

Staff Nurse Facilitators and Barriers for Diabetes Practice Guidelines

DNP Final Project

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Staff Nurse Facilitators and barriers for Diabetes Practice Guidelines

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Abstract

Introduction: The management of diabetes and achievement of blood glucose goals for hospitalized patients is complex due to numerous variables. National guidelines with an intra-professional approach have been developed and include blood glucose goals as well as the use of scheduled basal and pre-meal insulin dosing (Umpierrez, et al., 2012). At Grant Medical Center (GMC), protocols have been developed and implemented to incorporate the national guidelines with the leadership of an intra-professional diabetes care committee.

Methods: This project used a focus group discussion format to assess nurse perceptions of the national guidelines as well as to identify facilitators and barriers for implementation of the guidelines.

Results: The overarching areas of facilitators and barriers each included categories of nurse factors, patient factors, prescriber factors, treatment factors and DM meal factors. Nurses shared that staff education, the availability of diabetes educators and pre-printed orders facilitated guideline use; while, the on demand meal process, dietary non-adherence and variations in prescriber practices were barriers to guideline use.

Conclusions: There are gaps in the implementation of national guidelines for hospitalized persons with diabetes. Overcoming the barriers and cultivating the facilitators can improve care processes and patient outcomes. This project identified areas of opportunity for additional staff and patient education as well as processes that can be improved, e.g., the on demand meal process and the pre-printed order sets.

Chapter One: Nature of Project

There are many reasons persons with Type 2 diabetes require hospitalization. The diabetes can be a primary reason for hospitalization or can complicate the primary reason for hospitalization. In all cases the presence of diabetes creates challenges for the clinicians providing care. The purpose of this project is to identify what bedside staff nurses at one hospital setting perceive as facilitators and barriers to the implementation of guidelines for the management of hyperglycemia (including diabetes patients) in hospitalized non-critical care patients. For this project, facilitators are any factors that contribute to adherence to published national diabetes guidelines and a barrier is defined as any factor that inhibits the nurse from following the guidelines (Abrahamson, 2012). The setting for this project will be a 500 bed inner city level I trauma center facility. A maximum of 50 nurses will complete a biographical questionnaire and participate in a one hour focus group to discuss what they view as facilitators (positives) and barriers (obstacles) to the implementation of nationally recommended diabetes/hyperglycemia management guidelines. Themes for the facilitators and barriers will be developed based on nurse participant feedback.

Significance to Nursing and Consistency with Doctor of Nursing Practice Essentials

The Doctor of Nursing Practice (DNP) essentials provide the foundation and principles for competencies of DNP students (Chism, 2013). Furthermore, the DNP essentials are intended to guide the education of advanced practice nurses to provide the highest level of nursing practice which is based on science, research, clinical experience and the patient's perspective (Zaccagnini & White, 2011). This project incorporates the DNP essentials: II, organizational and systems leadership for quality improvement and systems thinking; III: clinical scholarship and evidenced based practice; and VIII, advanced nursing practice ("American Association of

Colleges of Nursing," October, 2006). One of the goals for the DNP prepared nurse is to lead and guide the implementation of evidence-based practice (Zaccagnini & White, 2011).

Evidenced based practice data from meta-analyses, randomized clinical control studies and other studies should guide the practice of nursing (Melnyk & Fineout-Overholt, 2011). For this project, evidence is published to support and guide the management of hospitalized diabetes patients and provides the guidance for nursing care (Umpierrez, et al., 2012). The nursing care recommended in the guidelines is intended to improve patient care and outcomes in diabetic patients (Umpierrez, et al., 2012). The DNP candidate promotes advanced practice through influencing care and providing leadership for diabetes care at GMC.

Project Objective

The PICOT question that guided this project was: What are the facilitators and barriers identified by staff nurses at Grant Medical Center for the implementation of diabetes mellitus practice guidelines?

Chapter 2: Literature Review

Framework

The Iowa Model of Evidenced-Based Practice to promote quality care provides the methodology and framework for this project (Appendix A). The Iowa model provides guidance to nurses and other healthcare providers for clinical decision making to improve patient outcomes (Titler, et al., 2001).

The component of the model for this project is monitoring and analyzing the structure, process, and outcome regarding implementation of the guidelines into practice (Titler, et al., 2001). A national guideline for the management of hyperglycemia for non-critically ill hospitalized patients was the knowledge trigger for this project (Umpierrez, et al., 2012). This guideline incorporates a multidisciplinary approach and nursing activities with the aim of providing evidenced based care. The implementation of evidenced-based practice guidelines for managing hyperglycemia, including patients with diabetes was seen as a priority for the hospital, Grant Medical Center (GMC). An interprofessional diabetes care committee was formed, the diabetes guidelines were piloted on one nursing unit and the decision to implement them hospital wide was recommended. This project incorporates the component of the Iowa model which addresses instituting a change in practice based on evidence and the subsequent monitoring of staff to evaluate knowledge of care and quality of care (Titler, et al., 2001). An assessment of staff nurse perceptions was conducted to determine ways to improve guideline utilization and ultimately improve patient outcomes. The findings as described in the Iowa model are intended to provide insights and opportunities regarding the implementation of evidenced-based practice of guidelines for management of diabetes in the in-patient setting and subsequently contribute to improved quality of care and improved patient outcomes (Titler, et al., 2001).

Diabetes Mellitus (DM)

Diabetes mellitus is a chronic health disease affecting 18 million Americans (CDC Diabetes, 2012). The presence of diabetes related co-morbidities including hypertension, atherosclerosis, peripheral vascular disease and renal disease contribute to the need for repeated hospitalizations for many diabetics; furthermore, individuals with diabetes account for 30% of all hospitalized patients (Draznin, Gilden, Golden, & Inzucchi, 2013). The stress of illness can contribute to hyperglycemia; and severe hyperglycemia or episodes of hypoglycemia can contribute to an increased length of stay, increased health care costs and poor patient outcomes (Deno & Schaper, 2011). The management of diabetes is complex; however, the United Kingdom prospective diabetes study with type 2 diabetics a landmark trial demonstrated improved patient outcomes when glycemic control is achieved and maintained (UKPDS Study Group, 1998). Studies that examined the effect of tight blood glucose control in the non-critically ill hospitalized patient population also demonstrated a decrease in infection rates and no increased incidence of death or myocardial infarction or stroke (Murad, et al., 2012). In addition, the achievement of “glycemic control results in lower rates of hospital complications in general medicine and surgery patients” (Umpierrez, et al., 2012, p. 16.)

Self-Management in DM

Patients with diabetes must be actively engaged in self-management and self-monitoring activities; however, during an illness and hospitalization these activities can be disrupted. The hospitalized diabetic must give up some of their autonomy and rely on others to manage their diabetes. Additionally, individuals may have fears about taking insulin and experiencing hypoglycemia and may not fully comprehend the diabetes treatment plan. Also, persons with

diabetes are at risk for depression and psychosocial issues which can affect glycemic control for the hospitalized patient (Rubin, Peyrot, & Siminerio, 2006).

It is important to include family members in the diabetes treatment plan so that they can be knowledgeable and supportive in the diabetes management process (White, et al., 2009).

Family members and visitors must be educated about bringing in foods and snacks to hospitalized diabetics as these can be contributing factors of poor glycemic control.

Guidelines for Inpatient Management of Hyperglycemia

Health care providers need to be actively engaged with their patients to successfully manage diabetes and achieve treatment goals. Good diabetes management requires significant time, knowledge and commitment to assist patients to achieve glycemic control (Munoz, et al., 2012). Many clinicians have been trained to use sliding scale insulin coverage to manage glucose levels; however, evidence suggests that a basal and prandial dosing schedule is preferred to achieve good glycemic control (Draznin, et al., 2013; Munoz, et al., 2012; Umpierrez, et al., 2012). In addition, some clinicians are reluctant to initiate or administer insulin because of their perceived increased risk of hypoglycemia (Hauber, Mohamed, Johnson, & Falvey, 2009).

Blood glucose levels during hospitalization have revealed that 40-67% of patients experience hyperglycemia (blood glucose above 180 mg/dl) (Solis, Hurtado, Demangel, & Soto, 2012; Torres-Torres, Maldonado-Rodriguez, Perez-Lopez, Sierra-Martinez, & Garcia, 2011). At Grant Medical Center, seventy five percent of patients that have bedside glucose monitoring orders have blood glucose levels above 200 mg/dl during hospitalization. Hyperglycemia above 300mg/dl and hypoglycemia below 70mg/dl in the non-critical care adult are known to contribute to increased length of stay and cost (Solis, Hurtado, Demangel, & Soto, 2012).

Guidelines for the management of non-critically ill hospitalized persons with hyperglycemia (including diabetes and non-diabetes related hyperglycemia) were developed to provide recommendations for these patients and include both medical and nursing interventions that are intended to improve patient outcomes (Umpierrez, et al., 2012). The goal for blood glucose levels during hospitalization is a range of 100mg/dl- 200mg/dl (Umpierrez, et al., 2012, p. 22). The range of 100-200mg/dl was chosen to avoid hypoglycemia reactions as well as to avoid severe hyperglycemia.

One of the major components of these guidelines is the recommendation of basal and bolus insulin management for all hospitalized patients which has demonstrated better glycemetic control than sliding scale insulin coverage (Umpierrez, Smiley, et al., 2007 & Deno & Schaper, 2011). The basal-bolus regimen more closely mimics normal pancreatic function and doses can be titrated to meet the changing needs of the hospitalized patient without increasing the risk of severe hyperglycemia or hypoglycemia (Umpierrez et al., 2012; Deno & Schaper 2011).

The guidelines for hyperglycemia management include nursing interventions that are intended to provide comprehensive diabetes care and therefore improve patient outcomes (Inzucchi et al., 2012; Umpierrez, et al., 2012). Key components for nursing care include: 1. administering basal/bolus insulin as prescribed, 2. monitoring patients' response to treatment, 3. performing and evaluating bedside blood glucose monitoring, 4. assuring meals and snacks are properly timed with bolus/pre-meal insulin doses, and 5. providing patient and family education (Umpierrez, et al., 2012).

Barriers to Diabetes Guidelines Adherence

There are many reasons that diabetes guidelines are not followed and glycemetic control is not achieved. Glycemetic control can be difficult to achieve and is influenced by health care

provider's knowledge, training and beliefs (Daly, et al., 2009). At times there is reluctance for prescribers to use insulin because it is time-consuming and there is a greater risk of hypoglycemia (Hauber, et al., 2009). In addition, nursing or prescriber lack of knowledge or understanding contributes to inappropriate holding of insulin and subsequent persistent or more severe hyperglycemia (Daly, et al., 2009). Hospitalization itself also disrupts normal routines; and, illness, infections, and some medications can negatively impact glycemic control adding to the complexity of patient management (Draznin, et al., 2013). Furthermore, the diabetes attitudes, wishes and needs study revealed that patient psychosocial issues and financial barriers as well as the poorly equipped health care system in the United States are barriers to achieving glycemic control (Peyrot, et al., 2006).

Clinical practice guidelines are intended to help clinicians incorporate knowledge and research into practice (Abrahamson, 2012). Internal factors include the nurse/health care providers' knowledge of guidelines, attitudes and self-motivation while external factors include the work environment, awareness of the guidelines, organizational priorities and management objectives (Abrahamson, 2012). These internal and external factors can either facilitate adoption of guidelines or they can be barriers to guideline adoption (Abrahamson, 2012). Patients and providers may not accept the guidelines and may resist or delay the use of insulin (Nam, Chesla, Stotts, Kroon, & Janson, 2011). Nam, et al., (2011) reviewed 80 studies and identified multiple barriers for diabetes management including inadequate interventions by healthcare providers and poor self-management by patients. Nam, et al., (2011) recommended that staff education, more time, and the availability of diabetes resources, direct feedback and the provision of incentives could improve the use of evidenced-based practice in the diabetic patient population and subsequently result in improved glycemic control.

Chapter 3: Project Design

This was an evidenced based practice project that utilized focus groups with bedside staff nurses. The project setting was Grant Medical Center, (GMC) a 600 bed inner city facility with a level I trauma center. Focus group discussions were used to collect information from staff nurses regarding their views, beliefs, knowledge and application of diabetes guidelines/protocols, in relation to identifying facilitators and barriers to the use of evidence-based guidelines. The focus groups provided a venue to interact with others and an opportunity to hear their peers' viewpoints as opposed to a personal one on one interview (Krueger & Casey, 2009). The setting for the focus groups were conference rooms on various medical surgical patient care units. The focus group sessions were conducted over a three week period on different days and times that correlated with participant availability. Registered nurses that agreed to participate attended one focus group session.

IRB Approval

The project was reviewed and approved by the Institutional Review Boards (IRB) at both The Ohio State University and Ohio Health through an expedited review process to conduct this project.

Participant Inclusion and Exclusion

Inclusion Criteria

The target audience for this project was bedside nurses from inpatient medical /surgical non-critical care units. Participants in this project were registered nurses on a medical/surgical unit at GMC.

Exclusion Criteria

Critical care nurses, operating room surgical nurses and emergency department nurses did not participate in this project because the diabetes management for those patient types may not reflect the guidelines for the management of the non-critically ill patient.

Participant Recruitment

Staff nurses were informed of the project in a number of ways. First, the project proposal was presented to nursing directors and managers at a weekly meeting on January 30, 2014. An invitation letter in the form of an e-mail was sent to each potential registered nurse that met the inclusion criteria. Additionally, nurse managers on medical/surgical units announced and discussed the project at their monthly staff meetings to assist with nurse recruitment. The invitation letter was also posted on each unit's communication boards. The recruitment letter explained how to participate in the project; it also included the project expectations and details regarding informed consent and focus group participation. The sample size goal was a maximum of 50 participants and 43 nurses participated. When participants agreed to take part in the project and attend a focus group, they were asked to maintain confidentiality regarding the content and were requested to not discuss the focus group session with other staff nurses. Twelve focus groups were conducted with 2-7 RN participants in each group.

Procedures

The DNP candidate was the data collector and moderator of the focus groups for this project. Participants were asked to complete a biographical questionnaire which included: age, gender, type/years of nursing education completed, number of years/months as an RN, and an affirmation that they worked on a medical/surgical unit at GMC. The biographical data from the focus group participants was used to collect summary descriptive information to describe the

aggregate characteristics of the participants. The following questions were addressed during the focus group script (Appendix B). 1. What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization? 2. How do these guidelines influence your care of persons with diabetes? 3. What do you see as the facilitators for implementation of the diabetes guidelines? 4. What do you see as the barriers to implementation of the diabetes guidelines? At the end of each focus group, the DNP candidate provided a summary of the discussion and invited participants to share any additional information regarding the guidelines or overall management of diabetes. In addition, participants were advised that they could contact the DNP candidate/moderator at any time to add additional information. The focus group discussions were audio tape recorded and transcribed by a professional transcriptionist. After all focus group discussions, the dialogue was analyzed and the data were assigned to thematic categories and evaluated for similar and or unique perspectives from participants (Krueger & Casey, 2009). The overarching areas of facilitators and barriers each included categories of nurse factors, patient factors, prescriber factors, treatment factors and DM meal factors. The DNP candidate recorded notes during each focus group and provided a summary of all comments to the focus group participants once the discussion of the script/questions was completed. The focus groups were considered an open forum for discussion and an interactive format was encouraged (Kennedy, Harbison, Mahoney, Jarvis, & Veitch, 2011).

Recruitment

Staff nurses were informed of the reasons for this project and the importance of their participation to provide their opinions and feedback regarding the guidelines for diabetes/hyperglycemia management for patients cared for on medical/surgical units. Nurses

were encouraged to participate as a way to promote their professionalism. In order to facilitate participation, focus groups were conducted in close proximity to patient care areas in a private conference room setting. The DNP candidate worked with nurse managers and staff to establish dates and times for interested staff nurses to participate. Some nurses responded to the e-mail announcement and were individually contacted to arrange a date and time for their participation. Participants were asked to complete informed consent forms from both The Ohio State University and Ohio Health. Forty three medical/surgical registered nurses participated in the focus groups. Thirty one participants had greater than two years of nursing experience and four participants had over 23 years of nursing experience. There were eight males and 35 females; 25 participants were aged 22-35 and 18 were ages 36-60. Twenty nine participants were educated at the Bachelor of Science level with three of them achieving a masters in nursing science. The remaining fourteen participants completed a two or three year RN education program (see appendix).

Thematic Discovery and Description

Thematic discovery and description for the focus groups incorporated a classic strategy to identify themes and summarize results into categories (Krueger & Casey, 2009). The analytical approach was the collection and evaluation of key concepts regarding the implementation of guidelines for a specific patient population (Krueger & Casey, 2009). The data from each focus group was transcribed and reviewed for common themes. A scissor and sort technique was used to analyze each question and to identify common themes and responses from participants. In addition, with the consultation of the faculty advisor, the data was further coded and sorted into categories to refine interpretation of the data. Data for nurse perceptions of the guidelines was classified into positive and negative attributes. Data for the facilitators and barriers for guideline

implementation were classified into five categories: nurse factors, patient factors, prescriber factors, treatment factors and diabetes meal factors.

Chapter Four: Findings

Results

Demographics

The sample included 43 RNs. A total of 12 focus groups were conducted in February 2014. See table 1 for demographic information.

Table 1: Description of the Participants (N=43)

	N	%
Gender		
Male	8	(18.6%)
Female	35	(81.4%)
Mean Age by range		
22-35	25	(58.1%)
36-60	18	(41.9%)
Education		
AD	11	(25.5%)
BSN	27	(62.7%)
MSN	3	(6.9%)
Other RN	2	(4.6%)
Experience (years)		
Less than 2 years	13	(30.2%)
2-4.9 years	11	(25.5%)
5-11.9 years	6	(13.9%)
12-22.9 years	9	(20.9%)
23 + years	4	(9.3%)

AD=Associate's Degree; BSN=Bachelors of Science in Nursing; MSN=Masters of Science in Nursing; RN=Registered Nurse

Focus Groups

The focus group sessions were conducted 12 times. Four of the groups had only 2 participants due to the unavailability of scheduled participants that were unable to attend due to their patient assignment, not meeting the inclusion criteria (e.g. nurse manager) or other

unknown factors. Four groups had 3 participants, two group had 4 or 5 participants and two groups had 7 participants. See table 2 for focus group detail of participation.

Table 2: Focus Group Participation (N=43)

Focus Group	N	(Overall participant %)
1	2	(4.6%)
2	7	(16.3%)
3	3	(7%)
4	2	(4.6%)
5	2	(4.6%)
6	2	(4.6%)
7	4	(9.3%)
8	7	(16.3%)
9	3	(7%)
10	5	(11.7%)
11	3	(7%)
12	3	(7%)

Each individual in the focus group was provided the opportunity to respond to the questions. There were 4 questions during the focus groups and each question/responses were compared between the groups (see appendix for complete summary).

Question 1

The first question asked participants for their view of the national guidelines for diabetes. During the focus groups, nurses commented tha8A: the national guidelines provide standards for providers to manage diabetes for hospitalized patients and are based on evidence and studies. Participants included that the guidelines include components of insulin treatment, diet recommendations and patient/staff education. During the focus groups, nurses commented tha8A: the national guidelines provide standards for providers to manage diabetes for hospitalized patients and are based on evidence and studies. Participants included that the

guidelines include components of insulin treatment, diet recommendations and patient/staff education.

Question 2

The second question was a follow-up to inquire: What is your perception of the national for diabetes management that recommends insulin treatment for all persons with diabetes during hospitalization? The responses to this question were sorted into positive and negative attributes. Positive attributes reported were: the guidelines provided standards to guide nursing care, the guidelines can improve patient outcomes and the pre-printed orders at GMC have facilitated implementation of the guidelines. Negative attributes included: inconsistencies among prescribers, increased nursing time for trying to achieve glycemic control and patient factors such as lack of patient dietary adherence and refusal of their treatment plan during hospitalization.

Question 3

The third question asked: What do you see as the facilitators for these guidelines? Nurses shared that the pre-printed orders, diabetes educators, and nutritionists assisted with implementation of the guidelines. Also, nurses reported less hypoglycemia and less hyperglycemia. Nurses also reported that there had been education regarding the diabetes guidelines which was helpful.

Question 4

The fourth question asked: What do you see as the barriers for these guidelines? Nurses reported that pre-printed orders were not properly or consistently utilized and they were not individualized for patients. Part of the complexity with the pre-printed orders was that many patients admitted to the hospital were being cared for by a hospitalist instead of their primary

care provider. There were many comments about the on demand meal tray process which often made it difficult to adhere to the schedule on the medication administration record, and often times, patients received and ate meals without having their blood glucose assessed or their meal time insulin administered. Likewise, nurses shared that there was an increase in patient education to explain to patients why they needed to be on insulin in the hospital and to educate patients and their families about diabetes. Participants also shared that additional staff nurse education was needed regarding diabetes management and the national guidelines and that there was a steep learning curve for new nurses. Also, two endocrinologists had recently began writing new orders for carbohydrate counting and insulin coverage but education on this had not been provided.

Chapter Five: Discussion, Conclusions, and Implications to Practice

Discussion/Common Themes

The data were categorized into five themes: nurse factors, patient factors, prescriber factors, treatment factors and diabetes meal factors. Some items were identified as both a facilitator and a barrier; for example, the meal tray notification process was a facilitator when the process was followed properly but a barrier if the nurse did not receive proper notifications when diabetes meal trays arrived. In addition, the pre-printed orders were seen as a facilitator when they were properly used; however, they could also contribute as a barrier if not properly completed or individualized.

Facilitator themes

Nurse factors:

Staff education about diabetes and the guidelines

Pre-printed orders include guidelines and decrease workload/re-work to obtain specific orders

Diabetes educators available to assist nurses

On-line resources for patient education

Communication and team work at the level of patient care

Patient factors:

Improved glycemic control

On-demand meal process improves patient satisfaction

Decrease in hypoglycemia at night

Patient education materials/opportunity for patient to improve diabetes knowledge

Outpatient follow-up arrangements

Prescriber factors:

Pre-printed orders follow the guidelines and improve directions for treatment of hypoglycemia/hyperglycemia and NPO management

Protocol for decreasing amount of insulin given at bedtime

Nurse practitioner hired and dedicated to diabetes management

Prescribers supportive/responsive to nurse calls/requests

Treatment factors:

Pre-printed orders provide details and follow the guidelines (basal dosing and pre-meal dosing)

Protocol to not over treat bedtime blood glucose

Hypoglycemia protocol and correction scales incorporated in pre-printed orders

DM Meal tray factors:

Dietary meal notification process

Nutritionists assist with patients/help monitor meals and provide education for patients as needed

Carbohydrate counting included on menu to assist with calculations

Barriers themes

Nurse factors:

Time management/workload

Education needs regarding corrective/sliding scale insulin and basal insulin management/
updated diabetes management and guidelines

Fear of over-treatment with insulin and risk of hypoglycemia

Uncertainty of meal arrival times and carbohydrate coverage with insulin in timely manner

Challenging to maintain blood glucose levels of 100-180mg/dl especially if patients are used to running higher levels at home

Patient factors:

Denial/refusal of diabetic meals and or insulin

Treatment in hospital may differ from treatment at home which can create confusion/anxiety

May leave unit to eat additional food or have food brought from home which affects blood glucose results

Numerous educational needs/individual comprehension

Language barriers

Pre-printed orders may not allow patient input in their diabetes management

Prescriber factors:

Pre-printed orders not properly completed

Pre-printed orders not individualized

Fear of over-treatment with insulin

Inconsistency among prescribers

May not be familiar with the patient and their diabetes management at the time orders are written on admission

Orders are not updated according to patient response

Delay in response to nurse calls for treatment of high or low blood glucose levels

Treatment factors:

Pre-printed orders not followed appropriately

Pre-printed orders contain many details

Pharmacy changes orders to comply with guidelines but may be different from prescriber orders

Delay in treatment if prescriber cannot be reached in timely manner

DM Meal tray factors:

Pre-printed orders do not account for individual eating habits/BMI

No diabetes snacks available on nursing units

On-demand meal process if nurse not notified and patient eats before accucheck/insulin

No process to limit extra food from family

Discussion

There were many barriers and facilitators identified regarding the implementation of diabetes guidelines in the hospital setting. The key facilitators were staff education, pre-printed orders, availability of resources and a decrease in the number of both hypoglycemia and hyperglycemia events. However, there was general confusion among many participants regarding the role of sliding scale insulin coverage (SSIC). Some participants believed that the guidelines recommended SSIC; however the guidelines recommend scheduled basal and pre-meal doses of insulin (Umpierrez, et al., 2012). Corrective insulin, also referred to as SSIC, is only for correcting blood glucose levels not being controlled by the basal/meal time insulin dosing. The on demand meal process at GMC has created issues for obtaining pre-meal blood glucose levels as well as assuring insulin is administered at appropriate times. Many participants admitted to a lack of knowledge about diabetes management and identified lack of staff education as a barrier to implementing the guidelines. There were also, numerous patient issues identified that contributed to barriers in overall diabetes management for the hospitalized diabetes patients. Furthermore, participants identified workload and time issues as barriers to implementing the guidelines. The need for patient education especially to help patients understand why their diabetes regimen was different in the hospital than in the outpatient setting was a repeated concern. In addition, nurses shared that some prescribers have not fully adopted the guidelines and this has created confusion for nurses delivering care at the bedside.

Diabetes management is complex and care must be individualized for every patient. At GMC, pre-printed orders were written with the guidance of a multi-disciplinary committee and education sessions regarding the orders/guidelines were provided to all health care providers including: prescribers, nurses, dietitians and pharmacists. Staff education was provided in group sessions and written information/various handouts about the guidelines were distributed. However, the change in the management of diabetes requires health care providers to adopt a new paradigm and change many of the ways diabetes was managed in the past. To change the paradigm and clinical practice requires time and comprehension of the new guidelines. Furthermore, patient factors play a large role in the management of diabetes and achievement of goal blood glucose levels and outcomes. Numerous factors influence overall diabetes control. During hospitalization, compounding factors for the achievement of blood glucose control include: medications, diet, previous blood glucose/diabetes control as well as the effect of the current illness on the blood glucose levels. Based on the results of these focus groups, additional educational sessions for nurses will be planned and implemented.

Conclusions

There are many factors that influence blood glucose management and diabetes management during hospitalization. The implementation of national guidelines requires a multidisciplinary approach. Staff nurses work on the front line to assure that appropriate patient care is delivered; however, nurses rely on prescriber orders and directions to provide many components of care. Nurses do not have the authority to write or change insulin orders nor do they have the authority to treat hyperglycemia or hypoglycemia without specific written directions. In addition, nurses shared frustrations with both prescribers and patients in regards to management of diabetes. Nurses verbalized that they believed the guidelines were meant for the

“perfect patient” and did not believe some of the goals for blood glucose management were achievable for their patients. However, nurses are responsible for monitoring patients and their responses to insulin treatment. Nurses must advocate for patients and must recognize hyperglycemia, hypoglycemia and complications; furthermore, nurses must contact and obtain directions from prescribers as appropriate. This project has provided insights for the DNP candidate to implement additional educational strategies and to improve the care of patients with diabetes.

Limitations

The registered nurse participants in this project were a self-selected group of nurses who may not be generalizable to all medical/surgical staff nurses at GMC. In addition, the data from this project may not be generalizable to other hospitals/centers since data was collected at one location. Another limitation was that some nurses had general misperceptions regarding the content and intent of the national guidelines for diabetes management which include goals for decreasing reliance on sliding scale/corrective insulin dosing and recommend insulin management that more closely mimics the normal pancreas function through utilizing a basal/pre-meal approach to blood glucose management. There was a general lack of knowledge among many of the participants about diabetes; thus, some nurses may not have the confidence to advocate for the patients in some diabetes related situations. In addition, there were limitations involving how prescribers practice and patient non-adherence/lack of knowledge/comprehension of their disease and its management which affected nurse perceptions and actions in regard to diabetes management.

Implications

DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

The DNP is positioned to lead systems change and improve quality of care provided to patients and thus facilitate improved patient care and outcomes. Nurses educated at the doctor of nursing practice level are immersed in the study of evidenced based practice. The DNP is prepared to implement evidenced based practice in a variety of clinical settings. In addition, the DNP prepared nurse is seen as a leader for nurses and other health care providers and is uniquely positioned to provide leadership to improve processes of care and implement guidelines based on scientific studies and evidence.

DNP Essential III: Clinical Scholarship and Analytical Methods for Evidenced-Based Practice

This project incorporated the DNP essential for clinical scholarship and evidenced based practice ("American Association of Colleges of Nursing," 2006). The focus groups provided an opportunity to assess and explore nurses' perceptions and implementation of evidenced based practice for the management of diabetes for hospitalized patients. Despite some of the educational strategies that had been utilized, nurses have not fully embraced and applied the evidence to improve the care of patients with diabetes. The focus group discussions allowed the DNP candidate to identify nurse misunderstandings regarding the role of basal and pre meal scheduled insulin versus the role of sliding scale insulin coverage. In addition, an important role for the DNP prepared nurse is education and evaluation of evidenced based practice and this project will enable the DNP candidate to plan and develop additional educational programs as well as to recommend improve processes for the diabetes guidelines that will benefit patients. A

key role for nurses in implementing these practice guidelines is to serve as a patient advocate and to assure that proper care and patient evaluations regarding their diabetes management are constantly considered as they can have a huge impact on complications (e.g. hypoglycemia events or hyperglycemia events) for the patient, healing and costs associated with their hospitalization.

DNP Essential VIII: Advanced Nursing Practice

The DNP is clinically prepared to work in complex clinical settings and complex environments. In these situations the DNP shares expertise, assessment and evaluation skills to guide the care and improve patient outcomes. Furthermore, the DNP is prepared to integrate and implement evidenced-based practice at the bedside and can provide guidance to staff to use evidence to improve patient care and outcomes ("American Association of Colleges of Nursing," 2006).

Future Steps

The DNP candidate will disseminate the findings from this project and will incorporate strategies to improve facilitators and decrease barriers for incorporating national guidelines for diabetes management. The DNP candidate will lead a multidisciplinary committee for diabetes management and will encourage staff nurse participation in this committee. Through a multidisciplinary approach, committee members will bring their professional perspectives to improve diabetes management and the themes identified for barriers and facilitators will be addressed. A method to provide feedback to providers whose patients have recurrent hyperglycemia or hypoglycemia will be developed in an effort to improve utilization of the guidelines. In addition, the DNP candidate will work with nursing management to develop a diabetes mentoring program which will include a diabetes education workshop for staff nurses that will focus on both basic

and advanced concepts. A key component and priority for nurse education will be clarification that sliding scale insulin coverage is not intended as the key principle of the guidelines.

Likewise, the DNP candidate will propose written patient education information that explains the management of diabetes during hospitalization and the importance of dietary adherence for proper healing. The implementation of diabetes guidelines will be an on-going process and evaluation of the outcomes will be monitored through a hospital wide diabetes scorecard.

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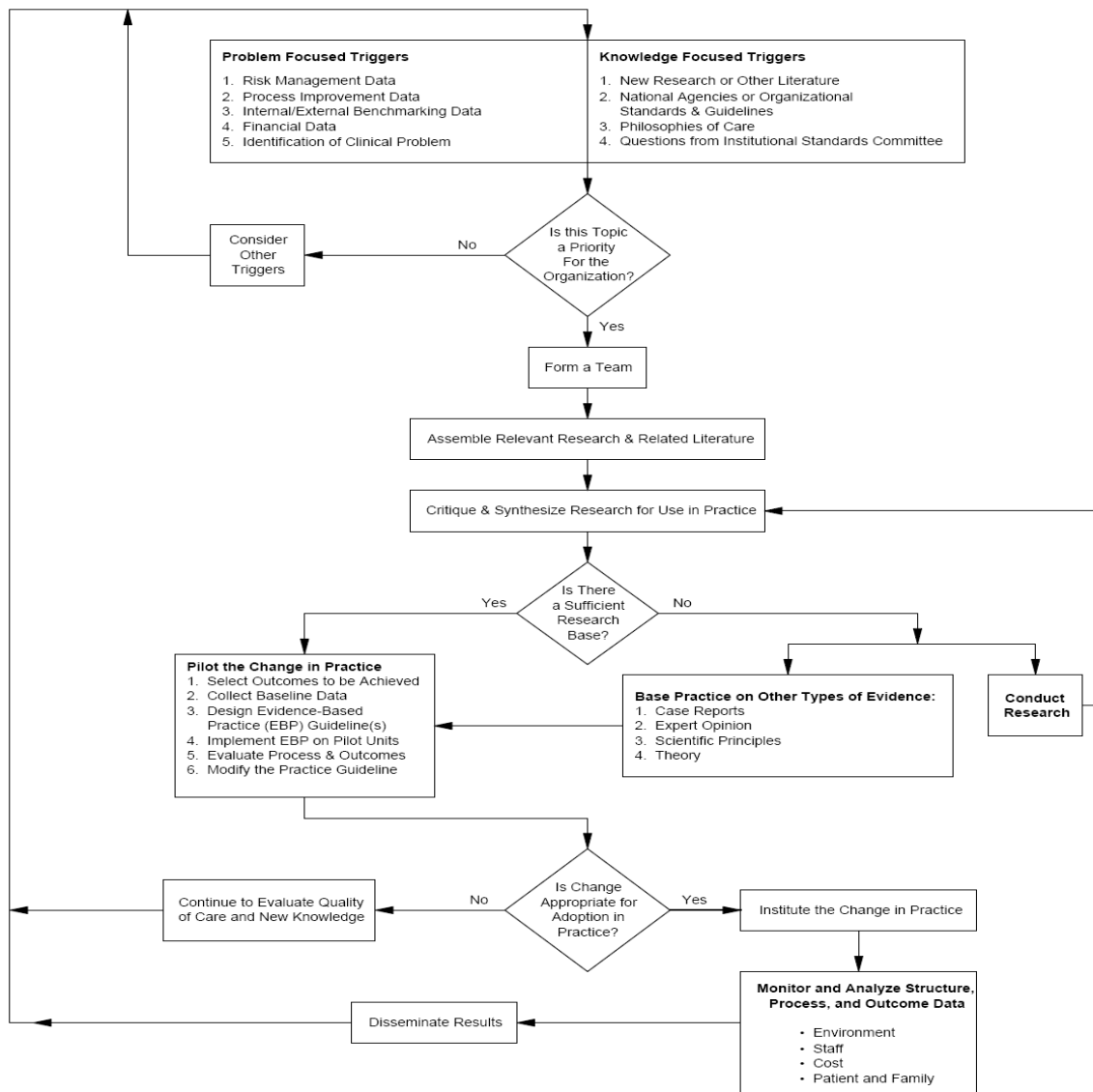
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Appendix A

The Iowa Model of Evidence-Based Practice to Promote Quality Care



◊ = a decision point

Reference

Titler, M.G., Kleiber, C., Steelman, V., Rakel, B., Budreau, G., Everett, L.Q., Buckwalter, K.C., Trapp-Reimer, T., & Goode C. (2001). The Iowa Model of Evidence-Based Practice to Promote Quality Care. *Critical Care Nursing Clinics of North America*, 13(4), 497-509.

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Revised April 1998 © UIHC

Appendix B

Interview Guide

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

Your participation is voluntary and you need to sign the concept form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions? (Answer any questions)

Please sign the concept form. I will collect your signed forms.

During this discussion we will be on a first name basis, however, all names will be deleted and replaced with a pseudo name during transcription. Your comments will remain confidential. I would also like to ask that each of you keeps this discussion confidential. Even though we will keep this information confidential, each of us needs to respect one another's privacy and you should not say anything here that you would not want repeated even inadvertently outside this room.

Each of you has been provided with a copy of the questions for this discussion. A copy of the guidelines is also available. It is important that each of you participates in the discussion. I may limit some discussion or encourage others to speak to assure we stay on time and that I get feedback from everyone.

Opening	Introduce the moderator and obtain consent from participants. Provide hand-out with the interview questions.
Introduction	When you hear the words "national guidelines for the management

	of diabetes patients, what comes to mind? Summarize responses and ask if there are any additional thoughts.
Question 1	What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?
Question 2	How do these guidelines influence your care of persons with diabetes?
Question 3	What do you see as the facilitators for implementation of these guidelines?
Question 4	What do you see as the barriers to implementation of the diabetes guidelines?
Ending	Before I summarize the information discussed, is there any additional information you would like to share about the management of diabetes patients or about the guidelines?
Summary	This is a summary of the information that was provided.
Final	Is there any additional information you would like to add?
Close	Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

Focus Groups

Focus Groups	# participants
Focus Group 1	2
Focus Group 2	7
Focus Group 3	3
Focus Group 4	2
Focus Group 5	2
Focus Group 6	2
Focus Group 7	4
Focus Group 8	7
Focus Group 9	3
Focus Group 10	5
Focus Group 11	3
Focus Group 12	3

Staff nurse facilitators and barriers for diabetes mellitus practice guidelines

Transcription from focus group #1

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded. The recording is on now.

Your participation is voluntary and you need to sign the consent form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions? (Answer any questions)

Please sign the consent form. I will collect your signed forms. Please also complete the professional demographic form.

During this discussion we will be on a first name basis, however, all names will be deleted and replaced with a pseudo name during transcription. Your comments will remain confidential. I would also like to ask that each of you keeps this discussion confidential. Even though we will keep this information confidential, each of us needs to respect one another's privacy and you should not say anything here that you would not want repeated even inadvertently outside this room.

Each of you has been provided with a copy of the questions for this discussion. A copy of the guidelines is also available. It is important that each of you participates in the discussion. I may limit some discussion or encourage others to speak to assure we stay on time and that I get feedback from everyone.

Please complete the consent form and the demographic form and I will collect them.

Moderator: 1st question: When you hear the words National Guidelines for the Management of Diabetes Patients what comes to mind?

1B : For the Question what do I think about when I hear the term National Guidelines for diabetes management to me that just sounds like there is a standard for how all diabetic patients should be treated while they're in a hospital situation.

1A: When I hear that, the first thing that comes to mind is a sliding scale coverage and the diet. What kind of diet the patient is on while they're in the hospital, and how often and what kind of coverage they're gonna get for when we do check the blood sugars before meals.

Moderator: Okay, so to summarize, 1B you said that this is kind of the standard for how all diabetics should be treated. And 1A you brought in the importance of sliding scale insulin coverage and the diet as part of that, any other comments? Okay.

2) What is your perception of the National Guidelines for Diabetes Management that recommends insulin treatment for all patients during hospitalization?

1A: I think it's helpful that when they're on basal insulin your don't get as wild a blood sugar spikes and it seems like the fast acting insulin that we do coverage before meals tends to be low for the ones who are on the basal compared to the ones who are not who have the higher blood sugars before meals.

1B: For the basal insulin, conceptually it makes sense to keep them more even. My concern is that when they come to the hospital their meals are more regimented on a diabetic meal plan, when they're at home they don't necessarily follow that regiment so then having that basal insulin even though the purpose makes sense it doesn't always fit for how the patients routine really is at home so then they may not need the basal, or they may not even need as much insulin as they initially come in with. Just because their diet is managed as a diabetic meal and they don't at home- their sugars aren't as wildly varied when they're in the hospital as they are when they're at home.

Moderator: Have you run into specific issues with that with a patient?

1B: Absolutely. There is a patient that admits, several of my patients are always asked when they come in with double digit basal insulin dosages I always ask them do you follow a diabetic meal plan at home? Most of the time they respond back from my type II diabetics that they do not follow a strict diabetic diet at home, they eat whatever they want and that's how the insulin gets to the level, their basal insulin gets to the level that it is. And they even admit that on occasion that they themselves adjust their basal insulin based on what they find their sugars to be, so they're not even following even how it's prescribed by the physician to do their basal insulin. So then when they get reordered that basal insulin dose here at the hospital at night if they're given that basal insulin they bottom out, almost all the time. Because they're on a diabetic meal plan when they're in the hospital and they can't eat whatever they want, so they don't typically need as much insulin, basal insulin as they've been prescribed at home.

1A: I agree with a lot of what she's saying. Like I know there is a lot of diabetics out there that don't come to the hospital seeing the ones that do come to the hospital come for reason a lot of it being they are all educated, you can talk to them and they can go with what's their insulin coverage, what diabetic is, what kind of lifestyles they are. A lot of times it's that they chose not to follow them. So we do, do a lot of education with them but there is a reason why they're here and a lot of times it's because they're noncompliant.

Moderator: With the hypoglycemia that you're talking about that sometimes happens. The preprinted orders that we have some very clear guidelines as to what to do when a patient has hypoglycemia, and it includes the D50 glucagon and gel. What are your thoughts about those?

1B: The interventions when they get low are great. Interventions to even give them snacks when they're at a certain level and if you catch it early enough that's usually all that you need. All the other interventions that's there, they're fantastic they're appropriate they fit.

Moderator: Thank you.

1A: All of those interventions they have are nice but usually I find that if you give them a snack their blood sugar usually rises in a critical state it's always great to have the gel or even the IV push available in case you really do need it. But I've not found often that I've ever had to actually use those. Usually you know a snack or food is usually enough to bring it back up.

Moderator: How do these guidelines influence your care of persons with diabetes?

1B: I'm always skeptic when I see insulin orders for patients who are type II diabetics and they say they don't follow a diabetic meal plan. If I don't have any previous experience with the patient I'm always more cautious to watch their sugars. Simply because I want to make sure they're on a diabetic meal plan their insulin regimen here is more aggressive than what they need.

1A: My experience is slightly different I don't work days, I work nights here at this hospital we don't cover anything at night that's less than 300 so there's not a lot of worry when they go to bed and I see a 180-200 blood sugar that they're going to bottom out overnight. I do have some concerns when I do give them basal insulin at night and their blood sugar is under 150 I tend to treat those patients, make sure they have a snack, I check on them more frequently for any signs of hypoglycemia. But like the ones who are 200-300+ if they get the basal insulin I'm usually not too concerned with them just because their blood sugar is that high.

Moderator: What do you see as the facilitators for implementation of these guidelines?

1B: The facilitators for implementing the guidelines, I would say the page that has the sliding scale and what they want to have covered is pretty straight forward. All the interventions that I need weather they're high or low it's a complete package.

1A: I'll agree, our order sets are pretty straight forward, they're pretty easy to read you know basically you check blood sugars at this time you check on any signs and symptoms they may have like hyper or hypoglycemia and you cover accordingly.

Moderator: What do you see as barriers to the implementation of these guidelines?

1B: The guidelines or order sets whatever they're being called are based on to me doesn't take into account a person's eating habits, so even if they're on a diabetic meal plan for example if they decide to eat a light lunch not realizing the impact that has on their order set and decide to make up for that come dinner time and then at night there's this tremendous spike in their sugar. The guidelines say follow these steps if they're at this extreme high, except now you're back peddling trying to bring them back down to normal, because their orders work the way they're supposed to work.

1A: There are a couple of barriers I see. The sliding scale does not take into account the patient's size or eating habit. That we treat everyone the same regardless of how sensitive they are to the slide or how much food they are or how big the patient is. Another big barrier is we have no diabetic snacks on the floor, everything we have is juices, simple carbs, simple meals to put together which you know is not the best choices for some of the patients we have up here.

Moderator: Let me just summarize briefly that you feel that the guidelines are pretty straight forward that they're outlined on the order sets and they allow you to follow what we should be doing for the diabetic patients so that's even seen as one of the facilitators, and as barriers you really see they're not individualized as well as they could be. Do you have any additional information you'd like to add?

1B: No.

1A: Only thing I'd like to see occasionally would be with the longer admit patient the physician would create their own sliding scale for the patient after a trend has been established. There have been several occasions that I've given insulin to patients knowing that it's not going to make the blood sugar drop into a decent range. They require more but according to the scale I have it's what I'm supposed to give.

Moderator: Thank you for participating in this focus group discussion and providing your opinions and feedback. Please contact me if you'd like to share any additional information.

1A: I came here from a different hospital. The difference was here we don't cover for anything under 300 at night often, where at (other hospital) we used the same sliding scale regardless if it was before meals and at night. Often times peoples blood sugars would be high and I would have to you know give them a snack and then if that was not enough a lot of my patients I found were bottoming out that I would wake them up sweating I was forcing them to have a snack and actually had to use dextrose IV push several times. I've been here for several months now and I've never once had to wake up a patient to give them a snack or push IV dextrose whereas there I was doing it quite frequently.

1B: To push back on that we initially had that as a problem we would cover even through the night and have to do the adjustment and consistently. Well enough patient you would end up kind of supplementing them doing interventions trying to get their sugars back up so when the new protocol came out we didn't have to cover for sugars that were just under 300 we had less patients that we had to go back and give them dextrose to bring their sugars back up. They weren't bottoming out by the morning time because that piece had been taken out with the new protocol. I think it's really good that we have the protocol because it's now moved us away from treating giving basal insulin at night when they're not going to be actively eating and then them bottoming out in the morning, like having to recover from the hyperglycemia. My nutrition instructor who's a registered dietician said it's easier to get people to change their religion than to change their dietary habit.

Transcription for Second Focus Group Session.

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

Your participation is voluntary and you need to sign the consent form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions? (Answer any questions)

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Moderator: When you hear the words national guidelines for the management of diabetes patients, what comes to mind?

2A: Glycemic control isn't adequately being done within the hospital.

Moderator: Okay, Anyone else?

2B: Guidelines set forth from national standards for treatment of care.

2C: I think there are guidelines as far as things to do such as provide patients with education and perform bedside glucose monitoring with Accucheck before meals and adequately covering them with a sliding scale.

Moderator: Okay, does anyone else have anything to add? To summarize the national guidelines are to have sort of a guide to how we are going to manage a patient while they're in the hospital and we're going to use orders that we have and carry them out so that we can keep the patients from getting out of problems for the most part. How do these guidelines influence your care of persons with diabetes?

2B: I think it's a good thing regarding insulin treatment for all patients with diabetes keeping their blood glucose well controlled because it's an important part of healing and basically an enhancement to healing and speeds healing. Also it gives an opportunity for teaching along the lines of diabetes patient who may not have been compliant it gives them reference to showing them why they need to control their sugars, and gives example to get feedback real time that they are doing compliant with their regiment.

Moderator: Does anyone else have anything to share?

2C: From a patient perspective you have to look at it as some of them if they're on oral hyperglycemia medications, they're going to say no I'm okay I don't want to stick myself with a needle and you're not going to either. I'm here overnight and I'm fine with not managing my diabetes with a sliding scale insulin and subcutaneous shot.

2A: The patients also have the perception that once they start insulin they'll never be able to get back off of it so that's one of the barriers with the patient.

2B: I think that is the #1 barrier for a lot of them. It's the fact that they perceive that their diabetes is getting worse or they're not doing well at controlling it and we have to be able to teach them that were just trying to get a baseline of where they are plus that stressors within the hospital can cause glucose to increase it's just not that you're not compliant with your food, but it's just by the process of being sick or some of the medication your being put on while you're here in the hospital that may cause your blood glucose to spike and basically controlling that is going to be the best for your outcome while you're here at the hospital.

2A: I don't think all the physicians are consistent with how they treat or manage. They're not all on the same page and that makes it a little difficult too.

Moderator: How do these guidelines influence your care of persons with diabetes?

2B: The way it influences me it gives me the guidelines to help me by teaching as far as a way of explaining to the patients why this needs to be done. And the guidelines give me a reference as to how I should go about doing that myself but everything is consistent. Without guidelines it could be very erratic. As 2A spoke earlier about the doctor not being consistent and being as they do write the orders we as nurses have to be very knowledgeable and understanding to be an advocate for our patient. To push these things so that it is more of a consistent thing it's not erratic because that's when we get into trouble. Different things are done for different patients so you won't get the outcomes you want.

Moderator: Thank you. 2D, would you like to add anything to that?

2D: I don't have anything to add to that I think 2B explained it pretty well. I agree with what he said.

Moderator: So the Question is how these guidelines influence your care of persons with diabetes if anybody has anything else just raise your hand.

2E: I think it just increases our opportunities to teach patients.

2F: I think it can help us know what to expect too. If you have 5 diabetic patients hopefully they're all under the same Doctor. Hopefully all are going to be check AC and HS and you'll know what to expect from them.

2G: I think it definitely changes your care because you have to do a lot of diabetic teaching and making sure people are eating. And if they're refusing to eat or don't have an appetite you definitely have to call and see what the doctor wants to do to monitor sugars.

Moderator: Thank you.

2F: The one part I don't like about it is, sometimes with their order sets it just feels like cookie cutter. That maybe one patient could tolerate 6 units of fast acting insulin where the next patient if I give that they're extremely sensitive and plummet, so I don't know. I don't even know what the answer is but it needs to be also slightly individualized on the patient. That's maybe the only negative thing that I see about it.

Moderator: Thank you so the next question is if you think about these guidelines what do you see as the facilitators for implementation of these guidelines, where facilitators are something that can help to use these guidelines in the hospital?

2B: I think part of the facilitator's role is first of all making sure that these guidelines will fit into the everyday nursing, because it won't help anyone if they're so regimented to the point where it just pulls or distracts from resources for other patients. So the facilitator goal is to make sure that the nursing staff is well educated on how this works and helping them to fit this into the everyday life as far as taking care of patients it doesn't become a burden on them as far as their other patients go.

Moderator: Thank you. Would anyone else like to add anything? (NO)

What do you see as the barriers to implementation of these guidelines?

2C: I think 2B mentioned earlier already but one of the barriers that I've seen is the confusion that we get, when they don't use insulin at home why am I on insulin now and am I going to be on it forever now that I'm on it? That's one of the big barriers and gaining their trust in a short amount of time for them to be able to accept our answers as truth.

2A: I think another barrier is a lot of patients like to follow what their family doctor says. They say my family doctor put me on this regimen and this is exactly what I do. I don't want to change it. They're (family doctor) who I trust, and that's a big barrier for us.

2G: I think another barrier is lack of patient education because some people get excited when their blood sugar is 300. When they check it and they think that's a good thing compared to when at home. Cause we do take tighter controls. I think that's part of the issue too, the lack of education. (Patients at home run higher blood sugars and think it is ok if their blood sugar is 300 or higher).

2D: A barrier that I've found is really the compliance with the dietary, people paging us saying their tray is going to arrive so we have that mental preparation that okay I need to make sure I'm there when their tray's about to arrive so I can give the coverage or whatnot.

2B: I think the last barrier probably the one I think about is the fact that the ones who've never been on insulin and now they're getting poked with a needle and a lot of them are not real comfortable with getting stuck with a needle three times a day. I think that a big barrier just getting them to be

comfortable with the fact that you're going to get stuck in addition to actually taking insulin, just taking the blood glucose itself.

2A: I think for the nurses on the floor a time management thing as far as the burden of patients we have to make sure that we actually get Accucheck prior to the meal and getting the insulin in a timely manner. As far as also the education with patients I don't think they really understand how profound an impact not managing blood glucose is on their health. Especially long term, it's just hard to get that across. Their sugar more so than the chronic disease they have to manage is the most important thing.

Moderator: I'm going to summarize and then if you think of anything else you can always add it so basically as facilitators it was sort of discussed that it does fit into everyday nursing and the nursing staff are well educated to implement the guidelines. And barriers were patient confusion, lack of patient education, compliance with some of the processes here at Grant, like the dietary paging. Patients that have never been on insulin it's a barrier they might not want to stay on insulin and the nurse has to really be on top of time management to make sure that the patient is getting the Accucheck appropriately. Is there anything else anybody wanted to add?

Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

Transcription for Third Session.

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

Your participation is voluntary and you need to sign the consent form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions? (Answer any questions)

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confidential. I would also like to ask that each of you keeps this discussion confidential. Even though we will keep this information confidential, each of us needs to respect one another's privacy and you should not say anything here that you would not want repeated even inadvertently outside this room.

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Moderator: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

3A: I definitely think now that I've been working with people with diabetes, actually type II diabetes a lot of them, because at the hospital we tend to stay away from the orals and do insulin which is often new for patients with type II. They don't normally use insulin they usually do their orals so that has been something that I think is important to realize that you might be giving a type II diabetic for 10 years this might be the first time they're getting insulin coverage a lot of education with our guidelines that we use for hypoglycemia in a hospital setting.

Thank you. 3B, can you tell us what you think of when you think of national guidelines managing diabetes?

3B: Me personally, I just think of review, those things in the doctor's orders. I think they're pretty much standard I don't have too many issues with that.

Anything from a nursing prospective that you do?

3B: Educating the patient why we have to deviate from their normal care with diabetes, some patients are better than others that is actually one of our challenges. Some patients are better at adhering to the guidelines than others.

3C: I think it's a standardized universal approach to diabetes kind of like what 3B said. Some are more receptive than others because we have them off their normal routine.

Moderator: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization? So 3A kind of mentioned this in her first answer so do you have any other thoughts about that?

3A: One other thought I have is we're covering patients with subcutaneous insulin at 730, 1130, 430 and occasionally I'll walk into a patients room and see that they're eating maybe a 4th meal between the scheduled times and if we don't have all the staff members on board Dietary technicians sometimes that can get missed. The patient is then eating a meal without having their sugar checked and getting any coverage for insulin. Sometimes the reality of the situation is outside of the three times a day structure that is set up.

3B: It's also hard because when you have five to six patients somebody's going to fall through the cracks. Somebody's going to order a lot more than they're supposed to. The family can bring in food, and of course you get push back they're like I'm on this regimen sometimes you have to explain to them every day before they actually get it.

Moderator: Did you have anything to add 3C?

No

Moderator: How did these guidelines influence your care of diabetes patients?

3A: Patients particularly patients with type I diabetes who have been dealing with it for many more years. They often when I say what our system is and how we do our coverage here it's very different from theirs. I usually take that into consideration because they might have been dealing with this on their own for 35 years or something like that. So sometimes if they're really objecting to what our guidelines indicate for their coverage I will call their doctor and say this 3Bs order says he should be getting 6 units but he says at home he takes 10, is it okay to give him the extra based on his numbers? Because he knows his own body and the way it works with what he eats.

Moderator: Good, Listen to the patient.

3B: What I also do is I kind of acknowledge their concerns, say hey look I realize you're on this but while you're in the hospital because things are a little different our treatments can kind of affect your diabetes medications. The foods that we give you are not the same as what you have outside so there is a reason why we have to implement these guidelines, and these guidelines I would imagine are based off of like research so it's not like they're just throwing these guidelines out there.

Moderator: What do you see as the facilitators for the implementation of these guidelines?

3A: I think a facilitator would be having all the team members on board, including your technician that might be getting the Accucheck we did recently change our Accuchecks from getting them with vital signs to getting them once the patient has placed their food order. Sticking to that regimen has been good. When you have a good dietary group that comes and finds you before they take the tray into the room to make sure their blood sugars been checked to make sure the nurse is available to give coverage if needed. So having the staff on board is a good facilitator for following the guidelines.

Moderator: Thank you.

3B: I think the other thing is I feel like if patients know why things are done a certain way as opposed to going in there and just giving them insulin they would be more compliant.

3C: I usually verbalize I got your blood sugar and it was 236 so I'm going to be giving you six units of insulin to cover that as I'm injecting, it's reinforcing.

Moderator: So here again think of facilitators and the examples about the patients are great, what are facilitators that help you implement the guidelines?

3A: The orders are very clear cut, you know we have very good parameters. You know, you know exactly what to do based on the blood sugar usually if it's greater than 400 it states to call the physician so you know exactly what to do based on once you've obtained your labs.

Moderator: To clarify- that's a facilitator because you've got it written down and it takes the guess work out of it?

3C: Yeah that's very nice all facilities just from a traveler perspective are not like that some of the facilities have you calling with every blood sugar, if it's a different doctor on because one does one thing and you have this type of patient who does not necessarily have good outcome as far as their diabetes management. But (this hospital) I have to say we have an order set that is very clear.

What do you see as the barriers to implementing the guidelines? The Diabetes Guidelines.

3B: some patients are in denial they'll refuse to be on a diabetic diet they just want to eat whatever.

3A: But I think that if they are not willing to change their diet I think having them on a regular diet and treating them the way they would at home is more effective, because I think a barrier is that we completely change some of these peoples diets from eating McDonalds every day, they come here and we have them on these strict carb control. We teach them how to treat their diabetes based on this healthy diet, and they leave the hospital and go back to eating the way they do at home and what we were doing here isn't going to cover them when they get home. So there are some patients that are very motivated and will change their diet and be compliant but there is others like 3B was saying that don't ever want to hear it or change their diet in which case following a strict diet and coverage at the hospital is not going to do them any good once they're released and go back home.

3C: I see that end of it as well, and you're not going to change some people.

3B: it is frustrating when you do control their blood sugars but you know that as soon as they get discharged they're going to go back to whatever they were regimen they were on.

Moderator: Anything else?

3A: just an observation, type I diabetics are much more aware in general of when they're having a hypoglycemic incident than type II's. So I have just through experience learned to listen to the type I's

and just go check your type II's if they are sounding a little off or aren't as alert as they were the last time you were in the room. Hypoglycemia isn't nearly as big of an issue in the hospital setting as I remember it being.

Moderator: Okay. Do you have anything else to add just about the diabetes guidelines in general? Anything you wanted to add?

3B: I like the change how if it's like their blood sugar is greater than 400 then just give them 20-22 units and notify the doctor, whereas before it was like get a lab order then you have to wait for the results and notify the doctor and the patient is not getting coverage and they want to eat so like with the new ones you can I've them their insulin let them eat and see the doctor once

3C: solve the problem

Moderator: So I think I just said this but I'll repeat, before I summarize the information discussed is there any additional information that you would like to share about the management of diabetes patients or about the guidelines?

3A, 3B and 3C: Nope

Moderator: Okay, this is a summary of what we talked about. The insulin only orders often times is being provided to patients that are new and they might have been on orals at home and that kind of presents a challenge and also even though we have a schedule for when to check blood glucose levels our meals don't necessarily follow that schedule and some patients might order a fourth meal so it's really important to have all staff on board and sometimes if you're carrying a case load of five to six patients you really can't keep up on everything. The type I's tend to be knowledgeable about managing their diabetes and you feel comfortable to call the doctors for an order. You think it's very important to listen to the patients and acknowledge their concerns, guidelines are based on research. Facilitators were seen as a team approach. If patients know why things are done a certain way that's a facilitator the orders are clear cut and have good parameters. Some of the barriers were about the patient following their diet. Is there any information that you want to add?

3B, and 3C: Nope.

Moderator: Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

3A wanted to add something?

3A: I've had hypoglycemic patients where you give them one of those little juices and they come up to 200, I've also had hypoglycemic patients where you give them four juices and tons things of crackers with peanut-butter and your still at 70, so I guess that fluctuation between effective treatment and consistency with their response is a barrier.

Transcription for Fourth Session.

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Moderator: When you hear the words national guidelines for the management of diabetes patients, what comes to mind?

4A: I think of the order sets that the physicians fill out the preprinted orders that they can mark the sliding scale and the Lantus.

4B: yeah, I would agree with that

Moderator: Anything else with the guidelines that you think is important that comes to mind?

4A: that the physician has to specify which scale they want they can't just write sliding scale and they can't just write it on an order sheet they need to use the preprinted orders and specify usual, moderate, or aggressive however it's worded. And then they physician has to dose the Lantus it's important to have the correct dose and time

Moderator: How do these guidelines influence your care of persons with diabetes?

4A: Important to make sure the one that transcribes properly there in care manager correctly. And it's our job to administer them as directed.

4B: To notify the doctor if there are any barriers if there is a problem taking their insulin they're refusing their insulin, if their blood sugar is excessively low or high. If we have to do any kind of intervention beyond what's on the preprinted orders.

Moderator: Okay. What is your perception of the national guidelines for diabetes recommended insulin treatment for all patients during hospitalization?

4A: I think a big part of it is for our floor at least we have a lot of patient with vascular disease, due to kidney issues and diabetes. A lot of people with wounds I know that I've read articles that you know the blood sugar is kept adequately controlled it promotes better healing. And I think that that's what I think is a big push behind the national guidelines.

4B: yeah, I would say that it definitely seems like it's the best way to have that tight control during their hospitalization. But on the other side of the coin some of the patients say Oh

well I don't take insulin at home why am I on it here? And so that's kind of a big, sometimes a big barrier for them to overcome.

4A: Yeah, they don't understand that their metformin or glucophage is held here and were giving them the insulin instead. To kind of help have tighter control.

Moderator: How do you handle that?

4A: I just try to explain to them that the physician has it on hold. We check their sugar three times a day. A lot of times they'll say they don't even you know do that much. I just try to explain to them the purpose behind it and a lot of them actually I find are pretty agreeable. They'll be like, well I don't like it, but okay. If I have to while I'm here as long as I don't have to go home on it.

4A: I think that's it. I think the big thing is educating them on a lot of the important things because like 4B said a lot of times their medications are held. It used to be that if a patient said that they don't want their insulin right now it was you know, like a you know we were just being refused and now you have to notify the physician even if their blood sugar is 78 or 70 or something you still have to notify the physician that they refused their meal time insulin, or whatever it is.

Moderator: Anything with that 4A?

4B: I don't think so. I think that mostly we covered it. It is very helpful to have those diabetes educators though. When they get consults in and they come to see the patients it's very helpful to have. Seeing all the patients that we do see we're pretty well versed in diabetes care. They just I feel have so much more insights or information, tips and tricks that they can give the patients for going home

4A: Especially for going home because if they have a lot of questions about pens and meters and all these different things that we don't necessarily work with or see a lot of different types of here at the hospital.

Moderator: What do you see as some of the facilitators for implementing the guidelines?

4B: I think that you know there is, you know when we implemented the new order sets we felt like there was a lot of support for it as far as again notifying the physicians if they're refusing their sliding scale insulin every time. Some of the doctors can be snippy, but most everyone had been educated and more supportive for it.

4A: Yeah, and even the pharmacy now like if the doctor you know writes some sliding scale orders by hand they'll call and say hey we need to have this preprinted order set, he needs to call the doctor and get that, so that's very helpful.

4B: It kind of just takes the burden off of nursing. We're supposed to get notified when a patient orders a meal, since we have room service here, we're supposed to get a page that says patient has ordered their diabetic tray. That way we are aware that the tray is coming and kind of have an idea of when to get in there and give them their insulin.

Moderator: What do you see as the barriers to implementation of the diabetes guidelines?

4A: In a way I you know, that's kind of a, the room services is also a kind of makes it more difficult in a way because some people may order breakfast at 10 am and other people order it at 7am and then your whole medication time is off for the day and showing up as overdue and then I feel as a nurse kind of behind. I wish everybody ate at 8am- noon or some sort of set time to make it easier.

4B: one thing I have noticed is sometimes with this new preprinted order set sometimes it's just hard to, like everything is so kind of bunched together, sometimes I don't know

sometimes pharmacy doesn't catch like certain things and it's a little bit hard to kind of read. Like how its, it's got like three space to write different things and then there's something else right below it that also has three spaces to write different things and it just gets a little busy a little cluttered.

Moderator: So are there any other barriers or facilitators before I summarize?

4B: the only other thing I was going to say is you know that just sometimes there is that education gap with the patients. Maybe they don't use insulin at home and so they have all these questions what does it do how does it work, why do I have to take it at meal time you know they have all these questions so that can just be you know a barrier to their knowledge. Just because it's something they're not used to.

Moderator: I'm going to summarize. You shared a lot of information basically to help with following the national guidelines to the preprinted order sets as being helpful and it has helped us overcome some of the barriers of all patients being placed on insulin, either Lantus or sliding scale are on there and pharmacy helps to enforce that a little bit. There is sometimes a lack of education on the part of the patients and the room service the kind of on-call meal service sometimes interferes with the usual type of timing of medications, that might be a little bit of a barrier sometimes in kind of completing your work. Is there any additional information you would like to add about the guidelines or diabetes management?

4A & 4B: I don't think so

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(After the focus group-participants added more information)

4A: I was just going to say when I think about the national guidelines I think of following the order sets that the doctor writes I don't think about how I how I treat the patients such as really you know I get a page I do my best to get in the room that they're getting a tray. Honestly sometimes they've eaten by the time I get in there this happens. When somebody's blood sugar is less than 70 the orders say to give either the oral gel or IV dextrose if they're unable to take the oral gel to be honest I if they're awake and alert they're probably just going to get some juice and not the oral gel or IV dextrose, but if it's like 40 or less I just kind of use my judgment I go get them some IV Dextrose, when it's less than 50 I just go straight for the IV dextrose.

Moderator: Is there anything else you would like to add?

4A:I try to tell a lot of people about diabetes and educate them but a lot of them will be like, I had a lady today her blood sugar was 78 and she wanted a thing of orange juice, just a cup of orange juice and I said 78 really that's just perfect I don't want you to shoot you're blood sugar up and she said for me 78 is low, so we had a talk about it and she decided not to get any juice and she went ahead and ordered her lunch tray, but there really wasn't a need to get juice. But she doesn't have sugars that low at home she told me, so she's not sure what the difference is.

4B: most patients live in the upper 200s and 300s so when they get into like 150 they start feeling hypoglycemic.

4A: While we're talking something else that's tricky like 400 so when the order says to call the doctor if above 400 and draw a serum glucose. I always was told our meters are accurate to 600 so if the person's blood sugar is 430 I call the doctor but I don't get the serum

glucose because it's an accurate read, I was lead to believe and I don't know anyone who does draw a serum glucose for that honestly. We just call the doctor and they tell us how much insulin they want us to give and I give that. I think that we attempt to gradually decrease their blood sugar like through Lantus and sliding scale it gets adjusted you see it tweaked a little bit each day in the hopes that you can bring their blood sugar down. I have seen that number and I don't see that less than 180 that often here, especially for people with a wound infection and I know like those are the people who need a lower blood sugar. I man in order to promote healing it would be best.

4B: or they're on other medications that will bring their blood sugar up, so that's difficult to control.

Moderator: Thank you again.

Focus Groups session 5-2/7/14

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Moderator: When you hear the words national guidelines for the management of diabetes patients, what comes to mind?

5A: Goals that have been created for the best outcome of our patients.

Moderator: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

5A: I think it's important that they have a national standard because diabetes management plays a vital role in how we manage and treat our illnesses and other illnesses affect diabetes and even patients who are not diabetic but their glucose control related to infection and stress.

5B: This one is important in the hospital setting because the oral agents most typically interfere with the testing that we need to do or some other medications that we need and patients don't understand that so

5A: in addition we have a lot of patients who are NPO and who can't take oral agents and need an alternative. So subcutaneous or IV insulin is a nice option.

Moderator: How do these guideline influence your care of persons with Diabetes?

5B: Well it helps me understand what the guidelines are and where patients should be and what is the norm the standard so that I know when I'm looking at the blood sugar either the finger sticks or the chem. 7 are we close are we out of range do I need to notify the physician if whatever we're doing is not working and I'm making sure that the patient is not getting candy from the family. I have a guide to try and keep BG controlled.

5A: I think they're important for patient and family education because a lot of patients come into the hospital and say well I was never a diabetic, I know this is not why we're treating you, you may leave the hospital and never require another insulin injection but the goals for patient care are to keep your blood sugar close to normal. This is important for wound healing and infection prevention and so on and so forth. So just knowing what the guidelines are not only for your own personal practice but also for education for family and patients.

Moderator: What do you see as the facilitators of the implementation of these guidelines? The facilitators what I mean by that is the factors at Grant that help implement these guidelines?

5A: I think you need administration and physician support and you need your nursing leadership on board to help educate and support the staff to recognize what they need to know and why they're doing what they're doing. The importance of following up and identifying glucose ranges your lows your highs, what to do to treat it and how they can better advocate so if you have a physician and your goals aren't working we need to increase or

change something like frequency and then if we're always low then we need to think about why are we always on the low side. So just really giving them that support in the background.

5B: Yeah I think the educators on the floors help a lot. When you are right out of nursing school you don't have a lot of experience with diabetes if anything you would get a two day little blurb in nursing school about diabetes and that's it. More and more of our patients are diabetics, more and more of our patients are on something for diabetes before they come in here, so during orientation or something there has to be something more. I really think there needs to be a module that we complete like we do for chemo. I've never used chemo a day in my life but I have to do that module every year to know what to do with chemo agents. Why don't we do it with diabetes? What are the Normals, what do these medicines do? It's just a refresher.

5A: What are our guidelines how are they changing? What is the hospitals and basically as educators and support people holding accountable to following protocols and order sets.

Moderator: So are you saying that a facilitator is the educators helping the nurses? Is that a facilitator?

5B: Yes.

5A: I think the facilitator is your educator and your facilitators are the people who are going to help the staff understand and be held accountable.

5B: So it can even go up executive where we're talking about management making sure that the staff is educated not just through your educator on the floor though so through the LMS system getting out those modules making sure that also your ancillary staff your PSAs are

checking it, notifying nurses in a timely fashion. And physicians are educated on what an appropriate order is and what's not. It becomes a multidisciplinary approach.

When you think of what we have at Grant that helped to facilitate these guidelines for people with diabetes can you identify some things because we're going to talk about barriers next so can you identify some things that help us implement the guidelines that already exist?

5A: I think that some of the units actually do education or have done education roundtables about diabetes. Trying to get the nurses on board with why they don't hold insulin and blood sugars and things like that. But as far as like a person or group that does all floors all units I don't know that we have that.

5B: So when we implemented guidelines and there was education from pharmacy, there was education for physician, nursing, and chart audits to make sure that they guidelines were being followed, and if they weren't why. But it was the education on you know yes were giving 15 of Lantus before bed even though this pt. is NPO. Well Why, because some nurses are like no I don't want to do it because they're NPO but there is a reason and don't hold the insulin just because they're not eating they still need coverage and basal.

Moderator: So summarizing some of the facilitators are that we've provided education and administrative support. There is a multidisciplinary approach and moving on to the barriers, what do you see as the barriers of implementing the diabetes guidelines?

5B: The bedside nurses not thinking it's a big deal. Blood sugars don't matter, their blood sugar is 200 its okay. It's not going to kill them, it's not going to hurt them. The barrier of the patient being afraid, I'm going to hold their insulin because they're NPO even though it's

a long acting some of us know, they may not, but they don't want to do that. So Bedside nursing. The fear that they have, the attitude that they have.

5A: and the lack of critical thinking on when it's necessary to escalate. So identifying okay our patients on q six hour accucheck maybe we need to increase their frequency to q four, or when is it time to start an insulin drip? My former place of employment anything two accucheck over 200 times two, you were starting an insulin drip, so as soon as you had two accucheck that were over 200 the policy and protocol was to get an order for an insulin drip.

5B: And you know we have implemented the preprinted order sets for diabetes management and they're not being used properly, so that's a barrier. We've put a tool in place to help facilitate but we're not using it properly. The physicians aren't using it appropriately; the nurses aren't following the orders as it was written.

What do you think that's about?

5B: Being in those diabetes meetings that made that form doctors are afraid. So the nursing staff is afraid and the doctors are afraid.

What are they afraid of?

5B: They're afraid of over medicating, afraid of dropping people's blood sugars. They've got these people who are insulin naïve that have never been on insulin before, we bring them into the hospital take away their po's (oral anti-diabetes medications) and now we're starting to give them insulin. We're doing it by patients' weight which is the way you're supposed to but they're scared to death to do that. But if you have a person 300 pounds believe me 10 units of insulin is not going to hurt them that much but they're afraid of that. They're afraid of those drops.

So where does that fear as a barrier come from?

5A: probably lack of education, knowledge and support, support from your physicians educating the right residents. Nursing leadership educating their nurses and then making sure that your educators are there at the bedside for those questions or to say hey why wasn't this followed this is what our order set says what's the issue? And following up with that and just constantly being there reminding the nurses that this is okay you do have the opportunity in an hour, two hours or three hours to recheck if you think that there might be an issue. You have most of them not using judgment.

Moderator: So I think that you're describing just time, I'm kind of hearing that they have to keep going back and checking and

5B: Time is a constraint and then other times its not, you know the fear of giving 10 units what if that bottoms out their sugar, well you can remind them insulin is six hours or however long the timeframe is if you feel uncomfortable at three hours go ahead and check their sugar. I mean no one is ever going to be yelling at you because you wanted to make sure you're doing the right thing by the patient.

Moderator: What's the barrier to that happening?

5B: To recheck? It's the workload on the nurse. Our ratios are getting so much bigger, so now it's one nurse to five patients or one nurse to six patients, where if you have somebody that you're really trying to monitor sugars on you have to have a really good tech if you have one, and they've got to communicate with you. So I definitely think patient ratios are hindering a lot of our staff not just diabetes.

5A: So what I'm hearing from you also is that - there needs to be improved communication between nursing and their tech and so maybe there needs to be a team huddle in the

morning with the tech responsible for those patients and then increasing maybe the number of techs so that the techs only have the same number of patients that the nurse has.

5B: or, I'm more on board with reducing the amount of patients that the nurse has, so that she can do the critical thinking and so that there is time to contact the physician. I mean have you ever tried to page a physician and then you stand around waiting on that call and then get called to two different rooms because something else is going on? I mean we keep adding ancillary staff to do what nursing can't do anymore. Well you're still paying people so why not reduce the patients pay a couple more nurses and for example, get rid of the wound care because now she (primary nurse) can do the wound. We put these people in place because the nurse doesn't have time anymore.

5A: Yeah, like even a diabetes nurse should be able to come around and provide education as the clinical expert, it's like the wound care nurse shouldn't be doing the dressings daily but maybe twice a week because they are the wound expert and they are monitoring the progression of wound healing. So having those nurses be more of the expert clinicians and decreasing the workload on nurses so that they can actually perform their job and monitor things more closely.

Moderator: Is there any additional information you'd like to share about the management of diabetes patients or about the guidelines?

5A: I feel that some of the physicians that we contact in regards to insulin or holding are not very pleasant so I think sometimes the barrier is the nurses do not want to contact the doctor because the doctors are like can't you handle it, you know its two units of insulin what's the big deal? They actually kind of prevent they're pushing back on our questions like

they don't want to be bothered, its sugar right. So I think that's a big barrier because then the nursing staff doesn't want to contact the physician.

Moderator: I'm going to summarize what we talked about today. So we talked about the national guidelines and how they establish standards of practice and are centered on best patient outcomes. There has been a committee in the hospital that has worked on implementing preprinted orders although they're not always utilized in the manner they were developed for. It's very important to have administration leadership support education is vital. There seems to be a lack of critical thinking. Doctors and nurses might be afraid of over medicating, that leads to hypoglycemia a lot of lack of education, knowledge, support and some things with some attitudes. Sometime when the nurses do try to call the physicians they're met with an attitude that makes them afraid to call them again and there is a fear of overmedicating the fear of hypoglycemia that is also another contributing factor. Is there anything else you would like to add?

5A & 5B: No, I think that's good.

Moderator: Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

Focus group session 6

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the

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Moderator: When you hear the words national guidelines for the management of diabetes patients, what comes to mind?

6A: the latest, greatest research which ties into best practice. Hospitals, physicians you know have done. They've done their research and they've weeded out what doesn't work and they've come up with best practice and shared that with other hospitals. They say it is a national guideline. I feel that's what it's tied around.

6B: evidence based. The guidelines bring in the best evidence for how we should manage a patient in the hospital.

Moderator: So the national guidelines for diabetes are evidenced based and based on research-are there any additional thoughts?

(none)

Moderator: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

6A: that recommend what?

Moderator: Insulin?

6A: you're saying as that being part of the national guidelines? (YES). Well my thought is, is that most of the time the patients here in the hospital are sicker patients. So if the patients are sicker they're more stressed and their sugars are going to be more out of control. And with that managing their care we want to keep their blood sugar down and tighten the control and so in doing so I use the national guidelines that set up with best practice by saying we're going to get rid of their oral antiglycemics and we're going to tighten up their glucose control, tighten them up with insulin.

6B: yeah, there's just so many differing aspects when you're in the hospital than when they're at home. Which I think is really hard sometimes for the patients to hone in on you know like what you're saying. Medication, stress, just being in the hospital can contribute to hyperglycemia. It's always easier in the hospital to make sure we're really tight on the insulin management.

We go by all the guidelines in the pre-printed orders make sure you're getting your sugars in time, prior to your meals and at night and then obviously administering it (insulin) in the time frame that you want. Like if you're getting the sliding scale insulin coverage.

How do these guidelines influence your care of persons with diabetes?

6A: that can be a loaded question. It depends on if you're talking about type 1 or 2. Are we still talking about the ones with the type 2 that are on orals? Okay, so if you're going to look at that then there is going to be that education piece because there's going to be a knowledge deficit with the patient who has been at home has been on oral antiglycemics for X amount of years has gone X,Y, & Z to manage their sugar and they're not understanding why now we're just going to take it all away and we're going to switch them to insulin and were going to do a basal/bolus and were going to follow the guidelines. There is a huge education piece from us as nursing staff that are just the staff nurses on the floor caring for the patient to the physicians to the diabetic educators to the, I mean there is a whole service line the endocrinologist the NP with endo so there is a whole service line that really is responsible for making sure that we're consistent in relaying the care and explaining to the patient giving them that education because you know if I were a patient and I had type 2 and I managed it and I kept track of my sugars constantly, I mean my mom is a type 2, she's on antiglycemics and a very anxious person. You put her in the hospital and take those away and throw insulin at her I guarantee you she's going to fight and go crazy. I could just see it now. So I think that is a big opportunity for us as practitioners to really educate

6B: use the guidelines

6A: yep

6B: to put them into our practice.

6A: utilize the guidelines and really bring up education on a staff level. So that all your staff are on the same page with diabetes and how to care for type 1 vs type 2 with the insulin basal so does that make sense?

Moderator: Yes, Thank you. What do you see as the facilitators for implementation of these guidelines?

6B: I think kind of just what we were saying education across the board just makes sense. Everyone as a staff nurse you know that we all have the same I guess when we're teaching we're all teaching the same thing so it's not inconsistent between staff members and then you know just explaining it to the patients in a way that they can understand. Because you know we learn these guidelines in a certain way that we get but then to actually relay it to the patients in a way that they understand like why we're doing it this way. Why it's different when they're in the hospital versus at home.

Moderator: So a facilitator is that you are taught to do that?

6B: I guess us as the facilitator to the patient kind of like we are teaching them.

Moderator: Ok, what are other facilitators of implementing these guidelines?

6A: So I think here we have at Grant we have the diabetic care committee which we have physicians, hospitalists, nurses from various units, diabetic educators so we pull in different entities that can all weigh in on looking at the national guidelines, looking at our population at Grant, looking at our scorecard and trying to really make it match with the guidelines. I think the problem that I have seen is that you have different physicians, endocrinologists, and hospitalists who are not always on the same page and have differing opinions. The problem with that is that they need to be able to come together and look at the guidelines and to be able to apply that to our system. Also, so from an education standpoint our clinical education team has worked with the diabetic educators throughout the house to help facilitate the national guidelines in pulling different pieces and parts out to help educate the staff. I do agree though that there is a huge need for more education on diabetes and I feel my opinion is I feel that it needs to start in orientation with facilitating with our new jump start program and orientation you're getting new nurses out of school and you're getting seasoned nurses who are all going through the jumpstart program we need to be working with the team and our OhioHealth learning team to develop guidelines currently not the old diabetes guidelines. So if that means we work with an endocrinologist from system to pull that together, but I think we really have an opportunity to do education on diabetes for staff. Does that help?

Moderator: Yes.

6B: What about to just round the floors with nutrition where they come up and they take the order, they page the nurse, and the nurse gets the blood sugar. It just makes you actually follow the guidelines kind of a plan, now does every floor do that?

Moderator: Yes.

6B: Okay, so every floor kind of helps facilitate the actual guidelines and what we're supposed to be doing.

Moderator: What do you see as the barriers to implementation of the diabetes guidelines?

6A: I think I kind of mentioned that a little bit I kind of went off on that already, the barriers I see, huge barrier is the fact that they're here at Grant we don't have a very big endo team and I know that they just got a NP, I know that the hospitalist are trying to work with them on that nature.

6B: I see that a lot like what you see in the different physicians it's not necessarily a good or bad thing it's just hard to get consistent.

Moderator: From a nursing standpoint are you saying there are inconsistent orders and inconsistent approaches?

6A: both, you have some people that are utilizing order sets correctly and other people who are not. You may get, your hospitalist may say I want to do x, y, and z and the patient is insulin naïve and endo comes around behind you and completely disagrees. So I just think that there needs to be a little bit more I don't know but I think of managing a diabetic patient I think that an endo should manage a diabetic patient. I mean 15 years ago that's how it was but now the service lines are the patients are so much sicker and the service lines all of that has changed and our endo group is so small they're not a big group.

6B: pt. education, working with the patients I would say sometimes they're not necessarily willing to learn but at least our population here sometimes the education level is lower they're not well educated about diabetes and it's harder to kind of really teach the importance of everything and then implement the guidelines.

6A: I think one of the barriers is the order set itself if it's not filled out correctly then that's a barrier for the nurse. Another piece to that is time to do everything for the patients.

6B: and different things you have to be aware of like what you were saying the inconsistencies of times they want you to just do the basal/bolus orders and then sometimes they want you to carb count you know what I mean so it's hard to keep everything straight because it changes on every patient and with different type of doctors.

6A: that's my thing the inconsistencies and I guess the other thing is the communication. So I don't think it's ever clear is this person a type 1 or 2. There is a huge difference and I think that that needs to be communicated. I feel like that a lot of times that falls through the cracks and that affects the patients. It affects what we order for the patient it affects the patients outcomes it affects the education I mean just knowing if you're a 1 or 2 it's like night or day.

Moderator: It would be a barrier if you didn't know that?

6A: Yeah and I think that is a huge barrier that is not communicated. I could probably go up and ask nurses on my unit right now their diabetic patients and whether they're a 1 or 2 and I bet you it's not documented anywhere it's not dictated anywhere and may not be communicated in a huddle so there is uncertainty about what some patients need.

Moderator: Are there any other barriers?

6B: they could get their trays and eat ½ their meal and you haven't even gotten their blood sugar that happens a lot or they'll get their meal start eating and finish before you have time to come in and give them their insulin and then you can't give them their insulin and have it be effective with the sliding scale. That happens sometimes because we get busy with six patients on the floor at the same time and you have to get them all blood sugars right before they eat. Definitely being busy is a barrier.

6A: I think that's right and sometimes because a patient that normally runs 300 with their blood sugar going to 100 or 120 could make them symptomatic you know what I mean?

Moderator: So how would that be a barrier?

6B: I guess if you're trying to say they're above our sliding scale, 150 I don't think they need insulin cause that's well for them. That's kind of a barrier for us we teach obviously we cover everything above 150 so that could be kind of a barrier.

6A: if the patients saying I don't take this for that well then they're really driving their care and the it becomes the nurse is like well it's based on this I'm supposed to give you that and the patients like yeah but I don't take that so you've got a clash going on there and a discrepancy between what the patient would normally do for that sugar and sometimes you have nurses that may not be very experienced that don't have the knowledge or critical thinking to explain to the patient the reason why they need to take the insulin and so then we don't want to upset the patient but then the physician a lot of times does not have that conversation with the patient.

Moderator: Are you saying communication is a barrier?

6B: because like what you were saying if they normally run high like that at home that should obviously be something they're fixing at home before we even encounter them. They should be more well controlled if they're coming in and saying well I normally run in the 200's and we're trying for something in the 150s something should be changed anyways for them to be lower. Does that make sense?

Moderator: Yes, so a barrier is how they manage at home?

6A: that's huge.

6B: before we even come to encounter them

6A: so then that goes back to admission you know as the physician and the nurse care for the patient from the very be

Moderator: Before I summarize is there any additional information you would like to share about the management of diabetes or about the guidelines?

(No)

Moderator: Then let me summarize the information that we discussed. The guidelines allow for best practice, newest greatest research evidence based practice, our patients in the hospital are sicker, they're more stressed their sugars could be more out of control. We really need to do a better job of identifying type 1 or type 2. Education piece and knowledge deficit of the patient can be a huge issue. Assuring that we provide consistent care to our patients is a huge issue. Some of the facilitators for the guidelines are the preprinted orders but they can also be a barrier if they're not completed properly. Nurses teaching the patients, we have a diabetes care committee. Probably need to standardize education and begin with orientation on the floors working together with nutrition for the system to be notified when the meals come because of our meal system another barrier we don't have a big endo team so they are so busy they don't have time to take care of all the diabetics in the hospital so there is often times inconsistent orders and inconsistent approaches we need more consistency. Ideally endocrinology would be managing the diabetic patients. Another barrier with our patients at Grant is that they have a lower education level and at times this makes it challenging to teach. Patient may be uncooperative; sometimes we're not even being notified in the record if they are a type 1 or 2 that needs to be clearer because that could really change how we manage them. Physicians and nurses need to communicate that from the start to the patient and there are sometime patients that are coming in very poorly controlled and were trying to tighten them up and that becomes a barrier because the patients start to feel uncomfortable at a blood glucose level that is not the norm for them, and a lot of times there is that hypoglycemia fear. Is there anything else that you wanted to add?

Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

Focus group #7

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the

non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

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Moderator: When you hear the words national guidelines for the management of diabetes patients, what comes to mind?

7A: and idea of how the patient should be managed.

Moderator: Is there anything else?

7B: No

Moderator: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

7A: I think that more closely allows us to monitor our patients' blood sugar and keep them and do the testing and things that we have to do in regards to switching them to you know NPO mid-way through the day and if they've already taken their oral glucose meds it's hard to do that.

Moderator: Anything else? D. do you have anything to add?

7B: Well yeah the um sliding scale is um its more universal than in the past it was more catered to the individual

Moderator: Do you see more patients getting basal insulin long acting insulin dose and ordered insulin pre meals versus relying on the sliding scale?

7B: I'd say I've seen both it varies from individual.

7A: Yeah I've seen people who don't get any long acting and I feel like it goes in spurts where everyone is on sliding scale and no one is getting long acting, and then everyone is getting long acting and sliding scale.

Moderator: The national guidelines include that the patient should be on a basal which kind of keeps the insulin just a small amount there all the time and so even though were trying to incorporate that you're seeing it not being ordered consistently. So it's not consistent, okay. It's kind of what we're getting at with your perceptions, okay. How would you say that these guidelines influence your care with persons with diabetes?

7A: I think it does make you monitor them a lot closer if they've never had insulin before I feel like you don't know how they're going to react to it if it's going to drop their sugar too much, so I tend to check their sugar a little more and there is a little more education that goes into it with the insulin, I also think that a lot of patients themselves are a lot more hesitant if they've never taken insulin they don't necessarily they don't understand why

once they're here they have to take it and they think they're going to go home on it as well.

Moderator: Do you find yourself explaining that a lot more? Do you feel comfortable with that?

7A: sometimes, not always.

7B: I think patients are more knowledgeable today than they were back then. They have the internet to look things up, and we have the diabetic educator that helps us reinforce and give more knowledge of it.

Moderator: Okay.

Moderator: Okay so what do you see as the facilitators for implementation of these guidelines?

Facilitators things that may help to implement these guidelines with the patient population/like think of some things that have been done to help implement these guidelines.

7B: education is the number one thing

7A: I think it helps that we have the book uh living with diabetes helps a lot

Moderator: What about how has it helped us nurses is there anything being done for nurses?

7B: well yeah. You guys weren't born yet, but I remember when you had to dip the stick in the pee, so technology really helps. I go as far back as when you used to have to drop urine on the pill so yeah there have been improvements for the nurses.

Moderator: We've come a long way.

7B: advanced technology when you used to deal with urine that was advanced technology and now its state of the art.

Moderator: Ok, technology has helped and we can get instant results and we can know exactly what that blood glucose is and what we now need to do. Anything else?

7A: I think it's good that when you go to give the insulin the sliding scale is in there, like the table is in there in the MAR cause some are on a regular and some are on an aggressive scale.\

7B: that's technology again

7A: seeing that table in MAR is a double check for you.

Moderator: Any other facilitators?

7B: not that I've gotten; this has always been what we've had.

Moderator: What do you see as the barriers of implementation of the diabetes guidelines?

7A: I feel and I don't know if its valid or not, but sometimes dietary will bring the tray and we don't know that the patient has a tray so they're already eating and you haven't checked their sugar and I feel like that's on days especially when we're primary, when we don't have a tech or someone else looking out. It's not always, I'd say it's rare but it happens.

Moderator: And so that's a barrier because?

7A: they're already eating so their sugars going to be going up but I went in a room one time and the patient at the whole meal and told me they ate 30 minutes ago so it's one of those early, early eaters and you can remind the patient to call you but they don't always.

7C: because at home they're not on, they don't want the shots, they have their own routine, they may have a sugar of 400 but it's how they managed at home but

7B: a patient's refusal, they deny it and say they don't have diabetes.

7A: or even bringing in outside food.

Moderator: Anything else?

7B: sometimes you have so many patients to get if you have 5 6 patients like she said you can't get to all of them in time to be able to check their sugars

7C: and they're definitely not going to wait

Moderator: So like the workload sometimes, do you feel a sense of responsibility that something should be done if the blood glucose is above 200 or do you feel like it's something that you don't have to worry about?

7A: I think for me it depends on the patient like if I can look at their history and they typically in the afternoons are in the 300 range like I'll definitely take a look at it but it doesn't alarm me, now if it's a one off where the patient is usually in the norm and suddenly shoots up to 300 then that's going to send up flags.

Moderator: Why would you think you might see that?

7C: that it's the person's norm or the spike?

Moderator: Spike?

7C: that's when you come back to what's going on in the room is there extra snacks being brought in is there something else illness related that's causing it?

Moderator: Any other barriers when you think about like barriers to providing the actual nursing care.

7A: I think it's hard sometimes when you've only got one Accucheck machine so if you have 5 people to do an Accucheck on its like great I don't have the equipment to do what I need to do.

7C: Or just having the time to give the patient, this may be a new diagnosis and the first time they're hearing it, you're trying to explain it but they're not in that place where they're ready to hear it or learn.

Moderator: Before I summarize the information that we discussed is there any additional information you would like to share about the management of diabetic patients or the diabetic guidelines?

7C: we feel like the majority of our patients anymore are diabetic

7A: always more than half of my load

Moderator: Do you feel like you have everything that you need as far as knowledge and resources to take care of your patients with diabetes?

7C: I think so, one because I'm a new nurse one thing that stuck out to me last week that I had for the first time is a patient who was on a sliding scale and a carb coverage, I've never had a patient with carb coverage and sliding scale and then our carb coverage was not matching what the doctor had ordered because we do carb servings, so it was very confusing to me because I've never had a patient like that so I had to call the doctor and he explained it to me how to calculate it which was fine but it was like I had no information on that. People had not been covering that patient for carbs because they didn't know how to calculate it right so they weren't covering it, they were just giving the sliding scale.

So at least you were able to go about it and get the correct information for the patient.

7C: yeah and the family was in there and the family was like well the doctor was in here yesterday and they weren't covering her for carbs and he told us because they weren't calculating it correctly cause a lot of us were new so it was a series of new nurses that had that patient.

Moderator: Probably going to be a new process to everyone by the way. It's something that we just started

7C: Good I was like I've never done carb coverage, I don't know how to calculate it right.

Moderator: So basically, the guidelines tell us how patients should be managed allows more closely to monitor patients when they're on insulin so that when they're on NPO. Somebody was thinking that the sliding scale insulin coverage was more universal whereas in the past it was more tailored to individual, and you see kind of both that and some patients are not getting the long action insulin so even though there is the preprinted order they're not consistent, it does help us to monitor closely especially in patients who have never had insulin before. There is a lot more education needed for the patient they don't really understand why, but then some patients are more educated and we have the diabetes educators. Technology has really helped as a facilitator because we can get the blood glucose immediately and the computerized medical record with the medication administration record the MAR helps us to double check and make sure that we get the right amount of insulin. A barrier is that some patients eat before we know or have got their blood glucose and then that's going to be an inaccurate assessment. Patients are sometimes in refusal or denial about their diabetes. Workload can be a barrier, and as far as the blood glucose levels, sometimes higher blood glucose levels are not necessarily perceived as alarming, the blood glucose can be depending on what's going on or the severity of illness. There was another barrier of not enough equipment to check Accuchecks. Diabetes we are noticing is a huge part of our patient population and carb counting was something new that adequate education has not been received on. Is there anything else that anybody would like to add?

Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

Focus group 8

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

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Moderator: When you hear the words national guidelines for the management of diabetes patients, what comes to mind?

8G: my perception for the national guidelines?

Moderator: Anything that comes to mind when you hear guidelines for diabetes.

8G: I think a lot of the sliding scale

8F: Education

8D: I think of the low range of the blood sugar somebody that would be dropping too low thinking of the goals of preventing hypoglycemia.

Moderator: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

8D: I guess that every patient is so different it's hard to have a guideline, when everyone is so different it's not going to work the same for everyone, so there has got to be some flexibility in the approach.

8C: individualized sliding scales

8A: some patients have a higher blood sugar so they are put on a more aggressive sliding scale versus those who are controlling their blood sugar better and can be put on a lesser sliding scale.

8G: I guess I feel like the guidelines help the patients eat better when they're in the hospital and it's more strict but I feel like when they go home its completely different. They maybe need to tailor them to meet every individual's needs.

8D: I still feel like we're kind of more reactive to people with diabetes when they tell me at home they're a little bit more proactive in treating their sugar, whereas we react to their

sugars and they plan ahead for it. I feel like a lot of people are on a different regimen when they're in the hospital so it's kind of like we throw them out of whack a little bit.

Moderator: How do these guidelines influence your care of persons with diabetes?

8C: we just reinforce basic diabetes education as far as make sure the patients are aware that they need to be checking their blood sugars before every meal and at bedtime and making sure they are aware of the appropriate foods or snacks they should take when their blood sugar is low and really monitor what they eat .

Moderator: Anything about how the guidelines influence your care of a person with diabetes?

8F: It's just nice to have the guidelines as a newer nurse to go off of to give you some direction.

Moderator: What do you see as the facilitators for implementation of these guidelines here at Grant?

8C: we have diabetic educators

8D: I think the physicians and our other staff that kind of go with the treatment, set up the treatment for each patient are big in helping to facilitate that. Making sure that each patient is set up with the appropriate treatment and that's using the guidelines to tailor to each patient. By using that preprinted order set.

8G: Also our nutritionists are, they help monitor the patient's trays

Moderator: What do you see as the barriers to implementation of the guidelines?

8A: The patients themselves, not wanting to give themselves insulin. Sometimes, if they're new diabetic especially, they want to deny that they have diabetes at all. They're just not very cooperative at times and then others would be like financial whether they can afford the insulin the needles the lances the monitor. It is a hassle to monitor it so many times a day for the rest of your life.

8D: I think time can be definitely be a barrier especially if you have multiple people that you're trying to manage, and the way our food trays come up not all at the same time for a person you can really struggle to get patients their coverage at the appropriate times to their meal when they're supposed to have it. So I think that.

8C: basically patients going off the floor to eat and not caring whether they eat following the guidelines. I think that they don't learn to count carbs, like those in the past basically they learned to count carbs

and these days they don't care and whatever the blood sugar is they just cover it with the insulin and that'll take care of it and they can eat whatever they want.

Moderator: Anything else like from a nursing perspective?

8D: testing and stuff can be, like when the patient is in the hospital needing to go to different tests. I know the guidelines help us follow if somebody is NPO, but that definitely requires more work from a nursing standpoint for those patients, to stay on top of their sticking with the guidelines I guess.

8A: especially getting a hold of the physicians when blood sugars are certain level

8D: or when there is a change that they physicians have to make that change a lot of times

8C: if they're NPO and they haven't changed the insulin orders to accommodate that it is a barrier for the patients.

Moderator: Before I summarize the information that we've discussed is there any additional information you would like to share about the management of diabetes patients or the guidelines?

(No)

Moderator: The guidelines help provide direction for how to manage diabetes. Facilitators include the diabetes educators, physicians and staff. Using treatment guidelines helps facilitate appropriate treatment, and the preprinted orders are a facilitator. Nutritionists help monitor the patients. The barriers seem to be sometimes the patients themselves not wanting to give themselves insulin, being in denial and uncooperative, financial -patients can't always afford their supplies or insulin. Barriers of time, for the nursing staff. Patients get their meal trays at different times and that makes it hard to try to stay on top of; and sometimes patients leave the unit and eat. Patients don't learn to count carbs; they don't care what they eat. There's a lot of testing that goes on and when the patient becomes NPO if they haven't been proactively placed on alternative insulin orders that becomes an issue. Is there any additional information that you would like to add?

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Focus group #9

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the

non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

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Moderator: When you hear the words "national guidelines for the management of diabetes patients, what comes to mind?"

9A: checking their sugar.

9B: Calorie counts, carb counting.

9A: I think of getting insulin or other diabetic meds at a costly price.

9B: Hypoglycemia

9C: hyperglycemia

9A: I think of guidelines they kind of help us follow evidence about diabetes to provide best care.

9B: We check sugars right before they eat instead of checking their sugars two hours before they eat so that way you're covering the patients based on their real time sugar versus sugars from a while ago.

9C: Guidelines make our practice consistent.

Moderator: To summarize, the national diabetes guidelines help us provide evidenced based care and include aspects of: diet, insulin, hypoglycemia and hyperglycemia management. What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

9A: I feel like patients give us negative feedback that they don't take insulin at home and they don't want to take it in the hospital

9C: Or patients who don't check their sugars four times a day, especially the ones who are on orals, antiglycemics, and they don't enjoy getting their fingers stuck four times a day everyday here in the hospital when they may only do it once a day at home or once a week.

9B: Also confusion of why we're doing it in the hospital, they think they are going to have to go home on it.

9A: I think that if the nurses understand that it is the best practice is to treat the patients with insulin because you're used to withholding their oral hyperglycemics, especially metformin we hold a lot. and um we're a lot of times holding their home insulin and just covering them with what they need for sliding scale according to what their sugars are but, I think the nurses get it but the patients don't get it.

Moderator: How do these guidelines influence your care of persons with diabetes?

9A: I do my best to care and follow the physician orders and all, especially now that we do the sugar checking right before they eat so it's more vigilant doing sugar checks at the time that they order food and then making sure that I have insulin coverage when the tray arrives and knowing when the tray arrives.

9B: I feel like we're doing a lot more teaching too. We are teaching patients reasons we are checking their sugar, why we're giving them insulin, why they're not getting their oral hyperglycemics.

Moderator: What do you see as the facilitators for implementation of these guidelines?

9C: I think the diabetes educators are awesome. Especially for new diabetics or people who are not quite sure, they don't have quite a handle on their diabetes. Having the nutritionist too, available to discuss your new diabetes or meet with patients whom are non-compliant with their diabetes. Coming in and going over how they eat at home, and going over all that kind of stuff with them is helpful.

9A: I like the preprinted orders that have the doctors describe the amount of insulin to give instead of having them forget or having to call them back or something like that.

9B: I think carb counting, the endocrinologist hunts you down in the hallways and makes sure when it's a new order with counting the carbs and the sliding scale he will find you and go over it step by step and make sure that you understand it before he walks away that way there is no confusion on how to give the insulin and implement the diabetes orders.

Moderator: Are there any other facilitators? (no)

Moderator: What do you see as the barriers to the implementation of these guidelines?

9C: I feel like they're changed a lot and things like that get confusing because in the past year I feel like the orders have changed at least twice if not more. Those insulin orders are hard to read, there are so many boxes. There's way too much on there.

9A: So when the physician tries to take on the task of diabetes physician instead of consulting like a specialist that sometimes isn't helpful either.

9B: Every day, it's like well now we'll do this much insulin before meals but it might change the next day. it's like the sliding scale and just even the wording I mean I know we still all understand mild moderate sliding scales but that's not how it's on the orders anymore and I think that gets confusing for the new people who haven't seen the old orders because now it's what usual, aggressive, and something else and then with us before it was mild, moderate and I forget what the last was. That's also a barrier.

9A: We get patients that complain so much about the diabetic diet that actually the doctor changes it to a regular diet but still has them on insulin and then their blood sugars are not controlled at all.

9B: A lot of people eating meals before, more like patient barriers but not taking their part of making sure that we get their sugar checked before they eat. Eating and snacking all day or people just bringing sugar packets when they ask them for it instead of checking to see if they can have sugar.

Moderator: Are there any other barriers?

9C: Oh I'll bring up something, stupid computer if you have someone that is scheduled to get automatically 6 units of novolog or whatever before each meal plus they get sliding scale you cannot click on both of those, so it will not let you scan and do both of them.

Moderator: So scheduled pre- meal and sliding scale itself you have to enter separately?

9C: One of them you have to override and it will say you didn't scan this barcode

9A: So if you're not used to doing that I think with new people especially then your all what do I do and it makes it easy to give wrong amounts of insulin –sometimes I think it leads to mistakes with the insulin dosing.

9B: It's hard if you have 6 patients and 5 of them are diabetics and they all order their meals at the same time. It's hard getting everyone sugar checked. It's almost easier when we have set lunch times or meal

times for diabetics. I know that everyone likes this room service or whatever for patient satisfaction but it does make it difficult for the nurse to manage blood sugars sometimes.

9A: Especially when like the dietary is received and you don't get pages, or there's days that they don't tell you and they don't find you and I know they're busy when they pass out trays but I don't think it's very effective when you just tell a nurse that you dropped a tray off, especially when it's not your patient, like I'm not going to go hunt down the other nurse to let her know.

9C: And they used to say that you had to call when you had two blood sugars that were over 200, I didn't like that because I'd have to call a doctor and they'd get angry.

9A: Also if you have a high blood sugar are you really going to wait on serum glucose back before you treat it? It doesn't help when the doctors tell you no to the stat glucose serum anyway. By the time you get the doctor that calls you back, I mean sometimes it's been an hour since you checked that blood sugar, now their blood sugar is higher.

9C: Really I think it's important that you notify the doctor about obtaining a stat serum but in three pages of mumbo jumbo, those orders are way too, there's too much on there. There are too many options if you want to do this and that, or you could do these options or you can just skip that. I feel like this is just now a lot of times pharmacy just no matter what when we change orders to AC and HS, they'll put the two units at bed time for only over 300 and technically none of the other coverage's. The vascular orders it doesn't say that when you switch them to ACHS that the sliding scale is changed. It's just how we do it now so it all gets like that can be confusing for nurses and pharmacists.

9B: There are a couple of orders that include that, but a couple different order sets I've called pharmacy and they've said that's just what we do now. But it's not actually what's on the orders.

9C: It is also hard to keep patient blood glucose values in the 100-180 range. It depends on what the patient's normal blood sugar is if they come in and they tell you their blood sugar is always 250, you're pretty much not going to get them down to 100-180.

9B: The one lady we got complained of low sugar and felt hypoglycemic she's always in the 300s and we checked her sugar and it said 220 and she said that's good for me, I normally run 300.

9C: I don't feel like the doctor sometime really understand or know their patients before they write generic orders too, kind of like the same thing some people's sugars are just higher some people should just get know their patients before they write generic orders. It's got to be hard from their standpoint too.

9A: They're admitted into the ED and just to clarify these are hospitalists that are taking care of patients that they haven't necessarily managed on an outpatient so that's another barrier.

Moderator: I'm going to summarize, before I summarize the information discussed is there any additional information you'd like to share about the management of diabetes patients or about the guidelines? Anything?

The guidelines helped to make practice more consistent, insulin from the patient perspective got a lot of negative feedback, and patients don't understand why they're getting their blood glucoses checked so frequently. The pre-printed orders with the guidelines people are on the same thing whether they should be or not, they do help to guide nursing care, it's important to get the blood glucose right before the patients eat but they're not always cooperative with that, which makes it complex. The diabetic educators have been very helpful as well as the nutritionist especially with patients who are newly diabetic or are non-compliant. The preprinted orders help but there is also some complexity associated with that. Recently when a physician started asking the nurses to do carb counting, he did a good job of finding me and going through step by step. Barriers are separating the guidelines; the orders have been changed a lot. The orders are hard to read and interpret; physician doesn't consult a specialist as often as they should. They're changing the orders frequently every day the wording is changed. Diets are a barrier, patients complain about their diet and they get it changed to a regular diet, they're getting sugar they're eating off the unit they're eating whatever they want. The computerized MAR is a barrier because of the way things are scheduled if you have to add sliding scale, it won't allow you to do an override. So that's confusing in MAR. With 6 patients you could have 5 of them being diabetic and it's hard to be everywhere at the same time and the on call meals while it might be good for patient customer service, it makes it really complicated to do the right thing as far as the diabetes for the patient. There used to be an order to notify the doctor of glucoses over 200 twice in a row, but the physicians' would sometimes get upset with those phone calls. Hyperglycemia most physicians don't want you to wait to get a stat blood glucose level they'll go by the accuchecks to guide treatment. The vascular orders haven't been updated to correspond to the insulin order so even though they're different pharmacy is kind of saying that's how we do it now and it's very hard to get the patients insulin in the desired ranges that are recommended by the national guidelines because a lot of times they're running higher at home and another barrier is that the physicians don't necessarily understand what's been happening in the outpatient world and a lot of times the admission orders are written at the time of admission before they've had time to really do a thorough assessment. Is there any additional information that anyone wants to add?

Thank you so much for participating in this focus group discussion and providing your opinions and feedback. Please contact me if you'd like to share any additional information.

Focus group #10

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill

hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded. Your participation is voluntary and you need to sign the consent form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions? Please sign the consent form. I will collect your signed forms. Please also complete the professional demographic form. During this discussion we will be on a first name basis, however, all names will be deleted and replaced with a pseudo name during transcription. Your comments will remain confidential. I would also like to ask that each of you keeps this discussion confidential. Even though we will keep this information confidential, each of us needs to respect one another's privacy and you should not say anything here that you would not want repeated even inadvertently outside this room. Each of you has been provided with a copy of the questions for this discussion. A copy of the guidelines is also available. It is important that each of you participates in the discussion. I may limit some discussion or encourage others to speak to assure we stay on time and that I get feedback from everyone.

Moderator: When you hear the words "national guidelines for the management of diabetes patients, what comes to mind?"

10A: Recommendations for taking care of the diabetic patient. Recommendations and what we should be doing for best practice.

10B: Best practice guidelines to take care of a diabetic patient.

Moderator: To summarize, the guidelines indicate best Practice guidelines and they're based on evidence. What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

10C: I guess my perception is that they give us the blood sugar guidelines of when we should treat with either oral or when we need to go to insulin for treatment of the blood sugars.

Moderator: Anything else?

10D: I feel that in the hospital there are so many other contributing factors like infection and different conditions that pretty much require the patient to have a tighter control of their blood sugars so that they don't develop infections or other complications for that so I feel they need that tighter control here in the hospital.

10E: I agree with the same lines, usually patients when they're at home they're given like pills or other forms of diabetic assistance but um here in the hospital it's the guidelines for those patients with their blood sugars to help monitor it more closely than just at home.

10A: I also agree I like that we check the sugars frequently, keep a good eye on it. They're on different medications prednisone can easily throw it all out of whack, it's nice that we keep a good eye on it and watch it.

Moderator: How do these guidelines influence your care of persons with diabetes?

10A: First of all I want to say that it takes team work for this to work too, because you have an assistant, a tech that does the blood sugars that has to be reported to the nurse. I think just in recent years with these guidelines we are getting more control of the diabetic patient I feel like with diabetic educator and education the patients are starting to feel more like they're part of the team and seem to understand more. There is always the question of patients of why they have to take insulin and not oral medications while they're here. That's very well explained and most of the patients understand the reasoning behind it.

10B: I think the guidelines influence my care. I do the education part of it and just helping to keep the patients more informed on why we're doing what we're doing and why they're not taking their metformin (oral meds) right now, and why they're on insulin while they're here in the hospital. Um and I think that's it.

10C: I think as a nurse caring for maybe acute patients here in the hospital that the guidelines help to maybe make us more aggressive to follow-up with the physician if their oral hyperglycemic meds are not doing what they need to do and their blood sugars aren't in a tighter range so that we can notify the physician to maybe start them on insulin to try and get better control of their glucose while they're here in the hospital.

10D: I think it kind of opens the door for patients that might not be as intuitive or understand fully what their diabetes medications do. I think it helps kind of troubleshoot their issues or problems and can kind of bring up more areas where they need more assistance or education in.

10E: They said it all

Moderator: Does anyone else want to add anything about how these guidelines influence your care of persons with diabetes? What do you see as the facilitators for implementation of these guidelines?

10C: I know I've been a nurse many years and I think before all these guidelines were done we were just checking sugars and giving insulin now the guidelines say what to do if they're NPO or if they're going for certain tests and I think it's really helped us to know when to call the doctor to hold it (insulin) and just things like that. Best practice tells you, you know certain tests or procedures going to be done and NPO and I think that really brings the treatment plan into focus better. We have less hypoglycemic and hyperglycemic events.

10D: I think one of the facilitators working more closely with the endocrinologist and getting the patients under tighter control and other doctors referring to them and getting patients seen if they do not have family practice, do not have a physician, finding them somebody they can follow-up with after they leave the hospital and having appointments made has been one of the things that facilitates our guidelines.

10B: Another thing I feel that is a facilitator for implementation of these guidelines is that with this knowledge we can be advocates for our patients, and can have those discussions with the physicians about whether we know we should start them on insulin or should not and the reasoning that the physicians are thinking behind whether to start insulin and when to start insulin or when to hold insulin. I think it just helps with the education for the nurses as well.

10D: I think these guidelines in particular have less gray areas I feel like the nurse have a better understanding of what to do with a certain number (blood glucose level) or symptoms of the like. It definitely helps the questioning nurse decide what to do when the blood sugar is in a certain range.

10A: I agree I really think the transparency is there with the guidelines. The facilitator a huge one is definitely the education piece. I just think that's great all the education that's put in that the patient gets once they come to the hospital with the insulin versus the PO meds.

Moderator: Are there any other facilitators?

10E: I think the appcart's and the education we have going around the hospital when something new is rolled out is helpful so that we're all aware of it. (Appcart is a hospital wide monthly education program)

Moderator: What do you see as barriers to implementation of the diabetes guidelines?

10C: How the guidelines and what we do seems to change, keeping up with the times and changes.

Moderator: The guidelines seem to change?

10C: Yeah, um that and just staying on top of the changes in the education about diabetes.

10A: I've come across where there have been multiple changes in the insulin dose throughout the day and with shift change that can be kind of an issue sometimes. Just making sure that everything is put in correctly and the most up to date insulin dosing is in the system. On the floor that's not as acute as others to be honest time can be an issue too. Especially when it comes to dinner doses, everyone has it

at a different time. You might not get it at a certain time and it might not put into the computer and by that time it's an hour after the actual dosage has been taken.

10B: So you know coming from an education standpoint I feel like the education is more on the job versus actually when you graduate nursing school. I feel like you know there were certain highlights about it but it wasn't this in depth, so I feel like there is a need especially for the newer nurses to understand peak times onset times of insulin so they know that when a blood sugar is drawn that they know that it was an appropriate amount of time to treat it, and you know when they need to redraw it again, when it's no longer valid at that particular point so I feel like they're definitely helpful especially for the new grads coming out that there are definite needs for better education with them.

10C: One of the biggest fears that I see is not all of the physicians being aware of the financial barrier some of our patients have that they order medications and insulin that the patient can't afford their PO meds and then they send them home with supplies they can't afford. I see that as one of the barriers as far as educating the patients that they can't afford what we're ordering for them to go home on.

10D: I think one of the barriers is patient not understanding that we have different types of patients and some have more resources than others. Some of them (patients) have no idea about diabetes, you mention A1C and they have no clue some of them are homeless and have no resources and it just takes a team approach to help them know when they leave to get them follow-up and help with their medications; because many of them have no way of buying their drugs and getting the insulin. A lot of them, they do give out a very good handbook, and encourage them to use. The other things could be language barrier we need to get interpreters in here to try to help we have several patients that speak a different language than English and we're good here at Grant I feel at having interpretive services come and try to explain, try to have the family member there also that they are going home with.

10B: I also think the same thing that with the language interpreters we do have those readily available but the home instructions that we send home with patients a lot of times depending on the language we do not have those resources available that look professional like. You usually have to go into a translator resource and just type off all the information and it looks like a paragraph form. So I think we can work on translating or having multiple translations for our education we give to patients.

Moderator: When you think about doing your job as a nurse think about being in your personal nursing role where ever you are today, do you face barriers as you try to implement diabetes treatment guidelines?

10C: Definitely workloads do play a factor into that, and the nurse has to prioritize what to give the patients. We might have the 15 minutes that we want to spend on say insulin instruction and teaching the patient on how to give insulin has to be allocated somewhere else because of the fact that another patient is doing poorly so I think those are definite barriers as well as time barriers. Workload for the mere fact that more and more is put on the nurse to do for education even though we do have excellent diabetic educators you know there is still more and more education that gets put onto nurse and I feel that we just don't have the time to go through it to make the patients understand the way they need to.

10B: Many of the patients are afraid of insulin, they hear the word insulin they're afraid they're going to get home and give themselves too much or not enough and it really does take a lot of telling them what to look for if it's too high or too low. I think that's one of the things I'm sure we all wish we had more time to instruct and explain because it really is a scary thing for the patients

10A: And I think another thing is knowing those resources out there we have our diabetic educators that can help us with the patients get the glucose monitors and that kind of stuff but I think resources outside of the hospital setting that they can get the things that they need, whether that's through charity care or whatever I don't think that those resources are known as well for the floor nurses.

Moderator: Do you want to add anything? Before I summarize the information discussed is there any additional information you would like to share about the management of diabetes patients or the guidelines?

10C: I just feel like the guidelines have really helped at least on the floor where I work at least understand when to hold and when not to, when to call they physician. And also insulin drip is something we all have, it's a concern because of the frequency of the accuchecks and the changing of the fluids and all, just recently we have had in services where they have tried to explain to us how to do that and that's been one of the issues that we've really been trying to get some education on and make sure that we do it right. If we have a patient on an insulin drip that needs every hour accuchecks we do not accept that type of patient now so we try to get a good report find out what the patient is actually going to be on before they come up so that they patient doesn't come up and get moved to another unit. Kind of a lot of education in the insulin drip.

Moderator: I'm going to provide a summary: the guidelines help us have blood glucose guidelines and help nurses know when to treat with oral versus insulin. In the hospital there are many contributing factors. Patients need tighter control in the hospital possibly due to infections and medications. We monitor them more closely here than at home, check the blood glucoses frequently trying to keep a good eye on things. It definitely takes team work, someone for example a tech might be checking the blood glucose and they have to have good communication with the nurse. It's important to have better controlled diabetes while they're in the hospital we're got certified diabetes educators that help as part of the team. Keeping the patient informed, caring for acute patients. The guidelines help us to be more aggressive to follow up with the physician opens the doors for patients that may not have a good read on their diabetes. Before the guidelines we were checking sugars and giving insulin without a lot of guidance, and now we've got instructions on what to do if the patient is NPO and specific guidelines on when to call the doctor. Best practice tells you what to do, we're seeing less hyper and hypoglycemic events, we're working more closely with endocrinologists to get better control and planning to follow-up after discharge. Knowledge of the nurse can help nurses be an advocate for the patient and how they should be treated. The guidelines help have less gray areas. Nurses have better understanding of what to do, better transparency. Education piece the patient gets insulin versus oral medications staying up on the changes with education can be a challenge. Sometimes there are multiple changes in an insulin order in a short span of time and it's very important in the records that they are up to date and note the

right doses are being given. The timing especially with dinner patients order their meals at different time so the insulin needs vary and workload can be a factor in getting insulin to patients in a timely manner. From an education standpoint education doesn't seem to be provided during nursing school so new nurses have higher educational needs regarding diabetes management. Not all the physicians are aware of the financial barriers of our patients not being able to maybe afford what they prescribe at the time of discharge so this is a barrier to the patients being able to continue to do their diabetes management. Sometimes there is a lack of understanding on the part of the patients some patients have more resources than others, some are homeless and again this really take a team approach. The group also discussed some language barriers and the interpreters that are available but the home going instructions aren't available in another languages and it looks unprofessional when we use internet translations software. Workloads are an issue, more and more is being put on the nurse. Nurses don't have enough time to spend to go through every specific piece of information that patients may need. Patient acuity is high not enough time to teach, time barriers. Patients are afraid of insulin and recently we're had a lot of education about the insulin drips, frequency of accuchecks and how to manage the insulin drips because staff needed that. Is there anything else anyone else would like to add?

10B: We used to be able to use our own discretion about when to hold insulin and now we have to have a doctors order and they double check that if we do hold it that were held accountable for holding it without a doctors order.

Moderator: Is there any other information or additional information you'd like to add?

Nope.

Moderator: Thank you for participating in this focus group discussion and providing your opinions and feedback. Please contact me if you'd like to share any additional information.

Focus group 11

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded. Your participation is voluntary and you need to sign the consent form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions? Please sign the consent form. I will collect your signed forms. Please also complete the professional

demographic form. During this discussion we will be on a first name basis, however, all names will be deleted and replaced with a pseudo name during transcription. Your comments will remain confidential. I would also like to ask that each of you keeps this discussion confidential. Even though we will keep this information confidential, each of us needs to respect one another's privacy and you should not say anything here that you would not want repeated even inadvertently outside this room. Each of you has been provided with a copy of the questions for this discussion. A copy of the guidelines is also available. It is important that each of you participates in the discussion. I may limit some discussion or encourage others to speak to assure we stay on time and that I get feedback from everyone.

Moderator: When you hear the words "national guidelines for the management of diabetes patients, what comes to mind?"

11A: Personally I feel our order sets, our order sets should mimic the national guidelines so personally I've never read through them I just kind of follow the order set.

11B: I would agree with her our order sets we have two separate insulin order sets and it's just pick of the draw whatever one you get and they're not very consistent.

11A: It just seems like one patient will get one order set and another patient will get another set, based on what service they're coming from.

11C: That was going to be my comment is that if the national guidelines are out there how come every doctor chooses their orders differently would be the only thing. I think it should be one consistent order and every doctor no matter what service they're on should be filling out those orders.

Moderator: To summarize, the national guidelines, the preprinted orders help us to follow the national guidelines. What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

11B: I think it depends on the patient, first of all I think they're tailored to the perfect patient so when we get patients that struggle with compliance or are just out right noncompliant it's a standard that they're not able to follow so then for us to have them follow it is very difficult. With the perfect patient those standards are great but depending on the patient population it's just really difficult to follow. It is kind of confusing especially when you're teaching new nurses. There are different procedures with NPO whether its basal insulin versus fast acting insulin. There's a lot of education to go into it. I don't know a

lot about diabetes so I myself have to ask a lot of questions or look stuff up. I just think there is a lot of education behind it.

11C: I think as far as the education goes a lot of it comes down to the patients too because it seems like a lot of the sliding scale orders go on for every patient whether they're insulin dependent at home or not and those patients get confused and then there is education with the patient along with education with the nurses to explain a lot of that stuff.

11A: I just think that we have a lot of noncompliant patients who've never taken insulin and they're actually scared to take insulin when they come into the hospital. They might be on metformin at home and they normally will try to refuse the insulin when they're here and the doctors don't start their home medication for a couple of days until we get their blood sugar at a respected level.

Moderator: How do these guidelines influence your care of persons with diabetes?

11B: I think it does take a lot more time to try and convince patients to take insulin this is what we need to do and you also have to talk with them because they're trying to be noncompliant with some of the orders the doctors are writing. They're used to something they've been doing for a given amount of years and to just kind of change that once they come into the hospital it does take a lot of education and explaining that we do it a little bit differently than they do it at home. So it does take a lot more time to convince these people that this is what they need.

11A: And time to reinforce if you have the diabetes educator that can come by too and talk to these patients that maybe are new onsets or are the ones that are more noncompliant with even oral medications at home versus insulin stuff. Following up with that and trying to educate as far as that goes and then whether you have a patient that's going to be agreeable to the plan you have here or needs more convincing education on the questions they may have.

11C: And my perception, like the guidelines themselves, I guess I don't teach for the guidelines I teach for the patient. So it's really hard because most of them don't understand the guidelines and why they can't do what they do, they just know that this is what they're prescribed to do so really getting it to understand why they're doing things and not all out patient physicians, their PCPs, follow the national guidelines as well so a lot of these patients when they come in here we put them on a certain diet, and that diet is probably what they're supposed to be on for the guidelines but when they're at home they dose themselves differently for what they eat. It's hard especially when we have a diet and a set standard and then they're going down to the cafeteria or the gift shop and getting what they would normally have or family brings stuff in, cause then we're not treating them for what they are eating we're treating per our standard set of orders. Sometimes that's a big barrier or they a lot of people don't want to eat breakfast lunch and dinner at certain times do you treat for breakfast when they're not eating it? A lot of patients don't do that, although it is a standard guideline it doesn't fit a lot of the patients. There is a lot of question there on what to do and when.

Moderator: What do you see as the facilitators for implementation of these guidelines?

11A: We have the diabetes educator and I know we have the NP now that hopefully will start seeing more patients to kind of help the patients with education as well as helping educate the nursing staff. I just think getting nursing to understand more about standards and why we do them.

11B: Well depending on whom the facilitator is so whether it be the NP, the diabetes educator, myself or asking each other.

Moderator: Are you saying the diabetes educator and nurse practitioner are facilitators for the guidelines?

11B: Yeah, I think we just use a large array of resources. But making sure that your resources know what they're talking about.

Moderator: Ok, what are other facilitators, what helps us to implement the guidelines?

11A: I think I rely more on the diabetes educator more than anything. Just because we deal more with our trauma type patients versus the medical type patients the majority of the time. So like our Trauma NPs can help but they usually refer to the diabetes educator and things like that so I tend to rely on that and then education I can find online to print off for the patient you know like information on the insulin itself or if they're anew patient that's starting maybe metformin or something like that to try and give them something that they can read, look over and then ask questions when the diabetes educator or myself get there.

11B: I would agree, I think just having those people on the unit that can educate you and then you can educate the staff so that we can educate the patient is definitely a great approach to it and I think printing out educational material based on the diabetes guidelines so they can see it and maybe have evidence based practice articles where they see that this is the way that we do things would definitely be a facilitator.

Moderator: What do you see as barriers to implementation of the diabetes guidelines?

11C: I think the biggest one is patient noncompliance you know cause like it was mentioned a few minutes ago too, if you have a patient that doesn't usually eat the way that our guidelines would suggest we do our medications before meals and maybe they're not a breakfast eater or maybe they eat breakfast and dinner but they skip lunch or just things like that so I think having a set standard plan for patients that vary across the board is difficult.

Moderator: So they're not individualized.

11C: Correct.

11A: We also have certain endocrinologists that don't want to follow those standards and want to follow their own standards and it can be slightly confusing to nursing staff when they're trying to learn a new set of standards and then kind of something specific for other physicians.

11C: I think that there is an educational curve to for some of the newer nurses coming on too that don't quite know or understand if they don't deal with diabetes a lot how the insulin and medications kind of plays out. So there is some education as far as that goes that could help too, cause things could get missed or if the patient like I said earlier chooses not to eat that meal and they're just not giving them their insulin then they're not getting great results from the patient themselves either.

11B: I'm pretty much in agreement with them I think those are the two major barriers that we have

11A: I think we've come a long way with that an old barrier was we never knew when they had their trays and now nutrition will page us when they get their tray. So that's helped plus the patient wants their food so they're not leaving the unit to find food somewhere else. So knowing that they got their tray for the most part we try to get in there at least when they're eating.

11C: I think another facilitator that will help kind of try to stick the guidelines would be our new menus that kind of state out what each carb is for each food so we can calculate it easier; I think that's a major facilitator.

11B: That's really easy for patients to understand.

Moderator: So before I summarize the information discussed is there any additional information you would like to share about the management of diabetes patients or the guidelines?

So our order sets should mimic the national guidelines so when I asked you know how do you perceive the national guidelines unfortunately we have two sets of orders it's not always consistent which ones being chosen for different patients different providers might choose it differently so it really kind of hinders sometimes. As far as insulin treatment the national guidelines are tailored to a perfect patient and not standard and we don't always have the perfect patient. Some of the guidelines can be confusing when teaching new nurses, lots of education, and lots of questions. When the patients are on a new regimen in the hospital than they are at home it sometimes leads to confusion. There is a lot of noncompliance on the part of patients, they might have been taking oral medications like metformin at home and sometimes they try to refuse the insulin and it takes a lot more time to try and convince the patients of what we're trying to do. Change in the hospital takes a lot of education. The diabetes educator really helps with the noncompliant or new diabetics. The guidelines themselves can help teach the patient, but sometimes they don't understand them, and PCPs in the outpatient don't always follow the guidelines so the diet in the hospital might be different. Patients might be obtaining food from other sources that makes it really difficult to control the diabetes, so the guidelines don't always fit with the patients. The diabetes educator and now we have a new NP that helps the patients and nursing staff with education that's a facilitator we have a lot of resources for education, that's a facilitator. With the trauma patients the nurse practitioners will also rely on the diabetes educator sometimes. We have resources where we can print off information for the patients that they can read and we have resources that can help educate the staff. The barriers repeated again, noncompliance of the patient, diet doesn't always meet the patients schedule they might not want to eat at the certain times that are on our order sets so that can lead to confusion of when to cover patients. Some of the endocrinologists want to

change the way they practice and that has created some confusion because it's not part of our order set. Newer nurses might not have a real good comprehension or understanding of diabetes in general so there is education needed and things can get missed. A barrier is we didn't use to know when food was coming, but now we have a meal notification process and if it's done well then we get notified before the patient eats. The new menus are going to be a facilitator because they are helping identify what carbohydrates are in the foods and it's going to help the patient the patients kind of understand that concept a little bit better. Is there anything anyone wanted to add?

Thank you for participating in this focus group discussion and for providing your opinions and feedback. Please contact me if you would like to share any additional information.

Focus group 12

Thank you for agreeing to participate in this focus group to discuss the management of hospitalized persons with diabetes mellitus. You have been asked to participate in this study to share your knowledge and opinions about the guidelines for management of the non-critically ill hospitalized diabetic. I would like you to be very open honest and candid with your responses. The entire session will be audio recorded.

Your participation is voluntary and you need to sign the consent form. You can stop your participation at any time. There is no direct benefit to your participation. The only risks are those of personal exposure. Are there any questions?

Please sign the consent form. I will collect your signed forms. Please also complete the professional demographic form.

During this discussion we will be on a first name basis, however, all names will be deleted and replaced with a pseudo name during transcription. Your comments will remain confidential. I would also like to ask that each of you keeps this discussion confidential. Even though we will keep this information confidential, each of us needs to respect one another's privacy and you should not say anything here that you would not want repeated even inadvertently outside this room.

Each of you has been provided with a copy of the questions for this discussion. A copy of the guidelines is also available. It is important that each of you participates in the discussion.

I may limit some discussion or encourage others to speak to assure we stay on time and that I get feedback from everyone.

Moderator: When you hear the words “national guidelines for the management of diabetes patients, what comes to mind?”

12A: Standard

12B: Standard of care for diabetes

Moderator: Anything else?

12B: Carb counting

12C: A1C below 6

12A: Actual diabetes is 6.5 pre is 5.8-6.4

12B: And the type monitoring we do with post-op open heart patient that comes to mind when you say national guidelines.

Moderator: To summarize: the preprinted orders help us to follow the national guidelines and include diet and A1c goals. What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization?

12A: Usually a sliding scale, and insulin; we don't use their oral agent.

Moderator: So what do you think about that?

12B: We take them off their oral, we treat them differently while they are in the hospital.

12C: I think it's confusing to the patient. Sometimes they say “I've never taken insulin before why do I have to take it now” “I just take a pill, I don't understand why I'm doing this”

12A: But now they've done a study that glucophage really is not affected by the dye but we continue to hold glucophage and have not changed our practice.

Moderator: How do these guidelines influence your care of persons with diabetes?

12B: In some case it make it easier to maintain and to do the diabetic teaching like the post open heart surgery where somebody has already been on insulin but then it makes it difficult for the patient who has never been on insulin and all the sudden we're giving insulin in the hospital so its twofold.

12C: Also, we do insulin drips on patients that aren't diabetics and then we continue for a few days and they're not used to being stuck you know for blood glucose checks but we always tell them it's like a stabilizer if your insulin is stabilized you heal better.

Moderator: That's post open heart surgery patients

12B: But then we'll keep it on them for a given amount of days.

12A: I just had a patient refuse insulin, it was that type of incident we were talking about like treating with insulin here and oral things at home and she refused it because she didn't want insulin cause she doesn't take it at home.

Moderator: What did you do in that case?

12A: I called the doctor and he said it was okay

12B: But see they're afraid that if we give them insulin here in the hospital sometimes they're afraid that they are going to have to go home on it and they're afraid of that so they don't want it.

Moderator: What do you see as the facilitators for implementation of these guidelines?

12A: We lack on that because this carb counting was never presented to us, you know what I mean the 1-5 10-15 one even being a nurse all these years we've never ever done that and then it shows up. Is that what you're talking about? The education on this would have been helpful because when we went to carb counting we had no education on it. It started within the last few months probably around Christmas.

Moderator: Is this for all your patients?

12B: I don't know how many people are on that, maybe it's just the open heart patients.

12C: Some of the other units may never even been exposed to it.

12A: we do not have hands on education; we have some computer education but more hands on for me would be a facilitator.

Moderator: What do you see as barriers to implementation of the diabetes guidelines?

12B: The education, resources in general. Like time, staff, nurse patient ratios, lack of physician awareness.

12A: I don't think that the Doctors, the cardiologist, nephrologists any of them are aware that we do this carb counting thing. I doubt it, don't you (to group) the only one is Blackman and Lutmer probably. (Endocrinologists at GMC) And you have to wait to give insulin until they are done eating.

12C: Yeah you can't predict, you know we're used to you know medicating with insulin as their tray arrives based on their blood sugars. Now we wait to see what they eat and try to figure out what to give them, it's hard sometimes.

12A: You're covering them plus your covering again after they're done eating. With the carb counting you're covering after that so it makes it time consuming to be in and out of the rooms and patients with having room service to where they can order their meals whenever they want to it makes it difficult also because we can be in other room assisting other patients with something and have to stop what we're doing and go in and check them and dose them.

12B: I mean the other day I had one patient that only wanted 30 units instead of 32 I wasn't going to argue. I wrote a note to the side, I figured that wasn't enough to warrant a phone call. I never argue with my diabetic patients. I ask my diabetic patients what they want they know their bodies better than we do. I'm going to give them exactly what they want regardless of what is ordered, within reason.

12A: And they do they know their bodies; they tell me if you give me that I'm going to crash and burn. I listen to the patient.

12C: And there is a lack of consistency for diabetes management across the system like sometimes HMS, sometimes its cardiology, sometimes its endocrinology and there doesn't seem to be any consistency.

Moderator: So before I summarize the information discussed is there any additional information you would like to share about the management of diabetes patients or the guidelines?

#1-I think it is really important to talk to the patient to let the patient have a say in their diabetes management at the hospital not just based on whatever some guideline says. Because they're only here for 24 hours and then they're going to go home, so like with carb counting I've been here a little over 23 years and the last two months we've done carb counting. Is that a national guideline or is that a facility preference?

12B: I only knew about carb counting because my mom does it. Because she's a type 1 diabetic and that's the only one I had. People that aren't even diabetics we do that for. It's a focus on tightening the healing process.

12C: Right.

Moderator: That's just for a few days, right?

12A: It could be yeah.

Moderator: Well let me summarize. Sometimes it's confusing for patients that never took insulin before and they might be worried that they're going to have to stay on insulin once they leave here. There's been a new study to show that glucophage didn't really affect the dye, but we haven't changed our practice. Insulin drips are administered to non-diabetics after they've had their open heart surgery and they've come to this unit and so they're not used to having their blood glucose checked we try to

reassure them that it's a stabilizing factor but sometimes the patients refuse insulin, sometimes patients are afraid that if we give them insulin here they're going to go home on it, and they're very afraid of that. Carbohydrate counting initiated in the last one to two months for some patients but staff were never educated about it. There are not very many hands on education opportunities, just computerized information. There is lack of resources time and staffs, patient ratios are sometimes too high to provide all the education physician awareness of the guidelines is lacking especially some of the specialist nephrologists and cardiologists don't even know about the guidelines. Nurses have to wait till the patient is done eating to cover meal carbohydrate intake and staff used to give insulin when the tray arrived. With carbohydrate counting, the meal-time insulin is given after the meal. And with room service, meals can happen at any time and the nurse might be covering another patient or doing something else and they have to stop what they are doing. Sometimes patients know their own bodies and they only want a certain amount of insulin and you have to call the physician and that can take time so sometimes nursing judgment is used to give the dose the patient is comfortable with. Nurses feel like they should not argue with the patient they know their bodies better than us, give them what they want. There is a lack of diabetes management across the system and it's really important to talk to the patient and let them have a say in their diabetes care, not just what some guidelines say. Is there any additional information you would like to add?

Thank you so much for participating in this focus group discussion and providing your opinions and feedback. Please contact me if you'd like to share any additional information.

Summary of Participant responses

Question 1: When you hear the words “national guidelines” for the management of diabetes, what comes to mind?

During the focus groups, nurses commented that the national guidelines provide standards for providers to manage diabetes for hospitalized patients and are based on evidence and studies. Participants included that the guidelines include components of insulin treatment, diet recommendations and patient/staff education.

Question 2: What is your perception of the national guidelines for diabetes management that recommend insulin treatment for all patients during hospitalization? A follow-up to this question was how do these guidelines influence your care of persons with diabetes? These answers are summarized together because the responses were often overlapping.

The responses are classified into positive/negative views from nurse participants.

Positive responses:

Standards for how to treat diabetes patients in the hospital

Guidelines mean you perform blood glucose monitoring before meals and provide sliding scale insulin coverage

There are pre-printed orders for sliding scale insulin coverage and long acting insulin

It's important to assure that orders are transcribed appropriately and proper insulin doses administered

Important to notify prescriber for hyperglycemia or hypoglycemia

Need to manage/determine next steps if patient refuses insulin

Patients have many questions regarding why there are not on their home regimen and why they have to be on insulin in the hospital

The guidelines help create goals for best patient outcomes

The guidelines require discontinuation of oral diabetes medications and use of insulin

Some patients are more responsive than others to accepting the guidelines

More direction on how to manage hypoglycemia

The guidelines assist with understanding the standards for care for patient management and help improve control of blood glucose

Guide nursing practice

Allow for improved wound healing

The addition of basal insulin helps control blood glucose levels and there are less wide swings in blood glucose results

Education was provided about the guidelines

Patients in the hospital tend to be sicker and thus the guidelines help control blood glucose levels better

Increased opportunities for the diabetes team to provide patient education

Negative responses:

Glycemic control not adequate in the hospital

Patients require repeated explanations to help them understand the hospital regimen

The structure of before meals and at bedtime blood glucose monitoring/insulin does not fit with the on demand meal process

Even though there are guidelines-there is practice variation among prescribers which can make it confusing when treating different patients

There should be more consistency among prescribers

Lack personal knowledge about diabetes

Patient confusion about insulin/have to convince patients to take insulin

Uncertain how to manage NPO patients

Time for providing care increased and nurses have to provide additional patient education

Patients do not (usually) follow the same diet at home

Patients may leave unit to eat or have food brought in

The guidelines are tailored for the perfect patient and do not take individual patient lifestyles into consideration

Type I diabetes patients may know their bodies and insulin needs better than nursing staff-creates confusion/uncertainty

Patients may not require the same amount of insulin as at home and are at risk for more hypoglycemia during hospitalization if home doses continued

Patients may refuse insulin

Patients may believe they have to stay on insulin at home-afraid

Decrease in autonomy to hold insulin or adjust doses than in the past

Focus Group: Facilitators Summary of responses

Pre-printed orders for treatment of hyperglycemia and hypoglycemia

Protocol to not over treat HS blood glucose

Assure RN educated to fit guidelines with the patient

Assure that RN can fit into every day nursing tasks and not detract from other patients

All team members on board

Dietary meal notification process

Orders are clear (for DM/insulin)

Doctors supportive if RN has to call

Pre-printed orders provide directions which takes burden off RN to obtain detailed orders

Administrative support

Diabetes educators

LMS modules for (DM) education/other education for staff RN's regarding the guidelines

Nutritionists assist with patients/help monitor meals and provide education prn

Patient educational materials

Carbohydrate counting as directed by endocrinologist and assures RN understands

Includes guidance for patients that become NPO

Arrange outpatient follow-up as needed

Allow RN to advocate for patients

Less hypoglycemic and hyperglycemic events

Nurse practitioner assigned to focus on diabetes patients

On-line resources available as needed for staff or patient education

Focus Group: Barriers –Summary of responses

Pre-printed orders do not take into account individual patient eating habits/patient BMI

Blood glucose spikes if patient eats more than expected (and not provided enough insulin to cover food intake)

No diabetes related snacks available on unit (only simple sugar type snacks)

Prescriber does not routinely adjust insulin doses to meet individualized patient needs

Patient confusion regarding why they have to be on insulin during hospitalization

Patients want to follow outpatient protocols

Nurse has short time window to build trust with patient

Lack of patient education/knowledge regarding proper DM management in outpatient setting

Dietary does not always follow the process for RN meal notification

Time management/Nurse workload sometimes RN-cares for up to 6 patients (per shift)/

On demand meal ordering process

- RN may not be certain of when meals ordered,
- Uncertain when to provide insulin dose
- May be busy with other patients when the meal does arrive

Patient begins eating without notifying RN to check blood glucose/administer insulin

If RN needs to call prescriber can take an hour or longer for return phone call regarding the blood glucose level

Bedside RN may think blood glucose level/management is not a big deal

RN/prescriber afraid to treat blood glucose (fear of hypoglycemia)

Some RN's hold insulin if patient NPO (even basal)

Lack of RN critical thinking

- When to escalate treatment
- When to start insulin drip

Not using good judgment for when to re-check blood glucose levels

Pre-printed order sets not completed properly by prescriber

Communication between staff

Some prescribers become upset with phone calls regarding blood glucose levels and questions regarding insulin dosing

Nurse might delay contacting prescriber

Some patients are in denial and refuse diabetes meal/insulin

The pre-printed order set is “cluttered” which can lead to missed order by pharmacy or nursing
 GMC does not have enough endocrinologists to manage all diabetes patients

Inconsistent approaches to diabetes management

Patients have numerous educational needs

Patients at GMC tend to have lower educational level and difficulty comprehending diabetes management

Type of diabetes not clear (type 1 or type 2)

Not enough accucheck machines

If patient blood glucose above 300mg/dl-RN needs to try and figure out why (may be related to illness or extra food intake)

RN’s were not provided formalized training for how to do carbohydrate counting prior to some physicians prescribing it

Some RN’s were not providing proper coverage for meals as ordered (with carbohydrate counting)

It is also time consuming to wait and see what patient eats and then calculate and administer insulin post meal

More work for RN to follow guidelines

Difficult to reach prescriber if BG high or low

At time of admission, many prescribers do not know the patients and their history and have to write the orders

Patients’ refusal insulin/afraid of insulin/afraid of need to continue insulin after discharge

Patient ’denial

Patients not cooperative with treatment regimen

Patients financial issues-can’t afford testing supplies or medications

Patients leave unit to eat or eat food brought in from home

Patients refuse diabetes meal tray and sometimes prescriber changes to regular diet which includes sugar and does not modify meal time insulin and blood glucose rises

RN struggles to provide insulin on time

NPO and orders not modified

Not taught how to do CHO counting

Patients might not comprehend education

Patients often not used to the BG levels we try to maintain and may feel hypoglycemia symptoms even with BG levels in the 200's

Orders have been changed a lot (at least twice this past year)

Orders are hard to read and contain too many details

Language barriers

RN /patient unaware of community resources

MAR-requires two entries for pre-meal scheduled dose and correction dose (extra work and time), may lead to errors in amount of insulin administered

Pharmacy automatically changes some orders (to follow the guidelines) but they may not match the orders on the chart

Difficult to maintain blood glucose goals of 100-180mg/dl especially if patients are used to running 250mg/dl at home

Difficult to keep up with all the changes and stay current with education about diabetes

In past, RN could use judgment and hold insulin but now must have specific order

Some prescribers do not follow the guidelines

Learning curve for new nurses

Need more education for staff/and hands on education

Important to listen to patient especially T1DM-regarding dosing insulin

Important to allow patients to have a say in their care

Lack of consistency of diabetes across the system and within the hospitalist group