Measure Abbreviation: GLU 02

Description: Percentage of glucose labs with perioperative glucose < 60 with administration of dextrose containing solution or glucose recheck within 90 minutes of original glucose measurement

NQS Domain: Patient Safety

Measure Type: Process

Measure Summary:

The Treatment of Perioperative Hypoglycemia measure will tell you the percentage of cases that you administered a dextrose containing solution or checked a glucose level within 90 minutes of when the documented glucose level was less than 60 mg/dL. The purpose of this measure is to prevent prolonged periods of hypoglycemia. Acute hypoglycemia in the perioperative period can lead to inadequate supply of glucose to the brain, resulting in seizures, permanent brain damage, and death. The common signs/symptoms of hypoglycemia are masked by general anesthesia, making vigilance and quick treatment especially important.

There are two measurement components for GLU 02. ASPIRE can only report on GLU02b for sites contributing PACU data.

GLU 02a: Percentage of intraoperative glucose labs with perioperative glucose <60 with administration of dextrose containing solution or glucose recheck within 90 minutes of original glucose measurement for the time period between Anesthesia Start and Anesthesia End.

GLU02b: Percentage of glucose labs with perioperative glucose <60 with administration of dextrose containing solution 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 hypoglycemia is a rare event typically caused by the following:

1. Insulin overdose, either by patient taking higher than normal doses on the morning of surgery or by providers giving more insulin than necessary.
2. Septic or circulatory shock.
3. Failure to monitor.

Inclusions:
- All patients with glucose level less than 60 mg/dL between
  - GLU 02a: Anesthesia Start and Anesthesia End
  - GLU 02b: 2 hours before Anesthesia Start to 2 hours after Anesthesia End
- Patients with *and* without diagnosis of diabetes

Exclusions:

- ASA 5 and 6 cases
- Glucose measurements < 60 mg/dL within 90 minutes before Anesthesia End for GLU 02a
- 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:

Dextrose MPOG Concept IDs		Glucose MPOG Concept IDs	
10152	Dextrose	3361	POC- Glucose (Fingerstick)
10153	Dextrose 50%	3362	POC- Glucose (Unspecified Source)
10460	Dextrose / Water 5%	3405	POC- Blood Gas- Glucose
10461	Dextrose / Lactated Ringers 5%	5003	Formal Lab-Glucose, Serum/Plasma
10462	Dextrose / Water 10%	5036	Formal Lab-Blood Gas, Glucose
10465	Dextrose / Saline 5% / 0.225%		
10466	Dextrose / Saline 5% / 0.45%		
10467	Dextrose / Saline 5% / 0.9%		
10468	Dextrose / Saline w/KCl 5%/ 0.45% + 20 MEQ/L		
10469	Dextrose / Saline w/KCl 5%/ 0.9% + 20 MEQ/L		
10470	Dextrose / Saline 10% / 0.45%		
10539	Dextrose 10% w/ Lactated Ringers		
10548	Plasmalyte 148 w/ Dextrose 5%		
10558	Dextrose / Saline w/KCl 5%/ 0.225% + 20 MEQ/L		
10559	Dextrose / Saline w/KCl 5%/ 0.45% + 40 MEQ/L		
10588	Dextrose / Saline w/KCl 10%/ 0.225% + 20 MEQ/L		
10594	Dextrose / Saline w/KCl 5%/ 0.45% + 10MEQ/L		
10602	Dextrose / Saline 10% / 0.225%		
10471	Total Parenteral Nutrition		
10530	Peripheral Parenteral Nutrition		

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
- MpogCaseId
- ProcedureText
- Asa5or6
- GlucoseObservationsDuringAnesthesia
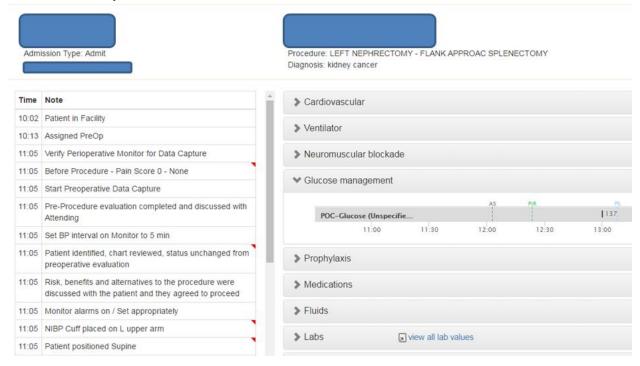- ProcedureTypeLaborEpidural

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 dextrose containing solution within 90 minutes (IV)
  OR
- Recheck of glucose level within 90 minutes

Threshold: 90%.

Responsible Provider:

The provider signed in at the first glucose recheck or first administration of dextrose. If neither occurred, then the responsible provider is the one signed in 90 minutes after the low glucose measurement.

Risk Adjustment (for outcome measures):

Not applicable.

References:

Akhtar S, Barash PG, Inzucchi SE. Scientific principles and clinical implications of perioperative glucose regulation and control. Anesth Analg 2010; 110:478–97

Schwenk ES, Mraovic B, Maxwell RP, et al. Root causes of intraoperative hypoglycemia: a case series. Journal of Clinical Anesthesia. 2012 Dec; 24 (8): 625-630