Diabetes self-management education has become widely recognized as an important component of patient care, recovery, and cost in the hospital setting. The 2010 AADE National Practice Survey reported that 15% of diabetes educators work in hospital inpatient services. In 2006, several organizations, including the AADE, issued a joint position statement outlining strategies for improving inpatient glycemic management. The American Association of Clinical Endocrinologists and the American Diabetes Association published an updated consensus statement on inpatient glycemic control in 2009. Due to the state of the science, this document does not address inpatient pump usage.

Background/Definitions

Studies have suggested that early and aggressive intervention to control hyperglycemia in hospitalized patients could significantly reduce morbidity, mortality, length of stay, and medical costs. Clinical practice recommendations supporting these findings include target blood glucose ranges of 80 to 110 mg/dL for critically ill surgical patients and random glucose values less than 180 mg/dL for patients on general floors. The NICE-SUGAR and other recent studies suggest that tight glycemic control in the presence of severe hypoglycemia can increase mortality. Targets of 140 to 180 mg/dL may be safer in critically ill patients at risk for hypoglycemia. Inpatient diabetes care teams have been shown to reduce critical outcomes and length of stay. For a health care professional with unique training, education and experience are a vital part of the team in the care and management of diabetes, and the hospital-based diabetes educator adapts concepts of diabetes self-management education to the acute care setting. Responsibilities extend beyond...
traditional patient and family self-management education. In collaboration with other health professionals, diabetes educators work to enhance case management activities to create and evaluate clinical practice guidelines, recommend changes in therapy, and reduce medication errors.2-4,19,20 They contribute to the development of effective systems by affecting organizational behavior and applying evidence-based interventions to improve clinical outcomes and achieve glycemic targets.

Role of the Diabetes Educator

The AADE recognizes the special needs of patients experiencing hyperglycemia in the acute care setting and the impact on morbidity, mortality, length-of-stay, and associated costs. Diabetes educators are a valuable asset to the interdisciplinary team and are uniquely prepared to facilitate change and implement processes and programs to improve glycemic control.

Diabetes educators play a key role in creating or implementing
- interdisciplinary teams,
- comprehensive staff diabetes education,
- blood glucose data surveillance,
- hypoglycemia screening and monitoring protocols,
- aggressive hyperglycemia insulin protocols, and
- smooth transitions from hospital to home.

Recommendations

All components of hospital care that affect inpatient glycemia need to be considered in initiatives to improve inpatient care.3,19,21 The diabetes educator’s responsibility as a member of the interdisciplinary team includes input into medication therapy and management, monitoring glycemic control, nutrition therapy, care coordination, patient education, and professional education.2,4,19,20,22,23

Patient Education

Patient education planning by the team should begin as soon as a learning need is identified during assessment. Early intervention provides time to identify and alleviate barriers, offers opportunity for practice, and facilitates problem-solving and coping skills. The goal is to prepare the patient to perform necessary survival skills by the time of discharge. Inpatient diabetes education focuses on basic skills and knowledge and should serve as a bridge to ongoing outpatient education centered on the AADE™ self-care behaviors. The role of the diabetes educator in the inpatient setting is to serve as a resource and role model to other health care professionals.22,23 Guidelines for inpatient education for all health care providers include
- performing learning needs assessments to include health literacy and to set and prioritize goals2,20,24;
- evaluating and updating prior diabetes knowledge2,24;
- focusing on survival skills—meal planning, safe medication administration, blood glucose monitoring, and hypoglycemia treatment2,20,24;
- documenting status of self-management education after each session to communicate to other health care professionals26;
- structuring learning environment to optimize learning (e.g., focused short sessions); and
- providing referrals to community resources to continue diabetes self-management education.4

Care Coordination

Diabetes is a complex condition that requires ongoing care management with interdisciplinary input.25 Diabetes-specific discharge planning should begin upon admission and provide a smooth transition from hospital to home.2,20 Diabetes case management adherence guidelines are available online from the Case Management Society of America.26 The Society of Hospital Medicine Glycemic Control Task Force provides an online workbook.27 Another publicly available resource is the American Association of Clinical Endocrinologists’ Inpatient Glycemic Control Resource Center.28

The diabetes educator’s role in coordination of care should include
- utilizing an interdisciplinary team approach with a patient- and family-centered model across the continuum of care from the time of admission throughout the hospital stay2;
- collaborating closely with other disciplines, including social workers, case managers, and home care coordinators;
- establishing means of communicating the status of diabetes self-management education, plan of care, and medication reconciliation to next provider20,25; and
- empowering the patient and caregivers to actively participate in their care from hospital to home.2,4,19

Nutrition Therapy

The primary nutritional goal during hospitalization is to provide adequate nutrition, promote healing, and prevent complications.2 The following are some of the challenges in the inpatient setting that create issues:
The following are guidelines for logic insulin regimens that utilize basal, prandial, and scale" should be eliminated and transitioned to physio-ments to get to goal. The use of the reactive "sliding set defined glycemic targets and utilize aggressive treat-

• Meal schedules and compositions may vary from those at home.2
• Meals may be delayed or modified for testing, procedures, and surgery.2
• Insulin requirements may vary with enteral, parenteral, and intravenous feedings.29
• Changes in appetite may occur secondary to medications and acute illness.19,20
• Food delivery systems change, as in “On Demand” menus and other room service–type meals.29
• Visitors bring in outside food that is not included in the meal plan.29

The American Diabetes Association recommends the use of consistent carbohydrate meal planning to reduce the variations in blood glucose levels that occur when carbohydrate levels differ from meal to meal.2 Hospitals may focus on carbohydrate counting rather than calorie counting to improve accuracy in prandial dosing of insulin. Diabetes educators should assist in the coordination of hospital food delivery, insulin administration, and point-of-care blood glucose testing schedules to optimize glycemic control.29 Educating and involving patients and family members in meal planning throughout hospitalization will facilitate self-care behavior during and beyond hospitalization.

Medication Therapy and Management

Optimal glycemic management and attainment of gly-
cemic targets with minimal hypoglycemia requires an understanding and implementation of the key concepts of insulin therapy. Adoption and implementation of hospital-wide policies and standardized insulin order sets will help guide providers in selecting the appropriate insulin regimen while avoiding adverse events. It is important to set defined glycemic targets and utilize aggressive treat-
ments to get to goal. The use of the reactive “sliding scale” should be eliminated and transitioned to physi-
logic insulin regimens that utilize basal, prandial, and correction insulin.2,6 The following are guidelines for intensive insulin therapy to achieve glycemic targets:

• Continuous intravenous insulin infusions are recommended in critical care to achieve tight glycemic targets.6 They can also be utilized for management in noncritical care areas for patients meeting established criteria.
• Scheduled subcutaneous basal and bolus insulin protocols may be used on general floors.4,19,30
• Use of oral antihyperglycemic agents are of limited value in acute care and should be avoided.4
• Insulin therapy should be adjusted based on type of diabe-
tes, current A1C, nutritional status including carbohydrate intake, clinical status (such as weight and renal function), insulin resistance, and concomitant medication therapy.2,19
• Patients taking insulin for the first time in the hospital should begin to self-administer insulin as soon as possible.20
• Hospitalization is an opportunity to evaluate and improve home diabetes medication regimens and promote self-care.19,20

Monitoring Glycemic Control

An A1C test and routine glucose monitoring are recom-

• recommending and evaluating products used for bedside blood glucose monitoring,
• working in collaboration with other care providers to ensure reliable blood glucose test results,
• developing and implementing written protocols to address the treatment of both hypo- and hyperglycemia,
• involving the patient and family in care and decision mak-
ing whenever possible,
• troubleshooting patient comfort concerns,
• establishing policies in collaboration with the laboratory and nursing for utilization of individual patients’ home glucose meters if appropriate, and
• systematic analysis of blood glucose data (glucometrics) for surveillance to evaluate outcomes and revise protocols as needed for patient care and performance improvement.21,31

Professional Education

All health care professionals that care for patients with diabetes should receive ongoing diabetes management updates. This includes nurses, nurse practitioners, physician assistants, physicians, dietitians, pharmacists, case managers, and point-of-care testing personnel.10,31 With this goal in mind, the inpatient diabetes educator may par-

• assessing staff diabetes knowledge and skills33;
• enhancing staff competencies;
• providing education in a variety of settings, including staff orientation, clinical areas, and grand rounds;
• developing curricula to share with other members of the team; and
• utilizing a variety of learning tools, such as case studies, self-learning modules, journal clubs, survival skills toolkits, and pocket cards to accommodate all settings and learners’ needs and preferences.

Topics should include types of diabetes, early recognition and screening for hyperglycemia, rationale for inpatient glycemic control, glycemic targets, nutrition therapy, and insulin therapy. Additional topics include the use of bedside blood glucose–monitoring data, oral agents in the hospital, acute complications, diabetic ketoacidosis, hyperosmolar hyperglycemic nonketotic syndrome, hypoglycemia, and careful documentation, including type of diabetes and complications. Coding and hospital medical records should reflect newly diagnosed diabetes, hospital hyperglycemia, and complications.3

Related Position Statements


References


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