Improving Quality Care Goals Through Diabetes Collaborative Rounds on an Exemplary Care and Learning Site

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Intro

The quality of diabetes management in hospitalized patients has been problematic for hospital systems on all levels. A recent survey estimates that 22% of all hospital inpatient days are consumed by people with diabetes and inpatient medical care accounts for half of the 174 billion dollars in total US expenditures for this disease (ADA, 2008). Over the past decade many studies demonstrate improved glycemic control in the acute care setting improves clinical outcomes, decreases complications, and can reduce acute length of stay (ALOS) as well as costs. Newer methods and medication formularies to address inpatient hyperglycemia are more complicated than in the past. According to a study published by John Hopkins (Derr, et al, 2007) physician, resident, and nursing knowledge may not be adequate to ensure appropriate inpatient diabetes management. These issues challenge hospital systems to implement best practice strategies that will result in improved and sustainable changes in the care of patients with diabetes.

Purpose

Our network's mission is to lead innovation in high quality patient care through supporting graduate medical education. This institutional philosophy makes our internal medicine resident teaching floor (the Exemplary Care and Learning Site or ECLS) an attractive platform for leading innovation in quality improvement. The purpose of this cohorted unit is to improve interdisciplinary communication and efficiencies by keeping resident teams, attendings, unit staff and resident covered patients together whenever possible. The process and outcome from our diabetes project highlight the importance of the core competencies in resident education. Training in Practice Based Learning and Improvement, Interpersonal and Communication Skills and Systems Based Practice can directly translate into improved quality measures in patients with chronic medical illnesses.

Methods

A 3 day rapid improvement event using Toyota LEAN tools (a system/approach to eliminate waste and enable continuous improvement) was conducted to develop a working model for collaborative rounding on the ECLS. An endocrinologist and a certified diabetes nurse educator were designated as project champions in collaboration with residency program directors. Baseline medical knowledge of diabetes was measured for interns, residents, nursing staff and attendings using a validated tool. This showed our baseline knowledge was low, but comparable to that reported in the literature. Prior to any intervention baseline patient data on the ECLS was measured (glucose measurements, rates of hypoglycemia, rates of hyperglycemia, complications of diabetes, readmission rates, patient satisfaction, length of stay, severity of illness).

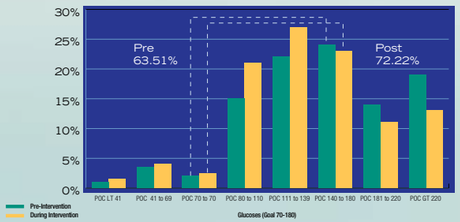
Starting in April '09, ongoing weekly interdisciplinary didactics (30 min sessions) were given by the diabetes specialists to all members of the ECLS floor that could attend. Topics focused on oral hypoglycemics, insulin preparations, insulin drip protocols and clinical scenario discussions. Additionally, weekly interdisciplinary collaborative rounds were performed on complex patients with diabetes. Residents were expected to lead this team of physicians, nurses, diabetes educators, medical students, pharmacists, case managers and other pertinent staff members. These occurred at the patient's bedside if the situation permitted. Collaborative rounds provided a format for improving resident medical knowledge and communication skills. This patient centered approach identified barriers to patient success and substantially improved discharge planning. Collaborative rounds facilitated more appropriate ancillary support for patients and this occurred much earlier in the patient's hospital stay preventing delays in discharge.

Using a systems based practice approach, daily utilization rounds were conducted by residents with nursing and case management. This helped to ensure appropriate use of inpatient resources such as telemetry. Residents were also given the opportunity to reflect on their patient data to change practice patterns. Outcomes dashboards were displayed in the hallway and updated weekly. Outcomes were separated by resident teams tracking ALOS, glucose monitoring and time of discharge. On an individual basis residents periodically received "scorecards" analyzing their diabetic management of patients they were actively managing. At the end of their ECLS rotation residents reviewed their monthly patient outcome statistics based on our core measures for diabetes. Periodic resident focus groups were held to give residents the opportunity to provide feedback in determining the future direction of the ECLS diabetes project.

Results/Discussion

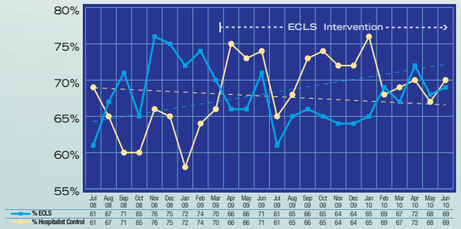
As a direct result of our intervention significant reductions in hyperglycemia were achieved increasing our "at goal" glucoses within the range of 70-180 (graph 1). There was a significant trend for continued improvement for "at goal" glucoses on the ECLS floor. During the same time frame a control cohorted hospitalist group (non-resident covered) showed worsening control without a similar intervention (graph 2). Our intervention produced a dramatic and sustainable 0.59 day reduction in ALOS; overall 0.52 days less than the control group (graph 3,4). Resident medical knowledge regarding diabetes management increased by approximately 33% based on follow up post-testing. Improved glycemic control and decreased ALOS were achieved even though severity of illness remained unchanged in patients admitted to the resident ECLS floor (graph 5). The success of the intervention shows attention to Practice Based Learning and Improvement, Interpersonal and Communication Skills and Systems Based Practice in resident education can directly translate into improved quality of care for patients.

Diabetes Intervention on ECLS: % of Glucoses in Ranges (Intensive Intervention)



1

Diabetes Intervention on ECLS: % Total Glucoses 70-180



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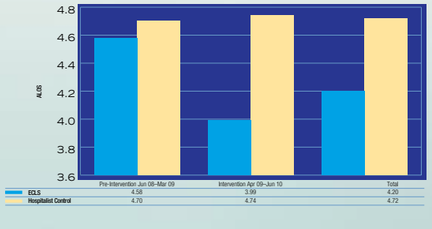
True Cohorted ALOS: ECLS vs Hospitalist Control



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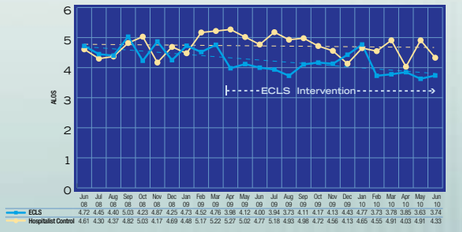
True Cohorting ALOS: ECLS vs Hospitalist Control



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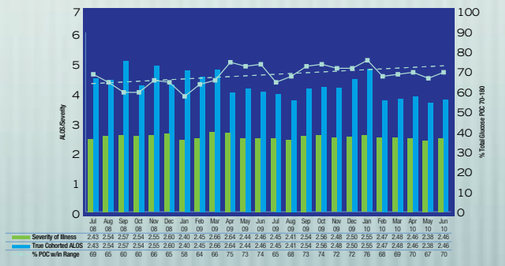
ECLS



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