ASPIRE

Anesthesiology Performance Improvement and Reporting Exchange

Measure Abbreviation: GLU 01

Description: Percentage of glucose labs with perioperative glucose > 200 mg/dL with administration of insulin or glucose recheck within 90 minutes of original glucose measurement.

NQS Domain: Effective Clinical Care

Measure Type: Process

Measure Summary:
The Treatment of Perioperative Hyperglycemia measure will identify the percentage of cases that you administered insulin or checked a glucose level within 90 minutes of when the documented glucose level was greater than 200 mg/dL. The purpose of this measure is to prevent prolonged periods of hyperglycemia. Acute hyperglycemia in the perioperative period is known to increase the incidence of wound infections, as well as overall mortality.   For this quality measure, we selected a relatively high threshold glucose level (greater than 200 mg/dL) to alleviate concerns that patients undergoing general anesthetics are at risk of overtreatment and hypoglycemia.

There are two measurement components for GLU 01. ASPIRE can only report on GLU01b for sites contributing PACU data.

GLU 01a: Percentage of intraoperative glucose labs with perioperative glucose >200 with administration of insulin or glucose recheck within 90 minutes of original glucose measurement for the time period between Anesthesia Start and Anesthesia End.

GLU01b: Percentage of glucose labs with perioperative glucose >200 with administration of insulin or glucose recheck within 90 minutes of original glucose measurement for the time period between 2 hours before Anesthesia Start to 2 hours after Anesthesia End.

Rationale:
Perioperative hyperglycemia is mediated by the release of proinflammatory cytokines (e.g., TNF-alpha and IL-6) and elevated concentrations of catecholamines, growth hormone, glucagon, and glucocorticoids. These mediators induce metabolic alterations in carbohydrate balance that alter peripheral glucose uptake and utilization, increase gluconeogenesis, depress glycogenesis, and induce glucose intolerance and insulin resistance. Hyperglycemia can also be drug induced (administration of steroids).

Inclusions:
- All patients with glucose level greater than 200 mg/dL between
  - GLU 01a: Anesthesia Start and Anesthesia End
  - GLU 01b: 2 hours before Anesthesia Start to 2 hours after Anesthesia End
- Patients with **and** without diagnosis of diabetes

Exclusions:
- ASA 5 and 6 cases
- Patients < 12 years of age.
- Glucose measurements > 200 mg/dL within 90 minutes before Anesthesia End for GLU 01a
- Outpatient cases with Anesthesia Start to Anesthesia end time less than 4 hours long
- Obstetric Non-Operative Procedures- CPT 01958, 01960, 01967
- Obstetric Non-Operative Procedure Rooms (Rooms tagged as OB-GYN – Labor and Delivery)
- Obstetric Non-Operative Procedures with procedure text: "Labor Epidural"

MPOG Concept IDs Required:

Insulin MPOG Concept IDs		Glucose MPOG Concept IDs	
10229	Insulin Aspart	3361	POC- Glucose (Fingerstick)
10230	Insulin Glargine	3362	POC- Glucose (Unspecified Source)
10231	Insulin Novolin	3405	POC- Blood Gas- Glucose
10232	Insulin NPH	5003	Formal Lab-Glucose, Serum/Plasma
10233	Insulin Regular	5036	Formal Lab-Blood Gas, Glucose
10659	Insulin- Unspecified		

Data Diagnostics Affected:
- Percentage of Cases with Insulin Administration Mapped Correctly
- Percentage of Cases with POC Glucose Labs
- Percentage of Cases with a Lab Drawn during Anesthesia
- Percentage of Labs Mapped to a Meaningful Lab Mapping
- Percentage of Medications with a Meaningful Medication Mapping
- Percentage of Fluids with a Meaningful Fluid Mapping

Collations Used:
- AnesthesiaEnd
- AnesthesiaStart
- AsaNotes
- IntraopGlucose

Failed Case Grid Elements:
- Link to Case
- Date of Service
- Procedure
- Surgical Service
- Operating Room
- Glucose Value
- Glucose Lab Time
- Anesthesia End
- Has Anesthesia CPT
- Responsible Provider
- MPOG Case ID

Case Viewer Template:

Success:
- Administration of insulin within 90 minutes (either IV or sub Q routes) or
- Recheck of glucose level within 90 minutes

Threshold: 90% success.

Responsible Provider: The provider signed in at the first glucose recheck or first administration of insulin. If neither occurred, then the responsible provider is the one signed in 90 minutes after the high glucose measurement.

Risk Adjustment (for outcome measures):
Not applicable.

References:

Frisch A, Chandra P, Smiley D, et al. Prevalence and Clinical Outcome of Hyperglycemia in the Perioperative Period in Noncardiac Surgery. Diabetes Care 2010;33(8):1783-1788. doi:10.2337/dc10-0304.

Gandhi GY1, Nuttall GA, Abel MD, Mullany CJ, Schaff HV, Williams BA, Schrader LM, Rizza RA, McMahon MM. Intraoperative hyperglycemia and perioperative outcomes in cardiac surgery patients. Mayo Clin Proc. 2005 Jul; 80(7):862-6.

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