A Performance Improvement Approach to Glycemic Control in the Hospital: Process Outcomes

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The Challenge

Hyperglycemia affects between 22% and 38% of hospitalized patients.¹ These include those patients with diagnosed diabetes, and diagnosed diabetes, and those who suffer from stress-induced or steroid-induced by hyperglycemia. Managing hyperglycemia in the hospital is complex and involves the participation of multiple stakeholders. Perhaps because of this complexity, out-of-date practices persist in hospitals. In particular, sliding-scale insulin administration is still widely used in American hospitals despite formal recommendations that this form of management no longer be used as the sole means of management.² This initiative sought to assist hospitals seeking to improve glycemic control in their facilities by providing technical assistance from expert faculty to an interdisciplinary team that committed to implement a project within a quality improvement framework.

Participating sites were divided into cohorts of 3-4 sites who were visited by the same faculty mentors. Each cohort participated in 3 Web Conferences over the course of the initiative. Participation was by application and support from the Chief Medical Officer was required. Teams were allowed to define their own projects as long as they related to improving glycemic control in hospitalized patients. Teams typically included members of the medical staff, and from nursing, pharmacy, and dietary departments.

Intervention Components:

Site Visit: A faculty team consisting of a physician (inpatient endocrinologist or hospitalist) and a nurse with extensive experience with inpatient glycemic control traveled to each site. Course activities included a working meeting with the designated team to discuss the proposed project but often also included a presentation by the visiting faculty to a larger group in settings like Grand Rounds.

Web Conferences: Participating sites were divided into cohorts of 3-4 sites who were visited by the same faculty mentors. Each cohort participated in 3 Web Conferences over the course of the initiative.

Initiative Web Site

We created a resource Web site for the participants. The site had the following features:

- Password protected entry
- Resource Center
- Site profiles with project information, presentations, and other materials
- Faculty profiles and contact information
- Discussion board

Primary Projects Undertaken and Completed

Developed and implemented physiologic insulin administration order sets to replace current sliding-scale insulin management
Revised and relaunched an underperforming physiologic insulin administration order set
Improved IV insulin administration in the ICU
Improved the management of hypoglycemic events

Other Accomplishments

Established a permanent glycemic control committee within institutional structure
Rechartered or relaunched an existing glycemic control team
Implemented new patient care processes (as case rounds, case conferences)
Revised dietary orders
Revised protocols for diabetic ketosudosis and hyperosmolar hyperglycemic state
Revised an existing physiologic insulin administration order set
Developed clinical orders for gestational, Type 1 and Type 2 diabetes
Revised formulary to restrict the number of insulin formulations available
Developed a transition protocol from IV to physiologic subcutaneous insulin
Achieved Joint Commission specialty certification for inpatient diabetes

Conclusions

All organizations were able to successfully plan and implement a project, although not all sites were able to demonstrate improvement during the 15-month project period.

All sites encountered significant barriers during implementation. Some were typical of the issues addressed (coordination of meal delivery with insulin administration) and others were less predictable (change in electronic health record vendor, threat of nursing strike). Building skills related to anticipating and responding to barriers is a key skill development issue for intraprofessional work teams.

Teams performed considerable work that was related to, but not necessarily part of their primary project.

This intervention model was successful in developing capacity in terms of structure and process for ongoing improvement beyond the formal project.