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The Effect of a Multifaceted Reminder Intervention on Nursing Documentation Completeness

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THE EFFECT OF A MULTIFACETED REMINDER INTERVENTION ON NURSING

DOCUMENTATION COMPLETENESS

by

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EVIDENCE-BASED PRACTICE PROJECT REPORT

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DEDICATION

This project is dedicated to my parents, who have instilled an unwavering work ethic and my desire to succeed since I was a young child. I feel beyond fortunate to have had their reassurance and support through all of my endeavors. I would also like to dedicate this project to my grandparents for encouraging continued education and allowing me the opportunity to achieve my goals.

ACKNOWLEDGMENTS

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ABSTRACT

Nationwide, nurses must withstand growing patient assignments and increased workloads. The consistency between nursing documentation and technical nursing interventions performed indicates that registered nurses provide much more care than they record. This incongruence has the potential to impact patient safety, but also has significant financial implications, since reimbursement is linked to documented services. The purpose of this EBP project was to implement a multifaceted reminder intervention (including a 10-minute PowerPoint and visual reminder) in an IMCU setting to assist the nursing staff ($n = 38$) in completing the HAPU documentation components. John Kotter's Eight-Stage Process and the Iowa Model of EBP were used to guide this project. Retrospective HAPU audit scores from May, June and July 2015 were compared to audit scores from the intervention implementation months of September, October, and November 2015. Statistically signification improvements ($p = .05$) were found in 'documentation of Braden scale on admission and every shift' ($p = .000$) and 'wound preventions supplies in room and in use with documentation' ($p = .002$). Statistically significant decreases were also noted in 'full body assessments on admissions and transfers' ($p = .000$) and 'ear protectors applied and documented' ($p = .000$). Because there is limited published data regarding strategies to enhance nursing documentation, the results of this EBP project will add to the current literature and highlights the need for further intervention. Furthermore, changes could to be made to current electronic health record systems to meet the workflow requirements of nurses.

Key Words: nursing documentation, reminder systems, HAPU, Hospital-Acquired Pressure Ulcer, audits

CHAPTER 1

INTRODUCTION

Background

The quality of nursing documentation has a major impact on the legal

implications of a patient's care as well as hospital reimbursement. While comprehensive

nursing documentation implies appropriate nursing care, appropriate nursing care does

not always result in comprehensive nursing documentation (Grazia De Marinis et al.,

2010). Registered nurses must withstand growing patient assignments, with direct-care

registered nurses averaging six or more patients on three or more days per week (Furst

et al., 2013). On average, a single nurse will care for more than 750 patients per year,

all of whom require comprehensive, individualized, and consistent nursing

documentation within the patient's electronic health record (EHR) to avoid litigation

(Furst et al., 2013; Monarch, 2007). Moreover, nurses working in acute care areas

report spending up to 50% of their shift documenting, while nurses on other, less

intensive units spend up to 19% of their shift on documentation (Blair & Smith, 2012;

Evatt, Ren, Tuite, Reynolds, & Hravnak, 2014). The time required to document often

results in a combination of less time spent with patients, working over-time to complete

nursing documentation, and missed or deficient nursing documentation because of time

constraints (Blair & Smith, 2012).

Because of the increasing demands placed upon nurses, it is not surprising that

documentation is consistently lacking in certain areas (Grazia De Marinis et al., 2010).

Common areas of deficiency include (a) wound characteristics and pressure ulcers, (b)

pain assessments, (c) psychosocial aspects of care, (d) patient preferences, (e) quality

of life, (f) cognitive impairment, (g) interventions for chronic heart failure, (h) evaluation

of palliative care, (i) activities of daily living, (j) and education (Jefferies, Johnson &

Griffiths, 2010; Grazia De Marinis et al., 2010; Wang et al., 2011). According to Grazia

De Marinis et al. (2010), consistency between nursing documentation and actual

nursing activities performed was only about 47%, indicating that registered nurses

actually provided much more care than what they recorded. Too often registered nurses

perform the necessary direct nursing care measures and either merely forget to

document due to distractions, have difficulties navigating through the EHR, or file

entries that are not reflective of the comprehensive care provided (Blair & Smith, 2012;

Furst et al., 2013; Grazia De Marinis et al., 2010; Nielsen, Preschel & Burgess, 2014).

At this time, there are numerous nursing documentation methods and

frameworks available. However, not all consistently meet the needs within different

clinical areas that serve more complex patients. Not only are there different systems of

nursing documentation, but separate institutions also necessitate varying expectations

(Blair & Smith, 2012; Wang et al., 2011). In order to capture all of the clinical measures,

electronic information systems need to be standardized and institutions need to uphold

strict expectations for reimbursement purposes (Furst et al., 2013). Comprising up to

40% of a hospitals direct-care budget, registered nurses play a major role in quality

patient care to reduce the eight hospital acquired conditions, including pressure ulcer

development, not reimbursed by Medicare (Kurtzman & Buerhaus, 2008; Weston &

Roberts, 2013). Not only does nursing documentation play an important role in

validating quality patient care on an individual level, but it is also used for justification in

hospital reimbursement cases. The acquirement of a stage III or IV pressure ulcer can

exceed $43,000 per hospitalization (Kurtzman & Buerhaus, 2008). The phrase 'if it is

not recorded, it has not been done' in nursing not only holds true in reimbursement

cases, but also can reflect negligence because poor nursing documentation may imply

that the quality of care provided does not meet the standards of care (Croke, 2003;

Grazia De Marinis et al., 2010).

In order to ensure that standards of care are met, technology advances are

working to improve the efficiency and comprehensiveness of nursing documentation.

Medical record systems are best designed when healthcare professionals partner with

informatics specialists to enhance user-friendliness and create helpful tools that prompt

aspects of documentation (Furst et al., 2013). Although there are implicit, ethical

principles of nursing documentation, these standards aren't tied to any specific system

of charting (Monarch, 2007).

Statement of Problem

With the recent implementation of EHRs and the switch to electronic nursing

documentation, the quality of patient care in most areas has greatly improved. However,

barriers to comprehensive nursing documentation still exist related to busy work

environments, lack of nursing documentation consistency between agencies, and

increasing autonomy leading to larger workloads. Registered nurses report electronic

charting to be time consuming, cumbersome, and difficult to maintain a balance of their

time spent with patients while ensuring the comprehensiveness of their records (Blair &

Smith, 2012; O'Connor, Raposo, & Heller-Wescott, 2014). Additionally, the increasingly

busy work environment and accompanying distractions have a negative impact on

registered nurses' working memory leading to missed and deficient nursing documentation (Piscotty & Kalisch, 2014).

Furthermore, registered nurses play a much larger role in quality patient care than ever before while also caring for a more educated population. It is imperative that the integrity of patient medical records is maintained in order to validate nursing care. Inconveniently, the fast pace of the acute inpatient setting disrupts the delivery of healthcare in many areas including nursing documentation (Blair & Smith, 2012; O'Connor et al., 2014; Piscotty & Kalisch, 2014). There is a need for additional interventions to enhance the quality of nursing documentation for the protection of registered nurses, maintaining standards of patient care, and maximizing hospital reimbursement.

Clinical Agency Data

Hospital X services a mainly underserved, African American population. The majority of patients are Medicaid or Medicare recipients; a smaller portion are not insured. The specialized intermediate care unit (IMCU) at Hospital X is a 31-bed unit employing 16 registered nurses on day shift and 16 registered nurses on night shift. There are 16 beds that are primarily for cardiac patients and 15 beds primarily for patient with neurologic disorders. Registered nurses on this unit work 12-hour shifts and can rotate to either specialty depending on the needs for any given day. There are currently seven new registered nurses working on the unit, defined as working less than one year as a registered nurse. Generally, the unit staffs three registered nurses and two nursing aides during day shift. The average nurse-patient ratio is 5:1, caring for patients of moderate to high acuity and undergoing multiple daily procedures. When the

unit census is full, one registered nurse will care for six patients. Occasionally, the unit will staff four registered nurses on the day shift making the nurse-patient ratio 4:1.

The hospital acquired pressure ulcer (HAPU) audit form is comprised of ten areas of nursing documentation including (a) full body assessment on admission and transfers, (b) second nurse co-sign of assessment, (c) oxygen in use with delivery method documented, (d) ear protectors applied and documented, (e) documentation of patient turned every two hours, (f) Braden Scale on admission and every shift, (g) wound nurse consult for Braden <14, (h) wound prevention supplies noted in room and in use with documentation, (i) documentation of skin condition behind ears, and (j) wound/line/drain assessment (WLDA) documented for each wound and risk control report (RCR) completed. The most frequently missed area is full body assessment on admission followed by second nurse co-signing the assessment. In the last year, the unit experienced seven HAPUs.

Current strategies utilized on the IMCU at Hospital X to maintain standards of nursing documentation include word of mouth, an electronic work list, patient information report sheets, self-made worksheets, and monthly documentation audits. The IMCU is set up ward-style with seven computers for nursing documentation at a central nurses station. There are four computers on wheels (COW) complete with a locked medication drawer and a small work desk. Each registered nurse claims a COW for patient care and nursing documentation at the beginning of each shift. Nursing documentation takes place both at the COWs and the computers at the nurses' station.

Purpose of the Evidence-Based Practice Project

Visual reminders have been widely used in order to assist many different healthcare professionals improve the quality and completeness of their documentation (Bove & Jesse, 2010). The nursing profession alone has implemented numerous different reminder systems with success from paper Kardex forms to electronic checklists in order to prompt nurses to maintain a standard of nursing documentation (Blair & Smith, 2012; Bove & Jesse, 2010).

This evidence-based practice (EBP) project was designed to determine a more time efficient and convenient approach to improve the quality and completeness of nursing documentation on an intermediate care 31-bed nursing unit at Hospital X. After an evaluation of the unit's needs and a review of the background literature, the PICOT format (patient population, intervention, comparison intervention, outcome, and timing) was used to facilitate the project and uncover the best evidence to enhance nursing documentation. The following PICOT question was developed: For registered nurses working on a 31-bed IMCU, does a reminder intervention, compared to current practice, improve HAPU documentation monthly audit scores?

Significance of the Evidence-Based Practice Project

Deficient nursing documentation poses a threat to not only registered nurses on an individual level, but also to the organization as a whole because of reimbursement regulations (Croke, 2003; Kurtzman & Buerhaus, 2008). Studies have shown that registered nurses perform more nursing care than what they actually record (Grazia De Marinis et al., 2010; O'Connor et al., 2014). While registered nurses may be upholding

standards of care, proper nursing documentation is necessary to validate care (Grazia De Marinis et al., 2010).

Currently, hospital organizations lack standardized documentation systems and frameworks (Blair & Smith, 2012). Literature has shown widespread incompleteness of nursing documentation in the areas of (a) wound characteristics and pressure ulcers; (b) pain assessments; (c) psychosocial aspects of care; (d) patient preferences; (e) quality of life; (f) cognitive impairment; (g) interventions for chronic heart failure; (h) evaluation of palliative care; (i) activities of daily living; (j) and education (Jefferies et al., 2010; Grazia De Marinis et al., 2010; Wang et al., 2011).

Current reminder systems lack individualization to each nursing unit and have traditionally been difficult to navigate (Blair & Smith, 2012; O'Conner et al., 2014). The unit manager of the IMCU supported the claim that nurses perform more care than what is actually recoded and it was believed that the registered nurses lacked the time, faced multiple interruptions, and lacked proper education on the importance of nursing documentation (IMCU unit manager, personal communication, May 22, 2015).

CHAPTER 2

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

Theoretical Framework

The implementation of change can be difficult in such an expansive institution with a large employee population. It has been well established that the healthcare industry is continually transforming and adapting to new initiatives is a pivotal component to compete and prosper (Kotter, 1996). John Kotter's (1996) eight-stage change process, which includes (a) establishing a sense of urgency, (b) creating the guiding coalition, (c) developing a vision and strategy, (d) communicating the change vision, (e) empowering broad-based action, (f) generating short-term wins, (g) consolidating gains and producing more change, (h) and anchoring new approaches in the culture was used to guide this evidence-based practice project. Kotter pointed out that most major change initiatives are made up of smaller projects that also go through this process. Kotter also noted that all of the efforts that go into change projects are followed by a major structural or cultural change.

John Kotter (1996) studied over 100 large businesses and identified the most common mistakes companies make when attempting to implement change. Failure to create short-term wins was noted to be a common error (Kotter, 1996). The implementation of this EBP project was aimed to address this error within an IMCU in attempt to heighten awareness of nursing documentation within the entire hospital system. Ultimately, this short-term project was anticipated to lead to larger initiatives that will improve documentation as a whole and maximize the reimbursement related to appropriate charting.

Kotter (1996) accurately projected the business climate of the future. With the healthcare sector transfiguring into a more business-oriented industry, healthcare has been facing the same challenges seen in all economically driven companies. With increasing competition and the rapid rise in expectations, Kotter noted that it was vital that healthcare organizations maintain a steady course of dramatic improvements in order to keep up with the forces of the ever-changing economy (Kotter, 1996). To further accommodate these changes and meet the needs of companies within a changing society, Kotter and Cohen (2002) later revised the process after additional studying of the dynamics of more large-scale companies.

Application of Theoretical Framework

The first step of the process entails creating a sense of urgency among relevant people (Kotter & Cohen, 2002). Although the hospital system is large, this EBP project targeted one unit. From collaboration between the EBP project manager and the unit manager after review of unit audit scores, the components of the HAPU documentation were identified as deficient. This deficiency has historically negatively affected reimbursement and patient outcomes. The goal of the EBP project manager was to engage all of the nurses currently employed on this unit by continuing education, visual reminders, and positive reinforcement to change the behavior of documentation. By engaging all of the relevant people and creating a sense of urgency, the start to successful change began (Kotter & Cohen 2002).

Within the second stage of change, Kotter and Cohen (2002) highlighted the need for a guiding coalition with the skills, reputation, and leadership necessary to create successful change. The EBP project manager was a former employee and

previous charge nurse on the unit who was actively involved in the unit EBP team. The

unit manager was also a former staff nurse on this unit and agreed to encourage

nursing staff members to continually work on documentation beyond the completion of

this project.

The creation of a sensible and clear vision was the next component of the

process (Kotter & Cohen, 2002). The EBP project manager involved the staff nurses by

explicating the benefits to them for documentation improvement. The vision of the EBP

project manager was to improve the completeness of nursing documentation,

essentially leading to increased confidence for nurses and maximum reimbursement

related to nursing documentation for the hospital.

The fourth step involved communication of the vision and strategies to induce

understanding of the goals (Kotter & Cohen, 2002). The EBP project manager attended

the monthly unit staff meetings throughout the project implementation to reiterate the

importance of the project and update the staff on successes. Also, the EBP project

manager communicated the vision and strategies within the staff education sessions.

The fifth step involved removing obstacles that stop people from pursuing the

vision (Kotter & Cohen, 2002). The main obstacles in nursing documentation as

identified by the literature and unit manager were time constraints and workload that

hinder memory. Although, it was not feasible for this project to lessen the workload,

visual reminders were placed on each nurse's computer to serve as a memory aid

about HAPU documentation and did not increase workload. Completeness of nursing

documentation helped to reflect the excellence of nursing care this organization was

striving to uphold.

The sixth step involved empowering people that are working toward the vision (Kotter & Cohen, 2002). The EBP project manager attended each unit meeting throughout project implementation to encourage documentation and update the staff on the progress made. Furthermore, the EBP project manager also had a weekly presence on the unit to ensure that the reminders remained on the computers and assisted staff nurses regarding the project. Also by improving documentation completeness, nurses experienced fewer ramifications for missed documentation.

Step seven involved building momentum and step eight ends in making the change stick and integrating it into a new culture (Kotter & Cohen, 2002). As stated earlier, the EBP project manager made her presence known on the unit and encouraged staff to work toward the goals of the project. The unit manager was also a key player in facilitating change by collecting and averaging the HAPU documentation audits each month and keeping track of the successes. She encouraged use of the visual reminders in the EBP project manager's absence. She was also optimistic of the possible outcomes and plans on continuing the process for other areas of deficient documentation and new hire orientation sessions.

Strengths and Limitations of Theoretical Framework

Kotter and Cohen's (2002) model was useful in that it provided a simple approach to successful organizational change. It was also identified as a strength that this model highlighted the importance of short-term wins (Kotter & Cohen, 2002). This EBP project to improve nursing documentation was completed on one unit within a large hospital system. Positive outcomes were considered a short-term win was anticipated to lead to further change.

Kotter and Cohen (2002) have pointed out that some successful organizational changes can take time. A limitation identified with the use of this model was the three-month implementation time frame. Although most steps of the process were achieved, the EBP project manager created a relationship that sustained the change when the project period was completed.

<div align="center">**Evidence-Based Practice Model**</div>

The Iowa Model of EBP was used to guide this EBP project, since it had demonstrated efficacy in promoting quality care and has provided guidance for nurses as well as other clinicians in making decisions (Titler et al., 2001). With the use of this model, staff nurses are encouraged to identify relevant practice questions that can be addressed through EBP (Melnyk & Fineout-Overholt, 2011). In the past, the Iowa Model has been used in many nursing quality improvement projects that have created changes in regulatory standards and in reimbursement. The model consists of several feedback loops that lead to questioning current practice and encourages the use of relevant literature to improve practice (Melnyk & Fineout-Overholt, 2011). The progressive feedback loops of the Iowa Model include (a) identifying a topic or problem, (b) forming a team, (c) compiling relevant evidence and literature, (d) critiquing the literature, (e) synthesizing a practice standard, (f) piloting the change, (g) and evaluation.

Originally, this was a research-based model developed and implemented in 1994 at the University of Iowa Hospitals and Clinics that was utilized by many nurses and clinicians to improve a problem area within the clinical setting. The model was later revised to the EBP model it is now when the nursing term 'evidence-based practice' gained popularity. The revisions were based on the need to incorporate the new

terminology used in the practice setting, address the changing healthcare market, and incorporate others types of evidence (other than research) (Titler et al., 2001).

Application of Evidence-Based Practice Model

The first point in the Iowa Model is to determine a topic of priority. This can be a priority of the organization or a unit-based priority (Titler et al., 2001). The quality of nursing documentation not only has an effect on a nurse's confidence and patient outcomes, but it also plays a role in reimbursement to the organization. Nationwide, audit results have revealed a deficit of nursing documentation in specific areas, including wound characteristics and pressure ulcers and the acquirement of a stage III or IV pressure ulcer can exceed $43,000 per hospitalization (Grazia De Marinis et al., 2010; Kurtzman & Buerhaus, 2008). Within the IMCU of interest, skin documentation was identified as deficient and has had a negative impact on both reimbursement and patient outcomes ultimately leading to nurse scrutiny. Therefore, the decision to improve this practice was selected by the EBP project manager with the assistance of the IMCU unit manager.

According to Titler et al. (2001), the next step of the Iowa model is forming a team. Since this was a unit-based EBP project, the team responsible for implementation and evaluation consisted of the EBP project manager and the unit manager. It was important to gain acceptance of the project from the staff nurses and encourage their involvement since the EBP project manager and unit manager could not be there around the clock to promote the use of the intervention.

The next point of the Iowa Model is to perform a literature review of both traditional methods and to examine other sources as well (Titler et al., 2001). The EBP

project manager has exhaustively searched the current literature regarding the topic

and compiled the most relevant evidence to assist in improving skin documentation on

the IMCU of interest. Titler et al. (2001) follow the literature search with a critique

process and synthesis of the research. After selection of relevant articles, the EBP

project manager used the John's Hopkins Non-Research Evidence Appraisal and the

John's Hopkins Research Evidence Appraisal tools to critique and grade the literature.

After synthesis of the studies and relevant articles, Titler et al. (2001) suggest

that the following criteria need to be evaluated to determine if there is sufficient research

to guide practice: (a) consistency of findings, (b) quality of the studies, (c) clinical

relevance or practice findings, (d) sample characteristics similar to those to which the

findings will be applied, (e) feasibility for use in practice, (f) and risk to benefit ratio. With

the use of the Iowa model, it was determined by the EBP project manager that there is

sufficient evidence to support and guide the planned practice modifications to improve

nursing documentation completeness of skin assessments.

Piloting the change is next in the Iowa Model. This process involves selecting

outcomes, gathering baseline data, developing an intervention, implementing the

intervention on one or more units, evaluating the progress, then making modifications

as needed (Titler et al., 2001). The EBP project manager used the evidence found from

the literature search to determine an intervention. Then baseline data was collected to

determine an appropriate outcome. The project was implemented on one unit and

evaluated using the baseline data as a comparison. Based on the outcomes, the EBP

project manager anticipates that the intervention will be modified and used by the

organization for further improvement in skin documentation and other areas of deficient documentation.

Strengths and Limitations of Evidence-Based Practice Model

The Iowa Model was chosen to guide this EBP project because it allowed for the use of untraditional search methods and use of evidence. Titler et al. (2001) pointed out that "other sources of information should be reviewed" (p. 504). These include works of literature such as bibliographies, integrative reviews, master's theses, abstracts from conference proceedings, and direct communication with researchers investigating a topic of interest (Titler et al., 2001). Because numerous nursing documentation methods are available throughout the country, experimental studies and higher-level evidence summaries on documentation quality are limited (Blair & Smith, 2012; Wang et al., 2011). Furthermore, separate institutions also necessitate varying expectations of documentation, which also adds to the challenge of determining the best evidence (Blair & Smith, 2012; Wang et al., 2011). With the use of the Iowa Model, evidence can come from various sources and be synthesized to create feasibility within a particular practice setting.

The complete use of this model calls for modifications and revisions of the intervention based on evaluations. Because of the time limit of this project, this aspect is viewed as a limitation because the model could not be carried out in its entirety. However, based on the project outcomes, the EBP project manger anticipates that after implementation, the unit will have the tools necessary to continue the basis of the EBP project and find documentation reminders useful in other departments and other areas of continuing education.

Literature Search Methods

First, a general Google search was performed for the development of key terms and an appreciation for the effects this issue had on individual levels within healthcare settings. Then, the databases Joanna Briggs Institute (JBI) (39), Cochrane Library (35), The Cumulative Index to Nursing and Allied Health Literature (CINAHL) (84), MEDLINE (15), and ProQuest (235) were searched using the key terms "visual reminder*" OR reminder* OR "reminder systems" AND documentation OR "nursing documentation" OR "documentation compliance." Due to the rapid and recent developments of information technology (IT) and the adoption of EHRs that now dictate majority of provider documentation, articles before 2010 as well as articles not written in the English language, were excluded in the search. Within ProQuest, additional limiters included peer reviewed, articles from scholarly journals and 'documentation' included in the abstract. Within CINAHL, additional limiters included peer-reviewed publications with the term 'documentation' included in the abstract. The only other additional limiter was applied within MEDLINE, which included peer-reviewed publications. Inclusion criteria consisted of (a) published works taking place in inpatient settings, (b) studies or projects that at least one goal was to improve the quality of nursing documentation in some area, (c) interventions or studies targeted toward utilization by any healthcare interdisciplinary team member that provided direct patient care (d) and reminders that were passive. Exclusion criteria involved (a) studies or interventions that utilized hard-stops as reminders, (b) interventions or studies involving reminders for patient utilization, (c) studies or interventions that took place outside of a clinical setting, (d) and documentation that was exclusively completed via dictation.

Within the database searches, a total of 408 titles were initially screened. Then, 30 of the most relevant abstracts met the criteria for further examination. Next, 18 articles were chosen for a full text review and based on the inclusion and exclusion criteria, appraisal results, and applicability to topic, seven relevant articles were included in the review. A search through the reference lists of the articles was performed to identify any other relevant articles; two relevant articles from this search were included within the review. There were no articles included from the databases Cochrane Library, MEDLINE, or JBI. There were three articles included from ProQuest and four included from CINAHL.

Appraisal of Relevant Evidence

To appraise the evidence obtained from the literature search, the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Research and Non-Research Evidence Appraisal tools were used. Although not all of these study types were included in the final collection of articles, the JHNEBP research appraisal tool can be applied to experimental, meta-analysis, quasi-experimental, non-experimental, qualitative, and meta-synthesis studies. The JHNEBP non-research appraisal tool can be applied to systematic reviews, clinical guidelines, and expert opinions (JHNEBP, n. d.). The JHNEBP appraisal tools conclude with a quality rating of the article and strength of evidence. The categories include A for high quality, B for good quality, and C for low quality (which includes major flaws) (JHNEBP, n. d.) Melnyk and Fineout-Overholt's (2011) hierarchy of evidence rating pyramid was also used to appropriately label the qualities of evidence presented within the articles. A total of nine articles met the inclusion and exclusion criteria to be included in the final project. There were eight level

IV pieces (well-designed case-control and cohort studies) and one level VI (single

descriptive or qualitative review) piece included. Data has been extracted from the

articles and arranged into an evidence table (see Appendix A) for organization and

information synthesis.

Level IV

Aspesi et al. Aspesi and co-authors (2013) conducted a quality improvement

(QI) project to evaluate the effectiveness and sustainability of reminder checklists to be

utilized by attending physicians to improve the quality of care in general medicine

inpatients. Effectiveness was evaluated by the completeness of documentation in four

quality indicators that majorly affect reimbursement: pneumococcal immunization (I),

pressure ulcers/bedsores (B), catheter-associated urinary tract infections (C), and deep

vein thrombosis (DVT) (D). The QI project took place at the University of Chicago

Medical Center, a 596-bed tertiary care facility. The initial phase of the QI project

focused on creating a checklist for inpatient care. The authors used materials from the

Agency for Healthcare Research and Quality to determine the most pertinent conditions

that affect general medicine patients. Gawande's *The Checklist Manifesto,* was used as

a template in the design of a paper-based checklist to be used by attending physicians.

The authors originally reviewed nine conditions for checklist inclusion but determined

the most frequently seen and impactful to reimbursement were IBCD.

Attending physicians (*n* = 2) were targeted for piloting the IBCD checklist in May

2010. The checklist was integrated into the already established routine of postcall

morning rounds for new admissions. The checklist was formatted to require a "yes" or

"no" response and was made to mimic the attendings' billing logs for convenience.

Trained research assistants collected the data and performed chart audits to assess the influence of the intervention on physician documentation of the four quality indicators. Because of the positive feedback from the pilot, in July 2010 all four general medicine teams were requested to attend orientation meetings (one for attending physicians and one for residents) for the use of the IBCD checklist. Attending physicians were instructed on the purpose of the project and directions for completing the checklist. Presentations were made each month during the intervention period, a reminder email was sent halfway through each month, and signs were posted throughout the hospitals to remind physicians to complete their IBCD checklists (Aspesi et al., 2013).

Patient charts were audited one year before the intervention to one month before the pilot (July 2009 to April 2010) in order to gather baseline data. Using a two-sample test of proportions (*p < .05)* to compare the percentages of before and after the IBCD checklist use, chart reviews determined adherence. Pneumococcal immunizations (I) increased from 52% on admission to 74% after IBCD checklist use (*p* < .001). Bedsore (B) examination adherence increased from 44% to 62% on admission with checklist use (*p* < .001). For the removal of unnecessary Foley catheters (C) the checklist increased adherence to 86% (*p* < .001). DVT prophylaxis (D) increased from 93% to 96% (*p* < .01) after checklist use (Aspesi et al., 2013).

In May 2011, the IBCD checklist was incorporated into the EHR replacing the paper version. The electronic template was a mirror format of the paper version and has been used and evaluated post-intervention to determine sustainability (Aspesi et al., 2013).

Based on the JHNEBP appraisal tool's criteria for rating quality evidence, the information presented in this article provided a high quality evidence (A) to support the implementation of this EBP project. There were adequate controls and consistent recommendations based on an extensive literature search. Although this article targeted physicians, the findings still support the use of visual reminders to improve documentation. Specifically, the visual reminder checklist improved documentation in bed sore recognition. Furthermore, this article supported that modification of a paper format reminder for incorporation into the EHR.

Nielsen et al. A QI project conducted by Nielsen, Peschel, and Burgess (2014) used real-time feedback with passive electronic visual cues to make improvements in nursing documentation to comply with best practice standards in an emergency department. A review of the literature was performed, and the project planners concluded that alerts to prompt users of missed documentation elements could improve compliance to standards of care. Using the Plan, Do, Study, Act Quality Improvement Model, the team developed and implemented passive visual cues highlighting essential documentation elements deemed by the quality and regulatory departments of the hospitals into the EHR. Once this new documentation component was finalized, documentation compliance could be measured easily without having an auditor hand search through each flow sheet.

The QI project was conducted in a large urban medical center where baseline data was gathered through convenience sample of 30 patient records from the emergency department. After implementation, a total sample of 89,521 records was obtained. Within the EHR, passive visual cues were displayed as a red dot if the nurse

was missing a documentation component and a green dot if all essential elements were complete. The new system was advertised to the nurses through daily huddles and an emailed education tool (Nielsen et al., 2014).

Compliance was deemed by either a "yes" or "no" through chart audit. Baseline data (percentile compliance) was compared cumulatively with monthly data from March 2011 to March 2012. Of the sixteen documentation elements chosen for the intervention, improvements were seen in seven elements. Initial pain assessment increased 4% from baseline, administration of blood components increased 44% from baseline, immunization status documentation increased 54% from baseline, height documentation increased 28% from baseline, and Braden Scale documentation increased 78% from baseline (Nielsen et al., 2014).

The nurses involved in the project reported that the visual reminders were helpful and provided feedback on the quality of their documentation. They preferred the passive approach to a hard-stop within the EHR since it evaded the development of "work-arounds." The authors concluded that passive visual cues improved compliance in nursing documentation (Nielsen et al., 2014).

Based on the JHNEBP appraisal tool criteria for rating evidence, this article falls under good quality (B). Although the results support the implementation of passive visual reminders, the control numbers versus the post-implementation numbers were not consistent creating only fairly definitive conclusions. The findings from this QI project add more evidence supporting the use of a passive visual reminder and using colors to attract attention.

Berkihiser. Kristy Berkihiser (2010) presented the results of a QI project aimed at improving the documentation on the nursing trauma flow sheet at an Emergency Nurses Association Conference in 2010. The project was conducted in a level one adult and pediatric trauma center in Pennsylvania and involved the 86 registered nurses who provided care to trauma patients as participants. The nurses' documentation was randomly selected to be audited based on staffing schedules and triage order. The project manager used audit results to reveal areas in need of improvement and to assess the quality of care.

To reveal the deficits, trauma documentation was audited on eight elements for three and one-half months. Next, the unit created a large bulletin board with bright colors to attract attention to the eight elements of deficient documentation. The staff was also provided with badge-sized "cheat-sheets" to take as a reminder of the areas needing improvement. The bulletin board was placed in a high traffic area, noticeable area for nurses. After intervention start, one-on-one feedback was provided to staff upon chart audits when necessary. Although this project was ongoing at the time of publication, preliminary results revealed that documentation compliance of hypothermia treatment measures improved from 40% completeness to 68% completeness, documentation of Glasgow coma scale and pupil exam improved from 55% to 74%, documentation of neurologic status improved from 23% to 74%, intake and output improved from 50% to 87%, and documentation statistics had been maintained at greater than 90% in primary assessment areas (Berkihiser, 2010).

This article added a good quality (B) of evidence based on the JHNEBP appraisal tool's rating order. The project was still in progress at the time it was

appraised, and the recommendations were consistent with the literature review. The

findings from this article supported the use of brightly colored visual reminders with

along with staff education to improve documentation. Although this QI project did not

focus on skin assessment, results should be generalizable to other areas of nursing

documentation, including skin assessments.

O'Connor et al., In a performance improvement initiative published by O'Connor,

Raposo, and Heller-Wescott (2014), the authors aimed to improve the quality of nursing

documentation in a Pennsylvania trauma center emergency department. During a site

survey by the Pennsylvania Trauma Systems Foundation, the evaluators found a lack of

consistent nursing documentation and missing elements within patients' EHRs. Faculty

members initially reviewed trauma resuscitation documentation to gain insight into

incomplete or inadequate elements of documentation. Retrospective data was analyzed

from charts of all trauma alerts ($n = 70$) during a randomly selected month. It was

determined that 79% of the reviewed charts were deficient, with the most common

deficits in intake and output, vital signs, and roll call of trauma alert responders.

Data was collected from January 2011 to March 2012 and compiled by quarterly

charting compliance by injury severity score (ISS), overall quarterly documentation

compliance with Glasgow coma scores and vital signs compared to state compliance,

and charting deficiencies per month. Initial interventions were aimed at education

including (a) new nurse trauma orientation, (b) emergency department nurse in-

services, (c) trauma documentation quizzes, (d) and brainstorming meetings. Prior to

project implementation, the nurses used a paper flow sheet document to record care

provided during resuscitative efforts. The nurses expressed the opinion that the current

flow sheet was cumbersome time consuming. At the time of the project, the facility did

not have the means to implement the flow sheet into the EHR. As a result, the

committee designed a more organized and specific flow sheet. Areas of known

deficiency were highlighted in a bright gray to draw attention and help remind nurses to

complete those elements. The department also implemented a peer review process and

visual reminders were placed on computers and throughout the nurses' station to

remind nurses to complete a trauma flow sheet (O'Connor et al., 2014).

The task force determined a reduction of charting deficiencies to 15 or fewer per

month would be an appropriate goal. There was a decline in deficiencies from 34% in

September (53 deficiencies out of 156 charts) to 33% in October (41 deficiencies out of

122 charts), to 12% in November (15 deficiencies out of 124 charts), and 10% in

December (13 deficiencies out of 130 charts). Compliance in vital sign documentation

increased from 62% during the second quarter, to 69% during the third quarter, and

80% during the fourth quarter. Neurological assessment compliance increased from

47% during the second quarter to 72% during the fourth quarter. Documentation

compliance of patients with an ISS score greater than or equal to 24 increased from

64% to 100% during the third quarter and was maintained throughout the fourth quarter.

Compliance with an ISS of 15 to 24 rose from 65% to 77% during the third quarter and

to 83% in the fourth quarter. Compliance with an ISS of 10 to 14 rose from 78% in the

second quarter to 84% in the third. Documentation compliance of patients with an ISS of

1 to 9 increased form 53% during the second quarter to a high of 76% during the fourth

quarter (O'Connor et al., 2014). The authors added that achieving staff buy-in was a key

component in their success.

Based on the JHNEBP appraisal tool's criteria for rating quality evidence, the information presented in this article provided a high quality (A) evidence to support the implementation of this EBP project. The authors provided adequate control, definitive conclusions, and consistent recommendation based on the literature review. The findings from this article also supported the use of an easy to read visual reminder along with education for nursing staff to improve documentation components. Furthermore, the findings from this project can be generalized to other areas of nursing documentation.

Pageler et al. Following an initially successful yet unsustainable paper checklist reminder intervention for use in Pediatric intensive care unit (PICU) rounds, Pageler et al. (2014) conducted a QI project using a checklist enhanced by the electronic medical record to improve documentation and compliance with catheter care to decrease central-line associated bloodstream infections (CLABSI). The study took place at Lucile Packard Children's Hospital, a 303-bed facility with a 24-bed PICU. To establish a baseline, the investigators gathered historic controls on CLABSI rates. Participants were included if they were admitted during the pre-intervention (June 1, 2009 to April 30, 2011) or post-intervention (September 1, 2011 to December 31, 2012) periods. The time period between May 1, 2011 and August 31, 2011 was considered the implementation rollout and was not included in the analysis.

CLABSI rates decreased from 2.6 per 1000 line-days (19 CLABSIs/7322 total line-days) pre-intervention to 0.7 CLABSIs per 1000 line-days (7 CLABSIs/6155 total line-days) post-intervention. The estimated rate reduction from the intervention was 1.8 per 1000 line-days with a 95% CI [.32-2.55] per line-days. This data was collected from

a total of 251 patients pre-intervention compared to 609 patients post-intervention.

Documentation compliance improved in line necessity ($p < .001$), frequency of dressing

changes ($p = .003$), frequency of cap changes ($p < .001$), and frequency of port needle

changes ($p = .001$). However, documentation compliance with insertion bundle

documentation decreased ($p < .001$) (Pageler et al., 2014).

Although a formal cost analysis was not conducted, the team projected a total

annual cost savings of $260,000 per year in the PICU from the effects of the electronic

checklist reminder intervention. This was estimated from the approximation of $39,000

per PICU nosocomial bloodstream infection and an observed decrease after estimated

rate reduction of 1.8 per 1000 line-days from the intervention results (Pageler et al.,

2014).

Based on the JHNEBP appraisal tool's criteria for rating quality evidence, the

information presented in this article provided a high quality (A) level of evidence to

support the implementation of this EBP project. Even though this visual reminder was

already incorporated into the EHR, the findings support the use of a passive reminder

using bright colors to attract attention. Although Pageler et al.'s (2014) QI project did not

specifically evaluate skin assessments, there was no reason to believe that the results

could not be generalized to other areas of documentation.

Coke, Otten, Staffileno, Minarich, and Nowiszewski. Coke, Otten, Staffileno,

Minarich, and Nowiszewski (2015) conducted a QI project which developed an

evidence-based oral hygiene education module for nurses and assistive personnel to

promote consistent practice of oral hygiene and determine staff documentation

frequency of oral hygiene care on an oncology unit. This project was carried out in two

phases. The first involved retrospective data collection of nursing documentation within

the medical record to determine the patterns and frequency of oral hygiene

documentation. Patients (n = 30) were interviewed during the three-day collection period

to determine oral hygiene knowledge and practice frequency. This data led into the

development of phase two, which included a 10-minute in-service education module for

the nursing staff participants (N = 50; 44 registered nurses and 6 patient care

technicians) about (a) the importance or oral hygiene, (b) proper use of oral hygiene

products, (c) appropriate frequency of oral hygiene, (d) and proper documentation.

Paper reminders were also placed in each patient room to remind nurses to educate

patients about oral hygiene.

Data regarding the changes from baseline was analyzed using frequencies. Pre-

intervention, nursing documentation focusing on oral hygiene was found in 90% of the

patient medical records, but was only placed on the education record in 52% of charts.

Post-intervention, oral hygiene documentation was found in 91% of charts with

documentation of education completed in 68% of charts. Concluding, the researchers

observed an improved frequency of oral hygiene practice as well as nursing

documentation of education from the use of patient room reminders and an education

module (Coke et al., 2015).

Based on the JHNEBP appraisal tool's criteria for rating quality evidence, the

information presented in this article provided a high quality (A) of evidence to support

the implementation of this EBP project. The findings from this article supported the use

of staff education that does not conflict with normal unit activities as well as visual

reminders placed in obvious areas where documentation takes place. Once again, the

findings from this project can be generalized to other areas of documentation, including

skin assessment.

Evatt et al. Evatt et al. (2014) conducted a study to improve the timeliness,

completeness, and accuracy of EHR nursing admission assessment documentation in a

medical intensive care unit (MICU) and trauma burn unit (TBU). The authors identified a

need for improvement in this area and based on findings from their literature search,

they concluded that a face-to-face educational session to supplement the e-learning

content that was already being utilized would be the most effective intervention. The

sample consisted of MICU nurses (n = 63) and TBU nurses (n = 36). The admission

assessment consisted of documentation in 16 different areas each consisting of multiple

different fields. The current education consisted of an e-learning module displaying a

series of screen shots that guided the nurse through the admission documentation.

The education module developed for this project consisted of a 20-minute slide

presentation that was instructed face-to-face, which reviewed the entire process of

completing an admission within the EHR and provided detailed steps for each area. The

presentation also included common errors experienced and case examples of

admission interviews (Evatt et al., 2014).

Data was collected using before and after nurse knowledge and attitude surveys

and before and after chart reviews. Records were collected through convenience

sampling of patients admitted before (n = 100) and after (n = 100) the education

module. Timeliness, completeness, and accuracy of nursing admission assessments

were measured and between the two units, 99% of the nurses participated. Before the

educational session, the mean time between patient admission and mean time to

assessment completion was 6.8+/- 13 hours with a range of 0-120 hours. After the

intervention, the mean time decreased to 3.18+/- 3 hours with a range of 0-15 hours.

Pre-intervention, 84% had some portion of the admission assessment complete within 8

hours; this measurement increased to 93% post-intervention. Completion in the majority

of areas had improved post-intervention. However, a hard-stop was incorporated which

prevented advancement without completion and resulted in 100% completeness in the

areas of stroke assessment, vaccination screening, and pressure ulcer risk assessment.

Functional assessment (p = 0.074) and smoking cessation (p = 0.155) did not improve

to a statistically significantly level; however, these areas were not deficient pre-

intervention. Pre-intervention, accuracy of assessment showed 62% of nurses' histories

had no match with the providers' documentation and 22% completely matched the

providers' documentation. Post-intervention, only 18% had no match while 69% were in

complete agreement with the providers' documentation (Evatt et al., 2014).

Through review of the literature, the researchers found that e-learning was not

significant to face-to-face learning. However, a hybrid approach was preferred. The

authors also noted that the face-to-face educational session was short enough to not

interrupt normal patient care activities and required minimal staff time. A face-to-face

documentation specific education module used for navigating through the EHR could

also be useful in other areas of deficient documentation (Evatt et al., 2014).

Based on the JHNEBP appraisal tool's criteria for rating quality evidence, the

information presented in this article provided a high quality (A) level of evidence to

support the implementation of this EBP project. The project did focus on pressure ulcer

assessment, and the findings from this project added to the evidence that supported the

use of face-to-face education, which did not interrupt unit activities. The project

supported the use of a face-to-face PowerPoint presentation, involving minimal staff

time to improve documentation completeness.

Malouf-Todaro, Barker, Jupiter, Tipton, and Peace. Malouf-Todaro. Barker,

Jupiter, Tipton, and Peace (2013) completed a QI project that involved a reminder

checklist imbedded into the EHR to increase the documentation within the ventilator

care bundle (VCB) to reduce the occurrence of ventilator-associated pneumonia (VAP).

The project was carried out at a 237-bed level II trauma center within the medical and

surgical intensive care units (MICU and SICU) with a total of 24 beds. The infection

control department concluded 5.21 incidences of VAP per 1000 device days in May

2011 and 4.34 incidences per 1000 device days in June 2011, which were higher than

the national average. Malouf-Todaro et al. (2013) developed a checklist to serve as a

self-reminder for the nurses to complete and document the VCB care, since they

believed the lack of VCB care was one of the main reasons for VAP occurrence.

The user group consisted of 30 to 40 nursing staff and interprofessional users

(respiratory therapists, case managers, physical therapists, and other providers). The

checklist was a "yes" or "no" format with the option to comment. 30-minute educational

sessions were offered to the staff member for a 2-week period to learn about the use of

the checklist. The checklist was implemented in summer 2011 and all staff members

had been educated on the use. Retrospective data was collected bimonthly for two

months pre-intervention and for six months post-intervention. Chi-square tests were

used to compare rates of documentation completeness of the six VCB elements. A total

of 3099 shifts were examined (137 pre-intervention and 2962 post-intervention) (Malouf-

Todaro et al., 2013).

The ventilator care documentation guidelines of "all" or "none" increased

significantly from 3.7% to 92.1% after implementation of the checklist. Also after

implementation, the incidence of VAP per 1000 device days decreased to 0 in the MICU

for all months from August 2011. In the SICU, the VAP rate was 1 in October 2011, 1 in

November 2011, and 0 for the remainder of the months. The authors concluded that

checklist tools were useful as reminders and also provided guidelines to standardize

workflow and care processes while maximizing reimbursement (Malouf-Todaro et al.,

2013).

Based on the JHNEBP appraisal tool criteria for rating evidence, this article falls

under good quality (B). The pre and post intervention shifts were inconsistent in size.

Regardless of this gap, the findings form this project supported the use of a visual

reminder and educational sessions for staff to improve documentation completeness.

Furthermore, although this study did not specifically address skin assessment the

results can be generalized to other areas of documentation.

Level VI Evidence

Piscotty & Kalisch. Piscotty and Kalisch (2014) conducted a correlational study

to assess (a) the relationships between interventions supported by clinical decision

support and reduced missed nursing care and (b) the relationships between nurses'

perceptions of the impact of health information technology (I-HIT) on their work and their

reports of missed nursing care. The researchers tested the following hypotheses:

nurses who frequently use reminders will have less reports of missed nursing care and

nurses who have a positive perception of I-HIT on their practice will have fewer reports of missed nursing care.

A convenience sample (*n* = 165) of medical-surgical, intensive care, and intermediate care nurses was used. The nurses were employed on 19 different nursing units within a large Midwestern teaching hospital. The investigators developed a 12-question nursing care reminder usage survey with responses based on a 5-point Likert scale. Face validity was established by a group of informatics experts and reliability was established with a reported Cronbach's alpha of .84. The I-HIT scale was a 29-item survey with a 6-point Likert-type scale. For this scale, validity was assessed at a content validity index of 1.0, which was beyond the significance level of .05. Internal consistency was evaluated using Cronbach's alpha with a reported value of .95. The Missed Nursing Care Survey was a 2-part survey of which only Part A was used. The survey contained 22 items with a 5-point response scale. Content validity index was reported with a value of 0.89 and reliability for Part A was established using test-retest reliability, in which the Pearson product moment correlation coefficient was 0.87 (Piscotty & Kalisch, 2014).

After analyzing multiple regression models with the use of SPSS 21, the investigators concluded that the correlations supported both hypotheses. There was a negative relationship between reminder usage and missed nursing care and a negative relationship between perceptions of I-HIT and missed nursing care using the nursing care reminder survey, the I-HIT scale, and the Missed Nursing Care Survey respectively. These results indicated that nurses who reported more frequent reminder usage and have a favorable perception of I-HIT had fewer reports of missed nursing care (Piscotty & Kalisch, 2014).

Based on the JHNEBP appraisal tool criteria for rating evidence, this article falls under good quality (B). Because this was a correlational study that is generalizing reminders and I-HIT, the findings are only fairly conclusive; however, the evidence provided support for the use of reminders to reduce the occurrences of missed nursing care.

Synthesis of Appraised Literature

After a thorough appraisal of the literature, similarities in findings and recommendations were recognized. Settings of the selected literature pieces included inpatient: general medicine units, emergency departments, a PICU, an oncology unit, MICUs, a SICU, a TBU, ICUs, and IMCUs. All of the studies took place within American hospitals, and all targeted improvements in documentation to some degree. Projects and studies focused on improving documentation in immunization occurrences, vital signs, neurological assessments, trauma documentation, central venous line components, admission components, oral hygiene, pain assessments, blood administration, height, intake and output, hypothermia measures, ventilator care, bed sore recognition, Foley catheter necessity, and DVT prophylaxis. Although not all of the articles focused on skin documentation, findings can be generalized to this area of nursing documentation. The majority of the selected articles involved interventions aimed toward nurses (Berkihiser, 2010; Evatt et al., 2014; Nielsen et al., 2014; Pageler et al., 2014); however, some articles involved patient-care technicians (Malouf-Todaro et al., 2013) and one article targeted attending physicians as their participants (Aspesi et al., 2013).

All projects and studies took place within inpatient settings. Participation numbers varied from 165 nurses (Piscotty & Kalish, 2014) to 4 general medicine teams of physicians (Aspesi et al., 2013). Studies that included nurses ranged from 36 to 165 participants (Evatt et al., 2014). Patient records were analyzed pre-intervention and post-intervention in eight out of the nine pieces of evidence by means of chart audits to determine outcomes (Aspesi et al., 2013; Berkihiser, 2010; Coke et al., 2015; Malouf-Todaro et al., 2013; Nielsen et al., 2014; O'Connor et al., 2014; Pageler et al., 2014). Time frames of data collection ranged from three and one-half months to one year (Berkihiser, 2010; Nielsen et al., 2014; O'Connor et al., 2014).

In two articles, interventions for improving documentation focused on only reminder usage (Berkihiser, 2010; Pageler et al., 2014) while one focused exclusively on education (Evatt et al., 2014). The majority of the interventions found used a visual reminder and educational session(s) hybrid to promote an improved quality in documentation (Aspesi et al., 2014; Coke et al., 2015; Malouf-Todaro et al., 2013; Nielsen et al., 2014; O'Connor et al., 2014). Educational interventions included monthly presentations (Aspesi et al., 2014), general staff education consisting of 10 to 30 minute in-service sessions; some using slides to present information (Coke et al., 2015; Evatt et a., 2014; Malouf-Todaro et al., 2013; O'Connor et al, 2014), daily huddles (Nielsen et al., 2014), emailed reminders (Aspesi et al., 2014l Nielsen et al., 2014), and a passive bulletin board to present information (Berkihiser, 2010). Reminder cues consisted of paper formats (Aspesi et al., 2014; Berkihiser, 2010; Coke et al., 2015; O'Connor et al., 2014) and passive visual reminders embedded into the electronic medical record (Nielsen et al., 2014; Pageler et al., 2014; Malouf-Todaro et al., 2013). Furthermore, a

correlational study by Piscotty and Kalisch (2014) supported that nurses who use

reminders report having fewer incidences of missed nursing care.

Recommendations of Best Practice

From the complied evidence that focused on improving documentation within the

inpatient setting, the best practice model developed for this EBP project consisted of a

multifaceted approach including (a) a visual cue reminder (see Appendix B) and (b) an

educational component (see Appendix C) for nursing staff members involved in the

documentation of patient care.

Within the literature, visual reminders have been used in checklist formats

(Aspesi et al., 2013; Malouf-Todaro et al., 2013; O'Connor et al., 2014; Pageler et al.,

2014) and as simple visuals cues (Berkihiser, 2010; Coke et al., 2015; Evatt et al.,

2014; Nielsen et al., 2014). Evidence supported the use of bright colors for visual

reminders to attract attention and prompt nurses to complete the observed components

(Berkihiser, 2010; Coke et al., 2015; Evatt et al., 2014; Nielsen et al., 2014; Pageler et

al., 2014). Visual reminders have been implemented in paper formats (Aspesi et al.,

2014; Berkihiser, 2010; Coke et al., 2015; O'Connor et al., 2014) as well as integrated

within the EHR (Nielsen et al., 2014; Pageler et al., 2014; Malouf-Todaro et al., 2013).

However, both have shown success in improving the completeness of nursing

documentation and in various instances. Also, original paper formats have been

adapted for EHR use because of their success (Aspesi et al., 2013; Pageler et al.,

2014). Visual reminders have shown to be most useful when strategically placed in

areas that are readily seen when documenting (Berkihiser, 2010; Coke et al., 2015).

Therefore, the EBP project manager developed a notecard-sized, brightly colored visual

reminder that was placed on all computers that were used for nursing documentation within the IMCU of interest in order to improve the documentation components contained in the HAPU audit (see Appendix D).

Although primary intentions for this EBP project focused exclusively on visual reminders, the evidence also revealed the use of educational approaches, as either a supplement to the visual reminder or independently, to be beneficial in improving documentation completeness (Aspesi et al., 2014; Coke et al., 2015; Evatt et al., 2014; Malouf-Todaro et al., 2013; Nielsen et al., 2014; O'Connor et al., 2014). Based on the synthesis, continuous contact with the target group has been superior to one educational session (Aspesi et al., 2014; Coke et al., 2015; Malouf-Todaro et al., 2013; Nielsen et al., 2014; O'Connor et al., 2014). Furthermore, educational sessions yield higher attendance when they do not disrupt the normal routines of the unit (Berkihiser, 2010; Coke et al., 2015; Evatt et al., 2011). Therefore, the educational component for this EBP project consisted of a 10-minute PowerPoint that took place at morning shift change reports in the pre-intervention stage. The PowerPoint outlined the routine for completing the documentation components identified within the HAPU audit and also offered tips to the nursing staff to improve efficiency. Additionally, the EBP project manger attended three subsequent previously scheduled staff meetings to update nursing staff on their progress and provide continued support for improving documentation. The planned 3-month intervention period targeting an IMCU consisting of 38 nurses was comparable to the same components within the described quality improvement projects. Monthly data collection by medical record audits was consistent with the supporting evidence.

CHAPTER 3

IMPLEMENTATION OF PRACTICE CHANGE

Participants and Setting

The implementation of this EBP project took place on the 31-bed IMCU at

Hospital X, which is part of a 634-bed urban hospital system. Permission was obtained

from the unit manager of the IMCU at the Hospital X (see Appendix E). Upon approval

of Valparaiso University's Institutional Review Board (IRB) and Hospital X's IRB, the

EBP project manager obtained retrospective audit data to confirm the need for this

project; however, based on monthly audits previously conducted on the unit selected for

this EBP project, skin assessment had been identified by the unit manager, as a major

area of deficient documentation. The implementation took place between August 20th,

2015 and November 30th, 2015. Patient charts were audited monthly following the

routine currently used on the unit and data was collected during September, October,

and November of 2015. This data was compared to audit findings from three months

prior to project implementation (May, June, and July of 2015). August data was omitted

since the scheduled unit meeting was mid-August.

The participants of the EBP project included all of the registered staff nurses

working (n = 38) within the 31-bed IMCU. Because this EBP project focused on the use

of reminders intended to improve completeness of charting, normal unit activities were

not changed. It was determined that as the implementation of this project posed no

inherent risk to the nurses, consent from staff nurses on the unit was not necessary.

The EBP project manager completed the National Institutes of Health (NIH) training

(see Appendix F), integrated these principles within the planning of this EBP project,

and remained conscious of ethical concerns regarding her roles during project

implementation.

Outcomes

The EBP project manager attempted to answer the following question: For

registered nurses working on the 31-bed IMCU, does a multifaceted reminder approach

(consisting of an introductory 10-minute PowerPoint for nursing staff, a visual reminder

for nursing staff use, and presentation of progress at monthly unit meetings), compared

to current practice, improve the HAPU documentation monthly audit scores over a 3-

month period? Using a retrospective comparison of audit data, the effectiveness of a

multifaceted reminder intervention was determined. The completeness of the HAPU

audit components in percentage form was the primary outcome of interest. To

determine acceptance of the visual reminder and identify strategies to facilitate

continued use and potential expansion of use, the opinions of the participating nurses

regarding the intervention were examined using a survey at morning shift changes post-

intervention.

Intervention

The EBP project manager attended four morning shift reports pre-data collection

(August 2015) to introduce self, the nature of the project, and present a brief 10-minute

PowerPoint (see Appendix C) regarding the essential components of the HAPU audits.

The project manager also provided breakfast to the attendees of the unit meeting.

Immediately following the pre-data collection period, the EBP project manager

placed brightly colored, note-card sized, laminated visual reminders (see Appendix B)

on each computer that was used for nursing documentation on the unit. These

reminders alerted the nurse to complete charting on the HAPU documentation

components. The visual reminders remained on the unit computers for the entire

intervention data collection period (August 20th-31st, September, October, and

November 2015). Since the scheduled unit meeting was mid-August and chart audits

are conducted at random times during the month, August data was omitted from data

analysis.

During the months of September, October, and November, designated staff nurses

conducted the monthly chart audits focusing on completeness of nursing documentation

and forwarded the results to the unit manager. The unit manager tabulated/collated

data, as this was standard practice on the unit and forwarded the results to the EBP

project manager. The EBP project manager attended the subsequent regularly

scheduled monthly staff meetings during the implementation period (September,

October, and November 2015) to report progress of HAPU documentation and

encourage continued recognition of the visual reminders provided. The EBP project

manager also visited the unit on a weekly basis to ensure the visual reminders

remained attached to the computers and replaced them when appropriate. Audit

performance is normally presented at the monthly unit meetings to all staff. During the

meetings the unit manager was also advocating the success and importance of the EBP

project.

The EBP project manager attended the November 2015 regularly scheduled staff

meeting to present the results of the audit scores after implementation of the

intervention and encourage continuous improvement of nursing documentation following

completion of this project. Breakfast was also provided to those attending as a thank

you for participation. At this time, the project manager requested participation in an

anonymous post-intervention survey (See Appendix G) to evaluate the nurses'

perception of the helpfulness of the intervention and to obtain nurses' opinions on why

nursing documentation is continued to be deficient. The project manager also attended

three morning shift exchanges post-intervention to gain data from additional nurses who

were unable to attend the initial evaluation meeting. The same directions were given to

the nurses during the shift reports. The participants were then instructed to not include

any identifying data on the survey, but to fold the survey in half, and place in a slotted

sealed box as they left meeting. The EBP project manager left the room after the

instructions were provided. There was no compensation for participating in the survey

and there was no penalty for not completing a survey. Nurses who elected not to

provide information could simply place the blank folded survey within the designated

box. The EBP project manager did not review the surveys until all were collected to

ensure confidentiality.

Planning

Prior to implementation, the EBP project manager met with the IMCU unit

manager on several occasions to discuss ideas for improving audit scores. After

previous success with visual reminders on the unit and regular mentioning of

deficiencies to staff members, a visual aid was considered to be a promising

intervention. Upon review of the literature, an educational approach was also

discovered to be successful in improving the completeness of nursing documentation.

Upon IRB approval, the unit manager was instructed on how to fill in the data

collection sheets (see Appendix H). It was communicated to the unit manager that this

EBP project was not designed to disrupt normal unit activities, to maintain

confidentiality, and the EBP project manager was not to view records outside of the

worksheets associated with this project.

Additional financial support was not necessary to carry out implementation.

Visual reminders were printed and laminated using resources readily available to the

EBP project manager and a 10-minute PowerPoint was prepared. Breakfast was

provided to the attendees of the pre-intervention shift reports and the November 2015

unit meeting also via resources available to the EBP project manager.

Data Collection

HAPU audit results from May, June, and July of 2015 were obtained. The unit

manager calculated each component of the HAPU audit from each of the months of

May, June, and July 2015 into a monthly percentage (current practice) and provided a

written report the of findings (see Appendix I) to the EBP project manager. The EBP

project manager then averaged each component of the HAPU audit from the months

May, June, and July 2015 to establish a pre-intervention mean; thus, confirming the

need for intervention and assisting with the establishment of a benchmark for project

success at an increase of 3% and/or HAPU documentation components being at 90%

compliance or higher.

After the intervention period, the EBP project manager obtained the calculated

HAPU audit components in percentage form (see Appendix J) for the months of

September, October, and November of 2015 from the unit manager and averaged these

scores. The mean results were then compared to the baseline data to evaluate the

effectiveness of the intervention and shared directly with the unit manager.

Upon completion of the nurse surveys at the November 2015 meeting and subsequent shift reports, the EBP project manager removed the box containing the surveys from the unit, and the project manager transported the sealed box to her residence. The surveys were then used for data extraction, being kept in a secured drawer within the project manager's residence that was only accessible to the project manager. As the data analysis has been completed, the surveys and redacted audit results will be kept secure for a total of three years upon project completion in the locked drawer. Data from the surveys have been reported and disseminated only in aggregate form. All project records will be destroyed after three years.

CHAPTER 4

FINDINGS

The PICOT question for this EBP project was as follows: For registered nurses working on a 31-bed IMCU, does a reminder intervention, compared to current practice, improve documentation monthly audit scores over a 3-month time period? The purpose of this EBP project was to determine the effectiveness of a multifaceted reminder approach to improve the quality and completeness of nursing documentation on the unit of interest. The multifaceted reminder consisted of (a) an educational component including a 10-minute PowerPoint presentation at the start of the implementation period and (b) brightly colored visual reminders placed on each computer used for nursing documentation on the unit. The following sections present the findings of this EBP project including participant characteristics, project outcomes comparing pre-intervention audits versus post-intervention audits, and investigative findings from a post-intervention survey completed by nursing staff members on the unit.

Participants

Nursing staff. A total of 38 registered nurses were employed at the start of the intervention and 35 were employed at the end of the study with a turnover rate of seven full time nurses and four new hires within the data collection period. Of the 38 registered nurses who were employed on the unit pre-intervention, the EBP project manager was able to educate 35 of these nurses. The remaining three nurses were considered part-time or as needed employees and were difficult to contact. The years of experience as a registered nurse overall ranged from 3 months to 43 years ($M = 5.2$ years). The years worked a registered nurse at that facility ranged from 3 months to 14.25 years ($M = 2.8$

years) (see Table 4.1). Of the 35 registered nurses working on the unit post-

intervention, 32 responded to the post-intervention survey (see Figure 4.1).

Chart Audits. Intervention success was determined based on significant

improvement changes in the 10 HAPU chart audits. The HAPU audit components

included (a) full body assessments on admission and transfers, (b) second nurse co-

sign of assessment on admission, (c) oxygen in use with delivery method

documentation, (d) ear protectors applied and documented, (e) documentation of

patient turned every two hours, (f) Braden scale on admission and every shift, (g)

wound nurse consult for Braden <14, (h) wound prevention supplies noted in room and

in use with documentation, (i) documentation of skin condition behind ears, and (j)

WDLA documented for each wound and RCR completed. On the unit, charts had been

typically audited about four times each month with 25 charts being evaluated during

each audit, resulting in the audit of approximately 100 per month. Because a major

focus of this EBP project was to maintain normal unit activities and not create extra

workload, the precise number of charts audited was unknown. However, the

extrapolation of data from routine auditing practice provided what was determined to be

an accurate estimate. Pre-intervention HAPU audit scores were gathered in May, June,

and July of 2015 for a baseline (pre-intervention) while the intervention began in

September and comparison data was collected via audits in September, October, and

November of 2015.

Statistical Testing and Significance

Using the commercially purchased IBM SPSS Statistics software version 22,

statistical analyses were carried out to determine the effectiveness of the reminder

interventions on nursing documentation completeness. Using McNemar Chi-square type

analyses, statistically significant changes were determined from the pre-intervention

period to the post-intervention/data collection period (see Table 4.1). Statistical

significance was established as *p* <.05. The combined pre-intervention data (May, June,

and July) and combined post-intervention data (September, October, and November)

were analyzed for each individual audit components and the overall assessment to

determine improvements or changes in nursing documentation completeness (see

Figure 4.2). Frequency distributions and descriptive statistics were analyzed following

the completion of the post-intervention staff survey, which evaluated nurses' opinions

about the visual reminders and nursing documentation.

Findings and Significance

There was a statistically significant increase in documentation of Braden scale on

admission and every shift (*p* = .000) with an increase in percent of completion from 89%

to 97%. There was also a statistically significant increase in wound prevention supplies

in room and in use with documentation (*p* = .002) with an increase in percent of

completion from 92% to 95%. Although not to a statistically significant level within this

project size, increases in documentation completeness were noted in second nurse co-

sign of assessment on admission (70% to 72%) and WDLA documented for each

wound and RCR completed (80% to 82%). Oxygen in use with delivery method

documentation (83%), documentation of patient turned every two hours (98%), and

wound nurse consult for Braden <14 remained the same (93%). Unfortunately, there

were also statistically significant decreases in two audit components. Full body

assessment on admissions and transfer decreased from 95% to 90% (*p* = .000) and ear

protectors applies and documented decreased from 85% to 77% (p = .000). Unanticipated, the data also revealed that a decrease, although not statistically significant, was seen with documentation of skin condition behind ears (80% to 78%).
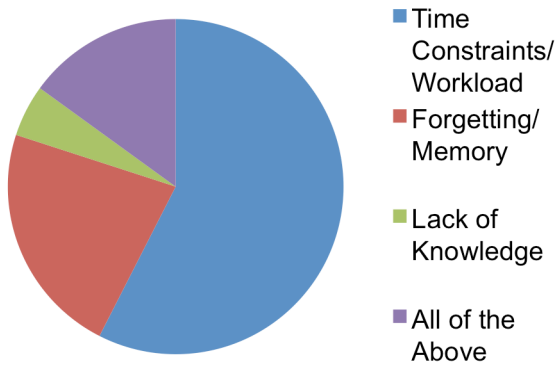
Based on the responses (n = 32) of the post-intervention survey, some conclusions can be drawn and generalized from the responses of RNs working on the unit. When asked which reminder was more helpful (the visual reminder, addressing audits at unit meetings, or both were equal) 19 said that "both were equally important," 7 chose "addressing audits at the monthly unit meetings," and 6 chose the "visual reminders." When asked if the bright colored visual reminder attracted their attention, 29 responded "yes" while only 3 responded "no." The last question explored the opinions of why nursing documentation components are missed, and allowed the participants to select more than one option. "Time constraints/workload" was the most popular choice at 23 responses (23/32 = 71.8%) followed by "forgetting/memory" at 9 responses (9/32 = 28.1%)." Lack of knowledge" was chosen by 2 respondents (2/32 = 6.3%) and "all of the above" was chosen by 6 (6/32 = 18.8%). There were 8 respondents who circled two possible answers. Nurses were also encouraged to leave comments on the post-intervention survey. From the narratives, it was discovered that the nurses' opinions reflected the literature and revealed reasons that nursing documentation is likely deficient.

- "Too understaffed to complete all of the tasks per shift at times."
- " We have critical patients and we have heavy workloads. We are almost always understaffed so we need to focus more on more important issues like patient's breathing and calling doctors than to worry about things that can wait."

- "I don't think this hospital is organized to handle the acuity of patients served. There is no tubing system or central nursing station or computers in rooms."

- "Understaffed."

Figure 4.1. *Post-Intervention Survey Response Data.*

In your opinion, why are nursing documentation components missed?

- Time Constraints/ Workload
- Forgetting/ Memory
- Lack of Knowledge
- All of the Above

Did the bright colors draw your attention to the visual reminder?

- Yes
- No

In your opinion, which was more helpful?

- Addressing Audits at Monthly Meetings
- Visual Reminder Attached to Computer
- Both were Equally Important
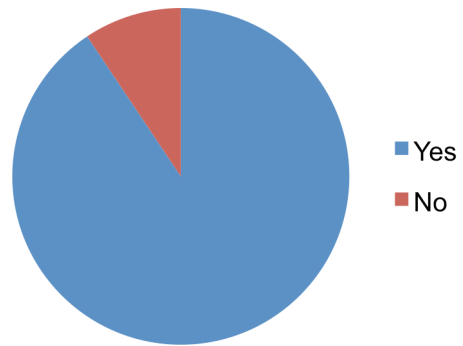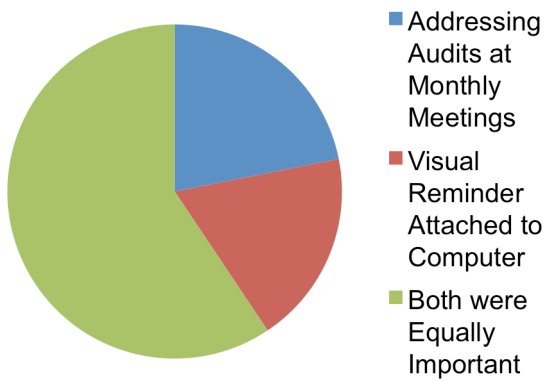
Level of Education

- ASN
- BSN

Table 4.1

Pre-Intervention and Post-Intervention HAPU Audits

Percentage Mean and Significance

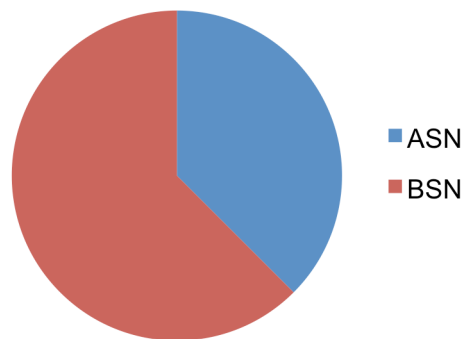| Audit Components	Pre-Intervention	Post-Intervention	Significance ($p < .05$)
Full Body Assessment on Admissions and Transfers	95%	90%	($p = .000$)
Second Nurse Co-Sign of Assessment on Admission	70%	72%	($p = .424$)
Oxygen in Use with Delivery Method Documentation	83%	83%	($p = 1.000$)
Ear Protectors Applied and Documented	85%	77%	($p = .000$)
Documentation of Patient Turned Every 2 Hours	98%	98%	($p = 1.000$)
Braden Scale on Admission and Every Shift	89%	97%	($p = .000$)
Wound Nurse Consult for Braden <14	93%	93%	($p = 1.000$)
Wound Prevention Supplies in Room and in Use With Documentation	92%	95%	($p = .002$)
Documentation of Skin Condition Behind Ears	80%	78%	($p = .424$)
WDLA Documented for Each Wound and RCR Completed	80%	82%	($p = .302$)
TOTAL	86.6%	86.4%	($p = .761$)

CHAPTER 5

DISCUSSION

This EBP project examined the affects of a multifaceted reminder approach, consisting of (a) a visual reminder and (b) an educational session using a 10-minute PowerPoint presentation. The project also provided support for the need to further assess the quality of nursing documentation and the affect it has on hospital reimbursement and patient outcomes. The purpose of the project was to answer the following question: For registered nurses working on a 31-bed IMCU, does a reminder intervention, compared to current practice (monthly recording and reporting of audit scores alone), improve documentation monthly audit scores over a 3-month time period? Although the results of this project did not support the effectiveness of the intervention for improving all items within the HAPU audit, other conclusions and support for further interventions can be determined. Within this chapter, a careful analysis of the factors contributing to the results of the EBP project are discussed, the theoretical and EBP frameworks are reevaluated, strengths and limitations are examined, and implications for the future are considered.

Evaluation of Intervention

The implementation of visual reminders paired with nursing staff education was supported within the literature (Aspesi et al., 2013; Berkihiser, 2010; Coke et al., 2015; Evatt et al., 2011; Malouf-Todaro et al., 2013; Nielsen, Preschel, & Burgess, 2014; O'Connor et al., 2014; Pageler et al., 2014; Piscotty & Kalisch, 2014). A visual reminder adapted from the unit's HAPU audit forms plus a 10-minute PowerPoint presentation based on the current workflow of documentation in the EHR charting system were both

developed to encourage the intended practice change. HAPU audit forms already

established by the unit were used to collect data each month. The HAPU audits

measured compliance in the ten areas that are required each shift to be documented in

order to ensure that the standard of care regarding skin assessments was met.

The unit of interest has taken responsibility for several stages III and IV pressure

ulcers in the past, which are reportable ulcers not reimbursed by Medicare. This

shortfall coupled with consistently inadequate audit scores generated the need for an

evidence-based intervention to counteract this noncompliance.

The 10-minute PowerPoint presentation was offered to the nursing staff ($n = 38$)

during four morning shift exchanges in an attempt to educate as many of the nurses

employed on the unit as possible. This practice was determined to be an adequate

amount of time to provide the necessary information to staff members within the

literature (Coke et al., 2015; Evatt et a., 2014; Malouf-Todaro et al., 2013; O'Connor et

al, 2014). It has been shown that educational sessions are more effective when they do

not disrupt the normal routines of a unit (Berkihiser, 2010; Coke et al., 2015; Evatt et al.,

2014). Therefore, the time limit of the PowerPoint was kept to shortest duration that had

shown to be effective. The education session was originally scheduled to occur during

the August 2015 staff meeting. However, due to a hospital conflict, this meeting was

cancelled and not rescheduled. Rather than reschedule a separate meeting, the EBP

project manager, with the input of the unit manager decided to incorporate the

education session into shift exchanges to minimize interruptions in workflow. The 10-

minute time limit of the presentation was well accepted by the staff nurses; however, it

is uncertain if the education would have been more influential if delivered at a formal

unit meeting with the unit manager present.

The visual reminders were placed on the 18 computers used for nursing

documentation immediately following education completion. The colors of the reminders

were changed each month to reduce desensitization (Berkihiser, 2010; Pageler et al.,

2014). Lime green was used in September 2015 (See Appendix K), neon pink was used

in October 2015, and highlighter yellow was used in November 2015. Evidence also

supported the use of bright colors to attract attention (Berkihiser, 2010; Coke et al.,

2015; Evatt et al., 2014; Nielsen et al., 2014; Pageler et al., 2014). Based on the survey

results, 29 out of 32 (90.6%) nurses found the bright colors to be helpful in attracting

their attention to the reminder. Although the results did not fully reflect the intended

outcomes, many nurses requested that the reminders remain on the computers after

project completion because they were helpful during the time spent documenting.

The EBP project manager visited the unit on a weekly basis and attended

regularly scheduled monthly staff meetings to reinforce the use of the reminders,

reiterate the purpose of the project, and update the unit on any progress. Regular

contact with the staff members to encourage the sustenance of the change processes

was also supported within the literature (Aspesi et al., 2014; Nielsen et al., 2014).

Although this was not part of the 'multifaceted reminder intervention,' evidence shows

that education is more effective when normal activities are not interrupted (Berkihiser,

2010; Coke et al., 2015; Evatt et al., 2014). Therefore, the EBP project manager

presented the audit data alongside the unit manager during the scheduled unit meetings

in September, October, and November of 2015, which is normal practice. Based on the

post-intervention survey, 6 out of 32 (18.8%) nurses responded that addressing monthly

audits at unit meetings, exclusively, was more helpful, while 19 out of 32 (59.4%)

responded that the visual reminders and reinforcement at unit meetings were equally

helpful. These results support the continuation of addressing audit scores to the nursing

staff on a monthly basis.

Explanation of Primary Outcomes

The primary outcomes of the project did not completely reflect the intended results.

However, conclusions can be drawn from the project as a whole and many external

factors likely contributed to the final results. The literature supported the use of a visual

reminder and education to improve the compliance of nursing documentation

components (Aspesi et al., 2013; Berkihiser, 2010; Coke et al., 2015; Evatt et al., 2011;

Malouf-Todaro et al., 2013; Nielsen, Preschel, & Burgess, 2014; O'Connor et al., 2014;

Pageler et al., 2014; Piscotty & Kalisch, 2014). An ideal compliance rate would be 90%

or higher in each documentation component. However, several components on the

HAPU audit were much lower and because of the 3-month implementation period, a

three-percent increase in each component was the goal. This was determined based on

the circumstances of the project paired with outcomes noted within the appraised

literature.

Braden scale on admission and on every shift had an 8% increase in compliance

(89% to 97%; p = .000). This is a particularly positive finding based on the organization

of the EHR. When a Braden scale assessment is documented at less than or equal to

14, the wound nurse at the facility is automatically consulted in the computer and will

assess and address the patient's skin integrity throughout their entire stay. However, if

the Braden score is greater than14 and the patient still has risk factors for existing or

potential skin breakdown, then it is the nurse's responsibility to make appropriate

consults. The increased compliance in this category ensures that appropriate consults

are being made when necessary and that the overall risk factors for skin breakdown are

being more carefully monitored. The improvement in this component met and exceeded

the goal by increasing over 3% from pre-intervention and meeting a compliance level of

90%. The Braden scale documentation was especially low in May at 75% (95% in June

and 98% in July), which undoubtedly skewed the pre-intervention mean. However, the

steady increase in compliance was maintained during project implementation, and all

scores remained above 96% during the implementation phase. It is likely that the

reminder intervention assisted in this maintenance. The increase in wound prevention

supplies in room and in use with documentation (92% to 95%; p = .002) is also an

encouraging finding. Although this component was already at or above 90% compliance

pre-intervention, a 3% increase from baseline was observed. These increases reflect

that patients have been properly identified as having a wound or impaired skin integrity

of some degree and that the wound or risk for wound development is being addressed.

Although not statistically significant, increases were noted in second nurse co-sign of

assessment on admission (70% to 72%) and WDLA documented for each wound and

RCR completed (80% to 82%). Second nurse co-sign of assessment on admission is

generally a second step to full body assessment on admission and transfers, which has

a historically high compliance rate of 90% or above. It is interpreted that finding a

colleague to personally assess the patient, then co-sign the admission note remains

problematic. This component likely remains low because of time constraints from

increased workload that is placed on the second nurse. Although this component

remains low, it did not fall below the 60% compliance level observed in June 2015 (pre-

intervention) during the implementation period. Furthermore, the WDLA documented for

each would and RCR completed did not fall below the 75% compliance level that was

observed in May 2015. This component likely remains deficient because of the

organization of the assessment tab in the EHR. Skin integrity is a separate assessment

piece from wound assessment and also appears before wound assessment.

Additionally, wound assessments are positioned last within the assessment tab.

Because of the new hires and newer nurses on the unit, it is questionable whether the

staff is knowledgeable about this set-up. Furthermore, time constraints and increased

workload likely added to this deficiency, especially when patients had multiple wounds.

Expansions to the educational component could have facilitated improvements in this

area by concentrating more time on the proper steps to complete this component of

documentation; however, the EBP project manager remained vigilant of the 10-minute

presentation time frame.

Three audit components did not change from baseline after intervention

implementation: oxygen in use with delivery method documented (83%), wound nurse

consult for Braden <14 (93%), and documentation of patient turned every two hours

(98%). While oxygen in use with delivery method documented was part of the HAPU

audit, it was slightly less relevant than the documentation of skin condition behind ears

in identifying and preventing pressure ulcers. The other two components already met

the goal of 90% compliance or above at baseline; therefore, the unit was already strong

in consistently documenting these areas.

A non-statistically significant decrease was observed in documentation of skin condition behind ears (80% to 78%). This was also likely due to the lack of knowledge about appropriate documentation methods and poor organization of the EHR related to this area. Because of an undue amount of behind-the-ear pressure ulcer developments on the unit in the recent past, this documentation component was more recently added to the HAPU audit. Therefore, there was not a specified location to document this finding in the EHR during the time of the project. To date, current practice is still to open a narrative note when documenting oxygen in use with delivery method, and comment on the condition behind the ears. After evaluating the outcomes, it was apparent that the scores of these two components were reflective of one another. Because this was a fairly new addition to the audit, it was anticipated that many nurses were unaware of how to properly document this component.

A statistically significant decrease was noted in full body assessment on admissions and transfers (95% to 90%; p = .000). Although a decrease was observed, compliance was maintained at a 90% or higher. This is generally a strong area for the unit but is associated with second nurse co-sign. The organization of the EHR does not include these components in the admission tab. The EBP project manager feels that this is a probable reason they are so frequently missed and/or forgotten. The nurse must remember to open a separate progress note after exiting out of the admission tab in order to fulfill this requirement. To fulfill the second-nurse co-sign component, the admitting nurse must check 'co-sign required' on the progress note and then the second nurse must remember to login to their account and confirm the patient assessment for the admitting nurse's patient. Based on the post-intervention survey, time

constraints/workload was marked 23 times out of 40 total responses (57.5%) when

asked 'why are nursing documentation components missed?' Time constraints having a

negative impact on the completeness of nursing documentation is commonly mentioned

in the supporting literature (Blair & Smith, 2012; Evatt et al., 2014; Furst et al., 2013;

Grazia De Marinis et al., 2010; Monarch, 2007; Nielsen et al., 2014). Additionally, lack

of EHR organization to meet the nursing workflow is also cited as a barrier to

completeness of nursing documentation (Blair & Smith, 2012; Furst et al., 2013; Wang

et al., 2011). The interpretations of the findings are consistent with the supporting

literature.

Ear protectors applied and documented also had a statistically significant decrease

(85% to 77%; p = .000); however, the occurrence of pressure ulcers behind the ear

decreased from two pre-intervention to one during the implementation months (IMCU

unit manager, personal communication, December 1, 2015). Although this may have

been due to chance, the lack of documentation compliance did not have a significant

impact on the occurrence or identification of new or existing pressure ulcers.

Additionally, the May 2015 data was omitted from the HAPU audit for unknown reasons,

which likely had an impact on the final outcome. Furthermore, historically ear protectors

applied was also to be documented in a separate narrative note under oxygen in use

with delivery method; however, that practice changed as of March 2015 when a check

box was added to the EHR that reads 'padded nasal cannula' as a method of oxygen

delivery. By selecting 'padded nasal cannula,' the nurse is considered compliant with

documenting ear protectors applied. Because this is a fairly new option in the EHR, it is

possible that the auditors and/or nurses were unfamiliar with this change, further

contributing to the observed results. All things considered, the HAPU documentation scores involving oxygen in use with delivery method were all reflective of one another. It is speculated that reorganization of this assessment portion in the EHR may be beneficial.

Evaluation and Applicability of the Theoretical and EBP Framework

Two frameworks were used to guide the development, implementation, and evaluation of this EBP project: Kotter's eight-step model of change and the Iowa Model of EBP. The applicability of each of these frameworks to the undertaking of this EBP project will be further discussed.

Kotter's Eight Steps of Change. Kotter's (1996) eight steps of change include (a) establishing a sense of urgency, (b) creating the guiding coalition, (c) developing a vision and strategy, (d) communicating the change vision, (e) empowering broad-based action, (f) generating short-term wins, (g) consolidating gains and producing more change, (h) and anchoring new approaches in the culture. Kotter's change model provided a step-by-step approach to guide the phases of this project.

In the first step, a sense of urgency was created amongst key stakeholders at the hospital. The EBP project manager first discussed the clinical problem of incomplete nursing documentation with the unit manager. The ideas for documentation were also discussed with the director of continuing education for nurses, a master's prepared nurse. The unit manager, who is a bachelor's prepared nurse, was the main contact throughout the project. The EBP project manager and the unit manager addressed the nursing staff to report the problem and urge them to contribute to the solution at the monthly unit meetings. A stronger sense of urgency among the nursing staff may have

been cultivated if the initial educational session took place during the August staff

meeting, with all stakeholders present. A guiding coalition to address the problem was

created to develop a vision and strategy; however, the momentum displayed by the unit

manager seemed to be higher at the start of the project compared to the end. The EBP

project manager along with the unit manager communicated the change vision to the

nursing staff. The final intervention to change practice was communicated with the

nursing staff on the IMCU and evaluation methods were explained. To empower action,

the fifth step, The EBP project manager educated the staff of the correct strategy to

document all of the components of the HAPU audit and was also available weekly on

the unit for assistance. The sixth step, generating short-term wins, was communicated

at the monthly unit meetings by the EBP project manager and the unit manager.

Although the results exhibited some unintended outcomes, the occurrence of pressure

ulcers did decrease. From pre-intervention through September 2015, there were zero

pressure ulcers acquired on the unit, one in October 2015, and zero in November 2015.

Continued efforts to maintain the change, step seven, were communicated to key

stakeholders. Also, the staff nurses wished for the visual reminders to remain on the

computers after the implementation period was over. Furthermore, the previously

mentioned workflow breakdowns related to the EHR system were discussed with

relevant administrators. The HAPU audit will continue to be reviewed on this unit and

the goals of this project have been communicated to the unit's EBP team.

Overall, Kotter's eight steps of change served as a successful framework for the

implementation of this EBP project. The clear and concise step-wise approach to

change was a strength by presenting a well-studied and reliable strategy to introduce

the best practice model to the unit. Furthermore, Kotter's eight-step change model

allowed for the involvement of other key members of the EBP change process with

guidance for evaluation and maintenance of results. However, the length of the

implementation phase was viewed as a weakness because the desired time to dedicate

to each step could not be achieved. The short-term wins were not communicated as

effectively as anticipate and modifications could not be made by the EBP project

manager for reassessment. However, project objectives were communicated to change

agents on the unit and audits will continued to be monitored long-term.

The Iowa Model of Evidence-Based Practice. The progressive feedback loops

of the Iowa Model of EBP include (a) identifying a topic or problem, (b) forming a team,

(c) compiling relevant evidence and literature, (d) critiquing the literature, (e)

synthesizing a practice standard, (f) piloting the change, (g) and evaluation (Melnyk &

Fineout-Overholt, 2011). Because much of the evidence provided on this topic is not

research-based, the flexibility of search methods allowed by the Iowa Model was

beneficial.

A topic of priority was identified by the EBP project manager then discussed with

unit manager of the IMCU and the director of continuing education for the hospital

system. By getting others involved, the best options for change were discussed and the

need for improvement was made apparent. Next, relevant literature was compiled to

uncover the best evidence to augment the problem of incomplete nursing

documentation, particularly regarding HAPUs. The literature was critiqued and intensely

evaluated to determine the best practice standard and fit for the unit. It was determined

that the intervention should not interrupt normal workflow. From these decisions, a

multifaceted reminder intervention was initiated and evaluation of the implementation period took place.

The Iowa Model of EBP was an effective framework to guide this EBP project. The Iowa Model was a strength for this project because it allowed for gray literature and other non-traditional search methods that were slightly less meticulous than other models, which was necessary to expose the evidence for this project. Conclusively, both of these frameworks together served as practical guides to effectively progress through the stages of the project.

Strengths and Limitations

Overall, evaluation of this EBP project revealed a number of strengths and weaknesses. The following section provides an objective view of the factors that potentially impacted the implementation and results of this EBP project as well as recommendations for improvement.

Strengths. Although this EBP project did not produce the projected results for each HAPU audit component, the findings and interpretations of this project add to the current base of literature regarding barriers to complete nursing documentation and the need to improve compliance with this standard of care. This EBP project surfaced an issue that takes place in most of the audits collected on the unit. The unit manager noted that these findings were consistent on other units within the organization and interventions for improvement may be beneficial. Because nursing documentation has been recognized as deficient within the literature, the reminder intervention combined with education utilized in this EBP project provides a convenient option for other units and facilities to trial.

Another strength in relation to the findings of this EBP project includes the

recognition of factors that may contribute to the development of pressure ulcers.

Although the specific nursing tasks provided to patients may have actually been

completed, if it has not been documented, it will appear that it has not been done. This

directly affects the patient because the notes and recordings documented in the EHR

provide valuable information about the patient to upcoming nursing shifts that will assist

them in prioritizing their patient's needs. HAPU occurrences had historically been an

issue on the unit and the HAPU audit scores reflected the missed skin breakdowns.

However, because of this EBP project, the need for improvements in HAPU

documentation will encourage increased nurse vigilance of patient skin integrity and it

will also prompt nurse leaders to examine other potential changes to enhance unit

workflow. The unit's EBP team has been notified of the project outcomes and has

committed to work toward further improvements in documentation along with many

other projects they are involved in.

Limitations. Several limitations to the success of this EBP project were identified

by the EBP project manager. First, because one of the main goals of this project was to

not interrupt normal unit activities, many adjustments had to be made when presenting

the information during the implementation period. The 10-minute PowerPoint

presentation, educating the nursing staff about the HAPU components was originally

planned to occur at the monthly staff meeting in August 2015. However, because of an

all acute-care staff meeting also scheduled that day, the target unit could not be

reached all at once and the opportunity to present at the acute-care staff meeting was

not available to the EBP project manager. Therefore, the EBP project manager had to

make an addendum and present the information at four shift exchanges in August 2015

to reach all of the nurses involved. Even though 35 out of the 38 nurses were educated,

shift exchange is a stressful time in the workday and the information may not have been

as well received, as it would have during a formal unit meeting.

A similar problem happened again during the originally scheduled attendance at

the December 2015 unit meeting to disseminate the results and hand out the post-

intervention survey. The EBP project manager distributed the surveys and discussed

the results at the November 2015 unit meeting instead due to a conflicting holiday party;

however, attendance at this meeting was low with less than 50% of the nursing staff in

attendance. To reach all of the nursing staff, surveys and results also had to be

dispersed during three shift exchanges in November 2015 to extend the information to

the rest of the 35 nurses employed on the unit post-intervention. As scheduled, the EBP

project manager attended the September 2015 and October 2015 unit meetings;

however, attendance at these meetings was also low with less that 60% and less than

50% of the nursing staff respectively. The low attendance at the unit meetings and lack

of momentum maintained by the unit manager for successful outcomes and sustainable

improvements likely had a major impact on the results. In the planning stages of the

project, the unit manager viewed HAPU audits and pressure ulcer development as a

priority on the unit; however, the commitment to change was not consistent throughout

the entire course of the project. While enthusiasm for the project was expressed at the

unit meetings, there was no rescheduling of the meetings. Furthermore, the 'short-term

wins' were not successfully disseminated to all members of the nursing staff each

month, which also could have contributed to the lessened momentum for further

change.

Another presumed limitation was the anonymity of the auditors. Auditors on this

unit include staff nurses designated by the unit manager. It could have been the same

auditor for all six months of data collection or it could have been a different auditor each

month. To reduce bias and not interrupt the workflow on the unit, the EBP project

manager did not request the names of the auditors or provide additional instruction to

them. However because of this, charts could have been looked at only during the night

shift or only during the day shift possibly making the results less generalizable. The

pattern of charts reviewed is unknown by the EBP project manager. Furthermore, audit

data from a HAPU documentation component in May 2015 was missing.

Furthermore, the nurse turnover rate on this unit during the implementation could

have contributed to the less than desirable results. Pre-intervention, there were 38

registered nurses employed on the IMCU. At project completion, there were 35 nurses

employed with a total of four new full-time hires that took place during the

implementation period. This means that seven nurses resigned or left the unit for

undisclosed reasons that had received the HAPU education and had originally been

part of the reminder intervention initiative to improve documentation completeness. The

introduction of four new nurses to the unit who were unfamiliar with the project, paired

with a reduction in staffing that probably further increased workload, most likely had an

impact on the results.

Lastly, a major limitation identified by the EBP project manager was the required

time frame to complete the EBP project. Hospital X, which contained the project site,

offered the opportunity to work with the IT department and adjust select functions within the EHR system. However, due to the time frame allotted, the changes, retraining of nurses, and measurement of outcomes could not all be completed. Also, because the EBP project manager was not a current employee on at the facility, limited access to the EHR was available, which prevented the opportunity for the EBP project manager to manually show nurses where the components were to be documented within the patient's record during the education sessions.

Implications for the Future

    Practice. Based on the outcomes of this EBP project and specifically the lack of performance in the admission assessment components of the HAPU audit, it would be interesting to compare the affects that admission teams have on patient outcomes at hospitals that utilize this provision of care. Developing admission teams is a strategy that has been recommended to the stakeholders at the hospital by the EBP project manager for future endeavors to improve nursing documentation compliance. Evidence has shown that nurse-led admission and discharge teams have improved nurse satisfaction and retention by lessening the workload related to obligatory tasks. Admission teams have also shown to improve patient satisfaction by allowing nurses more time to be spent on direct care. The most notable development related to this EBP project, is that admission teams improved the completion of nursing documentation in virtually all areas (Spiva & Johnson, 2012).

    Furthermore, hard-stops within the EHR systems have been mentioned in the literature and are suggested to improve nursing documentation compliance and ensure that key nursing responsibilities are being carried out. In addition to hard-stops where

applicable, the organization of the EHR system at any given hospital should be tailored to best fit the nursing workflow (Silow-Carroll, Edwards, & Rodin, 2012). As mentioned earlier for example, within the EHR used at Hospital X, all of the required admission components are not available under the admission tab. With this being said, all of the documentation pieces are not explicitly grouped together correspondingly to the specific audit or quality measure. This increases the nurse's time spent navigating through the EHR and decreases the hands-on time spent with each patient.

Moreover, the interventions employed during this EBP project did not produce the anticipated outcomes for each audit component; however, occurrence of HAPUs acquired on the unit did decrease. Introducing the problem and making the issue known within the unit and facility may have contributed to some improvements by identifying an area of compromised care. In the future, interventions need to be designed that allow for the education of all nursing staff and that provide improvements in the efficiency of workflow.

Research. Recommendations for research include investigating the impact of admission nurse teams on the recognition of all hospital-acquired conditions. It may be possible that a comprehensive, initial admission assessment would direct the course of care throughout the patient's hospital stay and impaired skin integrity on admission would be punctually identified. Further research on reminders incorporated into the EHR with assessment areas grouped in a way that is complimentary to nurse workflow would also be beneficial to determine a more conclusive affect that visual reminders have on compliance. Additionally, hard-stops integrated into documentation areas that are key to

hospital reimbursement may aid in carrying-out the necessary nursing tasks and documentation of the care provided.

Education. It is important to disseminate the findings of this EBP project because very little data is available regarding nursing documentation compliance and the impact it has on patient care. It is recommended that the essentials and vital components of nursing documentation be taught during nursing school within the undergraduate curriculum. Within hands-on clinical courses, it should be a requirement to contract with facilities that utilize EHR documentation in order to best prepare future nurses for the work force (Miller et al., 2014). It is unclear why some areas of documentation are consistently compliant, like patient turned every two hours, while other areas are repeatedly deficient. Presumably, some areas of patient care may be more deeply ingrained into the undergraduate curriculum than others.

For current nurses, it is recommended that audits be continued and continuing education be regularly provided to nursing staff about documentation methods that incorporate the facilities specifications (Silow-Carroll et al., 2012). The effective use of EHR technology has indicated improvements in patient safety, decreases in expenditures for facilities over time, and reduction of healthcare costs overall (Miller et al., 2014). EHR systems are continually changing and nursing staff needs to be updated on the modifications in order to remain compliant with the current standards to produce positive patient outcomes (Silow-Carroll et al., 2012).

Conclusion

Implementation of a multifaceted reminder intervention including (a) a brightly colored visual reminder and (b) a 10-minute PowerPoint education session was

provided to nursing staff on a 31-bed IMCU at Hospital X in an attempt to improve the

HAPU audit scores. Retrospective data from three months was compared to the data

collected over a three-month intervention implementation period to determine any

improvements in nursing documentation compliance. Kotter's eight-step change theory

and the Iowa Model of EBP served as frameworks for the development and

implementation of this EBP project. McNemar Chi-square analyses were used to

determine any significant changes (p = .05) in the HAPU audit components. Overall

changes from pre-intervention to post-intervention were not significant; however,

significant improvements in Braden scale on admission and on every shift (p = .000)

and wound prevention supplies in room and in use with documentation (p = .002) were

observed. Secondary outcomes related to the post-intervention survey supported that

nursing documentation was deficient mainly due to time constraints and increased

workload as reported by nurses.

  The findings of this project add important information to the scarce body of

literature that involves the specifics of adequate nursing documentation.

Recommendations for future interventions and sustainable practice changes include

partnering with information technology specialists to modify EHR organization, sharing

the project objectives with the unit based evidence team for further intervention

development, and exploring new ways to improve the nursing workflow overall.

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BIOGRAPHICAL MATERIAL

Meredith A. White

Meredith White graduated from Purdue University in 2013 with a Bachelors of Science in Nursing. Following graduation from Purdue University, she began her nursing career on a specialized cardiac intermediate care unit at Methodist Hospitals Northlake Campus in Gary, IN. While conducting the unit's monthly audits at Methodist Hospitals, she recognized a gap in care related to the completeness of nursing documentation. Nursing documentation is a key factor in validating care for reimbursement and legal purposes and she is hopeful that this EBP project will continue to assist nurses on other units. After Methodist, Meredith then pursued a nursing position with Favorites Healthcare Staffing agency, servicing Northwest Indiana. From this position, she gained experience in perioperative nursing. Meredith is a member of Sigma Theta Tau International Honor Society of Nursing and the Coalition for Advanced Practice Nurses of Indiana. She plans to remain local and has accepted a position as a family nurse practitioner in the Valparaiso area.

ACRONYM LIST

CINAHL: Cumulative Index to Nursing and Allied Health Literature

CLABSI: Central line-associated blood stream infection

COW: Computer on wheels

DVT: Deep vein thrombosis

EBP: Evidence-based practice

EHR: Electronic health record

HAPU: Hospital-acquired pressure ulcer

IBCD: pneumococcal immunization, pressure ulcers/bedsores, catheter-associated

urinary tract infections, deep vein thrombosis

I-HIT: Impact of health information technology

IMCU: Intermediate care unit

IRB: Institutional Review Board

ISS: Injury severity score

IT: Information technology

JBI: Joanna Briggs Institute

JHNEBP: John's Hopkins Nursing Evidence-Based Practice

MICU: Medical intensive care unit

NIH: National Institutes of Health

PICOT: Patient population, intervention, comparison intervention, outcome, timing

PICU: Pediatric intensive care unit

QI: Quality improvement

RCR: Risk control report

SICU: Surgical intensive care unit

TBU: Trauma burn unit

VAP: Ventilator-associated pneumonia

VCB: Ventilator care bundle

WLDA: Wound/line/drain assessment

APPENDIX A

Evidence Table

Citation, Level of Evidence	Population, Setting	Design, Interventions, Comparisons	Outcomes and Effect Measures
Aspesi, A. V. et al. (2013). IBCD: Development and testing of a checklist to improve quality of care for hospitalized general medical patients. *The Joint Commission Journal on Quality and Patient Safety,* 39(4), 147-156. *Level VI*	▪ Pilot phase: 2 attending physicians ▪ Second phase: All 4 gen-med teams of physicians ▪ 596-bed tertiary care facility associated with large academic medical center in Chicago ▪ General medicine inpatients	▪ Quasi-experimental/ pretest- posttest w/ convenience sample ▪ Creation and modification of checklist to reminder for: Immunizations, Bedsores, CAUTI, and DVT on patient admission ▪ Final checklist integrated into morning rounds for pilot ▪ Modifications made and integrated into all four gen med teams after brief teaching ▪ Monthly presentations made, reminder emails, and posted signs to complete checklists	▪ Compliance via chart reviews/audits of completed documentation ▪ Two sample test of proportions ▪ 70% of attending's participated ▪ Improvement in adherence to four quality measures from 68% to 82% on average ▪ Paper checklist was adapted for EMR and implemented institution wide ▪ Admission documentation adherence of immunization adherence increased from 52% to 74%; pressure ulcer documentation increased from 44% to 62% ▪ 86% adherence to removal of unnecessary Foley catheters ▪ DVT prophylaxis on admission increased from 93% to 96% after checklist use

Citation, Level of Evidence	Population, Setting	Design, Interventions, Comparisons	Outcomes a Effect Measu
O'Connor, T. L., Raposo, A. E. & Heller-Wescott, T. (2014). Improving trauma documentation in the emergency department. *Journal of Trauma Nursing, 21*, 238-243. *Level IV*	▪ Trauma nurses ▪ Pennsylvania trauma center ▪ Patient charts; nursing documentation	▪ Retrospective chart review ▪ Initial retrospective review of 70 charts in randomly selected months ▪ Data collected from Jan 2011-Mar 2012 and compliance compared to state average per PSTF quarterly reports ▪ Interventions included education, updated trauma flow-sheets, and peer review process	▪ Checklist of da elements foun 79% of charts were incomple pre-interventio ▪ Improvement goal: 15 charts fewer per mon with deficienci ▪ Deficiencies dropped from 34& in Sept, to 33% in Oct, to 12% in Nov, to 10% in Dec overall ▪ Vitals sign documentatio compliance increased from 62% in 2nd quarter to 69% the 3rd, and 80 during the 4th ▪ Neuro assessment documentatio increased from 47% during th 2nd quarter to 72% during th 4th ▪ ISS >24 increased from 64% to 100% ▪ ISS15-24 from 65%-77%-83% ▪ ISS od 10-14 from 78% to 8 ▪ ISS 1-9 increased from 53%-78%

Citation, Level of Evidence	Population, Setting	Design, Interventions, Comparisons	Outcomes a Effect Measu
Pageler, N. M. et al. (2014). Use of electronic medical record-enhanced checklist and electronic dashboard to decrease CLABSIs. *Pediatrics, 133*, 738-746. *Level IV*	• All patients with a CVC in a 24-bed PICU in an academic children's hospital • Nursing staff documentation compliance	• Cohort with historical controls • Intervention of a prevention check-list enhanced by unit-wide dashboard in EMR	• Increase in da documentation line necessity from 30% to 7 • Documentatio improvements line necessity, frequency of dressing changes, frequency of c changes
Nielsen, G., Preschel, L. & Burgess, A. (2014). Essential documentation elements quality tool for the emergency department nurse. *Advanced Emergency Nursing Journal, 36*(2), 199-205. *Level IV*	• Emergency department • 30 patient records for retrospective data • 89,521 records after implementation	• Passive visual reminder within the EMR • Red dot to prompt users to about missed documentation • Green dot for completed documentation • Emailed education tool and daily huddles	• Monthly cumulative dat collection from March 2011 to March 2012 • 7 out of 16 documentation elements improved • Pain assessm 4% increase fr baseline • Immunization 54% from baseline • Blood administration components increased 44% from baseline • Height documentation 28% increase and Braden sc documentation increase 78% from baseline

Citation, Level of Evidence	Population, Setting	Design, Interventions, Comparisons	Outcomes a Effect Measu
Berkihiser, K. L. (Ed.). (2010). Proceedings from Emergency Nurses Association Annual Conference 10': *Creatively Communicated Cues to Improve Trauma Documentation.* *Level IV*	▪ Emergency department ▪ Convenience sample of 86 RNs ▪ Randomly selected charts to be audited for 3.5 months of 8 documentation components	▪ Placement of a large bulletin board in high traffic area as a reminder to document using bright colors ▪ Badge-sized cheat-sheets for RNs to take as a reminder	▪ Documentatior hypothermia t measures increased from 40% to 68%, GCS documentatior and pupil exar increased from 55% to 74%, Neuro status improved 23% 74%, intake ar output documentatior increased from 50% to 87%, overall increas of 90% in prim assessment areas
Coke, L., Otten, K., Staffileno, B., Minarich, L. & Nowiszewski, C. (2015). The impact of an oral hygiene education module on patient practices and nursing documentation. *Clinical Journal of Oncology Nursing, 19*(1), 75-80. *Level IV*	▪ Oncology unit ▪ Oral hygiene documentation improvement ▪ 44 RNs, 6 PCTs	▪ Retrospective data collection of EMRs to determine frequency and patterns of oral hygiene documentation ▪ Patients (*n* = 30) interviewed for 3-day data collection period ▪ 10-min in-service for nurses and PCTs about oral hygiene and documentation ▪ Paper reminders placed in each patient room to educate patient and document	▪ Oral hygiene v found in 90% patient records but only place education sec 52% of charts pre-interventic ▪ Post-interventi 91% had oral hygiene documentatior with 68% of education documentatior completed in appropriate section

Citation, Level of Evidence	Population, Setting	Design, Interventions, Comparisons	Outcomes a Effect Measu
Evatt, M. Ren, D., Tuite, P., Reynolds, C. & Hravnak, M. (2014). Development and implementation of an educational support process for electronic nursing admission assessment documentation. *MEDSURG Nursing, 23*(2), 89-95, 100. *Level IV*	▪ MICU/TBU ▪ MICU nurses (*n* = 63), TBU nurses (*n* = 36) ▪ Records collected of patient charts(*n* = 100) before and after intervention	▪ Quality improvement project with comparing retrospective chart audit ▪ Admission assessment consisting of 16 different documentation areas ▪ Improving timeliness, accuracy, and completeness of admission documentation ▪ 20-min face-to-face educational component reviewing the entire process of admission documentation	▪ Mean time between admission completion an patient admiss improved from 6.8 +\- 13 hour to 3.18+\- 3 ho ▪ 84% had some portion of admission assessment complete withi hours, increas to 93% post-intervention ▪ Completion of stroke assessment, vaccination screening, and pressure ulcer risk assessme increased to 100% (hard-st within EMR) ▪ Accuracy improved from 62% with no match to MD assessment a 22% complete match to 18% match to 69% complete mat

APPEND IX B HA PU Shift Docume ntation Remind er	Citation, Level of Evidence	Population, Setting	Design, Interventions, Comparisons	Outcomes a Effect Measu
	Malouf-Todaro, N., Barker, J., Jupiter, D., Tipton, P. H. & Peace, J. (2013). Impact of enhanced ventilator care bundle checklist on nursing documentation in and intensive care unit. *Journal of Nursing Care Quality, 28,* 233-240. *Level IV*	▪ 237-bed level II trauma center ▪ 24-bed MICU and SICU ▪ 30-40 nursing staff and interprofessional documentation system users	▪ QI project to reduce the incidence of VAP by increasing the documentation of VCB care ▪ 30-minute educational session for staff ▪ EMR imbedded reminder checklist	▪ VAP incidence ranged from 4 to 5.21 per 10 device days pr intervention; p data? ▪ 3099 shifts we examined (13 pre-interventio 2962 post-intervention) ▪ Completion of VCB an increased from 3.7% to 92.1% post-interventi
	Piscotty, R. J. & Kalish, B. (2014). The relationship between electronic nursing care reminders and missed nursing care. *Computers, Informatics, Nursing, 32,* 475-481. *Level VI*	▪ Convenience sample 165 med/surg, ICU, IMCU RNs ▪ Acute care hospital units ▪ Large Midwestern teaching hospital from 19 units	▪ Descriptive Correlational study ▪ Nursing care reminder survey for data collection of 12 questions regarding usage ▪ Likert scale missed nursing care survey of 22 items	▪ Significant negative relationships between miss nursing care, care reminder and perception of I-HIT ▪ Significant relationship between miss nursing care a I-HIT ▪ Relationship between care reminder usag and missed nursing care ▪ Nurses who report higher levels of reminder usag and favorable perceptions of HIT have fewe reports of miss nursing care

APPENDIX C

Staff Education PowerPoint

HAPU Documentation

Meredith White, BSN, RN
Valparaiso University

EBP Project

- Nursing interventions that are done are only documented 47% of the time
- Nursing education provided to the patient is only documented 3% of the time
- Visual reminders show promise in improving the compliance of nursing documentation
- Goals: Improve audit scores, improve hospital reimbursement, improve confidence in nursing documentation

PICOT

- On an intermediate care unit, what is the effect of a multifaceted reminder system, compared to standard practice, on HAPU documentation audit scores over a 3-month period?
  - Visual reminder
  - Monthly meeting updates

Full Body Assessment on Admission and Transfers

- Every new patient that arrives to the unit!!!
  - Add a '*progress note*'
  - Document any skin impairments or breakdown that you observe in detail
    - Order a wound consult
    - Complete risk report

Second Nurse Co-Sign of Assessment

- With the progress note, check "*co-sign needed*"
  - Tips: bring a second nurse in the room with you, make this the first thing you do on the admission, have the second nurse co-sign before leaving the room, double check before the shift is over.
  - Second Nurse: You are 100% responsible for the observations of the admission assessment once you co-sign. You have the option to add your own note if needed.

Oxygen in use with Delivery Method Documented

- This is under the '*Vital Signs Complex*' tab in Epic.
- Select the appropriate O2 delivery method from the drop down menu and the amount of oxygen being delivered (even if the patient is on room air, you must select *room air*)

Ear Protectors Applied and Documented

- This is under the *'Vital Signs Complex'* tab in Epic.
- You have the option of selecting *'padded nasal cannula'*
- Add a comment in this section to address the skin condition behind ears (eg. Skin behind ears is intact bilaterally)

Documentation of Patient Turned Every 2 hrs.

- This is under the *'daily care'* tab
- Please specify the direction turned and bed position every two hours
- Listen for the intercom turning chimes as a prompt

Braden Scale on Admission and Every Shift

- This is part of the admission assessment
- Tip: complete with first assessment each shift
- Braden score <14 order a wound consult

Wound Prevention Supplies Noted in Room and in use

- This is under the *'Daily Care'* tab
- Includes: wedges, mattress type, boots, heal protectors, ear protectors, barrier creams, skin protectants, powder etc.

WLDA Documented for Each Wound and RCR Completed

- FOR EACH WOUND DISCOVERED: *'Add WLDA'* under the *'doc flowsheet'* tab and fill in each drop down menu
- Order a wound consult
- Complete a risk report
- Notify attending physician

Visual Reminder

APPENDIX D

HAPU IMCU Audits

Date: _____   Auditor:_____

Patient Room # MR#	Full body Assessment on Admission and Transfers	Second nurse co-sign of Assess-ment	Oxygen in use with delivery method documente d	Ear protectors applied and documente d	Documentation of patient turned every 2 hrs.	Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documenta tion of skin condition behind ears	WLDA documented for each wound a RCR completed

Patient Room # MR#	Full body Assessment on Admission	Second nurse co-sign of Assess-ment	Oxygen in use with delivery method documente d	Ear protectors applied and documente d	Documentation of patient turned every 2 hrs.	Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documenta tion of skin condition behind ears	WLDA documented for each wound a RCR completed

APPENDIX E

Unit Manager Support

Demetrice Frazier
2W/2C Unit Manager
dfrazier@methodisthospitals.org

June 19th, 2015

To Whom it May Concern:

Meredith White, BSN, RN, is enrolled in a doctoral program and will be completing an evidence-based project that will involve the participation of nurses on the intermediate care unit. This project is anticipated to be planned, implemented, and evaluated within three semesters. I have provided input into identifying the need and topic of the proposed project and will be available if any concerns arise during project implementation. Meredith has my permission and support to collect data, implement change, and evaluate the implementation of a multifaceted reminder intervention within my unit.

Sincerely,

Demetrice Frazier, RN

APPENDIX F

NIH Certification

Certificate of Completion

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

Date of completion: 03/24/2015

Certification Number: 1731191
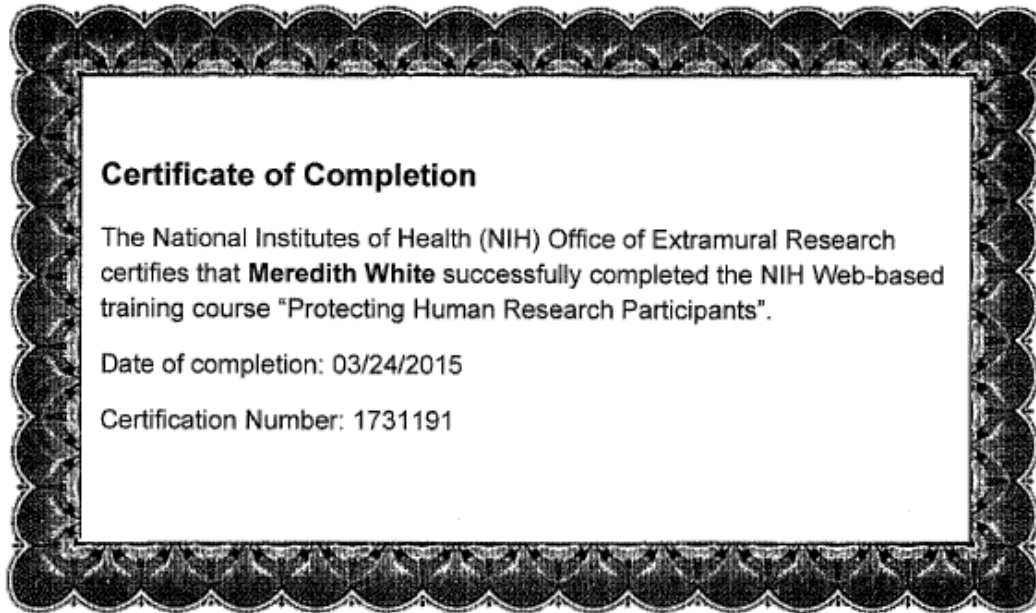
APPENDIX G

The Effect of a Multifaceted Reminder Intervention to Improve Nursing Documentation Completeness: Survey

Thank you for agreeing to participate in this survey to evaluate the effectiveness and acceptance of visual reminders to improve documentation. Completion of this survey implies your consent to participate. There is no compensation for participating and there is no penalty for not completing this survey. You may elect not to answer any of the questions. Data from this survey will only be used in aggregate form and may be helpful in developing future interventions to improve the completeness of documentation.

Please circle the best answer for the following questions. DO NOT write your name or any other identifying information on this paper. Once completed please fold in half and place in the slotted box by the treatment room door. (Note: your answers will remain anonymous)

1. How many years have you been practicing as a registered nurse?

2. How many years have you been practicing as a registered nurse at this facility (years)?

3. Level of nursing education?

    a. ASN

    b. BSN

    c. MSN

4. In your opinion, which was more helpful?

    a. Addressing audits at the monthly unit meetings

    b. Visual reminder attached to computer

5. Did the bright colors draw your attention to the visual reminder?

    a. Yes

    b. No

    c. Both were equally important

6. In your opinion, why are nursing documentation components missed?

    a. Time constraints/Workload

    b. Forgetting/Memory

    c. Lack of knowledge

    d. All of the above

    e. Other (Please explain)_____

7. Please express any other thoughts or comments.

APPENDIX H

Audit Data Collection Forms

May 2015 HAPU Audit

Full body assessment on admission and transfers	Second nurse co-sign of assessment ON ADMISSION	Oxygen in use with delivery method documentation	Ear protector applied and documented	Documentation of patient turned every 2 hours
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound a RCR completed

June 2015 HAPU Audit Results

Full body assessment on admission and transfers	Second nurse co-sign of assessment ON ADMISSION	Oxygen in use with delivery method documentation	Ear protector applied and documented	Documentation of patient turned every 2 hours
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound a RCR completed

July 2015 HAPU Audit Results

Full body assessment on admission and transfers	Second nurse co-sign of assessment ON ADMISSION	Oxygen in use with delivery method documentation	Ear protector applied and documented	Documentation of patient turned every 2 hours
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound a RCR completed

September 2015 HAPU Audit

Full body assessment on admission and transfers	Second nurse co-sign of assessment ON ADMISSION	Oxygen in use with delivery method documentation	Ear protector applied and documented	Documentation of patient turned every 2 hours
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound a RCR completed

October 2015 HAPU Audit Results

Full body assessment on admission and transfers	Second nurse co-sign of assessment ON ADMISSION	Oxygen in use with delivery method documentation	Ear protector applied and documented	Documentation of patient turned every 2 hours
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound a RCR completed

November 2015 HAPU Audit Results

Full body assessment on admission and transfers	Second nurse co-sign of assessment ON ADMISSION	Oxygen in use with delivery method documentation	Ear protector applied and documented	Documentation of patient turned every 2 hours
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound a RCR completed

APPENDIX I

Pre-Intervention HAPU Audit Scores

May 2015

Full body assessment on admission and transfers	Second nurse co-sign of assessment	Oxygen in use with delivery method documented	Ear protectors applied and documented	Documentation of patient turned every 2 hours
100%	75%	80%	NA	100%
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound and RCR completed
75%	95%	90%	70%	75%

June 2015

Full body assessment on admission and transfers	Second nurse co-sign of assessment	Oxygen in use with delivery method documented	Ear protectors applied and documented	Documentation of patient turned every 2 hours
90%	60%	80%	80%	95%
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound and RCR completed
95%	90%	90%	80%	80%

July 2015

Full body assessment on admission and transfers	Second nurse co-sign of assessment	Oxygen in use with delivery method documented	Ear protectors applied and documented	Documentation of patient turned every 2 hours
95%	75%	90%	90%	98%
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound and RCR completed
98%	95%	95%	90%	85%

APPENDIX J

Post-Intervention HAPU Audit Scores

September 2015

Full body assessment on admission and transfers	Second nurse co-sign of assessment	Oxygen in use with delivery method documented	Ear protectors applied and documented	Documentation of patient turned every 2 hours
90%	70%	90%	80%	98%
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound and RCR completed
98%	90%	95%	80%	80%

October 2015

Full body assessment on admission and transfers	Second nurse co-sign of assessment	Oxygen in use with delivery method documented	Ear protectors applied and documented	Documentation of patient turned every 2 hours
90%	75%	80%	75%	98%
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound and RCR completed
98%	95%	95%	80%	85%

November 2015

Full body assessment on admission and transfers	Second nurse co-sign of assessment	Oxygen in use with delivery method documented	Ear protectors applied and documented	Documentation of patient turned every 2 hours
90%	70%	75%	75%	98%
Braden Scale on admission and every shift	Wound nurse consult for Braden <14	Wound prevention supplies noted in room and in use with documentation	Documentation of skin condition behind ears	WLDA documented for each wound and RCR completed
96%	95%	95%	75%	80%

Appendix K

September 2015 Visual Reminder