**Measure Abbreviation:** GLU 01

**Data Collection Method:** This measure is calculated based on data extracted from the electronic medical record combined with administrative data sources such as professional fee and discharge diagnoses data. This measure is explicitly not based on provider self-attestation.

**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 Procedures with procedure text: “Labor Epidural”

MPOG Concept IDs Required:

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

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
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:
