	☐No
Will the results help me in caring for my patients?	☐Yes	☐No

Quality Rating (scale on back):

Basic quality rating of the study under review (check one)	☐ High (A)	☐ Good (B)	☐ Low/major flaws(C)

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Strength of Evidence

Level 4

Systematic Review

- Research review that compiles and summarize evidence from research studies related to a specific clinical question
- Employs comprehensive search strategies and rigorous appraisal methods
- Contains an evaluation of strengths and limitations of studies under review

Clinical practice Guidelines

- Research and experiential evidence review that systematically develops statements that are meant to guide decision-making for specific clinical circumstances
- Evidence is appraised and synthesized from three basic sources: scientific findings, clinician expertise, and patient preferences.

Level 5

Organizational

- Review of quality improvement studies and financial analysis reports
- Evidence is appraised and synthesized from two basic sources: internal reports and external published reports.

Expert Opinion, Case Study, Literature Review

- Opinion of a nationally recognized expert based on non-research evidence (includes case studies, literature review, or personal experience).

Quality Rating (Summative Reviews)

A High quality: well-defined, reproducible search strategies; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies, and definitive conclusions

B Good quality: reasonably thorough and appropriate search; reasonably consistent results, sufficient numbers of well-designed studies, evaluation of strengths and limitations of included studies, with fairly definitive results

C Low quality or major flaws: undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results, conclusions cannot be drawn

Quality Rating (Expert Opinion)

A High quality: expertise is clearly evident.

B Good quality: expertise appears to be credible.

C Low quality or major flaws: expertise is not discernable or is dubious.

Appendix B

Evidence Table

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Baldwin (2016). An onboarding program for the CT department	Explore effective methods for onboarding new staff	Literature review	Medline Complete, Academic Search Complete, Business Search Complete, Education Source, PsychInfo, MasterFile Premier, and CINAHL Complete searches yielded 846 articles. 25 selected for review	Research suggested key areas for successful, effective onboarding including support during orientation period to heighten confidence. Logical transition into the new work environment to establish a personal connection.	Level 5 B

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Bredfeldt, C.E., Awad, E.B., Joseph K. & Snyder, M.H. (2013). Training providers: Beyond the basics of electronic health records	Evaluate the impact of post-implementation training designed to optimize physicians' documentation. Two classes covering management of patient-level data and tools to improve computer efficiency	Mixed-methods approach.	Kaiser Permanente, Mid-Atlantic States. Analysis of data from physicians with at least 100 patient visits per month for at least 6 months prior and 6 months after training. 36 training participants and 144 non-participants qualified for inclusion in the evaluation.	The training improved two key EHR skills: (a) medication list management from 41% to 45% of visits, and (b) problem list management from 22% to 24% of visits.	Level 2 B

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Edwards, G., Kitzmiller, R. R., & Breckenridge-Sproat, S. (2012). Innovative health information technology training	Compare training participants' satisfaction with either a traditional instructor-led method (TIL) or blended learning (BL) method	Mixed-methods approach with retrospective, comparative, descriptive, secondary data analysis	Convenience sample (N=85) of emergency department staff at two different facilities from one academically based health care agency	Of the 85 participants, 55 responded to the satisfaction survey (64%). The *t* test results showed no significant difference between the mean learning satisfaction scores for TIL (46.2% of respondents) and BL (58.6% of respondents).	Level 2 B

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Freedman, A.M., Echt, K.V., Cooper, H.L.F., Miner, K.R. & Parker R.M. (2016). Better learning through instructional science: A health literacy case study in "How to teach so learners can learn"	Demonstrate how environmental factors and instructional strategies can provide a foundation for health behavior change programs	Qualitative study. Classroom observations, interviews with students and instructors.	Students (N=21) from an adult literacy center near Atlanta. 20 hours of classroom observation and qualitative interviews with 21 students and 3 instructors	The qualitative data derived from the interviews supported how important environmental factors and instructional strategies are to students' learning. The environment was socially supporting and students were motivated to attend and participate. Some reported improved health and health related behaviors.	Level 5 B

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Laramee, A.S., Bosek M., Kasprisin, C.A. & Powers-Phaneuf, T. (2011). Learning from within to ensure a successful implementation of an electronic health record	Identifying barriers and lessons learned from specialty units within the hospital that recently implemented the EHR	Descriptive exploratory qualitative research design with evaluation surveys.	Rural medical center with trauma level 1 emergency department. 40 self-selected staff participated in 11 focus groups during a 6-week period.	Four major themes were identified: (a) emphasize the benefits of the EHR to the end-user by reminding them it becomes easier over time and takes repetition, (b) management should support staff and encourage self-empowerment with protected time to learn, (c) written instructions (workflows) and clear processes for all types of situations, and (d) friendly, 24/7, customer-focused EHR support that is knowledgeable regarding not only the system but the significance of the clinical data.	Level 3 A

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
McAlearney, A.S., Robbins, J., Kowalczyk, N., Chisolm, D.J. & Song, P.H. (2012). The role of cognitive and learning theories in supporting successful EHR system implementation training: A qualitative study	To determine if organizations that incorporate social cognitive and adult learning theories increase the likelihood of successful implementation of an EHR	Qualitative Study. Inductive and deductive methods to analyze the data. Deductive approach utilized the theoretical framework and inductive searched for themes across the settings.	Included six health care organizations with best practices according to awards and recognition by national agencies. *n*=43 in-person or telephone interviews and six focus groups. Standardized interview tool with questions about training and support	Seven best practices were identified from organizational investment in training and user skills' assessments to continued optimization and re-training.	Level 3 B

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Mitchell, M.L. & Courtney, M. (2005). Improving transfer from the intensive care unit: The development, implementation and evaluation of a brochure based on Knowles' Adult Learning Theory	The aim of the project was to design a brochure, using Knowles' Adult Learning Theory, for nurses to use with family members during in-person discussions regarding transfer from the intensive care unit (ICU)	Mixed design used to collect data. Data collected from nurses and families. Family survey with 11 questions. Nurses were involved in focus groups to prioritize family survey findings for inclusion in the brochure.	Hospital ICU. Convenience sample. *n*=82 family members in the intervention group and *n*=80 in the control group	Results support the use of Knowles' Adult Learning Theory as a foundation for developing educational materials. Nurses used the brochure to individualize the education and facilitate discussion with family members and improved all aspects of transfer from ICU	Level 2 B

STUDY	PURPOSE	METHOD	SETTING & SAMPLE	FINDINGS & RELEVANCE	EVIDENCE STRENGTH & QUALITY
Spies, C., Seale, I. & Botma, Y. (2015). Adult learning: What nurse educators need to know about mature students	Secondary analysis of data to support whether adult learners display characteristics proposed by Malcolm Knowles' Adult Learning Theory.	Qualitative descriptive research design, data gathered by nominal group technique (NGT).	18 out of 21 postgraduate nursing students in South Africa high-fidelity simulation course participated in NGT.	Findings suggest adult learners need environments that are student-centered and reflective to encourage independence and facilitate new meaning for familiar topics.	Level 3 B

Appendix C

DNP Project Approval Form: Statement of Determination

Student Name:__Crystal Figlietti_____

Title of Project: Development of an Electronic Health Record Training Program for Newly Hired Nurses and Staff at Long Term Care Facility

Brief Description of Project:

A) Aim Statement: By January 2016 develop and implement an educational program to teach newly hired staff members how to chart in the EHR in order to meet "Meaningful Use" requirements. (see Appendix A for specific training agendas, based on role: Nursing, Unit Clerks, Physicians – there are other training agendas for Psych, Rehab, Dietary, Activity Therapy, Pharmacy, and Medical Records)

B) Description of Intervention: On-boarding educational program for the EHR consisting of short and concise instruction on the EHR that demonstrates a specific task specific to the staff's daily job duties. Stand-by and on-the-job computer training to be focused on the specific task related to the staff's duties.

C) How will this intervention change practice? Currently, there is no on-boarding process at a 780-bed long-term care facility. The on-boarding is expected to take place during the new hires orientation period and not impact regular floor staffing. Meeting "Meaningful Use" for Stage 1 is required in 2016 and the more Physicians we can help meet the criteria the more incentive money the organization will receive.

D) Outcome measurements: The ability to demonstrate skills at a competent level on the unit. Consisting of chart audits to determine effective and accurate charting in the EHR. Feedback provided individually and with education to target specific documentation "hot topics" (See Appendix B for "Meaningful Use" measures to audit).

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

X☐ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in

the Project Checklist (attached). Student may proceed with implementation.

☐This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title:	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	**X**	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	**X**	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	**X**	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**X**	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	**X**	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**X**	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-*	**Need to reque**	

based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."	**st approval**	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print):

_____Crystal Figlietti_____

Signature of Student:

_____DATE__7/28/15_____

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):

_____

Signature of Supervising Faculty Member (Chair):

_____DATE_____

Appendix A of Statement of Determination

NURSING EMR 1

- Introduction to eCW
  - Scope of Interface
  - Understanding the Basics of eCW

- Overview of the System
  - Menu bar and navigation panel
  - Viewing checked-in appointments on Office Visits screen

- Patient Look Up and look up options

- The Patient Hub: One Stop Shop for Clinical related information
  - Looking up clinical data (Labs, DI)
  - Looking at Logs: Encounters, Fax, eRx
  - Progress Notes, Medical Summary, Rx button, Flowsheets
  - SFDPH elink
  - Creating new information (outside of a visit): TEs

- Telephone Encounters
  - Telephone Encounter Screen
  - Different tabs in the TE (overview)

- The Resource Schedule
  - Review of the Appointment Interface – appts from Invision bedside check-in process
  - Viewing Appts by Resource Code
  - Visits Status auto v/s manual update (ARV, CHK, CANC, LWBS)
    - Invision bedside check-in can only be done on the day of the visit and the Activity Type will be DI (Drop-in)
  - Pertinent info: Provider Name and Resource Code

- The Office Visits Screen
  - Viewing the Schedule on the Office Visits Screen
  - Status and Room
  - Refresh and View Orders
  - Opening the Progress Note

- Progress Note Overview
  - Patient Info at your fingertips:
    - Right Chart Panel
    - Dashboard with clinical data
    - Viewing Pt Docs

NURSING EMR 2

- ☐ Progress Note information and Documentation
  - Vitals
  - Templates and HPI
  - Allergies
  - Immunizations/Therapeutic Injections
  - Viewing Current Medications
  - Viewing History
  - Orders
    - Printing Requisitions for labs and x-ray
    - Printing Education from Healthwise
    - Printing Visit Summaries
    - Transcription

- ☐ Jellybeans
  - T, L (printing lab requisitions)
  - Filtering, how to find the NSG Unit jellybean
- ☐ Cheatsheets
  - Glossary
  - Hub
  - Medication Orders in a Telephone Encounter
  - Overview of LN work in eCW for a patient visit

NURSING Workflows

- ☐ Admission
- ☐ Discharge
- ☐ Verbal Orders
- ☐ Immunizations/PPD administration & reading
- ☐ 24 hour check
- ☐ Monthly recaps
- ☐ Invision appointments

NURSING Unit Clerks EMR 1 & 2

- Introduction to eCW
  - Scope of Interface
  - Understanding the Basics of eCW

- Overview of the System
  - Logging in/out of eCW
  - Menu bar and navigation panel
  - Viewing checked in appointments on provider/resource schedule

- Patient Look Up and look up options

- The Patient Hub: One Stop Shop for Clinical related information
  - Looking up clinical data
  - Looking at Logs: Encounters, Fax, eRx
  - SFDPH elink

- Telephone Encounters
  - Telephone Encounter Screen
  - Different tabs in the TE (overview)
  - Looking Up the assigned TEs

- The Resource Schedule
  - Review of the Appointment Interface
  - Viewing Appts by Resource Code
  - Visits Status auto v/s manual update (ARV, CHK, CANC)
  - Meaningful Use: print visit summary

- The Office Visits Screen
  - Viewing the Schedule on the Office Visits Screen
  - Status (ORD DC) and Room
  - Refresh and View Orders
  - Opening the Progress Note

- Progress Note Overview
  - Patient Info at your fingertips:
    - Right Chart Panel
    - Dashboard with clinical data
    - Viewing Pt Docs

NURSING Unit Clerks EMR 2

- ☐ Progress Note information and Documentation
  - Orders
    - Printing Requisitions for labs and x-ray
    - Printing Education from Healthwise
    - Printing Visit Summaries
    - Transcription

- ☐ Jellybeans
  - T (to get new orders)
  - L (print lab requisition)
  - Filtering
  - Viewing other users' Jellybeans (nursing bucket)

NURSING Unit Clerks Workflows

- ☐ Admission or Annual Visit
- ☐ Provider Ordering in a TE
- ☐ Nursing Verbal Orders

PROVIDER EMR 1 & 2
Duration – 4 hours

Overview of the System – 10 min
- Basics and Interface
- Logging in/out of eCW
- Menu bar and navigation panel

Patient Information – 30 min
- Patient Look Up and look up options
- Patient Demographics
- The Patient Hub: One Stop Shop for Clinical related information
    - Dashboard
    - Grey Buttons
    - Telephone Encounter Screen **Always check Encounters for an open TE before creating one

The Resource Schedule and the interface – 5 min
- Interface from LCR/Invision
- Visit Statuses: SCHED, ARR, ARV, CHK

The Office Visit Screen – 10 min
- Picking resources to display appointments; Toggling between entire clinic and your resource(s)
- Filters and Information
- Change of Status/Room
- Updating Status, Room, Provider

Reviewing Reports/Information – 15 min
- Dashboard (similar to HUB)
- Rt Chart Panel

Progress Note: Subjective and Objective – 30 min
- Importing templates (per workflow)
- Chief Complaint/HPI (Reason from LCR populates the note and the patient portal)
- Current Meds **MU***
- Allergies **MU***
- Review of Histories: PMH, OB-Gyn, Surgical, Past Hosp, Social Family
- Review of Systems
- Examination

B R E A K – 10 min

Progress Note: Assessment – 15 min

- From the Assessment Link: P, PL, Notes
- From Right Chart Panel
- Documenting Problem List or No Known Problems for **MU***
- Browse notes and recommendation for PCP

Progress Note: Treatment – 30 min

- Treatment Window
    - Labs/DIs/Procedures – Future & Today – Lab Aliases – AOEs – Printing
    - Rx –Add Rx, Refill, or Stop medication. Sending Rx-eRx for **MU***
    - Education **MU***
    - Always document e-referral submission
    - Printing requisitions
- SFDPH eLink/ e-referral: always document e-referral submission in eCW, Enterprise Medication List
- Order Sets – Rt Chart Panel
    - Must return to Progress Note to complete AOEs
    -

Progress Note: Shortcuts – 20 min (optional)

- Carets
- Personal Exam Charting

Progress Note: End of Visit – 15 min

- Printing the Visit Summary **MU***
- Billing Codes (E&M for **MU***)
- Attesting Real Time (according to workflow)
- How to lock a note
- How to find unlocked/unfinished notes
- How to assign a note

Jellybeans – 15 min

- Group Jellybeans, Filtering, Checking other users' boxes, T letter and S letter

Appendix B of Statement of Determination

Meaningful Use (Stage 1) Chart Audits (Excel Spreadsheet):

- Vitals signs/correct units
- Smoking status
- Problem list present
- Meds Verified
- Allergies Verified
- Transition of Care checked (for Admissions)
- Visit summary printed
- Patient education printed
- eRx prescription if applicable
- Visit code added
- Who is the appointment provider?
- Is the note locked/ who locked it?

Appendix D

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Crystal Figlietti** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 03/20/2016.

Certification Number: 2017028.

Appendix E

Your responses to this voluntary survey assist us with creating educational programs for the new electronic health record. Please do not put your name on this survey.

1) How would you rate your confidence with a computer?

a. never touch a computer
b. average (email, search the internet)
c. proficient (email, internet, use multiple computer programs)

2) How much experience do you have with an electronic health record?

a. currently using an electronic health record
b. used at least one electronic health record at a previous job
c. used multiple electronic health records at previous jobs

3) Given the material covered, the length of the training was:

a. too long
b. too short
c. just right

4) I would prefer this training to be:

a. 2 hours
b. 4 hours
c. divided over a few days
d. 8 hours
e. longer

5) Your age group:

a. 21-29
b. 30-39
c. 40-49
d. 50-59
e. 60 and over

6) What type of support will be important to use eCW effectively in your work? (Check all that apply)

a. in-person support
b. printed instruction sheets
c. access to computer lessons
d. email support

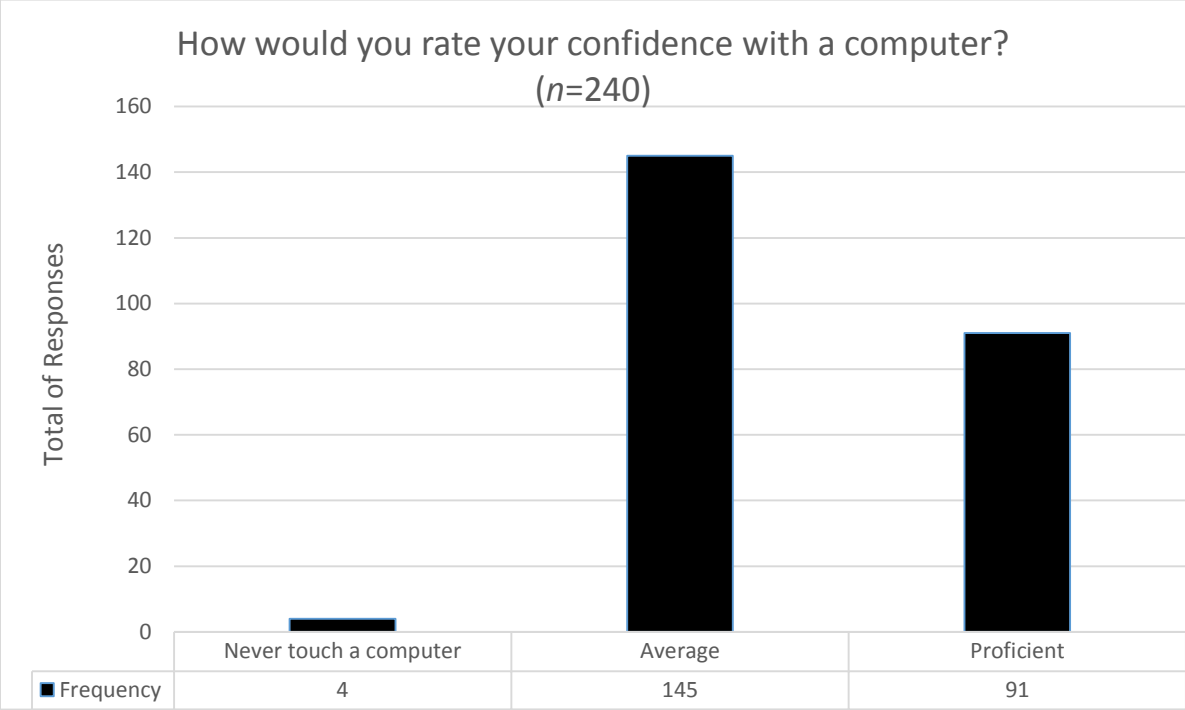
7) What was the most useful topic covered in today's training?

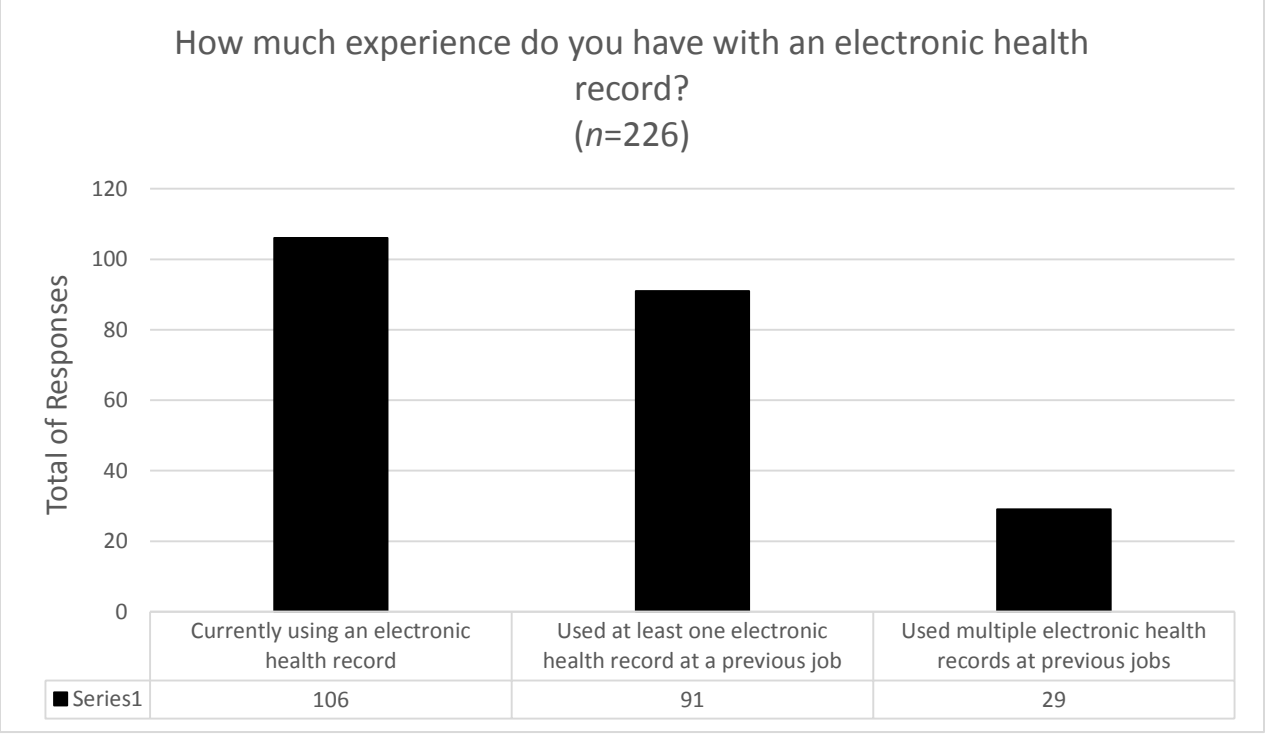
a. eCW overview
b. Navigate Patient Hub
c. Navigate Progress Note
d. Nursing workflows

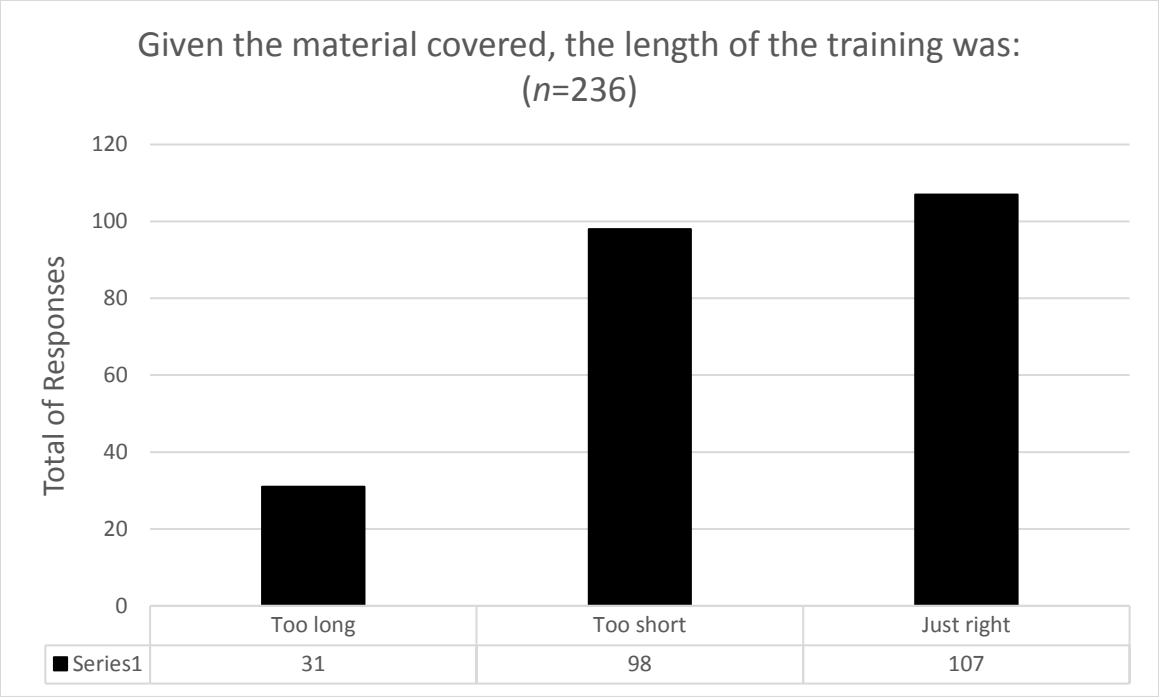
8) What was the least useful topic covered in today's training?

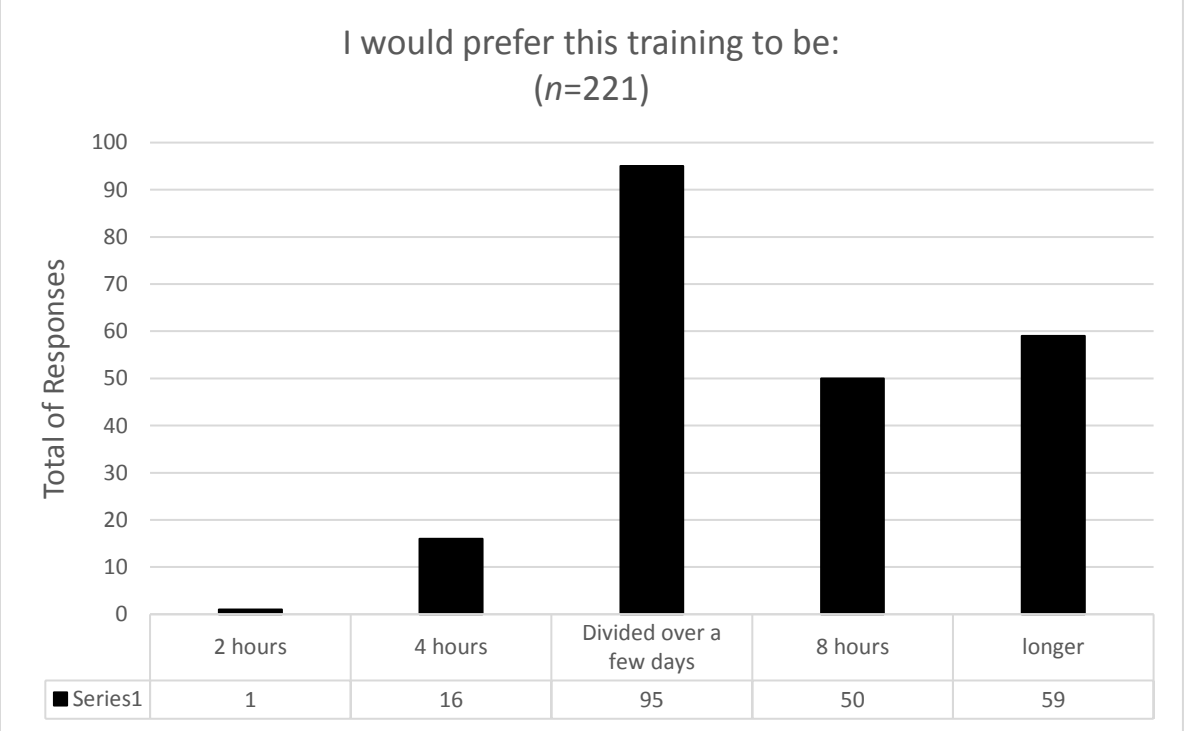
a. eCW overview
b. Navigate Patient Hub
c. Navigate Progress Note
d. Nursing workflow

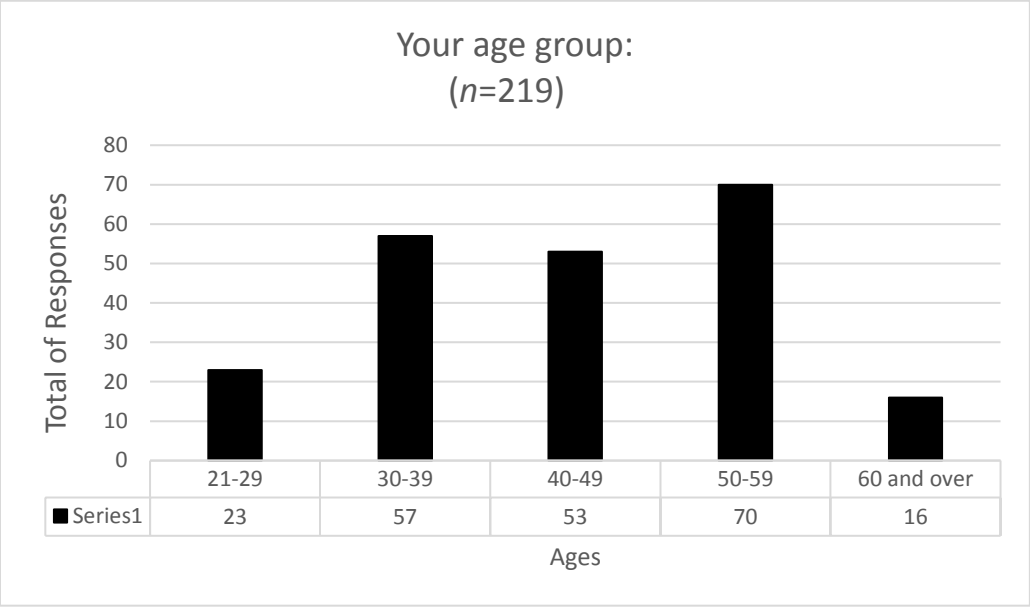
Appendix F

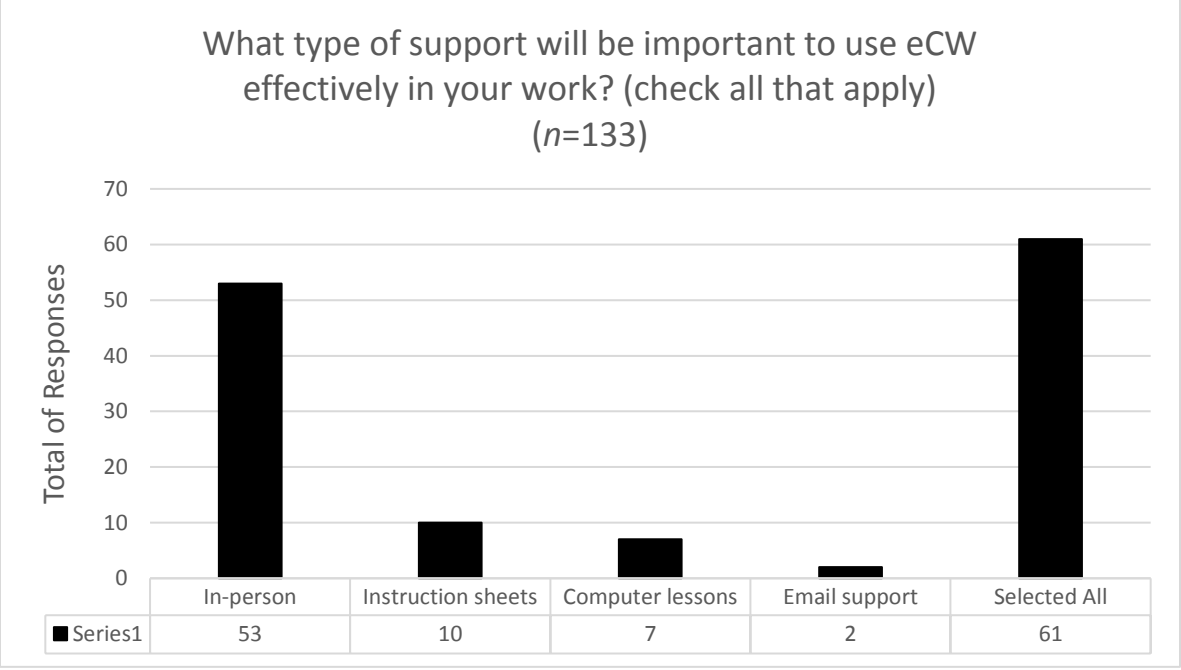

How would you rate your confidence with a computer?
(n=240)
Total of Responses
160
140
120
100
80
60
40
20
0
Never touch a computer
Average
Proficient
Frequency
4
145
91

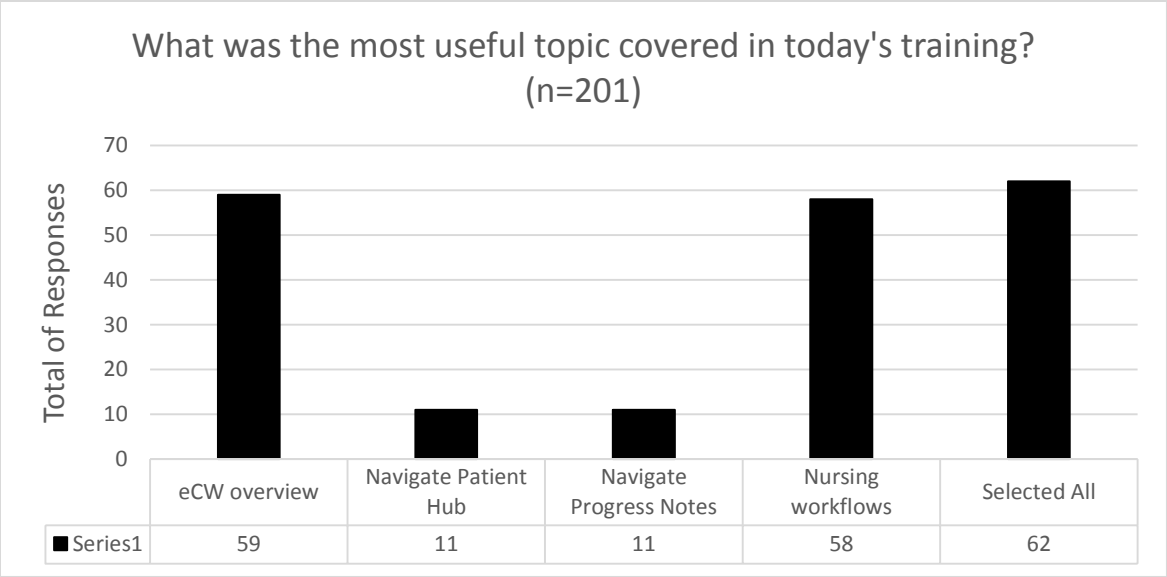

How much experience do you have with an electronic health record?
(n=226)
Total of Responses
120
100
80
60
40
20
0
Currently using an electronic health record
Used at least one electronic health record at a previous job
Used multiple electronic health records at previous jobs
Series1
106
91
29

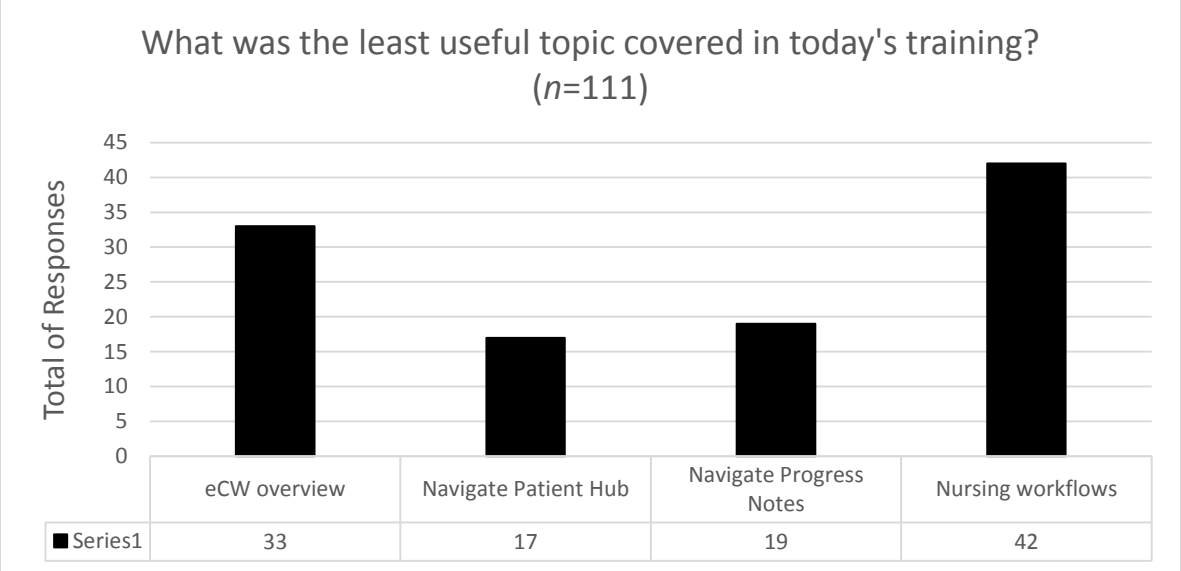

Given the material covered, the length of the training was:
(n=236)
Total of Responses
120
100
80
60
40
20
0
Too long
Too short
Just right
Series1
31
98
107


I would prefer this training to be:
(n=221)
Total of Responses
100
90
80
70
60
50
40
30
20
10
0
2 hours
4 hours
Divided over a few days
8 hours
longer
Series1
1
16
95
50
59


Your age group:
(n=219)
Total of Responses
80
70
60
50
40
30
20
10
0
21-29
30-39
40-49
50-59
60 and over
Series1
23
57
53
70
16
Ages


What type of support will be important to use eCW effectively in your work? (check all that apply)
(n=133)
Total of Responses
70
60
50
40
30
20
10
0
In-person
Instruction sheets
Computer lessons
Email support
Selected All
Series1
53
10
7
2
61


What was the most useful topic covered in today's training?
(n=201)
Total of Responses
70
60
50
40
30
20
10
0
eCW overview
Navigate Patient Hub
Navigate Progress Notes
Nursing workflows
Selected All
Series1
59
11
11
58
62

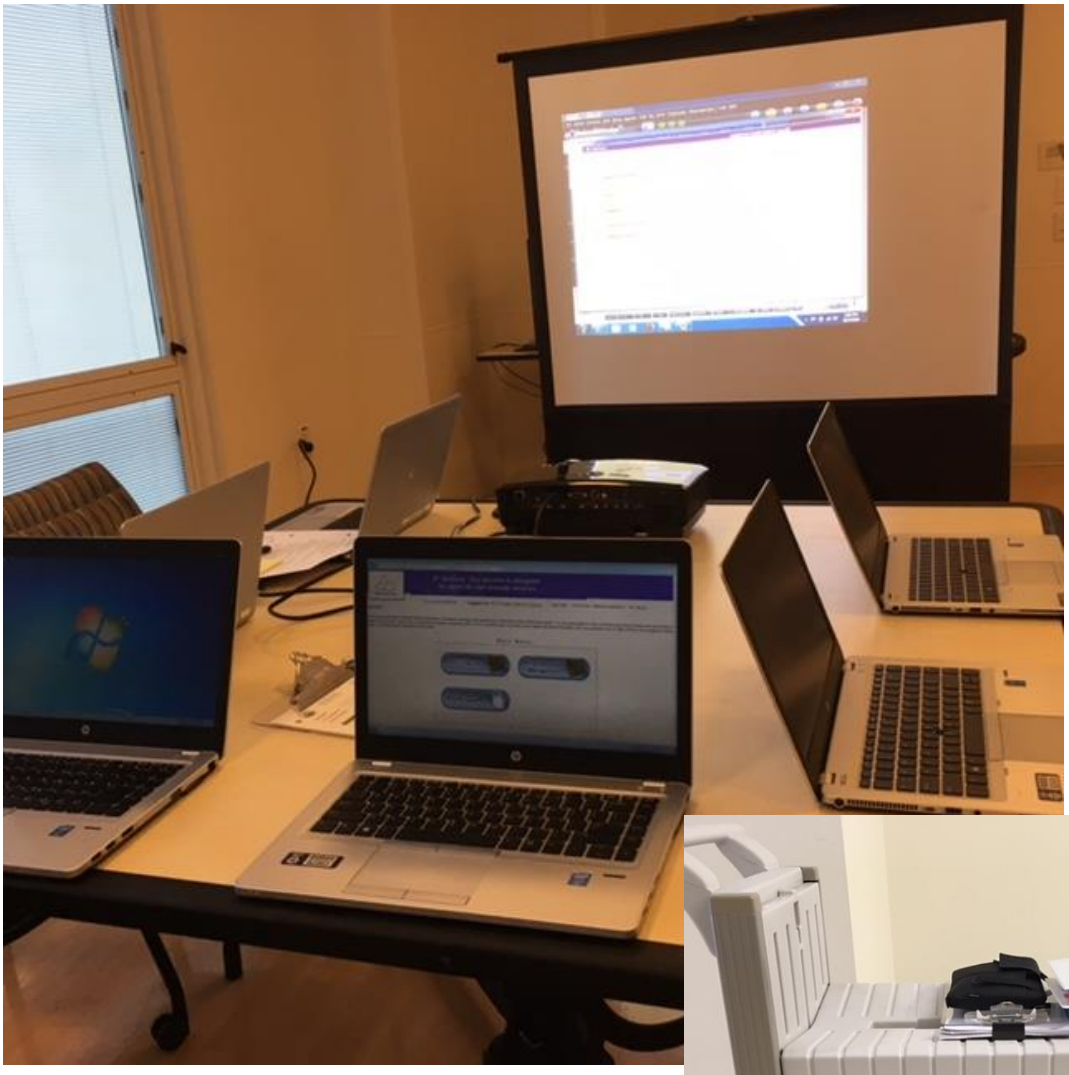

What was the least useful topic covered in today's training?
(*n*=111)
Total of Responses
45
40
35
30
25
20
15
10
5
0
eCW overview
Navigate Patient Hub
Navigate Progress Notes
Nursing workflows
Series1
33
17
19
42

Appendix G

Computer Lab

Appendix H

Mobile Computer Classroom



Appendix I

Training Agenda

eClinicalWorks Essentials for Nursing

- Day 1 and 2
    - Introduction
    - eCW Resources on the intranet
    - Appointments – Check-in
    - Office Visits screen – navigate and view daily schedule
    - Progress note
        - Tobacco Screening
        - Allergies
        - Vital Signs
        - Medication transcription
    - Resource Schedule – Check-out
    - Patient HUB – navigate Hub buttons
        - Labs and Diagnostic Imaging
        - Immunizations
        - Allergies
        - Medical Summary, Rx, ePrescription Logs
        - Problem List
        - Patient Documents (Advance Directives)
        - Encounters
        - Progress Notes
        - New Telephone Encounter
    - Telephone Encounters
        - Key Elements
        - Nursing Verbal Orders
    - Checking the Nursing Jelly Bean for medication orders
        - Set up Favorites
    - Overview
        - Medication orders can come from
            - Office Visits
            - Telephone Encounters in nursing jelly bean
            - Nursing verbal orders in telephone encounters
            - Clinic order in a progress note
    - eCW Account and Password distribution

---

eCW pager 415-xxx-xxxx Support Monday – Friday 8:00 to 4:00 pm (except holidays)
Intranet website: Reference sheets, workflows, in-service presentations, contact information

Appendix J

Hospital and Rehabilitation Center

eClinicalWorks (eCW) Progress Note

LICENSED NURSES SKILLS CHECK LIST

EMPLOYEE NAME: _____ **Shift** (circle): Days Evenings Nights

Last First

ASSIGNMENT REGULAR STAFF (neighborhood _____) Competency #_____/3__

Directions: Licensed Nurse must be able to demonstrate or verbalize the steps in the eCW Progress Note Review S = Satisfactory U = Unsatisfactory

INDICATOR	S	U	COMMENTS
Create an appointment in Invision/LCR			
Documentation in a Progress Note			
1. Smoking Status: merge in **Tob Screening* template from the Right Chart Panel. Fill in tobacco screening questions.			
2. Allergies: indicate a patient has no known allergies or add allergies. Nurse update only upon Admission.			
3. Vital Signs: document vital signs (BP, HR, RR, T, O2 sat, Ht, Wt, pain).			
Carry Out Orders after ORD DC			
1. Transcription: carry out orders from the treatment section of the progress note verbatim and include the diagnosis/indication and associated notes. Do not transcribe DDR (duration, dispense & refill).			
2. Physician Order Sheet: write a nursing order on the physician order sheet "See eCW for ___" when stop/discontinued meds ordered. License Nurse must co-sign Unit Clerk nursing order.			
3. Document Transcription: document in the treatment section under the others tab of an open progress note with name, title, date, and time. Document as an Addendum in a locked progress note. License Nurse must co-sign transcriptions completed by the Unit Clerk.			
4. Off hours - print visit summary (check Medication and Allergies) for the Nursing Supervisor to obtain meds from the secure drug cabinet if off hours.			
Check-out Patient			
1. Resource schedule: check-out patient; gold (CHK).			

DESCRIBE ALL INDICATORS WHEN UNSATISFACTORY IS CHECKED:

Meets standards for eCW Progress Note skills competence _____
Does not meet standards for eCW Progress Note skills competence _____

NAME/TITLE OF OBSERVER_____ DATE _____

REFERRAL FOR Licensed Nurse: WHO DOES NOT MEET eCW Verbal Order SKILLS COMPETENCY:

REFERRED TO: _____, NURSE MANAGER/NURSING SUPERVISOR ON (DATE) _____FOR FOLLOW UP.

Signed: _____

NURSE MANAGER/NURSING SUPERVISOR FOLLOW UP ACTIONS:

Date: _____ Reassess competency

Date: _____ Consult with DET regarding education plan

Date: _____ Consult with Human Resources regarding performance standards

OTHER:

NURSE MANAGER/NURSING SUPERVISOR_____ DATE _____

Hospital and Rehabilitation Center

eClinicalWorks (eCW) Verbal Order

LICENSED NURSES SKILLS CHECK LIST

EMPLOYEE NAME: _____ **Shift** (circle): Days Evenings Nights

Last First

ASSIGNMENT REGULAR STAFF (neighborhood _____) Competency #_____/3__

Directions: Licensed Nurse must be able to demonstrate or verbalize the steps in the eCW Verbal Order Review S = Satisfactory U = Unsatisfactory

INDICATOR	S	U	COMMENTS
Search for patient using the Patient Lookup button to access the Patient Hub and open a new Telephone Encounter (TE)			
Documentation in a Telephone Encounter			
4. Reason: type or select Nsg Verbal Order in the reason field. Add the neighborhood in front of the reason. Add "Ready for 24 hr check" if transcribing now. Ex: Nsg Verbal Order – Ready for 24 hr check			
5. Action Taken: select "Nursing Verbal Order" via browse and update with the appropriate order information. Add "RN/LVN Transcription completed" at this time, if transcribing now.			
Documentation in the Virtual Visit tab, Treatment section			
5. Current Rx: stop/discontinue a medication.			
6. New Rx: add a new medication, edit medication via e-sig window, leave DDR (duration, dispense and refill) field blank.			
7. Enter a stop date in the treatment window for one-time and short term medications.			
Carry Out Orders			
2. Transcription: carry out orders from the treatment section of the progress note verbatim and include the diagnosis/indication and associated notes. Do not transcribe DDR (duration, dispense & refill).			
3. Physician Order Sheet: write a nursing order on the physician order sheet "See eCW for _____ order." All TE orders, write "N.O. See eCW for new/stop order (med name)." License Nurse must co-sign Unit Clerk nursing order.			
4. Document Transcription: Update the reason field with "Ready for 24 hour check." Document in Action Taken under the Message tab with "RN/LVN Transcription completed." License Nurse must co-sign transcriptions by the Unit Clerk.			
Assign To: assign the TE to the pharmacy			
Leave TE status as Open and click Ok			

DESCRIBE ALL INDICATORS WHEN UNSATISFACTORY IS CHECKED:

Meets standards for eCW Verbal Order skills competence _____
Does not meet standards for eCW Verbal Order skills competence _____

NAME/TITLE OF OBSERVER_____ DATE _____

REFERRAL FOR Licensed Nurse: WHO DOES NOT MEET eCW Verbal Order SKILLS COMPETENCY:

REFERRED TO: _____, NURSE MANAGER/NURSING SUPERVISOR ON (DATE) _____FOR FOLLOW UP.

Signed: _____

NURSE MANAGER/NURSING SUPERVISOR FOLLOW UP ACTIONS:

Date: _____ Reassess competency

Date: _____ Consult with DET regarding education plan

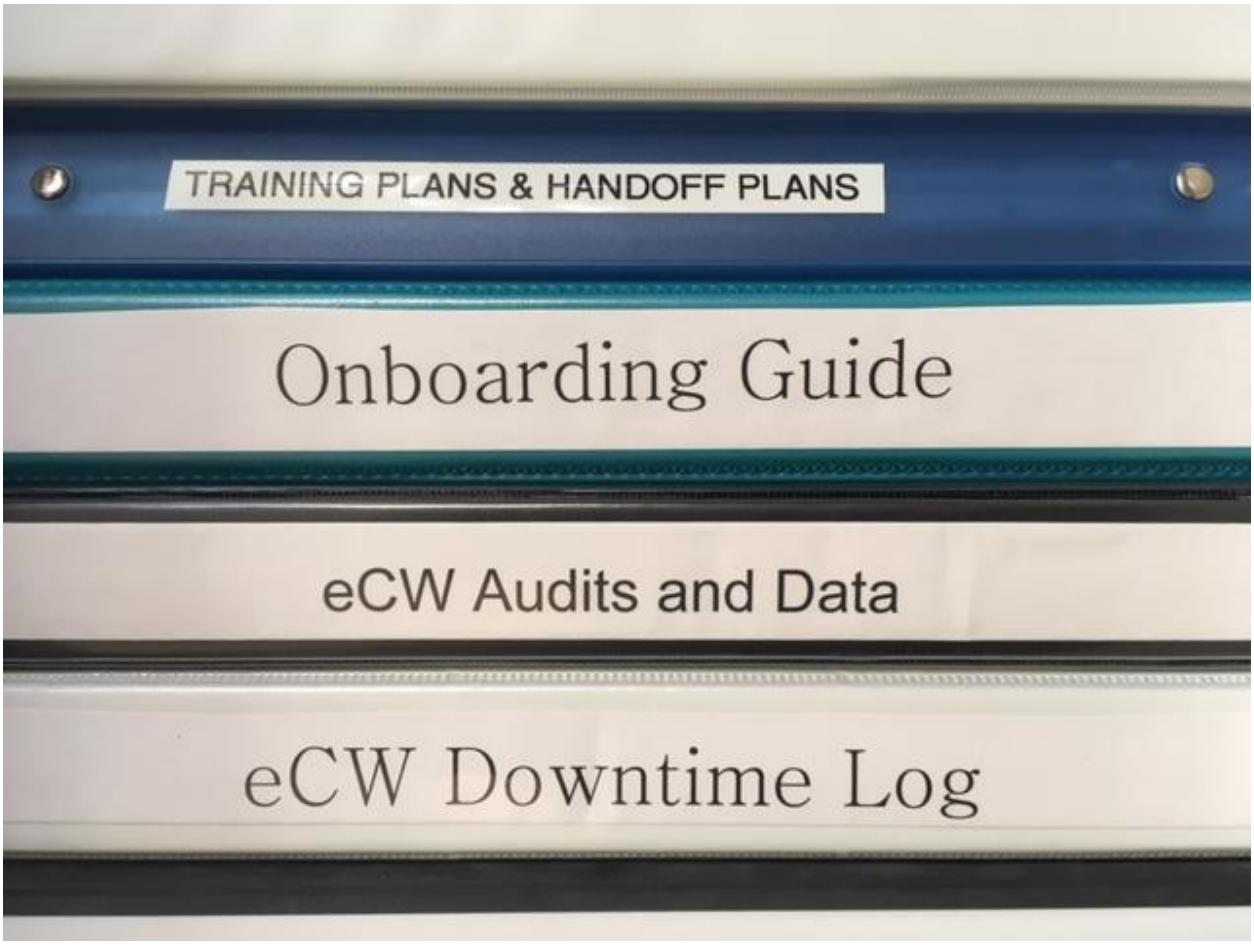
Date: _____ Consult with Human Resources regarding performance standards

OTHER:

NURSE MANAGER/NURSING SUPERVISOR_____ DATE _____

Appendix K

Training and Support Binders



Appendix L

Training Plan

Name Name **Today's Date** Pick date from drop down

Location Location **Date(s) of Training** Dates of Training

Before the Training

What is the goal of the training, and how does it advance our top priority?

Goals of Training

What will we do in the training to achieve the goal? (Discussion? Presentation? Demonstration? Brainstorming? Other?)

Style of training

Training Agenda

Topics	Responsible	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date

Hand-outs List

Hand-out

Hand-out

Hand-out

Hand-out

Hand-out

Equipment List

☐**Reserve Room**

☐**Projector**

☐**Screen**

☐**Laptops**

☐**Power Cords**

☐**Surge Protector(s)**

☐**Sound**

☐**Presentation**

Notes: Notes

Handoff Plan

Name Name **Today's Date** Pick date from drop down

Handoff Handoff Type **Dates of Handoff** Timeframe

Upcoming

What is anticipated and when?

Upcoming

Upcoming

Upcoming

Upcoming

Upcoming

Upcoming Schedule

Topics	Responsible	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date
Topic	Name	Date

Pending Items

Pending

Pending

Pending

Pending

Appendix M

Expenses

Direct Expenses	
Train-the-trainer Training 3-weeks	$ 5,500
Income 3-weeks Informatics RN ($68/hr)	$ 8,160
Travel Expenses (mileage and tolls)	$ 980
Laptops (9)	$11,900
Photo copies Hand-outs (20 per person x 109 people: $0.05 each)	$ 109
Creation of training materials (part of typical job duties)	$ 0
Subtotal Direct Expenses	***$26,649***
Indirect Expenses	
Computer Lab	$ 0
Mobile Classroom cart	$ 0
Subtotal Indirect Expenses	***$ 0***
Total Project Budget	**$26,649**

Appendix N

Table 1			
Meaningful Use Incentive Revenue[a]	**2015**	**2016**	**2017**
Adoption and Implementation: $21,250/Provider – 20 Providers	$425,000	$0	$0
Year 2 – 6: $8,500/Provider – 20 Providers	$0	$170,000	$170,000
Estimated Gross Revenue	$425,000	$170,000	$170,000
Personnel Expenses			
EHR Certification/re-certification Trainer 1	$5500	$1000	$1000
Trainer 1 Pay for certification: $68/hr	$8160/ 3 weeks	$1088/2 days	$1088/2 days
Trainer 2 Recertification	$1000 (Trained during implementation)	$1000	$1000
Trainer 2 Pay for Recertification: $68/hr	$1088/2 days	$1088/2 days	$1088/2 days
Trainer: 1040 hrs/yr $68/hr	$0	$70,720	$70,720
Newly hired staff Average 140[b]/ year Average $51/hr 8 hrs of training	$0	$57,120	$57,120
Estimated Total Personnel Expenses	$15,748	$132,016	$132,016
Operating Expenses			
Training Materials Creation (80 hrs/ $68/hr)	$5,440	$0	$0
Handouts (20 per person: $0.05 each)	$0	$140	$140
Subtotal Operating Expenses	$5,440	$140	$140
Estimated Total Expenses	$21,188	$132,156	$132,156
Difference	$403,812	$37,844	$37,844

Notes. [a]Based on information from Chief Medical Officer (CMO) “Meaningful Use” presentation.
[b]Based on information from Nursing Orientation Coordinator.

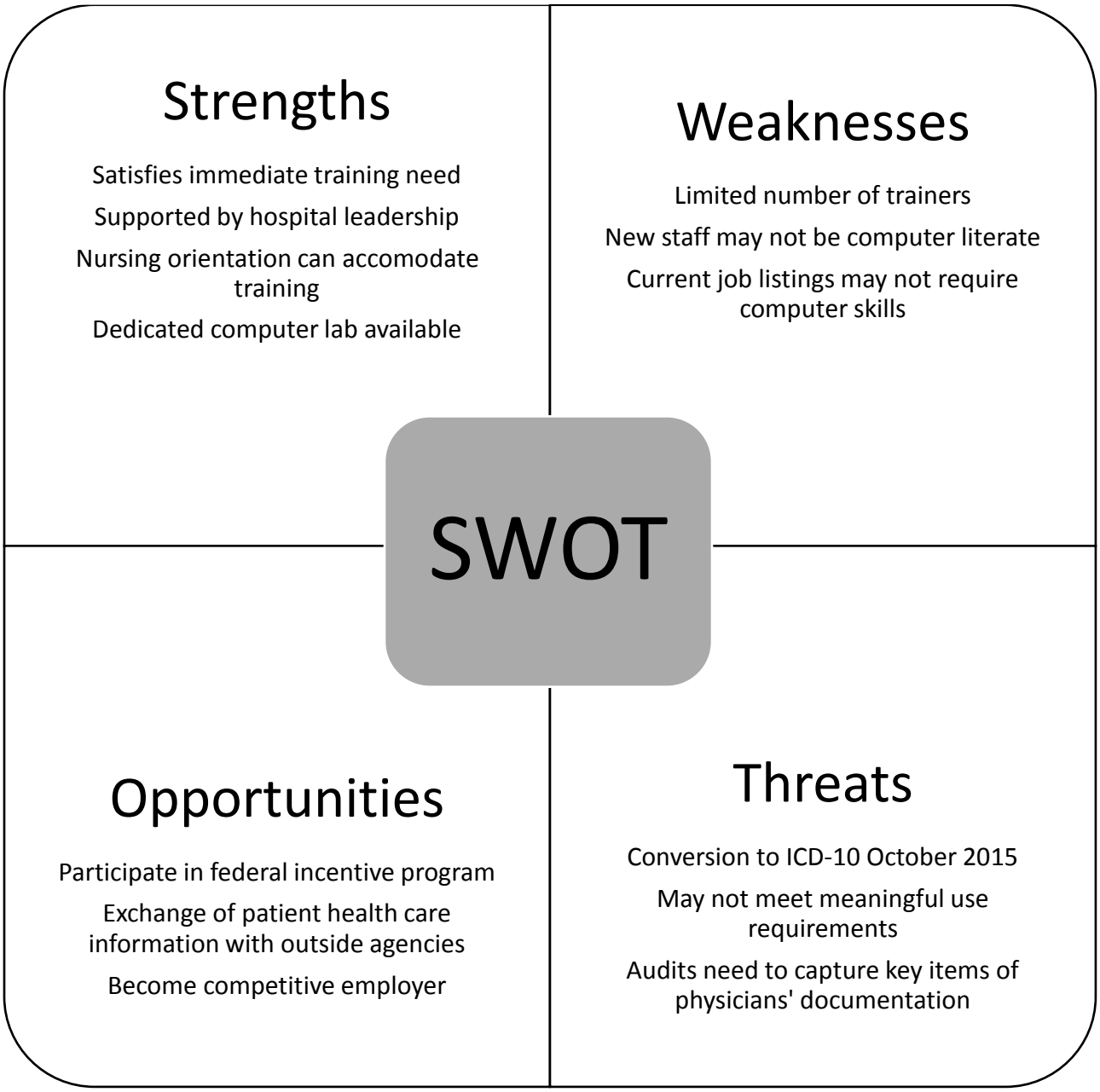
Appendix O

Project Timeline for Development of Electronic Health Record Training Program

	2015								2016								
Event	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct
Select project																	
Select committee chair																	
DNP Statement of Determination																	
Invite Dr. Cathy Coleman																	
Attended Train-the trainer																	
Conduct trainings																	
Submit Prospectus																	
Submit Manuscript																	
Submit to CIN																	
Survey all shifts; analyze data																	
Attend leadership training																	
CIN accepted article with revisions																	
CIN revisions submitted																	
Survey new RNs; analyze data																	
Submit final DNP paper																	

Appendix P

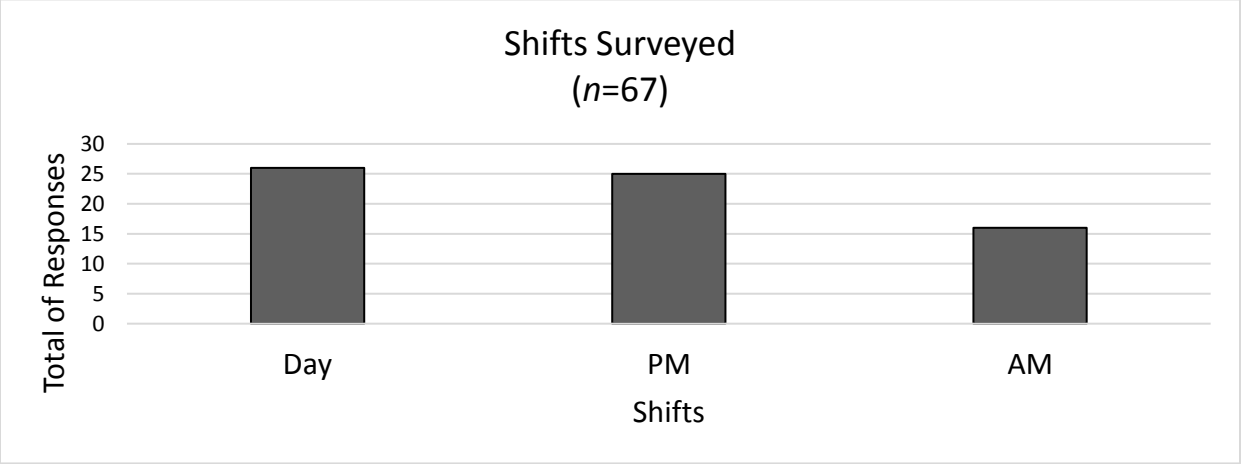
SWOT

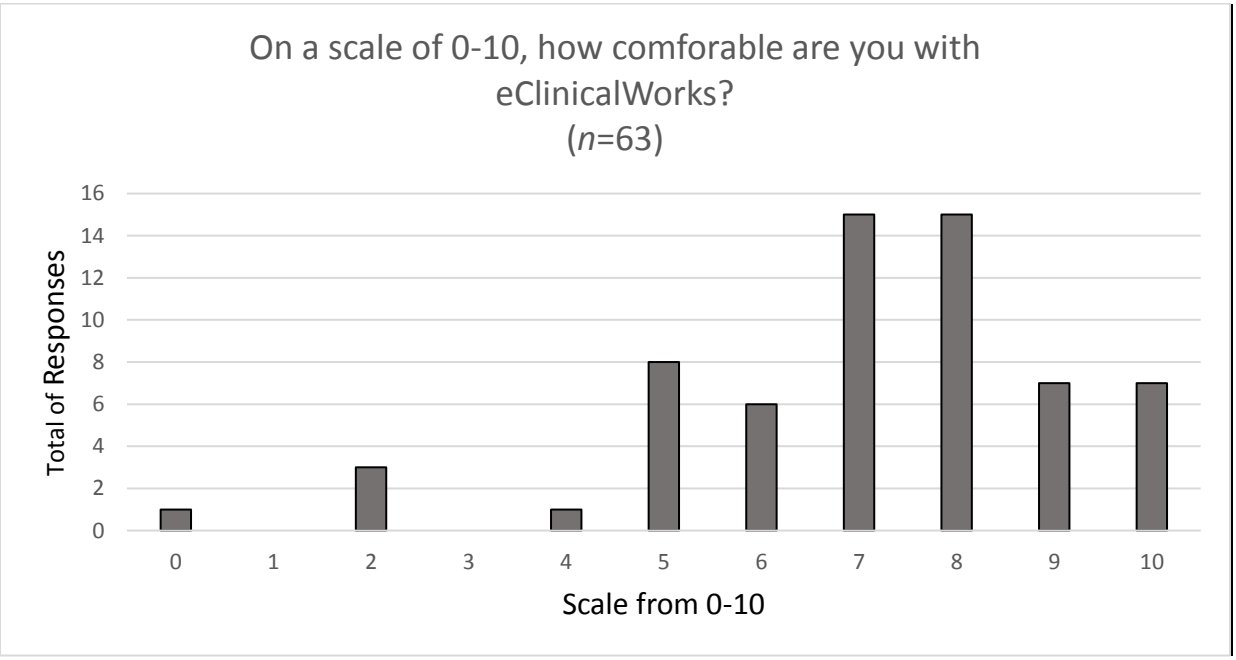


Appendix Q

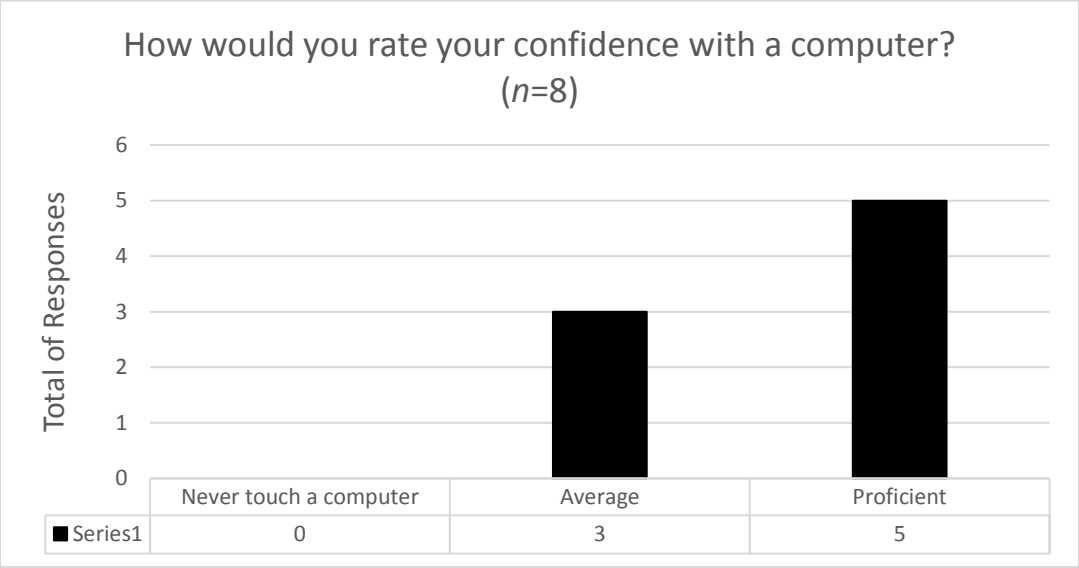
Survey Graph Results

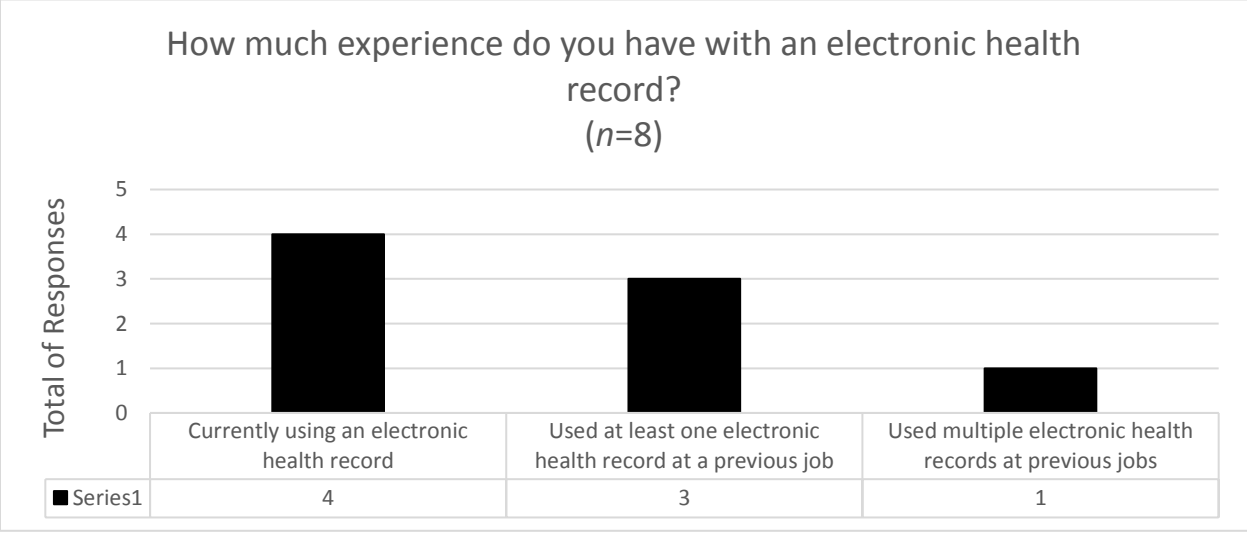
A survey conducted nine months after EHR implementation and with on-going support and training.

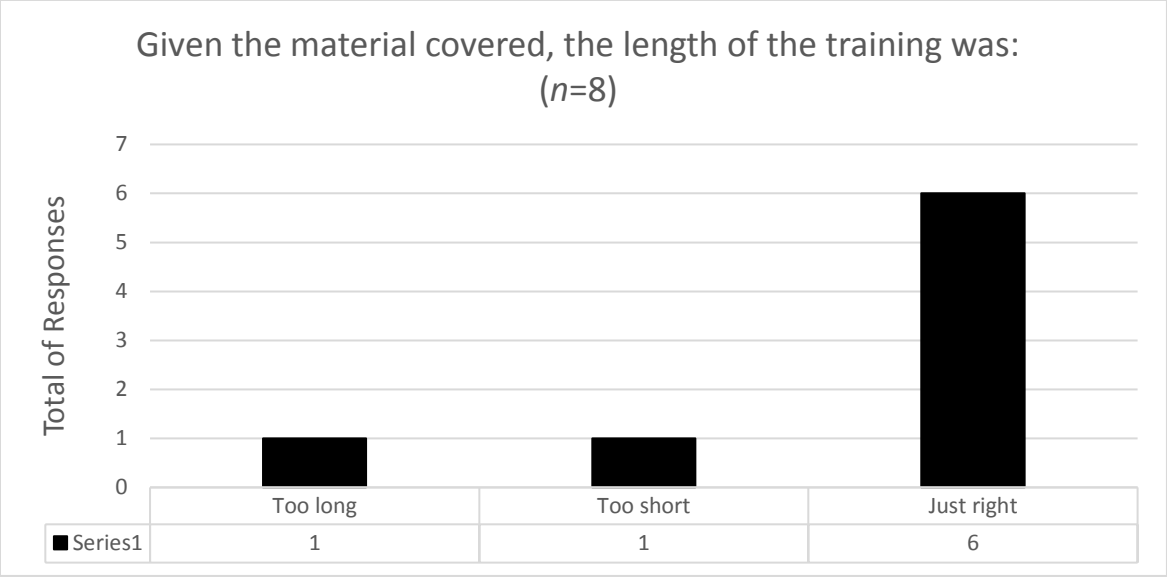


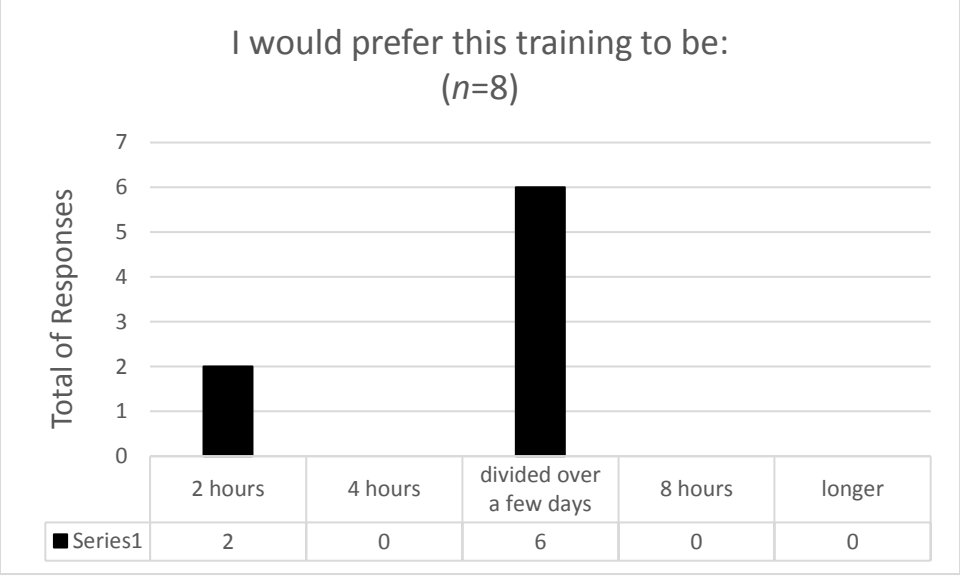


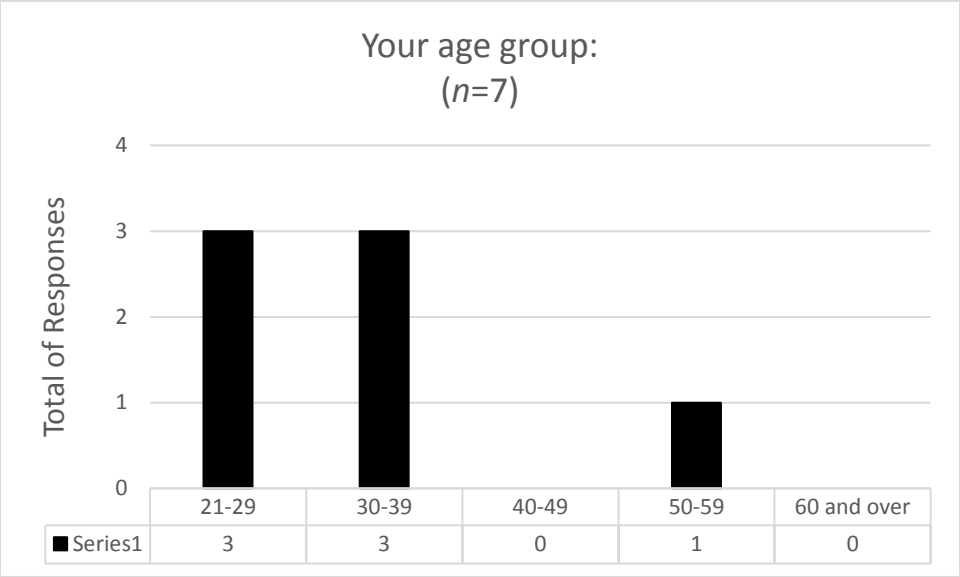
Appendix R

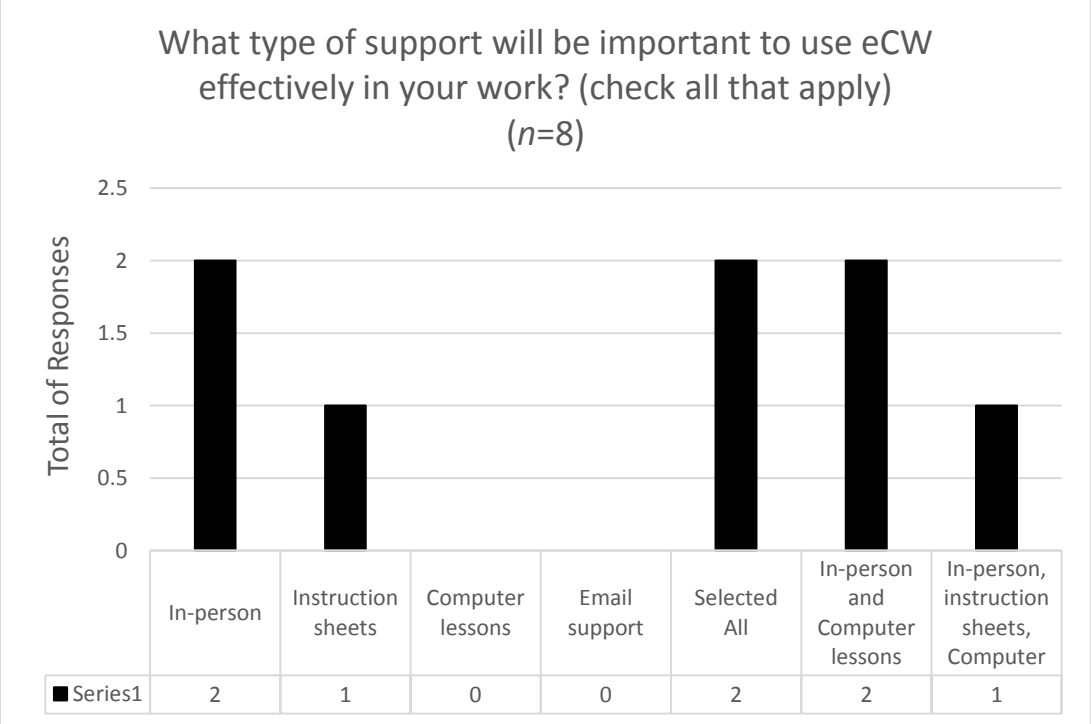

How would you rate your confidence with a computer?
(n=8)
Total of Responses
6
5
4
3
2
1
0
Never touch a computer
Average
Proficient
Series1
0
3
5

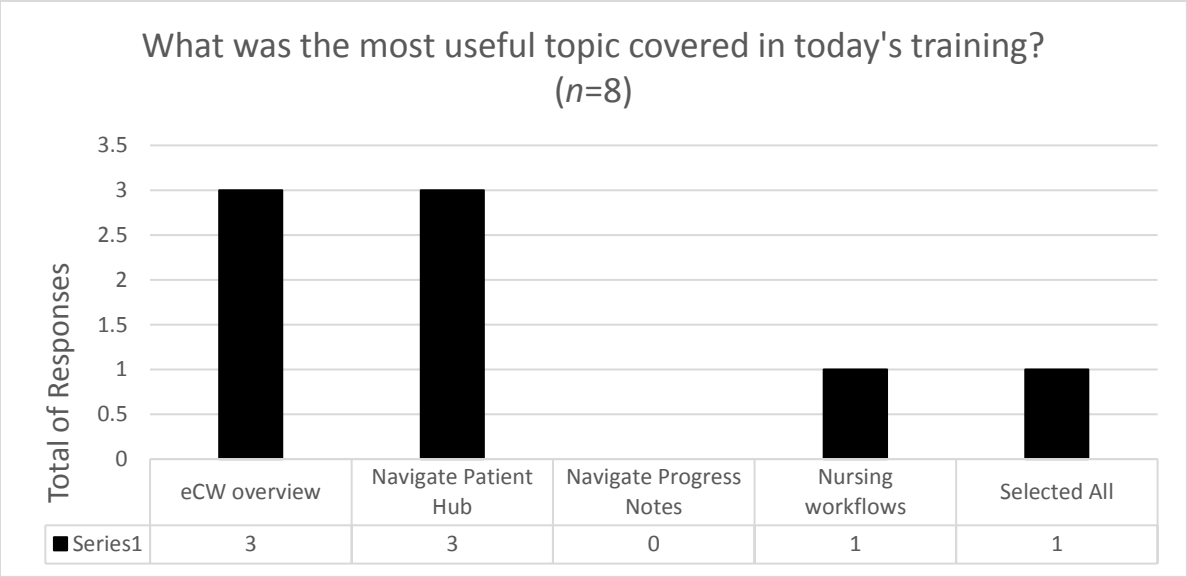

How much experience do you have with an electronic health record?
(n=8)
Total of Responses
5
4
3
2
1
0
Currently using an electronic health record
Used at least one electronic health record at a previous job
Used multiple electronic health records at previous jobs
Series1
4
3
1

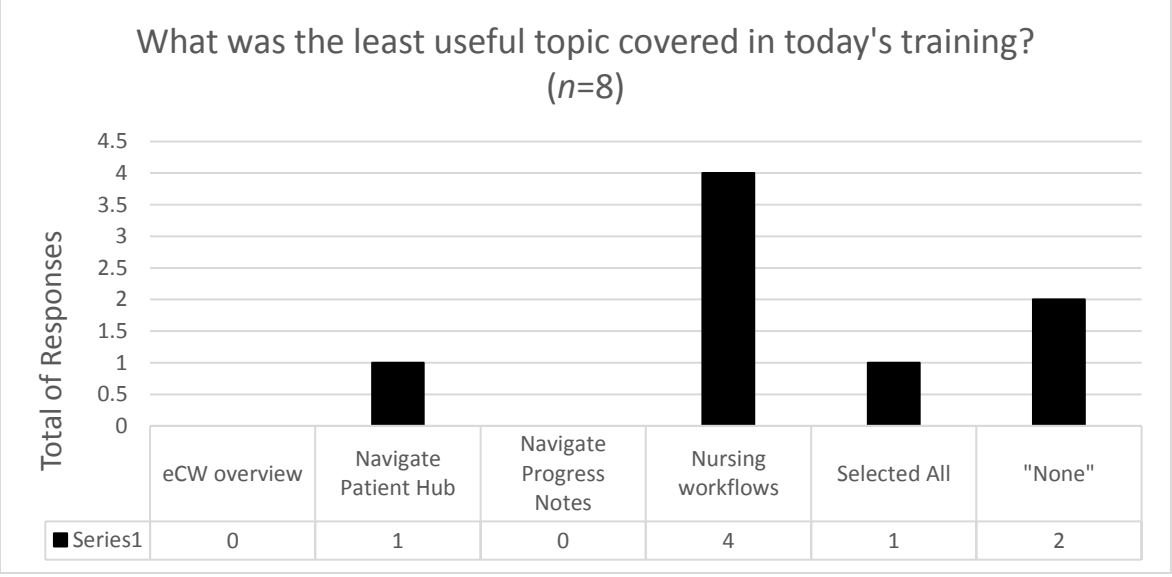

Given the material covered, the length of the training was:
(n=8)
Total of Responses
7
6
5
4
3
2
1
0
Too long
Too short
Just right
Series1
1
1
6


I would prefer this training to be:
(n=8)
Total of Responses
7
6
5
4
3
2
1
0
2 hours
4 hours
divided over a few days
8 hours
longer
Series1
2
0
6
0
0


Your age group:
(n=7)
Total of Responses
4
3
2
1
0
21-29
30-39
40-49
50-59
60 and over
Series1
3
3
0
1
0


What type of support will be important to use eCW effectively in your work? (check all that apply)
(n=8)
Total of Responses
2.5
2
1.5
1
0.5
0
In-person
Instruction sheets
Computer lessons
Email support
Selected All
In-person and Computer lessons
In-person, instruction sheets, Computer
Series1
2
1
0
0
2
2
1


What was the most useful topic covered in today's training?
(n=8)
Total of Responses
3.5
3
2.5
2
1.5
1
0.5
0
eCW overview
Navigate Patient Hub
Navigate Progress Notes
Nursing workflows
Selected All
Series1
3
3
0
1
1


What was the least useful topic covered in today's training?
(n=8)
Total of Responses
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
eCW overview
Navigate Patient Hub
Navigate Progress Notes
Nursing workflows
Selected All
"None"
Series1
0
1
0
4
1
2