



# HRIP Glycemic Metrics Discussion: Severe Hypoglycemia and Severe Hyperglycemia

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# Glycemic Metrics in Kentucky Quality Counts (KQC)

ADE

Severe Hypoglycemia (Hospital Harm)

ADE

Severe Hyperglycemia (Hospital Harm)

# Value of the Glycemic Metrics

- **Glycemic control directly impacts patient safety**
  - **Hyper/hypoglycemic increase complications and length of stay**
  - **Process variation drives inconsistent outcomes**
  - **Data monitoring alone does not improve performance**

# Benefits of Providing Glycemic Metrics

- **Establish a benchmark**
- **Report data in Kentucky Quality Counts (KQC)**
  - **Shafrin Choudhury: [schoudhury@kyha.com](mailto:schoudhury@kyha.com)**
- **All ACH, CAH, LTACH, and Rehab**
- **KHA will collaborate with facilities based on need**
  - Provide technical assistance
  - Provide education and resources
  - Individualized support as needed

# Hospital Harm- Glycemic Metrics

## Description:

- KY Medicaid only
- Inpatient hospitalization
- 18 years of age and older

# Hospital Harm- Glycemic Metrics

## Definition:

### Inpatient hospitalizations

- Time spent
  - Emergency Department
  - Observation
- Applies when the transition from ED or observation to inpatient admission occurs within 1 hour or less

# Hospital Harm- Severe Hyperglycemia

## Denominator (Equals Initial Population)

### Includes:

- Inpatient hospitalizations that end during the measurement period
- Age 18 and older

### And at least one of the following:

- A diagnosis of diabetes that starts before then end of the encounter;

**OR**

- Administration of at least one dose of insulin or any hypoglycemic medication that starts during the encounter

**OR**

- Presence of at least one glucose value  $\geq 200$  mg/dL at any time during the encounter

# Hospital Harm- Severe Hyperglycemia

## Denominator Exclusions:

### Exclude the following inpatient hospitalizations:

- Patients with a glucose result of  $>600$  mg/dL anytime between 1 hour prior to the start of the encounter to 6 hours after the start of the encounter
- Patients who have comfort care measures ordered or provided during the encounter.
- Patients who have a discharge disposition to hospice care
  - Hospice at home
  - Hospice in a health care facility.

# Hospital Harm- Severe Hyperglycemia

## Numerator:

### Includes:

- Inpatient hospitalizations
- Hyperglycemic event within the first 10 days of the encounter

### Excludes:

- The first 24 hours of hospitalization
- The last period before discharge, if that time is less than 24 hours

# Hospital Harm- Severe Hyperglycemia

## Numerator:

Hyperglycemic event is defined as either:

- At least one glucose value **greater than 300 mg/dL**,
- OR**
- NO glucose test was recorded for the day, and the two immediately preceding consecutive days each had at least one glucose value **greater than or equal to 200 mg/dL**

**Numerator exclusions: inpatient hospitalizations that meet the denominator exclusions**

# Hospital Harm – Glycemic Metrics

## Description:

- KY Medicaid only
- Inpatient hospitalization
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# Hospital Harm – Glycemic Metrics

## Definition:

### Inpatient hospitalizations

- Time spent
  - Emergency Department
  - Observation
- Applies when the transition from ED or observation to inpatient admission occurs within 1 hour or less

# Hospital Harm - Severe Hypoglycemia - *continued*

## **Denominator** (Equals Initial Population)

- Inpatient hospitalizations that end during the measurement period
- Age 18 and older
- At least one hypoglycemic medication administration starts during the encounter

**No denominator exclusion**

# Hospital Harm - Severe Hypoglycemia - *continued*

## Numerator

- Inpatient hospitalizations
- Severe hypoglycemic event occurred during the encounter:
  - A glucose test with a result **less than 40 mg/dL**
- **AND**
- A hypoglycemic medication was administered within **24 hours** before the start of the severe hypoglycemic event
- **AND**
- No repeat glucose test **greater than 80 mg/dL** within five minutes of the initial glucose test with a result less than 40mg/dL

# Hospital Harm - Severe Hypoglycemia - *continued*

## Numerator

- **Only one qualifying severe hypoglycemic event** is counted in the numerator, and only one severe hypoglycemic event is counted per encounter.
- **The 24-hour and 5-minute timeframes** are based on the time the glucose was drawn, as this reflects the time the patient was experiencing that specific glucose level.
- **No numerator exclusion**

# Medicaid Only

## Test Hospital Acute Care (A)



### Outcome Measures

- i** Medicaid Only ADE-1D Severe Hypoglycemia
- i** Medicaid Only ADE-1E Severe Hyperglycemia

**Period**  **Initiative Filter**

<b>i</b> <input type="text" value="Numerator"/>	<b>i</b> <input type="text" value="Denominator"/>
<b>i</b> <input type="text" value="Numerator"/>	<b>i</b> <input type="text" value="Denominator"/>

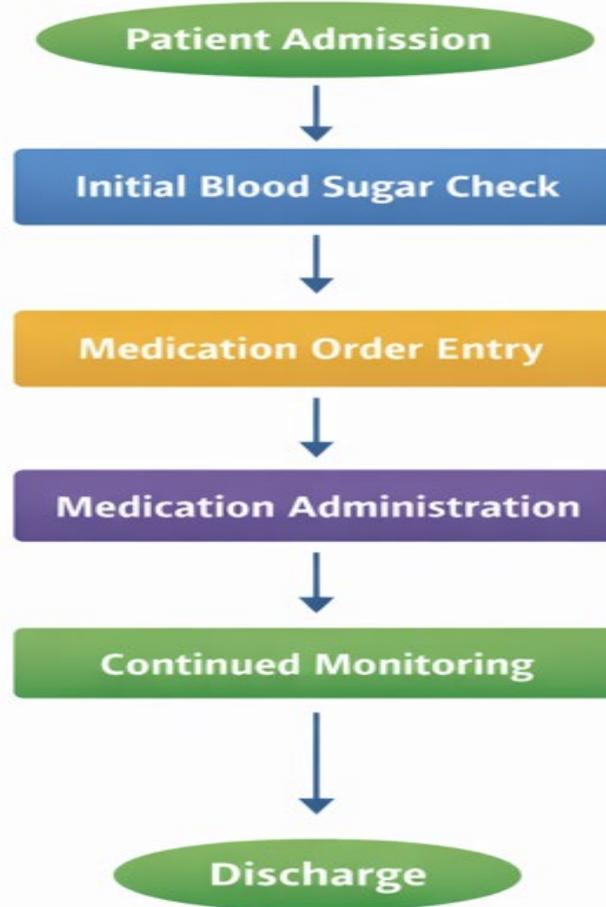


# It's Improvement Time!

## Process Flow Mapping

- Visual map of current workflow
- Identifies variation and breakdowns
- Clarifies roles and handoffs
- Highlights high-risk steps

# Example: Glycemic Management Process Flow Map

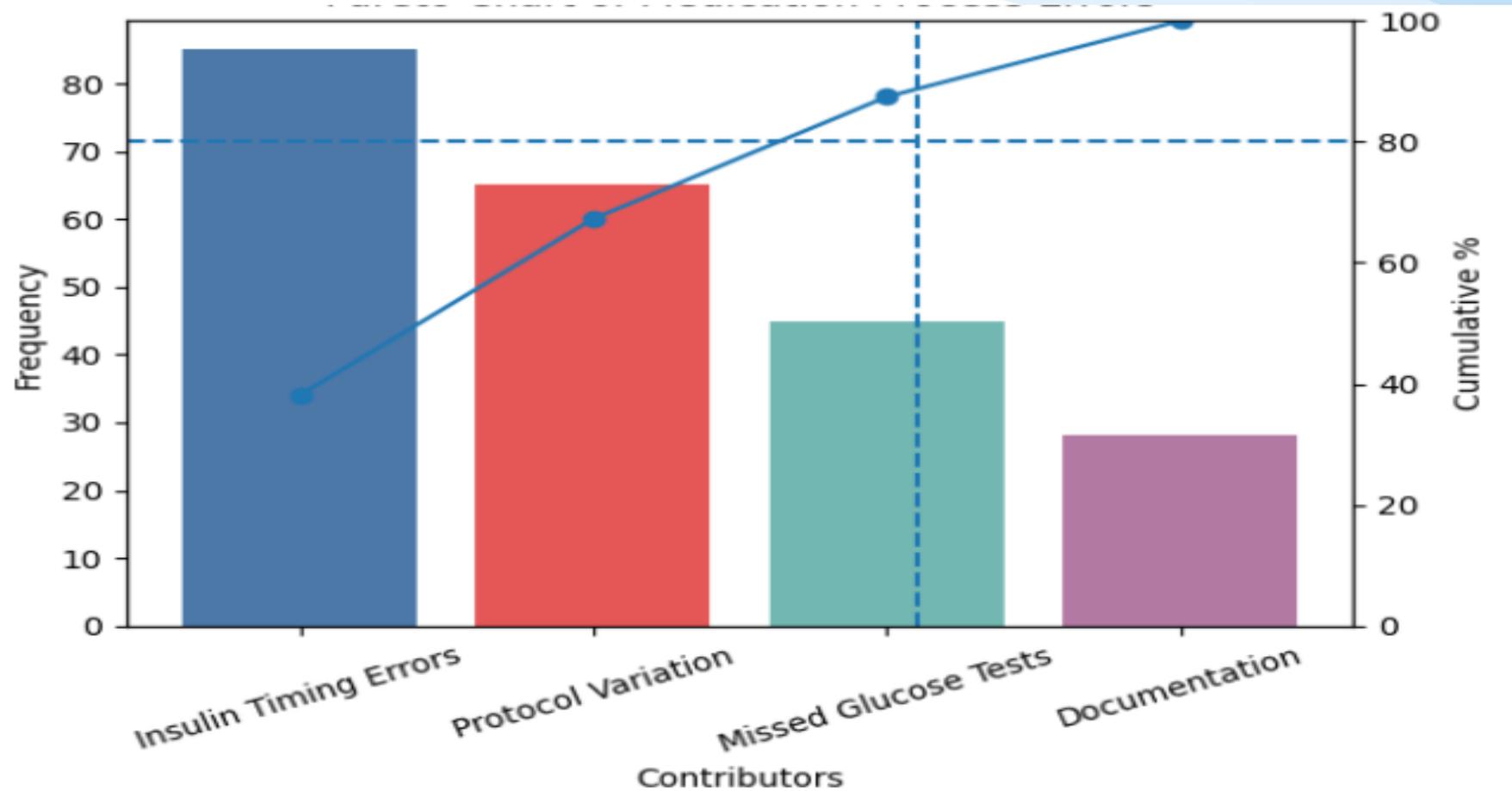


# It's Improvement Time!

## Pareto Chart Analysis

- Identifies most frequent contributors
- Separates vital few from trivial many
- Prioritizes high-impact interventions
- Supports focused resource allocation

# Example: Pareto Chart Analysis



# Structured Improvement Approach

- Map the current process
- Conduct Pareto analysis
- Implement targeted interventions
- Re-measure and monitor
- Sustain and spread improvements

# Results Quality Leaders Can Achieve

- Reduced hypo/hyperglycemic events
- Improved protocol adherence
- Reduced length of stay
- Sustainable, data-driven improvement

# Frequently Asked Questions

## Question 1

- What does definition of “minus the last period before discharge from the hospital if less than 24 hours” for the hyperglycemic metric in the numerator mean?

### \*\*Example 1\*\*

Day Index	24 Hour Interval start and end time	Eligible hospital Day count	Event
1	Aug 28 : 1815 (admission)- Aug 29 : 1814	Not eligible hospital day	
2	Aug 29 : 1815- Aug 30 : 1814	eligible Day 1	
3	Aug 30 : 1815- Aug 31 : 1814	eligible Day 2	
4	Aug 31 : 1815- Sept 1 : 1211 (discharge)	not eligible	Aug 31 2041 Glu: 345

# Frequently Asked Questions

## Question 2

- How do you count the patient in the numerator in the hyperglycemic metric?

### \*\*Example 2\*\*

Day Index	24 Hour Interval start and end time	Eligible hospital Day count	Event
1	Aug 28 : 1815 (admission)- Aug 29 : 1814	Not eligible hospital day	
2	Aug 29 : 1815- Aug 30 : 1814	eligible Day 1	
3	Aug 30 : 1815- Aug 31 : 1814	eligible Day 2	
4	Aug 31 : 1815- Sept 1 : 1211 (discharge)	not eligible	Aug 31 2041 Glu: 345

# Frequently Asked Questions

## Question 3

- How do you count the patient in the numerator in the hyperglycemic metric?

### \*\*Example 3\*\*

Day Index	24 Hour Interval start and end time	Eligible hospital Day count	Event
1	Dec 26 : 1915 (admission)- Dec 27 : 1914	Not eligible hospital day	
2	Dec 27 : 1915- Dec 28 : 1914	eligible Day 1	
3	Dec 28 : 1915 - Dec 29 : 1914	eligible Day 2	Dec 28 2100 Glu: 351
4	Dec 29 : 1915- Dec 30 : 1914	eligible Day 3	Dec 30 1023 Glu: 402
5	Dec 30 : 1915- Dec 31 : 1914	eligible Day 4	Dec 30 2104 Glu: 120
6	Dec 31 : 1915- Jan 1 : 1311 (discharge)	not eligible	Dec 31 2141 Glu: 335

# Frequently Asked Questions

## Question 4

- What does the numerator in the hyperglycemic metric mean for “A day where a glucose test and result was not found, and it was immediately preceded by two contiguous, consecutive days where at least one glucose value during each of the two days was  $\geq 200$  mg/dL”?

### \*\*Example 4\*\*

Day Index	24 Hour Interval start and end time	Eligible hospital Day count	Event
1	Dec 26 : 1915 (admission)- Dec 27 : 1915	preceding days for a day where no glucose result is found- count as num	Dec 27 1800 Glu: 270
2	Dec 27 : 1915- Dec 28 : 1914	eligible Day 1	Dec 28 1600 Glu: 285
3	Dec 28 : 1915 - Dec 29 : 1914	eligible Day 2	
4	Dec 29 : 1915- Dec 30 : 1914	eligible Day 3	Dec 29 2228 Glu: 143
5	Dec 30 : 1915- Dec 31 : 1914	eligible Day 4	Dec 30 2104 Glu: 120
6	Dec 31 : 1915- Jan 1 : 1311 (discharge)	not eligible	Dec 31 2141 Glu: 335

# Frequently Asked Questions

## Question 5

- How do you determine the numerator in the hypoglycemic metric?

### \*\*Example 5\*\*

Day Index	24 Hour Interval start and end time	Eligible hospital Day count	Event
1	Dec 26 : 1915 (admission)- Dec 27 : 1914	Not eligible hospital day	
2	Dec 27 : 1915- Dec 28 : 1914	eligible Day 1	Dec 28 0800: Glipizide 5 mg po daily given and Dec 28 1100 Glu: 38
3	Dec 28 : 1915 - Dec 29 : 1914	eligible Day 2	Dec 28 2100 Glu: 150
4	Dec 29 : 1915- Dec 30 : 1914	eligible Day 3	Dec 30 1023 Glu: 133
5	Dec 30 : 1915- Dec 31 : 1914	eligible Day 4	Dec 30 2104 Glu: 120
6	Dec 31 : 1915- Jan 1 : 1311 (discharge)	not eligible	Dec 31 2141 Glu: 335

# Frequently Asked Questions

## Question 6

- **What is considered a specimen source for a glucose test?**
  - Blood
  - Serum
  - Plasma
  - Interstitial fluid

## Question 7

- **Who is included in the measure for HRIP?**
  - KY Medicaid only
  - KY Medicaid pending
  - Any of the current KY Medicaid MCOs

# Frequently Asked Questions

## Question 8

If a patient has a glucose above 200 after Day 10, are they still counted in the severe hyperglycemia measure?

### Denominator

- Yes- the patient can still be included in the denominator

### Numerator

- No- events occurring after Day 10 are not counted in the numerator

# Frequently Asked Questions

## Question 9

If there is not a follow up glucose test done within 5 minutes of the first test in the severe hypoglycemic measure does the first blood glucose result hold?

**Yes**

- Purpose of the repeat test within 5 minutes is to eliminate false positive that can occur

# Frequently Asked Questions

## Question 10

If a patient is being treated with insulin for hyperkalemia, will they still be included in the severe hyperglycemia measure?

**Yes**

- If the patient meets population criteria

# Frequently Asked Questions

## Question 11

Are direct admits included in the measures?

**Yes**

- Direct Admits to inpatient status are included

# Frequently Asked Questions

## Question 12

- For the initial population in the severe hyperglycemic measure, what hypoglycemic medications are included?

**Value Set Description OID: 2.16.840.1.113762.1.4.1196.394**

**Inclusion Criteria:** Includes concepts that represent insulin and non-insulin injectable and oral antidiabetic medications.

**Exclusion Criteria:** No exclusions

[\["Medication, Administered": "Hypoglycemics Treatment Medications"\] | eCQI Resource Center](#)

### Instructions to download the medication list for the hyperglycemic measure:

1. Sign in to Severe Hyperglycemia eCQM value set codes are included in the Value Set Authority Center's (VSAC) website: <https://vsac.nlm.nih.gov/>. Note, you will need to create a VSAC Login upon first signing in.
2. Once in VSAC, you can view value set codes by entering the value set OID (e.g., 2.16.840.1.113762.1.4.1196.394) into the 'Query' field under the 'Search Value Sets' header. You then need to select the appropriate 'Expansion Versions.'
3. Alternatively, you can select the 'Download' button in the header, followed by the applicable Reporting Period (i.e., 2024). You will then be able to download the value set codes in a variety of formats.
4. For additional information, please contact the Value Set Authority Center: <https://support.nlm.nih.gov/support/create-case/>

# Frequently Asked Questions

## Question 13

- For the numerator and initial population in the severe hypoglycemic measure, what does the hypoglycemic medications does it include?

**Value Set Description OID: 2.16.840.1.113762.1.4.1196.393**

**Inclusion Criteria:** Includes concepts that represent insulin, non-insulin injectable antidiabetics, and oral antidiabetic medication.

**Exclusion Criteria:** Excludes concepts that represent medications used to treat diabetes mellitus but are not commonly associated with severe hypoglycemia.

[\["Medication, Administered": "Hypoglycemics Severe Hypoglycemia"\] | eCQI Resource Center](#)

### Instructions to download the medication list for the hypoglycemic measure:

1. Sign in to Severe Hypoglycemia eCQM value set codes are included in the Value Set Authority Center's (VSAC) website: <https://vsac.nlm.nih.gov/>. Note, you will need to create a VSAC Login upon first signing in.
2. Once in VSAC, you can view value set codes by entering the value set OID (e.g., 2.16.840.1.113762.1.4.1196.393) into the 'Query' field under the 'Search Value Sets' header. You then need to select the appropriate 'Expansion Versions'
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# Frequently Asked Questions

## Question 15

- For the laboratory test value sets does it include?

**Value Set Description OID: 2.16.840.1.113762.1.4.1248.34**

**Inclusion Criteria:** Includes concepts that represent a laboratory test measuring glucose in the specimen source of blood, serum, plasma or interstitial fluid, including Point of Care (POC) testing and reported as Mass Per Volume (mg/dL).

**Exclusion Criteria:** Excludes concepts that represent a laboratory test measuring glucose from a specimen source other than blood, serum, plasma or interstitial fluid. Excludes concepts that represent a laboratory test measuring glucose and reported as Moles Per Volume (mmol/L).

[\["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"\] | eCQI Resource Center](#)

### Instructions to download the laboratory test, performed: Glucose Lab Test Mass Per Volume:

1. Sign in to Severe Hypoglycemia eCQM value set codes are included in the Value Set Authority Center's (VSAC) website: <https://vsac.nlm.nih.gov/>. Note, you will need to create a VSAC Login upon first signing in.
2. Once in VSAC, you can view value set codes by entering the value set OID (e.g., :2.16.840.1.113762.1.4.1248.34 ) into the 'Query' field under the 'Search Value Sets' header. You then need to select the appropriate 'Expansion Versions
3. Alternatively, you can select the 'Download' button in the header, followed by the applicable Reporting Period (i.e., 2024). You will then be able to download the value set codes in a variety of formats.
4. For additional information, please contact the Value Set Authority Center: <https://support.nlm.nih.gov/support/create-case/>

**For more  
information,  
Contact:**



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# References

- [Centers for Medicare & Medicaid Services' Hospital Harm Measures for Severe Hypoglycemia and Hyperglycemia: Is Your Hospital Ready? | Diabetes Spectrum | American Diabetes Association \(diabetesjournals.org\)](#)
- [Hospital Harm - Severe Hyperglycemia | eCQI Resource Center](#)
- [Hospital Harm - Severe Hypoglycemia | eCQI Resource](#)
- [CenterPreparing for the CMS Glycemic Measures: Leveraging Quality Improvement \(glytecsystems.com\)](#)
- [National Quality Forum - Severe hyperglycemia National Quality Forum- severe hyperglycemia measure](#)