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The Effects of Structured Health Policy Education on Connecticut Registered Nurses' Clinical Documentation

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2017

Abstract

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Rosale Constance Lobo

MSN, Hunter College, 1989

BSN, Long Island University, 1986

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy Administration

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Abstract

Registered Nurses use clinical documentation to describe care planning processes, measure quality outcomes, support reimbursement, and defend litigation. The Connecticut Department of Health, guided by federal Conditions of Participation, defines state-level healthcare policy to include required care planning processes. Nurses are educated in care planning process standards, however no policy-required competency verification processes in academia or employers exists. Guided by the advocacy coalition framework, the purpose of this quasi-experimental study was to determine if the quality of nurse coalition actors' clinical documentation, a relatively stable parameter, would increase after attending policy-centered structured education. Data were extracted from 272 electronic medical records (136 pre - 136 post attendance) and mean quality scores were computed using the Müller-Staub Q-DIO scale from 17 nurse coalition actors. A two group dependent t test was used to examine quality score differences and linear regression was used to isolate process education subsections that significantly predicted post mean score improvements. Findings indicate a statistically significant difference between pre and post education quality scores ($p < .001$) and improvement drivers of the post-education quality scores were identified in the subscales of 'diagnosis as a process' ($p < .001$) and 'interventions' ($p < .001$). Implications for positive social change include recommendations to state-level policy makers to mandate confirmation of graduating nurses' documentation quality and to install continuing education requirements as a condition of bi-annual license renewal; each area acting to reduce non-compliant clinical documentation in light of federal Conditions of Participation rules.

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Dedication

I dedicate this dissertation to the following people who have been invaluable to my life. My partner, spouse, and father of my children, Barrie Lobo, who has been a constant source of undying support. The countless sacrifices cannot be replaced; however, they will be replenished in abundance. My mother, Ivy Young-Scott, I inherited your grit, your optimism, and your ability to laugh at it all. Without those attributes, my path would have taken a different turn. My father, Roy Scott, although you no longer walk this earth, I still hear you talking about the importance of education, I know you would be proud. My first born, Brian Scott your resilience is noteworthy, a true testament of leadership and an inspiration to me and my ambitions. My second born, Joaquim Laurence, your pursuit for answers to questions not yet asked is a driving force, I also seek to discover. My youngest, Roy Conrad, your impeccable timing and passion for living, despite what some might consider a nuisance, inspires me. Ilona and Brigitte, you have provided me with undying love, trust, and understanding. I am truly grateful for sisters like you who are silly, supportive and wise. Cheryl Braham, you've been hanging with me the whole time, thanks for your support and continued interest in the progress towards our nursing goals. Lastly, this work is dedicated to all nurses. Thank you for all you do. May this paper initiate the conversation to mandate policy on nursing documentation as a part of education beginning in nursing school and moving throughout our professional lives.

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Chapter 1: Introduction of the Study

In 1999 the Institute of Medicine (IOM) published the results of a groundbreaking study describing the state of healthcare and medical injuries. According to the IOM, medical errors were causing between 44,000 and 98,000 annual patient injuries (Kohn, Corrigan, & Donaldson, 2000). A medical error is described as failing to complete a plan or having the wrong plan in place (Kohn et al., 2000). Injury to a patient as a result of healthcare's failure is a violation of basic human rights, and the Agency for Healthcare Research and Quality (AHRQ) has asserted that patients have the right to receive care that meets quality and safety standards (AHRQ, 2012).

The IOM recommended converting medical record charting from paper to an electronic format. During his first term, President Obama signed the Health Information Technology for Economic and Clinical Health Act (HITECH). This act was designed to increase the visibility of nursing care and actions, and alleviate the burden of illegibility (Dearmon, 2013).

The Center for Medicare and Medicaid Services (CMS) reimburses 58% of all healthcare expenditures in the United States (CMS, 2008a). The CMS regulates reimbursement by reviewing healthcare documentation for language that denotes quality in healthcare delivery. Nursing documentation is evaluated based on CMS's regulations state nurses should use language related to the nursing care process to denote planned nursing care. The nursing care process is the language that should be used by nurses to denote planned nursing care.

Nursing documentation, also known as the nursing care planning process (Keenan, Yakel, Tschannen, & Mandeville, 2008), consists of five parts: nursing assessment, diagnosis, planning, intervention, and outcome. Each part is a step that guides the nurse into an examination of the patients' response to illness and the actual or potential problems that can arise (NANDA-I, 2014). The information nurses chart regarding patients is communicated to other healthcare professionals, litigators, regulators, reimbursement agents, and researchers. Nurses' understanding of the nursing care planning process and its transparency in the electronic health record (EHR) has become an urgent issue in healthcare. There is no method for confirming whether or not nurses are proficient in this charting process.

The introduction to the nursing process begins in nursing school (Aktan, Tracy, & Bareford, 2011; Bowers et al., 2011; Cruz et al., 2016; Greenawalt, 2014; Johnson & Bushey, 2011; Lindo et al., (2016); Lucas, 2010; Nickitas et al., 2010; Scruth, 2014). However, there are no competency exams to verify nursing students' understanding of the nursing process (American Nurses Credentialing Center, 2015). Once a nurse is employed, the healthcare facility mandates that the nurse document according to the nursing process. However, there is no competency tool to confirm compliance. I conducted an extensive review of the literature on nursing documentation and quality outcomes, but found no articles focused on confirming nursing documentation competency. When nursing documentation either in the care planning process or in nursing progress notes does not contain all of the elements of the nursing process, it is difficult to prove nursing care was provided according to best practice standards (Austin,

2010a; Björvell, Wredling, & Thorell-Ekstrand, 2003; Bolin, 2005; Brous, 2009; Marinis et al., 2010; Painter & Dudjak, 2010; Painter & Dudjak, 2011; Scruth, 2014).

Furthermore, nurses who lack an understanding of the nursing process place patients at a higher risk of injury (Scruth, 2014; Wang, Hailey, & Yu, 2011). Given that nurses are the largest group of professional healthcare providers (Bureau of Labor Statistics [BLS], 2017a; HRSA, 2013) , other healthcare professionals look to nursing documentation to guide patient care decisions (Ayello, Capitulo, Fowler, & Mulder, 2009; Bail, Cook, Gardner, & Greaish, 2009; Charalambous & Goldberg, 2016; Dehghan, Dehghan, & Sheikhrabori, 2015; Lavin, Harper, & Barr, 2015; Stevenson & Nilsson, 2011).

Background of the Study

Quality in nursing documentation is evaluated according to various measures. Entry levels to becoming a Registered Nurse are varied; students can earn an associate or a baccalaureate degree as their initial entry to professional practice. Professionals who already have a baccalaureate degree in another specialty can enter nursing through an accelerated program and receive a baccalaureate in nursing through the Accelerated Career Entry Program (ACE) at Southern Connecticut State University (SCSU, 2017) or a Master's of Science in Nursing through Yale School of Nursing and their Graduate-Entry Prespecialty in Nursing (GEPN) Program (YSN, 2017). Professional nurses also have various methods of maintaining licensure. Some states require annual continuing education requirements (34, including the District of Columbia) that provide nurses with

an educational platform that strengthens best practice, safety, and quality outcomes for nursing (American Nurses Association [ANA], 2001).

The varied entries into nursing provide a platform to further evaluate the transparency and quality of nursing documentation. Quality guidelines in nursing documentation was initially established when the National Association of Nursing Diagnoses–International (NANDA-I) evaluated nursing entries to identify nurses' contribution to healthcare (NANDA-I, 2012). Nurses need to ensure transparency in the health record, and the terms and phrases that articulate the responsibilities of the nurse were refined through the nursing care planning process as identified by NANDA-I, which has three distinct parts: (a) nursing diagnoses, (b) interventions, and (c) outcomes.

The benefits of the nursing profession were further articulated by nursing researchers who developed and evaluated systems used to audit nursing documentation. Müller-Staub, Needham, Odenbreit, Lavin, and van Achterberg (2007) designed a tool specifically to assess and evaluate NANDA-I's nursing care planning process. The instrument measures the quality of the nursing process by evaluating the relationship between the nurse's assessment, culminating nursing diagnosis, corresponding interventions, and resulting outcomes. The instrument is referred to as the Q-DIO, which is an abbreviation for quality, diagnoses, interventions, and outcomes. The Q-DIO is designed to measure the differences in mean scores of the sections within the nursing care planning process (diagnoses, interventions, and outcomes) before and after an educational session on the nursing care planning process (Müller-Staub et al., 2008a).

The NANDA-I nomenclature has been used globally to define the nursing process. However, Lai, Chantal, Yang, Liu, and Chen (2013) found that the NANDA-I was not useful for nurses caring for patients in a Taiwanese hospital. Traditional Chinese culture emphasizes a connection between mind and body. When nurses were asked if they could apply NANDA-I to their nursing care, they reported that NANDA-I did not address the nursing care needs of their patients. That is, the terms and classifications were inadequate to meet the needs of their patients. This study provided particulars regarding the limited applicability to NANDA-I as a universal method for articulating nursing care when caring for medical-surgical patients.

Furthermore, mental health nurses have had a difficult time using NANDA-I to classify their patient care needs (Frauenfelder, Müller-Staub, Needham, and van Achterberg, 2010). The NANDA-I terms are insufficient for describing their patients' responses to mental health conditions. For example, there is no diagnosis for eating disorders, self-esteem issues, or self-destruction symptoms (Frauenfelder et al., 2010). Thus, while the NANDA-I is used globally, there are limitations to its use with healthcare populations outside of western culture and within mental health nursing contexts.

Ehrenberg and Ehnfors (1999), Estrada and Dunn (2012), and Häyrinen, Lammintakanen, and Saranto (2010) found that the regular use of NANDA-I or standardized nursing language (SNL) to describe nursing care was evident in medical surgical settings. Nurses were able to identify patient populations with specific needs based on the nursing diagnosis used. Saranto and Kinnunen (2009) and Thoroddsen, Ehrenburg, Sermeus, and Saranto (2012) found further evidence of straightforwardness in

the care responses of patients and nurses, which confirmed that there is transparency in nursing language.

There has been a steady increase in the number of nurses involved in litigation since 1973 (Painter & Dudjak, 2010; Painter & Dudjak, 2011). Nurses are being identified as defendants for deviating from the standard of care based on their nursing documentation. Nursing documentation is the most important piece of evidence when there is a nursing malpractice allegation (Painter & Dudjak, 2010). Painter and Dudjak (2010, 2011) reported that in addition to the increasing number of nurses involved in litigation, there has also been an increase in the insurance payouts on behalf of nurses. Finally, nursing documentation is increasingly visible and valuable to healthcare quality patient outcomes and reimbursement criteria (CMS, 2008a, 2013; IOM, 2001; Tastan et al., 2014). Healthcare outcomes are significantly better when healthcare organizations confirm that nurses are knowledgeable in documenting patient information using SNL. Without specific education criteria, nurses are at risk of contributing to unfortunate patient outcomes.

There has been a gradual and steady rise in the cost of healthcare in the United States. The United States spent 3% of its gross domestic product (GDP) on healthcare in 1930, and 15% in 2007 (Brasfield, 2011). Healthcare spending has continued to rise after the implementation of the Affordable Care Act. In 2014, the U.S. spent 17.4% of GDP on healthcare, and in 2015, healthcare spending had risen to 17.8% of GDP (CMS, 2017b). The increasing costs in the United States compared to other industrialized countries (Canada, United Kingdom, Germany, and France) are due to the amount of complex medical interventions done. For example, in the United States, there are considerably

more knee replacements and patients receiving dialysis compared to other countries (Brasfield, 2011).

Brasfield (2011) noted that between 1986 and 2006 healthcare spending had risen 3.1% in direct correlation to rising life expectancy of combined genders at 77.8 years old. The Centers for Disease Control and Prevention ([CDC], 2015) estimated that by 2015, average life expectancy would be 78.8 years. Florence Nightingale improved sanitation conditions and best practice standards that contributed to longevity (Almgren, 2007) and she examined the nursing notes written by her staff to discover sanitation practices as a contributing factor to better patient outcomes (Almgren, 2007; Nightingale, 1859). Nursing documentation became a requirement for all nurses.

The CMS created language designed to ensure nurses' transparency in healthcare records (CMS, 2008b). The regulations state that nurses are required to include an individualized nursing care plan for each hospitalized patient. Nursing academic centers provide instructions on the nursing care planning process; however, in nursing school and as a professional nurse there are no tests or standards that determine a level of competency.

The increasing costs of healthcare and the concern with patient safety outcomes indicates that professional nurses must continue their education in nursing documentation as a means of satisfying federal requirements and the requirements of other regulatory bodies and safety and compliance organizations.

Problem Statement

Nursing documentation is a prominent factor in healthcare decision-making, communication, reimbursement, and litigation. In the literature review on nursing documentation and quality of care, I explored various approaches to increasing the understanding of nurses' contribution to patient outcomes through nursing documentation. Healthcare documentation provides the data organizations and regulatory bodies use to determine if best practice standards have been met and if reimbursement criteria are consistent with regulations (CMS, 2008a; IOM, 2011; Kohn et al., 2000). National nursing leaders have rallied together in an effort to formulate a system that will prepare student and professional nurses with the knowledge required to meet federal and state documentation standards (ANA, 2007, 2010a, 2010b; National League for Nursing [NLN], 2008; Healthcare Information and Management Systems Society [HIMSS], 2017).

In spite of using extensive search term permutations, I was not able to find research that confirmed nurses are being educated on the required elements for nursing documentation that contains language that satisfies quality and safety requirements. Austin (2010b), Asamani, Amenorpe, Babanawo, and Ansah Ofel (2014), Cartwright-Vanzant (2010), Cartwright-Vanzant (2011), Charalambous and Goldberg (2016), and Scruth (2014) found that nursing documentation is only evaluated when there is inconclusive data that impede reimbursement, or when a litigation scenario is in question. In addition, quality and safety issues are closely related to nursing documentation

(Asamani et al., 2014; Charalambous & Goldberg, 2016; CMS, 2008b; IOM, 2001; Miller, 2009; Painter & Dudjak, 2010; Painter & Dudjak, 2011; Scruth, 2014).

Ehrenberg and Ehnfors (1999), Müller-Staub et al. (2009), Müller-Staub, Lavin, Needham, and van Achterberg (2006), Thoroddsen and Ehnfors (2007) and Thoroddsen, Ehnfors, and Ehrenberg (2010) found that nurses who are exposed to educational sessions with objective criteria related to specific documentation protocol are able to score higher, compared with their pre-educational scores. Educational sessions that have objectives designed to focus on nursing documentation and safety, and quality outcomes have consistently shown that nurses increase their understanding after instructions are provided.

Other researchers (Asamani et al., 2014; Björvell 2002; Bowling, 2016; Bruylands, Paans, Hediger, & Müller-Staub, 2013; Carroll, Dykes, & Hurley, 2012; Edwards & O'Connor, 2011; Ehrenberg & Ehnfors, 1999; George, Drahnak, Schroeder, & Katrancha, 2016; Greenawalt, 2014; Gunningberg, Fogelberg-Dahm, & Ehrenberg, 2009; John & Bhattacharya, 2016; Larrabee et al., 2001; Law, Akroyd, & Burke, 2010; Müller-Staub et al., 2006; Müller-Staub et al., 2007; Müller-Staub, Needham, Odenbreit, Lavin, & van Achterberg, 2008b; O'Connor, 2011; Paans, Nieweg, van der Schans, & Sermeus, 2011; Paans, Sermeus, Nieweg, & van der Schans, 2010; Prideaux, 2011; Saranto & Kinnunen, 2009; Wong, 2009) have determined that nurses who are provided with instructions for documentation improve their understanding of documentation expectations. These findings also link better patient outcomes to increased quality in nursing documentation. I found no research literature that investigated nursing education

specifically related to nursing documentation quality for any hospital in the United States. In addition, no supporting information was found in the literature that confirms nurses are competent in nursing documentation.

Furthermore, I found no Connecticut-based studies on nursing documentation using the nursing care planning process, whether or not an educational session has been done to improve the quality of nursing documentation. Therefore, I investigated whether or not nurses in a Connecticut healthcare facility showed a statistically significant improvement in their documentation after a planned educational session on nursing documentation policy. In addition, I explored whether the subscales within the Q-DIO significantly contributed to the change in the mean score as evidence to support specific policy education focus areas.

Nature of the Study, Research Questions, and Hypotheses

Nurses who have been provided lessons on nursing documentation increase their understanding when evaluated afterwards (Paans et al., 2010 & Paans et al., 2011). Given that nursing documentation contributes to overall patient safety outcomes, having increased structure through health policy standards to inform nurses and verify their increased knowledge, would positively affect societal healthcare outcomes.

The Kingdon model of policymaking holds that when the three streams of problem, politics, and policy come together, they create a window of opportunity (Brasfield, 2011). Problems are brought about by external events. The federal mandate for EHRs (U. S. Department of Health and Human Services [HHS], 2009), which gave rise to electronic charting, established new requirements for nursing documentation that

were not explained in relation to the nursing process. This mandate has led to a crisis in nursing documentation stemming from nursing notes devoid of critical nursing care information.

The political stream is related to national organizations that are placing pressure on the government to initiate change. The Health Information Technology for Economic and Clinical Health (HITECH) Act enforces a reduction in healthcare spending while increasing the quality of clinical outcomes (Chappel et al., 2016). HITECH supports EHRs with specific meaningful criteria built into software designs. This initiated a movement for transparency in nursing documentation (Dearmon, 2013). The National League for Nursing (NLN), the (ANA), Technology Informatics Guiding Educational Reform (TIGER) are examples of organizations that have placed political language in their directives to keep pace with expectations for improved healthcare quality outcomes (ANA, 2007; HIMSS, 2017).

There is an urgency to create health policy that will mandate the inclusion of nursing documentation education beginning in nursing academic settings and followed up bi-annually as a requirement for professional practice licensure. The policy stream is where ideas are explored and debated (Brasfield, 2011). Bringing attention to the lack of policy to increase nurses understanding of the crucial role nursing documentation has in healthcare quality is required to create the window of opportunity.

In an exhaustive review of the literature, I found that nurses' notes neither reflect the actual care nurses provide nor the patient outcomes. Thrododsen et al. (2010), Stevenson and Nilsson (2011), and Törnvall and Wilhelmsson (2008) found that nurses

are receptive to focused learning. Drawing from what I learned in this literature review, I conducted a quantitative, quasi-experimental study research on nurses who have been provided with nursing documentation instructions specifically related to the nursing care planning process. Using the Q-DIO tool (Müller-Staub et al., 2007) as an independent variable, I hypothesized there would be a significant difference in the mean Q-DIO scores after providing the participants with a focused educational session on nursing documentation.

Additionally, I hypothesized that the individual subscales of the Q-DIO (diagnosis as a process, diagnosis as a product, interventions, and outcomes) would significantly contribute to the percent change in variance accounted for in the predictive effective of the mean Q-DIO score.

To investigate these relationships, I formulated the following research questions and associated hypotheses:

Research Question 1: Is there a difference between the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure the quality of nursing documentation before and after a planned nursing educational session on nursing documentation?

$H_0 1$: There will be no difference in the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure the quality of nursing documentation before and after a planned nursing educational session on nursing documentation.

$H_1$1: There will be a significant difference in the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure quality nursing documentation after a planned nursing educational session on nursing documentation.

I used a simple *t* test to determine if there was a significant difference between the pretest scores and the posttest scores in Hypothesis 1. This statistical methodology was used in the original research and my plan was to reflect the same statistical methodology to improve rigor.

Research Question 2: Do any or all four Q-DIO subscales (diagnosis as a process, diagnosis as a product, interventions, or outcomes) significantly contribute to the percent change in variance accounted for in the predictive effective of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation?

$H_0$2: The Q-DIO subscales (diagnosis as a process, diagnosis as product, interventions, or outcomes) will not significantly contribute to the percent change in variance accounted for in the predictive effect of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation.

$H_1$2: The Q-DIO subscale (diagnosis as a process, diagnosis as a product, interventions, or outcomes) will significantly contribute to the percent change in variance accounted for in the predictive effect of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation.

I used multiple regression analysis to determine which of the subscales within the Q-DIO (diagnosis as a process, diagnosis as a product, interventions, outcomes; IV) contributed significantly to the percent change in variance of the mean Q-DIO scores (DV), in order to isolate specific predictive drivers of change within the planned education sessions.

Purpose of the Study

The purpose of this study, using a quasi-experimental design was to explore the relationship between the quality of nursing documentation as measured through the subscales of diagnosis as a process, diagnosis as a product, interventions, and outcomes scores (independent variable), and the change in the scores of RNs after they had attended an educational session (dependent variable) on nursing documentation. An additional purpose was to explore whether the subscales within the Q-DIO (diagnosis as a process, diagnosis as a product, interventions, and outcomes) significantly contributed to the percent change in variance accounted for in the predictive effective of the mean Q-DIO scores.

In the literature review, I found that nurses who are provided professional education on documentation have an increase in the mean scores of their documentation when measured using the Q-DIO (Bruylands et al., 2013; Müller-Staub et al., 2007; Müller-Staub et al., 2008a; Prideaux, 2011). RNs in Connecticut are not required to attend additional educational sessions to renew their license (ANA, 2013). However, other states like New York have continuing education requirements for continuing education hours in infection control and child abuse. Florida requires continuing

education hours in Acquired Immune Deficiency Syndrome (AIDS) and Human

Immunodeficiency Virus (HIV) per renewal cycle. There are no states that require

continuing educational sessions on nursing documentation; however, there is evidence

that shows nursing documentation is deemed valuable to federal agencies, national

organizations, and the Connecticut Department of Health.

Therefore, I designed this quasi-experimental study to explore if RNs who are

provided with an educational session on nursing documentation have a significant

increase to their mean scores when documentation entries are measured using the Q-DIO

instrument. In addition, I asked: If there is an increase to the Q-DIO mean scores, will the

subscales (diagnosis as a process, diagnosis as a product, interventions, and outcomes) be

the predictive variances that contribute to the significant increase in overall mean scores?

If each of the null hypotheses could be rejected in favor of the alternative hypotheses,

these data could be used by those advocating for mandatory documentation education for

nurses, beginning in Connecticut academic nursing programs and following through to

structured ongoing clinical documentation education in the employer setting.

I conducted statistical analyses in two stages: (a) a simple t test to examine the

mean Q-DIO scores of RN documentation prior to the educational session and the mean

Q-DIO scores of RN documentation after attending the education session; and (b)

multiple regression analysis to examine the predictive power, as measured by the percent

change in variance in R^2, of each of the documentation subscales in the regression model.

Extended details of the statistical analysis methods I used in this study are included in

Chapters 2 and 3.

Theoretical Base

According to Sabatier and Weible (2007), when groups of people are interested in how policy affects their concerns, they are stakeholders and will come to understand and interpret policy based on several factors. The exposure and experiences that stakeholders have contributes to their understanding. In addition, there are internal and external factors that influence a stakeholders' understanding.

RNs are stakeholders in healthcare policy. As the largest group of professional healthcare providers, the interpretation of directives in policy language vary according to factors addressed in Sabatier and Weible's (2007) Advocacy Coalition Framework (ACF; see Figure 1).

According to the ACF, internal and external forces that shape policy understanding according to the goals of the stakeholder. There are five stages that contribute to the stakeholders' interpretation of policy. The stages are: (a) relatively stable parameters (RSP)—factors that are consistent to all coalitions; (b) external (system) events (ESE)—changes to the socio or socio-economic environment that cause shifts in understanding; (c) degree of consensus needed for major policy change—an identification of what each stakeholder must accomplish to remain current with policy language; (d) constraints and resources of subsystem actors; and (e) policy subsystems—the degree of change in thinking of the coalitions such that new coalitions are formed (Sabatier & Weible, 2007, p. 191).

RELATIVELY STABLE
PARAMETERS

1. Basic attributes of the
problem area (good)
2. Basic distribution of
natural resources
3. Fundamental socio-
cultural values and
social structure
4. Basic constitutional
structure (rules)

Degree of
consensus
needed for
major policy
change

Constraints

and

Resources

of

Subsystem

Actors

EXTERNAL (SYSTEM)
EVENTS

1. Changes in socio-
economic conditions
2. Changes in public opinion
3. Changes in systemic
governing coalition
4. Policy decisions and
impacts from other
subsystems

POLICY SUBSYSTEM

Coalition A   Policy   Coalition B
              Brokers
a. Policy beliefs   a. Policy beliefs
b. Resources   b. Resources

Strategy A1   Strategy B1
re. guidance   re. guidance
instruments   instruments

Decisions by
Governmental Authorities

Institutional Rules, Resource
Allocations, and Appointments

Policy Outputs

Policy Impacts

Figure 1. Advocacy coalition framework. From P. A. Sabatier (1998). The advocacy coalition framework: Revisions and relevance for Europe. *Journal of European Public Policy, 5*, 98-130. p. 102. Reprinted with permission (Appendix A).

The first two stages of the ACF consist of learning and understanding and will be the lens through which nurses as stakeholders will be incrementally examined in relation to documentation quality and the absence of nursing curricula requirements in state policy. There are regulations for nursing documentation at the federal and state levels (ANA 2010a; CMS, 2008b). This is the first stage in the ACF. These regulatory statements are relatively stable. There are hospital policy statements on nursing

documentation that are written to guide RNs in healthcare charting (YNHH, 2014) that are also relatively stable.

The second stage of the ACF is the external events that create a shift in the understanding for the stakeholder. For RNs, it was the transition from traditional paper charting to the EHR. Transitioning to electronic charting did not require that nurses learn documentation using the care planning process; rather, it encompassed learning how to find information, learning how to point and click to choose the best way to describe a patient, and learning how to choose drop down boxes (Nickitas et al., 2010; Peres et al., 2009).

The elements of nursing documentation have become fragmented since the initiation of the EHR. The increase in accreditation requirements and cost avoidance are evidenced by The Joint Commission (TJC)'s National Patient Safety Goals (NPSG), and the CMS's decision to list preventable illnesses as non-reimbursable (CMS, 2017a; National Practitioner Data Bank [NPDB], 2014; TJC, 2017b). In 2017, TJC released their list of NPSG for hospitals and the 6 other programs they accredit. Examples of NPSGs issued in 2017 associated with nursing care and accountability are: identifying patient safety risks, improving communication, and safe use of alarms. Each of these elements is verified through the nurses' documentation (TJC, 2017b). Examples of preventable illnesses, also termed Hospital Acquired Conditions (HAC) directly related to nursing care are: falls, decubitus ulcers, infections caused by urinary catheters, and infections derived from central venous catheters use and maintenance (CMS, 2017a). These factors necessitate a deeper examination into the causes since Asamani et al. (2014),

Charalambous and Goldberg, (2016), Jefferies et al. (2010), Keenan et al. (2008), and Scruth (2014) have shown that nursing documentation lacks quality and nurse academicians lack a consensus regarding teaching nursing students about documentation (Bowling, 2016; Bruylands et al., 2013; Edwards & O'Connor, 2011; George et al., 2016).

Definitions of Terms

Advocacy coalition framework (ACF): A theoretical process of evaluating the understanding of stakeholders (coalition actors) when there are various interpretations of the same policy. Sabatier and Weible (2006) noticed that stakeholders have different interpretations of the same policies. Sabatier and Weible (2007) divided the process into distinct parts to evaluate how stakeholders learn and understand policy statements depending on their environment and their goals for the policy.

Electronic health record (EHR): The electronic form of recorded patient encounters completed by medical professionals. The Affordable Care Act mandated the use of electronic data to keep account of patients' encounters in order to increase quality, communication, and improve healthcare outcomes (HIMSS, 2011).

Nursing diagnosis: Nursing diagnoses are formulated based on nursing assessments of the patient's response to actual or potential health deviations. Müller-Staub et al. (2007) defined nursing diagnosis in two sections. The first section, nursing diagnosis as a process, is composed of a nursing assessment taken from the patient's physiological, psychosocial, genetic, or chemical environment, in addition to information gleamed from interviewing the patient, their family, and loved ones. The second section

is called nursing diagnosis as a product. It describes and clearly defines any health deviations the patient has using standardized nursing language (NANDA-I, 2014).

Nursing interventions (NIC): The performance of a nursing activity on a patient with the intention of moving closer to wellness. Nursing interventions can be direct, where the interventions are performed on the patient, or indirect, where is they are performed away from the patient with the intention of helping the patient. In addition, the interventions can be community-based, or initiate by a nurse or physician (Bulechek, Butcher, & McCloskey Dochterman, 2008).

Nursing outcomes: The result of the patient's response to the nurse's performed interventions. Nursing outcomes mark the quality of patient care as a result of the interventions. Nursing outcomes are related to nursing quality as outlined the IOM's critical publication *To Err is Human* (Kohn et al., 2000).

Nursing process: A process composed of nursing diagnosis as a process, nursing diagnosis as a product, nursing interventions, and nursing outcomes.

Standardized nursing language (SNL): The words and phrases used to describe responses to patients' actual or perceived health deviations.

Operational Definitions of Research Variables

Planned nursing education: Educational activities that focus on topics of importance to nursing professionals with the intention of improving patient outcomes.

Pretest mean Q-DIO scores: Computed Q-DIO scores of each nurse participant's clinical documentation within 30 days prior to attending a structured educational session on nursing documentation.

Posttest mean Q-DIO scores: Computed Q-DIO scores of each nurse participant's clinical documentation within 30 days after attending a structured educational session on nursing documentation.

Quality – diagnosis, intervention, outcome (Q-DIO): A diagnostic instrument developed to evaluate the change in the quality of nursing documentation using the nursing process as the benchmark after a planned educational nursing session. There are 4 sections within the instrument; nursing diagnosis as a process, nursing diagnosis as a product (collectively termed diagnosis), nursing interventions, and nursing outcomes (Müller-Staub, 2007).

Assumptions

In this study, I assumed that the nurses who took part were RNs with an active and unencumbered nursing license and the hospitals they were working for had done their due diligence and verified their licensure status. I also assumed that RN participants were proficient in written and spoken English and had not attended a class that I had previously taught on nursing documentation. Furthermore, I assumed that they were truthful about the numbers of years they had been working in a medical surgical unit.

Limitations

One limitation of this quantitative quasi-experimental study was that I used a convenience sample of RNs working in hospitals located in the state of Connecticut. The results may not be representative of all 68,910 (CLN, 2015) nurses who are licensed in Connecticut. Further, some study participants might have learned better using an

educational setting that is not in a classroom with a lecturer, power points, and case study examples.

Another limitation could be the various entry levels into nursing. Entry levels can begin with a diploma in nursing, where no college credits are earned, an associate's degree in nursing, through to a bachelor of science in nursing (BSN). Each of these programs differ in their standards and requirements for successful completion. Participants may have also had various levels of exposure on nursing documentation policy. A final limitation may have been the software which populated care plans upon patient admission and suggested other care plans as subsequent data was added.

Scope and Delimitations

Müller-Staub et al. (2007) and Bruylands et al. (2013) posited that nurses increase the quality of their documentation after they have received a focused educational session on nursing documentation one year after the course. However, these researchers found that there was no significant difference in their documentation 7 years after they completed the course.

In this study, I sought to fill the gap in research regarding whether RNs in Connecticut were able to increase the quality of their documentation after they had received an educational session specifically focused on nursing documentation and the care planning process. Additionally, I examined the Q-DIO subscales to determine their individual significance in predicting the quality of nursing documentation. Those subscales that are significant in predicting quality documentation can be used in nursing

curricula, and those subscales that do not significantly contribute to predicting quality documentation could serve as areas for mandatory curricula focus.

The emphasis for creating overall increase in the quality of documentation should begin at the academic level, would be the first phase of the ACF where all stakeholders are introduced to relatively stable parameters, foundations of policy statements. Academic nursing centers are required to teach future nurses about the care planning process and about using the EHR as the charting medium. Initiating understanding at this level could improve practice and quality outcomes for nurses. Furthermore, these same foundational concepts should be carried through to Connecticut hospital employers as stakeholders in nursing documentation policy at the state and federal levels.

Using the first stage of the ACF, I examined if the nurse as the stakeholder was able to understand that nursing documentation increases in quality when the nursing care planning process is applied. Stage one, as described in the ACF (Sabatier & Weible, 2007), is stable parameters, policy statements that remain consistent despite the shift from external forces. The federal, state, and facility-based criteria for nursing documentation are stable parameters. Providing nurses with an education that interprets nursing documentation policy could increase the quality of nursing documentation in settings where this education is mandated.

Significance of the Study

The IOM reported that healthcare providers are responsible for poor outcomes in 44,000-98,000 patients annually (Kohn et al., 2000). As a result of these findings, the AHRQ and the CMS made efforts to reduce the injuries to patients caused by healthcare

systems (CMS, 2013; Mitchell, 2008). This trend is even more significant today since CMS has created a list of hospital-acquired conditions (HACs) that are no longer reimbursable (CMS, 2017a). In addition, TJC has patient safety goals that further include documentation guidelines to ensure compliance (TJC, 2017b). There is also an increasing number of RNs who are being reported to the National Practitioner Data Bank (NPDB, 2014).

The NPDB has a data analysis repository that identifies the number of nurses in Connecticut who have been reported for misconduct. The Adverse Actions Report, according to the NPDB (2017) is "a report format used to submit actions, other than medical malpractice payments and convictions, and judgments, taken against a healthcare practitioner, entity, provider, or supplier" (n.p.). The Medical Malpractice Payment Report is "the format used by medical malpractice payers to report a medical malpractice payment made for the benefit of a physician, dentist or other healthcare practitioner" (NPDB, 2017, n.p.). From 1990 through 2016, 1,556 RNs in Connecticut were reported under the Adverse Actions category and 49 RNs in Connecticut have had medical malpractice payouts on behalf of an affirmed allegation.

Although the above mentioned organizations do not specifically categorize poor nursing documentation as an allegation (NPDB) or as a deficiency (TJC), professional nursing liability carriers do. Nursing documentation is embedded in every aspect of healthcare outcomes. RNs who have a fundamental understanding of quality nursing documentation criteria can improve patient safety outcomes and contribute positively to healthcare economics.

Nursing education encompasses ethical practices designed to protect patients' human rights (ANA, 2010b). However, in the literature review I found no standard for educating nurses about documentation and no competency tests to confirm they are using specific protocol to increase or maintain quality in documentation. The Affordable Care Act required implementation of an electronic healthcare documentation format that created additional caveats for nurses in their understanding of documentation expectations (Chappel, Sheingold, & Nguyen, 2016).

Registered Nurses who comprise the majority of healthcare professionals contribute a significant portion of the EHR. The information created requires clear and accurate input that contributes to research. An examination of nursing education, documentation, and quality outcomes is necessary (Benton & Flynn, 2013; BLS, 2017a; Brous, 2009; Charalambous & Goldberg, 2016; Cheevakasemsook, Chapman, Francis, & Davies, 2006; Dehghan et al, 2015; Häyrinen et al., 2010; Jefferies, Johnson, & Nicholls, 2011; Scruth, 2014; Törnvall & Wilhelmsson, 2008; Wood, 2010).

Registered Nurses are in the position to move healthcare in a positive direction and increase the quality of patient outcomes. Transparency in documentation can be a central contribution of nurses to the future of healthcare. States with mandated continuing education hours for nursing license renewal are proactive in ensuring their nurses are remaining current with important content. There are 34 states that require continuing education as a requirement of license renewal and 16 do not (ANA, 2013); Connecticut is one that does not. Mandates that require nurses to attend a nursing documentation class

for license renewal could increase the quality of documentation and have potential positive effects on reimbursement, communication, and reduced litigation.

Summary

Registered Nurses have an increasingly complex presence in healthcare. The technological advances and the profession's desire to make the baccalaureate degree the entry level into nursing (NLN, 2008) require a critical evaluation of nursing documentation as a quality indictor in healthcare. Many researchers have suggested that the process of educating nursing students and further educating professional nurses on documentation is unstructured and lacks competency standards (Aktan et al., 2011; Barnard, Nash, & O'Brien, 2005; Fetter, 2009c; Fetter, 2009; Greenawalt, 2014; Jefferies et al., 2010; Jefferies et al., 2011; Lucas, 2010; Rikli et al., 2009). In this study, I comprehensively assessed and evaluated the relationship between nursing education, documentation, and quality outcome scores for RNs in Connecticut.

In Chapter 1 I have provided an introduction and overview of the importance and rationale for this study, specifically in relation to nursing education and the understanding of policy statements on nursing documentation and its relationship to healthcare outcomes. In Chapter 2 I provide an extensive discussion on the evolution of nursing documentation, nursing education, professional nursing education, the EHR and nurses' position in understanding the documentation requirements by using the ACF. In Chapter 3 I describe the quantitative methodology, sample frame, variables, and statistical techniques used to examine the relationships between the variables in response to the formulated research questions and associated hypotheses. In Chapter 4 I provide an

analysis of the data associated with the two research questions. Finally, in Chapter 5 I

present the conclusions, interpretation of findings, implication for policy change, social

implications, and recommendations for future studies.

Chapter 2: Literature Review

Introduction

This literature review is organized into seven sections. The first section includes a general overview of nursing documentation. In this section I discuss a history of nursing documentation, the development of standardizing language for nursing, government and non-government criteria for nursing documentation, and nursing documentation policies in healthcare settings. The second section includes a review of the literature related to nursing documentation as academic criteria for future nurses, nursing documentation in patient care settings, and nursing documentation as evidence in litigation. In the third section, I discuss the standardized nursing process language of assessment, planning, diagnoses, interventions, and outcomes and how they relate to the EHR. In the fourth section, I address the emerging research related to the effects nursing documentation has on patient quality outcomes. The fifth section includes a thorough literature review of the relationship between nursing documentation, healthcare litigation, and patient safety. In the sixth section, I provide a discussion of the ACF and the events that contribute to nurses' understanding of nursing documentation. The seventh section includes a detailed description of the study design, instrument, limitations, and opportunities for further research.

I gathered the literature using the online research libraries of Walden University and Southern Connecticut State University. I used the following databases and websites: PubMed, CINAHL, OVID, CMS, Connecticut Department of Health, and MEDLINE. For database searches, I used the following key terms or term permutations to source

content-specific literature: *nursing documentation, quality, safety, reimbursement, healthcare policy, litigation, nursing process, nursing care plan, nursing audits, nursing education,* and *nursing academics.*

I initially focused the database searches on texts published in the previous 5 years. For the second-round database searches, I extended the time frame back 10 and 15 years in order to examine research progression in the area of nursing documentation, quality, and safety. Literature related to the ACF required a 20-year search parameter in order to capture early theoretical publications. I used reference sections in relevant research articles to source additional publications to expand content depth and breadth. The collected literature additionally served to provide a source for alternative and additional key term search words. Furthermore, I reviewed table of contents for related articles from selected research journals when accessing online publications.

Background

In 1999 the IOM published a paper describing the state of healthcare. At the time, medical errors were causing between 44,000 and 98,000 patient injuries annually (Kohn et al., 2000). The IOM described medical errors as failing to complete planned actions or having a wrong plan in place (Kohn et al., 2000). One of the IOM recommendations to reduce patient injuries was to move from paper charting to computerized documentation (Kohn et al., 2000). The shift from paper to electronic documentation marked a corresponding shift in the nurse's scope of practice. (Law et al., 2010; Mahler et al., 2007).

The Health Information Technology for Economic and Clinical Health Act (HITECH) was signed by President Obama in 2009 (Chappel et al., 2016) as a tool to clarify the functions of electronic documentation. Two functions of HITECH are to reduce healthcare expenses while increasing the quality of patient care (Chappel et al., 2016). This act means nursing actions and patients' responses to care are more visible and communicated in real time compared to paper charts. Nurses are held accountable for using nursing language to document patient care and outcomes since legibility is no longer an issue (Dearmon, 2013). Nursing language is made up of five components: assessments, planning, diagnoses, interventions, and outcomes (Abebe, Abera, & Ayana, 2014; Müller-Staub, 2006, Müller-Staub et al., 2007; Müller-Staub, et al., 2008b). Nursing documentation is a comprised of 5 sections and is referred to as the nursing process (ANA, 2010b; Austin, 2010b; Cruz et al., 2016; Lindo et al., 2016; Scruth, 2014; Wilhite, 2012; Wright, 2005).

Nursing documentation is introduced to future nurses during nursing school (Aktan et al., 2011; Bowling, 2016; George et al., 2016). Nursing documentation is taught in the classroom and applied in the clinical setting (Björvell, 2002; Bowling, 2016). In addition to formal instructions about the nursing process, nursing students are exposed to multiple clinical settings (Bowling, 2016; Jefferies et al., 2011; Lindo et al., 2016), and to acquire understanding of professional processes, nursing students must have experience in multiple settings (Sabatier & Weible, 2007). In Aktan et al.'s (2011) qualitative study on nursing documentation, nursing faculty admitted they were not certain who was responsible for teaching the nursing process to nursing students and

reported time constraints when teaching clinical applications and the nursing process. Bowling's (2016) study showed the need to incorporation of electronic documentation practices into the curriculum. The study uses requirements outlined in Quality and Safety Education for Nurses (QSEN) that requires all healthcare providers to have technological competencies (Cronenwett et al., 2007).

The standardized exam nursing students take at the end of their education is called the National Council Licensure Examination–Registered Nurse (NCLEX-RN; National Council of State Boards of Nursing [NCSBN], 2014). The exam determines the minimum safety competency for applicants caring for patients with health deviations taught in nursing school, but it does not evaluate the future nurses' competency in the nursing process (NCSBN, 2014). Few researchers have examined nurses' competency in the nursing process. Carroll et al. (2012) examined nursing documentation of falls before and after implementation of a falls toolkit. These researchers found significant differences (89% versus 69%; $p < .0001$) in nursing documentation that included the nursing process for fall prevention after the implementation of a falls tool kit.

The CMS, a payer for 58% of the U.S. healthcare reimbursement costs (CMS, 2008a), requires nurses to document an individualized nursing care plan for their hospitalized patients. Nursing documentation that consists of all five parts of the nursing process increases safety and quality of patient outcomes (Keenan et al., 2008). Larrabee et al. (2001) posited that incomplete nursing documentation compromises the reliability of the EHR. Nursing documentation is influenced by the quality of the nursing process (Abebe et al., 2014). When the quality of nursing documentation is lacking in the EHR,

patient safety is a concern (Abebe et al., 2014; Blake-Mowatt, Lindo, & Bennett, 2013; Keenan et al., 2008; Lavin et al., 2015; Law et al., 2010; Mahler et al., 2007; Page, 2004; Scruth, 2014) and reimbursement issues (Angelats & Fresnedo, 2014; Ayello et al., 2009; Larraabee et al., 2001).

Continuing nursing education, as measured through nurses' participation in approved classes with contact hour credits, is mandatory for annual licensure renewal in 34 of the 50 states (ANA, 2013). Connecticut is one of the states that does not require contact hours for licensure renewal. Planned educational sessions have been shown to increase a nurse's understanding of the subject being taught (Law et al., 2010; Mahler et al., 2007; Müller-Staub, 2007, Müller-Staub et al., 2008a; Nomura, Silva, & Almeida, 2016; Okaisu, Kalikwani, Wanyana, & Coetzee, 2014; Painter & Dudjak, 2010). There is limited data regarding whether nurses in Connecticut who attend a planned educational session on the nursing process have a statistically significant improvement in their nursing documentation. In this longitudinal quasi-experimental study, I thus focused on RNs who are licensed and working in Connecticut hospitals with EHR as a requirement of CMS. I explored RN's understanding of nursing documentation (independent variable) and the effects a planned educational session (dependent variable) had on their nursing documentation quality using the Q-DIO as an instrument to measure the diagnosis, intervention, and outcome sections of the nursing process.

The Fundamentals of Nursing Documentation

The recording of patients' responses to nursing care has been a focus of critical attention since the publication of Florence Nightingale's *Notes on Nursing: What It Is*

And What It Is Not in 1859. Nightingale (1859) described poor living conditions as a leading cause of soldier deaths (Chassin & Loeb, 2011). From 1859 to the 1980s, nurses documented elements about patient encounters that included information the nurse deemed valuable to a medical doctor or healthcare administrator. Reimbursement sources were not interested in nursing documentation. Healthcare's documentation practices gained attention after the IOM's Committee on Quality of Health Care in America published the results of their study *To Err is Human* (Kohn et al., 2000). The study identified 44,000–98,000 patients as victims of healthcare negligence, annually (Kohn et al., 2000). Traditional paper documentation was one reason for poor patient outcomes. Patient information written on paper could be misfiled, illegible, or omitted. The IOM recommended healthcare facilities use computers in place of paper to document patient information.

The first generation of computer software for nurses was a combination of free text and spreadsheets designed to mimic the papers they had traditionally used. These programs did not measure reimbursement data. At the beginning of the 21st century patient acuity showed a steady increase, patient care was becoming increasingly complex, and hospitals were being reimbursed for conditions acquired while hospitalized (Clancy, 2009). Currently, the United States spends 17.9% of its GDP on healthcare (World Bank, 2017). This figure is higher than any other country. As a response, the Affordable Care Act (ACA) was introduced to reduce healthcare spending (CMS, n.d.; Editorial Board, 2014; Office of the Legislative Counsel, 2010). A section of the ACA required facilities that receive funding from CMS to use only CMS certified software to manage patient

care (HHS, 2009). The goal is to reduce current and future spending by healthcare facilities and increase their accountability for patient care through safety and quality initiatives. These measures increase the implications nursing documentation have to patient care outcomes.

Nursing documentation is a centralized tool used by members of the healthcare team for real time patient information (ANA, 2010b; CMS, 2008b). It supports patient care decisions made by other healthcare professionals (Fetter, 2009a; Greenawalt, 2014). Nursing documentation is more apparent to the mandates in current healthcare literature compared to any other time in nursing history. There are 20.7 million nurses and midwives worldwide (WHO, 2017); of those, 3.1 million are in the United States (HHS, 2010). Nurses comprise the largest group of healthcare professionals who provide around the clock care to patients (HHS, 2010). Other healthcare professionals use nursing documentation to plan care for their patients (Keenan et al., 2008).

Healthcare policy has resulted in efforts to reduce errors in patient care and increase the safety and quality of care provided (Mitchell, 2008). The CMS no longer reimburses for some conditions acquired while patients are hospitalized. On their list of non-reimbursable circumstances are injuries from falls, skin conditions, medication errors, and infections from catheters. The aforementioned list items are all within the scope of nursing care (ANA, 2010b).

Patients have a right to receive nursing care that promotes health and alleviates suffering (International Council of Nurses [ICN], 2012). Nursing documentation deficient in patient care facts effects healthcare reimbursement (CMS, 2008a). The healthcare

insurance agencies have become an informed consumer instead of a passive payer. In 2011, 5827 professional nurses had insurance payments made on their behalf, compared to 484 in 2002 (NPDB, 2014). In addition to these cost and safety factors, quality patient care is compromised when nursing documentation does not fulfill its intended purposes. Details of nursing documentations' formidable development will follow.

The Evolution of the Nursing Care Planning Process

Nursing documentation's original purpose were written forms of communication about patient status and plans for treatment between nurses and doctors (Mahler et al., 2007). Current changes to healthcare, litigation, and reimbursement criteria have transformed nurses written notes to electronic entries for all healthcare professionals to utilize. Deviations in clinical quality outcomes are increasingly directed to nursing care (Clancy, 2009; Mitchell, 2008) and there is more litigation involving nurses compared to any other time in healthcare history (NPDB, 2014; Painter & Dudjak, 2010; Painter & Dudjak, 2011). Nursing documentation is a method used to verify a patient's condition and treatment responses. The burden to prove a patient received nursing care that reflects quality has been adhered to relies on nursing documentation and the nurses' ability to articulate patient care and outcomes.

Nurses had been thinking about a way to organize the work of nursing. In 1926, Bertha Hamer asked if nursing knowledge could be categorized like medicine, and proposed that nurses prescribe treatment to care like medical doctors did (Gordon, 1998). In 1946 the World Health Organization (WHO) took over the responsibility of classifying diseases. Medical doctors were being asked to use the International Classification of

Diseases (ICD) since 1893, however when WHO undertook the responsibility, they decided to reclassify the disease process every 10 years (Gordon, 1998).

Abdellah (1959) refined the concept further by placing the categories into groups based on similarities and differences. Nurses and physicians care for patients with the same diseases, but with different foci. Nurses assess patients' response to a disease and provide care based on the patients actual or anticipated response to the medical condition (ANA, 2010a). The ICD classification system was a starting point. The Hospital International Classification of Disease Adapted (H-ICDA) was modified for hospital statistical data. There have been other adaptions for mental health, Standard Diagnostic and Statistical Manuel of Mental Health Disorders (DSM), the International Classification of Injuries, Disabilities, and Handicaps Pathology (SNOP), and the Systematized Nomenclature of Medicine (SNO MED III) (Gordon, 1998). Nursing, like medicine needed to clarify and classify patient care to the healthcare community in general and the nursing community in particular. The nursing community continued to refine a process of classification similar to the ICD (Gordon, 1998).

In 1973, the North American Nursing Diagnosis Association (NANDA) pioneered diagnostic nursing classifications (Gordon, 1998). Diagnoses are concepts that have a word meaning. A nursing diagnosis has 4 dimensions: definition, defining characteristics, contributing factors, and etiological factors (Gordon, 1998).

The concept of diagnoses is grounded in the phenomenology. It is the concept of classifying the phenomena that enforced the understanding of diagnosis. The diagnosis

step is created to assign a patient health deviation, which the nurse plans to resolve, by actions or continuous observations (Müller-Staub, 2007).

The first NANDA meeting, a task force, had 100 participants. The group generated nursing diagnoses, definitions and defining characteristics (Gordon, 1998). There were 29 conceptual areas and 100 terms generated into nursing diagnosis. Currently, there are 71 conceptual areas and 143 items.

The process of identifying patient problems and relating them to health deviations and then solving those problems, formulated the nursing process, which is also referred to as the nursing care planning process (Yura & Walsh, 1973). The nursing care planning process has five steps. The steps are assessment, planning, diagnosis, intervention, and outcome and are followed in sequential order (Abebe et al., 2014; Björvell 2002; Müller-Staub, 2007, 2008a; Müller-Staub et al., 2009; Wang et al., 2011).

The lack of reported data concerning who is responsible to educate nurses on the urgency to document according to a standard and confirm nurses' competency is the basis of this dissertation. The importance of nursing documentation is a priority for government and non-government organizations due to the public health, safety and quality concerns. For discussion purposes, the statements regarding nursing documentation will be divided into government (federal and local) organizations, national nursing organizations, healthcare facilities policies, and the state of Connecticut's position on nursing documentation.

Regulatory Oversight

The burden of healthcare outcomes is becoming more complex (Kohn et al., 2000). There are more people who die or are permanently injured due to a healthcare encounter (44,000 - 98,000) compared to people who are in a motor vehicle accident (43,458), battle breast cancer (42,297), or are a victim of Acquired Immune Deficiency Syndrome (AIDS) 6,526 annually (Kohn et al, 2000). The effects ripple out to the economic burden due to lost income, lost household production, disability, and additional healthcare costs (Thomas et al., 1999).

"An error is defined as the failure of a planned action to be completed as intended (i.e. error of execution) or the use of a wrong plan to achieve an aim (i.e. error of planning" (Kohn et al., 2000, p. 28). Another unfortunate event in healthcare is an adverse event. "An adverse event is an injury caused by medical management" (Kohn et al., 2000, p. 28). Hospitals in New York, Colorado, and Utah were used as a basis for data in 1984, 1992, and 1992 respectfully. The hospitals in Colorado and Utah combined had 3.7% of their admitted patients injured by medical mismanagement and NY had 2.9% (Kohn et al., 2000). Adverse events attributed to errors in 58% of the instances in New York and 53% of the instances in Colorado and Utah (Kohn et al., 2000). The United States spent between $37.6 billion and $50 billion dollars on adverse events and between $17 billion and $29 billion on preventable events, of those figures, half of that were healthcare costs (Kohn et al., 2000). In 1996, the United States spent between 2-4% on adverse and preventable events (Kohn et al., 2000). Outside of healthcare, there were 6000 annual workplace injuries in the United States. Within healthcare, there were 7000

deaths due to medication errors. One in 131 were outpatient deaths and 1:834 were in-patient deaths (Kohn et al., 2000).

The Harvard Medical Practice Study (HMPS) evaluated 30,000 patients from 51 randomly selected hospitals in New York. Adverse events were found in 3.7% of their participants: 56% were from errors, 27.6% were from negligence. A majority of the adverse events caused damage lasting less than 6 months, 13.6% resulted in death, and 2.6% caused permanent injuries (Brennan et al., 1991). In the Colorado and Utah study, 2.9% of the 15,000 discharged patients suffered adverse events.

The percentage of events in the New York hospitals compared to the Colorado and Utah hospitals were 58% and 53%, respectively (Brennan et al., 1991; Thomas et al., 1999). The percentage of negligent cases in Colorado and Utah was 29.2% compared to 27.6% in New York. In New York death from the negligent events occurred 25% of the time, while deaths in Colorado and Utah occurred 10% of the time (Brennan et al., 1991; Thomas, et al., 1999). The differences in the data between the states could be due to their individual healthcare systems and patient populations (Kohn et al., 2000).

Andrews et al. (1997) conducted a qualitative observational research study by collecting verbal accounts from healthcare providers during their professional rounds. Of the 1075 patients that were discussed, 17.7% had suffered an iatrogenic event serious enough to lengthen their hospital stay. The likelihood of experiencing an adverse event increased 6% for each additional day in the hospital. Adverse events were caused by an individual 37.8% of the time, 15.6% of the events were caused by interactions with

someone else, and 9.8% were a result of an administrative decision (Andrews et al., 1997).

The studies identified areas where patients were more likely to suffer from an adverse event. The IOM (found the most common cause of an adverse event was due to a medication error (19%), followed by wounds (14%), and technical errors (13%) (Kohn et al., 2000). Errors in communication were also identified as an adverse event (Kohn et al., 2000). Identifying the burden of healthcare's quality and safety issues necessitated measures to address the problems.

The idea of standardizing care to determine quality and effectiveness began in the early 1900s by Dr. Ernest Codman and Abraham Flexner (Chassin & Loeb, 2011; TJC, 2017a). The American College of Surgeon's formed the Hospital Standardization Program that laid the groundwork for TJC (Chassin & Loeb, 2011). By 1951, TJC on Accreditation of Hospitals partnered with The American College of Physicians (ACP), the American Hospital Association (AHA), the American Medical Association (AMA), and the Canadian Medical Association (CMA) to become a non-profit organization that provided voluntary accreditation (TJC, 2017a). In 1972, the HHS under the Social Security Act was appointed to validate TJC findings and report said findings to Congress (2012). The inclusion of the federal government in monitoring quality and safety did not improve outcomes (Chassin & Loeb, 2011). The Joint Commission recognized that healthcare facilities that were accredited had better quality and safety outcomes compared to ones that were unaccredited (Kohn et al., 2000).

The data collected from the IOM's report prompted action from the TJC to add patient safety goals as an impetus to improving the quality of healthcare outcomes. Finally, in an effort to articulate specific areas of safety concern, in 2002, TJC introduced their first annual National Patient Safety Goals (NPSG) (TJC, 2014). The Patient Safety Advisory Group made of up nurses and other health professionals working with TJC to advise them of current and impending safety issues. The NPSGs are updated annual and are performance measures accredited facilities can use to highlight facility wide safety and quality standards (TJC, 2017b). There are 7 NPSGs for 2015; identify patient correctly, improve staff communication, use medication safely, use alarms safely, prevent infections, identify patient safety risks, and prevent mistakes in surgery (TJC, 2017b).

Federal Government Oversight

The federal government's evaluation of healthcare trends in the United States began with their assessment of health at the state level. During 1915 and 1920, states began a coordinated effort to initiate healthcare insurance programs (Klees, Wolfe, & Curtis, 2009). In the 1930s the federal government identified the need to create programs initially for the people over the age of 65 and women and infants below the poverty level, with programs that would eventually included patients with end stage renal disease (ERSD), the legally blind, children and adults with incomes below the poverty level (also known as Children's Health Insurance Program (CHIP), prescription assistance, patients requiring home healthcare services, and care in skilled nursing facilities (Klees et al., 2009).

Private insurance through employment began in the 1930s. The original

conception was intended to protect employees if they suffered a catastrophic event

requiring medical interventions. Private insurance was financed between and among

groups of employees and employers (Klees et al., 2009).

In 1950, Congress evaluated states need for medical assistance and financed in

part medical programs at the state level. At this time, Congress was addressing the

medical needs of the aged and by 1960 adopted legislation called "Medical Assistance to

the Aged" to provide medical assistance to those over 65 years of age (Klees et al., 2009).

In 1965 Congress passed the Medicare and Medicaid programs known as Title XVIII and

Title XIX, respectively of the Social Security Act.

Title XVIII was originally divided into two parts: Hospital Insurance (HI), also

known as Part A, and Supplementary Medical Insurance (SMI), known as Part B. In

1997, the Balance Budget Act (Public Law 105-33) established Part C, Medicare+

Choice, which was renamed and modified to the Medicare Prescription Drug,

Improvement and Modernization Act (MMA) of 2003 (Public Law 108-173). Part D was

established to pay for prescriptions that were not covered under Part A or Part B (Klees et

al., 2009).

Part A covers in-patient hospital care that includes regular nursing services and

skilled nursing facilities (SNF). The SNF care is covered when a person is hospitalized

for a minimum of 3 days and within 30 days of the hospital discharge. Home healthcare

services are covered regardless of a prior hospital or SNF stay and covers nursing

services up to 100 visits (Klees et al., 2009). The beneficiary is only eligible for these

visits if there is a break of 60 days between the time they entered the hospital and the receipt of any in patient or skilled nursing care. Part B covers certified registered nurse anesthetists, nurse practitioners, and clinical nurse specialists in collaboration with a physician (Klees et al., 2009).

Title XIX, or Medicaid insured 30.2 million children in 2006, which was 52% of all Medicaid beneficiaries ($1,752 per child; Klees et al., 2009). There were 13.8 million adult beneficiaries, which was 24% of all Medicaid beneficiaries ($2,527 per adult). Other sectors of the Medicaid population had per patient expenditures at higher rates. The over 65 population constitutes 8% of the Medicaid population (4.8 million recipients) with an average cost of $12,712 per person. There are 9.1 million disabled recipients that comprise 16% of the beneficiaries and have average costs of $13,409 per person. The combined payments made on behalf of all groups for 2006 was $57.8 million (Klees et al., 2009). During 2008, the Medicaid program (Federal and State) disbursed $356.3 billion (Klees et al., 2009).

Medicare provides health insurance to 95% of citizens over the age of 65. In 2008, Medicare Part A enrolled 45 million people, paying $232.3 billion in healthcare costs. Part B had 32 million participants and paid $180.3 billion in health related costs. Total expenditures for all Medicare payments (which included Part D and administrative costs) were $468.1 billion (Klees et al., 2009).

The Department of Health and Human Services (HHS), formally known as the Department of Health, Education, and Welfare became administratively responsible for oversight (Klees et al., 2009). Under HHS, the Medicare programs were managed by the

Social Security Administration (SSA) and Social and Rehabilitation Services (SRS)

managed the Medicaid program, until 1977 when both programs later renamed Health

Care Financing Administration (HCFA), which was renamed the Centers for Medicare

and Medicaid Services in 1977 (Klees et al., 2009). Healthcare spending trends

necessitated changes to the healthcare entitlement programs.

The trends in healthcare spending since 1960 have caused alarming concerns for

the nation's government. From 1960 to 1993, healthcare annual spending went from

$27.5 billion to $912.5 billion, an average of 11.2% annual increase (Klees et al., 2009).

Healthcare expenditures as reflected by the Gross Domestic Product (GDP) rose from

5.2% in 1960 to 13.7% in 1993. During 1993-1999 these figures stabilized, but in 1999-

2000, there was an increase from 13.7% to 15.3%, representing an 8.2% rise. Again in

2002, there was stabilization until 2007 and the GDP rose to 16.2% in healthcare

spending. This equated to $2.2 trillion or $7,421 per person (Klees et al., 2009).

According the CMS (2015), healthcare spending in the United States has reached 17.8%

of the GDP. The spending is divided between the private and public sectors.

The two sectors have experienced variability in healthcare spending. Between

1974 and 1991, the private sector spent 59.3% and 58.4% on healthcare costs. In 1995,

the figure dropped to 54.3% and during 1997-2005, the private sector stabilized in

spending (Klees et al., 2009). In 2007, Medicare, Medicaid, and CHIP financed $769.6

billion in healthcare spending. This represents one-third of the United States total for

healthcare spending and three-fourths of all public healthcare spending. The CMS

expects to see a 6.2% annual growth in healthcare spending between 2007-2018, which is

2.1% faster than the expected GDP. These trends place healthcare spending at 20.3% of the GDP by 2018 (Klees et al., 2009).

The CMS is financially responsible for a large market share of healthcare, which exposes them to fraud and abuse (Klees et al., 2009) and requires participating health centers to meet and maintain standards. These are called Conditions for Coverage (CfCs) and Conditions of Participation (CoPs), which CMS asserts are circumstances that must be met to begin and continue participating in the CMS programs. The CoPs and CfCs are safety standards meant to be the foundation for quality care for healthcare beneficiaries (CMS, 2013). For inpatient hospitals to become and remain apart of the CMS reimbursement system, the following standards for nursing services remain in effect: Standard §482.23 CoP: Nursing Services, states, "The hospital must have an organized nursing service that provides 24-hour nursing services. The nursing services must be furnished or supervised by a registered nurse" (CMS, 2008a).

The CMS criteria also include nursing documentation standards about inclusion of a nursing care plan for each patient: Standard §482.23(b)(4) "The hospital must ensure that the nursing staff develop, and keep current, a nursing care plan for each patient" (CMS, 2008a).

The interpretive guidelines for §482.23(b)(4) state:

> A nursing care plan is based on assessing the patient's nursing care needs (not solely those needs related to the admitting diagnosis) and developing appropriate nursing interventions in response to those needs. The nursing care plan is kept current by ongoing assessments of the patient's needs and the patient's response

to interventions, and updating or revising the patient's nursing care plan in response to assessments. The nursing care plan is part of the patient's medical record and must comply with the requirements for patient records and other patient information. (CMS, 2008a, p. 171)

The federal government's financial responsibility to provide healthcare to needy populations in the United States fulfills a basic human right. Guaranteeing quality and safety standards were being observed as assigned to the HHS. In 1989 the Agency for Health Care Policy and Research was created under the Omnibus Budget Reconciliation Act of 1989 as a Public Health Service Agency within HHS (AHRQ, 2012). In 1999, the agency was reauthorized with a name change as the Agency for Healthcare Research and Quality, under the Healthcare Research and Quality Act of 1999 (AHRQ, 2012).

Safety and quality measures acquired an evidence base and the AHRQ's, mission is to "produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and work within the U.S. Department of Health and Human Services and with other partners to make sure that the evidence is understood and used" (AHRQ, 2017, "AHRQ Profile").

National Nursing Organizations

Nurses in the United States and Canada convened in 1896 to organize a nursing organization. An organization that would begin the process of representing nursing, it was called Nurses Associated Alumnae of the United States and Canada. By 1900, there were 11,892 nurses and nursing students (ANA, n.d.). In 1911 the organization changed its name to the ANA, and by 1958 the ANA forms a liaison with the American Medical

Association. The ANA has had a strong legislative influence in shaping the trajectory of healthcare. In 1958 the ANA endorsed healthcare as a human right and urged the federal government to include health insurance benefits for aged and disabled citizens (ANA, n.d.). In 1974, the ANA was instrumental in developing criteria for measuring quality and effectiveness in nursing care. In 1978, the ANA holds nurses as being primarily responsible for the quality of care patients receive.

The ANA supported the healthcare focus and shifts from a focus on illness to cure and wellness care (ANA, n.d.). In 1998 the ANA supported the Patient Safety Act and again in 2005, the ANA supported the Patient Safety and Quality Improvement Act of 2005 that promoted safety and quality in healthcare. In 2014, the ANA reported there are 3.1 million nurses (ANA, 2014) and the Bureau of Labor Statistics reported 2,857,180 are employed (BLS, 2017a).

In 1978, the ANA established the NCSBN. The mission of the NCSBN is to ensure excellence by overseeing health, welfare, and safety of patients in each of the 50 states through the boards of nursing (BON). The NCSBN describes the practice of a RN to include all the components of the nursing process. According to Russell (2012), a nurse should perform a comprehensive assessment that is patient centered and leads to the establishment of a healthcare plan based on a nursing diagnosis, with goals and nursing interventions. In addition, the nurse in practice should implement nursing care through independent nursing strategies and evaluate the responses (Russell, 2012).

The ANA created the ANA Principles for Nursing Documentation to clarify nurses' role in accountability in healthcare (ANA, 2010b). The guidebook provides an

overview of what RNs in all settings should know and understand about the responsibility of nursing documentation. The ANA states that "clear, accurate, and accessible documentation is an essential element of safe, quality, evidence-based nursing practice" (ANA, 2010b, p. 3). RNs are responsible to communicate accurate information through all healthcare facilities so a record of the patients' progress can be evaluated by payers, the legal system, government agencies, accrediting bodies, researchers, and other agencies in the healthcare arena (ANA, 2010b).

In addition, nursing documentation is written in agreement with regulatory guidelines and mandates and takes into consideration the technological platform of healthcare (ANA, 2010b). Despite nursing documentation's transition onto the EHR, the components of high quality care must remain visible. Nursing documentation must include patient assessments, communication with other healthcare providers, acknowledgement of orders and implementation of care, and patients' responses and outcomes, which include changes to patient status (ANA, 2010b).

The ANA has divided the Principles of Documentation into six sections, however due to the focus of this research paper only four segments were be reviewed. Nursing documentation should be reflective of the nursing process (ANA, 2010a). The second principle requires comprehensive education and training according to ANA Principles of Documentation and includes technical aspects and assurance of proficiency in documenting on the software system and supporting hardware. The third principle posits that organizations establish applicable policies and procedures related to nursing documentation. The fourth principle emphasizes the authenticity of nursing

documentation entries, confirming nursing statements are to be legible, accurate, valid, and complete (ANA, 2010a).

The ANA recommends organizations clearly outline their nursing documentation guidelines, policies, and procedure. Additionally, organizations should continuously update their nursing documentation educational sessions, modify policies to maintain accuracy, and require nurses to continuously demonstrate competency in the quality and efficiency in nursing documentation (ANA, 2010a).

Connecticut Nursing Oversight

The Connecticut Nurses Association (CNA) became a constituent of the ANA in 1904. The mission of the CNA is to be a legislative and educational influence in Connecticut (CNA, 2017). Of the 3.1 million nurses in the United States, there are an estimated 68,910 nurses employed in Connecticut (HHS, 2010; BLS, 2017b). In Connecticut, there is an initiative to make the baccalaureate degree the minimal requirement for entry into nursing. The CNA is aligned with the Connecticut Department of Public Health (CT-DOH) and has regulations for nurses called the Scope of Nursing Practice. Nurses are considered the most trusted profession in the United States (NCSBN, 2014) and the scope of nursing practice is defined by the Connecticut legislature (Connecticut General Statutes, 2011):

Connecticut General Statues Section 20-87a

Sec. 20-87a. Definitions. Scope of practice. (a) The practice of nursing by a

registered nurse is defined as the process of diagnosing human responses to actual

or potential health problems, providing supportive and restorative care, health

counseling and teaching, case finding and referral, collaborating in the

implementation of the total healthcare regimen, and executing the medical

regimen under the direction of a licensed physician, dentist or advanced practice

registered nurse. A registered nurse may also execute orders issued by licensed

physician assistants, podiatrists and optometrists, provided such orders do not

exceed the nurse's or the ordering practitioner's scope of practice. (para. 1)

The scope of nursing practice defines the actions a nurse is legally obligated to perform.

The actions are expressed in documentation. The statute on the medical record is defined

by the CT-DOH.

The CT-DOH statute (Connecticut Public Health Code, 1984) on the medical

record clarifies information that must be contained in the medical record for healthcare

facilities that are licensed in the State of Connecticut:

Connecticut General Statues Section 19a-14-40. Medical record, definition,

purpose:

The purpose of a medical record is to provide a vehicle for: documenting actions

taken in patient management; documenting patient progress; providing

meaningful medical information to other practitioners should the patient transfer

to a new provider or should the provider be unavailable for some reason. A

medical record should include, but not be limited to, information sufficient to

justify any diagnosis and treatment rendered, dates of treatment, actions taken by

non-licensed persons when ordered or authorized by the provider; doctors' orders,

nurses notes and charts, birth certificate work-sheets, and any other diagnostic

data or documents specified in the rules and regulations. All entries must be

signed by the person responsible for them. (p. 5)

Healthcare facilities in Connecticut are mandated to use the medical record to document

actions regarding patient management. Healthcare facilities create internal standards that

guide healthcare professionals in proper care for best patient outcomes (Ayello et al.,

2009; Nomura et al., 2016; Okaisu et al,. 2014).

Documentation, Care Planning, and Healthcare Policies and Procedures

Healthcare facilities create specific instructions, also referred to as policy and

procedures, to clarify professional expectations and increase patient safety and quality in

care within their facilities (Asamani et al., 2014; Ayello et al., 2009; Kohn et al., 2000;

Scruth, 2014; Stevenson & Nilsson, 2011; Swage, 2000). Policies and procedures are

evidence based (Austin, 2010a; Bail et al., 2009; Griffin & Titler, 2012; Lindo et al.,

2016; Scruth, 2014) and the nurse is legally responsible to follow the policies and

procedures of their employer to increase patient safety, protect patients from errors, and

avoid professional misconduct (Austin, 2010a; IOM, 2011; Lindo et al., 2016; Miller &

Glusko, 2003; Scruth, 2014; Sundrani, 2012). Nursing documentation is a broad topic

(Ayello et al., 2009) and policy and procedural statements on nursing documentation

focus on documentation that is clear, concise, complete, and communicate the patient

status to other members of the healthcare team (Ayello et al., 2009; Bail et al., 2009;

Asamani et al., 2014; Dehghan et al., 2015; Lavin et al., 2015; Stevenson & Nilsson,

2011). The nursing process uses standardized language (Cruz et al., 2016; Lindo et al.,

2016; NANDA-I, 2014; Scruth, 2014) to encompass the elements that guide nursing

documentation policies and procedures (Asamani et al., 2014; Ayello et al., 2009; Bail et al., 2009; Dehghan., 2015; Lavin., 2015; Stevenson & Nilsson, 2011; Thoroddsen & Ehnfors, 2007).

Nursing policies and procedures are written to reflect the nursing scope of practice (Asamani et al., 2014; Ayello et al., 2009; Bail et al., 2009; Dehghan et al., 2015; Lavin et al., 2015; Stevenson & Nilsson, 2011; Thoroddsen & Ehnfors, 2007). Nursing policies are based on research conducted at the national level (Griffin & Titler, 2010; Titler, 2008). As a rule, nurses are required to know what directives are in their state Nurse Practice Act, what their institutional policies and procedures are and if there are specialty organizations that dictate practice (Campos, 2009; Cartwright-Vanzant, 2010). Although policies are designed to increase effectiveness of healthcare services (Asamani et al., 2014; Bail et al., 2009; Charalambous & Goldberg, 2016; Scruth, 2014), they can limit the nurses' ability to practice professionally (Horsfall & Cleary, 2000). Policies and procedures sometimes limit the nurses' ability to exercise professional judgment (Bail et al., 2009) and do not support the nurse in practice (DiCenso, Cullum, & Ciliska, 1998; Thompson, Callum, McCaughan, Sheldon, & Raynor, 2004). Nurses are not always aware that internal guidelines exist which causes a lack of policy and procedural effectiveness (Bail et al., 2009; Charalambous & Goldberg, 2016; Scruth, 2014).

Nursing documentation guidelines inform the use of the nursing process using standardized language of assessments, planning, diagnoses, interventions, and outcomes (Björvell, Redialing, & Thorell-Ekstrand, 2002; Cruz et al., 2016; Lindo et al., 2016; Scruth, 2014; Thoroddsen & Ehnfors, 2007). There are statistically significant

improvements in documented assessments, diagnoses, and interventions after policies are reviewed (John & Bhattacharya, 2016; Lavin et al., 2015; Nomura et al., 2016; Scruth, 2014; Thoroddsen & Ehnfors, 2007). For example, after an educational session on the documentation policy was taught, there was a 30% increase in the amount of nursing diagnosis and interventions documented and a 20% increase in the nursing goals or expected outcomes compared to the documentation before the educational session. Outcomes measures were not emphasized and did not show a statistically significant difference (Thoroddsen & Ehnfors, 2007).

The Connecticut Department of Children and Families (DCF) has Nursing Standards and Guidelines for all DCF Licensed Facilities with a section entitled, Nursing Process (CT-DOH, 2008). The guideline recognized four essential stages of the nursing process: assessment, planning, intervention, and evaluation. There is another section entitled Nursing Documentation, and Guidelines for the Use of Focused Charting, which includes outcomes (CT-DOH, 2008).

A large teaching hospital in New Haven, Connecticut places the nursing documentation guidelines in their Clinical Practice Manual (CPM), under Nursing Staff Competence. Within the Competency Based Orientation (CBO), there are six core areas of practice. The first one listed is the Nursing Process (YNHH, 2014). Nurses are required to pass this competency on an on-going basis. Within the CPM is a policy entitled "Documenting the Nursing Process". It outlines the steps in the nursing process. The following steps are listed: Initial Assessment, Ongoing Assessment/Reassessment, Interdisciplinary Care Plan, and Interventions (YNHH, 2014).

The nursing process is a basis used to demonstrate nursing's influence in patient care and it also advances nursing as a profession (Thoroddsen & Ehnfors, 2007). Nursing is the largest group of healthcare providers and takes responsibility for safe patient outcomes (ANA, 2010b; Asamani et al., 2014; Charalambous & Goldberg, 2016, Lavin et al., 2015; Mitchell, 2008; Scruth, 2014). There is conflicting evidence to confirm that using the nursing process correlates with increased patient safety outcomes. Abebe et al. (2014) posit that the nursing process is an effective tool to communicate nurses' role. Müller-Staub et al. (2009) state the nursing process evaluates the effectiveness of patient care outcomes. The following section discusses how nursing documentation through the nursing process validates the increasing importance of nurses' contribution to quality and safety outcomes in healthcare.

Governance of Nursing in Healthcare Through the Nursing Process

After Florence Nightingale announced that sanitation was an important factor in soldier survival rates, nursing became increasingly valuable in patient safety and quality of care outcomes (Kohn et al., 2000). Visibility and accountability of nurses also gradually expanded as healthcare documentation transitioned from paper to the EHR (Bowling, 2016; Cartwright-Vanzant, 2010; George et al., 2016; Lavin et al., 2015; Mangalmurti, Murtagh, & Mello, 2010; Nomura et al., 2016; O'Brien et al., 2015). With the implementation of software, the nursing process became increasingly fragmented while it remained critical to nurses' contribution to patient outcomes (Dearmon, 2013; Mahler et al., 2007; O' Brien, Weaver, Settergran, Hook, & Ivory, 2015; Paans et al.,

2010). Classifying nursing's role in healthcare outcomes is communicated in part via nursing documentation.

Healthcare's increasing reliance on nursing reached another milestone in 1965 when the HHS requested data outlining the contributions nurses were making to patient outcomes (Angelats & Fresnedo, 2014). Gathering data from patient encounters continued to force nurses to grow transparent in their professional roles and responsibilities. The advancement of nursing as an independent profession required proof through documentation, therefore nursing had to explain what processes they were using in their decision making practices (Björvell, 2002). Transitioning from traditional paper documentation to the EHR continued the effort to standardize language in nursing and clarify nurses' approach to patient care. The report prepared for the HHS in 1965 led to the development of the National Electronic Healthcare System (Angelats & Fresnedo, 2014).

Nursing documentation is used to communicate information inside and outside of the healthcare system and the message must show that nurses provided quality patient care that also meets legal standards and reimbursement criteria (Asamani et al., 2014; Mahler et al., 2007; Scruth, 2014). The transition to an electronic medium was reviewed by the NLN in 1973 and they hosted the first NANDA conference to discuss nursing and information systems (Angelats & Fresnedo, 2014). By 1986, the ANA supported the use of nursing care in the EHR, however nurses were poorly represented in the design and development of EHR (Ayello et al., 2009; Larrabee et al., 2001; Mangalmurti et al., 2010).

The ANA's Position Statement: Nursing Informatics Scope and Standard of Practice recognizes developed terminologies from NANDA for all nursing diagnosis, Nursing Interventions Classification (NIC) for all nursing interventions, and Nursing Outcomes Classifications (NOC) for all nursing outcomes (ANA, 2014). Using standardized language for nurses via NANDA, NOC, and NIC validated the importance of language and terms used in nursing and the use of the nursing process to endorse the nursing process as an instrument to quantify nurses in healthcare delivery.

According to NANDA-International, using knowledge-based terminology defines nursing (NANDA-I, 2014) and these terminologies are also recognized by the National Library of Medicine's Methesaurus for a United Medical Language and the Cumulative Index to Nursing Literature (CINAHL), they are mapped into the Systemized Nomenclature of Medicine (SNOMED), and registered in Health Level Seven International ([HL7], NANDA-l, 2014).

Clinical decisions help frameworks determine effective nursing care that is evidence based. Evidence-based care allows the nurse to examine patient care across the healthcare continuum (NANDA-I, 2014; Paans et al., 2010). Using the nursing process with standardized terminology identifies nursing as a valuable contributor to patient outcomes when applied, however nursing documentation lacks quality within the nursing process (Asamani et al., 2014; Mahler et al., 2007; Scruth, 2014) and the implementation of the EHR fell short of supporting nurses application of the nursing process (Cartwright-Vanzant, 2010; Mangalmurti et al., 2010).

The financial status of the United States during the latter part of the twentieth century prompted the federal government to pass the American Recovery and Reinvestment Act (ARRA) of 2009, also referred to as the stimulus package (CMS, n.d.; Editorial Board, 2014; Office of the Legislative Counsel, 2010). Within this act is a provision to underwrite the computerization of healthcare records, known as the Health Information Technology for Economic and Clinical Health (HITECH) Act and its purpose was to adopt health information technology while reducing healthcare costs and ensuring privacy of healthcare information (HHS, 2009).

The underrepresentation of nurses in the initial designs of EHR was evident in the gaps in documentation and communication features (Mangalmurti et al., 2010). Saranto and Kinnunen (2009) examined nursing documentation by reviewing existing literature. Nursing documentation was studied from different perspectives and the researchers discovered that audit instruments were not equal. Researchers where evaluating different aspects of nursing documentation. The data collected examined traditional paper-based nursing documentation to entries in an electronic format (Saranto & Kinnunen, 2009). Nursing documentation was fragmented and it did not consistently describe the care given. Standardization through computerization can support nursing documentation, but the message typed does not guarantee the meaning will be understood by the reader (Larrabee et al., 2001; Saranto & Kinnunen, 2009).

Assessments and Planning

Nurses are uniquely educated to focus on the patient, their response to illness and injury or their risk for health deviations (Lengu, Gundo, Maluwa, & Mbirimtengerenji,

2013). Gathering psychological, social, physical, and verbal data from patients in a systematic way guides the nurse in planning care (Austin, 2010b; Ehrenberg, Ehnfors, & Thorell-Ekstrand, 1996; Thoroddsen & Ehnfors, 2007; Wright, 2005) through to interventions and outcomes (Müller-Staub et al., 2009).

Samuels and Kritter (2011) conducted a cross-sectional descriptive study on 51 post-surgical patients at a community hospital in New Hampshire, which examined pain assessments, interventions, and re-assessments of patients who were at least 24 hours out of the post anesthesia care unit (PACU) following surgery until discharge. Pearson's Correlation was used to determine the relationship between the numerical rating scale (NRS) as a measure of the quantity of documentation and the pain management documentation (PMD). There were 1,499 PMD episodes, 1,175 (78%) contained assessments and 396 episodes (26.4%) contained reassessments. The nurses documented assessments in 49% of the episodes (n = 735) using NRS only. In 30.4% (n = 456) were documented using NRS and verbal accounts, and 13.6% (n = 204) assessments had no NRS score. There were assessments that were double documented (Samuels & Kritter, 2011).

Assessments and reassessments by a nurse are to be completed with each patient contact. When the data fields are inconsistent it contributes to erroneous information because it does not appear the nurse is using skill, judgment, and knowledge to individualize care (Müller-Staub et al., 2009; Samuels & Kritter, 2011). An assessment of a foot ulcer requires a nurse to assess the leg and entire person and a risk assessment for pressure ulcers requires the nurse to assess the patient's nutritional and fluid status.

Nurses assess data and interpret information using knowledge combined with critical

thinking and caring behaviors (Ehrenberg et al., 1996; John & Bhattacharya, 2016; Lengu

et al., 2013; Müller-Staub et al., 2009).

Nursing documentation is required for safe and effective nursing care. The

assessment must contain descriptive information about the patients' problems and

etiology in order to create a nursing diagnosis with interventions and outcome goals

(Carroll et al., 2012; Ehrenberg & Ehnfors, 1999; Müller-Staub et al., 2009; Müller-Staub

et al., 2009). Standardized nursing language can foster communication when nurses are

documenting care within nursing and to other healthcare professionals.

Standardizing Nursing Language

Nurses around the globe have been working towards standardized nursing

terminology ([SNT]; Estrada & Dunn, 2012; Gordon, 1998; Häyrinen et al.,, 2010;

Thoroddsen et al., 2012). The timeliness of standardizing language compliments the

transition from traditional paper charting to the EHR and the prevalence of research on

SNL has increased steadily since 1985 (Tastan et al., 2014). However, Frauenfelder et al.

(2010) discussed the imperfections standardized language has in adult inpatient

psychiatric settings and Lai et al. (2013) discussed the disappointment with using SNT

for Taiwanese nurses. Häyrinen et al. (2010) and Thoroddsen et al. (2010) found that

nursing care specialty was obvious when SNT was used.

Standardizing nursing language contributes to the message being sent to other

nurses and healthcare professionals. The taxonomy allows the work of nurse to have

increased clarity (Mata, Souza, Chianca, & Carvalho, 2012). The most frequently used

classification system is NANDA-I (Mata et al., 2012; Frauenfelder et al., 2010; Gordon, 1998; Lai et al., 2013; Thoroddsen et al., 2010; Thoroddsen et al., 2011).

Although nursing care is the response to patients' current or anticipated responses to a disease process, Frauenfelder et al. (2010) found that there are nursing concerns in the adult psychiatric inpatient populations that are not clearly addressed using NANDA-I terminology. Patients with mental and emotional issues require in-patient nursing support during crises. In-patient care involves personal care, emotional support, and advocacy (Frauenfelder et al., 2010). The areas of concern are classified as phenomena. "[P]henomena are descriptions or indication of incidents, situations or processes occurring alone or in groups. Phenomena can be temporarily or regionally limited and are verifiable through feel, sensually experienced or theoretical linkages" (Meleis, 1999, as cited in Frauenfelder et al., 2010, p. 222).

Frauenfelder et al. (2010) conducted a qualitative content analysis to compare the phenomena of SNL in the literature to the definitions in NANDA-I in 76 papers. Thirty-nine had statements that reflected phenomena. There were 193 indicative terms that were identified and grouped into 64 different nursing phenomena. There were 106 different indicative terms matched to 21 NANDA-I diagnoses. The phenomena 'aggression', 'psychopathological' and 'auto-aggression' were matched with the indicative terms 'violence' and 'aggression towards other'.

Phenomena not found were more specific to the adult psychiatric population. There were 43 phenomena with 87 terms that were not found in as a NANDA-I diagnosis. Frauenfelder et al. (2010) stated the phenomena missing from NANDA-I were

only mentioned once or twice in their reviews, they are specific nursing issues to the

adult inpatient psychiatric population. Some examples were 'perceived confinement',

'distress', 'depressed mood', 'frustration' and 'lack of control' (p. 229). Frauenfelder et

al. (2010) argued that it was astonishing that the topic of sexuality, relating to rape or

molestation, was absent from NANDA-I. The topic of nutrient, related to obesity or an

eating disorder or absconding, relating to a person with schizophrenia were also missing

which caused researches to conclude that using SNT within NANDA-I does not reflect

nursing care in their population and new classifications should be added to reflect the

quality care nurses provide to patents in adult inpatient psychiatric settings.

Lai et al. (2013) posited that using NANDA-I in a Taiwanese hospital did not

allow the nurses to fully describe their nursing care. Taiwanese nurses incorporate

traditional Chinese medicine (TCM) when caring for their patients. Nurses in Taiwan are

educated according to Western standards, however they maintain their traditional Chinese

culture which is a "constant intertransformation and dynamic equilibrium of the various

elements" (Lai et al., 2013, p. 43).

Lai et al. (2013) conducted a grounded theory study with 53 nurses who had been

educated on the use of NANDA-I. The interview tool was designed to examine the core

professional competencies of the Taiwan Nursing Accreditation Council (TNAC). There

were eight open-ended questions that all included the word NANDA. Lai et al. (2013)

found all of the nurses in the study had difficulty fitting their patient care into NANDA-I.

They all struggled with NANDA being able to supply a classification for all of their

patients' healthcare issues. An example stated was, if a patient has a cancer diagnosis, the

patient experienced interrelated symptoms of pain. Another nurse stated that none of the diagnosis related to the patient psychosocial or spiritual wellbeing (Gordon, 1998; Lai et al., 2013). One of the nurses stated that she was taught NANDA-I during her formal training however was so against the principles and sought employment in places that did not use NANDA-I.

The use of SNT in a Chinese culture provided valuable insight into NANDA-I's ability to communicate across all settings. The holistic approach of western medicine does create a prospective to the terminology system that was not accounted for during its formulation. Thoroddsen et al. (2012) studied nursing terminology use in European countries to determine what terminologies were being used and how the use of terminologies impacted informatics education.

European countries have taken a lead from the International Council of Nursing (ICN) and the International Council of Nursing Interventions (ICNP) to define a classification system for nurses. Although NANDA-I has been translated into 10 European languages, it is not the only system available for nurses to use, however there is a strong prevalence in European countries to use NANDA-I (Estrada & Dunn, 2012; Gordon, 1998; Paans, Müller-Staub, & Nieweg, 2013; Thoroddsen et al., 2012).

The Association for Common European Nursing Diagnoses, Interventions and Outcomes (ACENDIO), an organization focused on nursing terminology, quality, safety, language, and concepts (Sheerin, Sermeus, Saranto, & Jesus,, 2011; Thoroddsen et al., 2012), was used to search for nursing professionals in key positions who could provide data for this study. The 32-item questionnaire was sent to 53 counties with 10 replies. To

increase the feedback, the researchers distributed the questionnaire to key informants at

the March 2011 ACENDIO conference in Madrid. The results are comprised of the

following 20 countries; Andorra, Austria/Germany, Belgium, Bulgaria, Denmark,

England, Estonia, Finland, Germany, Iceland, Ireland, Italy, Norway, Portugal, Slovenia,

Spain, Sweden, Switzerland/French, Switzerland/Germany, and Wales. The majority of

the respondents were in academia, research, management, or consulting. They were all

involved with implementing or development of standardizing terminology. Ten different

classification systems were identified, they were; ICNP, Clinical Care Classification

(CCC), Omaha, NANDA-I, NIC, NOC, SNOMED-CT, ICF, VIPS, and local or others

(PNDS and LOINC). NANDA-I, NIC, NOC was used more often compared to all the

other systems (Thoroddsen et al., 2012).

Tastan et al. (2014) discussed the ANAs interest in SNL by reviewing 312 articles

published between 1985 and 2011. The ANA recognizes a terminology set to consist of

diagnosis, intervention, and outcome. The survey included 27 countries with articles

available in English. Of the articles reviewed, 72.4% were descriptive, 18.9% were

observational, and 8.7% were intervention studies. The NANDA-I classification system

with some combining the NIC and NOC was used in 72.1% of the articles. One of the

least researched articles was on the Clinical Care Classification/Home Health Care

Classification that was in 1.6% of the articles.

Standardized Nursing Language According to Specialty

Häyrinen et al. (2010) conducted a retrospective descriptive study on the nursing

process and the EHR using Finland's nursing classification system, called the Finnish

Care Classification (FinCC). It is based on the WHO recommendations and includes nursing diagnosis (FiCND) and interventions (FiCNI). Outcomes were documented based on the FiCND. The inclusion criterion was based on neurological ($n = 67$) and surgical ($n = 422$) patients in a centralized hospital during 2003-2006. The inquiry was based in the use of the EHR. There were insufficient progress notes to identify the assessments, nursing diagnoses, and the interventions. The researcher was interested in determining the clarity of SNL, the nursing process, and the EHR.

Häyrinen et al. (2010) used the Cat-ch-ing audit instrument to determine if certain nursing phrases were present or absent during the nursing process and what the frequency the terms and phrase were used. The study determined that using SNL does increase the clarity and quantifiably of nursing when the EHR is used. The neurological patients had more complex nursing diagnoses and interventions compared to the surgical patients who were documented on more frequently. For example, the component of elimination was used 10% ($n = 50$) in the neurological group as a diagnosis, with 21% ($n = 2623$) interventions used to support the diagnosis and 18% ($n = 2266$) outcomes were documented and the surgical group used 11% ($n = 113$), 13% ($n = 1589$) and 12% ($n = 689$) respectively. Self-care deficit was used 30% ($n = 144$) in the neurological group, with interventions and outcomes being used 14% ($n = 1749$) and 10% ($n = 1214$) compared to the surgical group that used self-care deficit 12% (120), 7% (469), and 5% (279) respectively. The term skin integrity was used as a diagnosis, intervention, and outcome in the surgical group 13% ($n = 127$), 15% (1816), and 10% ($n = 623$) compared to the neurological group at 5% ($n = 23$), 2% ($n = 3$), and 5% ($n = 585$).

On a final note, however very significant, there were some concerns with the logistics within the EHR. Häyrinen et al. (2010) offered that additional education in the nursing process would aid in usage of the EHR and the nursing process using SNL. Estrada and Dunn (2012) concluded that nursing documentation in the EHR could offer improved accuracy if the language and congruency to the nursing care planning process was included in the EHR design.

Structured terminologies increase the quality of nursing documentation (Saranto & Kinnunen, 2009) and globally nurses are gradually spending time on examining the role language has in nursing culture. Thoroddsen et al. (2010) examined nursing documentation to determine if nursing specialties could be identified. Thoroddsen and Ehnfors (2007) and Ehrenberg and Ehnfors (1999) studied hospitals and nursing homes and found that most nursing diagnosis are related to patients' personal needs compared to their medical needs. For example, the terms breath, eat, eliminate, sleep, move, perceive well-being, attend to self care were expressed more then pain. Terminology related to pain was used most often after personal care (Ehrenberg & Ehnfors, 1999; Thoroddsen & Ehnfors, 2007).

Thoroddsen et al. (2010) conducted a descriptive cross-sectional design in an 800-bed hospital in Iceland. The data were collected from 39 of the 51 units in the surgical, medical, geriatric, and psychiatric specialties areas of the university hospital. NANDA-I had been implemented several years earlier and NIC had been used for the past two years. The aim of this study was to determine if there was a relationship between NANDA-I and NIC, what terms were being used to describe patient care in each of the specialties and

whether or not each specialty had distinguishing classifications. Out of 689 nursing records only 256 met the criteria of a patient who had been hospitalized for at least 48-hours on the day the data collection took place. The four specialty areas yielded 73 psychiatric records, 68 records in geriatrics, 67 records in medical, and 48 records in the surgical unit. The additional criteria of having an assessment, diagnosis, interventions, and progress notes, the essential components of the nursing process, were the final inclusion criteria for the study (Thoroddsen et al., 2010). The data collected consisted of demographic questions and a 41-item questionnaire that identified the required components of the nursing process. There were 21 questions assigned to a nursing assessment, 9 items on the signs and symptoms, 1 item asking about the etiology, 1 (yes/no) question about the care plan and nursing diagnosis, 6 items inquiring about interventions, and 3 items about the progress notes (Thoroddsen et al., 2010).

The SNL used within the four specialties were distinguishable. All four specialties used discharge preparation and self-care deficit as a nursing diagnosis. Three of the specialties used pain and impaired mobility. The surgical specialties used risk for surgical complications, ineffective airway clearance, and impaired gastrointestinal function. The medical specialties used ineffective breathing pattern, imbalanced nutrition: less than body requirements, and ineffective tissue perfusion. The geriatric specialty areas used chronic confusion constipation, and risk for fall. The psychiatric specialty used disturbed thought process, disturbed sleep pattern, and impaired social interactions.

There were a total of 63 nursing diagnosis and 2,366 nursing interventions were applied. Of the 2,366 interventions used 1,114 (47.1%) occurred in all four specialties

and this was made up of 24 (14.3%) different interventions (emotional support, self-care assistance, discharge planning, skin surveillance, safety, nutrition management, bathing/hygiene, prescribed activity/ exercise, fluid monitoring, medication administration, bowel management, positioning, anxiety reduction, presence, coping enhancement, sleep enhancement, constipation/impaction management, family support, pressure ulcer prevention, surveillance, wound care, nutrition monitoring, active listening, and nutrition therapy).

The relationships between the nursing diagnoses and interventions were evident in the commonalities within each specialty. Although all four specialties used some of the same diagnosis, the frequency of their use varied. For example, the diagnosis anxiety was used in the geriatric group the lowest (20.6%) and the highest in the psychiatric group at 37% and the diagnosis self-care deficit was used for 91.2% of the geriatric population and 22.4% of the patients in the medical specialty group.

Thoroddsen et al. (2010) hypothesized that nursing diagnoses are used within all four specialties in this study and nursing interventions distinguish the specialties. The frequency of the diagnosis used was evident in each of the specialties. (Müller-Staub et al.., 2006) conducted a systematic review of the application of nursing process. Certain nursing diagnoses were used more frequently in certain patient groups compared to others and concluded that nursing diagnosis varied depending on clinical specialty. Therefore, there is an ability to see nursing care through the SNL, which could contribute to advancing nursing as a profession, however my study did not observe the actual nursing care against the documentation.

Nursing Care Plan in Third-World Nations

Paans et al. (2010) discussed the accuracy of nursing documentation and argued that accuracy of the nursing process is related to the evaluation of quality. The components of documentation, diagnoses, interventions, and outcomes are used to interpret nursing care. Nursing documentation, also referred to as a nursing care plan, care plan, or the nursing process, is used to communicate patient care and convey quality and safety (Blake-Mowattet al., 2013; Lengu et al., 2013). Chabeli (2007) and Yildirim and Özkahraman (2011) argued that critical thinking requires gathering information from the environment and forming a judgment, a precursor to the nurse care plan. The global healthcare community heeds to the WHO recommendations in order to earn high quality outcomes. Developing and developed countries follow regulatory language to implement recommendations and despite the nurse care planning has been in existence since 1973 there are still concerns about its accuracy and quality (Blake-Mowatt et al., 2013; Lengu et al., 2013; Ofi & Sowunmi, 2012).

Blake-Mowatt and colleagues (2013) argue that nursing documentation is fundamental to the safe management of patient care. A descriptive cross-sectional design studied 205 RNs working in a 100-bed hospital in western Jamaica, West Indies. Jamaican nurses are trained to document according to government policy statements. The Ministry of Health Jamaica developed the audit tool. The mixed method approach included data from the audit tool and responses from a focused group.

The quantitative results showed that nurses understood and followed practices of good documentation most of the time (98%). Nurses documented patients' problems and

provided a summary of their condition 98% of the time. The nursing diagnosis correlated with the medical diagnosis 26% of the time, 48% documented discharge planning, 33% documented patient teaching.

In the focus group discussion, the nurses stated they were aware that documentation was an important part of their responsibilities. During orientation nurses were informed of the hospital documentation policies and directed to the manuals for further clarification (Blake-Mowatt et al., 2013). Continuing education was a recommendation to increase the compliance to nursing documentation practices.

Pokorski, Moraes, Chiarelli, Costanzi, and Rabelo (2009) argued that the nursing process is a practice that is to be in every healthcare setting. Ofi and Sowunmi (2012) posited that nursing documentation is used to provide evidence of care provided, coordinates care between healthcare members, and as a compliance measure for standard of care. Ofi and Sowunmi (2012) examined nursing documentation in three hospitals in Nigeria using a descriptive study to determine how often and to what extent the nursing process was being used. The nurses received nurse care planning instructions during nursing school, during orientation and intermittently during their employment however there was feedback that the five parts of the nursing process were not being adhered to, therefore the study was initiated.

Questionnaires and checklists were used to collect data on 150 nurses and 115 discharged patient charts from medical, surgical, obstetrics/gynecology, and pediatric patients. The self-developed questionnaire had a reliability index of 0.69 and validated checklists were used to collect data (Ofi & Sowunmi, 2012). The hospitals were labeled

A, B, and C. Nurses who had knowledge of the nursing process described in 5 phases were 15.7%, 10.5%, and 21.7%. The nurses who had knowledge of 4 phases of the nursing process were 22.9%, 36.6%, and 39.1%. Nurses who incorrectly described the 5 phases were 55.7%, 28.1%, and 43.8%.

According to TJC (2009), care should be reflected in the documentation as being patient-centered and include patient assessments as a standard. Lindo et al., (2016) conducted an audit across three public hospitals in Jamaica, West Indies. Data collected from 245 patients found less than 1/3 of the charts contained adequate assessment data. For example, information missing included the patient's occupation and their living conditions. There were 119 charts used from Hospital 1, 56 charts from Hospital 2, and 70 charts from Hospital 3. Patient complaints were documented, 81.6%, history of presenting illness, 78.8%, past medical history, 79.2%, and family health, 11% (Lindo, et al., 2016). Physical assessments were completed within 24 hours in 90% of the charts and were timed, dated, and signed by the nurse. Less than 5% had an educational component and 13.5% had discharge planning within 72 hours after admission. The study showed the weakness in nursing documentation and the need to increase training and continuous monitoring. The gaps in documentation of client assessment, patient teaching, and discharge planning should be urgently addressed (Lindo et al., 2016)

Chabeli (2007) argued that critical thinking is a prerequisite in care planning and is the analysis and inferences of information. Yildirim and Özkahraman (2011) stated that the nursing process requires critical thinking based on evaluating patient data from the chart, the family, and the patient. Ofi and Sowunmi (2012) opined that critical thinking is

required for patient care. The nurses in the three hospitals were asked if effective nursing documentation "should reflect complaints of clients or family members", the percentage of hospitals that agreed were 97.1%, 77.2%, and 43.4%. When asked if they disagree, the nurses disagreed 2.8%, 12.3%, and 21.7% of the time.

Ofi and Sowunmi (2012) found that accurate nursing documentation is inadequately represented in the charts. Nurses require continuing education, supervision, and chart audits to maintain documentation standards. Continuous nursing education on an intermittent basis will improve nurses knowledge of nursing documentation (Ofi & Sowunmi, 2012).

Lengu et al. (2013) opined that nursing documentation requires critical thinking in addition to assessment and planning skills. Nursing standards must be strictly adhered to. A descriptive cross sectional quantitative data collection designed was used to evaluate 48 RNs in a surgical ward in 4 central hospitals in Malawi. The evaluation of nursing documentation was derived from 100 patients. Nurses complied with assessments and planning, but did not fully adhere to the outcome criteria. Lengu et al. (2013) concluded that nurses need continuous re-education on the nursing process in order to comply with nursing standards.

Asamani et al. (2014) investigated the quality of nursing documentation in Ghana hospitals. Nursing documentation is not an added responsibility, it is a part of nursing care and represents quality, communication, and collaboration with other healthcare professionals. Healthcare documentation is the only tool available to confirm care was provided. Nurses in Ghana are expected to uphold international nursing documentation

standards and the need is becoming urgent given the increase in litigation and other disciplinary actions (Asamani et al., 2014).

The retrospective study was conducted in 2012 using healthcare records of patients who were either discharged or deceased from two separate hospitals. Hospital A was a 150 bed government hospital with 12 wards and Hospital B was a 105 bed mission hospital with 6 wards. Initially charts were randomly chosen then interval sampling was used to bring the total sample size to 100 patient charts, equally divided.

The Nursing and Midwifery Council (NMC) (2010) and the College of Registered Nurses of British Columbia (CRNBC) (2007) has best practice guidelines and was used in the development of the data collection tool. The tool consisted of 5 parts:

a) Demographic information

b) Completeness of documentation

c) Standards and Checklists

d) Checklists of 8 common errors in documentation

e) Identifying types of nursing documentation models used

Of the 100 charts reviewed 54.2% captured all the nursing care. Nurses did not write progress notes in 63% of the charts following the first day of admission. The researchers concluded the low standards in the documentation is due to a lack of policy and guidelines, a shortage of nurses, a lack of knowledge and nurses perceived irrelevance of care records to nursing practice itself (Asamani et al., 2014).

Implementing Nursing Care Planning – The Nurse Prospective

Angelats and Fresnedo (2014) argue that standardizing nursing documentation allows nursing to develop as a profession. Öhlén, Forsberg, and Broberger (2013) posited that poor documentation threatens the quality and safety of patient care. Despite nurses knowledge that nursing documentation requires the application of the nursing process, nurses attitude towards accurate documentation contribute to the outcome (Dunnion & Griffin, 2010; Mahmoud & Bayoumy, 2014; Ofi & Sowunmi, 2012).

Dunnion and Griffin (2010) argued that the emergency department nurses have demands of overcrowding, bed shortages, and long patient wait times and despite this, nurses are still required to provide care based on the nursing process. Thirty-eight nurses' attitudes toward nursing documentation were evaluated using a survey method of open and closed questions. The raw statistical data was analyzed using SPSS software package and the qualitative data was analyzed manually based on themes.

The Ireland hospital is located in an area with a population on 14,264. The emergency department uses the Components of Life model for documentation since 2001 (Dunnion & Griffin, 2010). The first question was about their point of view and asked if the nursing care plan was important to providing care. The answers were divided into strongly agreed 58.3% (n = 14), agreed whilst 37.5% (n = 9), and 4.2% (n = 1) were undecided.

Dunnion and Griffin (2010) asked the nurses what they thought about care plans and communication. The nurses were asked if care plans allowed them to spend time with their patients, 50% (n = 12) strongly agreed, 29.2% (n = 7) agreed, 16.7% (n = 4)

undecided, and 4.2% (*n* = 1) disagreed. Examples of qualitative statements from the

nurses in this study that asked them to describe some of benefits were "increased

interactions with patient, increased contact time and interaction amongst staff".

The nursing process has been used widely with hospitalized in-patients (Estrada

& Dunn, 2012; Gordon, 1998; Häyrinen et al., 2010; Thoroddsen et al., 2012). Dunnion

and Griffin (2010) asked the nurses whether they believed the assessment tool was

effective in their practice. From the responses received, 8.3% (*n* = 2) strongly agreed,

62.5% (*n* = 15) agreed, 8.3% (*n* = 2) were undecided, and 20.8% (*n* = 5) disagreed. In

addition, the nurses were asked if the tool was effective for documenting care and

outcomes. Of the responses received, 12.5% (*n* = 3) strongly agreed, 54.2% (*n* = 13),

agreed, 12.5% (*n* = 3) were undecided, and 20.8% (*n* = 5) disagreed. There was a 99%

agreement that care plans are important in the emergency department, however when

asked about continuous training, of the responses received, 15.7% (*n* = 4) strongly

agreed, 66.7% (*n* = 16) agreed, 4.2% (*n* = 1) were undecided, and 12.5% (*n* = 3)

disagreed. The qualitative answers to why continuous education is needed included the

following themes; good to update, gives opportunity for feedback, introduction to new

staff, there is a need for staff education, and to ensure all staff complete documentation

similarly – set standards.

The Nursing Process Following Educational Sessions

Nursing documenting that includes the nursing process increases the outcome data

for patients (Larrabee et al., 2001; Nomur et al., 2016; Paans et al., 2010; Thoroddsen et

al., 2011). Standardizing language when using the nursing process adds to the accuracy of

nursing communication (Angelats & Fresnedo, 2014; NANDA-I, 2014; Peres et al., 2009). Examining learning outcomes increases compliance however learning SNL and the nursing process requires continuous education and discussion (Baena de Moraes Lopes, Higa, dos Reis, de Oliveira, & Mafra Christóforo, 2010; Larrabee et al., 2001; Thoroddsen & Ehnfors, 2007). Rivas, Garcia, Arenas, Lagos, and Lopez (2012) argued that learning the nursing process increases after instructions are included in multiple educational sessions.

Ehrenberg and Ehnfors (1999) examined the nursing process in nursing home charts before and after an educational session. The study group had between 47 – 130 residents and the reference group had between 80 – 201 residents. The educational sessions consisted of a two-day program of nurses in small groups who were instructed on healthcare laws, regulations, the nursing process, individual care-planning, and structured documentation. There were a total of 60 records (12.8% of the 467 charts from the study group and 13.0% of the 461 charts from the reference group) were reviewed before and after the intervention for each group.

The sample selected from the study group was audited one year after the educational sessions and there was an improvement in the number of times the nurses documented the nursing process (Ehrenberg & Ehnfors, 1999). The nurses in the study group documented a nursing diagnosis zero times before the education session and 33 times after, compared to the reference group, which documented 12 before and 7 after. Nursing goals were documented 7 times before and 33 times after in the study group compared to 12 and 7 times in the reference group. Nursing interventions were

documented 1,498 times before the intervention and 1,314 afterwards in the study group compared to 1,837 and 1511 in the reference group. The outcomes were documented 112 times before the intervention and 145 after the intervention in the study group compared to 255 and 204. The study group showed significant improvements in nursing documentation one year after the educational session (Ehrenberg & Ehnfors, 1999).

Thoroddsen and Ehnfors (2007) explored the concept further by examining the effects of an educational session at a 900-bed university hospital using a cross-sectional design. The educational session lasted 4 hours, was offered seven different times to staff nurses and focused on nursing documentation and SNL. In addition, the PowerPoints and other educational material were available on the web and short informal sessions were offered as requested. A task force was assigned to meet weekly during the project and these members met with nursing managers for support and discussions. The task force also received reports from the mangers that were assigned to continuously monitor the charts for the status of documentation.

The research team developed an instrument to measure the nursing documentation categories. There were minor revisions made to the instrument which consisted of five sections (demographics, 2 ordinal scale questions, a question asking whether the NANDA-I was complete, and if there was documentation on the problem, etiology, and signs and symptoms of the patient. Data were collected from 2001–2004. There were 265 nurse participants (29.4%). Descriptive statistics (chi-square test) was used to test the degree of associations between variables in the two years and independent *t*-tests were used for differences in mean values of age (Thoroddsen & Ehnfors, 2007).

The nursing assessments were documented 96.6% ($n = 343$) in 2002, compared to 94.3% ($n = 329$) in 2004 ($p < 0.05$). The difference in the nursing diagnosis, signs and symptoms and etiology with documented nursing diagnosis increased by 9.6% between 2002 and 2004 from 74.6% ($n = 265$) to 84.2% ($n = 294$). The mean difference in nursing diagnosis per patient was 4.2 (with a range of 1-13) to 4.7 (with a range of 1-18). The use of NANDA-I nursing diagnosis increased from 67% to 84.1% ($p < 0.01$). Nursing diagnosis used that was not compatible with NANDA-I decreased from 21.1% to 5.4% ($p \leq 0.001$). The nurses used more types of NANDA-I diagnosis after the intervention (74 before and 81 after). There was no difference in the documented expected outcomes from one fifth of the records (20.9%) compared to 18.7% in 2004. The differences in interventions using NIC were statistically significant between 2002 and 2004, 27.4% and 66.8% respectively ($p < 0.01$).

Thoroddsen and Ehnfors (2007) argued that the educational components were the most significant obligation because of the number of nurses involved and the amount of communication and follow-up provided. The researchers also contribute the success to the use of standardized language and structured care planning. Although this study was based on paper documentation, educating nurses before the implementation of the EHR was found to be a prerequisite for the use of SNL (Thoroddsen & Ehnfors, 2007).

Rivas et al. (2012) explored nursing documentation from a primary healthcare perspective over a nine-year period using a descriptive longitudinal study design. Multiple educational opportunities over the course of the study increased the nurses' use

of the nursing process (Larrabee et al., 2001; Rivas et al., 2012; Thoroddsen & Ehnfors, 2007).

The educational sessions were apart of all management and staff development activities beginning January 1, 2001 to December 31, 2009 42 at primary care centers where 445 nurses worked with 890,000 patients. During this time period, there were quarterly and annual reports submitted regarding documentation. Nursing documentation was measured using several criteria. The Global quality indicator measured nursing language based on NANDA taxonomy (assessment, diagnosis, aim, intervention, and evaluation). The Simple synthetic indicator on care plans (SICP) determined how complex a nursing care plan was using qualitative (quality) and quantitative data (frequency). The SICP was determined based on the total number of nursing care plans multiplied by the global quality indicator. Rivas et al. (2012) added a technical value (TV) that determined the complexity of care. Each TV was assigned based on the nurses' workload, prognostics, patient's self-perception of the health problem, social impact of problem, and required resources and is assigned a number between 1-10. For example, the nursing diagnosis "Family processes, dysfunctional: alcoholism" had a TV of 10 and "Fluid volume, imbalance, risk for had a TV of 1. The final score, called the modified SICP, was based on the number of nursing diagnosis the nurse had, the TV of each, and the global intensity (Rivas et al., 2012).

The frequency of nurses who used the nursing process increased from 5,129 in 2001 to 53,525 in 2009. The global quality for nursing using the nursing process increased from 78.6% in 2001 to 90.5% in 2009. Outcomes were measured based on the

effectiveness of positive evolution of the care plans and those scores increased from 69.8% in 2002 to 81.5% in 2009. By the end of the study, there were 663 nurse participants (an increase from 271 in 2001) and there were 243,838 new nursing diagnosed case and 152 different nursing diagnosis used. Of note the first 15 diagnosis consisted on 84.5% of all nursing diagnoses used (Rivas et al., 2012).

Educating nurses on SNL and the nursing process increases the quality of nursing documentation. Using the nursing process does not equate to better patient outcomes, however when nurses use diagnosis, intervention, and outcome data it effectively demonstrates nursing care (Rivas et al., 2012). Lucena, Holsbach, Pruinelli, Cardoso, and Mello (2013) argued that documented outcomes identify best practice in nursing care. Inadequate assessment data contributes to diagnoses and interventions that are not adequately ascribed to the patient (Gunningberg et al., 2009). Comprehensive audit tools provide rich data for analyzing nursing documentation and will be discussed in the following section (Wang et al., 2011).

Audit Tools for Nursing Documentation

There are multiple methods to audit nursing documentation (Wang et al., 2011) and the results vary depending on the method (Blake-Mowatt et al., 2013; Ehrenberg et al., 1996; Florin, Ehrenburg, Ehnfors, & Björvell, 2013; Griffiths, Debbage, & Smith, 2007; Johnson, Jefferies, & Langdon, 2010; Paans et al., 2010; Wong, 2009). By imparting on a systematic review of the literature, Wang et al. (2011) posited that there are three approaches when auditing nursing documentation: structure or format, process, and content.

The quality of documentation determines the value of information shared for communication and best practice outcomes (Florin et al., 2013; Griffiths et al., 2007; Wang et al., 2011; Wong, 2009). Systematic chart reviews focused on specific criteria for the nursing profession and content clarity adds value to healthcare (Wang et al., 2011). Wang et al. (2011) conducted a mixed-method systematic review of quantitative and qualitative studies composed of 77 papers from 15 different countries. The sample sizes of the characteristics studied ranged from 15 to 13,776. This number encompassed the number of records, patients, documentation items, and patient visits. Most of the studies were done using a quantitative approach and the hospital setting was where most of the studies occurred ($n = 51$).

There were 20 studies that focused on structure and format. Those studies were concerned with the logistics of the document (Wang et al., 2011; Wang, 2012). Blake-Mowatt et al. (2013) discussed the neatness, legibility, and succinct entries as characteristics and the study concluded that 98% of the nurses followed documentation guidelines.

Twenty-three studies had a focus on process. Accuracy in their process was determined by evaluating communication within disciplines or whether the nurses documented that follow-up interventions were done and they were timely. This approach also evaluated the notes against the nurses' performance. Marinis et al. (2010) examined nurisng docuementation against the care provided and concluded that nursing records do not include all the activies of nursing care and therefore documentation does not determine quality of patient care. Lucena et al. (2013) and Marinis et al. (2010) discussed

the length of time between pain assessments as a critical indicator in nursing

documentation. Paans et al. (2010) argued that the process of documentation is apparent

when using the D-Catch instrument as an audit tool.

The D-Catch instrument measures the structure of nursing documentation

according to the five stages; admission data, nursing diagnosis (using P – problem, E –

etiology, and S- signs/symptoms), nursing interventions, and progress and outcome data

(Paans et al., 2010). Of the 341 charts reviewed 28% contained all the stages of the

nursing process. Of note, at least 50% of the progress notes were linked to the diagnosis

and interventions. Accuracy of the structure of the record, the admission information,

diagnosis, interventions, and outcomes were evaluated. Nursing diagnosis was more

chronologically descriptive compared to diagnosis based. Progress notes were generally

based and not specific to the diagnosis. The scores for quality were based on a score of

either 'incomplete' or 'ambiguous' (Paans et al., 2010).

Evaluating the content of nursing documentation addresses the appropriateness of

clinical care (Wang et al., 2011). Content evaluation requires using the steps in the

nursing process. Of the studies examined, the focus was either a combination of structure,

content, or process or content alone. Most of the content studies focused on a specific

health deviation like pressure ulcers, pain, falls, or weight. Others focused on pieces of

the nursing process and how they are related to each other. Florin et al. (2013) examined

the difference between using the VIPS model (well-being, integrity, prevention, and

safety) to the ICF (international classification of functioning, disability and health). A

descriptive design was used to compare the two audit tools. The etiology, designs, and

features were compared. The designs and approach to data collection had similarities. Both tools were content specific. The ICF is designed to be used by multiple healthcare professions while the VIPS is nursing focused. The VIPS model is designed to determine if the nursing process is being followed and the ICF describes the patients health deviation without inclusion of the nursing process (Florin et al., 2013).

The IOM (2011) suggested that healthcare take responsibility for quality and safety outcomes in patient care. The ANA (2010b) and CMS (2009) provided guidance on using the nursing process to articulate patient care activities and outcomes. The ACA (HHS, 2009) requirements of healthcare's transition from paper to EHR as a method of documenting care includes documentation features that mask the quality of care nurses provide (Kelley, Brandon, & Docherty, 2011). Nurses' reliance on the software to guide documentation decision-making caused nurses to cut and paste and rely on the computer to help them remember patient information. Audits that evaluate the nursing process and quality of nursing documentation were found in the Q-DIO (Müller-Staub, 2006; Müller-Staub et al., 2006; Müller-Staub et al., 2007; Müller-Staub et al., 2008b; Müller-Staub et al., 2009).

Quality of the Nursing Process Through Diagnoses, Interventions, and Outcomes

Jefferies, Johnson, and Griffiths (2010) and Mahler et al. (2007) discussed nursing diagnosis as a way to communicate to all healthcare staff while increasing the quality of patient care. Patient safety and the delivery of quality of patient care are one in the same (Kohn et al., 2000). Kelley et al. (2011) reported there was a link between nursing documentation, the EHR and quality of care. Nurses are the largest group of healthcare

professionals, therefore the process, content, and structure of nursing documentation influences quality of care. In addition, nursing documentation is becoming a focus in healthcare outcomes (Müller-Staub et al., 2007). Nurses use NANDA-I, NIC, and NOC (NNN) internationally as a reliable method to describe nursing care through standardized nursing language (NANADA-I, 2014). Documentation is also linked to reimbursement and litigation (Paans et al., 2010). Saranto and Kinnunen (2009) and McBride, Delaney, and Tietze (2012) posit that nursing documentation is necessary for resource allocation and opaque nursing care interferes with quality patient care.

Müller-Staub et al. (2006) conducted a systematic review of the impact of the nursing diagnoses, interventions and outcomes using NNN. The researchers evaluated the impact the nursing assessment had on the frequency, accuracy, and completeness of nursing diagnosis and the coherence between the interventions and outcomes. Nursing diagnoses that were closely associated with the assessments and interventions had an increase in the quality of the outcomes. The SNL used in the diagnosis were seen in the interventions and outcomes. Documentation was improved when nurses were cognizant of the language they were using to describe the nursing care. Müller-Staub et al. (2007) conducted additional studies using pre and post-test methods to test the relationships between nursing diagnoses that were related to the assessments and the corresponding interventions and outcomes. There was a statistically significant increase in the mean scores of post-test nursing documentation scores when nurses were educated in and applied the nursing process in their documentation.

Standardized Nursing Language and Its Effect of Q-DIO Mean Scores

Müller-Staub et al. (2007) conducted an experimental design study on two sets of 36 randomly selected nurses in a Swiss hospital. The experimental group received a 2-hour introductory class on the nursing process that covered diagnoses, interventions, and outcomes. Each month thereafter the nurses met and discussed the nursing process using real case studies. The goal of integrating case studies into the instructions was to make the nursing process appear evident.

The diagnoses, interventions, and outcomes using the Q-DIO were measured one year after the educational sessions and there were statistically significant changes to the mean scores. Before the interventions, the mean score for nursing diagnosis was 0.92 (*SD* = 0.41), the post-test score was 3.50 (*SD* = 0.55; *p* < 0.0001). This value included the significant improvement with formulating nursing diagnostic labels, identifying signs and symptoms, and correct etiologies. Nursing intervention mean scores also had significant improvements. Pre-test mean scores were 1.27 (*SD* = 0.51) compared to 3.21 (*SD* = 0.50; *p* < 0.0001) with increases in naming and planning clearly named interventions and showing how they will be implemented, how often and who will perform the intervention. The nursing outcomes showed a statistically significant increase in mean score as well. Before the intervention the mean score was 0.95 (*SD* = 0.66) compared to 3.02 (*SD* = 0.95; *p* < 0.0001).

The nurses were able to articulate the nursing care using SNL. For example, when documenting an intervention on a patient with a decubitus, the nurse wrote "change bed position every 4 hours, change dressing daily". After the educational session, the nurse

wrote " observe wound daily", "constant pressure-free positioning of heel", Aquagel dressing, next change at (date)", "positioning patient every 3 hours with wedge-pillow", "mobilize patient 3 times daily for meals" (Müller-Staub et al., 2007, p. 12).

Nursing outcomes also improved with the use of standardized language that was patient specific. For example, before the educational sessions, the nurses charted "Patient has a decubitus at the left heel" (Müller-Staub et al., 2007, p. 12-13). After the educational sessions, the nursing diagnosis stated "Impaired tissue integrity, grade II decubitus" with the etiology: "Mechanical (pressure, shear, friction), nutritional deficit, and impaired physical mobility" and signs and symptoms: "Damaged tissue at left heel, 2 x 3 cm wide, 0.1mm deep" (Müller-Staub et al., 2007).

Müller-Staub et al. (2008a) argued that nurses require specific instructions to increase the quality of nursing documentation. Guided clinical reasoning (GCR) was used as the educational forum to test whether there was a difference in the mean scores using the Q-DIO to evaluate the nursing process. Bruylands et al. (2013) describe GCR as a method of teaching the nursing process using NNN by demonstrating the links between diagnoses, interventions, and outcomes. Critical thinking and reflection was used and was based on data from best practice.

The control group was provided instructions based on case discussions, while the experimental group was provided with GCR sessions that met for 1.5 hours once a month for 5 months. The GCR sessions encouraged the nurses to think of the patient's assessment criteria and formulate nursing diagnosis that correlated with assessment data. This group was also asked to think of all the possible interventions with as much

specificity as possible and most favorable outcomes. There were a total of 225 records

reviewed which where made up of 37 different units (each unit was comprised of a

diagnosis, intervention, and outcome). Units were evaluated for each group at 3 different

intervals ($n = 444$). The information was collected from 6 different wards and the data

was clustered. Therefore, in addition to the t-tests, a fixed effect was used for the

interaction of time and group, and a random effect was used for ward and time. The

documentation was evaluated 3 to 7 months after the baseline assessment and post test.

There was no statistically significant increase in the number of individualized care

plans between the intervention and control groups. Baselines for the intervention and

control group were 60.9% and 51.48% and post test was 63.09% and 56.83%.

The mean score of the intervention group before the GCR was 2.69 ($SD = .90$) and after

was 3.70 ($SD = .54$; $p < 0.0001$) compared to the control group with 3.13 ($SD = .89$) and

2.97 ($SD = .80$). There was a statistical improvement in the quality of the interventions

after the GCR compared to before the sessions and compared to the control group. The

interventions group increased from 2.33 ($SD = .93$; $p = 0.0001$) to 3.88 ($SD = .35$). While

the control group, changed from 2.70 ($SD = .88$) to 2.46 ($SD = .95$). Finally, when

outcomes were measured, the researchers reported pre-test scores for the GCR as 1.53

($SD = 1.08$) and post-test scores as 3.77 ($SD = .53$; $p = 0.0001$). The control groups mean

scores for outcomes pre-test were 2.02 ($SD = 1.27$) compared to 1.94 ($SD = 1.06$; $p =$

0.62), which was not a significant difference. The outcomes matched the nursing

diagnosis and interventions. The GCR group had more precise outcomes in their patients'

signs and symptoms. Thus the use of GCR increases the quality of nursing documentation when using the NNN as SNL.

Sustained Use of Quality, The Nursing Process and Its Effect of Q-DIO Scores

Nurses who have planned educational sessions of the nursing process have increased quality according to the mean scores tallied in the Q-DIO (Bruylands et al., 2013; Müller-Staub, 2006; Müller-Staub et al., 2006; Müller-Staub et al., 2007; Müller-Staub et al., 2008a; Müller-Staub et al., 2009). There is a gap in the literature addressing whether there are long-term effects on the quality of nursing documentation.

Bruylands et al. (2013) evaluated the nursing process from 2005 – 2011 using GCR and Q-DIO to determine if nurses are able to maintain consistently improved mean scores when educated using the GCR with an EHR over the study period. The EHR does not consistently capture important data since nurses are inundated with point and click documentation (Stevenson & Nilsson, 2011; Whittaker, Aufdenkamp, & Tinley, 2009). Nurses lack of involvement with the EHR design have decreased the transparency of nursing care in the EHR (Stevenson & Nilsson, 2011). Consistent quality in nursing is crucial since the documentation is a part of patient care decisions. Educating nurses about the nursing process using the GCR allowed the nurse to think about the patient and ask questions while critically thinking (Bruylands et al., 2013). Discussions of specific interventions and outcomes also contributed to increasing clarity of nursing functions.

Bruylands et al. (2013) demonstrated that nurses who received GCR using case studies showed increased mean scores using the Q-DIO from 2005 to 2006. However, the

results were not sustained. The results from 2006 to 2011 were worse in the diagnosis and outcome categories. The researchers were interested in answering four questions:

a) Did the GCR program have a significant, lasting effect on the quality of the nursing process between 2005 and 2011?

b) How frequently and accurately did nurses use nursing diagnosis with support of the EHR in 2011?

c) How frequently and accurately did the EHR suggest nursing diagnosis in 2011?

d) Compared with the actual use of the nursing diagnosis by nurses, how many accurate nursing diagnoses did the EHR suggest in 2011? (p. 165)

There were three sample groups consisting of 36 nurses in each group. Group 1 (2005) was made up of nurses who had been in a previous Q-DIO study done by Müller-Staub et al. (2007) and Group 2 consisted of randomized post test Q-DIO nursing documentation that had an original sample size of 111 which was reduced to a randomized size of 36 using SPSS Version 19.0 (Müller-Staub et al., 2006). Group 3 (2011) consisted of a convenience sample. Group 1 received information about nursing diagnoses, Group 2 received intervention of GCR using case studies, and Group 3 received the implementation of the EHR and no information on GCR.

Bruylands et al. (2013) found that nurses in Group 2 who had received GCR scored higher than any other group during all three-study periods. Group 2 scored significantly better when scored on formulating nursing diagnoses, interventions, and outcomes than Group 1 ($p = .005$) in 2005, significantly better than Group 1 ($p = < .000$) and Group 3 ($p = .000$) in 2006, and significantly better in 2011 than Group 1 ($p = .000$)

and Group 3 (p = .000). Group 1 did significantly better than Group 3 with implementing nursing diagnosis (p = .002), the initial phase of the study. Group 2 was not considered in this phase since the GCR had not been initiated. Phase 2 (2005) Group 1 had significantly worse scores compared to Group 3 and Group 3 had almost significantly (p = .05) better scores than Group 1, however, not significantly worse than Group 2 (p = 1.000). During phase 3, there were no significant findings between Groups 1 and 3, however Group 3 scored significantly worse than Group 2. In the final phase Group 1 and 3 ranked lower than Group 2 and showed no significance between the two groups (p = .247).

The answer to research question 1, is there a long-term effect with using the GCR? The answer is no. There are no long-term effects. Question 2 asked if there was a difference in the accuracy and frequently when using the EHR and the results established that nurses choose a maximum of five different nursing diagnoses with 94.7% accuracy, 1.47 distinct nursing diagnoses (SD = 1.028; 95% [Cl = 1.12, 1.82]). In most cases (58.3%) only one correct nursing diagnosis was chosen and used as the median 17.08 times. Research question 3 showed that the EHR was correct in choosing an accurate nursing diagnosis 61.5% of the time. The EHR choose a total of 30.22 accurate nursing diagnoses with a range of 1-148 (SD = 30.66; 95% Cl [19.85, 40.60]) and a range of 9.75 different, accurate hypothetical nursing diagnoses (range = 0 – 24; SD = 5.51; 95% [Cl = 7.89, 11.61]) per patient. The average ratio between accurate suggestions of the EHR and the nursing diagnoses used by nurses was 6.6:1, which answered research question 4.

The results support the findings of other researchers (Estrada & Dunn, 2012; Kelley et al., 2011; Thoroddsen et al., 2011) who argued that nurses require constant

education of the nursing process. The EHR suggested a wider and more accurate use of nursing diagnoses (Paans et al., 2011), however in this study nurses choose their own nursing diagnosis six out of seven times (Bruylands et al., 2013). Nursing documentation is not considered as high a priority as other tasks despite the importance of clarity of quality within the documentation.

Testing of the Q-DIO was done to assess the validity in Brazil and United States. The methodological study used 180 records in 3 separate healthcare centers. Hospital 1 used electronic records with standardized language in Brazil, Hospital 2 used paper based charts without standardized language in Brazil, and Hospital 3 used electronic charts without standardized language in the United States. Data was collected from December 2011 to June 2012 in Brazil and May 2012 to June 2012 in United States (Linch et al., 2015).

Patients admitted to a post cardiac unit for at least 48 hours were evaluated. The inclusion criteria included patients who were admitted for at least 4 days, as recommended by Müller-Staub et al. (2007). Randomized assessment of intraobserver reliability was done on 20% of the charts from each of the three hospitals. Random sampling of eligible patients was collected. The history, progress notes, and nursing interventions were used. Data was collected from the 3 hospitals using 60 charts each.

Cronbach's alpha was used for all 29 items and was found to be ≥0.70 in all centers (0.70, 0.89, and 0.82 at Hospitals 1, 2, and 3 respectively). Two raters assessed the same records independently. When the scores were compared, the raters were in agreement. An analysis of the construct validity between the different hospitals showed

mean scores of 36.8 ± 4.5 (95% confidence interval[CI]), 35.6 - 37.9 at Hospital 1, 11.5 $\pm$ 6.2 (95% CI 9.9 - 13.1) at Hospital 2, and 31.2 ± 5.3 (95% CI 29.8 - 32.6) at Hospital 3.

The items measured the same attribute regardless of the use of the language (English or Portuguese), paper or electronic formats, and whether or not standardized language was used. The Q-DIO is a valid and reliable tool for assessing the quality of nursing documentation (Linch et al., 2015).

Examining the quality of nursing documentation before and after exposure to expected standards was done by Nomura et al. (2016) in preparation for a visit from Joint Commission International (JCI) in Brazil using the Q-DIO. Linch et al., (2015) validated the Q-DIO for the Portuguese language. The observational study of interventions evaluated whether there would be a change to the quality, safety culture, and commitment to patient care before and after education focused on nursing documentation.

The JCI standards manual is divided into 2 section; Patient Centered Care Standards (8 items) and Health Facilities Management (6 items). Ten out of the 14 items are related to nursing documentation. The hospital is a general and public university healthcare facility with 850 beds, 60 specialties and 10 nursing services. Nursing documentation was taken from inpatient settings and surgical out patient units.

Interventions used to increase the quality of nursing documentation consisted of clinical case studies; printed bulletins and electronic newsletters; regular support group meetings; theoretical and practical training; development of brochures and manuals; restructuring of the computerized documentation; anamnesis and nursing physical

examinations, including information on the education of patients and their families and obligatory assessment items; provision of a specific space for training, disclosure of information and clarification of doubt; development of an institutional list of abbreviations or acronyms; creation of focused groups and activities and educational visits in patient units; implementation of educational evaluations and establishment of strategies to remedy or alleviate the problems encountered; training lectures; development and revision for Standards of Operating Procedures; development of distance learning courses (Nomura et al., 2016).

The study required an examination of 224 charts in total (112 pre test and 112 post test) using a confidence level of 95% with a standard deviation of 4.5 on the Q-DIO score and a 3% margin of error. The examined charts were taken from patients who were admitted for a minimum of 4 days in the same hospital unit and consisted of 52 clinical units and 60 surgical units. Excellent compliance was done during the pilot phase on 10% of the charts. Graduate and doctoral students collected data after training.

The results showed a significant difference between the pre and post test phases with an increase in all 4 categories. The Q-DIO is comprised of a total of 29 questions divided into 4 categories. The scores can range from 0 to 58. Data was collected in 2009 during the pre testing stage with an average score of 31 (28-37). The post test data collection was done in 2013 with an average score of 43 (37-47). There was an increase in all 4 domains with most of the improvement in the first domain (nursing diagnosis as a process), with an increase of 22 points. The remaining domains; nursing diagnosis as a product, nursing interventions, and nursing outcomes, increased by 16 points, 16 points,

and 14 points, respectively. The results showed a significant improvement in 24 of the 29

items (82.8%). There was a shift in the way nurses approached documentation and the

healthcare facility received a quality seal from the JCI (Nomura et al., 2016).

Concluding Thoughts on Educational Sessions and Nursing Documentation

Nursing documentation has shown to be a tool for communicating quality and

safety. The literature presented here has demonstrated varying conclusions about

educating nurses on the nursing process and quality of nursing documentation.

Standardized nursing language has increased the clarity of nurses' contributions in

healthcare (Angelats & Fresnedo, 2014). Therefore using the nursing process and SNL

increases the quality of nursing documentation (Bruylands et al., 2013; Müller-Staub et

al., 2006; Thoroddsen & Ehnfors, 2007). Furthermore, the use of the nursing process is

an international requirement for nursing documentation (ANA, 2010a; Angelats &

Fresnedo, 2014; Klees et al., 2009).

Planned educational sessions focused on the nursing process increase the quality

outcomes when audit studies are conducted (Bruylands et al., 2013; Müller-Staub et al.,

2006). The Q-DIO has high reliability and validity when used to test the quality and

accuracy of the nursing process. The mean scores for diagnoses pre-test using the Q-DIO

for diagnoses were 0.92 ($SD = 0.41$) compared to the post test, which were 3.21 ($SD =$

0.50; $p < 0.0001$). The mean scores for interventions pre-test using the Q-DIO were 1.27

($SD = 0.51$) compared to 3.21 ($SD = 0.50$; $p < 0.0001$). The outcome mean scores were

also statistically significant with pre-test mean scores of 0.95 ($SD = 0.66$) compared to

3.02 ($SD = 0.95$; $p < 0.0001$). When nurses are instructed on the nursing process using

various approaches like GCR (Bruylands et al., 2013) and SNL (Müller-Staub et al., 2007), the mean score data shows a significant increase in quality, however sustained quality is not maintained. This research seeks to further expand the body of evidence and examine the relationship between the qualities of mean scores using the Q-DIO before and after a focused educational session on the nursing process for nurses working in a New England hospital in the United States.

Theoretical Framework

A significant aspect to following regulations is interpreting its meaning (Sabatier, & Weible, 2007). Multi level government and non-government explanation of policy obscures the interpretation for nurse stakeholders who have varying goals. Technical aspects of policy analysis and application require a framework (Schlager, 2006) and an understanding that stakeholders are learning based on experiences and information from internal and external stimuli. According to Ostrom, Gradner, and Walker, "Frameworks organize diagnostic and prescriptive inquiry…. They attempt to identify the universal elements that any theory relevant to the same kind of phenomena would need to include" (1994, p. 293). Policy analysis is effected by stakeholders differently because of their focus on what is important within policy language and interpretation (Sabatier, 1998). The advocacy coalition framework (ACF) developed by Sabatier and Weible (2007) describes the multiple levels of information a stakeholder is exposed to while formulating an understanding of policy expectations. The framework identifies how information and experiences cause stakeholders to value the interpretation of the policy differently. This can cause problems within organizations that have similar policies and goals.

Sabatier and Weible (2007) asserted that there are substantial conflicts within organizations when they are interpreting policy. The framework was originally applied to large establishments like energy and environmental organizations, but has been applied to healthcare through an iterative process. Sabatier and Weible (2007) described the constructs of the ACF to include internal and external forces that groups are exposed to over at least a decade causing stakeholders to interpret policies based on experiences within these paradigms. The framework consists of five individual stages each contributing to the learners' interpretation of policy. The stages are: "(1) Relatively Stable Parameters (RSP) (factors that are consistent to all coalitions); (2) External (System) Events (ESE) (changes to the socio or socio-economic environment that cause shifts in understanding); (3) Degree of consensus needed for major policy change (an identification of what each stakeholder must accomplish to remain current with policy language): (4) Constraints and Resources of Subsystem Actors, and; (5) Policy Subsystems (the degree of change in thinking of the coalitions such that new coalitions are formed; p. 191)". Learning and understanding documentation is effected by the first two stages of the ACF and will be discussed as the theoretical basis of this paper.

Educating future nurses on documentation is an essential element of the educational process (ANA, 2007). Healthcare professionals use nursing documentation when making patient care decisions and the EHR causes real time data to directly impact healthcare decisions. Nursing documentation is used as evidence in litigation cases involving patients who have poor or unfortunate outcomes. In addition, nursing documentation has an increasing effect on healthcare reimbursement. Increasing the

compliance to nursing documentation through policy initiatives could positively effect patient outcomes by all areas affected by nursing documentation. Nursing documentation was originally taught using a traditional paper system and role-modeling behavior (Mahon, Nickitas, & Nokes, 2010). The student nurse would write a chart entry on a piece of paper, the nursing instructor would make corrections, suggestions, and recommendations, the student would re-write the entry according to the instructors' satisfaction before writing the entry into the chart. Once the passage was written in the chart the instructor would co-sign the entry.

The RSP, has four parts, the first part is called the "basic attributes of the problem area (good)" (Sabatier & Weible, 2007, p. 191). Nursing documentation satisfies a basic healthcare requirements because it is used to communicate a patients' progress and receipt of safe and appropriate care (IOM, 2011). The other three parts are: basic distribution of natural resources, fundamental socio-cultural values and social structures, and basic constitutional structures (rules). Each part continues to reinforce the nurses' role in upholding human rights for patients to receive healthcare that provides for the best outcomes (ANA, 2009; IOM, 2011; Klees et al., 2009). Nurses are the largest group of healthcare professionals in the United States (BLS, 2017a; BLS, 2017b), and documenting on the EHR does not allow the modeling behavior it did with paper charting. The duty to educate future and current nurses about electronic documentation is a discussion in the literature that has taken several approaches. The obligation to produce nursing entries that comply with the governmental regulations related to safety, quality, and efficient healthcare remain a stable parameter (HHS, 2009). The initiative of

transitioning from traditional paper charting to EHR is the external force in policy analysis that causes nurses with varying goals to interpret policy with unilateral objectives.

There are four parts to the ESE: (a) Changes in socio-economic conditions; (b) changes in public opinion; (c) changes in systemic governing coalitions, and; (d) policy decisions and impacts from other subsystems (Sabatier & Weible, 2007). The transition of nursing documentation from traditional paper charting to the EHR created significant conversations within the nursing regulatory communities. The TIGER Summit was formed and consisted of 150 specialty organizations gathered to decide how to teach future nurses about computerized health information. The NLN (2008) and the ANA (2007) produced statements to clarify what responsibility nurses had in maintaining quality in nursing documentation as the nation transitioned to the EHR. In addition, HIMSS (2011) also wrote a position statement to aid nurses, and the American Nursing Informatics Association (ANIA, 2016) was founded as an organization to support nurses in the use of technical information. In 2008, the American Association of Colleges of Nursing (AACN) included healthcare technology as a necessary component to a baccalaureate education. Each of these organizations emphasized nurses' responsibility to gain proficiency in health information management and retrieval of information with the goal of continuing to increase the delivery of high quality, safe, and efficient patient care. The concept of standardized language and maintaining the quality of nursing care and nursing documentation through the use of the nursing process is poorly articulated in each of these organizations.

Nursing Schools' Approaches to Educating Nurses in use of the EHR

The workforce of nurses is a compilation of students who have graduated with various credentials and who sit for the same licensure exam that determines the minimal competency to practice nursing safely, the NCLEX-RN. The preparation to become a RN can begin with a diploma (6.6%), an associate (48.5%) or baccalaureate (42.4%) degree. In addition, students who possess a terminal baccalaureate or master's degree in another subject can take an accelerated course and qualify for the NCLEX-RN exam (HRSA, 2010). The learner of nursing is therefore composed of a multifaceted curriculum leading to the same objective. Professional nursing education has similar paths in that the authoritative sources that guide clinical practice interpret policy depending on influences, goals, and foreseen objectives.

Nursing academic settings are regulated by the policy statements set forth by the NLN (2008) and the NCSBN (Russell, 2012), which mandate nursing students are to graduate with competence in the nursing process. While nursing faculty are unsure of how and what nursing documentation education includes, schools are guided by the NLN's position statement that confirms there is confusion and ineffective implementation of nursing documentation into clinical practice. The NLN recommends partnering with informatics organizations to increase understanding of information technology. The initiative to become technologically savvy is supported by the HRSA (BHP, 2013) which have allocated funds to acclimatizing electronic learning into nursing schools.

Nursing faculty is inundated with the responsibility of instructing students on the logistics of informatics without having a distinct agenda for implementation (Aktan et al.,

2011; Bowers et al., 2011; Greenawalt, 2014; Johnson & Bushey, 2011; Lucas, 2010; Mahon et al., 2010; Nickitas et al., 2010). Several approaches to fulfilling this obligation have been studied using qualitative approaches with results indicating teaching students how to effectively document on the EHR remains challenging. In addition to teaching students information retrieval, nurses are required to incorporate reimbursement criteria brought on by the Affordable Care Act, which necessitates incorporating reimbursement language into nursing documentation (HHS, 2009).

Pre-licensed Nurses and the EHR – Introduction to Software

Nickitas et al. (2010) and Aktan et al. (2011) discussed the problems schools of nursing (SON) have when initiating students into electronically based healthcare learning facilities. The logistics of gaining security clearance, logging into networks, and learning the software was more time consuming than each of the study groups anticipated. Nickitas et al. (2010) research used TIGER (HIMSS, 2017) and Quality and Safety Education for Nurses (Cronenwett et al., 2007) and Aktan et al. (2011) study used AACN (2008) as guides. The researchers focused on how students are integrating data collection and retrieval into the EHR.

Aktan et al. (2011) examined the documentation practices of nursing students in a community health class. There were two agencies each using a different medium to gather and retrieve patient information. One agency used a notebook computer the other used a Personal Digital Assistant (PDA). Before making the home visits, the students were provided with patient information and encouraged to document while in the patients' home. Upon returning to the office, the instructor would confirm the notes

where complete and co-sign each entry. Both groups found the screen menus helpful in formulating focused visits. Both agencies were pleased the information in the charts was immediately accessible.

The limitations in this study contributed to the role adaptation of the student to professional nurse. The students are not able to master the role of a nurse and struggled with learning the software. The transition from paper to electronic was not smooth. The nurses felt the lag time between the information being collected and the faculty sign-off interfered with patient care. The study concluded that more instructional time is needed to acclimate the students to the systems. Students must learn the system since they have the potential to be future community health nurses and it cannot be assumed that the technological environment outside of nursing includes an understanding of EHR (Aktan et al., 2011).

Nickitas et al. (2010) asserted that teaching nursing students about clinical documentation and the EHR are important facets. External funding allowed the nursing program to purchase 10 laptop computers with scanners that were supported by the Veterans Administration's (VA) EHR system. The faculty was guided by QSEN's competencies (Cronenwett et al., 2007) that listed what knowledge the student needed to acquire and what applicable skill fulfilled that knowledge. There were five criteria: (a) explain why information and technology skills are essential for safe patient care; (b) identify essential information that must be available in a common database to support patient care; (c) contract benefits and limitations of different communication technologies and their impact on safety and quality; (d) describe examples of how technology and

information management are related to the quality and safety of patient care, and; (e) recognize the time, effort, and skill required for computers, databases, and other technologies to become reliable and effective tools for patient care. The associated skills were: (a) apply technology information management tools to support safe processes of care; (b) navigate the EHRs to locate this information (c); observe the use of other communication technologies used by various healthcare organizations during clinical practicum rotations; (d) respond appropriately to clinical decision-making supports and alerts, and; (e) use information tools to monitor outcomes of care processes; (f) Use electronic sources of patient healthcare information from inpatient care.

The use of the AACNs statements equated to two categories: Information Management Competency (IMC) and Teaching Strategies to Address Competencies (TSAC). There were six categories in each section. For IMC the following list represented what the baccalaureate essential were: (a) demonstrate skills using patient care technology, information systems, and communication devised that support safe nursing practice; (b) understanding the use of a computer information system to document interventions related to achieving nurse sensitive outcomes; (c) use standardized terminology in a care environment that reflects nursing's unique contribution to patient outcomes; (d) recognize the role of information technology in improving patient care outcomes and creating a safe care environment; (e) uphold ethical standards related to data security, regulatory requirements, confidentiality, and clients' right to privacy, and; (f) advocate for the use of new patient care technologies for safe, quality care.

The corresponding TSACs were: (a) demonstrate signing onto the VA EHR and navigate the electronic medication record; (b) have students select a patient medical record and document patient interventions that reflect in patient outcomes; (c) have students identify standardized terminology use in the VA electronic health record; (d) have students identify how the features in the VA EHR improve quality and safety of patient care; (e) have students learn how to protect confidentiality of protected health information in electronic health records by using a password protection system, and; (f) have students clarify the nurses' involvement in the design, selection, and implementation of information technologies to support care.

Incorporating informatics into a core competency for nursing students and faculty was time and labor intensive causing them to create a new position to address the logistical issues (Nickitas et al., 2010). Determining faculty baseline competency was another finding and the researchers were appreciative of the cooperation they received from the VA.

Integrating the nursing process in EHR documentation was addressed in part by Nickitas et al. (2010). Aktan et al.'s (2011) research was absent of any reference to the nursing process. The introduction of the EHR into nursing has caused the nursing community to be labored with the task of using an information platform during a time when SNL and nurses transparency are at a historical peak (ANA, 2010b). According the ANA (2010a) and CMS (2008b) nursing documentation included the process of creating nursing diagnoses, interventions and outcomes. The NLN (2008), AACN (2008), TIGER

(HIMSS, 2017) and QSEN (Cronenwett et al., 2007) state future nurses are required to be proficient in information technology.

Pre-Licensed Nurses and the EHR – Application Exercises for Students

Acclimating students to the EHR is a daunting task for nursing educators since past experiences cannot provide a framework for the implementation (Bowers et al., 2011; Fetter, 2009b; Greenawalt, 2014; Lucas, 2010). The literature describes several approaches to infusing the EHR into the nursing academic curriculum. To date there is no standard that guides this process (Fetter, 2009b). Bowers et al. (2011) and Lucas (2010) argue that academic centers are interpreting the requirements set forth by the NLN, TIGER, IOM, and QSEN each with a different focus. The reports chronicled nursing students' ability to input data with either email corrections or a student portal before the information was officially made a part of the medical record. Both studies focused on information management and retrieval.

Using NLN and TIGER for guidance to implement the EHR into the nursing school curriculum, Bowers et al. (2011) focused on teaching students that data inputted into the EHR is made available to all healthcare professionals for decision support. To accelerate learning and reduce time spent away from patient care, the students received computer education prior to their clinical experience. There were 3 pre-clinical educational sessions: (a) introduction to the Electronic Medical Record that included basic concepts about the EHR; (b) application of the EHR for Use in Healthcare, which reviewed the TIGER initiatives, and; (c) EHR and Nursing Practice, which demonstrated how the information is integrated into nursing practice (pp. 694-695).

The outcome of this project revealed that 66% of the students believed they were prepared to document using the EHR and nursing faculty believed the students were adequately prepared. The report did not address the reported quality of the information obtained by the students.

Essential elements of nursing's responsibility are to document care provided, clearly communicate that quality of care was provided, and understand its use as evidence in litigation (Lucas, 2010). Data collection began with a survey to nursing faculty and students. The faculty was asked to rate their experience with the EHR and bar code medication administration using an eleven-point scale from 0 (no experience) to 10 (expert in the process). A majority of the faculty response ranged from 3-10. The comments included "We need to develop a bar code scanning process in the simulation lab" and "Not enough charting practice for students before they get to clinical sites" (Lucas, 2010, p. e99).

A written survey was sent to the senior level undergraduate (associate and baccalaureate) nursing students with a response rate of 72% (44 students). The survey revealed that a majority of the students reported that electronic documentation was a barrier to their learning on the clinical sites because of their concentration on the computer.

Study Design and Sampling of Past Research

Lai et al. (2013) discussed nursing documentation using grounded theory to examine nurses' use of SNL by asking nurses open-ended questions. Dunnion and Griffin, (2010) conducted research using open and closed ended questions to learn about

nursing documentation. ACENDIO (Sheerin et al., 2011) and Thoroddsen et al. (2012) used a questionnaire to gather data about SNL during an international meeting. There were 20 countries represented in the responses. The researchers determined that there are various SNL systems in use globally.

Blake-Mowatt et al. (2013), Lengu et al. (2013), Samuels and Kritter (2011), Thoroddsen and Ehnfors (2007), and Thoroddsen et al. (2010) used a cross-section approach to research nursing language as a process and function. Depending on the patient population, the researchers were able to determine that nurse's understanding of the nursing process and the use of SNL increased the quality of the documentation.

Ofi and Sowunmi (2012) discussed how often and to what extent the nursing process is used using a descriptive design. Rivas et al. (2012) used a longitudinal descriptive design over a nine-year period to evaluate nursing documentation in a primary healthcare setting. The nurses were infused with nursing documentation education as a part of their management and staff development. Frauenfelder et al. (2010) used a qualitative content analysis comparing phenomena in the literature to the NANDA-I definitions. Häyrinen et al. (2010) used a retrospective descriptive design to study Finland's nursing classification system, which is similar to NANDA-I.

A number of studies in this literature review used an analysis of existing studies to determine how nursing language is articulated. Tastan et al. (2014) studies consisted of descriptive, observational, and interventional research papers that discussed how the ANA recognizes terminology. Müller-Staub et al. (2006) discussed the application of the nursing process and Müller-Staub (2006) conducted a system review to determine the

impact nursing diagnoses, interventions, and outcomes had on the quality of nursing documentation. Wang et al. (2011) conducted a mixed-method approach research focusing on the specific criteria used by nurses. Müller-Staub et al. (2007) and Müller-Staub et al. (2008b) conducted experimental design research to study the effects of a planned educational session and the quality of nursing documentation. Bruylands et al. (2013) longitudinal study evaluated the use of the Q-DIO and GCR to evaluate the long-term effects of a planned educational session.

The various designs and approaches used by the aforementioned researchers provided data that adds to the body of knowledge in nursing documentation and quality outcomes. The use of open-ended questions and questionnaires for the purpose of gathering data about SNL were not be added to this study. Müller-Staub et al. (2007), Müller-Staub et al. (2008a) and Bruylands et al. (2013) approach to instituting a planned educational session were incorporated into this research design. A quasi-experimental design that evaluates mean scores before and after an educational session aligns with policy statements designed to increase safety and adhere to human rights.

Effectiveness of Quality in Nursing Documentation on Healthcare Economics

Quality in nursing documentation has alarming consequences associated with healthcare economics. The literature review has illustrated a number of studies focused on quality in patient care outcomes, however increasing the quality of nursing documentation has been found to have positive effects for defendants in litigation and healthcare spending (Mahler et al., 2007; Painter.& Dudjak, 2010; Prideaux, 2011; Samuels & Kritter, 2011). Painter and Dudjak (2010) discussed the increase in nurses

involved in litigation and argue that most events are failure to perform a timely assessment and intervention. The researchers used a retrospective review to examine nursing documentation from insurance claims that have been paid monies on behalf of defendants and identified certain nursing actions and behaviors as contributing factors to the poor patient outcomes. The actions included failure to respond or set audible monitor alarms (15.7%), failure to follow the 5 rights in medication administration (15.7%), failure to escalate communication (10.5%), and failure to perform timely assessments and intervention in clinical settings (42%). Nursing behavior associated with the events was failure to follow policies and procedures (53%) and failure to perform the duty (47%).

Thomas (2012) examined the cost of pressure ulcers in a healthcare facility in northeastern New Jersey and found an increase in the quality of documentation after 2 educational sessions. Pressure ulcers costs can be as high as $355 million annually and nursing documentation of skin contributes significantly. Nursing documentation that correctly identifies pressure ulcers and documents accordingly can reduce the spending. After the educational session, the descriptions of the pressure ulcers characteristics increased in size (59.5% to 82.7%), exudate (43.9% to 70.5%) and tissue type (42.7% to 63.1%). Thomas (2012) concluded that the nurses met the requirements for CMS compliance guidelines for management of pressure ulcers and the increased knowledge on wound documentation improved the quality of patient care.

Quality in nursing documentation is associated with improved patient outcomes (Jefferies, Johnson, & Griffiths, 2010). Given that nurses are the largest group of contributing healthcare documenters (Kelley et al., 2011) and quality is defined as actions

that provide value to patients (IOM, 2001), quality in nursing documentation requires education and measurement to define quality. When documentation lacks quality, the content of nursing actions appears incomplete. Assessments enhance the quality of documentation and therefore reflect the standard of care in nursing practice (Blake-Mowatt et al., 2013; Jefferies et al., 2010; Mahler et al., 2007).

Quantitative Methods and Instrumentation

Approaching this research using a quantitative method allowed the results to be interpreted through numerical data. Hard data distinguishes results as having statistical significance or not. Population safety through policy statements requires data to have information that can be interpreted by comparing mean scores before and after an intervention. There were no control groups in the study; therefore, a quasi-experimental design was used. I tested before and after an intervention, which enabled me to compare the data to determine if the changes are taking place as an effect of the intervention. In this research, I developed and implemented an educational session for nurses about nursing documentation components and examined their charting before and after the class.

Actualizing the nursing process through quality has been measured by the development of the Q-DIO instrument (Müller-Staub et al., 2009). Initially developed as an audit instrument to measure the mean scores of nursing documentation as the related pieces of nursing diagnoses, interventions and, outcomes are evaluated for synergy. The tool has become an instrument for evaluating quality in nursing documents.

Q-DIO Instrument

There are three pieces of the Q-DIO and the nursing diagnosis as the initial segment that allows the remaining segments to align. According to NANDA-I:

A nursing diagnosis is a clinical judgment about an individual, family or community experience/response to actual or potential health problems/life processes. A nursing diagnosis provides the basis for selection of nursing interventions to achieve outcomes for which nurse has accountability. (NANDA-I, 2012, p. 515)

There are four activities that the nurse engages in: (a) information collection; (b) interpretation of the information; (c) condensing the information (clustering), and; (d) assigning a name or a title for the essence of the information (Gordon, 1998; Gordon, Murphy, Candee, & Hiltunen, 1994). An example of a nursing diagnosis for a patient who was having difficulty swallowing would be risk for aspiration.

The second segment of the Q-DIO are nursing interventions, which are treatments the nurse imparts on the patient and are described as actions (Müller-Staub et al., 2009). Nurses should be familiar with the research base of the interventions they choose. For example, when a nurse uses a nursing diagnosis related to a patient with an aspiration risk, ascribed interventions would be "position patient upright 90 degrees or as far as possible" or "feed in small amounts" or "avoid liquids or use thickened liquids" (Bulechek et al., 2008, p. 145). The final portion of the instrument measures the outcome. Outcome data measures the patients response to the nursing interventions (Müller-Staub et al., 2009). Examples of suggested outcomes for the aforementioned examples would be

for the nurse to address the patients' activity intolerance, their concentration, or their endurance (Moorhead, Johnson, Maas, & Swanson, 2008).

The Q-DIO measures improvements in the quality of documentation after planned educational sessions. In order to evaluate the components, nursing documentation and the nursing process, the instrument was operationalized into four sections each with specific criteria. Eight nurses with advanced degrees who also taught one or more of the nursing process segments were asked to identify criteria, in order to estimate inter-rater reliability. The sections of the Q-DIO are nursing diagnoses as a process, nursing diagnoses as a product, nursing interventions, and nursing-sensitive patient outcomes.

The final version of the Q-DIO shows there are 29 total items (Müller-Staub et al., 2009). There are 11 items for measuring nursing diagnoses as a process on a Likert scale (0-2), 8 items measuring nursing diagnoses as a process on a Likert scale (0-4), 3 items measuring nursing interventions on a Likert scale (0-4), and 7 items measuring nursing-sensitive patient outcomes on a Likert scale (0-4). Please see Appendix B.

Validity and Reliability of the Q-DIO Instrument

Müller-Staub et al. (2007) conducted pilot testing and full testing to establish reliability and validity of the instrument. The Q-DIO was originally tested on 6 wards where 72 randomly selected nursing diagnoses, interventions, and outcomes were reviewed. The selection was divided into 36 pre and 36 posttest measurements. The inclusion criteria were (a) length of hospital stay was at least 4 days; (b) existing nursing documentation up to at least the 4th day of hospitalization, and; (c) an individualized care plan containing a nursing diagnosis or problem, interventions, and outcomes. The four

sections of the Q-DIO (process and product, interventions, and outcomes) were measured and internal consistency of concepts was determined using Cronbach's alpha. If items in the process and product scored low, then the quality of the nursing diagnosis and related goals also scored low. The nursing diagnosis as a process was .83; for nursing diagnosis as a product was .98; for nursing interventions was .90; and for nursing-sensitive patient outcomes was .99. Items 12, 20, and 25, Cronbach's alpha for nursing diagnosis as a product was .98, for nursing interventions was .85, and for nursing-sensitive patient outcome was .99, all scores remained high, reflecting validity of the instrument.

Interrater reliability was assessed using Pearson correlations = .98; $p < .0001$, and an agreement between two researchers was examined by Kappa = .95; $p < .0001$. Interrater reliability showed Pearson's correlation = .99; $p < .0001$, and Kappa = .95; $p < .0001$. These analyses demonstrated increased reliability (Müller-Staub et al., 2008a). In addition, during focused group meetings, the eight nurses supported the Q-DIO and opined the instrument measured all aspects of the nursing care planning process.

Nursing Documentation Quality Post Test

The documentation of nurses contribute to the quality of healthcare outcomes, contributes to reimbursement data, is used in litigation, and serves as a communication tool for healthcare decision makers (ANA, 2010b; IOM, 2001; Klees et al., 2009). The quality of nursing documentation is improved after nurses are educated in the nursing process which consisted of a nursing diagnosis, nursing interventions, and nursing sensitive patient outcomes (Müller-Staub et al., 2007). Given that nurses do not have a curriculum outcome measure to confirm their understanding of the nursing process before

graduating from nursing school and the EHR has revolutionized nursing documentation to focus on information management and retrieval, the nursing process is lacking visibility in charting today. Scores for increasing the quality of nursing documentation has been identified after planned education settings in the literature. The literature review did not render any studies that identified nurses in Connecticut who have been provided a planned educational session on nursing documentation to increase the quality of their documentation.

Rationale for Paired-*t* Test and Post Hoc Analysis

Comparing whether or not there was a statistical difference in mean scores in healthcare documents written by nurses required a *t*-test. A *t*-test is used when comparing two groups to determine if there is a statistical significance between the groups after a structured educational session. Before data collection began, a member of the nurse informatics department and I sat together to determine where each of the 29 questions could be found in the EHR. After both Walden University and Yale University IRBs approved the study and consents were obtained, we collected data from 4 charts (2 pre and 2 post educational session) to compare scores. We agreed on methods used to extract data, location of information required, and Q-DIO scoring criteria.

Evaluation of outcome from these 4 charts, scored no differences between myself and the informatics nurse. Of note, the software used in this study populated initial care plans with corresponding interventions when patients were admitted. Additional care plans were added after nursing assessments were entered and nurses approved or rejected

care plans suggested by the software. This pre-population of care plan suggestions is a potential study limitation.

In this study, I scored participants nursing documentation before each nurse attended a planned educational session on nursing documentation. I scored their charting again after they had attended the class to determine if there is a statistical significance in their mean scores. I was not able to recruit another data collector due to time and financial constraints.

Once statistical significance had been determined, I performed a post hoc analysis on the scores. Post hoc analysis tests the data to determine where differences between the 2 groups may reside and to what magnitude those differences represent in the overall interpretation of the findings. Post hoc analysis is valuable in furthering the development of policy language and initiate guidelines to support quality in nursing documentation.

Summary

As the global burden of quality in healthcare has been evident since the 1990s beginning with the studies published by the IOM (Kohn et al., 2000), the increasing economic encumbrance on the federal government to reimburse healthcare facilities who care for patients under Title XVIII and XIX (Klees et al., 2009), and the growing number of nurses involved with professional litigation (NPDB, 2014) necessitates the need for nurses to document with language that defines the RNs' professional scope of practice. The definition of nurses' roles is globally consistent. Nurses are responsible for quality in heath care while caring for patients' responses or potential responses to medical conditions (ANA, 2010a; ANA, 2010b; Bruylands et al., 2013; Müller-Staub et al., 2007;

NANDA-I, 2012; Paans et al., 2010; Wang et al., 2011). There is urgency for stronger

policies regarding nursing documentation and the principles that will guide this reform.

Public safety is at risk when the scope of nursing practice is not visible in the documents.

Healthcare professionals rely on RN entries to make patient care decisions and federal

policies use the EHR to validate reimbursement criteria have been met.

In third world countries, documentation was evaluated through the nurse care

planning process for quality and transparency (Asamani et al., 2014; Blake-Mowatt et al.,

2013; Lindo et al., 2016; Ofi & Sowunmi, 2012). Nurses that were educated to the

nursing process and facility based policy statements were studied to determine if their

understanding of the nursing process was evident. Despite nursing school education on

the nursing process and professional instructions on the facility policies, Ofi and

Sowunmi (2012) concluded that nurses require on going education about the nursing

process to increase the quality and accuracy of their documentation.

Blake-Mowatt and colleagues (2013) rendered favorable results for the nurses.

Nurses documented according to the nursing process 98% of the time, however their

documentation only correlated with the medical diagnosis 26% of the time. Blake-

Mowatt et al. (2013) determined that additional education on the nursing process would

increase the compliance to facility policies. Lindo et al. (2016) concluded there is an

increased need for training and continued monitoring in hospital settings and nurses need

to follow international standards for nursing documentation.

Nursing documentation is apart of nursing care and is not to be viewed as a

requirement by administration. Staffing and workloads should not be a criterion for

nursing documentation that contains quality and consistency. Nursing documentation, regardless of location should have standards, especially within the same healthcare setting. Urgency is needed to protect patients (Asamani et al., 2014).

Developed countries are moving to an electronic system of data collection and charting in part as a response from the IOM (Kohn et al., 2000) and the ACA (Klees et al., 2009). The use of technology in healthcare has caused nurses to document on software that is designed for reimbursement and quality indicators (Dearmon, 2013; Mahler et al., 2007; Paans et al., 2010). Technology has also been introduced into nursing at a time when SNL is becoming increasingly efficient in identifying the role of nursing care (Angelats & Fresnedo, 2014; Bruylands et al., 2013). However the link between the nursing process and technology has lagged.

This literature review has demonstrated that nurses are in need of nursing documentation education on an ongoing basis. The benefit of educating professional nurses on the nursing process is evident in the increased quality of mean scores after an educational session, however the long term effects of maintaining quality in nursing documentation is not sustained, calling for stronger policy that encourages continuous education on the quality of nursing documentation.

To further articulate the role of nursing through SNL, NANDA-I (2012) asserted that nurses work increases in clarity and quality when nurses use the nursing process to describe the care provided. The nursing process consists of gathering assessment data, formulating a nursing diagnosis, with interventions and outcome criteria representing the patient care. Government and national organizations recognize the nursing process or

nursing care plan as a method of quantifying nurses' contribution to patient care (ANA, 2010a; CMS, 2008b; NLN, 2008).

Audits in nursing documentation have provided information articulating the multi-dimensions of nursing and the nursing process. The Q-DIO examines the quality of nursing documentation after nurses have been educated on the nursing process. The instrument has been tested on nurses who have attended classes on the nursing process with and without the use of GCR. Nurses who were educated on the nursing process using GCR scored better on the quality of their nursing documentation.

Examining the effects of a planned educational session on nursing documentation in Connecticut will help to increase the body of knowledge needed in this study. Connecticut's statutes on healthcare documentation have been included in this literature review. The statutes align with the quality, safety, and reimbursement policies statements of the CMS, ANA, IOM, and national nursing organizations. Each of the policy statements lend value to patient safety, increases quality for patient outcomes, increases efficiency with reimbursement, and increases the visibility of nurses' value to patient care delivery. Given that nurses are the largest group of healthcare providers and are evaluated by delivering evidence based care, having documentation that articulates this is imperative.

Nurses cannot afford to remain complacent about the lack of transparency in their documentation. There is an urgent need to address this dilemma in healthcare delivered by nurses by increasing the quality of nursing documentation. Providing nurses with continuing education that is instrumental to federal and national patient safety goals could

have tremendous impact to increasing the value to healthcare. Policies that contribute to increasing patient safety and quality patient outcomes by increasing the understanding nurses have of nursing documentation through annual planned educational sessions can increase public safety. This study adds validation that stronger regulations for nursing education can increase patient safety outcomes. Nurses who are provided with consistent mandated education on the nursing process and its relevance in nursing documentation as a part of their license renewal process could increase the over all quality of patient outcomes; therefore, potentially increase a healthcare organization's reimbursement and reduce litigation.

Chapter 3: Research Method

In this chapter, I provide a detailed description of the research method I used to test for each of the two research questions and their related hypotheses. This chapter is divided into five main content areas including (a) research design and approach, (b) setting and sample, (c) instrumentation and method, (d) data collection methods and data analysis, and (e) protection for participants' rights.

Research Design and Approach

This study was a quantitative, quasi-experimental study designed to assess the differences in mean scores between the independent variable of quality in nursing documentation as measured using the Q-DIO before and after implementing of the dependent variable, which was a 4-hour educational session on nursing documentation. Additionally, I studied the components of the Q-DIO—assessment, diagnosis, intervention, and outcome—to determine which of these components were more likely to change and less likely to change after the educational session. The Q-DIO (Müller-Staub et al., 2009) measures scores of the subscales within the instrument (nursing diagnosis as a process, nursing diagnosis as a product, interventions, and outcomes) before compared to after a structured educational session.

The Q-DIO was originally designed as an audit tool to determine the quality of nursing documentation (Müller-Staub et al., 2009). There are other audit tools; however, those tools are used evaluated process or function, content, or structure within nursing documentation (Wang et al., 2011). Researchers use the Q-DIO to evaluate the components of the nursing process (diagnosis, intervention, and outcome) to determine if

there are differences in the applied quality scoring after nurses are educated in a group. This approach is aligned with the ACF, which holds that the understanding of policy takes place during many stages. There are four parts to the initial stage called relatively-stable parameters (Sabatier & Weible, 2007). Nursing documentation, an example of a relatively stable parameter (basic rules), is introduced in nursing school. Students in academic settings (coalition actors) are educated on the fundamentals of clinical documentation yet there are no competency validation processes to confirm their understanding in relation to the role documentation plays with associated federal and state rules and regulations.

Evaluation of the difference in learning outcomes for nurses receiving planned educational sessions has proven to be an effective method of research in nursing, especially when the groups are followed over time (Bruylands et al., 2013; Collins, 2013). Bruylands et al. (2013) found that there was a difference in the mean score for quality of nursing documentation for nurses who attended an educational session that was focused on nursing documentation and clinical reasoning 1 year after the class was taught. In 2006 the nursing documentation was evaluated and compared to the nursing documentation in 2005. The mean scores in 2006 were significantly better ($p = .005$). However, Bruylands et al. (2013) followed the nurses for an additional 5 years after the class and found no significant difference in the mean scores ($p = 1.000$). Given the fact that the scores did not show significances, Bruylands et al. (2013) concluded that nurses require continuous education on the nursing care planning process and nursing documentation in order for the quality of nursing documentation to remain high.

Educational sessions for professional nurses have increased the accuracy of nursing diagnosis as well (Collins, 2013). Collins (2013) measured the effects planned educational sessions had on nurses' attitudes and their accuracy of nursing diagnosis. There was a significant difference in the mean attitude between the control and experimental groups, and this finding correlated with an increase in nursing diagnosis accuracy.

Nursing documentation is a basic healthcare requirement (CMS, 2008b; Connecticut Public Health Code, 1984; IOM, 2011; NLN, 2008), and in the literature review I found that educating nurses on the documentation process begins in nursing school (Fetter, 2009b; Mahler et al., 2007; Mahon et al., 2010; Nickitas et al., 2010; Russell, 2012). In addition, the number of nurses involved in litigation is on the rise, and litigators use nursing documentation as evidence to evaluate nurses' caring behavior and compliance with best practice (Painter & Dudjak, 2010; Painter & Dudjak, 2011). These are reasons I decided to use the Q-DIO in this study. I wanted to determine if nurses in Connecticut would show an increase in their mean scores after attending a planned educational session. Therefore the Q-DIO was an appropriate instrument to measure if there was a statistically significant difference in the mean scores of nurses after the educational session and what components of the Q-DIO were least likely and most likely to make the difference.

Setting and Sample

Population

The population for this study was RNs who are licensed and working in hospitals located in Connecticut and who use EHR as the main data collection tool to document assessments, nursing diagnoses, interventions, and outcome data for patients who are admitted to a medical or surgical inpatient unit.

Sample Method

I obtained the sample for this research by using a convenience-sampling method. According to the Connecticut League for Nursing (2015), there are 68,910 RNs employed in Connecticut. Obtaining a convenience sample from this population reduced recruitment time, and there was no financial cost. Once I obtained permission from Walden University's Institutional Review Board, I introduced myself to nursing departments in hospitals located within a 30-mile radius of my home. The introduction began with a phone call or visit to the nursing department. The contact person was provided with information about my study. The length of time needed to complete the study was approximately 26 months after I had received approval from the IRB and signed authorization from the facility giving me permission to collect data.

The data use agreement with the Connecticut area hospital or hospitals included the following sections: (a) "HIPAA Regulations" codified at Title 45 parts 160-164 of the United States Code of Federal Regulations, (b) preparation of the limited data set (LDS), (c) data fields in the LDS, (d) responsibilities of the data recipient, (e) permitted uses and disclosure of the LDS, (f) terms and terminations, and (g) a miscellaneous section that

included changes in the law, construction of terms, no third party beneficiaries, counterparts, and headings (Walden University, 2017).

Sample Size

To investigate approaches to sample sizes, I conducted a literature review (see Chapter 2), which dealt with pretest and posttest studies. There were no articles in which researchers discussed their methodology for determining sample size. Using Cohen's (1992) method to select the effect size between pre- and posttest groups, I determined that I would need a minimum sample size of 27 nurses to participate during all phases of the study to meet an alpha of 0.05, effect size of 0.06 (medium), and power of 0.80. This was taking into account the predictor variables of the nurses' length of time being a professional nurse, their entry level into nursing, and the length of time they had practiced as a professional nurse assigned to care for patients in a medical or surgical in-patient hospital setting.

Eligibility Criteria

To conduct this quasi-experimental design research study, I identified hospitals in Connecticut that employ RNs and that use EHR as their primary method to document nursing care. I recruited nurses who were interested in learning about nursing documentation and who were able to sit through a 4-hour class on nursing documentation.

Exclusion Criteria

Registered Nurses who were not able to complete the entire 4-hour class, nurses whose data collection did not contain at least five charts for the pretesting phase and five

charts for the post testing phase of the study, and nurses who used paper-based charting were excluded from participant selection. Additionally, I excluded any nurse who had taken a documentation class that I have taught through my professional career.

Four-Hour Class on the Nursing Process

The treatment for this study was a 4-hour class on nursing documentation. The components of the class included information on policy statements from federal agencies, national organizations, nursing organizations, and the facility's policies on nursing documentation. The class also included information on nursing documentation use in litigation, best practice, and communication. I used the course curriculum to educate the nurses on the five parts of the nursing process with emphasis on the relationship between and among each section and the increase to the quality clinical outcomes when all sections are used. The curriculum included case studies, and there was time for questions and answers.

The classroom setting was a conference room in the facility. The nurses were asked to sign in before and at the end of class. I used a PowerPoint presentation during the lecture, and gave the nurses a booklet with corresponding PowerPoint slides. The PowerPoint slides covered information about documentation policy statements, litigation, reimbursement, and the care planning process (Appendix D), and the case study (Appendix F), which further supported the educational process. The booklet included space for the nurses to take notes as they deemed necessary. The nurses were allowed to take their booklets with them and were instructed that they were allowed to refer to the booklets as a references guide.

Instrumentation and Materials

Q-DIO Instrument

The Q-DIO instrument (Appendix B), used with permission (Appendix C), was used to score nursing documentation quality in order to examine any differences between the computed mean scores before nurses had attended a structured nursing documentation class compared to documentation quality after class attendance. The Q-DIO instrument is made up of four parts: (a) nursing diagnosis as a process; (b) nursing diagnosis as a product, (c) nursing interventions, and (d) nursing-sensitive patient outcomes. Each section was scored using a 3 or 5 point Likert scale to answer questions about the nursing process as follows: (a) nursing diagnosis as a process is scored using a 3-point Likert scale; (b) nursing diagnosis as a product, nursing interventions, and nursing outcomes are scored using a 5-point Likert scale.

Variable Measurements

The computed mean Q-DIO scores (aggregated and section by section) from participants' clinical documentation served as the independent variable (Table 1). The RNs were licensed to work in the State of Connecticut, were full-time employees of a hospital (at least 37.5 hours), and were assigned to care for patients on either a medical or surgical unit. The collected demographic information included: (a) age, (b) entry level into the nursing profession (diploma, associate, baccalaureate, masters degree), (c) number of years since earing their nursing license, (d) number of years they have been working as a RN, (e) number of years working with patients who are inpatients in either a medical or surgical unit, (f) approximate number of hours they work each week, and (g)

whether or not they are enrolled in an advanced degree program. The nurses were also

asked if they had ever taken a class on nursing documentation and answers were recorded

as a descriptive variable (Table 1). The dependent variables were the mean Q-DIO

quality scores computed on documentation after class attendance.

Table 1

Research Variables by Category

Descriptive	IV	DV
Number of years working as a RN	RNs mean scores using the Q-DIO before the planned educational session *	RNs mean scores using the Q-DIO after the planned educational session *
Entry level into nursing (diploma, associate, baccalaureate, masters)	Means scores of Diagnosis, Intervention, and Outcome – subscales of the Q-DIO Instrument **	Post test mean Q-DIO scores **
Have you ever taken a class on nursing documentation?		
Number of years taking care of patients in either a medical or surgical inpatient hospital unit.		
What is the average number of hours you work as a RN caring for medical or surgical patients per week?		
Are you enrolled in an advanced degree nursing program?		

Note. * variables for RQ #1; ** variables for RQ #2.

Data Collection and Analysis

I collected data for this research study by gaining access to EHRs after I received IRB approval (from Walden University and Yale University) and a signed agreement with the partnering facility. Data use agreement included language required under HIPAA regulations. After I obtained participant consent, data extraction was done, using the Q-DIO, approximately 30 days before and 30 days after the structured educational session. The quality of nursing documentation was measured using the Q-DIO, which is composed of 4 sections and labeled as: (a) nursing diagnosis as a process; (b) nursing diagnosis as a product; (c) interventions, and (d) patient specific outcomes.

Research Questions, Hypothesis, and Analysis

This quantitative longitudinal study was designed to answer the following research questions presented in a null (0) and alternative (1) research hypothesis forms:

Research Question 1: Is there a difference between the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure the quality of nursing documentation before and after a planned nursing educational session on nursing documentation?

$H_0 1$: There will be no difference in the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure the quality of nursing documentation before and after a planned nursing educational session on nursing documentation.

$H_1$1: There will be a significant difference in the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure quality nursing documentation after a planned nursing educational session on nursing documentation.

A simple *t*-test was used to determine if there was a significant difference between the pre-test scores and the post-test scores in Hypothesis 1. This statistical methodology was used in the original research and this plan reflects the same statistical methodology to improve rigor.

Research Question 2: Do any or all four Q-DIO subscales (diagnosis as a process, diagnosis as a product, interventions, or outcomes) significantly contribute to the percent change in variance accounted for in the predictive effective of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation?

$H_0$2: The Q-DIO subscales (diagnosis as a process, diagnosis as product, interventions, or outcomes) will not significantly contribute to the percent change in variance accounted for in the predictive effect of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation.

$H_1$2: The Q-DIO subscale (diagnosis as a process, diagnosis as a product, interventions, or outcomes) will significantly contribute to the percent change in variance accounted for in the predictive effect of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation.

Multiple regression was used to determine the predictive effect in one or more of the nursing care planning process sections and their percent change in variance in relation to post test Q-DIO mean scores.

Data Retrieval Process

Data were randomly collected from patient charts from nurses who attended the 4-hour class. The first 8 charts located for each nurse participant during the pre and post test phases were chosen. The Q-DIO instrument was used and each item was graded from the EHR using Likert scale scoring. Once the data were collected they were transferred in to SPSS v.21 for statistical computation. Chart selection and data collection procedures are further explained in Chapter 4.

Protection of Participants

During the consenting process, the participants were informed that their identity will remain anonymous. The participants were informed that they may chose to exit the study at anytime and there was no obligation to remain as a study participant if for any reason they decide not to participate.

Threats to Validity

External Validity

There are three threats to the external validity in this study that might limit generalization and broad-based inferences. The first is the threat of interaction of selection and treatments. The Q-DIO instrument was originally piloted and further tested on a compilation of 12 wards in a general Swiss hospital. Admitted patients who exceeded the minimum threshold of 4-days were eligible for the study. My study

incorporated this original minimum 4-day length of stay as a selection criterion, however there were 15 (5.5%) charts where the patient had a less than 4-day length of stay. Therefore, the conditions for this research deviates somewhat from the initial Q-DIO instrument validation processes.

Interaction of setting and treatment is the second threat to external validity. The original study did not describe the length of the educational sessions or the amount of time between the educational session and the re-evaluation of the quality in charting. Therefore, these research-imposed experimental arrangements may threaten the validity of this study by using a different setting and prescribed time frames for Q-DIO evaluation of documentation pre and post treatment and the prescribe education session. This study utilized educational sessions that were 4 hours in length and the charting was evaluated approximately 30 days afterwards. When the research method is considered in its entirety these differences are believed to only slightly impact study validity.

The third threat was in the participation pool. The nurses who attended the educational session were from a group of newly hired employees. For the majority of the participants, this was their first job and they were working along side nursing preceptors during the pre test phase, a factor that may have influenced their documentation form and style.

Internal Validity

There were three identified threats to internal validity. These threats limited the research findings. The study time frame encompassed approximately three months. A month prior to the educational time participant nurses' documentation was reviewed to

evaluate the quality of the nursing process using the Q-DIO instrument. This was the pre test phase (Time 0). The four-hour educational session served as the experimental intervention (Time 1), and approximately 30 days after the session, the post test phase began and the participant nurses' charting was re-evaluated using the Q-DIO instrument (Time 2). Participants could opt out of the study at anytime without any consequences. The possibility of participants withdrawing from the study would have been a threat of experimental mortality. As many nurses who are interested and qualified were recruited as volunteer participants. The educational sessions were offered multiple times. A sample margin of 10-15 participants above the minimum sample 27 to meet the statistical assumptions for this regression model would have minimized the threat to experimental mortality.

Testing is another threat to validity. The participants were not aware of the chart review process conducted within the pre and post-test periods, if they were aware, they may have skewed documentation practices to provide better post-test scores. Another threat to internal validity centers on the data abstraction process. Multiple data abstractors would potentially reduce the threat to internal validity, however, given that there was one abstractor scoring the clinical documentation using the Q-DIO instrument in all treatment phases, unrealized bias may be present.

A final threat to internal validity was the necessity of including RNs assigned to care for patients in a critical care cardiac unit. The Q-DIO was designed to test the nursing documentation quality of medical-surgical patients, the use of the instrument to

code nursing documentation of critical care patients may illustrate differences in both pre and post test outcome scores.

The Q-DIO tests the subscales of diagnosis as a process, diagnosis as a product, interventions, and outcomes and has validity scores for the subscales as 0.83, 0.98, 0.90, and 0.99 respectively. The Q-DIOs interrater reliability was assessed using Pearson correlations = .98; $p < .0001$, and was examined by Kappa = .95, $p <.0001$ (Müller - Staub, et al., 2008). As such, the instrumentation is valid and reliable for this research approach and attempts as described above to minimize internal and external threats to validity were be employed.

Ethical Procedures

The procedure for gaining access to the large private teaching hospital identified as the data collection site was composed of five steps: (a) submission and approval of a letter of intent to conduct nursing research; (b) submission and approval of an application to the Human Investigative Committee (HIC) by nursing administration; (c) submission and approval of the HIC from their legal department; (d) submission and approval of the HIC from their human research protection program; (e) education and implementation of the study with dissemination of the results.

The nurses were recruited by word of mouth, placement of flyers in nursing unit-based break rooms, as well as, invited presentations of this study at nursing leadership meetings. The convenience sample consisted of healthy adults who were RNs currently employed in a Connecticut hospital. The participants were informed that there is no

penalty for early withdrawal and they would be assigned a number as an identifier for anonymity.

The Health Information Portability and Accountability Act (HIPAA) protects the information collected from the EHRs. The data collection site required all researchers to sign a HIPAA agreement to confirm compliance of these regulations. Medical identifiers were altered to protect each patient's identity in the event there was a breach of data. Data will be kept on a password protected external drive that will be stored in a secured safe and kept for a minimal of 5 years. The medical records were coded using its original first number and placing it at the end of the sequence. There was one researcher in this study.

The Walden University IRB approval number 11-05-15-0183287 was used as a requirement in the application to the large teaching hospital. Once the application was approved, recruitment for nurse participants began. Nursing and hospital leadership of the participant organization received aggregate results and interpretations of research findings as an in kind gesture for providing access to participant RNs, electronic medical records, and conference space where the education sessions were conducted. To protect the confidentiality of participants and their respective charting quality, no individual participant data was or will be released to any parties.

Summary

This dissertation research was seeking to determine if RNs in Connecticut will have a statistically significant change to the quality of their documentation after they have attended a 4-hour class on nursing documentation. The study also sought to

determine which components within the Q-DIO (diagnosis, intervention, outcome)

contribute most and least likely to the change in the mean scores. I used a *t*-test to

determine the statistical significance between the pre and post test scores and a multiple

regression analysis to determine which scores were least likely or most likely to make a

difference in the pre and post-test scores.

Chapter 4: Results

The purpose of this quantitative quasi-experimental study was to explore whether there is a difference in nursing documentation quality, as measured by computing mean scores of quality using the Q-DIO nursing documentation instrument completed within 30 days before and within 30 days after attending a nursing documentation educational session (intervention). Additionally, I examined the predictive relationships between the subscales of the Q-DIO on a pre-treatment document: (a) nursing diagnosis as a process (Section 1), (b) nursing diagnosis as a product (Section 2), (c) nursing interventions (Section 3), and (d) nursing outcomes (Section 4), to determine to what effect each of these subscales had, if any, on the post test mean Q-DIO scores. The ACF holds that stakeholders analyze policy based on experiences and information from internal and external stimuli (Sabatier & Weible, 2007; Schlager, 2006). When using the Q-DIO as a measure of quality in nursing documentation, researchers have found that focused educational sessions on nursing documentation are associated with an increase in posttest scores (Lengu et al., 2013; Lindo et al., 2016).

Participants were recruited from a Connecticut university-based teaching hospital. The participants were RNs who were employed full time, were licensed to practice nursing in Connecticut, had recently gained employment, and were in orientation. Their attendance in the class was a mandatory part of their 16-week new hire onboarding, and the class was held during working hours.

In this chapter, I detail information on the IRB approval process, participant recruitment, demographic characteristics, data collection, and inferential analyses of the research findings.

Procedures and Modifications

I was granted initial Walden University IRB approval (11-05-15-0182387) on November 5, 2015, as conditional pending a facility partnership. There are five hospital systems and 13 freestanding hospitals in Connecticut. I approached all five hospital systems with an invitation to collaborate in my research. I was able to secure meetings with two hospitals. I conducted my research during a time where there was an increasing concern for breaches to electronic health information. Both hospitals decided not to partner with me because they believed there was a potentially significant risk of violating HIPAA (Health Insurance Portability and Accountability Act) laws, which imposes fines and penalties for breaches in privacy-protected patient health information (HHS, 2009). On January 11, 2016, I gained employment with a hospital system that would eventually become my partnering facility.

The hospital's IRB is a part of the university, therefore I had to gain approval from the hospital's nursing research department before a university IRB application could be submitted. Gaining approval from the research department required the following steps: a letter of intent to conduct research, submission and approval of a Human Investigation Committee application, endorsements from at least three nursing leaders, and a final approval from the hospital legal department. Once these steps were fulfilled, I submitted an IRB application to the university. The partnering facility granted approval

(Yale University IRB Protocol 2000020689) on April 17th, 2017. I obtained final Walden University IRB approval on April 18th, 2017, with an expiration date of October 30, 2017.

My application to conduct research did not include the education intervention since it was deemed by Walden IRB to be external to the actual research design; therefore, the designed educational sessions began March 13, 2017 and ran through June 1, 2017. The partnering facility reviewed the nursing documentation quality education session curriculum and approved its use. Classes were held in meeting rooms that accommodated at least 10 participants, a screen for projection, close access to a cafeteria, and rest rooms. The classes were held on March 13, March 28, April 3, April 14, and May 25, and June 1, 2017.

A total of 19 participants attended the classes. My intended sample size was at least 27 participants with data extraction from 5 charts pre and 5 charts posttest, to yield an examination of 270 charts. Due to a lower than expected attendance, I submitted a request to modify the procedure to both IRBs. The facility IRB approved the modification on May 19th, 2017, and Walden University's IRB modification was approved on May 26, 2017. Both requests were to increase the per-participant chart review from 5 charts to 8, which yielded a total of 276 (136 pre and post treatment intervention) reviewed charts. All participants attended the 4-hour educational session, which included a PowerPoint presentation, case studies, and allotted time for questions and answers. At the time of the educational session, the participants were not aware that they had become eligible to participate in the study. Data collection began after final IRB approval (Walden

University and Yale University) and after participants had provided consent. Retrospective data collection was done for all data extraction.

During the pretest phase, all of the participants were working with and assigned to a preceptor. The preceptor is a RN who has been instructed to introduce, educate, and guide the newly hired employee to establish and develop practice habits consistent with the hospital's scope of practice. The preceptor and RN are scheduled to work the same shifts to allow for continuity during orientation; however, scheduling conflicts did occur and it was not always possible for the RN and same preceptor to work together.

Each of the participants was either oriented on or permanently assigned to one of seven different hospital units (six medical-surgical units and one cardiac critical care unit). The system used to assign patients with RNs each shift varied according to the unit practices. Information needed to match EHRs for each participant and the patients' they cared for included each patient's full name, date of birth, date(s) of service, and medical record number. One unit used a system with all necessary information. For the remaining units, I had to review admission and discharge logs to cross check names, dates of birth, and medical record numbers.

I applied to gain access to the secured EHRs after the facility IRB clearance was granted, and I was given a researcher user name and password. There were 3 layers of security questions required before I could access medical records from my laptop.

I developed an Excel spreadsheet to extract each of the 29 questions with Likert-like assigned ranks/codes using a 0–2 scale for Section 1 and 0–4 scales for Sections 2–4.

I reviewed and coded participant clinical document for the pre- and posttest phases. Data extraction was done between June 26, 2017 and July 6, 2017.

Müller-Staub et al. (2007) designed the Q-DIO instrument to test the quality of nursing documentation before and after planned educational sessions on nursing documentation using ordinal ranked data to demonstrate a collective improvement in documentation quality. Müller-Staub et al. (2009) then interpreted ordinal rankings of each subscale and summed scale scores as continuous-level data in order to obtain mean scores for statistical use and interpretation. Müller-Staub et al. (2009) scored nursing diagnoses as a product with a 4 when all signs and symptoms were correct, a score of 3 was assigned when partially correct nursing diagnosis/etiology/signs and symptoms were present, a score of 2 was assigned when there was a correct formulation of nursing diagnosis/nursing problem, and a score of 1 was assigned when there was a partially correct formulation of a nursing diagnosis. A zero was assigned when there was no formulation of a nursing diagnosis. Collectively, these values describe the ordinal level data of the Q-DIO instrument.

I followed the same ranking system and used the Q-DIO scoring instrument in its original form. Müller-Staub et al. (2007) collected data from a total of 72 charts (36 pre and 36 post), with an inclusion criterion of at least a 4-day hospital stay. If a medical record was chosen and did not contain a nursing care plan, it was excluded from the study (Müller-Staub et al., 2007). Data in my study was collected from 272 medical records (136 pre and 136 post) and care plans were created at the start of nursing care. There

were approximately 15 charts (approximately 5.5% of the sample) where the patient was hospitalized less than 4 days; these charts were retained for study analyses.

Baseline Characteristics and Demographics

The entry level of the participants into nursing was either a bachelors' degree ($n =$ 15) or an associate degree ($n = 2$). Two participants were enrolled in an advanced degree nursing program, and two participants had been nursing for more than 1 year. Although not a question on the demographic intake form, four nurses volunteered their attendance at an accelerated program for nursing. Accelerated nursing programs are designed for students with an earned bachelors of science or a bachelors of arts degree in another field who are seeking entry nursing (SCSU, 2017). The accelerated programs require a 12-month commitment leading to a bachelors' degree in nursing and a fulfillment of the qualifications required to sit for the RNs National Council Licensure Examination (RN-NCLEX). Three nurses were oriented on a general medical surgical unit for patients with health deviations related to, for example, their liver, kidney, blood and/or brain. After orientation, these nurses were transferred to a unit where patients' behavioral conditions were treated along with their medical and or surgical exacerbations. Although not a part of the original study design, 5 participants in orientation were hired and working in the cardiac intensive care unit with patients who have diseases or surgical procedures associated with their heart. It was necessary to invite them to be a part of my study to increase my pool of participating nurses. All participants had attended the hospital's EHR training classes and used the same software to chart patient care. Table 2 shows the demographics of the study participants.

Table 2

Descriptive Variables

Descriptive Variables	Number	Percentage
Entry Level Into Nursing		
ADN	2	11.8
BSN	15	88.2
Total Years in Nursing		
> 1 year	15	88.2
1 - 5 years	2	11.8
Total Years in Medical Surgical Nursing		
> 1 year	15	88.2
1 - 5 years	2	11.8
Enrolled in Advanced Degree Program		
Yes	2	11.8
No	15	88.2

Data Transformation

I evaluated data for completeness and transferred them from Excel into SPSS v. 21 for analyses. Frequency distributions were evaluated for each section of the Q-DIO, pre and post mean scores, in order to evaluate attributes of normal distribution; skew and kurtosis. George and Mallery (2010) noted that values for asymmetry (skew) and kurtosis (peak) that remain between -2 and $+2$ are considered acceptable to support assumptions of normal data distribution. I conducted a Kolmogorov-Smirnov test to determine if my scores were significantly different from a normal distribution. Resulting outputs indicated a cause for concern in three test variables: posttest Q-DIO Sections, 2, 3, and 4.

Posttest Q-DIO mean scores for Sections 2, 3, and 4 violated one or more of these normal distribution assumptions for skew and kurtosis. Therefore, I conducted a natural Log + 1 data transformation and re-evaluated normal distribution outputs. This natural Log + 1 computation shifted the posttest Q-DIO Section 2 skew to within the + 2

assumption; however, kurtosis greater than + 2 remained. Posttest Q-DIO Section 3 and 4 continued to violate the + 2 threshold for both skew and kurtosis. A final data evaluation was conducted to evaluate distribution (skew and kurtosis) of the summed average pre and post Q-DIO sections scores. The pre Q-DIO sections summed means fell within the acceptable range of – 2 and + 2; the post Q-DIO sections summed means continued to illustrate skew and kurtosis violations, which may invalidate parametric testing use.

Given the *a priori* nature of this specific Q-DIO analysis in regards to a structured educational program for RNs in an academic setting, I proceeded with statistical analyses (dependent *t* test and linear regression) with the understanding that data distribution for post-Q-DIO section scoring had some violations of normal distribution. All elements of pre-Q-DIO scoring and Section 1 of post Q-DIO met required normal distribution assumptions.

Research Questions

The data collected to investigate Research Questions 1 and 2 underwent parametric statistical analyses with resulting outcomes herein described:

Research Question 1

Research Question 1: Is there a difference between the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure the quality of nursing documentation before and after a planned nursing educational session on nursing documentation?

$H_0 1$: There will be no difference in the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure the quality of nursing

documentation before and after a planned nursing educational session on nursing documentation.

$H_1$1: There will be a significant difference in the mean scores of the quality of nursing documentation using the Q-DIO as an instrument to measure quality nursing documentation after a planned nursing educational session on nursing documentation.

A paired-samples *t*-test was conducted to compare pre and post group scores. The pre and post group means and paired groups are illustrated in Tables 3 and 4, respectively. When examining the pre and post, the pretest Q-DIO summed mean scores were moderately and positively correlated ($r = .406$, $p < .000$; Table 3). Nurses who attended the educational session increased the quality of their nursing documentation scores for approximately 30 days after the educational session when I analyzed all 4 sections were analyzed together. During the post data group phase the participants were no longer working with preceptors and were able to increase the quality of their documentation without documentation supervision. There was a significant difference between post group Q-DIO mean scores and pre group Q-DIO mean scores ($t_{135} = 3.522$, $p < .001$; see Table 5). Given these findings, I rejected the null hypothesis in favor of accepting the alternate hypothesis.

Table 3

Paired Sample Statistics

	Mean	*N*	Std. Deviation	Std. Error Mean
Pair 1 [a]Post Group Mean	1.6085	136	.07742	.00664
[b]Pre Group Mean	1.5849	136	.06411	.005500

[a] Pre test data of the 4 Q-DIO sections combined
[b] Post test data of the 4 Q-DIO sections combined

Table 4

Paired Samples Correlations (sample t - test)

	N	Correlation	Sig.
Pair 1 [a]Post Group Mean & [b]Pre Group Mean	136	.406	.000

[a] Pre test data of the 4 Q-DIO sections combined.
[b] Post test data of the 4 Q-DIO sections combined.

Table 5

Paired Sample Tests

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	*t*	*df*	Sig. (2-tailed)
[a]Post Group Mean & [b]Pre Group Mean	.02353	.07792	.00668	.01032	.03674	3.522	135	.001

[a] Pre Group Mean - Pre test data of the 4 Q-DIO sections combined.
[b] Post Group Mean - Post test data of the 4 Q-DIO sections combined.

Research Question 2

Research Question 2: Do any or all four Q-DIO subscales (diagnosis as a process,

diagnosis as a product, interventions, or outcomes) significantly contribute to the percent

change in variance accounted for in the predictive effective of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation?

$H_0 2$: The Q-DIO subscales (diagnosis as a process, diagnosis as product, interventions, or outcomes) will not significantly contribute to the percent change in variance accounted for in the predictive effect of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation.

$H_1 2$: The Q-DIO subscale (diagnosis as a process, diagnosis as a product, interventions, or outcomes) will significantly contribute to the percent change in variance accounted for in the predictive effect of the mean Q-DIO scores of RNs who have attended a planned educational program on quality aspects of clinical documentation.

The subscales of the Q-DIO were further analyzed to determine which of the pre group subscales effected change in the post group mean scores. Correlation coefficients, multiple regression, and ANOVA were used to test Hypothesis 2. Nursing documentation follows a logical and natural process where by the sequence of gathering data (sections 1 and 2) and using critical thinking to determine specific nursing care (sections 3 and 4) requires knowledge of the nursing care planning process. A Pearson Correlation was conducted to assess the relationship between each of the 4 sections of the Q-DIO. I found section 4 to be significantly correlated with section 1, section 2, and section 3 (Table 6).

Table 6

Correlation Coefficients of the Inferential Study Variables

Variables	Sec 1 pre	Sec 2 pre	Sec 3 pre	Sec 4 pre
Nrs Dx Process Sig. (2-tailed) N	1 136			
Nrs Dx Product Sig. (2-tailed) N	.025 .771 136	1		
Nrs Interv Sig. (2-tailed) N	.291** .001 136	.278** .001 136	1 136	
Nrs Outcome Sig. (2-tailed) N	.381** .000 136	.386** .000 136	.521** .000 136	1 136

**Correlation is significant at 0.01 level (2-tailed)
Section 1 - Nursing diagnosis as a process
Section 2 - Nursing diagnosis as a product
Section 3 - Interventions
Section 4 - Outcomes

The strength of this correlation with other sections is an expected outcome given the logical flow and interrelatedness of the nursing process. RNs who followed the directives in the plan to care for their patient (section 3) and documented their results (section 4) yielded a moderate significant correlation ($r = .521$; $p = < .000$). There were significant, but weak correlations between sections 4 and section 2 ($r = .386$, $p = < .000$) and sections 3 and 2 ($r = .278$, $p = < .001$). Significant, but weak correlations were also illustrated when section 1 and section 4 were analyzed ($r = .381$, $p = < .000$). There were also weak, but significant correlations when section 3 and sections 1 were analyzed *($r = .291$, $p = < .001$)*. There were no significant correlations when diagnosis as a process and

diagnosis as a product were analyzed together. As Müller-Staub (2007) defined., sections

1 and section 2 are the two components needed to formulate a nursing diagnosis. Quality

of nursing documentation as measured through the Q-DIO demonstrates the sections are

interrelated and therefore have multicollinearity. Therefore, significant correlations are

noted within the matrix with the overall strength of associations ranging from weak ($r =$

.278; $p = < .05$) to moderate ($r = .521$; $p = < .01$).

One hundred and thirty-six charts were analyzed from data extracted from 17 RNs

who attended an educational session on the components of quality nursing

documentation. Multiple regression analysis was used to test if any of the 4 sections of

the pre group Q-DIO scores significantly predicted a change to the post group mean Q-

DIO score. The analyzed results are displayed in Table 7.

Table 7

Multiple Regression for Q-DIO Predictors (Model Summary e)

Model	R	R^2	Adjusted R^2	Std. Error of the estimate	R^2 change	F change	$df1$	$df2$	Sig. F change
					Change statistics				
1	.306[a]	.094	.087	.07397	.094	13.877	1	134	.000
2	.312[b]	.097	.084	.07411	.0003	.509	1	133	.477
3	.533[c]	.284	.268	.06624	.187	34.459	1	132	.000
4	.549[d]	.302	.280	.06568	.017	3.266	1	131	.073

Note: [a] Model 1 predictor: (constant), section 1 pre test
[b] Model 2 predictor: (constant), section 1 pre test, section 2 pre test
[c] Model 3 predictor: (constant), section 1 pre test, section 2 pre test, section 3 pre test
[d] Model 4 predictor: (constant), section 1 pre test, section 2 pre test, section 3 pre test, section 4 pre test
[e] Dependent Variable: Post Group Mean

The regression model illustrates two predictors as having significance in the percent change of R^2 variance. Post mean Q-DIO and classroom instructions influenced the change in the first subscale, where the participant is gathering initial data about the patient as noted in Model 1 (R^2_{change} = .094, F_{change} = 13.877, p = .000) in a two-tailed test. The predictive change represents a 9.4% increase in quality after participants have received education about nursing quality documentation. The implementation of nursing care based on the patients' individual plan is represented as Model 3. Model 3 (R^2_{change} = .187, F_{change} = 34.459, p = .000) was also a significant predictor variable. Model 3 represents an 18.7% increase to the mean scores after participants receive education about implementing nursing care.

Model 4, the final step in the nursing process, is the patients' outcome of the care. Model 4 is trending towards significance (R^2_{change} = .017, F_{change} = 3.266, p = .073) when using a two-tailed test, but significant when evaluating for a one-tailed test (p = .0365). The predictive effect of the educational session contributed a 28.1% increase in the post group mean Q-DIO scores. Table 8 and 9 illustrate the Q-DIO mean scores regressed on the independent predictors. The subsections of the Q-DIO (Table 8) describe the degree of importance each subscale has on the predictive effect of the mean post scores. Model 3 indicates nursing diagnosis as a product reverts to being significant (B = -.187, $t(.079)$ = -2.429, p < .016) and an evaluation of Model 4 indicated nursing diagnosis as a product (B = -.234, $t(.083)$ = -2.905, p < .000). Given these findings I rejected the null hypothesis in favor of accepting the alternate hypothesis.

Table 8

ANOVA for Post Q-DIO Mean Scores Regressed on Independent Predictors [a]

	Model	Sum of Squares	df	Mean square	F	Sig.
	ANOVA					
1	Regression	.076	1	.076	13.877	.000[b]
	Residual	.733	134	.005		
	Total	.809	135			
2	Regression	.079	2	.039	7.168	.001[c]
	Residual	.730	133	.005		
	Total	.809	135			
3	Regression	.230	3	.077	17.467	.000[d]
	Residual	.579	132	.004		
	Total	.809	135			
4	Regression	.244	4	.061	14.142	.000[e]
	Residual	.565	131	.004		
	Total	.809	135			

[a] Dependent Variable: post test Group Mean
[b] predictors: (constant) section 1 pre test
[c] predictors: (constant) section 1 pre test, section 2 pre test
[d] predictors: (constant) section 1 pre test, section 2 pre test, section 3 pre test
[e] predictors: (constant) section 1 pre test, section 2 pre test, section 3 pre test, section 4 pre test

Table 9

Regression Coefficients of Post Q-DIO Mean Scores Regressed on Independent

Predictors

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	B		
1 (Constant)	1.226	.103		11.917	.000
Sec 1 pre	.298	.080	.306	3.725	.000
2 (Constant)	1.328	.176		7.535	.000
Sec 1 pre	.299	.080	.308	3.735	.000
Sec 2 pre	-.061	.085	.059	-.714	.477
3 (Constant)	1.131	.161		7.017	.000
Sec 1 pre	.169	.075	.174	2.258	.026
Sec 2 pre	-.192	.079	-.187	-2.429	.016
Sec 3 pre	.351	.060	.471	5.870	.000
4 (Constant)	1.134	.160		7.101	.000
Sec 1 pre	.125	.078	.129	1.597	.113
Sec 2 pre	- .241	.083	-.234	-2.905	.004
Sec 3 pre	.305	.065	.409	4.715	.000
Sec 4 pre	.129	.072	.170	1.807	.073

[a] Dependent Variable: post group mean
Section 1 - Nursing diagnosis as a process   Section 2 - Nursing diagnosis as a product
Section 3 – Interventions   Section 4 - Outcomes

Non-Parametric Testing: Wilcoxon Signed Rank Test

Given the previously described challenge to the regression assumption requiring normal data distribution, I examined the question of significant difference between the Pre and Post Q-DIO scores given non-parametric data distribution. To examine these differences, I conducted a Wilcoxon signed-rank test, the non-parametric equivalent of the dependent t-test, using my original, untransformed data set, the outputs of which are presented in Tables 10 and 11.

Table 10

Descriptive Statistics - Pre and Post Group Means

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Pre Group Mean Combined	136	3.0018	.30232	2.25	3.47	2.8258	3.0469	3.2266
Post Group Means Combined	136	3.1251	.33327	1.66	3.50	2.9958	3.2114	3.3381

Table 11

Descriptive Statistics – Pre and Post Groups Combined

		N	Mean Rank	Sum of Ranks
Post Group Mean Combined	Negative Ranks	47[a]	59.04	2775.00
Post Group Mean Combined	Positive Ranks	89[b]	73.49	6541.00
	Ties	0[c]		
	Total	136		

[a] Post Group Mean Combined < Pre Group Mean Combined
[b] Post Group Mean Combined > Pre Group Mean Combined
[c] Post Group Mean Combined = Pre Group Mean Combined

The Wilcoxon signed-rank test showed that the Post Q-DIO data scores did elicit a statistically significant change in the quality of nursing documentation within 30 days after attending a structured classroom program (Z = - 4.090, p = .000; Table 12). In this non-parametric analysis, assuming the null hypothesis median is 0.00 and the alternative hypothesis is a median value different from 0.00, I rejected the null hypothesis in favor of accepting the alternative hypothesis. Given the presence of significance between the pre and post Q-DIO means in both parametric and non-parametric statistical processes I have drawn a conclusion that my previously described residual kurtosis in my transformed data had little influence on the regression model statistical outcomes.

Table 12

Descriptive Statistics – Wilcoxon Signed Rank Test

	Post Group Mean Combined - Pre Group Mean Combined
Z	- 4.090[a]
Asymp. Sig (2-tailed)	.000

[a] Based on negative ranks

Summary of Findings

The purpose of the quasi-experimental study was to examine the difference in the mean scores of quality nursing documentation on RNs before compared to after a structured educational session. The Q-DIO (Quality Diagnosis Intervention Outcome) instrument was used to evaluate the scores (Research Question 1). The post Q-DIO score were significantly higher (t_{135} = 3.522, p < .001) supporting the alternative hypothesis that participants' mean Q-DIO scores would illustrate a difference, in this case an

improvement, in the quality of their documentation after attending the structured

education session. The null hypothesis was rejected in favor of the alternative hypothesis.

Furthermore, post hoc analysis using multiple regression analysis to determine

which of the variables had a predictive effect to the change in the scores (Research

Question 2) was conducted. The multiple regression analysis illustrated nursing diagnosis

and nursing interventions represented a combined percent change in R^2 variance increase

of 28.1%, (R^2_{change} = .094, F_{change} = 13.877, p = .000) and (R^2_{change} = .187, F_{change} =

34.459, p = .000). Thus, the null hypothesis was rejected in favor of the alternative

hypothesis.

In Chapter 5, I will present a discussion of these findings in light of my reviewed

literature to include conclusions, study limitations, recommendations for future research,

and implications for social change.

Chapter 5: Conclusions, Recommendations, and Summary

Introduction

The purpose of this quasi-experimental study was to explore whether there was a difference between pre- and posttest Q-DIO scores measuring the quality of nursing documentation. Educational sessions were held in a classroom setting. EHR data were extracted approximately 30 days before and after the intervention. Furthermore, I explored the relationship between the 4 subscales of the Q-DIO (diagnosis as a process, diagnosis as a product, interventions, and outcomes) to determine to what effect the structured education had on each or any of the subscales.

I used the ACF as a theoretical guide for this study. When a group has common interests and strives to interpret policy, its members are coalition actors, or stakeholders. In healthcare, stakeholders are those who are effected by policy language and interpretation created to protect the public during healthcare encounters. The policies on healthcare documentation, specifically those on nursing documentation in relation to reimbursement and written patient care planning which includes specific interventions and outcome measurements, can be found on the CMS website under Conditions of Participation (CMS, 2008). National nursing organizations are also stakeholders that establish parameters for and interpret quality nursing documentation. For example, the ANA addresses the advancement of nursing with the goal of improving healthcare for all (2010a). The ANAs Principles of Nursing Documentation articulate the importance of nurses' contribution to healthcare through documentation with entries that describe the patients' healthcare experiences. Nursing documentation serves as a communication tool

for the reader to understand the patients' experiences during patient encounters. Nurses in Connecticut are licensed by the Department of Health (CT-DOH), and are required to document patients' response to nursing interventions (CT-DOH, 2008). Academic centers of nursing are also stakeholders that educate pre-licensed nurses about the care planning process. However, understanding the care planning process and its relationship to reimbursement, litigation, and quality outcomes is not confirmed in nursing school (Russell, 2012). The professional nursing environment has policy on nursing documentation (YNHH, 2014), which requires the use of the nursing process for documentation. Although each of the above named stakeholders have varying degrees of interests in creating consistency in nursing documentation, all are interested in following the nursing care plan to confirm quality in nursing actions. In addition, RNs responsible for creating nursing documentation are stakeholders, and are not educated to the policy statements that contribute to the understanding of nursing documentation requirements.

Constructs within the ACF are based on the experiences and exposure to policy that impact each of the coalition actors. These are the nuances that create inferences for groups that have commons interests and are trying to interpret policy. There are five stages of the ACF: relatively stable parameters, external events, degree of consensus needed for major policy change, constraints and resources of subsystem actors, and policy subsystems (Sabatier & Weible, 2007). I used the first two stages to evaluate RNs as actors in their learning and understanding of nursing documentation. An introduction to nursing documentation begins in academic nursing centers and is the stable parameter that all nurses are required to learn. The second stage, the understanding of

documentation, materializes as nurses transition into their professional roles. The lack of confirmed competency at the end of nursing school makes it difficult to confirm if a professional nurse enters the workforce with an understanding of how nursing documentation effects patient outcomes, quality scores, reimbursement, and litigation. In the literature I reviewed, researchers found a lack of quality in nursing documentation. However, they also found that after nurses received structured education on nursing documentation, the quality of their documentation, as measured using the Q-DIO, significantly improves.

I taught a class on nursing documentation to five groups of RNs over 2.5 months. A total of 19 RNs attended the 4-hour class during working hours and 17 met eligibility criteria and volunteered to participate in my study. For each of the 17 participants, data were extracted from 8 charts dated approximately 30 days before (136) and after (136) the structured educational session, for a total of 272 chart reviews.

I used a simple t test to determine if there was a statistical difference between the pre and post group Q-DIO mean quality scores. The analysis showed a statistical improvement in the quality of nursing documentation after the educational session. To further evaluate whether any of the 4-subscales within the Q-DIO had a predictive effect on the difference in the scores, I used multiple regression analysis. The regression model showed significance in 2 subscales: nursing diagnosis as a process (Section 1), and nursing intervention (Section 3). Section 4 (outcome), demonstrated a trend toward significance. A correlation coefficient analysis showed that there is a strong relationship among the subscales and further substantiates a reliance each section has on the entirety

to increase the quality of nursing documentation. Nursing documentation is a process of formulating a care plan for a patient based on gathering information, assigning a diagnosis, treating a patient through interventions, and documenting the results. The analysis provided evidence that each section is reliant on all other sections to positively affect patient outcomes, reimbursement, and litigation.

In this chapter, I discuss my interpretation of findings, implications for positive social change, recommendations for actions, and recommendations for future studies. The chapter concludes with a discussion of study limitations and concluding thoughts.

Interpretation of Findings

This is the first study to investigate whether focused education would increase the quality of nursing documentation of RNs in Connecticut employed at a large teaching hospital. The study showed there is an overall improvement in the quality of nursing documentation after a 4-hour structured educational session, with data collection done approximately 30 days post instruction. This study also showed that there is a significant interrelatedness of the 4 sections of the Q-DIO; therefore nurses must understand all sections to ensure quality documentation. Consequently, the results supported earlier research findings of an increase in nurses' understanding in subject matters with a focused curriculum (Asamani, et al., 2014; Bruylands, Paans, Hediger, & Müller-Staub, 2013; Greenawalt, 2014).

In my study, structured nursing education on documentation led to an improvement in documentation quality, which was consistent with other published research (see Bruylands et al., 2013; Ehrenberg & Ehnfors, 1999; George et al., 2016;

Müller-Staub et al., 2007). Incorporating structured education on nursing documentation in all facets of nursing (pre-licensure and professional) has positive benefits for reimbursement, litigation, and outcome measures for healthcare. These findings warrant further investigation into offering structured and consistent education on nursing documentation to all nurses who are responsible for patient care or the interpretation of patient care outcomes.

Significant Findings

Federal and state healthcare regulatory policy outlines documentation expectations for nurses and all professionals who manage patient information (CMS, 2008, CT-DOH, 2008). Nursing students are introduced to documentation and the nurse care planning process as a part of their academic requirements. There are no competency measures to confirm their understanding during or at the completion of their education. There is a lack in the quality of professional nursing documentation and there are no requirements used to confirm nurses' understanding of expectations (Asamani et al., 2014; George, Drahnak, Schroeder, & Katrancha, 2016; Scruth, 2014).

Nursing education includes exercises in critical thinking and the nurse care planning process. The NLN (2008) and the NCSBN (2012) mandate that nursing students be competent in the care planning process. As seen through the ACF lens in the first step, all nursing stakeholders are required to learn about documentation. However, there is disharmony among nursing academics regarding how content is taught and competency is confirmed (Bowling, 2016; Bruylands et al., 2013; Edwards & O'Connor, 2011; George et al., 2016).

Professional nurses are the largest group of healthcare professionals. However, Asamani et al. (2014), Charalambous and Goldberg (2016), Jefferies et al. (2010), Keenan et al. (2008), and Scruth (2014) have argued that quality is lacking in their clinical documentation. This may be due, in part, to an initial disconnect between the academic community and professional nursing. The Q-DIO was designed to measure documentation in professional nursing, and researchers have concluded that while there is an increase in the quality of documentation up to 3-years after structured education, Q-DIO quality scores return to pre-educational baseline after 7 years (Bruylands et al., 2013; Müller-Staub et al., 2007). These studies provide evidence regarding the importance of understanding policy and the interpretive language that changes according to fluctuations in socio-economic factors (Sabatier and Weible, 2007). Approximately every 10 years stakeholders readjust their thoughts based on how they are exposed to information and the experiences in their industry.

Nomura et al. (2016) found there were significant increases in the quality of documentation when the Q-DIO instrument was used in Brazil to prepare for an accreditation visit from Joint Commission International (JCI). The hospital was concerned their nursing documentation would not meet JCI criteria and utilized the Q-DIO instrument as their quality benchmark. Nurses were exposed to all components of the Q-DIO indicators before the scheduled visit. The Q-DIO scores showed a significant improvement and the hospital received JCI accreditation based in part on the strength of its clinical documentation.

My alternative hypothesis for Research Question 1 stated there would be a difference between the scores using the Q-DIO before compared to after a structured educational session on nursing documentation and the nursing care planning process. A paired sample *t*-test was used to analyze the results taken from 272 electronic medical records (136 pre education and 136 post education). The post group scores were extracted from electronic medical records approximately 30 days after the educational session and showed a significant difference between the pre group (t_{135}= 3.522, *p* < .001; Table 9). These finding are consistent with my literature review on nursing documentation and the increased scores using the Q-DIO. Based on this analysis, the null hypothesis was rejected in favor of accepting the alternative hypothesis.

The subscales within the Q-DIO contributed to the increase in mean scores during the post data collection period. Nomura et al. (2016) analyzed each of the 29 questions to determine which section of the care planning process contributed to the increase in the quality of nursing documentation. Of the 29 questions, 24 illustrated a statistical difference in improvement, when evaluated at the 95% confidence interval. The questions that did not demonstrate significance were; Question 7 in section 1 (issues about personal intimacy related to gender, *p* > .665), question 19 in section 2 (nursing goals are achievable through nursing interventions, *p* > .087), question 20 in section 3 (concrete, clearly named according to Nursing Intervention Classification (NIC), and planned (what will be done, how, how often, who does it), *p* > .499, question 23, section 4 (acute changing diagnosis are assessed daily or form shift to shift/ enduring diagnosis are assessed every four days), *p* > .057 and question 26, section 4 (the nursing outcome is

observably/ measurably documented according to NOC), $p > .498$. The success of their interventions contributed to significant improvements in their nursing care and they were recognized as an "academic center of excellence for health quality and patient safety by the JCI in 2013" (Nomura et al., 2016, p. 8).

To determine which of the subscales within the Q-DIO contributed to the predictive outcome of the change to the mean scores, I conducted post hoc analysis. Of the 4 subscales, there were two predictors that demonstrated significant R^2 change in variance of the mean scores. The sections of the nursing care planning process are connected based on an evaluation of each of the parts separately and as a group.

Information gathered from the medical record, the patient, and caring behaviors begin the process of formulating a plan of care that will bring the patient to wellness (Ehrenberg et al., 1996; John & Bhattacharya, 2016; Lengu et al., 2013; Müller-Staub et al., 2009). In addition to gathering data, the nurse is required to use judgment before formulating a plan for the patient (Chabeli, 2007; Yildirim & Ozkahraman, 2011), and the use of critical thinking is required to formulate care plans (Ofi & Sowunmi, 2012). Once the nurse gathers data and uses critical thinking, the plan is developed. A nursing diagnosis is formulated, interventions are developed and implemented, and outcomes are measured to determine if the plan was effective for quality patient care and improvement (NCSBN, 2012). Nursing notes that do not contain all sections of the care planning process make it difficult to prove quality nursing care was provided (Austin, 2010; Marinis et al., 2010; Scruth, 2014).

The relationship between each of the subscales was conducted using a correlation coefficient analysis, there is a significant overall correlation noted between section 4 (nursing outcome) and all the other sections ($r = .521$; $p = <.01$). The regression model was used to analyze which of the subscales had a significant effect on the prediction of post group mean scores. Model 1 ($R^2_{change} = .094$, $F_{change} = 13.877$, $p = .000$) and Model 3 ($R^2_{change} = .187$, $F_{change} = 34.459$, $p = .000$), nursing diagnosis as a process and nursing interventions had the most significant change to the mean scores. Nursing outcome, represented in Model 4 (Table 10), was trending towards significant ($R^2_{change} = .017$, $F_{change} = 3.266$, $p = .073$) with a two-tailed analysis, but significant when evaluating for a one-tailed test ($p = .0365$). Each of the variables contributed significantly to the mean scores ($p => .0001 - .001$), as demonstrated by the one-way ANOVA output.

Aktan (2011), Greenawalt (2014), Lindo et al. (2016), and Scruth (2014) illustrated that when nurses are either introduced to or re-educated on the nursing care planning process, all of the steps are included, along with the concept of critical thinking, to arrive at a successful and individualized plan of care for each patient. In Research Question 2, the predictive outcome was analyzed and found Models 1 and 3 showing significance, all variables exhibited multicollaterality, interconnectedness, and each variable contributed a statistically significant change to the mean score. My findings support the rejection of the null hypothesis in favor of the alternative hypothesis.

Non-significant Findings

Research Questions 1 and 2 were statistically significant. There was a change to the post mean scores and within the scores there were subscales that contributed to the

change. However, there were non-significant findings within the analyzed data that warrant mention.

No significant relationship was found between sections 1 and 2 when the correlation coefficient was analyzed. Therefore, although there is a significant relationship between all the variables when analyzed together and separately, nursing diagnosis as a process (section 1) and nursing diagnosis as a product (section 2) did not demonstrate a significant relationship to each other and section 2 did not demonstrate significance when all variables were analyzed independently.

In my study, the data were collected from an electronic medical record system that automatically populates nursing diagnoses (section 2, nursing diagnosis as a product) when a patient is admitted. As the patient moves through their hospital stay and with additional data input, additional diagnoses are suggested. The nurse can choose to accept or reject the recommended diagnoses. With each diagnosis, nursing interventions are automatically assigned. The interventions (section 3) listed are extensive, all inclusive, and contain references to support nursing actions. Therefore, in this study, nurses were not required to formulate diagnosis for their patients either initially or subsequently. Nurses who are not exposed to the care planning process could decide to treat the suggested diagnosis as options that are not required for quality care or as indicators that require additional charting and add to the existing burden of charting (Nightingale, 1859; Painter & Dudjak, 2010; Painter & Dudjak, 2011). According to studies done by Munyisia, Yu, and Hailey (2016), Schachner et al. (2015), and Schachner et al. (2016) nurses spend 29%, 35.3%, and 17.4% respectively of their time documenting patient care.

The nursing care planning process was originally developed as a form of written communication between nurses and doctors (Mahler et al., 2007). It became a method of evaluating reimbursement, litigation, quality and current changes to healthcare regulations (AHRQ, 2008a; Clancy, 2009). The responsibility to chart according to policy should not be undermined. Patients have a human right to receive nursing care that encompasses all components of nurses' responsibilities; this includes charting per policy standards.

Implications for Positive Social Change

Nurses are the largest group of healthcare providers and contribute the most amount of information by documenting on patient care (BHW.HRSA, 2010). Nurses who are deprived of understanding the components of quality nursing documentation have potentially negative patient consequences for reimbursement, quality, and litigation. The EHR is a useful tool that fulfills criteria set forth by federal and state organizations however, the evolution of documentation policy and its understanding creates data that is inconsistent with quality outcomes. The Institute of Medicine made a recommendation based on their 1999 study on the state of healthcare, to convert medical records from paper to an electronic format. External events occur when stakeholders transition into their professional roles and when there are shifts in socio or socio-economic factors (Sabatier & Weible, 2007). Nursing documentation based on the nursing care planning process benefits society. Nurses represent the most amount of information created when patients have healthcare encounters. Providing nurses with an opportunity to understand nursing documentations policies is advantageous for improved patient outcomes, quality

indicators, reimbursement criteria, and ligation scenarios in healthcare. Of all the

responsibilities nurses are accountable for, nursing documentation is the only activity

with federal and state policy. The amount of time nurses spend on documentation, my

literature review, and the data analyzed in this study justifies a mandated on nursing

documentation education.

The urgency for nursing documentation to represent actual patient care and

outcomes requires nurses to be competent in all stages of the care planning process. The

long term effects of sustained quality in nursing documentation steadily declined when

evaluated 3, 5 and 7 years after initial education and data collection (Bruylands et al.,

2013; Müller-Staub, 2007). Therefore, I suggest providing education beginning in

nursing school and bi-annually thereafter with competency exams to confirm

understanding. The ACF makes clear that changes to understanding policy are constantly

evolving and with these adaptations, stakeholders are forced to interpret policy based on

their experiences and how policy affects their relationship with the policy. It is necessary

for nurses to have full knowledge of healthcare policy related to documentation and their

value in moving healthcare in the patient centric momentum necessary for better

outcomes (ICHOM, 2017).

Recommendations for Action

Quality nursing documentation impacts healthcare outcomes (TJC, 2014; IOM,

1999). The influence is evaluated from a reimbursement, litigious, economic, and

communication perspective (Almgren, 2007; Asamani et al., 2014; Brasfield, 2011; CDC,

2015; Charalambous & Goldberg, 2016; CMS, 2008; IOM, 2001; Painter & Dudjak,

2011; Scruth, 2014). Therefore, I suggest that structured education on the policies of nursing documentation and the nursing care planning process occur regularly and consistently for nursing students and professional nurses.

Academic nursing centers are consistent in the belief that documentation and quality outcomes are a necessary to impart on their students (Benton & Flynn, 2013; Charalambous & Goldberg, 2016; Dehghan, Dehghan, & Sheikrabori, 2015; Hayrinen et al., 2010; Jefferies, Nicholls, 2011, Scruth, 2014, Wood, 2010). Although taught as a requirement in all nursing academic centers, there are no competencies to confirm a student successfully understands or possesses the critical thinking skills required to master nursing documentation. As a requirement to completion of nursing school, students should provide evidence of their ability to create, implement, and demonstrate successful outcomes of patient encounters through an examination. In addition, student should successfully comprehend that the care planning process is used to confirm nurses have complied with professional care standards and best practice. The care planning process in nursing school is no different than the care planning process while nursing professionally. Quality documentation should be evident in all nursing venues regardless of the process and procedures used to document, via a paper charting system or an EHR.

Professional nurses' documentation lacks quality (Bowling, 2016; George et al., 2016; Scruth, 2016), however when nurses are provided with structured education on nursing documentation, there is an increase in the quality of their charting (Ehrenberg & Ehnfors, 1999; Müller-Staub et al., 2006; Müller-Staub et al., 2009; Thoroddsen & Ehnfors, 2007; & Thoroddsen et al., 2010). The evidence to implement policy on nursing

documentation requirements are in the literature and further deduced in this study. Consequently, I suggest healthcare centers with nurses institute mandatory attendance in structured education on nursing documentation upon hiring and bi-annually thereafter. Structured educational session could have positive effects on reimbursement and audit outcomes. Policy statements with interpretive language are necessary for the ACF to support coalition actors' understanding of step one, the criteria that all nurses document as a part of their professional responsibility. A recommendation is offered that annual evaluation of nursing documentation using all care planning process elements should be implemented at the employer level and used to confirm that quality is present and maintained.

A final recommendation is at the state board of nursing policy level. Connecticut does not require any continuing education courses for licensure renewal (ANA, 2013). Thirty-four states require nurses to partake in continuing education for license renewal. The Connecticut Department of Health (CT-DOH) should require continuing education credits specific to nursing documentation policies be a requirement for initial licensure and prior to bi-annual license renewal.

These recommendations are necessary and urgent given the federal and state policies, my literature review and data analyzed in this research. There is evidence that the quality of documentation increases patient outcomes and improves reimbursement. There are encouraging data that quality in nursing documentation has a potential to positively effect communication, reimbursement, and perhaps decrease litigation.

Recommendations for Further Studies

This is the first known research to examine the effects of a structured educational class on the quality of nursing documentation on RNs in Connecticut. As such, recommendations for further research are present. Modeling the structured education after the original Q-DIO design, an initial 2-hour class on nursing diagnosis, interventions, and outcomes, followed by monthly meetings discussing cases and application of the nursing process should be done for professional nurses. Nursing is an applied science (Björvell 2002; Bowling, 2016) where the learning occurs in the classroom and is actualized in the clinical setting. The same concept should be applied to the understanding of nursing documentation. Future research should include exercises in case studies, nurse care planning development for an interventional period of 3 months, intermittent data collection periods, as well as participants who are not working with a preceptor. A final recommendation would be to conduct research on different EHR systems to evaluate the software functionality and predictive influence on nursing documentation.

The participant population used in this study was primarily new graduates working with preceptors during the pre test phase. The preceptors and newly hired staff worked together for approximately six-weeks. Future studies should exclude participants who are newly hired employees learning nursing documentation from sources outside the research arena. This would remove influences by members of the healthcare team who serve as mentors and who might have a different understanding of attributes needed to create quality nursing documentation.

An increase in the amount of exposure over a greater amount of time would provide a didactic environment nursing education is based on. Incorporating case studies into the research setting could serve to clarify queries and increase understanding. In addition, post test data collection should take place at regular intervals after the education sessions have concluded. For example, data collection should occur at 60 days, 90 days and 120 days.

The electronic medical record used in this study created prompts for nurses to use as suggestions for care plans with accompanying interventions. The participants could choose to read the interventions and manage patient care accordingly, however there is no confirmation this was being done.

Future studies must encompass all sectors of nursing care. Nursing care requires nursing documentation. The understanding of nursing documentation must be separate from the medium used to chart. Regardless of the type of EHR or paper format used, understanding policies associated with nursing documentation is necessary for nurses to function at their full capacity. Nurses are disadvantaged when full knowledge of professional expectations are ambiguous. Patient care is misrepresented when nursing documentation lacks quality indicators. Reimbursement and litigation outcomes are affected by nursing documentation. Future studies must be done on all sectors in healthcare care. Lack of formal education in nursing documentation is not a hospital based problem. My literature review revealed poor documentation outcomes in multiple settings the United States and overseas. Poor documentation is a global concern in third world and industrialized nations.

A final recommendation for future studies would be in the study design itself. Adding a qualitative component could allow the researcher to gather data on the participants' understanding of the nursing care planning process using their own words and expressions. The ACF theorizes stakeholders come to interpret policy based on how it affects them and their lived experiences (Creswell, 2007; Sabatier & Weible, 2007). Statements of understanding can help the researcher decipher if the strategies used to increase understanding of quality documentation indictors are effective or require additional interventions.

Study Limitations

The participants of this study were from a group of newly hired nurses with less than one year of nursing experience (*n* = 15) working along side another RN who provided six weeks of instructions on patient care that included documentation requirements. A study assumption was made that both the structured educational session and the preceptor imparted documentation understanding. The statistical difference in the scores did not reflect the independent understanding of nursing documentation during pre treatment.

A second potential study limitation is related to data extraction that occurred approximately 30 days after the structured educational session. Although the nurses were not aware they were eligible to become participants at the time of the intervention, due to a pending IRB status, 30-days post treatment could have affected their post mean scores. Bruylands et al. (2013) found nurses do not retain the same quality in their documentation after 7 years. Thirty days after the class was my selected timeframe and it

is unknown if the post Q-DIO scoring values would remain, improve, or decline in subsequent evaluations of these same nurses beyond 30 days.

Finally, the automatically populated nursing diagnoses and subsequent suggested diagnoses reduced the critical thinking involved in care planning. The pre loaded interventions also averted nurses from formulating plans. Future studies will place these items as variables to evaluate.

Furthermore, the findings are not representative of all RNs who might have worked longer as a professional or who use alternate methods (other EHR and paper formats) to document patient care. There are 3.1 million nurses in the United States, of that 42,215 are in CT and 83.7% are employed. Of the total amount of nurses employed, 63.2% are full time, 21.5% are part time, the remaining do not work in nursing. In 2008, 36.1% graduated into nursing with an Associate of Nursing Degree, while 36.8% graduated with a Bachelors of Science in Nursing. Twenty-one percent entered nursing with a prior degree in another profession. Of the nurses working in CT, 62.2% work in a hospital setting and 66.3% are classified as staff nurse, providing direct patient care (BHW.HRSA, 2010).

Conclusion

The global burden of inferior nursing documentation remains a significant public health concern. Medical errors are the third leading cause of death in the United States (Makary & Daniel, 2016). There are more nurses than any other healthcare professional and their documentation contributes the most amount of information to healthcare (BHW.HRSA, 2010; Charalambous & Goldberg, 2016; Dehghan et al., 2015; Lavin et

al., 2015). Healthcare policies in the United States and other countries use nursing

documentation as a benchmark to measure patient outcomes. Therefore, it is essential

RNs have access to information that contributes to positive patient outcomes.

Downgrading the urgency to infuse proper nursing documentation into professional

nursing curriculum with mandatory competency validation processes exacerbates the

already poor momentum to improved healthcare outcomes.

The contribution of research in nursing documentation quality is unmistakable

and the need to explore additional methods to create better outcomes is evident. Nurses

are inconvenienced with providing patient care without proper education of

documentation standards and expectations. Documentation that lacks quality exposes

nurses and others to possible negative trends in litigation (Painter & Dudjak, 2011;

Painter & Dudjak, 2010), reimbursement (CMS, 2008), and best practice (Austin, 2010;

Marinis et al., 2010; Painter & Dudjak, 2011; Scruth, 2014). There is a global necessity to

address the quality of nursing documentation and provide nurses with the knowledge and

understanding required to be effective and efficient stakeholders in positive healthcare

outcomes.

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Appendix A: Advocacy Coalition Framework – Reprint Permission
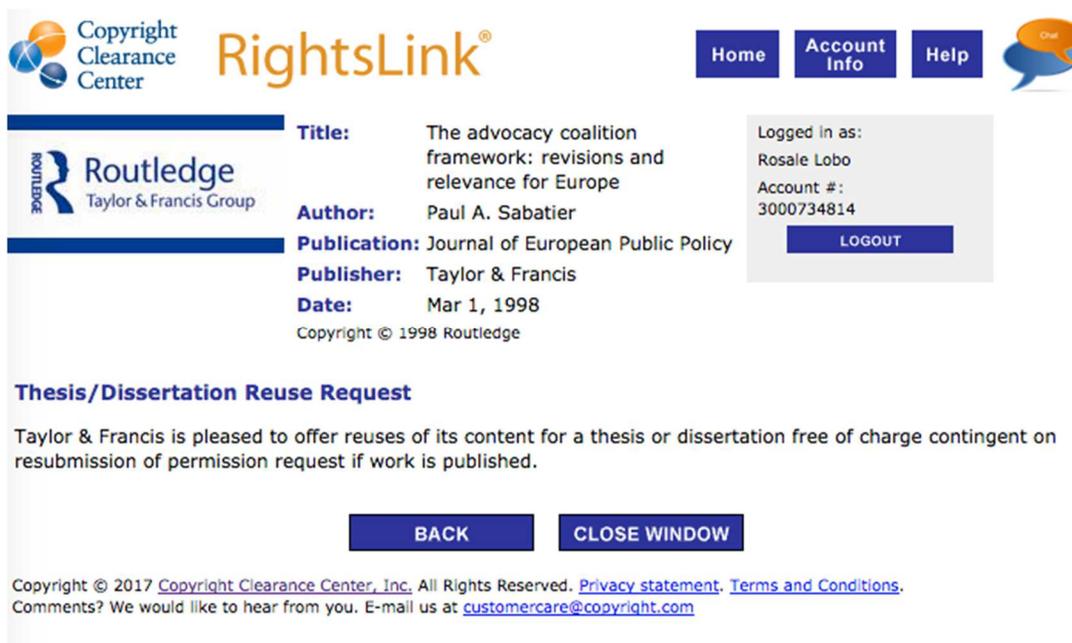
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Appendix B: Q-DIO Measurement Instrument

Measurement Instrument Q-DIO

Dimensions/Items	3-point scale		
Nursing diagnoses as process **Information is documented about:**	**2**	**1**	**0**
1. actual situation, leading to the hospitalisation			
2. anxiety and worries related to hospitalisation, expectations and desires about hospitalisation			
3. social situation and living environment/circumstances			
4. coping in the actual situation / with the illness			
5. beliefs and attitudes about life (related to the hospitalisation)			
6. information of the patient and relatives/significant others about the situation			
7. intimacy, being female/male			
8. hobbies, acitvities for leisure			
9. significant others (contact persons)			
10. activities of daily living			
11. relevant nursing priorities according to the assessment			
11 Items, maximum score = 22, mean = 2			

Nursing diagnoses as product	5-point scale				
	4	**3**	**2**	**1**	**0**
12. Nursing diagnosis label is formulated					
13. Nursing diagnosis labels is formulated according to NANDA and is numbered					
14. The etiology (E) is documented					
15. The etiology (E) is correct, related/corresponding to the nursing diagnosis (P)					
16. Signs and symptoms are formulated					
17. Signs and symptoms (S) are correctly related to the nursing diagnosis (P)					
18. The nursing goal relates /corresponds to the nursing diagnosis					
19. The nursing goal is achievable through nursing interventions					
8 Items, maximum score = 32, mean = 4					

Nursing interventions	**4**	**3**	**2**	**1**	**0**
20. Concrete, clearly named nursing interventions - according to Doenges/Moorhouse - are planned (what will be done, how, how often, who does it)					
21. The nursing interventions effect the etiology of the nursing diagnosis					
22. Nursing interventions carried out, are documented (what was done, how, how often, who did it)					
3 Items, maximum score = 12, mean = 4					

Nursing outcomes	**4**	**3**	**2**	**1**	**0**
23. Acute, changing diagnoses are assessed dayli or form shift to shift / enduring diagnoses are assessed every fourth day					
24. The nursing diagnosis is reformulated					
25. The nursing outcome is documented					
26. The nursing outcome is observably/measurably documented					
27. The nursing outcome shows - improvement in patient's symptoms - improvement of patient's knowledge state - improvement of patient's coping strategies - improved self-care abilities - improvement functional status					
28. There is a relationship between (or connection of) nursing outcomes + nursing interventions					
29. Nursing interventions and nursing diagnoses are internally related					
7 Items, maximus score = 28, mean = 4 **Total Items 29**					

Q-DIO to be used by authors permission. Citation references:

Müller-Staub, M., Lunney, M., Odenbreit, M., Needham, I., Lavin, M. A., & van Achterberg, T. (2009). Development of an instrument to measure the quality of documented nursing diagnoses, interventions and outcomes: the Q-DIO. Journal of Clincal Nursing, 18(7), 1027-1037.

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Appendix C: Q-DIO Instrument Permissions from Original Author

Am 08.04.2015 um 01:31 schrieb Rosale Lobo <rosale.lobo@XXXXXXu.edu>:

Dear Dr. Muller-Staub,

My name is Rosale Lobo and I am a Registered Nurses and Phd student at Walden University, School of Public Policy and Healthcare Administration. My dissertation topic is on the quality of nursing documentation before and after an educational session. Your audit tool is ideal for my research.

I live in Orange, Connecticut, a state in the northeastern section of the US. I would love to be able to use your Q-DIO tool as my instrument. I would be happy to answer any questions you might have about my research interests and the use of your tool.

Many Thanks,

Rosale Lobo RN, MSN
On Wed, Apr 8, 2015 at 2:43 AM, Maria Müller Staub <muellerstaub@XX.com> wrote:
Dear Rosale
Thanks for your interest, I give you permission to use the Q-DIO and like to be **co-author of one article** for publication.
The Q-DIO is attached in a pdf version. Let me know if you have questions, see also reference list.
The instrument is now available in seven languages: German, English, Brazilian Portuguese, Spanish, French and Italian.

Wishing you success
Maria Müller Staub

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Appendix D: Four-Hour Class Content

Clinical Documentation for Registered Nurses: A Health Policy Perspective
Rosale Lobo MSN, RN
Walden University 2015

Objectives

1) Identify policy directed to nursing documentation
2) Describe the cost of ineffective clinical nursing documentation

Objectives

3) Identify the components of the nurse care planning process
4) Identify duty and breach of duty in nursing documentation

Objectives

5) Describe 4 reasons why using the nurse care planning process is valuable to healthcare outcomes

Non-Fiction Story Tellers

Contributing authors to this book of truth

CMS – Principles of Documentation

§482.24(c)(1) The hospital must ensure that the nursing staff develop, and keeps current, a nursing care plan for each patient

CMS

Interpretation of CMS

A **nursing care plan** is based on assessing the patient's nursing care needs (not solely those needs related to the admitting diagnosis) and develop **appropriate nursing interventions** in response to those needs

CMS

ANAs Principles for Nursing Documentation

Clear, accurate, and accessible documentation is an **essential** element of safe, quality, evidence-based nursing practice.

ANA

ANAs Principles for Nursing Documentation

Documentation of nurses' work is critical as well as effective for effective **communication** with each other and with other disciplines

ANA

Facility Policy and Procedure

MESSAGE

S   R

FEEDBACK

Sender   Reciever

ANAs Principles for Nursing Documentation

High quality documentation, however is **necessary** and integral aspect of the work of registered nurses in all roles and settings

ANA

Academic Learning Centers
Must Prepare Nursing Students

National League by Nursing

National League of Nurses

Nursing faculty are **NOT** prepared to teach students clinical documentation

National League by Nursing

Information Technology…

…is not a panacea, and will not full fill its promise unless it is harnessed in support of **fundamental values**

National League by Nursing

Connecticut Department of Health

Sec. 20-87a.

Scope of Practice –

RNs identify and diagnose human responses to actual or potential health problems

Connecticut Department of Health

Sec. 19a-14-40

Definition of the medical record –

…to provide a vehicle for: documenting actions taken in patient management; documenting patient progress, providing meaningful information…

The Cost of Clinical Errors

$4.5B additional annual healthcare spending

To Err is Human

Hospital Acquired Conditions (HAC)

National Patient Safety Goals (NPSG)

CDC

HACs

Could reasonably have been prevented through the application of evidenced-based guidelines

International Classification of Diseases (ICD-10)

- 13,000 to 68,000
  - Documentation Specialist
    - Drivers of Severity of Illness

Nursing Care Planning Process

The Nursing Diagnosis

Goals (measurable)

Interventions

Outcomes

The Diagnosis

The response to an actual or potential reaction to a medical illness

Interventions

Nursing actions that confirm intention

Outcome

Did it help or not?

Content – Does the clinician's entry have substance?

Process - Did the nurse following a particular protocol

Product – Is the information serving a purpose

Quality Indicators

Questionable "E-Documentation"

Hmmm, why did the nurse chart that?

Entries that DON'T correlate with the time stamp

Questionable conversations

CUT & PASTE

What about….?

- An entry is silent of the event in question
- An incomplete assessment or intentional omission?
- Was the entry made in error and the correction is confusing?

Case Study – Help! Ima Drowning

I am a 39 y/o female who was healthy up until 14 years ago

I was a college student on vacation with my friends. We were driving from NYC to upstate NY, when we got into a terrible automobile accident

I was in a coma for 33 days. When I woke up, I was triplegic

Case Study – Help! Ima Drowning

I had a neurogenic bladder which required an external catheter

After 18 months in a rehab facility, I was moved to a skilled facility

I took several medications on a daily basis (anti-depressants, anti-spasmotics, anti-convulsants, anti-biotics, and anti-anxiety)

Case Study – Help! Ima Drowning

Multiple hospital admissions

Case Study – Help! Ima Drowning

Timeline Chronology

Duty and Breach

A moral and legal obligation

Importance of NCP

Complies with Clinical Nursing Documentation Policies

Standardized language (increases understanding)

Transparency in nursing

Confirmation of professional responsibility

Reduces cost of errors & litigation

Time Saving Tips

① Constantly create, develop, design your standard of care

② Short cuts and acronyms

③ Include an outcome section

Strategic Nursing Documentation

Systematically collecting data during patient encounters to satisfy criteria for reimbursement, litigation, communication, best practice, and research

Create a Data Collection System

Specific to your venue

Amended as criteria and requirements change

Admissible Forms of Documentation

General physical assessments

I & O, V/S, Care Plans

Nursing Notes, Ancillary Healthcare Notes, Physician Notes

Tests, Consults, Labs

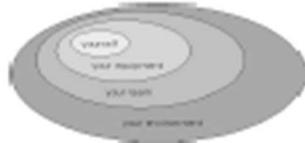## Medication Administration Record

Meds administered as ordered?

Allergies, Age, Weight

Variance times

"Culture of safety"

Interventions

"Situational Awareness"

Is there proof that you carried out the orders?

Patient Education Documentation/Health Literacy

Cognitive Outcome – Mental Capacity to comprehend
Can your patient REALLY understand the meaning of your educational session

Psychomotor Outcomes – Does the patient/caregiver have the physical dexterity to perform the task – "watch me"

Affective Outcome - Can they determine the meaning of the behavior – Do they "get it"?

Documentation Styles Over Time

Within Defined Limits

Written & unwritten standards

Omits routine care & psychosocial aspects

Story appears incomplete/ inaccurate

Charting By Exception

"Charting by exception does not necessarily result in the patient record that give an incomplete picture, but minimizing documentation is risky".

"A lack of detail could compromise patient safety as well".

"Observations call for specific detail"

nso

Charting By Exception

"Your standard should be – Does this document tell the full story of the patient's condition and of our professional assessment and care?"

Guidelines rely on written and some unwritten standards of practice

Omits routine re-assessments

Legally concerning when facts are missing

nso

Strategic Nursing Documentation

Systematically collecting data for charting

Creating a personalized documentation system for yourself or your unit

Tool should be amended as needed according to changes in your facility

Non Fiction Story Writers

Telling your story to multiple readers

Explaining deviations

Justifying actions

Eliminating questionable entries

Non Fiction Story Writers

Gather your thoughts...

Use short sentences...

STOP charting while talking to a colleague :/

Essential Elements of Charting

Solve the patients nursing problems

- SBAR –
  - Situation
  - Background
  - Actions
  - Response

Document Outcomes

Giving credit for a positive outcome

Explain unexpected outcomes and resolutions

Summary

Identify Policy Directed to Nursing Documentation

Center for Medicare and Medicaid
American Nurses Association
National League for Nursing
Connecticut Department of Health
Facility Clinical Practice Guidelines

Summary

The Cost of Errors in Healthcare

$4.5 Billion

Summary

Components of the NCP

The Nursing Diagnosis

Goals (measurable)

Interventions

Outcomes

Summary

Duty and Breach of Duty

Determined based on authoritative sources, expert witness, and situational circumstances

Summary

The Nurse Care Planning Process

Increases Quality Outcomes

Reduces Reimbursement

Reduce Litigation

Thank You

Appendix F: Case Study for Four-Hour Class

Date & Time	Author	Fact Text	Source
11/20/12 12:49 am	Nurse Jones, RN	RN/Triage: Mode of Arrival – Walk	ED Clinical Record
12:57 am	Nurse Thomas, RN	100/61, R36, T38.2, O2 98% - 4L/M	ED Clinical Record
1:10 am	Dr. Tahaniyat	HPI: Multiple episodes of urosepsis. Last episode with VRE, treated with Linezoid. Presents with 2-day hx of fever, chills, and SOB. Pt recently d/c (11/6) for urosepsis and since then she has been on antibiotics until she "ran out today". ROS: + chills, nausea, SOB General Appearance: Abd: Suprapubic cath in place w/foul smelling urine. Foley bag draining purulent material w/urine. Drug Allergies: Tegretol, Zosyn, Codeine, Septra, Sulpha, and Cipro	ED Clinical Record
2:29 am	Nurse Jones, RN	Pt c/o inability to breath. Encouraged her to take slow deep breaths. Pulse ox 98% on 5 L/M. Labs drawn from pt's hickman. Lytes and blood cultures x 1 CBC w/diff.	ED Clinical Record
2:57 am	Nurse Thomas, RN	Pt grunting c/o SOB. Pt was also stating she was having pain with inspiration. Pt placed on 5 L/M, nc upon arrival and O2 sats 93-98%. Pt states foley has been changed Mon or Tues. Urine is foul smelling and cloudy. Skin is warm, dry, good color, no rash, no abrasion or lacerations. Pt has bilateral splints, lower extremities for lower leg contractions.	ED Clinical Record
5:38 am	Dr. Marion	Discussed case w/ID fellow, will start pt on Linezoid because of her hx of VRE and MRSA infections in the past. Pt's ABG showed PO2 of 156 on 2 L/M	ED Clinical Record
5:42 am	Robert, Tech	BP100/64, R22, T38.7, P 90	ED Clinical Record
6:22 am	Dr. Scott	Admitted by Dr. Mikala Admitting Service: Med G.M. 09 Admitting MD: Dr. Simon @ 5:36 am Admitting Dx: UTI	ED Clinical Record
6:45 am	Nurse Karen, RN	T38.5, P98, R24, BP 90/45. Braden Score 10. Does patient have a communication deficit? No. Does patient have pain now? No. Fall risk tool/Not applicable: Patient is unable to rise without assistance	Nursing Progress Note
7:00 am	Nurse Potter, RN	BP 90/45, P 98, T 38.5, R 24 02 98%	Nursing Admitting Note
7:00 am	Dr. Peters (House Officer)	CC: FUO PMH: S/P MVA, Head Injuries, Triplegia, UTI and PE. General Appearance: Mental Status: Abnormal: Pt somnolent, but responds to pain and verbal cues. Cardiac - abnormal - tachy. ? New opacities found on the CXR (?aspiration)	Doctors Admitting Note

		Problem List/Assessment and Plan: Pt given Zosyn x 1 1. IVF as patient may be exhibiting early signs of sepsis 2. Decubitus ulcers - wound consult 3. H/O PE - Continue Lovenox 100mg (q24)	
7:06 am	Attending, MD	Attending Note: I agree with the Residents H&P and plan	Doctors Admitting Note
7:20 am	**Nurse Potter, RN**	**Side Rails up x 4** **Call bell within reach -Yes** **LOC - Alert and Oriented x 4** **Hand Grips and Plantar flexion/Dorsi Flexion and Movements - Triplegia** **Respirations - Labored at times** **Breath Sounds - Left and Right decreased** **Urine - Yellow** **Clarity – Clear**	**Adult Intermediate Care Flow Sheet**
7:20 am	Dr. Paul, MD	Heparin 5000u sq q 8	Doctors Orders
7:25 am	Dr. Greg, MD	D/C Heparin, Continue Lovenox	Doctors Orders
7:30 am	No Signature	VS q 4, Lovenox 40GM po qd	Doctors Orders
8:00 am	Nurse Wendy, RN	BP 79/49, P 101, R 30, T 38.999%, 500 cc bolus 86/50, 94	Adult Intermediate Care Flow Sheet
9:00 am	Nurse Wendy, RN	98/54, Sats 95% 3 L/M	Adult Intermediate Care Flow Sheet
10:17 am	Nurse Barbara, RN, RD	At Nutritional Risk – No Recommendations - Change diet to ST recommendations after evaluation. No nutritional concerns. Patient well known to service. Wound consult pending. Good PO's PTA.	Adult Intermediate Care Flow Sheet
11:00 am	Nurse Wendy, RN	92% on room air, 3 L/M 98%	Adult Intermediate Care Flow Sheet
11:10 am	PharmD, Williams	Clarification: Lovenox 40 mg sc q 24 hours	Doctors Orders
11:16 am	OT, Shepard	Comments: "I can't breath", but patient w/good O2 sats	OT Evaluation
1:00 pm	Nurse Wendy, RN	100cc output, MD aware	Nursing I&O Sheet
2:00 pm	Nurse Wendy, RN	88/56, 80, 37.5, 96%, 2 L/M (Dr. Roberts aware). Decreased BP this AM. Patient c/o SOB and resp are labored. Dr. Lee aware of same and 500cc bolus given. O2 3 L/M via nc. Urine output is low today.	Nursing Progress Notes
2:50 pm	SLP, Baylor	Patient Principal Dx: Admit 11/20/10 w/urosepsis per MD. Opacities found on cxr? aspiration Summary: These are the clinical factors associated w/aspiration. Items checked were noted in the patient's chart: lethargy or somnolent, weak cough or grunt, delayed cough after swallowing. Hx of dysphagia. Fluctuating alertness and responsiveness. Inattentive and easily distracted. Assessment: Risk for aspiration: Moderate Recommendations: 100% supervision with meals, small bites and sips, up right 90 degrees during meals. Administer meds crushed in puree. PO's	Consult - Speech Pathology and Audiology Dept.

		when fully awake. Reflexive cough after bolus - Yes, delayed and weak.	
4:00 pm	Nurse Wendy, MD	Supra pubic cath pulled out, awaiting replacement	Adult Intermediate Care Flow Sheet
4:30 pm	Nurse Wendy, MD	Replace # 24Fr Supra Pubic Cath	Doctors Orders
8:00 pm	Nurse Georgia, RN	95% 2 L/M	Adult Intermediate Care Flow Sheet
8:40 pm	Nurse Georgia, RN	92% 3 L/M	Adult Intermediate Car Flow Sheet
9:40 pm	Nurse Georgia, RN	MRSA precautions. Appetite swallow - fair, aspirations. Alert and orientation x 2-3 w/periods of confusion, talking and moaning to herself. Breath sounds are diminished L and R Elimination: Urine Assessment - "Blank"	Adult Intermediate Car Flow Sheet
11:00 pm	Nurse Georgia, RN	BP 87/63, R 24, T 37.2, S93% 3L Soaked pads with urine.	Adult Intermediate Car Flow Sheet
11/22/12 1:00 am	Nurse Georgia, RN	Awaiting 24 Fr.	Adult Intermediate Care Flow Sheet
2:30 am	Nurse Georgia, RN	Patient drowsy, moaning and talking to herself "let me have one more smoke and I'll never smoke again". O2 @ 3 L/M, 93%. Patient responds to name throughout shift with intermittent moaning. 16Fr inserted while waiting for the 24Fr. Cloudy green output draining	Nursing Progress Notes
6:00 am	Nurse Georgia, RN	Total 24 hour intake 1825cc	Adult Intermediate Care Flow Sheet
8:00 am	Nurse Catherine, RN	BP 80/50 (MD Aware) P 66 T 36.6 R28 3 L/M 93%	Adult Intermediate Care Flow Sheet
10:00 am	Nurse Catherine, RN	120/80 manual Appetite/swallow - poor, not eating. Refusing to swallow. LOC: Alert, oriented x 0 Mental Status: Agitated Cough/Sputum: L and R diminished BS Urine: Yellow	Adult Intermediate Care Flow Sheet
11:00 am	Dr. Scott	98% room air. Patient's mental status is worse this morning, she is moaning loudly. This is consistent with the prior sepsis episode. BP 80/60 P66, R 22, O2 98% on room air. Mental Status-moaning/screaming. Assessment and Plan 1. Fever 2. Aspiration 3. Decubitus 4. Seizure 5. Anemia	Attending Progress Note
11:03 am	Dr. Scott	D/C O2 and resume if RA sat </= 94%	Doctor's Orders
3:00 pm	Nurse Catherine, RN	BP 95/61, P 90, R 22, T 36.9, 2 L/M 94%	Adult Intermediate Care Flow Sheet
3:30 pm	Dr. Scott	Decrease IVF to 50cc/hr	Doctors Orders

4:17 pm	PT, Sue	Patient currently moaning and thrashing right upper limb. Patient states she is not in pain, but otherwise is non-verbal	PT Evaluation
6:30 pm	Nurse Catherine, RN	Low BP, but latest 95/61. MD aware. Patient needing 2 L/M of O2 to maintain sats 94%. Patient moaning most of the day and not responding to questions. Patient adamantly refusing all meds. She clenches her teeth, swings are arm, screams "no", holds food in her teeth and will not swallow.	Nursing Progress Notes
8:00 pm	Nurse Laura	Appetite/Swallow - Poor LOC: Alert and Oriented x 1 (place) Breath Sounds: Clear Urine: Yellow, clear (supra pubic)	Adult Intermediate Care Flow Sheet
9:00 pm	Nurse Laura, RN	92% 3 L/M	Adult Intermediate Care Flow Sheet
10:00 pm	Nurse Laura, RN	93% 4 L/M	Adult Intermediate Care Flow Sheet
11:25 pm	Nurse Laura, RN	BP 80/51, 95/60 (Manual), P 98, R 28, T 36.6, 24 hour Input 2275ml Output 1330ml	Adult Intermediate Care Flow Sheet
4:55 am	Nurse Laura, RN	Care Nurse went to check on patient as routine, found patient to be without pulse or respirations. Code bell pulled. Code initiated, intubated in code. Transferred to room 8210 for further management.	Nursing Progress Notes
6:23 am	CPR Code Sheet	Pronounced	Code Blue Flow Sheet