

MANAGEMENT OF INPATIENT HYPERGLYCEMIA: ASSESSING PERCEPTIONS AND BARRIERS TO CARE AMONG RESIDENT PHYSICIANS

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ABSTRACT

Objective: To develop insight into resident physician attitudes about inpatient hyperglycemia and determine perceived barriers to optimal management.

Methods: As part of a planned educational program, a questionnaire was designed and administered to determine the opinions of residents about the importance of inpatient glucose control, their perceptions about what glucose ranges were desirable, and the problems they encountered when trying to manage hyperglycemia in hospitalized patients.

Results: Of 70 resident physicians from various services, 52 completed the survey (mean age, 31 years; 48% men; 37% in first year of residency training). Most respondents indicated that glucose control was “very important” in critically ill and perioperative patients but only “somewhat important” in non-critically ill patients. Most residents indicated that they would target a therapeutic glucose range within the recommended levels in published guidelines. Most residents also said they felt “somewhat comfortable” managing hyperglycemia and hypoglycemia and using subcutaneous insulin therapy, whereas most residents (48%) were “not at all comfortable” with use of intravenous administration of insulin. In general, respondents were not very familiar with existing institutional policies and preprinted order sets relating to glucose management. The most commonly reported barrier to management of inpatient hyperglycemia was lack of knowledge about appropriate insulin regimens and how to use them. Anxiety about hypoglycemia was only the third most frequent concern.

Conclusion: Most residents acknowledged the importance of good glucose control in hospitalized patients and chose target glucose ranges consistent with existing guidelines. Lack of knowledge about insulin treatment options was the most commonly cited barrier to ideal management. Educational programs should emphasize inpatient treatment strategies for glycemic control. (*Endocr Pract.* 2007;13:117-125)

INTRODUCTION

Hyperglycemia in hospitalized patients is associated with worse outcomes (such as longer lengths of stay and higher mortality) in comparison with outcomes for patients without elevated blood glucose levels (1,2). Both randomized controlled trials and observational studies, however, have shown that outcomes can be improved with aggressive management of hyperglycemia (1,2). Consequently, glucose targets have been proposed for critically and non-critically ill patients in the hospital (2). In addition, glucose goals specifically for the perioperative period have been suggested (3).

A consensus conference recently reaffirmed previous position statements about the adverse effect of high blood glucose levels on the outcomes of hospitalized patients and the need to control hyperglycemia in the inpatient setting (4). Moreover, the conference emphasized the need to develop broad-based educational programs to increase awareness about the importance of inpatient glycemic control and to develop a standardized set of tools for use by hospitals to improve such care (4).

Nationwide, the number of hospitalizations involving patients with a diagnosis of diabetes mellitus has increased (5,6). In our own institution, we have observed an increase in the number of discharges with a diabetes diagnosis (from 14.9% of total discharges in 2001 to 18.9% in 2005). There are indications at both the national (3) and the state level (7) of efforts to improve care for hospitalized patients with hyperglycemia, and it is likely that individual hospitals are also taking steps toward enhancement of such care. Nonetheless, diabetes and glucose control continue to be overlooked frequently in the hospital, appropriate therapeutic responses to hyperglycemia do not occur (8,9), and ongoing concern prevails about the slow

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pace at which hospitals are implementing recommendations about glycemic control (4).

Before educational interventions and policies directed at improving the management of hyperglycemia in hospitalized patients can be developed, institutions need to gain a better understanding of how practitioners view the importance of inpatient glucose control and what barriers they perceive as limiting their ability to care for these patients. A self-assessment tool that examines these issues should be helpful to hospital managers as they plan and design their educational programs. Therefore, we developed a questionnaire and surveyed our resident physicians, examining their views of inpatient glycemic control, what glucose targets they perceived as desirable, and what factors they considered impediments to successful inpatient management of hyperglycemia.

METHODS

Setting

Our academic teaching hospital is a 200-bed tertiary-care facility located in metropolitan Phoenix, Arizona. All adult general medical and surgical specialties are represented, including transplantation services (kidney, liver, pancreas, and, most recently, heart), a level 2 trauma center, and an inpatient rehabilitation unit. Various types of practitioners provide patient care in our hospital, including postgraduate trainees (residents), medical school faculty, physician assistants, and nurse-practitioners.

Resident physicians were chosen as the subjects of this survey to correspond to a planned curriculum that will be dedicated to increasing awareness and providing treatment guidelines about inpatient hyperglycemia. Prior analysis estimated that approximately half the inpatients with diabetes in our hospital are treated by resident physicians. Thus, our trainees were an important group to target for educational programs focused on glucose management in the hospital (9).

Development of Questionnaire

We were primarily interested in determining practitioner attitudes about 3 aspects of inpatient hyperglycemia: perceived importance of glucose control in the hospital, glucose targets thought to be optimal, and barriers encountered to successful treatment of hyperglycemia. In addition, we wanted to ascertain whether residents believed they were achieving their glucose targets, their degree of comfort with managing hyperglycemia and using insulin therapy, their familiarity with existing institutional policies and preprinted insulin order sets, and their opinions about types of educational programs that would help enhance inpatient care.

A questionnaire (Appendix) was developed by specialists (endocrinologists, hospitalists), generalists (internal medicine physicians), and chief medical residents. To reach consensus, we subjected each questionnaire item to multiple iterative cycles of review and revision. The ques-

tions pertaining to glucose target ranges were based on available guidelines (2). Although opinions about obstacles to management of hyperglycemia have been expressed in the medical literature (1,4), actual data on practitioner perceptions about barriers to achieving glucose control in the hospital are not available. Our questions on barriers to care were based not only on opinions in the medical literature (1,4) but also on the extensive inpatient and teaching experience of the medical team that developed the questionnaire. The definition of the perioperative period used in the survey was based on that used by the Institute for Healthcare Improvement (3).

Participant Selection

The survey was conducted during January and February 2006. It was directed primarily at residents who have ongoing inpatient responsibilities in general internal medicine, family medicine, and general surgery. Previous data indicated that these 3 specialties cared for nearly two-thirds of all patients with diabetes in our hospital (9). Trainees in specialties such as dermatology or in subspecialty programs without primary responsibility for inpatient care (for example, gastroenterology) were not surveyed. On the basis of these criteria, 70 residents were asked to complete the questionnaire. Before the survey was officially administered, 9 residents participated in a pilot test, and final changes were made before its distribution.

Data Analysis

Participant responses were entered into Survey Tracker version 4.0 (Training Technologies, Inc, Lebanon, OH) for analysis. The distribution of responses to individual questions was examined. The frequency of barriers was listed from most common to least common.

RESULTS

Respondent Demographics

Responses were obtained from 52 of 70 residents (74% response). The mean age of the respondents was 31 years, 48% were men, 37% were in their first year of residency training, and 33% were 2005 graduates of medical schools. The residents represented the following departments: 44% internal medicine (N = 23), 25% general surgery (N = 13), 17% family medicine (N = 9), and 14% other (for example, transitional year, urology, or neurology; N = 7).

Perception About the Inpatient Burden of Diabetes

When the residents were asked to estimate the percentage of their inpatients who had diabetes, there was a range of responses. Ten percent of respondents indicated that diabetes affected 0% to 20% of their hospitalized patients, 38% estimated 21% to 40%, 36% estimated 41% to 60%, 14% estimated 61% to 80%, and just 2% (the rest of the respondents) believed that 81% to 100% of their

inpatients had diabetes. Thus, more than 50% of residents perceived that diabetes was present in more than 40% of their hospitalized patients.

Views on the Importance of Glycemic Control

The residents were asked their opinion about the importance of glycemic control in 3 different inpatient clinical scenarios: the critically ill, the non-critically ill, and the perioperative patient (questions 8 through 10 of the survey; see Appendix). No respondent chose the option “not at all important.” Most residents (Table 1) thought that treatment of hyperglycemia in critically ill and perioperative patients was “very important.” For non-critically ill patients, respondents were less definite, with 42% believing that good glucose control in hospitalized patients who were not critically ill was only “somewhat important” (Table 1).

Opinions About Glucose Targets and Hypoglycemia

When residents were asked to indicate what glucose levels (survey questions 11 through 13) they tried to achieve for the aforementioned 3 clinical scenarios (Table 1), most respondents indicated a goal range of 80 to 110 mg/dL for critically ill patients. For non-critically ill patients, 56% chose a higher range of 111 to 180 mg/dL; however, a substantial proportion (40%) also indicated a lower target range (from 80 to 110 mg/dL), and a few selected a target of 181 to 250 mg/dL. For perioperative glucose control, most residents preferred a target of 80 to 110 mg/dL, but a substantial percentage indicated a higher target of 111 to 180 mg/dL. A few respondents did not know what glucose levels should be achieved in perioperative patients (Table 1).

Most residents reported that they believed they were achieving their glycemic goals in 41% to 60% of their

Table 1
Summary of Opinions of Resident Physicians About Inpatient Hyperglycemia*

Question	Response category			
Importance of treating hyperglycemia in†	Very important	Somewhat important	Not at all important	Don't know
Critically ill patients	94	6
Non-critically ill patients	58	42
Perioperative patients	79	21
Glucose goal (mg/dL) in‡	80 to 110	111 to 180	181 to 250	Don't know
Critically ill patients	73	25	...	2
Non-critically ill patients	40	56	2	2
Perioperative patients	48	40	2	10
Comfort level with§	Very comfortable	Somewhat comfortable	Not at all comfortable	Don't know
Treating hyperglycemia	29	69	2	...
Treating hypoglycemia	33	65	2	...
Using subcutaneous insulin	27	63	10	...
Using insulin drips	12	38	48	2
Familiarity with//	Very familiar	Somewhat familiar	Not at all familiar	
Insulin pump policy	2	58	40	
Insulin pump orders	2	54	44	
Hypoglycemia policy	10	49	41	
Subcutaneous insulin orders	65	25	10	
Intravenous insulin orders	16	54	30	

*Data are percentages of total responses (N = 52) to survey.

†See questions 8 through 10 of survey in Appendix.

‡See questions 11 through 13 of survey in Appendix.

§See questions 16 through 19 of survey in Appendix.

//See questions 21 through 25 of survey in Appendix.

patients (question 14, Fig. 1 A); two-thirds of the responding residents perceived that they were achieving their glucose targets in more than 40% of their patients with diabetes. When asked at what glucose level they first considered a patient to have hypoglycemia (question 15), most residents chose a value of <60 mg/dL (Fig. 1 B), although some chose even lower thresholds of <50 mg/dL or <40 mg/dL.

Confidence With Treatment and Management

Survey questions 16 through 19 evaluated how comfortable the residents felt about treating hyperglycemia and hypoglycemia and about using insulin (Table 1). Most residents indicated they were only “somewhat comfortable” treating hyperglycemia and hypoglycemia and with using subcutaneous insulin therapy in the hospital. They expressed the least amount of confidence with using insulin infusions: 48% were “not at all comfortable” with use of this form of therapeutic intervention (Table 1).

Familiarity With Existing Policies and Procedures

Most residents (questions 21 through 25 of the survey; see Appendix) indicated that they were only “somewhat familiar” with existing hospital policies pertaining to insulin pumps and hypoglycemia or with the available preprinted order sets for insulin pumps and intravenously administered insulin. Moreover, a substantial percentage indicated that they were actually “not at all familiar” with these established institutional guidelines and orders. The only preprinted orders with which most residents acknowledged that they were very familiar were those relating to subcutaneous insulin use (Table 1).

Perceived Barriers to Care

No listed barriers to successful management of inpatient hyperglycemia were ignored by respondents. The 5 most frequently chosen, from most common to least common, were “knowing what insulin type or regimen works best,” “unpredictable timing of patient procedures,” “risk

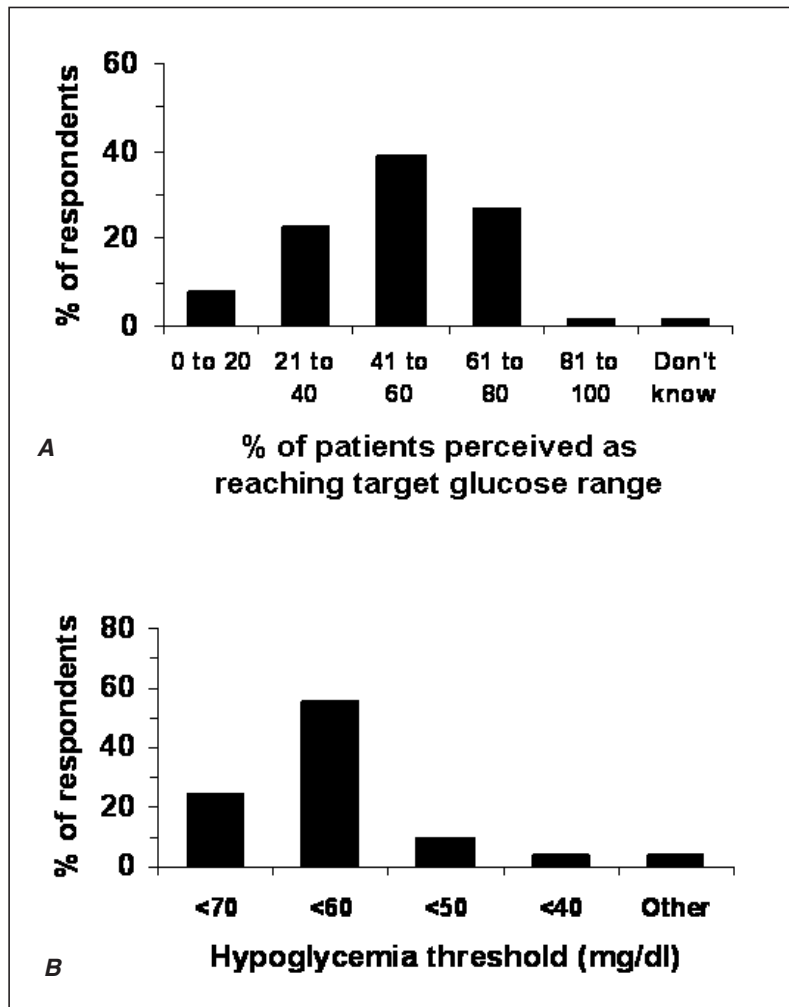


Fig. 1. Summary of survey questionnaire responses, showing perceptions of resident physicians about how many of their inpatients were achieving desired glucose goals (A), and the glucose levels reported by residents as defining hypoglycemia (B).

of causing patient hypoglycemia,” “knowing how to adjust insulin,” and “unpredictable changes in patient diet and mealtimes” (Table 2).

Suggestions to Improve Education

There were 23 responses to survey question 26 (see Appendix), which was an open-ended question asking respondents to suggest ways to improve their education about the treatment of inpatient hyperglycemia. Most (39%) of these suggestions were associated with provision of more information on how to use insulin, and 22% of the respondents indicated that they were in need of guidelines for such problems as what glucose targets to achieve and how best to approach the treatment of inpatient hyperglycemia. Lectures, Internet-based training, and having a certified diabetes educator attend bedside rounds were some suggestions for educational experiences that would provide information on inpatient glucose control and diabetes management (not shown).

DISCUSSION

Before hospitals can develop high-quality improvement and educational programs focused on inpatient hyperglycemia, they will need more insight into how their health care practitioners view the importance of inpatient

glycemic control and what problems must be overcome in its successful treatment. Beliefs about diabetes have been explored in the past (10-12), but reported data specific to the inpatient setting are lacking. As part of a planned educational effort directed at enhancing inpatient glucose management, we explored the beliefs of our postgraduate trainees about hyperglycemia in hospitalized patients and sought their opinions about factors that complicate their ability to care for inpatients with high glucose levels.

Our findings indicated that resident physicians thought that diabetes was a substantial part of their inpatient practices: more than 50% of the survey respondents believed that more than 40% of their inpatients had diabetes. The opinion of residents that such a large burden of diabetes exists in hospitalized patients clearly substantiates the need to provide pertinent information and essential tools for successful management of patients with hyperglycemia.

The residents overwhelmingly responded that good glucose control was “very important” in situations relating to critical illness and perioperative care. This finding suggests that the importance of good glucose control in such situations has generally been emphasized in medical training. For non-critically ill patients in the hospital, however, 42% of respondents indicated that good glucose control was only “somewhat important.” There is no reason to

Table 2
Perceived Barriers to Management of Inpatient Hyperglycemia,
as Reported by 52 Resident Physician Survey Respondents

Barrier*	Result	
	No.	%
Knowing what insulin type or regimen works best	33	63
Unpredictable timing of patient procedures	23	44
Risk of causing patient hypoglycemia	22	42
Knowing how to adjust insulin	21	40
Unpredictable changes in patient diet and mealtimes	21	40
Knowing best options to treat hyperglycemia	19	37
Glucose management not adequately addressed on rounds	17	33
Patient not in hospital long enough to control glucose adequately	16	31
Lack of guidelines on how to treat hyperglycemia	15	29
Preferring to defer management to outpatient care or to another specialty	14	27
Knowing how to start insulin	13	25
Knowing when to start insulin	12	23
Treating hyperglycemia is not a priority in the hospital	11	21
Knowing how to best prevent hypoglycemia	11	21
Shift changes and cross-coverage lead to inconsistent management	11	21
Other	5	10
None, I have no trouble treating hyperglycemia in the hospital	4	8
Disagreement with other team members on how to control glucose	4	8

*Itemized from most to least frequently cited (see question 20 of survey in Appendix).

believe that the pathologic changes caused by hyperglycemia (1,13) differ in critically ill versus non-critically ill patients, and unless data become available to the contrary, our planned educational program should emphasize the importance of good glucose control in all hospitalized patients.

Most survey respondents indicated that the glucose target range for critically ill inpatients should be 80 to 110 mg/dL—consistent with published recommendations (2). For non-critically ill and perioperative patients, opinions were more evenly divided between strict (80 to 110 mg/dL) and less rigid (111 to 180 mg/dL) glucose control. Hospital outcomes may actually vary across a range of glucose levels rather than being associated with any specific glucose threshold value (14,15), but either of these target ranges chosen by residents would be within currently published guidelines for the non-critically ill patient (maximal suggested glucose level, 180 mg/dL) (2) and the perioperative patient (glucose goal <200 mg/dL) (3). Two-thirds of the responding residents believed that they were achieving their glucose targets in more than 40% of their patients with diabetes. Incorporating feedback to residents about whether actual glucose outcomes matched their perceived achievement of glycemic control would be a useful component of an educational program.

Most residents reported that they felt only “somewhat comfortable” managing inpatient hyperglycemia and hypoglycemia. In assessment of confidence with management of insulin therapy, most trainees felt only “somewhat comfortable” with subcutaneous administration of insulin, whereas most actually were “not at all comfortable” with use of intravenous insulin therapy. Concerns about insulin use were also reflected in how residents responded to the question about barriers to successful management of inpatient hyperglycemia—“knowing what insulin type or regimen works best” was the most frequently cited issue.

Insulin is the recommended treatment for inpatient hyperglycemia (2). The number of insulin analogues has increased in recent years, and the use of a basal-bolus regimen is favored over a sliding-scale regimen. Moreover, there are numerous intravenous insulin algorithms from which to choose (7,16-19). Provision of guidelines about when to initiate insulin therapy, how to choose from the numerous insulin treatment options, and when and how to adjust therapy will need to be integrated into any educational effort to improve inpatient glucose management.

Although reports in the medical literature cite fear of hypoglycemia as an obstacle to successful control of inpatient glucose levels (1,2,4,20), this concern ranked only third among the barriers cited by our residents. Studies examining hypoglycemia in the hospital have included patients with diabetes (21-23), but rarely has the prevalence of hypoglycemia been examined specifically among inpatients with diabetes (9,24). In our hospital, hypoglycemic events among patients with diabetes are rare (9). This low frequency may actually be a consequence of

clinical inertia or the tendency not to intensify therapy when needed—a problem that frequently underlies failure to reach metabolic goals in the outpatient setting (9,25,26). Most survey respondents indicated a glucose level of less than 60 mg/dL as the definition of hypoglycemia, although a few accepted lower glycemic thresholds. No consensus has been published on what numeric blood glucose value should define hypoglycemia in hospitalized patients or what constitutes an acceptable number of hypoglycemic episodes in a specific patient.

Other potential obstacles to optimal management of inpatient hyperglycemia reported by the residents suggested system-based problems. “Unpredictable timing of patient procedures” and “unpredictable changes in patient diet and mealtimes” were among the top 5 most frequently cited concerns. “Patient not in hospital long enough to control glucose adequately” and “shift changes and cross-coverage lead to inconsistent management” also suggested system-based problems that might impair the ability to achieve glucose targets successfully in hospitalized patients. Some of these obstacles, such as duration of hospital stay or timing of procedures, would be difficult to reengineer. Other factors, however, such as adjusting therapy to mealtimes and ensuring standardization of treatment across shifts, could be addressed through institution-wide education and changes in policies.

The last major finding from our survey was the lack of resident familiarity with existing policies and procedures. Our institution has had a long-standing policy on management of hypoglycemia and has had preprinted order sets for both subcutaneous and intravenous insulin therapy. Furthermore, for 2 years we have had a policy and an order set for use of insulin pumps in our hospital (27). It is likely that most hospitals have policies and preprinted order sets relating to glucose management. One step to enhancing and standardizing hospital glucose management may simply be to ensure that clinicians are familiar with what is already in place within the institution.

One limitation of the current study was the small sample size, which precludes a comparison of responses among residents of different services (for example, family medicine versus internal medicine versus surgery). Our 3-site practice (Arizona, Florida, and Minnesota) should facilitate the expansion of our study to include more residents. In addition, the beliefs of the residents should not be extrapolated to the medical faculty, to physician extenders (nurse-practitioners and physician assistants), or to other allied health personnel. Nonetheless, the questionnaire could easily be adapted with minor modifications to investigate how other health care professionals view inpatient glucose management and could potentially be used to assess changes in beliefs over time. Finally, our sample is from a single institution, and the attitudes of our residents and the barriers to care found in this setting may differ from those that are perceived by residents who are training in other types of facilities.

CONCLUSION

Despite the noted limitations, the results from this pilot study have already enabled us to focus our educational efforts to improve inpatient glycemic control. Most residents acknowledge the importance of good inpatient glucose control and have set target glucose ranges consistent with existing guidelines. Although these concepts should still be reinforced, our educational efforts must review therapeutic options, emphasize appropriate use of insulin in hospitalized patients, and focus on familiarizing residents with existing institutional policies and procedures. By monitoring changes in glucose control in our facility, we can evaluate the effect of these educational efforts.

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DISCLOSURE

The authors have no conflicts of interest to disclose.

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APPENDIX: INPATIENT DIABETES MANAGEMENT

Demographics

1. Are you: Faculty Resident or Fellow
2. Residents or Fellows, please indicate PGY: 1 2 3 4 5 6 7 or more
3. What year did you graduate from medical, osteopathic, or professional school? _____
4. What is your sex? Male Female
5. What is your age? _____
6. In which department or specialty do you currently work?

<input type="checkbox"/> Anesthesiology	<input type="checkbox"/> Family medicine	<input type="checkbox"/> Ophthalmology
<input type="checkbox"/> Cardiology	<input type="checkbox"/> Hematology and oncology	<input type="checkbox"/> Orthopedics
<input type="checkbox"/> Cardiothoracic surgery	<input type="checkbox"/> Hospital internal medicine	<input type="checkbox"/> Physical medicine and rehabilitation
<input type="checkbox"/> Critical care	<input type="checkbox"/> Internal medicine	<input type="checkbox"/> Psychiatry and psychology
<input type="checkbox"/> Dermatology	<input type="checkbox"/> Laboratory medicine	<input type="checkbox"/> Surgery
<input type="checkbox"/> Diagnostic radiology	<input type="checkbox"/> Neurologic surgery	<input type="checkbox"/> Transplant medicine
<input type="checkbox"/> Emergency medicine	<input type="checkbox"/> Neurology	<input type="checkbox"/> Urology
<input type="checkbox"/> ENT	<input type="checkbox"/> Obstetrics and gynecology	<input type="checkbox"/> Transitional year
Other _____		

Survey questions

7. When you are on the hospital service, what percentage of patients assigned to your team would you estimate have a diagnosis of diabetes or hyperglycemia?

<input type="checkbox"/> 0% to 20%	<input type="checkbox"/> 21% to 40%	<input type="checkbox"/> 41% to 60%	<input type="checkbox"/> 61% to 80%	<input type="checkbox"/> 81% to 100%
<input type="checkbox"/> Don't know	<input type="checkbox"/> NA			

	Very important	Somewhat important	Not at all important	Don't know or no opinion
8. How important do you think it is to treat hyperglycemia in critically ill patients (patients in the intensive care or step-down units)?	—	—	—	—
9. How important do you think it is to treat hyperglycemia in patients who are not critically ill (patients <i>not</i> in the intensive care or step-down units)?	—	—	—	—
10. How important do you think it is to treat perioperative hyperglycemia (during the period 24 hours prior to surgery through the first 48 hours after surgery)?	—	—	—	—
	80 to 110 mg/dL	111 to 180 mg/dL	181 to 250 mg/dL	Don't know
11. In critically ill patients, what glucose level do you typically aim to achieve?	—	—	—	—
12. In non-critically ill patients, what glucose level do you typically aim to achieve?	—	—	—	—
13. During the perioperative period (24 hours prior to surgery through the first 48 hours after surgery), what glucose level do you typically aim to achieve?	—	—	—	—
14. In what percentage of your hospitalized patients overall do you think you are achieving your target glucose level?				
<input type="checkbox"/> 0% to 20%	<input type="checkbox"/> 21% to 40%	<input type="checkbox"/> 41% to 60%	<input type="checkbox"/> 61% to 80%	<input type="checkbox"/> 81% to 100%
<input type="checkbox"/> Don't know				

15. In the hospital, at what glucose level do you first regard the patient as having *hypoglycemia*?
 ___<70 mg/dL ___<60 mg/dL ___<50 mg/dL ___<40 mg/dL ___Don't know/not sure
 Other_____

Based on your training and clinical experience, how comfortable are you with doing the following in the hospital?

	Very comfortable	Somewhat comfortable	Not at all comfortable	Don't know	NA
16. Treating and managing hyperglycemia	—	—	—	—	—
17. Treating and managing hypoglycemia	—	—	—	—	—
18. Treating and managing with subcutaneous insulin	—	—	—	—	—
19. Using insulin drips	—	—	—	—	—
20. Which of the factors below do you feel are barriers to managing hyperglycemia successfully in the hospital? Check all that apply.					

- None, I have no trouble treating hyperglycemia in the hospital
 - Treating hyperglycemia is not a priority in the hospital
 - Lack of guidelines on how to treat hyperglycemia
 - Risk of causing patient *hypoglycemia*
 - Knowing how to best prevent *hypoglycemia*
 - Knowing best options to treat *hyperglycemia*
 - Knowing when to start insulin
 - Knowing how to start insulin
 - Knowing how to adjust insulin
 - Knowing what insulin type or regimen works best
 - Patient not in hospital long enough to control glucose adequately
 - Preferring to defer management to outpatient care or to another specialty
 - Unpredictable changes in patient diet and mealtimes
 - Unpredictable timing of patient procedures
 - Disagreement with other team members on how to control glucose
 - Glucose management not adequately addressed on rounds
 - Shift changes and cross-coverage lead to inconsistent management
- Other_____

How familiar are you with the policies and preprinted orders in place in our hospital?

	Very familiar	Somewhat familiar	Not at all familiar	Unaware of policy
21. Insulin pump policy	—	—	—	—
22. Insulin pump order set	—	—	—	—
23. Hypoglycemia policy	—	—	—	—
24. Subcutaneous insulin order set	—	—	—	—
25. Intravenous insulin order set	—	—	—	—
26. What educational programs or resources would help you achieve your glucose goals for your hospital patients?				

Thank you for your time.