DKA Protocols and the Relationship between Nurse-Reported Autonomy and Decision-Making

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Abstract

The intensive care unit (ICU) of a small community hospital was lacking an updated evidence-based diabetic ketoacidosis (DKA) protocol resulting in uncertainty and frustration for the nursing staff. The pilot study sought to answer the question: *For registered nurses working in acute care, does the implementation of an evidence-based DKA protocol improve nurse self-reported level of autonomy and decision-making?* An evidence-based DKA protocol was implemented following staff education. Registered nurses working full-time in the ICU were surveyed pre- and post-protocol implementation to evaluate nurse-reported autonomy and decision-making using the Dempster Practice Behaviors Scale. A sign test of median was computed to compare pre- and post-protocol implementation survey results. No statistical significance was noted due to outside factors and poor response rate. Replication and continuation of the project with a larger sample size and timeframe are recommended to determine results as these factors may have limited the accuracy of the results.

DKA Protocols and the Relationship between Nurse-Reported Autonomy and Decision-Making

Nursing autonomy, decision-making, and the relationship with nursing satisfaction have been a frequent topic of interest in the literature. The research has identified ties to several factors involved with nursing reported autonomy levels including the use of protocols to enhance nurse decision-making. The correlation between nurse-reported autonomy, decision-making, and the use of protocols will be discussed regarding the implementation of a protocol to treat diabetic ketoacidosis (DKA). This paper will describe (a) the practice problem identified, (b) significance of the practice problem (c) a description of the PICOT question concerning the practice problem, (d) the theoretical framework of the change project, (e) a synthesis of the available literature, and (f) an analysis of the synthesis recommendations. Further, this paper will provide an overview of (a) the practice change setting, (b) the project's vision, mission, and objectives and (c) implementation, evaluation, and project dissemination.

Significance of the Practice Problem

The intensive care unit (ICU) of a small community hospital treats patients admitted with DKA. The ICU lacked an updated evidence-based DKA protocol and consistency of physician management and treatment. The inconsistency of DKA management and treatment relates to three internal medicine physicians with differing perspectives and preferences in practice as well as the continually changing on-call physician schedule. When the on-call physician schedule changed, management and treatment of DKA also changed dependent on which physician took over as well as the time associated with the physician change. Inconsistency in DKA management and treatment resulted in frequent changes in treatment orders, including when the patient was allowed to eat, how frequently laboratory diagnostic tests were ordered, the use of an insulin bolus when treatment begins, the method for obtaining glucose levels, the frequency of

glucose monitoring, and the criteria for when the insulin infusion was discontinued. Further, the nurses were required to call the on-call physician hourly or every other hour with the blood glucose findings and to seek any additional changes to the treatment plan based on the result findings.

The practice problem caused confusion for the nursing staff when the physician on-call schedule changed resulting in treatment changes and uncertainty. Variations in treatment plans and the need to call the physician hourly or bi-hourly further led to nurse-reported frustration and a perceived lack of autonomy and power. Power refers to the employee's ability to accomplish job tasks to achieve goals and is further described as formal and informal (McDonald, Tullai-McGuinness, Madigan, & Shively, 2010).

Autonomy and decision-making have been found to be positively correlated with job satisfaction and retention. Nurse autonomy is considered a vital factor in nursing retention and job satisfaction while a perceived lack of autonomy can be associated with high levels of attrition and job dissatisfaction (Iliopoulou & While, 2010). Tourangeau et al. (2013) and Kaddoura, Khalidi, Abu-Shaheen, and Al-Tannir (2013) also found a link between nurse authority in decision making, relationships between nursing, medicine, and autonomy, improvements in retention, and job satisfaction.

The practice problem also had a significant effect on patient outcomes. Due to the inconsistencies with physician treatment, patients were, at times, discontinued from the insulin infusion only to be restarted again within hours. The problem also led to an increase in the length of stay for some DKA patients. Raghavan et al. (2014) explain that appropriate treatment and management of DKA is crucial to avoid complications such as cerebral edema, cardiac

dysrhythmias, myocardial injury, pulmonary edema, diabetic retinopathy, hypoglycemia, and hypokalemia.

PICOT Question

For registered nurses working in acute care, does the implementation of an evidence-based DKA protocol improve nurse self-reported level of autonomy and decision-making?

The population included registered nurses working in the ICU. Approximately ten registered nurses (RNs) work in the ICU full-time and four RNs are employed as either part-time or per diem. The intervention involved the implementation of an evidence-based DKA protocol. Rose (2011) explicates that a protocol is a type of checklist that provides options and steps in a sequential manner that are contingent on the patient response. Further, protocols are considered a means of reducing inconsistencies while enhancing decision-making and collaboration resulting in improved outcomes (Rose, 2011). The DKA protocol streamlines management and treatment of DKA, allows nurses to obtain blood glucose levels by finger-stick, and guides nursing treatment based on the blood glucose, resulting in a reduced need for physician involvement due to the delineated guidelines the protocol provides. The ICU manager and author collaborated on the development of the protocol with guidance from Internal Medicine Physicians and one Emergency Department Physician. The resources used for the protocol development include the NewYork-Presbyterian Diabetic Ketoacidosis Guidelines (The University Hospital of Columbia and Cornell, n.d.) the St. Clair Hospital Adult DKA order set (St. Clair Hospital, 2013), and UpToDate Guidelines for DKA in adults (Kitacbchi, Hirsch, & Emmett, 2015). Additionally, the American Association of Emergency Physicians Expert Panel on Sepsis (Yealy et al., 2015) guidelines were used for the initial fluid bolus (see Appendix A Evidence for Development of the DKA Protocol). The protocol was presented to the Internal

Medicine Committee and received approval for implementation (see Appendix B DKA Protocol). The comparison group involves no use of a standardized, evidence-based protocol.

The hypothesized outcome of the project is an improvement in nurse self-reported level of autonomy and decision-making. Nurse autonomy pertains to the ability to make decisions independently within the nursing profession domain (Iliopoulou & While, 2010). Decision-making can relate to either decision surrounding patient care or work in general (Iliopoulou & While, 2010). The timeframe for implementation of this project was ten weeks.

Theoretical Framework

The DNP project framework is Kanter's Theory of Organizational Empowerment. Kanter avowed that the institutional structure can provide empowerment for employees related to perceived power and opportunities (Nedd, 2006). Formal power relates to observable jobs while informal power pertains to relationships and networks internal and external to the organization (Nedd, 2006). Perceived power is associated with empowerment, productivity, improved perception of autonomy, and commitment to the organization (Nedd, 2006).

McDonald et al. (2010) explain that organizational structures that involve shared governance support nursing power, resulting in organizations with improved production, satisfaction, retention, autonomy, perceived practice control, and empowerment. Larkin, Cierpail, Stack, Morrison, and Griffith (2008) and Clavele, Porter-O'Grady, and Drenkard (2013) also link Kanter's theory to shared governance and empowerment, with positive correlations to autonomy, satisfaction, quality of patient care, and participation in decision-making. Thus, a positive cycle is established where perceived power relates to empowerment and autonomy, which further translates into improved production and satisfaction, nursing retention, and feelings of empowerment and autonomy.

Synthesis of the Literature

A search for related literature was initiated to include a review of OVID, Medline, ProQuest, and the Cochrane Database with no retrievable results. EBSCO Databases, CINAHL were then accessed to identify peer-reviewed articles. The search criteria included the following terms: protocols, critical pathways, checklists, confidence, autonomy, decision-making, and nurse satisfaction. The search criteria resulted in a sizable number of articles (N= 461). The terms were then meshed using Boolean phrases yielding 23 potential articles for inclusion. Of the 23 articles, ten were identified as within the publication time frame of ten years and relevant to this project (see Appendix C Summary of Primary Research Evidence).

Autonomy can be described as a phenomenon involving discretional decision-making within the nursing domain (Iliopoulou & While, 2010; Papathanassoglou et al., 2012). The literature identifies autonomy as an important component of the nursing profession embedded with concepts of nursing and patient satisfaction, decision-making, empowerment, retention, and quality of care (Mrayyan, 2006). Papathanassoglou et al. (2012) further describe that nurses' perceptions of a lack of autonomy and limitations in personal and professional reasoning may result in nursing moral distress. Nursing moral distress has been correlated with decreased nursing satisfaction and power (Papathanassoglou et al., 2012). The utilization of protocols has exhibited a definite link between autonomy and associated factors affecting the nursing profession. The following sub-topics have been identified by researchers as either direct or indirect research findings pertaining to the use of protocols and the effect on the nursing profession: (a) nursing empowerment and general sense of power, (b) increased autonomy, (c) improved confidence, and (d) no identification of change or reduction in empowerment or autonomy.

Much of the literature indicates that the use of protocols correlates with perceived nursing empowerment and a general sense of feelings of power. Olson-Sitki, Kirkbride, and Forbes (2015) found a positive relationship between a nurse-led protocol and a sense of empowerment. Specifically, Olson-Sitki et al. (2015) report that use of a protocol empowered nurses to assert independence and also included an associated decreased patient risk. A study that examined the use of a protocol for alcohol/polysubstance abuse withdrawal also noted as an incidental finding that nurses reported less anxiety in patient care and increased empowerment associated with increased autonomy in using a standardized protocol (Ycaza-Gutierrez, Wilson, & Altman, 2015).

Through a comparative study, Segal et al. (2014) sought to assess nurse empowerment and sense of competence following implementation of a protocol addressing glycemic control. No statistical significance was identified as a result of the study, yet an increase in empowerment was noted related to the intervention (Segal et al., 2014). Manias and Street (2000) also explicate a connection with protocols and empowerment, concluding that protocols provide consistency to safeguard patient care and offer a way for nurses to assert clinical judgment. The assertion of the use of clinical judgment and protocols has been found to relate to perceived nursing power in decision-making (Manias & Street, 2000).

An increase in empowerment has also been noted when nursing staff is engaged in the protocol and protocol development. Plost and Nelson (2007) discuss their plan to empower nurses to endorse a change in the use of protocols. The use of positive rewards was utilized to encourage assertiveness. Following the change project, nurses reported continued feelings of empowerment in their active role in the protocol process (Plost & Nelson, 2007).

The literature also identifies a strong link between the use of protocols and nursing reports of perceived autonomy. Engvall et al. (2014) identified the need for a nurse-led protocol to manage hypoglycemia after administering a pre-test to determine nurse knowledge related to diabetes. The post-implementation survey results determined that 86% of respondents reported an increase in autonomy with the utilization of protocols (Engvall et al., 2014). Olson-Sitki et al. (2015) also report positive findings of increased autonomy and perception of job ease following the implementation of a catheter removal protocol.

Rycroft-Malone, Fontenia, Bick, and Seers (2008) explored the association between protocols and autonomy through a qualitative approach. Through the use of post-observation interviews, Rycroft-Malone et al. (2008) recognized that standardized care approaches impacted nurses by broadening traditional roles and supporting practice autonomy. Further, protocol-based care was found to extend professional nursing practice with standardization of care.

Improved confidence was another sub-topic that emerged from the literature. A qualitative study by Bjurling-Sjoberg, Engstrom, Lyckner, & Rydlo (2012) aimed to discover nurse perceptions of the use of a critical pathway. The primary perception categories included a guide to consistent, quality, individualized care, that the critical pathway served as a safety standard, and lastly that the pathway provided for confidence in professional practice (Bjurling-Sjoberg et al., 2012). The study respondents conveyed that the use of a critical pathway as "supportive" and providing a "sense of security" (Bjurling-Sjoberg et al., 2012). The participants also included that the nurse's confidence was communicated to the patient improving the patient's perceptions of safety (Bjurling-Sjoberg et al., 2012). Beck and Johnson (2008) also identified improved confidence levels associated with the implementation of a nurse-led ICU sedation protocol.

Not all of the literature has shown a positive correlation between autonomy and the implementation of protocols. Some of the literature demonstrates a lack of statistical significance in empowerment or autonomy (Beck & Johnson, 2008; Khalaila et al., 2011). Beck and Johnson (2008) report that autonomy was somewhat decreased when a nurse-led protocol was implemented into the ICU. The authors note this finding may be due to several junior staff working in the department who have not fully established critical thinking and confidence. This lack of critical thinking and confidence require the junior staff to seek more direction with decisions (Beck & Johnson, 2008). Khalaila et al. (2011) reported inconclusive evidence of improved autonomy and empowerment. Inconclusive evidence is potentially due to increases in workload and the time required for protocol interventions and decision-making (Khalaila et al., 2011). Khalaila et al. (2011) did, however, find that nursing satisfaction was improved with standardization and with improvements in interdisciplinary collaboration. Lastly, Rycroft-Malone et al. (2008) caution standardization as it must include a critical thinking aspect to ensure that individual patient circumstances are considered.

Practice Recommendations

Evidence suggests that implementation of a protocol can improve nurse reported autonomy and decision-making. Overall, nurses report increased satisfaction, confidence, knowledge levels, collaboration, and empowerment with the use of protocols. However, two studies suggest limited correlation or the need for caution to ensure critical thinking and the need to individualize patient care. The practice recommendation will include implementation of a DKA protocol for use in the ICU. The protocol involves interventions that guide care based on the patient's blood glucose levels and response to treatment and allows for a decreased need for

frequent physician guidance. The protocol is hypothesized to result in an improvement in nurse-reported autonomy and decision-making leading to consistency with literature results.

Addressing potential barriers to implementation is important. Barriers previously identified in the literature include having junior or newer staff on the unit and time and workload involved with protocols. The practice setting includes several junior nurses on the unit who required additional education and support for the use of the protocol. One way to account for this barrier was to implement super users who served as mentors to assist junior or newer staff with protocol decision-making. Additionally, staff received education regarding the benefits of the protocol including reference to the amount of time that was previously needed to call the physician every hour to combat the potential barrier of several junior nurses.

Project Setting

The DNP project setting is the ICU of a small community hospital in western Pennsylvania. The facility contains 70 inpatient beds, eight of which are in the ICU. The service population of the facility is reported as predominately white (96.8%); one-third is between the ages of 25 and 54 (34.7%); one-fourth has obtained an Associate Degree or higher (25.1%); one-tenth has not graduated high school (11.9%); one-fifth of households have a yearly income of $15,000 or less (16.6%); and slightly over half have an income less than $50,000 (54.6%) (Clarion Hospital, 2015). The typical patient in the ICU setting is seriously or critically ill and is treated by internal medicine physicians. Patients often require assessment and monitoring on an hourly basis or more frequently. The ICU nurse ratio is a maximum of one nurse to two patients.

The mission and vision statement of an organization portray the institutional purpose, conveying the context, tone, and the core structure from which the organization was built upon

(Management Study Guide, 2016). The mission and vision statement for Clarion Hospital describes a commitment to quality, excellence, education, and the promotion of health. Further, the vision adds that the organization endeavors to meet the community's needs and expectations (Clarion Hospital, n.d.).

The organizational structure involves individuals at all system levels. Microsystem level employees include front-line staff members who provide the day-to-day care and treatment of patients admitted to the institution. The mesosystem structure includes unit level or departmental management such as the ICU manager. The macrosystem includes the Nurse Executive Committee which includes the chief nursing officer (CNO) and departmental management, and the Medical Executive Committee which involves the CNO, medical staff, chief financial officer, and chief executive officer. The Medical Executive Committee has the final decision on any changes that affect medical care. Within the Medical Executive Committee are subcommittees such as the Internal Medicine Committee which can make decisions based on the area the subcommittee represents.

The culture of the organization includes a shared vision of continued education, quality, and improvement of health. A shared belief in the need for continual education is evident through the numerous contracts with educational facilities and incorporation of student learning throughout the organization. Improvement of health and quality is evident as the organization encourages change whenever necessary and strives to incorporate evidence into practice. Additionally, the culture reflects a respectful voice for the nursing staff with consideration of nursing continuing education and autonomy.

The need for an organizational practice change was identified by the author through direct involvement with the problem in the ICU. Physicians were not using the existing protocol

as it lacked updated evidence. Instead, the physicians were individualizing care for each admitted patient based on their preferences and review of the literature. Individualized care was noted as a problem during changes in the on-call schedule leading to changes in the patient treatment plan. The change in treatment plan often took place for the interim period due to provider change. If or when the original provider resumes the call, the treatment plan would change again. The frequent changes in treatment plan created confusion and frustration for the nursing staff regarding what treatment plan to follow. Patients also experienced the effects of the physician order changes as the inconsistencies in treatment had caused the need for restarting the intravenous insulin infusion and a delay in either transfer to the medical floor or discharge to home. Further, the nursing staff was required to call the physician every hour or bi-hourly to discuss the blood glucose and other laboratory results, often receiving new orders. The practice problem led to a lack of autonomy and frustration for the nursing staff due to both occurrences in treatment changes and in need for frequent communication with the physician. It became evident that a practice change was necessary to implement an evidenced-based protocol that would be followed by all physicians. The author hypothesized that implementation of an evidence-based protocol would decrease nursing confusion and frustration of the treatment plan, improve nurse autonomy and decision-making by streamlining treatment approaches to DKA management while allowing for individual treatment, and also improve patient outcomes.

The initial conversations for the practice change took place with the DNP student and one of the internal medicine physicians. The physician agreed that a change was necessary and consented to assist in the process of identifying a protocol for implementation. Additionally, conversations took place between the two other internal medicine physicians, the ICU manager, and the chief nursing officer, who all agreed on a need for a practice change.

Conversations with the nursing staff were also initiated with the identification of the practice problem. Through personal communication, the nursing staff reported their concerns and feelings with the current process. The nursing staff agreed that a practice change was necessary to streamline the process also suggesting improvements in patient outcomes and sense of ease and comfort with a standardized approach to care.

The project stakeholders include the ICU staff nurses, internal medicine physicians, ICU manager, CNO, and patients. The community is also a stakeholder based on a reduction in cost and availability of hospital beds. Lastly, members of the interdisciplinary team are involved as stakeholders due to the involvement in diagnostics. The laboratory staff are involved in the collection and resulting of specimens specific to the protocol such as venous blood glucose, electrolytes, venous pH, and adjusted sodium level which aid in insulin infusion rate and other treatment changes.

Organizational support was obtained by the internal medicine physicians, ICU manager, and CNO. The front-line staff also expressed their support for a change and were eager to begin the change process. Financial assistance was necessary as the practice change included the need for staff education pertinent to the protocol.

The expectation was that the practice change and use of the DKA protocol would continue to be sustained. The expectation of sustainability of the change reflected an organizational commitment to implement evidenced-based practice and provide quality care as well as the culture of excellence. Secondly, the physicians, unit manager, and CNO all expressed a desire for change and a willingness to take part in the practice change. Their willingness and anticipation of the change will assist with sustainability. The front-line staff expressed dissatisfaction with the current process and reported excitement and anticipation of a

process that standardizes care approaches and reduced the need for frequent physician notification and receiving orders.

A SWOT analysis was performed to identify internal and external influences on the project. Strengths included organizational buy-in, commitment to excellence and meeting the expectations of the community, a culture that reflects a commitment to quality and health improvement as well as consideration of nursing education and autonomy. Weaknesses related to the need for all three internal medicine physicians to maintain consistency with treatment plans and utilization of the protocol and newer nursing staff in the ICU with the potential for the need of additional education and support to incorporate increased nurse autonomy. Opportunities included improved nurse autonomy, increased job satisfaction, a reduction in nurse confusion and frustration, and improved patient outcomes through consistency with treatment approaches and use of a protocol. Finally, threats involved the possibility of physician inconsistency with use, keeping in consideration prior differences with treatment strategies and the potential for staff resistance to change (see Appendix D SWOT Analysis).

Project Vision, Mission, and Objectives

The project mission is to create an organizational community of excellence and quality through collaboration and educational endeavors. The project vision is to implement a protocol to standardize patient care and improve nursing autonomy and decision-making. The project and organizational vision and mission are congruent. The project vision and mission will assist in meeting the organization's mission and vision by promoting health and excellence through the application of evidence. The project is also congruent with addressing the needs of the community by identifying and implementing a plan to improve quality within the organization as

improvements in nursing autonomy have been proven to have positive impacts on patient care outcomes (Amini, Negarandeh, Ramezani-Badr, Moosaeifard, & Fallah, 2015).

The short-term objective of the project states: At the completion of the ten-week practice change, there will be consistency with protocol use as evidenced by chart audits. The long-term objective of the project states: Upon completion of the ten-week practice change, an increase in nurse-reported autonomy and decision-making will be evidenced by an increase of 25% in post-implementation survey scores.

The project risks included the small sample size which potentially reduced the accuracy of the project results. Risks also involved weaknesses and threats as identified in the SWOT analysis which include the risk of inconsistency with physician use of the protocol, newer ICU staff who may not have felt comfortable with the change, and the potential of staff resistance. Additionally, the unpredictability of DKA admissions was also a risk. Unintended consequences included a decrease or no change in nurse-reported autonomy and decision-making and an increase in nurse-reported workload and time.

Project Description

The change model chosen to guide the planned change process was Lewin's Change Management Model. Lewin's model consists of three steps: unfreezing, change, and refreezing (Cummings & Worley, 2009). Unfreezing is the first change stage which prepares the organization for the change (Cummings & Worley, 2009). Unfreezing involves determining the need for change and understanding the reason for the need, ensuring stakeholder support for the change, identifying strategies to support the evidence, and managing the change concerns (Mindtools, 2016, Cummings & Worley, 2009). The second phase, change, involves frequent communication, dispelling rumors, immediate handling of problems, and empowering action

through stakeholder involvement (Mindtools, 2016, Cummings & Worley, 2009). Refreezing is the third and final phase and involves affixing the change into the organizational culture, identifying barriers and support for the change, and developing sustainability. The project plan will be described using Lewin's model.

Unfreezing

The unfreezing phase began in early 2014 when the need for a practice change was identified. The reason for the change was thoroughly discussed with all stakeholders who agreed. Organizational support was obtained from the hospital CNO, Medical Executive Committee, ICU manager, and ICU staff. Strategies to support the evidence were identified through a literature search and synthesis which recognized a positive correlation amid the implementation of nurse-driven protocols and nurse reported autonomy. All of the parties involved communicated that the need for change was evident.

Change

The change phase began with individual discussions with ICU staff members and the ICU manager. Frequent communication with the employees and manager were maintained throughout the project experience as a way of taking an active approach to dispelling rumors, auditing progress and adherence to the implemented protocol, and empowering the staff through the process. Further, frequent communication was maintained with the hospital CNO and intensive care physicians to identify any potential concerns or questions and to monitor progress and adherence to the protocol.

The Institutional Review Board (IRB) proposal was submitted to Chamberlain College of Nursing. An expedited review was obtained as the project involves minimal risk and falls under the expedited review category number seven: research involving perception and employing a

survey (U.S. Department of Health & Human Services, 1998). The project setting submitted a letter of approval from the Senior Administrative Leadership Team at Clarion Hospital as there is not an IRB at the institution. Following IRB approval, the pre-protocol implementation survey and staff protocol education presentation were initiated in early June 2016. The protocol implementation began in late July 2016.

Before protocol implementation, protocol education was provided to the ICU staff in the form of a poster presentation and discussion. Staff training took place during staff meetings over a two-week period. The Emergency Department (ED) staff was educated in early August 2016. A post-education quiz was used to gauge ICU staff understanding of the protocol and provide a means of practicing calculations and interventions. The quiz was not mandatory but encouraged. Of the five nurses who submitted the quiz, one nurse missed two questions, while the others missed zero questions. The information was reviewed with the nurse who missed the questions and following the review the nurse verbally expressed an improved understanding of the DKA protocol (See Appendix E Educational Offering). The post-protocol survey was distributed from October 6th through October 15th, 2016. (see Appendix F related to the Project Schedule).

Refreezing

The final phase of the change has begun and will continue for the next several months. Reasons for and the need for maintaining the change momentum and adherence will be continually reinforced. Continual involvement in the process and frequent communication will allow identification of barriers as they occur. Super users within the ICU staff were designated to assist in support and sustainability of the change. Shaw et al. (2012) explicate the importance and value of including project champions and organizational champions to help in the

implementation and sustainability of the change. The ICU manager and hospital CNO are the organizational change champions who will help in sustainability of the change.

Budget

Resources needed for this project included administrative, financial, and data resources and support. Administrative support was required for buy-in and sustainability. Financial support was necessary to support several factors including money to off-set the costs of building the order set in the electronic health record system and educating the staff on the practice change. Educational resources were delivered through a poster presentation, and handouts were provided during the education sessions. The post-education quiz was completed on paper which was an additional supply cost. Additionally, financial support was necessary to account for the time needed for the staff education and for the staff to take the pre- and post-protocol implementation surveys. The survey was distributed electronically through SurveyMonkey©. Data resources and support were necessary for statistical computations of the pre- and post-protocol survey data.

Budgetary expenses included nursing informatics wages for building the protocol order set in the electronic health record, nursing wages for instructional and survey time, printing and paper costs for the post-education quiz, and statistician costs. The nursing informatics wages were determined based on the estimated timeframe of two eight-hour days to build the order set. The budgetary amount of nursing wages for instructional time was based on an estimated 90 minutes for the educational presentation, post-education quiz, and pre- and post-survey completion time. Institutional budget support will cover all nursing wages for order set building, education, and required survey time. Lastly, the $25 gift certificate to the facility cafeteria (a drawing for project participants) and the costs associated with statistical data were covered by the author (See Table 1 related to Budget).

Leadership

The author's major roles in the project were protocol development and education, process facilitation, data collection, and overall project leadership. A variety of leadership styles and qualities were utilized for this project. A combination of participative and transformational leadership styles enabled successful completion of the change project. Participative leadership involves stakeholders at all levels of the organization and values their input and the general organizational setting and culture (da Costa & Dall' Agnol, 2011). Transformational leadership engages others and motivates others to create and sustain change (Sherman, 2012). Doody and Doody (2012) explicate that transformational leadership is an effective leadership style to reduce change resistance by empowering staff to consider new ways to confront problems.

Leadership skills that were utilized include systems thinking, collaboration, and effective communication. Systems thinking enables the leader to view the needs of the organization and not just that of the unit (Falk, Garrison, Brown, Pintz, & Bocchino, 2015). Collaboration skills provide the leader with an effective means of involving multiple stakeholders throughout the organization and creating and maintaining a team concept (Huston, 2008). Communication is essential for clearly articulating the need for change, effectively implementing and evaluating the change, and creating change sustainability.

Project Evaluation Results

IRB approval was obtained from Chamberlain College of Nursing's Institutional Review Board, and approval was obtained from the project setting's Administrative Leadership Team. The sample population included nurses employed in the ICU of the project setting hospital.

The evaluation tool used was the Dempster Practice Behaviors Scale (DPBS) developed by Judith Dempster. The tool uses a 30-item survey in a Likert-type structure that measures how

much the nurse agrees or disagrees with the statement (Dempster, 2010). The scale was tested for validity and reliability which reduced the original number of items from 40 to 30 with a reliability analysis noted by Cronbach's alpha (Dempster, 2010). The tool is scaled with a range from 30 – 150 with required reverse scoring for five items (Dempster, 2010). The DPBS measures autonomy by focusing on behaviors, action, and manner perspectives in practice with subscales of "readiness, empowerment, actualization, and valuation" which were identified during retroductive, triangulation, and inductive findings of the instrument development (Dempster, 2010, pg. 2). The evaluation tool produced ordinal data. Ordinal data collects data with no known difference between the values (Sylvia & Terhaar, 2014). While the tool was available online for use, the author attempted to contact the tool developer to seek permission for use through various channels but was unsuccessful.

Formative evaluation was used to assist in determining the implementation effectiveness. Stetler et al. (2006) explicate that formative evaluation is a proactive process that assists in the movement towards the intended outcome. The process involves using data to identify intensity, barriers, and blockers of progress and includes steps to reinforce progress. One way formative evaluation was used was to do chart audits to monitor if the protocol was being ordered upon admission to the ICU. Since the implementation period was a ten-week process and diabetic ketoacidosis admission is not predictable, all patients admitted with diabetes as a primary diagnosis were reviewed although only patients who met the DKA criteria were potential protocol recipients. Additionally, individual staff discussions were used to identify information as to the adherence to and staff comfort with the protocol.

The author completed the auditing process which involved a review of all ICU patients over a two-year period as well as all admissions during the implementation period. From May

through December of 2014, 15 patients were admitted to the ICU with a diagnosis of DKA. In 2015, 34 patients were admitted with a DKA diagnosis with the majority of DKA admissions taking place in November (N=7). From January through early July 2016 (pre-protocol implementation) seven patients were admitted with DKA.

During the implementation phase, three patients were admitted to the ICU with a diabetic diagnosis. Patient A was admitted with new onset diabetes mellitus and met the criteria for the DKA protocol. However, the on-call physician was a visiting physician who was not familiar with the DKA Protocol. The patient was ordered an insulin drip, but the protocol was not implemented. Patient B was admitted with a diagnosis of hyperglycemia and met DKA criteria. However, the on-call physician chose not to implement the DKA protocol. Patient C was diagnosed with DKA on admission. The protocol was implemented in the ED and continued in the ICU. The protocol was executed properly, and all aspects of the protocol were followed. The patient signed out against medical advice (AMA) four hours after admission to the ICU so only part of the protocol was used for this admission.

During the implementation period, the author was present in the ICU at least two days a week to capture for a variety of staff. While in the ICU, the author discussed patient information and the protocol with the staff and answered questions. Additionally, the author reviewed admission logs and patient charts that pertained to diabetes.

The population characteristics were registered nurses with a variety nursing practice experience and years of experience in the ICU. A convenience sampling was utilized. The pre- and post-protocol implementation survey link were emailed to all nurses employed full time in the ICU setting to capture and compare nurse's perceptions of autonomy and decision-making. The survey included a section on demographics to identify total years of experience as a nurse,

the total number of years working in an ICU, and participant age. No exclusion criteria existed as the anticipated sample size was small (ten potential participants). The demographic data collected is considered nominal data. Nominal data collects information about variables with no quantitative value (Sylvia & Terhaar, 2014).

Frequency tables and cross tabulation were also used. Sylvia and Terhaar (2014) explain that frequency tables display the possible responses of the total respondents for each question. Use of a frequency table presents a percentage of how many respondents chose each potential option. The information can be easily presented in a table or chart. Cross tabulation is a way to compare groups of information and identify the relationship between them (Esurveyspro, n.d., Michael, n.d.). Cross tabulation was utilized to compare the pre- and post-implementation data.

Non-parametric statistical tests were used for data analysis. Hollingsworth, Collins, Smith, and Nelson (2011) explain that non-parametric statistical tests are appropriate for small samples sizes and include tests such as a blinded paired t-test and a sign of median. A blinded paired t-test analyzes the variations between means, while a sign of median aims to determine if the median assumes a particular value by testing the null hypothesis (Sylvia & Terharr, 2014; The Pennsylvania State University, 2016).

The independent variable involving the PICOT question was the use of a protocol for treatment of DKA. The dependent variable was nurse-reported improved autonomy and decision-making. Extraneous variables included nurse age, nursing experience, and adherence to the protocol. The extraneous variables were controlled by assessing the same demographic information in both the pre- and post-protocol implementation surveys. Adherence rates for the protocol were addressed through staff interactions over the study period. Additionally, the author's previous employment in the ICU was considered extraneous due to established

relationships with the ICU staff. This variable was controlled by ensuring and maintaining the confidentiality of survey results and by addressing the previous relationship as a limitation in the project evaluation and findings.

The survey was introduced at an ICU staff meeting following protocol education. During this time the staff was informed that the survey was strictly voluntary and participation, or lack thereof, would have no effect on their employment at the organization. Survey responses were collected in a confidential manner as not to allow for identification of individual responses. The nurses were given a random letter that would be used to match pre- and post-implementation protocol survey scores and served to blind the author from the identity of the nurses and provide anonymity such that the nurses would be honest and accurate in their answers. Participants completed the Chamberlain College of Nursing informed consent form before survey distribution. The survey was emailed to the participants through the institutional email system and through their personal email accounts using one set link so not to identify responses. The surveys were distributed electronically to facilitate ease of survey delivery and analysis as well as cost. A reminder email was sent out at one and two weeks. All participants were entered to win a $25 gift certificate from the facility cafeteria to entice staff participation. All responses were collected confidentially using SurveyMonkey© (See Appendix G Evaluation Tool).

The total participants for the pre-protocol implementation survey were nine (N=9), and the post-implementation survey was seven (N=7). The demographic characteristics collected revealed that the majority of nurses reported 21 years or more of nursing experience (N = 6 pre-, N = 4 post), 16 years of more of ICU experience (N = 5 pre-, N = 3 post-), and being 41-50 years of age (N = 5 pre-, N = 4 post). Of the seven participants who submitted the post-protocol

implementation survey, one did not use the correct assigned letter which left six pairs of pre- and post- scores (see Figure 1).

The scores of interest for comparison are the total DPBS Score as well the subgroups of Readiness, Empowerment, Actualization, and Valuation. The total DPBS scores for the pre-protocol implementation survey (N = 6) averaged 121.8 (SD = 6.585) while the post-protocol implementation survey (N = 6) averaged 123.2 (SD = 16.23) (See Figure 2). Each of the subgroup graphs tends to have a smaller standard deviation which indicates that the post-test scores (although on average decreased) have less variation in scores and are more concentrated.

As the data revealed a small number of comparisons and the data itself is close to being non-normal, a sign test of median was used instead of a paired-t test. A sign test for median uses the median for the critical value comparison to account for the non-normal distribution (sign test of median = 0.00000 versus $\neq$ 0.00000). For the subgroup of Readiness, N = 4 were below and N = 2 were above (P = 0.6875, Median = -3.5.000). The Empowerment subgroup revealed N = 4 below and N = 2 above (P = 0.6875, Median = -1.500). The Actualization subgroup scores were noted as N = 3 below and N = 3 above (P = 1.0000, Median = -0.5000). Lastly, the Valuation subgroup revealed N = 3 below, N = 2 equal, and N = 1 above (P = 0.6250, Median = -0.5000). From the output for the total and subgroups, there is no p-value that is close to the significance level of 0.05 (see Figure 3).

Of note, the two questions that improved the most were question 7 and 26. Question 7 stated: I am valued for my independent actions. This question improved by 0.5 out of 5 points on average for six nurses. Question 26 stated: I have my activities and actions programmed by others. This question also improved by 0.5 out of 5 points on average for the six

nurses. Question 26 was a reverse measure, so there was a decrease by 0.5 meaning there were fewer activities and actions programmed by others or more autonomy.

The two questions that declined the most were questions 4 and 24. Question 4 stated: I self-determine my role and activities. This question decreased by 0.67 out of 5 points on average. Question 24 stated: I am provided with a legal basis for independent functioning. Question 24 decreased by 1 out of 5 points on average for six nurses.

Discussion and Implications for Nursing and Healthcare

With limited data due to outside factors and poor response rate, the test had too much error to have any statistical significance. Therefore, the investigator failed to reject the null hypothesis for each group and noted there is no difference in score pre- and post-protocol implementation survey resulting in no loss or gain of autonomy. However, the data comparison for each group's respective median reveals that overall a few nurses had lower post-protocol implementation scores which would equate to the nurses feeling as if they had less autonomy than before.

Several reasons could account for a decrease in post-protocol implementation scores. The small sample size may have limited the accuracy of the results. The implementation timeline included a lack of DKA patients during the implementation period that fit the protocol guidelines (N =1). Therefore there was limited use of the DKA protocol. The ICU has several junior nurses who required additional support with protocol education and also had limited use of the protocol which may have accounted for lower scores related to anxiety or uncertainty of the protocol. Lastly, two nurses did not take the post-protocol implementation survey, and one participant did not include the correct letter which may account for an incomplete comparison of scores.

The project evaluation does not demonstrate an improvement in autonomy and decision-making with the use of a nurse-guided protocol, in fact, a small decrease in autonomy was noted in comparison results. The timeline of the implementation period did not provide sufficient time for comparison results to demonstrate a true reflection of how protocols may impact autonomy and decision-making. Replication and continuation of the project will be beneficial to determine nurse comparison scores with additional DKA patients and use of the protocol. The author plans to seek IRB approval and continuation of the project with a 12-month study timeframe and resubmission of the post-protocol implementation survey to determine if there is a change in comparison scores with increased use of the protocol. Replication of the project with a larger sample size and timeframe is recommended as these factors may have limited the accuracy of the results.

Plans for Dissemination

The use of multiple methods for dissemination is crucial, and the authors should consider what population the information would be most relevant to (Moran, Burson, & Conrad, 2014). Sharing information through passive means is less effective than interventions that involve social influence (Carpenter, Nieva, Albaghal, & Sorra, 2005). Rather, dissemination is an active process of getting the message out through innovative ways (Carpenter et al., 2005).

The plan for dissemination includes several methods to share the findings with both the institution and the nursing profession. Institutional methods of dissemination include a presentation of conclusions at an ICU staff meeting and Nurse Executive Committee meeting. It is crucial to involve the front-line staff in the dissemination plan due to both their involvement in the project and to increase project sustainability. A presentation was given on November 15th to the residents and interns employed at the project setting that included specifics on the DKA

protocol as well as an overview of the DNP project and evaluation. Additionally, the information will be presented to the Medical Executive Committee as this committee involves both physician and nurse leaders. The importance of involving these stakeholders relates to sustainability and potential applicability to other projects. The information will be presented to both groups through an informative poster presentation.

The information will be presented in the form of journal submissions, and through the author's employer to disseminate information within the professional community. A manuscript submission is being considered for the *Journal of Nursing Management*, the *Journal of Advanced Nursing*, and the *Journal of Clinical Nursing.* The *Journal of Nursing Management* promotes information that enriches nursing management, innovation, leadership, and evidence (Nursing Management, 2016). Specifically, the *Journal of Nursing Management* has several aims including the impact on the development of policies and current issues in nursing which apply to this project (Nursing Management, 2016).

The *Journal of Advanced Nursing* aims to publish information related to management, policy, practice, and education knowledge (Wiley Online Library, 2016a). Commitment to professional development and advanced practice is evident, and information published in the *Journal of Advanced Nursing* is often cited in evidence reviews and used for practice decision-making (Wiley Online Library, 2016a). Finally, a manuscript is being considered for the *Journal of Clinical Nursing* due to the journal's aim to support and advance the nursing profession with an emphasis on clinical practice and interdisciplinary working patterns (Wiley Online Library, 2016b).

Other means of dissemination include poster presentations. Rolls, Hansen, Jackson, and Elliott (2016) suggest that the use of social media and the use of virtual communities is an up-

coming medium for disseminating information. An abstract will be uploaded to ResearchGate which is an online platform to network and connect with colleagues and review and submit data to capture the use of a virtual community for dissemination (ResearchGate, 2016). Additionally, the findings will be presented at the author's employer's poster presentation event in Spring 2017.

Summary and Conclusion

The purpose of this project was to determine if the use of a DKA protocol increased nurse-reported autonomy and decision-making. This study failed to identify a positive correlation for this project. An overview of the practice problem and literature review was discussed, and Lewin's Change Theory was used for project change. The Dempster Practice Behaviors Scale was distributed to the nursing staff pre- and post-protocol implementation. The implementation period included one DKA patient, and the nurses did not have ample opportunity to use the protocol. Limited use of the protocol may have skewed the results as some nurses did not have the opportunity to use the protocol. Further, the small sample size and poor response rate of the surveys may have limited the project findings. Recommendations for future studies include repeating the study with a larger sample size as well as a longer time frame to allow for the inclusion of additional DKA patients and use of the protocol. Additionally, future projects that study patient outcomes and the use of an evidence-based DKA protocol will be beneficial to clinical practice.

References

Amini, K., Negarandeh, R., Ramezani-Badr, F., Moosaeifard, M. & Fallah, R. (2015). Nurses' autonomy level in teaching hospitals and its relationship with the underlying factors. *International Journal of Nursing Practice, 21*, 52-59. doi: 10.1111/ijn.12210

Beck, L. & Johnson, C. (2008). Implementation of a nurse-driven sedation protocol in the ICU. *The Canadian Association of Critical Care Nurses, 19*(4), 25-28.

Bjurling-Sjoberg, P., Engstrom, G., Lyckner, S. & Rydlo, C. (2012). Intensive care nurses' conceptions of a critical pathway in caring for aortic-surgery patients: A phenomenographic study. *Intensive and Critical Care Nursing, 29*, 166-173.

Carpenter, D., Nieva, V., Albaghal, T. & Sorra, J. (2005). Development of a planning tool to guide research dissemination. In: Henriksen K, Battles JB, Marks ES, et al., editors. *Advances in Patient Safety: From Research to Implementation* (Volume 4: Programs, Tools, and Products). Rockville (MD): Agency for Healthcare Research and Quality (US).

Clarion Hospital. (2015). 2015 *Clarion Hospital Community Health Needs Assessment: Executive Summary.* Retrieved from https://www.clarionhospital.org/sites/www/Uploads/Clarion%20Hospital%20CHNA%20Final%2006-30-15.pdf

Clarion Hospital. (n.d.). *Mission statement*. Retrieved from https://www.clarionhospital.org/about_us/mission_statement.aspx

Clavelle, J. T., Porter-O'Grady, T. & Drenkard, K. (2013). Structural empowerment and the nursing practice environment in magnet organizations. *The Journal of Nursing Administration, 43,* 566-573.

Cummings, T. G. & Worley, C. G. (2009). *Organization Development and Change* (9th ed.). Mason, OH: South-Western Cengage Learning.

da Costa, D. G. & Dall' Agnol, C. M. (2011). Participative leadership in the management process of nightshift nursing. *Revista Latino-Americana de Enfermagem, 19,* 1306-1313.

Dempser, J. S. (2010). *Measurement of Behaviors Related to Autonomy in Practice: The Dempster Practice Behaviors Scale (DPBS).* Retrieved from http://fhsson.mcmaster.ca/apn/images/stories/pdfs/dpbsdescription0210%20_2_.pdf

Doody, O. & Doody, C. M. (2012). Transformational leadership in nursing practice. *British Journal of Nursing, 21,* 1212-1217.

Engvall, J. C., Padula, C., Krajewski, A., Rourke, J., McGillivray, C. G., Desroches, S., & Anger, W. (2014). Empowering the development of a nurse-driven protocol. *MEDSURG Nursing, 23,* 149-154.

Esurveyspro. (n.d.). *Online Survey Data Preparation, Interpretation and Analysis.* Retrieved from http://www.esurveyspro.com/article-data-preparation-interpretation-and-analysis.aspx

Falk, N.L., Garrison, K.F., Brown, M.M., Pintz, C., & Bocchino, J. (2015). Strategic planning and doctor of nursing practice education: Developing today's and tomorrow's leaders. *Nursing Economic$, 33,* 246-254.

Iliopoulou, K. K. & While, A. E. (2010). Professional autonomy and job satisfaction: Survey of critical care nurses in mainland Greece. *Journal of Advanced Nursing, 66,* 2520-2531. doi: 10.1111/j.1365-2648.2010.05424.x

Hollingsworth, R. G., Collins, T. P., Smith, V. E. & Nelson, S. C. (2011). Simple statistics for correlating survey responses. *Journal of Extension, 49*(5), 1-4.

Huston, C. (2008). Preparing nurse leaders for 2020. *Journal of Nursing Management, 16*, 905-911. doi: 10.1111/j.1365-2834.2008.00942.x

Kaddourah, B. T., Khalidi, A., Abu-Shaheen, A. K. & Al-Tannir, M. A. (2013). Maintaining and retaining a healthy workforce: Factors impacting job satisfaction among nurses from a tertiary care centre. *Journal of Clinical Nursing, 22*, 3153-3159. doi: 10.1111/jocn.12261

Khalaila, R., Libersky, E., Pomerantsev, E., Bayya, A., Linton, D. M., & Sviri, S. (2011). Nurse-led implementation of a safe and effective intravenous insulin protocol in a medical intensive care unit. *Critical Care Nurse, 31*, 27-35. doi: 10.4037/ccn2011934

Kitabchi, A., Hirsch, I. B. & Emmett, M. (2015). Diabetic ketoacidosis and hyperosmolar hyperglycemia state in adults: Treatment. *UpToDate*. Retrieved from http://www.uptodate.com/contents/diabetic-ketoacidosis-and-hyperosmolar-hyperglycemic-state-in-adults-treatment

Larkin, M. E., Cierpail, C. L., Stack, J. M., Morrison, V. J. & Griffith, C. A. (2008). Empowerment theory in action: The wisdom of collaborative governance. *The Online Journal of Issues in Nursing, 13*(2). doi: 10.3912/OJIN.Vol13No02PPT03

Management Study Guide. (2016). *Importance of mission and vision statements.* Retrieved from http://www.managementstudyguide.com/importance-of-vision-and-mission-statements.htm

Manias, E. & Street, A. (2000). Legitimation of nurses' knowledge through policies and protocols in clinical practice. *Journal of Advanced Nursing, 32,* 1467-1475.

McDonald, S. F., Tullai-McGuinness, S., Madigan, E. A. & Shively, M. (2010). Relationship between staff nurse involvement in organizational structures and perception of empowerment. *Critical Care Nursing, 33*, 148-162.

Michael, R. S. (n.d.). *Crosstabulation and Chi Square.* Retreived from http://www.indiana.edu/~educy520/sec5982/week_12/chi_sq_summary011020.pdf

Mindtools. (2006). *Lewin's Change Management Model: Understanding the three stages of change.* Retrieved from https://www.mindtools.com/pages/article/newPPM_94.htm

Moran, K., Burson, R., & Conrad, D. (2014). *The Doctor of Nursing Practice Scholarly Project: A Framework for Success.* Burlington, MA: Jones & Bartlett Learning.

Mrayyan, M. T. (2006). A unit-based protocol to enhance Jordanian nurses' autonomous decision making. *Journal of Nursing Management, 14,* 391-396.

Nedd, N. (2006). Perceptions of empowerment and intent to stay. *Nurse Economist, 24*(1), 13-18.

Nursing Management. (2016). *About the Publication.* Retrieved from http://journals.lww.com/nursingmanagement/Pages/aboutthepublication.aspx

Olson-Sitki, K., Kirkbride, G., & Forbes, G. (2015). Evaluation of a nurse-driven protocol to remove urinary catheters: Nurses' perceptions. *Urologic Nursing, 35,* 94-99.

Papathanassoglou, E. D. E., Karanikola, M. N. K., Kalafati, M., Giannakopoulou, M., Lemonidou, C. & Albarran, J. W. (2012). Professional autonomy, collaboration with physicians, and moral distress among European intensive care nurses. *American Journal of Critical Care, 21,* e41-e52.

Plost, G. & Nelson, D. P. (2007). Empowering critical care nurses to improve compliance with protocols in the intensive care unit. *American Journal of Critical Care, 16,* 153-157.

Raghavan, V., Hamdy, O., Khardori, R., Bessen, H. A., Brenner, B. E., Rucker, D. W…Talavera, F. (2014). Diabetic ketoacidosis treatment & management. *Medscape Reference.* Retrieved from http://emedicine.medscape.com/article/118361-treatment

ResearchGate. (2016). *About Us*. Retrieved from https://www.researchgate.net/about

Rolls, K., Hansen, M., Jackson, D., & Elliott, D. (2016). How health care professionals use social media to create virtual communities: An integrative review. *Journal of Medical Internet Research, 18,* 26.

Rose, L. (2011). Interprofessional collaboration in the ICU: How to define? *Nursing in Critical Care, 16,* 5-10.

Rycroft-Malone, J., Fontenia, M., Bick, D. & Seers, K. (2008). Protocol-based care: Impact on roles and service delivery. *Journal of Evaluation in Clinical Practice, 14,* 867-873. doi: 10.1111/j.1365-2753.2008.01015.x

Segal, G., Karniel, E., Mahagna, A., Kaa'dan, F., Levi, Z., & Balik, C. (2014). A nurse-guided, basal-prandial insulin treatment protocol for achieving glycaemic control of hospitalized, non-critically ill diabetes patients, is non-inferior to physician-guided therapy: A pivotal, nurse-empowerment study. *International Journal of Nursing Practice*, 1-6. doi: 10.1111/ijn.12292

Shaw, E. D., Howard, J., West, D. R., Crabtree, B. F., Nease, D. E., Tutt, B. & Nutting, P. A. (2012). The role of the champion in primary care change efforts. *Journal of the American Board of Family Medicine, 25*, 676-685. doi: 10.3122/jabfm.2012.05.110281

Sherman, R. O. (2012). What followers want in their nurse leaders. *American Nurse Today, 7*(9), 1-11.

St. Clair Hospital. (2013). *Adult diabetic ketoacidosis (DKA) orders.* Pittsburgh, PA.

Stetler, C. B., Legro, M. W., Wallace, C. M., Bowman, C., Guihan, M., Hagedorn, H.,…Smith, J. L. (2006). The role of formative evaluation in implementation research and the QUERI experience. *Journal of General Internal Medicine, 21*, S1-S8.

Sylvia, M. L. & Terhaar, M. F. (2014). *Clinical Analytics and Data Management for the DNP*. New York, NY. Springer Publishing Company, LLC.

The Pennsylvania State University. (2016). *The sign test for a median.* Retrieved from https://onlinecourses.science.psu.edu/stat414/node/318

The University Hospital of Columbia and Cornell. (n.d.). *NewYork-Presbyterian Diabetic Ketoacidosis Guidelines.* Retrieved from www.healthcare.uiowa.edu/familymedicine/fpinfo/Docs/DKA%20Protocol.pdf

Tourangeau, A., Patterson, E., Rowe, A., Saari, M., Thomson, H., Macdonald, G.,…Squires, M. (2013). Factors influencing home care nurses intention to remain employed. *Journal of Nursing Management, 22,* 1015-1026. doi: 10.1111/jonm.12104

U.S. Department of Health & Human Services. (1998). *OHRP Expedited Review Categories (1998).* Retrieved from http://www.hhs.gov/ohrp/policy/expedited98.html#

Wiley Online Library. (2016a). *Journal of Advanced Nursing.* Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2648/homepage/ProductInformation.html

Wiley Online Library. (2016b). *Journal of Clinical Nursing.* Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2702/homepage/ProductInformation.html

Ycaza-Gutierrez, M. C., Wilson, L., & Altman, M. (2015). In our unit: Bedside nurse-driven protocol for management of alcohol/polysubstance abuse withdrawl. *American Association of Critical-Care Nurses, 35*(6), 73-76. doi: 10.4037/ccn2015194

Yealy, D. M., Slesinger, T. L., Rogers, J. J., Huang, D. T., Jones, A. E., Kelly, J.,…Whittle, J. (2015). Detect, Act, Reassess, Titrate (DART). *American College of Emergency Physicians (ACEP) Expert Panel on Sepsis.* Retrieved from http://www.acep.org/dart/

Table 1

Budget

EXPENSES		**REVENUE**	
Direct		**Billing**	
RN Salarys non-productive hours (Education time x 15 nurses) 1 hours @ 23 /hr (Survey time – pre- and post- x 15 nurses) 30 min @ 23/hr	$517.50	Institutional budget support	$742.50
Supplies	$25		
Statistician	$1600	Personal Contributions	$1625
Informatics Nurse hours for order set build (two days at eight hours/day)	$200		
Survey incentive gift certificate to facility cafeteria	$25		
Total Expenses	$2,367.50	**Total Revenue**	$2367.50
Net Balance			0

Figure 1

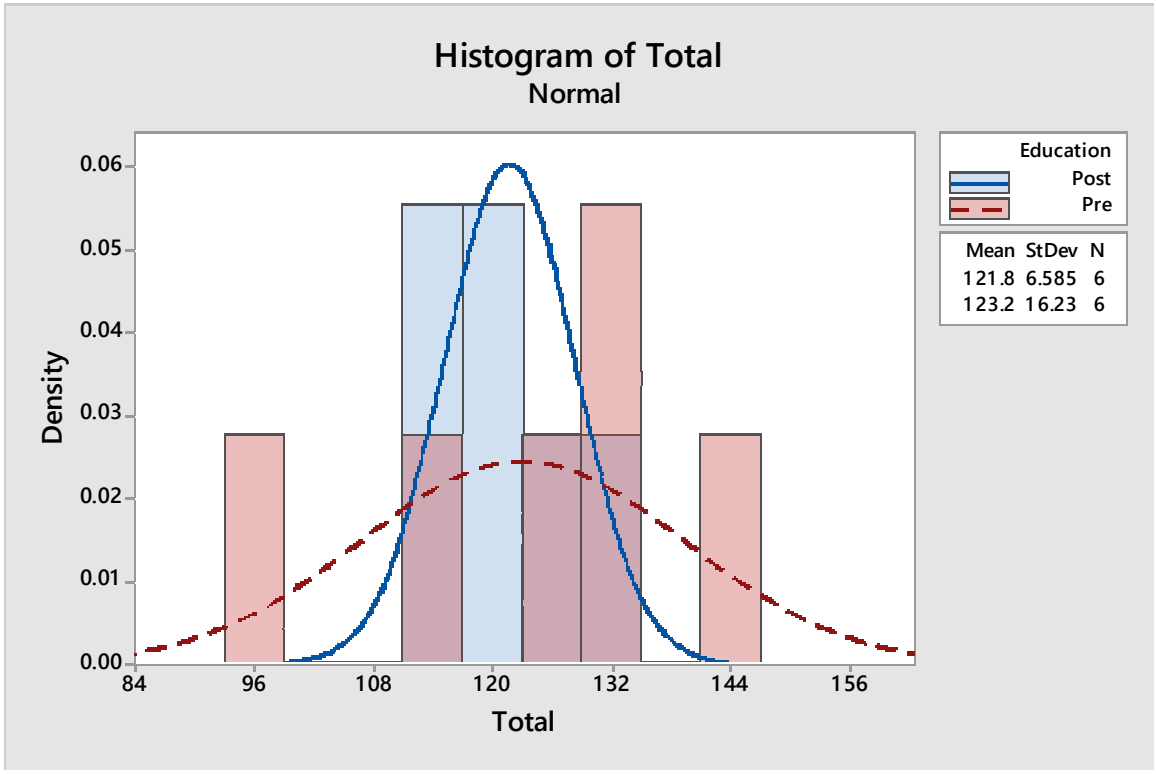
Pre-Protocol Implementation Survey Demographic Data

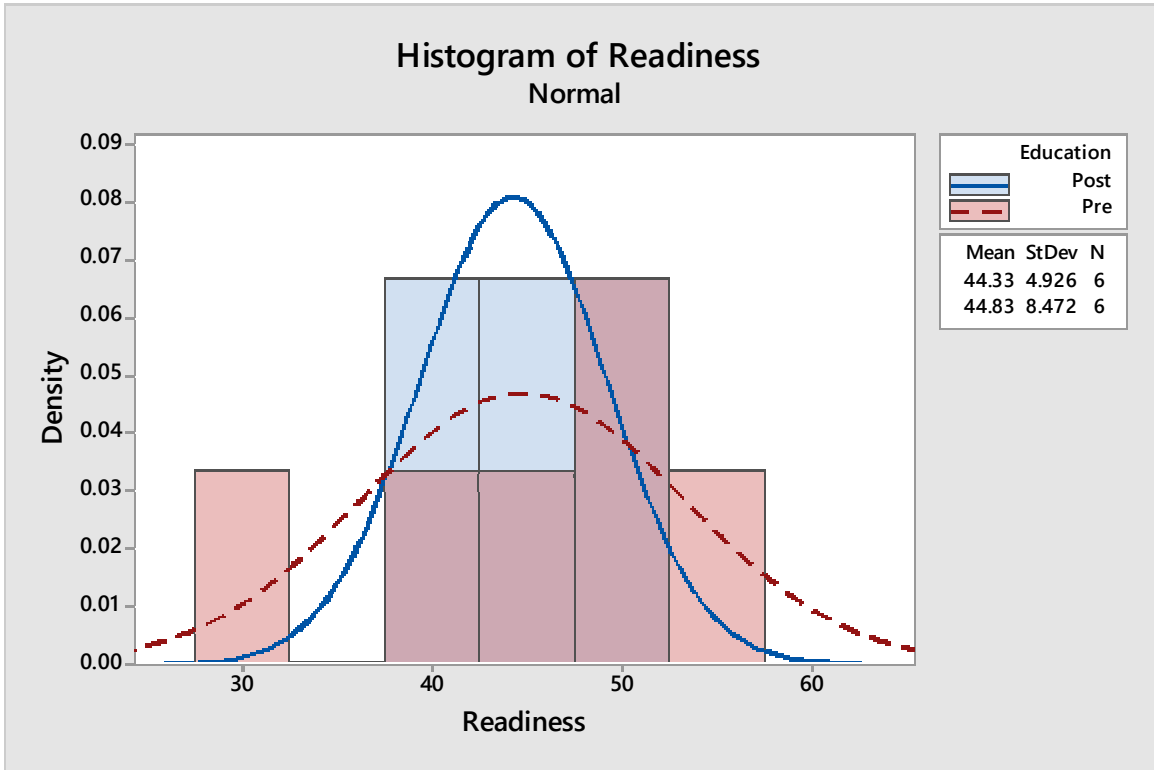
Nurse Experience	
6	21 years or more
1	16-20 years
2	6-10 years
ICU Experience	
5	16 years or more
1	10-15 years
1	3-5 years
2	0-2 years
Age	
3	51-60 years old
5	41-50 years old
1	18-30 years old

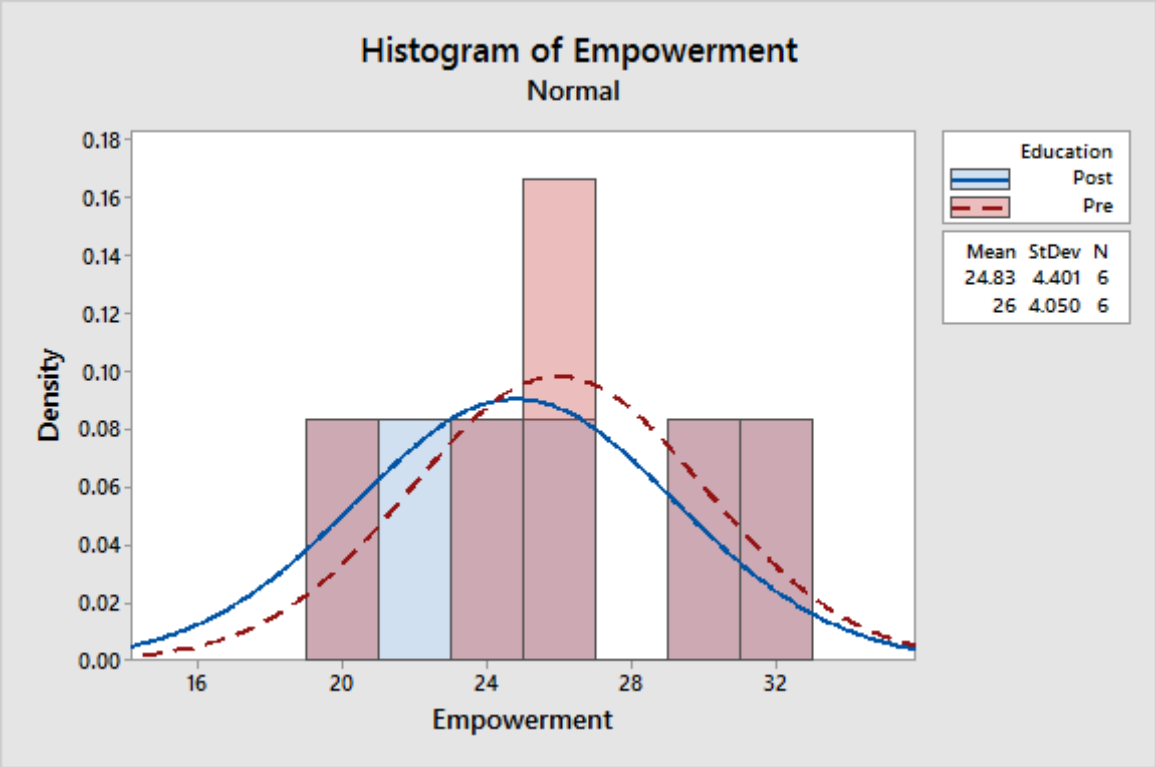
Post-Protocol Implementation Survey Demographic Data

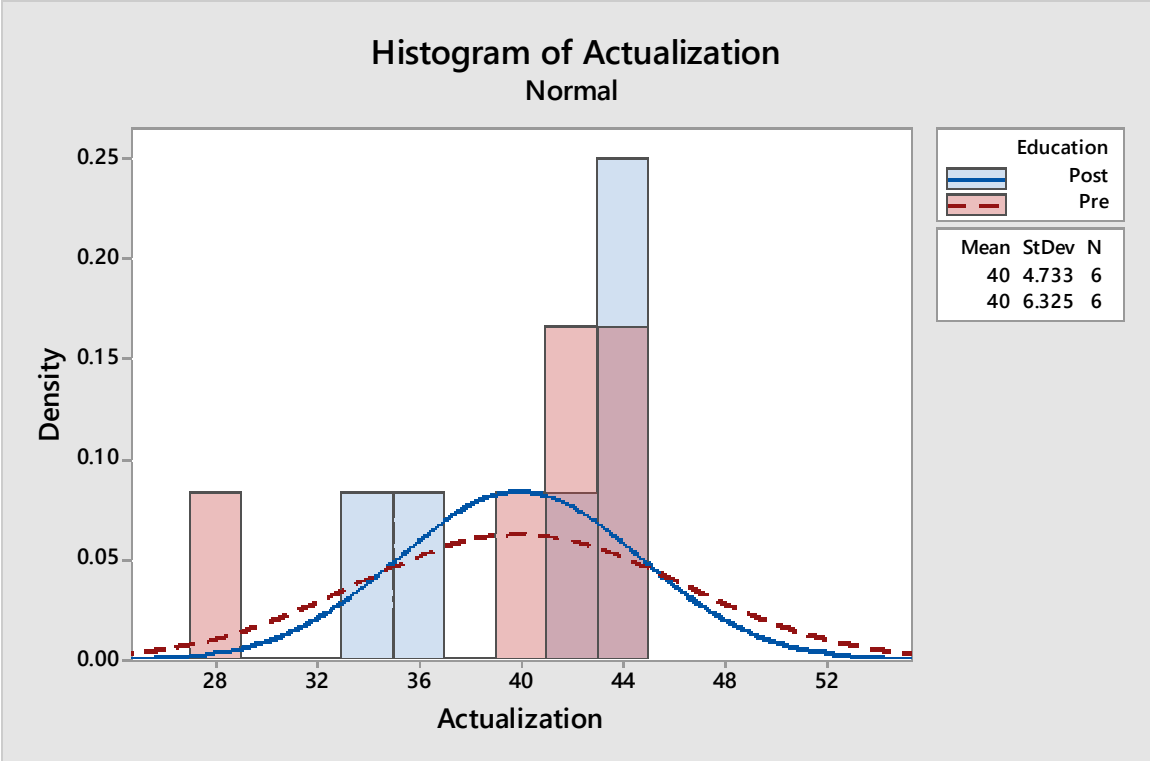
Nurse Experience	
4	21 years or more
1	11-15 years
1	6-10 years
ICU Experience	
3	16 years or more
1	10-15 years
1	3-5 years
1	0-2 years
Age	
2	51-60 years old
4	41-50 years old

Figure 2
Histograms






Histogram of Empowerment
Normal
Density
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
16
20
24
28
32
Empowerment
Education
Post
Pre
Mean StDev N
24.83 4.401 6
26 4.050 6


Histogram of Actualization
Normal
Density
0.25
0.20
0.15
0.10
0.05
0.00
28
32
36
40
44
48
52
Actualization
Education
Post
Pre
Mean StDev N
40 4.733 6
40 6.325 6

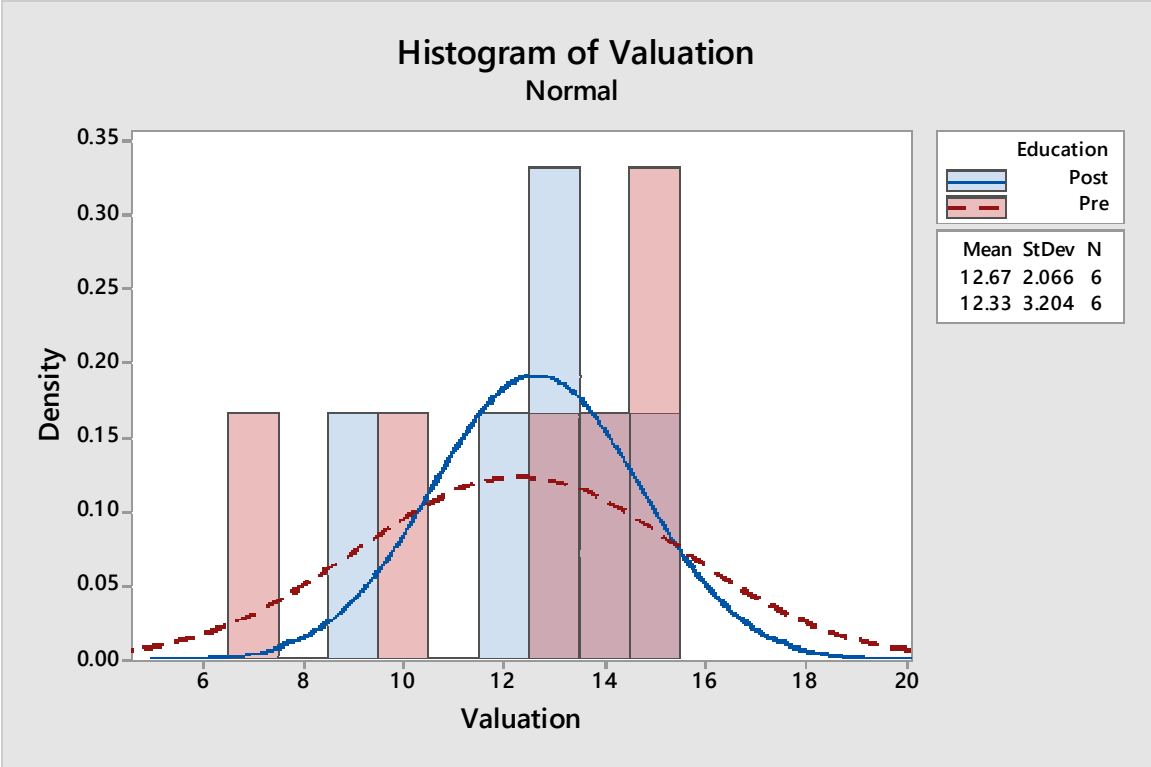

Histogram of Valuation
Normal
Density
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
6
8
10
12
14
16
18
20
Valuation
Education
Post
Pre
Mean StDev N
12.67 2.066 6
12.33 3.204 6

Figure 3
Sign Test of Median

Sign Test for Median: Total, Readiness, Empowerment, Actualization, Valuation

Sign test of median = 0.00000 versus ≠ 0.00000

	N	Below	Equal	Above	P	Median
Total	6	4	0	2	0.6875	-7.000
Readiness	6	4	0	2	0.6875	-3.500
Empowerment	6	4	0	2	0.6875	-1.500
Actualization	6	3	0	3	1.0000	-0.5000
Valuation	6	3	2	1	0.6250	-0.5000

Appendix A

Summary of Primary Research Evidence for Development of the DKA Protocol

Citation	Question or Hypothesis	Theoretical Foundation	Research Design (include tools) and Sample Size	Key Findings	Recommendations/ Implications	Level of Evidence
Kitabchi, A., Hirsch, I. B. & Emmett, M. (2015).	None. Expert panel on sepsis.	None identified.	N/A	Recommended guidelines state that initial fluid in the first hour of treatment should be 30 mL/kg of a cystalloid solution such as 0.9% saline. Rapid fluid resuscitation is linked to swift resolve and an increase in survival for septic shock patients.	The DKA initial fluid bolus for the DKA protocol matches the recommendations for sepsis guidelines as per the decision of the emergency department and internal medicine physicians. The recommendation ensures early and calculated fluid resuscitation based on guidelines for metabolic acidosis conditions.	IV
St. Clair Hospital. (2013).	None. Adult Diabetic Ketoacidosis (DKA) Orders.	None identified.	N/A	The Adult Diabetic Ketoacidosis (DKA) Orders include guidelines for dietary status, insulin drip rate, frequency of blood glucose monitoring and other laboratory guidelines, insulin adjustment rate, and management for when the anion gap is in a normal range.	The aspects of the order set that were incorporated include the dietary status of NPO, the insulin drip rate, and management for when the anion gap is in a normal range.	IV
The University	None. Diabetic	None identified.	N/A	The guidelines	The DKA guidelines	IV

Hospital of Columbia and Cornell. (n.d.).	Ketoacidosis Guidelines.			include pathophysiology, diagnostic criteria, goals of treatment, calculations, initial care, management, potassium replacement, and guidelines and management for when the anion gap closes.	are consistent with expert opinions and evidence related to treatment of DKA. The guideline provides a visual representation of how to treat and manage DKA. The internal medicine physicians and ICU manager agreed on most aspects of this guideline for use in the development of the DKA Protocol. The aspects agreed upon include the diagnostic criteria, goals of treatment, calculations, portions of the initial care (lab value frequencies were specified and an adjusted sodium level was added which eliminates the need for calculating a corrected sodium level), portions of the management (a different potassium replacement protocol was used and intravenous fluid volumes were specified) and portions of the management for when the anion gap is	

					closed (when to start diet, intravenous and mobility orders, and when to start subcutaneous insulin orders).	
Yealy, D. M., Slesinger, T. L., Rogers, J. J., Huang, D. T., Jones, A. E., Kelly, J.,…Whittle, J. (2015).	None. Expert recommendations for Diabetic Ketoacidosis and hyperosmolar hyperglycemic state in adults.	None identified.	N/A	Immediate potassium replacement is crucial for potassium levels of < 5.3. Specific intravenous potassium replacement recommendations are provided for values < 3.3 and for values between 3.3 and 5.3.	The potassium replacement recommendations were used as a guide for the development of the potassium replacement portion of the DKA Protocol.	IV

Appendix B

DKA Protocol

Diabetic Ketoacidosis Guidelines

Diagnostic DKA Criteria:

- Blood Glucose > 250 mg/dL
- Arterial pH < 7.3
- Serum Bicarbonate < 18 mEq/L
- Anion Gap > 12
- Ketonuria and/or ketonemia

Goals of Treatment:

- Replace volume deficit – End stage renal disease may not require volume and K· repletion
- Correct ketoacidosis with insulin infusion
- Replenish electrolyte deficiency
- Replenish free water deficits
- Avoid hypoglycemia
- Ascertain the condition that provoked DKA
- Remedy hyperglycemia
- Start SQ insulin treatment before the insulin infusion is discontinued

Calculations:

- Anion Gap = [Na·] – [Cl- + HCO3-]
- Serum Osmolality = 2 x Na· + [Glucose (mg/dL) / 18] + BUN (mg/dL) / 2.8]
- Free Water (FW) Deficit:
    - Female FW Deficit: 0.5 x wt (kg) x [(Na· / 140) -1]
    - Male FW Deficit: 0.6 x wt (kg) x [(Na· / 140) -1]
- Corrected Serum Sodium = Na· mEq/L + (1.6 mEq/L for each 100 mg/dL glucose > 100 mg/dL)

Initial Care:

- Confirm patent airway; Assess for satisfactory ventilation and oxygenation
- Monitor:
    - Continuous cardiac monitoring
    - Urine output
    - Vital signs every hour and prn
    - Orthostatic hypotension
- IV access – at least two sites
    - Bolus with 30 mL/kg 0.9% NSS wide open
- Labs:
    - CMP
    - Phosphate level

  - HA1c
  - CBC w/diff
  - Cardiac enzymes
  - Serum ketones
  - PT/PTT/INR
  - ABGs or Venous blood gases
  - UA
- Ancillary:
  - EKG
  - CXR

DKA Management Order Set:

- Ancillary:
  - VTE prophylaxis:
    - Administer Heparin 5,000 units SQ BID (except when contraindicated)
  - BMP every 4 hours
  - Lytes every 2 hours
  - BG by fingerstick every 1 hour until BG < 250 mg/dL for 3 hours. Then fingerstick every 2 hours
- IV Fluids:
  - Infuse 0.9% NS @ 250 mL/hr as long as corrected Na· is > 140
  - Infuse 0.45% NS @ 250 mL/hr if corrected Na· is < 140
- Potassium Replacement: (excludes end-stage renal patients)
- If potassium is less than 3.1 – hold insulin infusion and infuse 20 mEq of potassium over 1 hour for two doses
  - Recheck potassium when infusion is completed.
  - If potassium is less than 3.1 call the physician for further orders
  - If potassium is 3.1 or greater initiate insulin infusion bolus and drip and address potassium rate per the criteria below:
  - If potassium is 3.1-5.0 add 20 mEq of potassium per liter of IV fluid
  - If potassium is greater than 5.0 - no potassium replacement

- Insulin:
  - 100 units regular insulin in 100 mL NS IV via pump
  - Bolus 0.15 units/kg. Then infuse insulin @ 0.1 units/kg/hr

Glucose Reaches 250 mg/dL

- Once glucose is between 150 – 250 mg/dL, add Dextrose to IVF (D5 ½ or D5NS) @ 150 mL/hr.
- Continue insulin at the same rate to keep glucose between 150 – 200 mg/dL pending resolution of ketosis and anion gap
  - If glucose drops below 150, decrease insulin rate in half.
- Begin an ADA, consistent carbohydrate diet.

Anion Gap less than 12
If tolerating oral feeds:

- Administer SQ long-acting insulin as ordered

- Discontinue insulin infusion 2 hours after initiation of SQ long-acting insulin
- Discontinue IV fluids and lock IVs
- Up OOB, ambulate, and OOB to chair
- Discontinue bloodwork and change fingerstick BGM to ACHS
- Low or moderate insulin meal coverage as ordered

Adapted from the NewYork-Presbyterian Diabetic Ketoacidosis Guidelines (The University Hospital of Columbia and Cornell, n.d.), St. Clair Hospital Adult DKA orders (St. Clair Hospital, 2013), UpToDate Guidelines (Kitabchi, Hirsch, & Emmett, 2015), and the American College of Emergency Physicians Expert Panel on Sepsis (Yealy et al., 2015).

Appendix C

Summary of Primary Research Evidence

Citation	Question or Hypothesis	Theoretical Foundation	Research Design (include tools) and Sample Size	Key Findings	Recommendations/ Implications	Level of Evidence (Oxford CEBM Levels)
Olson-Sitki, K., Kirkbride, G. & Forbes, G. (2015).	The study aimed to identify nursing perceptions of a nurse-led protocol involving urinary catheter removal.	None identified.	A convenience sampling; Nursing satisfaction was measured by descriptive means utilizing a self-developed survey.	When nurses used the protocol, job ease, and patient feedback were reported as higher. Empowerment did not demonstrate a statistical difference but was noted to be increased with the intervention. No significant effect was noted on job satisfaction or physician feedback.	Positive perception of a nurse-driven protocol was noted. Implications for future research include the need to identify initiatives to decrease urinary catheter use and related infection in critically and acutely ill patients.	Level IIIb
Ycaza-Gutierrez, M. C., Wilson, L. & Altman, M. (2015).	The study sought to implement an alcohol and polysubstance withdrawal nurse-led protocol that used both pharmacological and nonpharmacological interventions.	None identified.	No sample noted for nurse survey; Medical ICU staff were assessed. Nurses completed a survey on paper to assess patient withdrawal and associated nurse stress levels, understanding of the protocol, and nursing perceptions of patient care associated with the protocol.	The post survey identified improved nurse understanding of the protocol, a reduction in reported anxiety, and an increase in feelings of confidence, empowerment, and autonomy.	Due to the project's success, the project is being piloted in additional areas within the organization.	Level IV
Segal, G., Karniel, E.,	The study purpose	None identified.	The sample size	No statistical	Implications include	Level IIIb

Mahagna, A., Kaa'dan, F., Levi, Z. & Balik, C. (2013).	was to study the safety and efficiency of a nurse-driven protocol to improve glycemic control.		included twelve nurses. Design: A pre-and post-implementation validated a questionnaire to assess psychological empowerment in the workplace.	significance was noted in empowerment. However, the post-implementation questionnaire identified that the intervention resulted in improvement in the sense of empowerment.	the need for further studies to assess nurse empowerment with different variables.	
Manias, E. & Street, A. (2000).	The study's purpose was to evaluate relationships amongst nurses and involving nurses and physicians, focusing on the relationship power when protocols are used.	Critical ethnography	The sample size included six registered nurses. Design: Data collection included journaling, observations, and focused interviews of the participants. A textual analysis of ethnographic accounts was also used.	The study resulted in noted differences between nurse and physician values on policies and protocols. Nurses reported increased confidence in discussing treatment decisions, feelings of consistency, and responsibility with the use of written guidelines such as protocols.	Implications for future research involve the need for exploration of policies and protocol use in a variety of nursing settings to compare the relationship between nurses and physicians.	Level IV
Plost, G. & Nelson, D. P. (2007).	The study aimed to improve general adherence to evidence-based protocols in an ICU.	None identified.	The study design was a baseline compliance assessment sampling nine protocols in an ICU. An audit tool was used to evaluate protocol compliance with a three-year follow-up audit.	The study revealed an increase in compliance within one month of change. The compliance rates continued to increase at the four-month and three-year follow-up. The study concluded that the use of positive rewards leads to increased protocol compliance and nurse empowerment.	Recommendations include the use of positive rewards to enhance change and improve compliance with protocols and nurse empowerment.	Level IV

Engvall, J. C., Padula, C., Krajewski, A., Rourke, J., McGillivray, C. G., Desroches, S. & Anger, W. (2014).	The original aim of the study was to determine baseline nursing knowledge related to diabetes. The study also sought to evaluate the effectiveness of a module to further nursing education regarding diabetes.	None identified.	The design was a pre-test, intervention, post-test strategy utilizing a convenience sample of 115 nurses. Only 16 nurses completed the post-test related to the educational module. After implementation of the hypoglycemia protocol, 25 nurses completed the post protocol survey.	The results of the pre-test identified that patients were incorrectly treated for hypoglycemia. The findings resulted in the need for the development of a hypoglycemia protocol. The post protocol implementation survey revealed that the majority of nurses felt that the protocol was easy to use and effective in improving patient outcomes. Furthermore, 86% of nurses reported an increase in perceived autonomy in hypoglycemia management.	Implications for future research include the need for additional studies with a larger sample size.	Level IIIb
Rycroft-Malone, J., Fontenia, M., Bick, D. & Seers, K. (2008).	The authors sought to study realistically standardized approaches to care in clinical settings.	None identified.	The sample size included 141 total participants including 54 nurses. The study used realistic evaluation and observation interviews guided by observational identified issues. Key stakeholder interviews were also scheduled to explore participant's perceptions of the	The authors report that standardized methods of care (including protocols) impacted nurses by expanding traditional roles and improving autonomous practice. The extension of roles was viewed positively by nurses reporting greater autonomy and created uniformity of patient care. An improvement of	Additional studies are necessary to realize fully the impact of protocols and standardized approaches and influence on the individual nurse and the nursing profession.	Level IV

			utilization of standardized approaches. Further, the authors used triangulation of data and method.	confidence was also noted.		
Bjurling-Sjoberg, P., Engstrom, G., Lyckner, S. & Rydlo, C. (2012).	The rationale for this study was to investigate nurse's perceptions of the use of critical pathways.	Phenomenographic study.	The sample size included 8 nurses. The design was a qualitative study.	The study identified that emerging themes including a guide to ensuring uniform quality and individualized care, a safety standard for, and a basis of support for confidence in practice.	Additional studies should be conducted to evaluate perspectives of other disciplines, patients, and relatives.	Level IV
Beck, L. & Johnson, C. (2008).	The study aimed to identify nursing perceptions of a nurse-led sedation protocol including an evaluation of the protocol's effectiveness and potential benefits.	None identified.	The sample was one of convenience involving 75 ICU nurses. The design was a descriptive study with the use of a survey.	Statistical significance was not identified in this study. There was no decrease in the score and no reported medication errors during the implementation study period. Staff feedback included reports of improved confidence levels, protocol ease of use, and patient care was improved.	Further studies could include retesting of the hypothesis using a different survey approach (the study used a self-administered approach to data collection which may have resulted in incomplete data).	Level IIIb
Klahaila, R., LIbersky, E., Catz, D., Pomerantsev, E., Bayya, A., Linton, D. M. & Sviri, S. (2011).	The purpose of this research was to assess nursing perceptions and general safety of a nurse-driven insulin protocol aimed at	None identified.	The sample size included 249 patients. The number of nurses surveyed was not identified. The design for the	The research findings indicated that a nurse-led protocol with conservative insulin treatment was safe and effective.	Implications for future research include a more thorough analysis of nursing empowerment and	IIIb

	achieving conservative control of glucose levels.		patient study was prospective with a retrospective control group. The use of descriptive statistics was also utilized.	Additionally, hypoglycemia episodes were decreased with the use of the protocol. The study was inconclusive as to whether a nurse-led protocol will increase empowerment and autonomy noting nurse satisfaction with standardization yet also the potential to increase the nurse workload.	autonomy related to the use of protocols.	

Appendix D

SWOT Analysis

Internal Forces (project)	**External Forces (organization or environment)**
Strengths	*Opportunities*
• The project setting stakeholders have expressed support of the DNP project. • The organization is committed to achieving excellence and meeting the expectations of the community. • The organizational culture reflects a commitment to quality and health improvement. • The culture reflects consideration for nursing education and autonomy.	• Improved nurse autonomy • Improved nurse job satisfaction • A reduction in nurse confusion and frustration • Improved patient outcomes through consistency with treatment approaches and use of a protocol
Weaknesses	*Threats*
• All three physicians will need to be consistent with treatment plans and use of the protocol. • There is some newer ICU staff who may need additional education and support to incorporate increased nurse autonomy	• The possibility of physician inconsistency with use keeping in consideration prior inconsistencies with treatment approaches. • The potential for staff resistance to change.

Appendix E

Educational Offering:

OBJECTIVES	**CONTENT (Topics)**	**TEACHING METHODS**	**TIMEFRAME**	**EVALUATION METHOD**
At the completion of the education the learner will be able to:	In order for the patient meet the criteria for the DKA protocol the patient will have met the following criteria:	Description of teaching methods:	Time devoted to each objective:	Objectives will be measured by:
1. Identify diagnostic criteria for use of the DKA protocol.	<u>Diagnostic Criteria</u>	The teaching method is a narrative PowerPoint and verbal lecture presentation.	3 minutes	• quiz question # 1.
2. Describe the DKA goals of treatment.	<u>DKA Goals of treatment:</u>	The teaching method is a narrative PowerPoint and verbal lecture presentation.	3 minutes	• quiz question #2.
3. Perform DKA calculations.	<u>Calculations:</u> • Anion Gap • Serum Osmolality • Free Water Deficit • Corrected Serum Sodium	The teaching method is a narrative PowerPoint and verbal lecture presentation.	5 minutes	• quiz questions # 3, 4, 5, & 6

4. Describe the components of DKA initial care.	<u>Components of Initial Care:</u> • Airway • Monitoring • IV access • Labs • Ancillary	The teaching method is a narrative PowerPoint and verbal lecture presentation.	7 minutes	• quiz question #7.
5. Explain the DKA Management Order Set.	<u>Management Order Set:</u> • Ancillary • IV Fluids • Potassium Replacement • Insulin	The teaching method is a narrative PowerPoint and verbal lecture presentation.	7 minutes	• quiz questions # 5, 6, & 8
6. Analyze patient data to determine appropriate treatment approach.	<u>Analysis of data:</u> • When glucose reaches 250 mg/dL • When Anion Gap reaches less than 12	The teaching method is a narrative PowerPoint and verbal lecture presentation.	5 minutes	• quiz questions #9 & 10

Total time for presentation: 30 minutes

An educational PowerPoint presentation has been developed for staff education. This PowerPoint is available per request. The following post-education quiz was developed to evaluate learning:

DKA Protocol Education Quiz:

10 Questions. This quiz will be used to gauge understanding of the material.

1. The intensive care (ICU) nurse is caring for two patients. Which patient's and diagnostic test results meet the diabetic ketoacidosis (DKA) guidelines for DKA protocol treatment?
    a. Client A: Blood glucose 500 mg/dL; arterial pH 7.4; HCO3 19; Anion gap 9; absence of ketonuria
    b. Client B: Blood glucose 350 mg/dL; arterial pH 7.29; HCO3 15; Anion gap 13; positive ketonuria.

2. According to the DKA protocol, which goals are appropriate goals of treatment? (***Select all that apply.***)
    a. Correct ketoacidosis with continuous insulin.
    b. Replace free water deficits.
    c. Determine inciting condition for the DKA.
    d. Correct hypoglycemia.
    e. Start appropriate SQ insulin treatment after the insulin drip has been discontinued.

3. Determine the anion gap for a patient with the following diagnostic results: pH 7.30; Na· 135; K· 3.2; Cl- 94; HCO3 15; glucose 299 mg/dL.
   Anion gap = 26___

4. Determine the anion gap for a patient with the following diagnostic results: pH 7.25; Na· 129; K· 4.0; Cl- 101; HCO3 17; glucose 675 mg/dL.
   Anion gap = 11___

5. Determine the corrected serum sodium level and appropriate intravenous (IV) fluid for a patient with the following diagnostic results: Na· 135 mEq/L and blood glucose 524 mg/dL.
   Corrected sodium = 141.4

   Type of IV fluid = 0.45% NS

6. Determine the corrected serum sodium level and appropriate type of IV fluid for a patient with the following diagnostic results: Na· 129 mEq/L and blood glucose 225 mg/dL.
   Corrected sodium = 130.6

   Type of IV fluid = 0.9% NSS

7. Describe what the nurse will monitor during the initial care of a patient being treated with the DKA protocol:
    a. Continuous cardiac monitoring
    b. Urine output
    c. Vital signs every hour and prn
    d. Orthostatic hypotension

8. The nurse is caring for a patient who is ordered the DKA protocol describe the IV fluids, potassium replacement, and insulin infusion rate for this patient with the following weight and diagnostic results: 190 lbs.; Na· 131; Cl- 101; K· 3.2; Glucose 491.
   IV fluids: 0.9% NSS @ 250 mL/hr

   Potassium replacement: Initiate insulin bolus and drip and add 20 mEq of potassium per liter of fluid

   Insulin infusion rate = 8.6 units/hr

9. Describe the type and rate IV fluid administration and rate of insulin infusion rate for the patient described in question #8 when the glucose level reaches 140 mg/dL.
   IV fluids: D5 ½ or D5NS @ 150 mL/hr

   Insulin infusion: 4.3 units/hr

10. Describe the treatment plan for the patient who anion gap has decreased from 24 to 12 and who now has a blood glucose result of 150 mg/dL. The patient is tolerating an 1800 calorie ADA carb consistent diet.

- Insulin (describe SQ administration, insulin drip, and insulin scale coverage): Administer SQ long-acting insulin as ordered. Start SQ insulin treatment before the insulin infusion is discontinued; Low or moderate insulin meal coverage as ordered.
  IV fluids: Discontinue and lock IVs

  Blood glucose measurement: Discontinue blood work and change fingerstick BGM to ACHS

Total time for evaluation: 20 minutes

Appendix F

Project Schedule

	NR702								NR705								NR707								NR709						
Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Meet with faculty & preceptor		X							X								X								X						
Prepare project proposal	X	X	X	X	X																										
IRB Proposal									X	X																					
Pre-Protocol Survey											X	X																			

	NR702								NR705								NR707								NR709						
Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Distribution																															
Protocol Staff Education Presentation												X	X																		
Protocol Implementation																				X	X	X	X	X							
Audit of Protocol Use																				X		X		X							
Post-																							X	X							

	NR702								NR705								NR707								NR709						
Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Protocol Survey Distrubution																															
Final Paper																													X		
Final Presentation																															X

Appendix G

Evaluation Tool

Dempster Practice Behaviors Scale:

Questions are assessed on a 5-Point Likert Scale with options of (a) not at all true, (b) slightly true, (c) moderately true, (d) very true, and (e) extremely true.

Reverse scoring is required for items: 8, 13, 17, 26, & 28. The range of scoring is 30 – 150.

Theoretical subscales:

- Readiness: 2, 4, 6, 7, 11, 12, 20, 21, 22, 27, 29
- Empowerment: 8, 13, 15, 17, 24, 26, 28
- Actualization: 1, 3, 9, 10, 14, 16, 18, 25, 30
- Valuation: 5, 19, 23

Scale:

In my practice I…

1. take responsibility and am accountable for my actions.
2. have developed the image of myself as an independent professional.
3. base my actions on the full scope of my knowledge and ability
4. self-determine my role and activities.
5. derive satisfaction from what I do.
6. take control over my environment and situations I confront.
7. am valued for my independent actions
8. am constrained by bureaucratic limitations.
9. provide quality services through my actions.
10. am confident in my abilities to perform my role independently.
11. have been professionally socialized to take independent action.
12. function with the authority to do what I know should be done.
13. have too many routine tasks to exercise independent action.
14. have a sense of professionalism.
15. have the rights and privileges I deserve.
16. have the professional experience needed for independent action.
17. am restrained in what I can do because I am powerless.
18. collaborate with others outside my field when I feel there is a need.
19. derive feelings of self-respect and esteem from what I do.
20. make my own decisions related to what I do.
21. possess ownership of my practice; that is, my role belong to me.

22. have the power to influence decisions and actions of others.
23. have a sense of self-achievement.
24. am provided with a legal basis for independent functioning.
25. demonstrate mastery of skills essential for freedom of action.
26. have my activities and actions programmed by others.
27. have the respect of those in other disciplines.
28. cannot optimally function because I do not have legal status.
29. establish the parameters and limits of my practice activities.
30. accept the consequences for the choices I make.

(Dempster, 2010)