# Expert to Expert Webinar

## 2025 Reporting Year Annual Updates for Hospital Harm eCQMs

Severe Hyperglycemia (HH-Hyper) (CMS871v4)
Severe Hypoglycemia (HH-Hypo) (CMS816v4)

# Webinar Audio and Functionality

Audio is by VOIP only – Use your computer speakers/headphones to listen. There are no dial in lines. Participants are connected in listen-only mode. Feedback or dropped audio are common for live streaming events. Refresh your screen/rejoin.

We will not be recognizing the Raise a Hand or Chat features.

To ask a question, click on the Question Mark icon in the audience toolbar. A panel will open for you to type your question and submit.

The slides are designed to follow Americans with Disabilities Act rules.

# New to eCQMs?

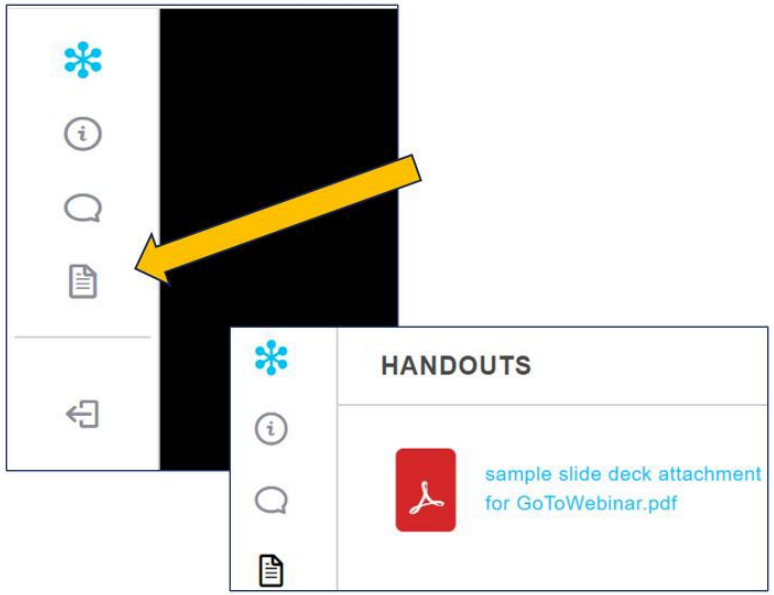
Today's content is highly technical and requires a baseline understanding of eCQM logic and concepts

Visit this section of the eCQI Resource Center:

"Get Started with eCQMs"

(https://ecqi.healthit.gov/ecqms?qt-tabs_ecqm=tools-resources)

# Access the Slides




To access the slides now:

- On left side of your screen, click the icon that depicts a document
- Select the file name and the document will open in a new window
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Slides will also available via this link within 2 weeks of the webinar: https://www.jointcommission.org/measurement/quality-measurement-webinars-and-videos/expert-to-expert-webinars

# Webinar approved for 1 Continuing Education (CE) Credit for these entities

- Accreditation Council for Continuing Medical Education (PRA Category 1 credit)
- American Nurses Credentialing Center
- American College of Healthcare Executives (1 Qualifying Education Hour)
- California Board of Registered Nursing

# CE Requirements

1) **Individually register** for this webinar
2) Participate for the **entire broadcast**
3) Complete a post-program **evaluation/ attestation**

For more information on The Joint Commission's continuing education policies, visit this link https://www.jointcommission.org/resources/continuing-education-credit-information/

# CE Survey and Certificate

**After webinar, survey can be accessed in two ways:**

1) QR code on final slide
2) Link within participant follow-up email

Complete CE survey and **SUBMIT.**

Certificate will appear onscreen. **Print or download** PDF Certificate.

**Complete certificate by adding your name and credentials.**

# Learning Objectives

Locate measure specifications, value sets, measure flow diagrams and technical release notes on the eCQI Resource Center.

Facilitate your organization's implementation of the Hospital Harm – Severe Hyperglycemia and Hospital Harm – Severe Hypoglycemia eCQM annual updates for the 2025 calendar year.

Utilize answers regarding common issues/questions regarding the Hospital Harm – Severe Hyperglycemia and Hospital Harm – Severe Hypoglycemia eCQMs use/implementation.

# Topics Not Covered in this Program

Basic eCQM concepts

Topics related to chart abstracted measures

Process improvement efforts related to this measure

eCQM validation

# Disclosure Statement

All staff and speakers for this webinar have disclosed that they do not have any conflicts of interest.  For example, financial arrangements, affiliations with, or ownership of organizations that provide grants, consultancies, honoraria, travel, or other benefits that would impact the presentation of today's webinar content.

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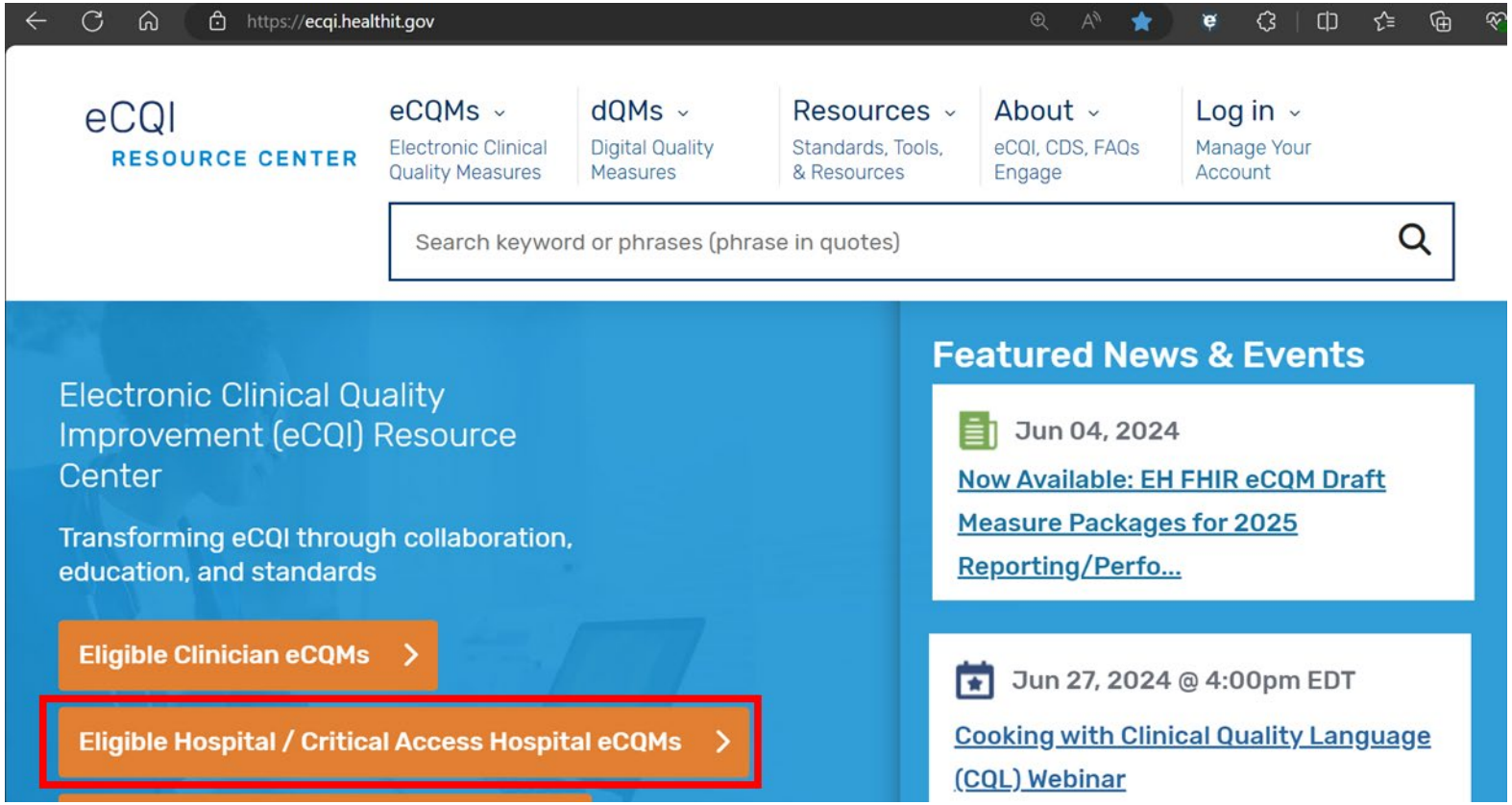
# Webinar Agenda

- Highlight how to access eCQI Resource Center navigational demo (measure specifications, value sets, measure flow diagrams and technical release notes)
- Review the Hospital Harm – Severe Hyperglycemia and Hospital Harm – Severe Hypoglycemia eCQMs
- Review the measure flow/algorithm
- Review FAQs
- Facilitated Audience Q&A Segment

# eCQM Resources on the eCQI Resource Center

# eCQI Resource Center https://ecqi.healthit.gov




**Download and/or View Specifications**

- "Human Readable" html
- Value Sets
  - ***Value Set Authority Center (VSAC)***
- Data Elements
- eCQM Flow (PDF)
  - ***(process flow diagrams)***
- Technical Release Notes (TRNs) (Excel)
- Jira Issue Tracker tickets

For more details, view the video short here: https://www.jointcommission.org/measurement/quality-measurement-webinars-and-videos/expert-to-expert-webinars/

# Hospital Harm – Severe Hyperglycemia (HH-Hyper) (CMS871v4)

# Hospital Harm – Severe Hypoglycemia (HH-Hypo) (CMS816v4)

# HH-Hyper, HH-Hypo-Background

- CMS finalized the adoption of HH-Hyper and HH-Hypo into the Hospital Inpatient Quality Program in the fiscal year (FY) 2022 Inpatient Prospective Payment System (IPPS) rule
- Hospitals began voluntary reporting of the eCQMs for the calendar year (CY) 2023 reporting period/FY 2025 payment determination
- Public reporting began in CY 2024
- Mandatory reporting of the eCQMs will begin in CY 2026

# Hospital Harm – Hyperglycemia (HH-Hyper) (CMS871v4)

# HH-Hyper – Background

**Measure Description:** This measure assesses the number of inpatient hospital days for patients age 18 and older with a hyperglycemic event (harm) per the total qualifying inpatient hospital days for that encounter

**Rationale and Intent:**

- The measure assesses occurrence and extent of severe hyperglycemia, not overall glucose control
- Severe hyperglycemia is associated with increased in-hospital mortality, infection rates, and hospital length of stay
- Lowering rate improves patient care while reducing costs
- Rates of inpatient severe hyperglycemia events indicate quality of care
- Severe hyperglycemia is preventable with proper glycemic management

# 2024 Reporting Year vs. 2025 Reporting Year (1)

| Measure Components | 2024 Reporting Year | 2025 Reporting Year |
|---|---|---|
| Initial Population | Inpatient hospitalizations for patients age 18 and older that end during the measurement period, as well as either:<br><br>- A diagnosis of diabetes that starts before or during the encounter; or<br>- Administration of at least one dose of insulin or any hypoglycemic medication during the encounter; or<br>- Presence of at least one glucose value >=200 mg/dL at any time during the encounter | Inpatient hospitalizations for patients age 18 and older that end during the measurement period, as well as either:<br><br>- A diagnosis of diabetes that starts before ~~or during~~ the end of the encounter; or<br>- Administration of at least one dose of insulin or any hypoglycemic medication that starts during the encounter; or<br>- Presence of at least one glucose value >=200 mg/dL at any time during the encounter. |

# 2024 Reporting Year vs. 2025 Reporting Year (2)

| Measure Components | 2024 Reporting Year | 2025 Reporting Year |
|---|---|---|
| Denominator | Equals Initial Population | No change |
| Denominator Exclusions | Inpatient hospitalizations for patients with an initial glucose result of >=1000 mg/dL anytime between 1 hour prior to the start of the encounter to 6 hours after the start of the encounter | -Inpatient hospitalizations for patients with ~~an initial~~ a glucose result of >=1000 mg/dL anytime between 1 hour prior to the start of the encounter to 6 hours after the start of the encounter.<br><br>-Inpatient hospitalizations for patients who have comfort care measures ordered or provided during the encounter.<br><br>-Inpatient hospitalizations for patients who have a discharge disposition to home or to a health care facility for hospice care. |

# 2024 Reporting Year vs. 2025 Reporting Year (3)

| Measure Components | 2024 Reporting Year | 2025 Reporting Year |
|---|---|---|
| Numerator | Inpatient hospitalizations with a hyperglycemic event within the first 10 days of the encounter minus the first 24 hours, and minus the last period before discharge from the hospital if less than 24 hours<br><br>A hyperglycemic event is defined as:<br><br>- A day with at least one glucose value >300 mg/dL,<br><br>OR<br><br>- 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 >=200 mg/dL | Inpatient hospitalizations with a hyperglycemic event within the first 10 days of the encounter minus the first 24 hours, and minus the last period before discharge from the hospital if less than 24 hours.<br><br>A hyperglycemic event is defined as:<br><br>- A day with at least one glucose value >300 mg/dL.<br><br>OR<br><br>- 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 >=200 mg/dL. |

# 2024 Reporting Year vs. 2025 Reporting Year (4)

| Measure Components | 2024 Reporting Year | 2025 Reporting Year |
|---|---|---|
| Numerator Exclusions | Not Applicable | Inpatient hospitalizations that meet the Denominator Exclusions:<br><br>-Inpatient hospitalizations for patients with a glucose result of >=1000 mg/dL anytime between 1 hour prior to the start of the encounter to 6 hours after the start of the encounter.<br><br>-Inpatient hospitalizations for patients who have comfort care measures ordered or provided during the encounter.<br><br>-Inpatient hospitalizations for patients who have a discharge disposition to home or to a health care facility for hospice care. |

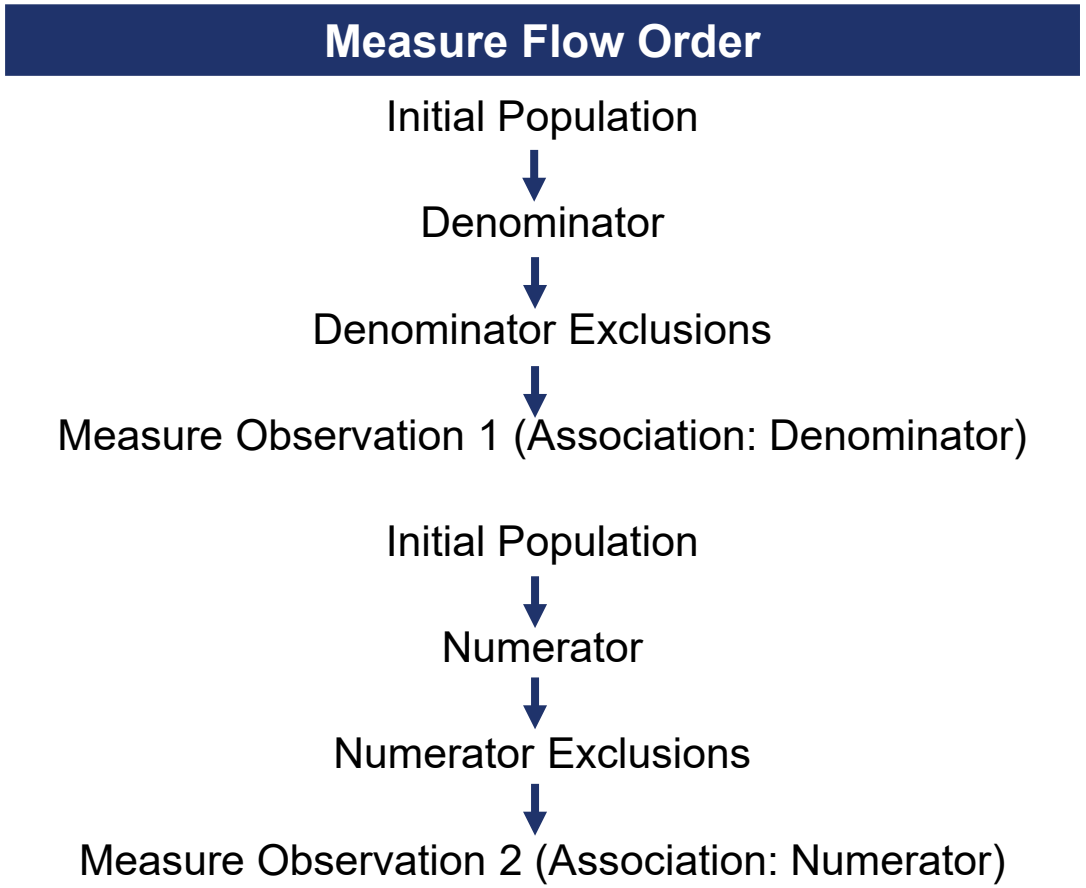
# 2024 Reporting Year vs. 2025 Reporting Year (5)

| Measure Components | 2025 Reporting Year |
|---|---|
| Measure Observations | There are two Measure Observations:<br><br>Encounter Observation 2, associated with the numerator of the ratio: The total number of hyperglycemic days during the inpatient hospitalization that meet the numerator criteria and did not meet the numerator exclusion criteria. Days with a hyperglycemic event are defined as:<br><br>- All days with a glucose level >300 mg/dL (except those occurring in the first 24-hour period after admission to the hospital (including the emergency department and observation)), OR<br>- All days where a glucose was not measured, and it was immediately preceded by two contiguous, consecutive days where at least one glucose value during each of the two days was >=200 mg/dL.<br><br>Encounter Observation 1, associated with the denominator of the ratio: The total number of eligible days of the inpatient hospitalization which match the initial population/denominator criteria and did not meet the denominator exclusion criteria.<br><br>The length of stay for all eligible inpatient hospitalizations is truncated to <=10 days when the length exceeds 10 days.<br><br>Do not count the last day if it was less than a 24-hour period as this is not considered a full day. |

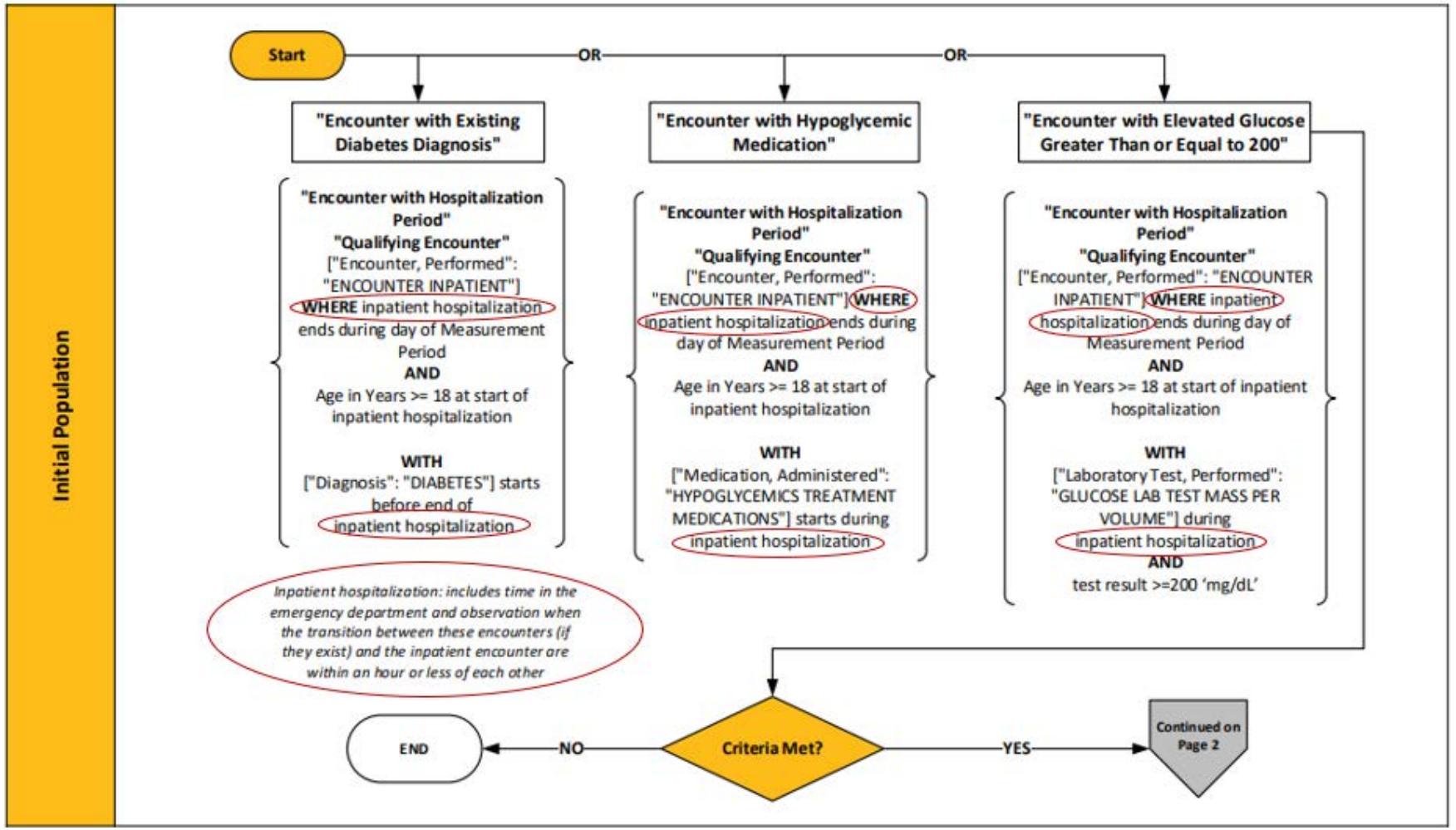
# Hospital Harm – Severe Hyperglycemia (HH-Hyper) (CMS871v4)

## Measure Flow

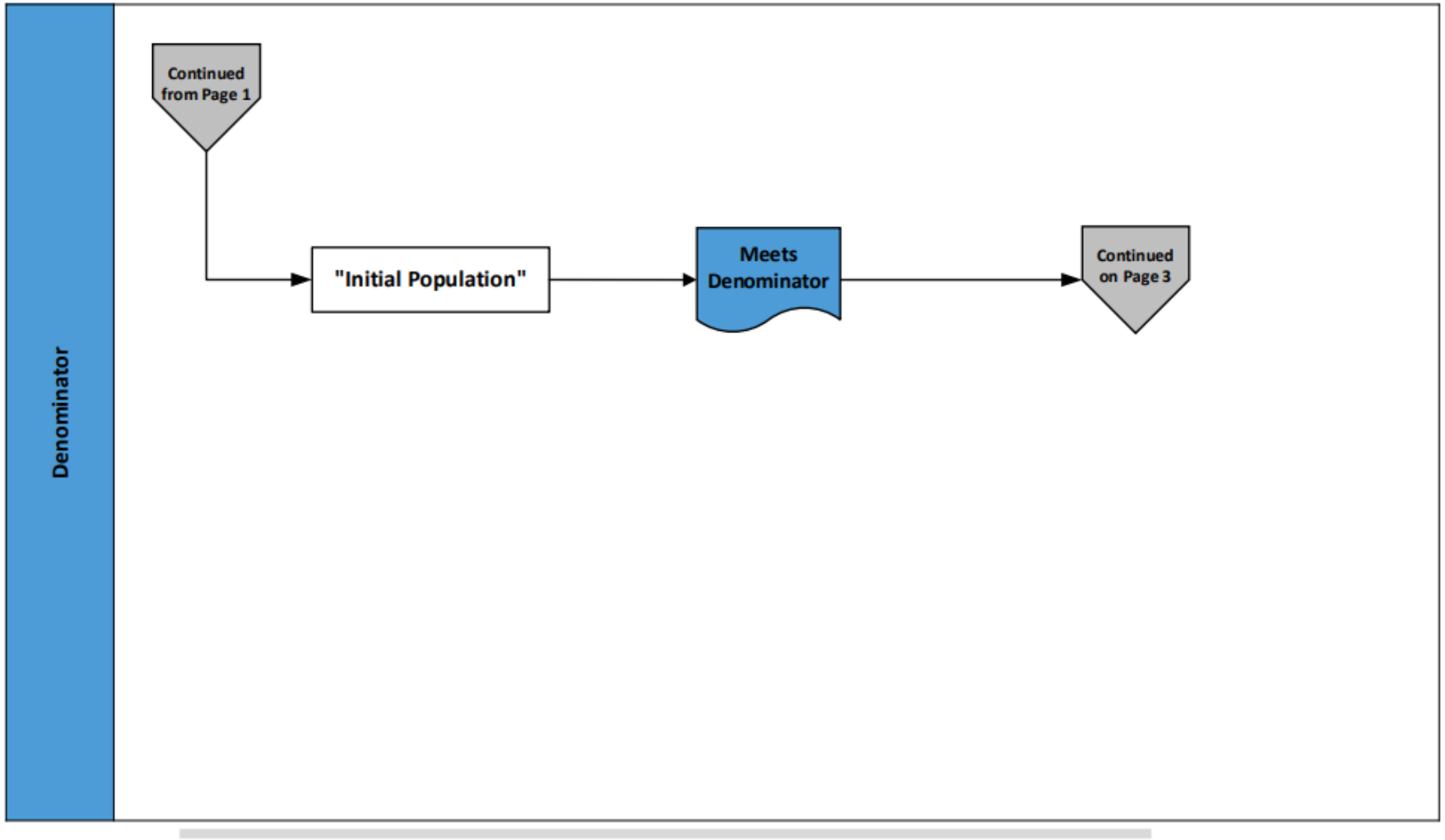
# HH-Hyper Measure Flow Order



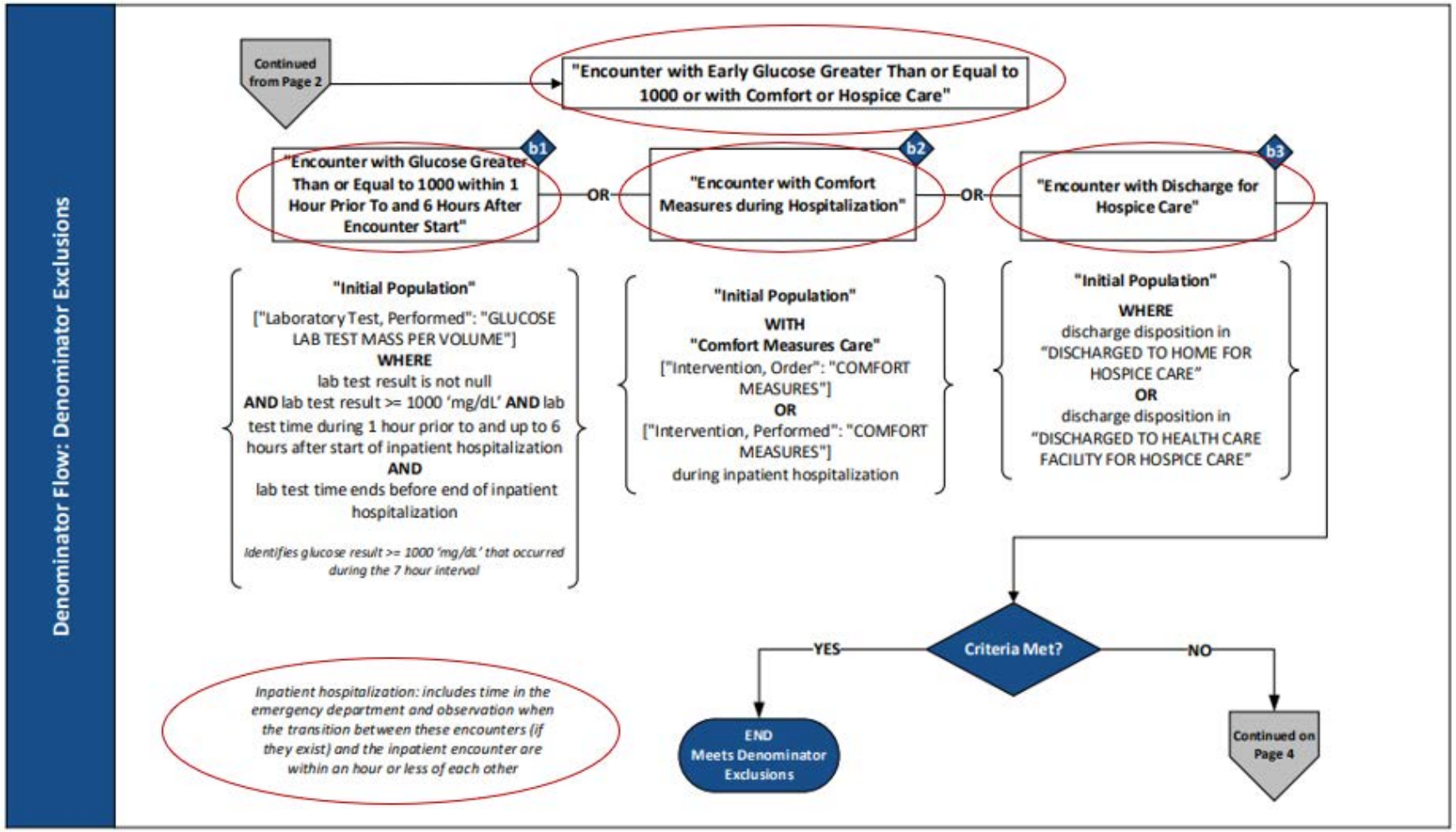
# Initial Population



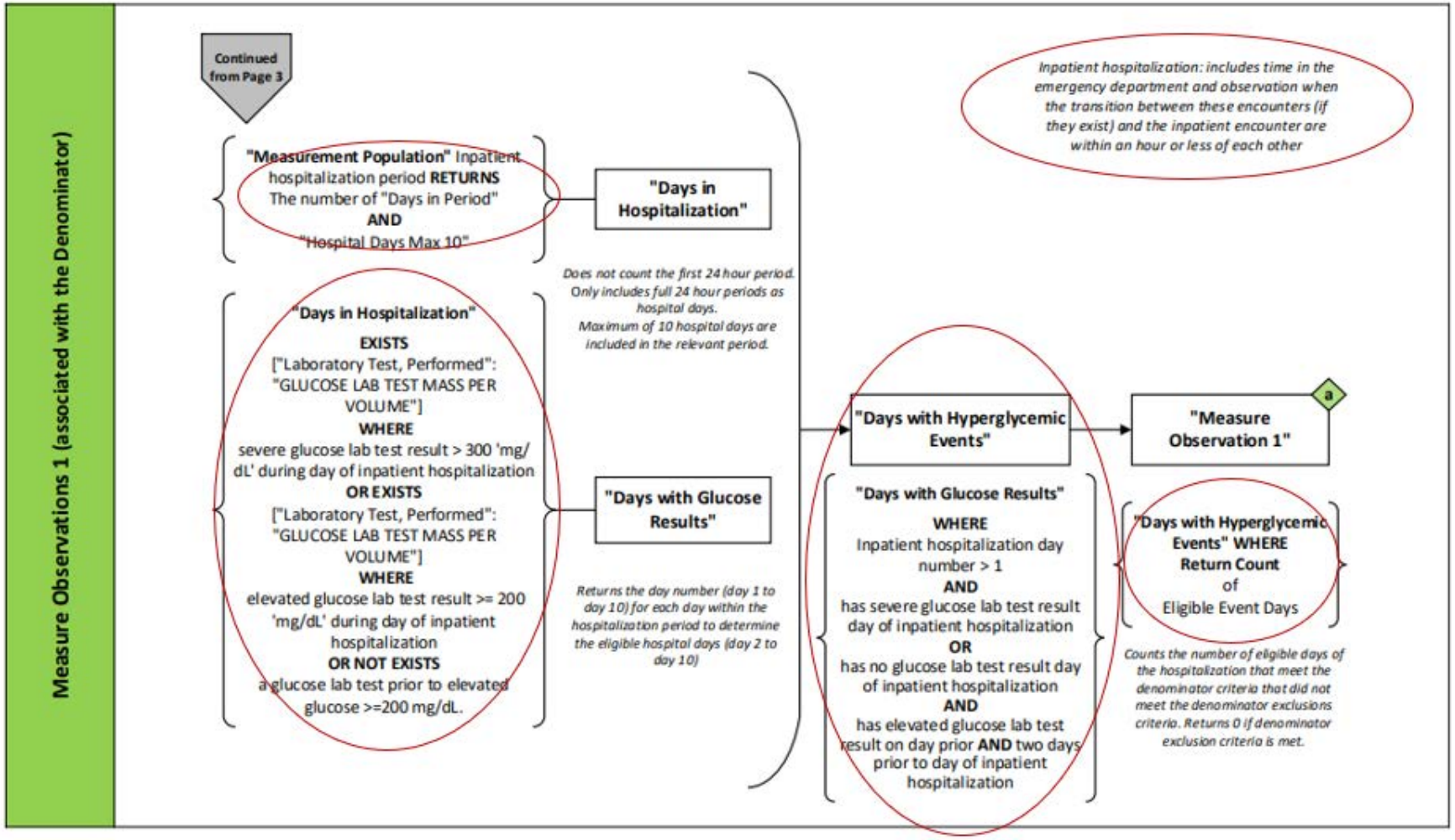
# Denominator



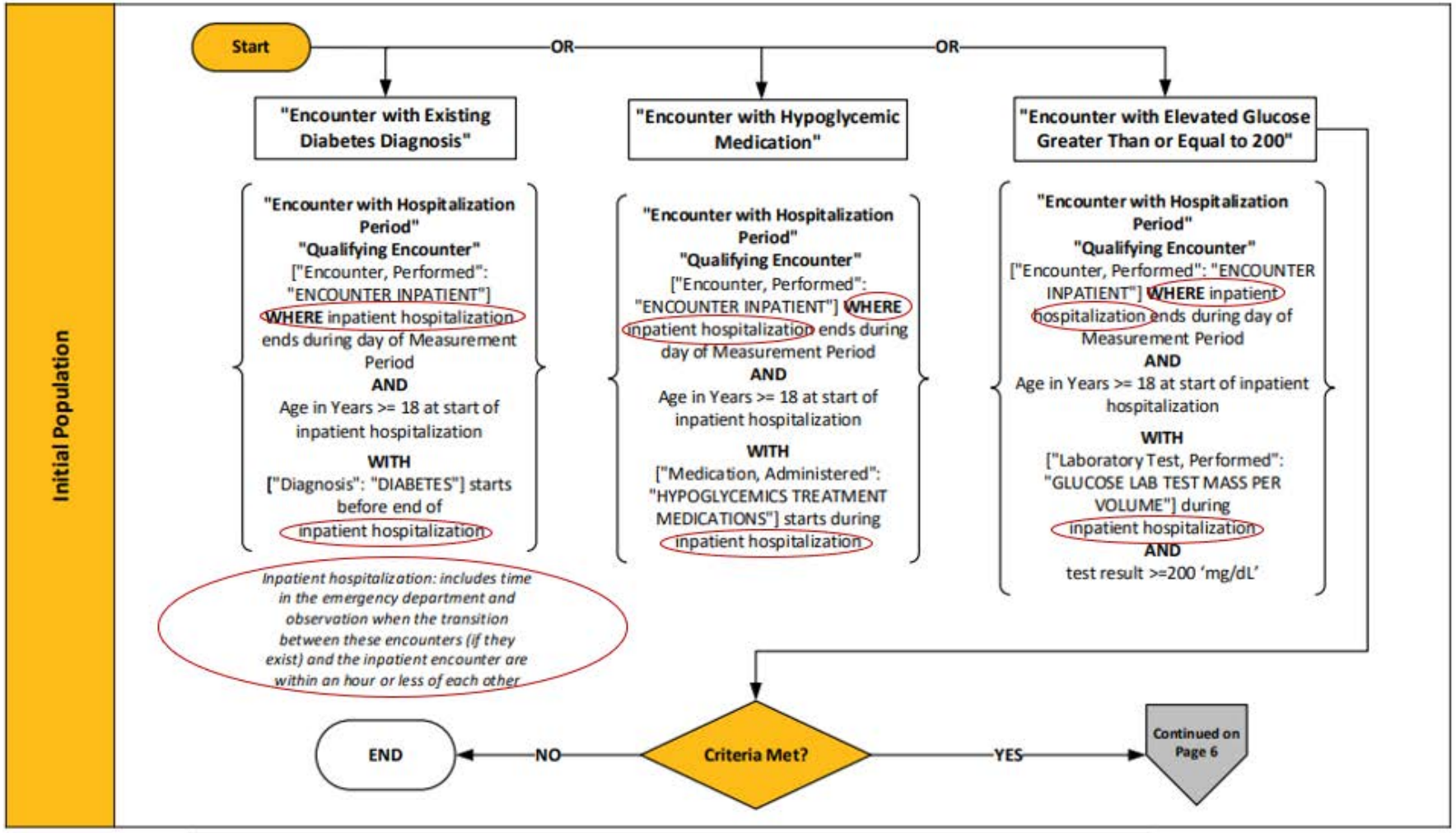
# Denominator Exclusions



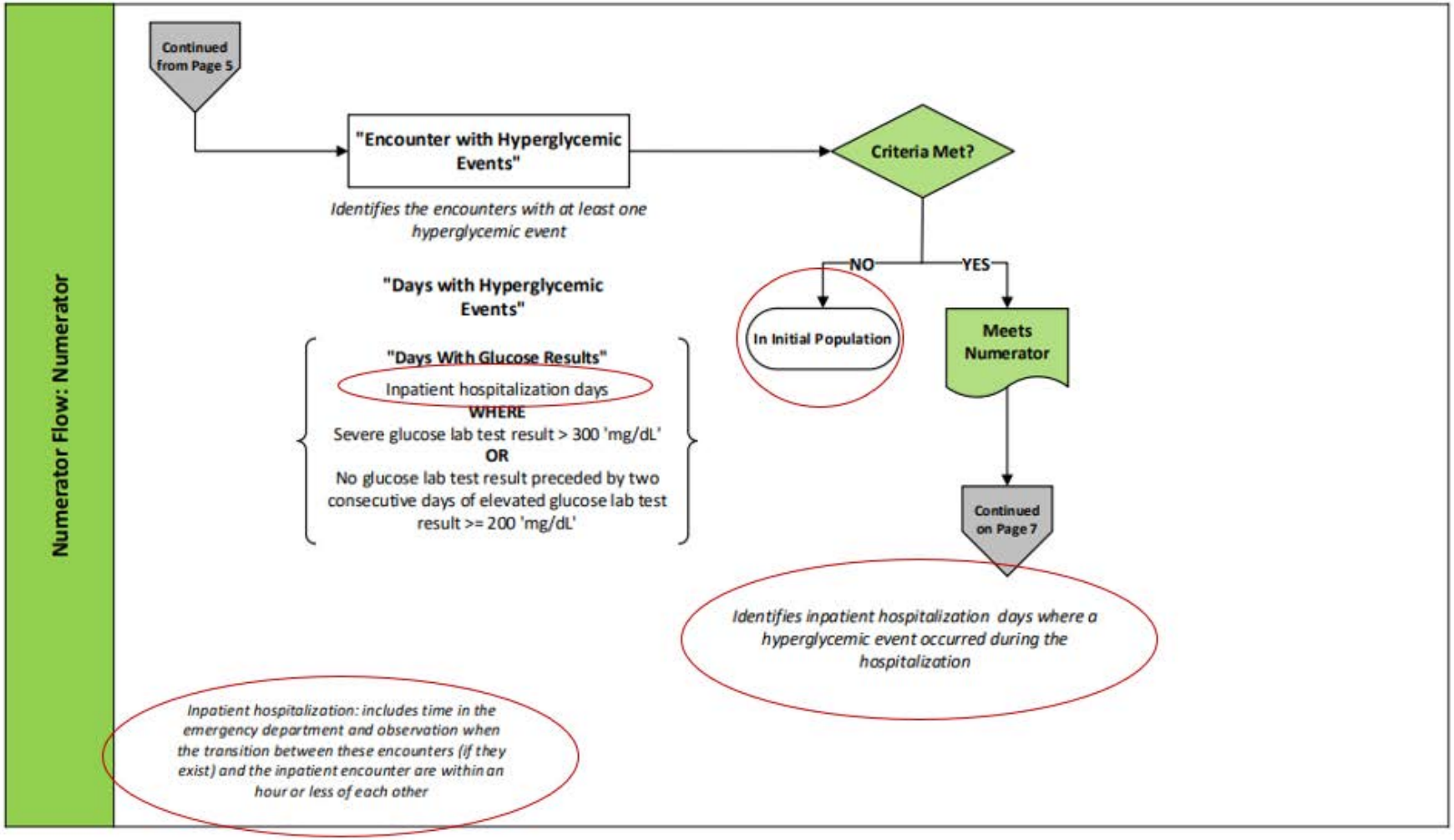
# Measure Observations 1 (associated with Denominator)



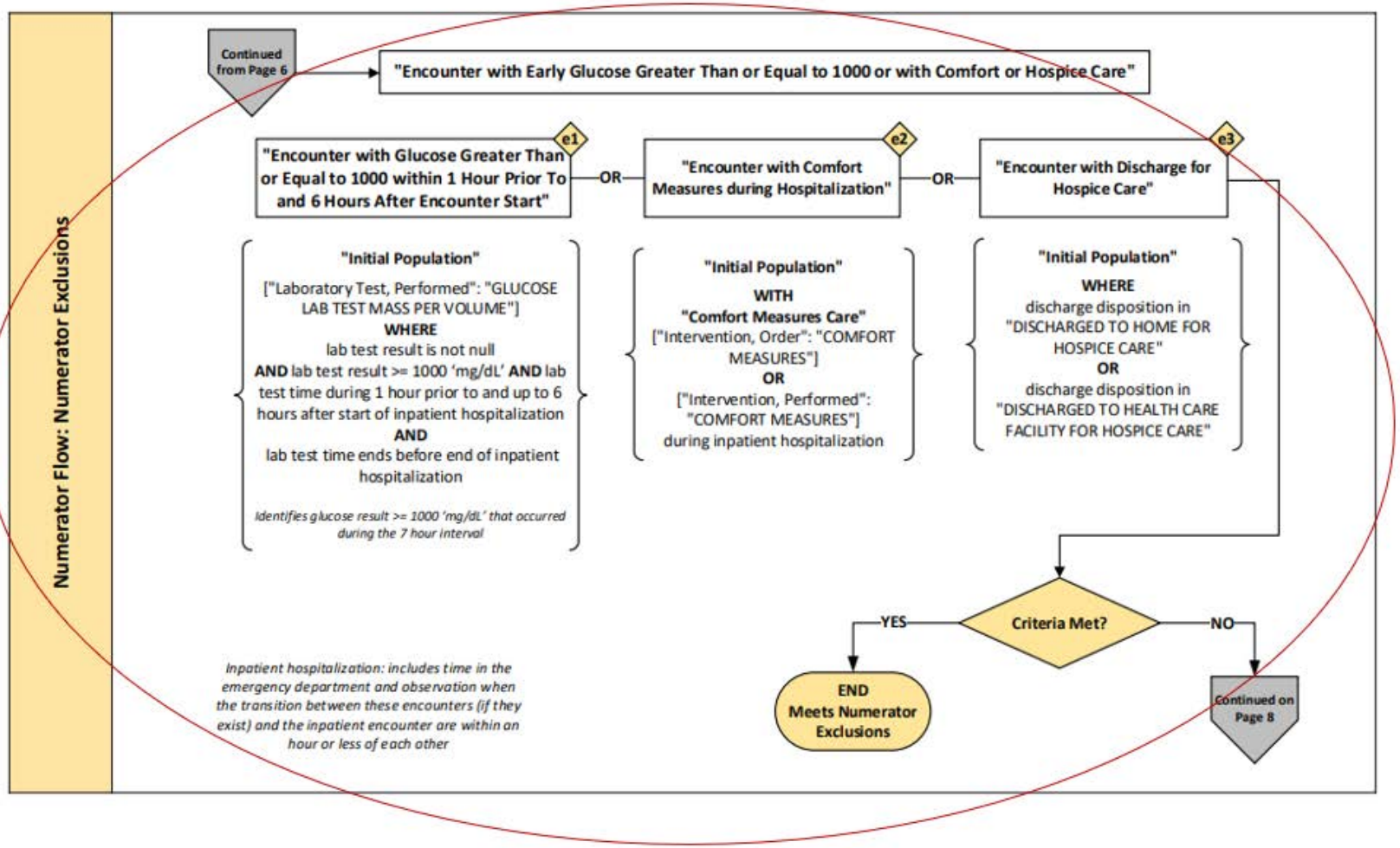
# Initial Population



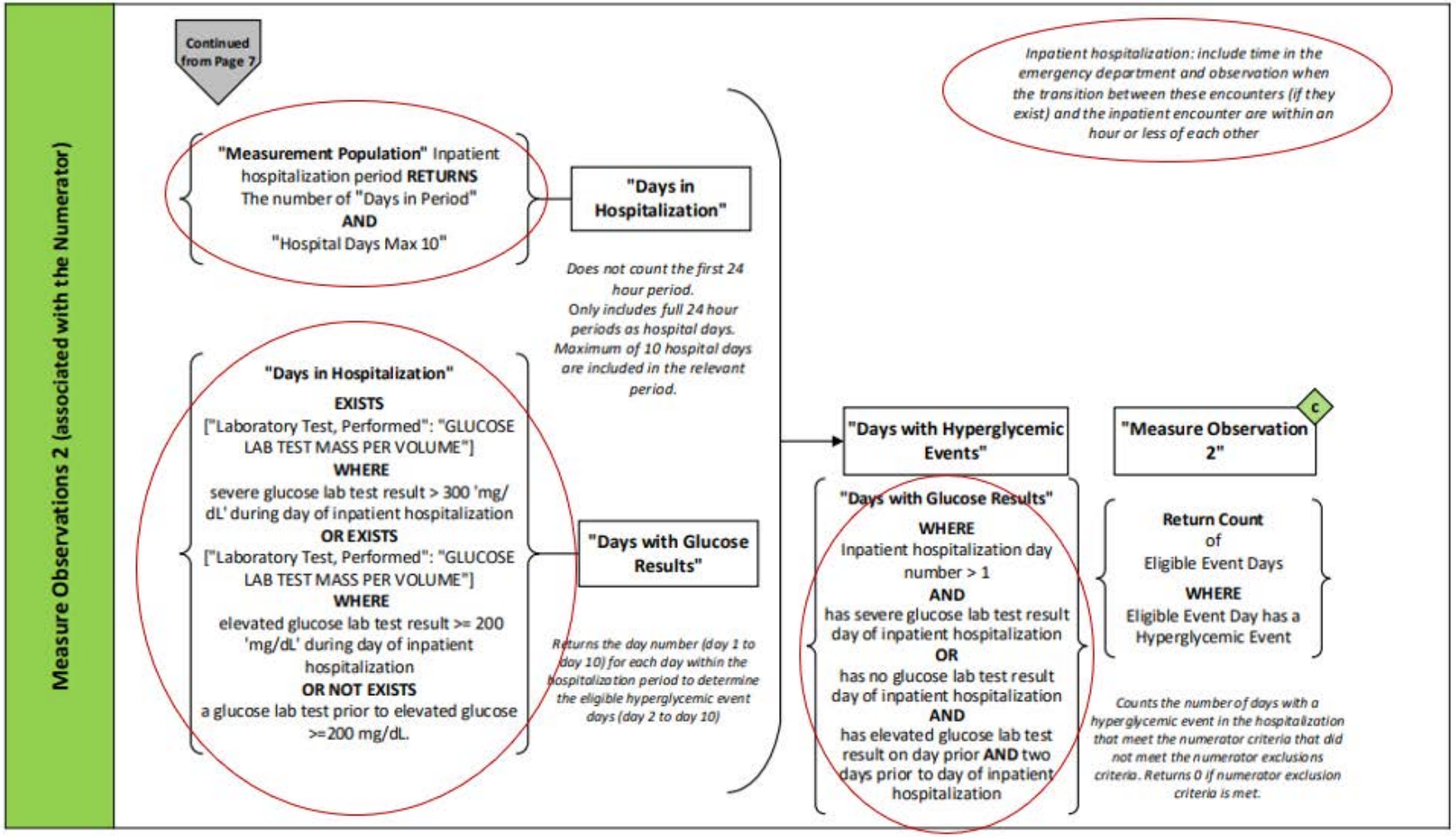
# Numerator



# Numerator Exclusions



# Measure Observations 2 (associated with Numerator)



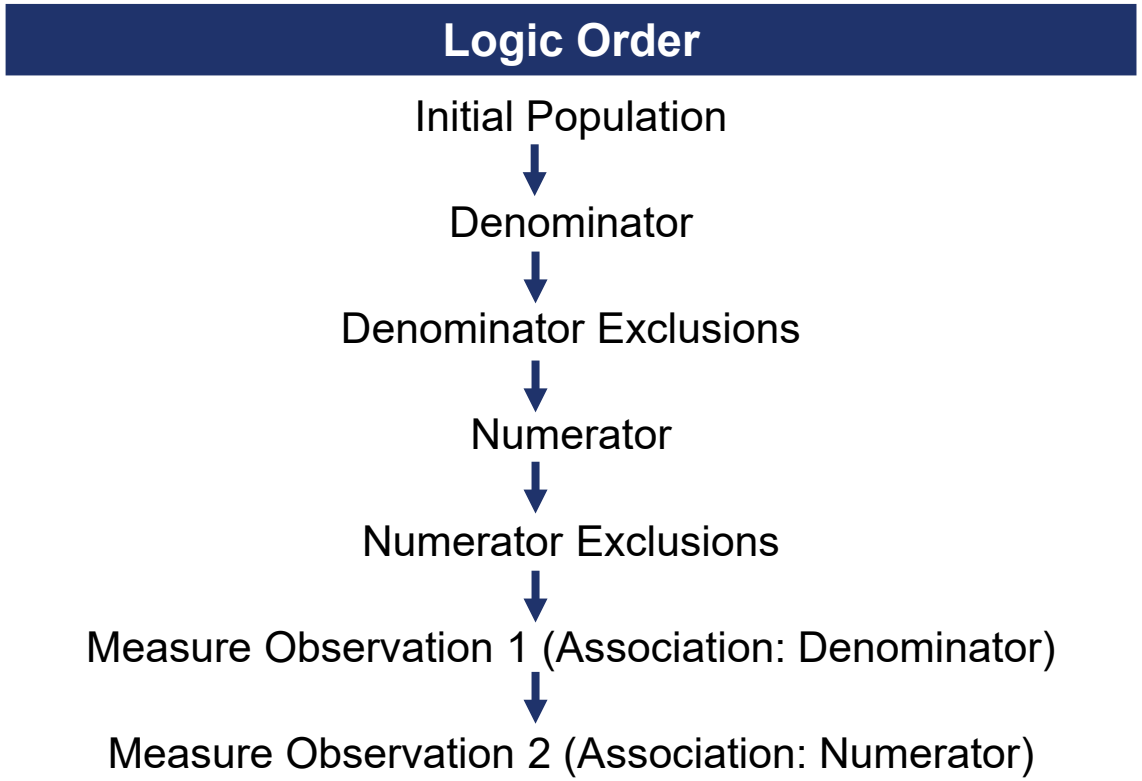
# Sample calculation

| Sample Calculation |
| --- |
| $\text{Ratio} = \frac{\text{Measure Observations 2 } (c = 100)}{\text{Measure Observations 1 } (a = 550)} = 0.182$ |

# Hospital Harm – Severe Hyperglycemia (HH-Hyper) (CMS871v4)

## Logic Detail

# HH-Hyper Logic Order



# HH-Hyper Initial Population (1)

Inpatient hospitalizations for patients age 18 and older that end during the measurement period, as well as either:

- A diagnosis of diabetes that starts before the 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 >=200 mg/dL at any time during the encounter.

**Initial Population: "Encounter with Existing Diabetes Diagnosis"**
**union "Encounter with Hypoglycemic Medication"**
**union "Encounter with Elevated Glucose Greater Than or Equal to 200"**

# HH-Hyper Initial Population (2)

**Initial Population: "Encounter with Existing Diabetes Diagnosis"**

**Encounter with Existing Diabetes Diagnosis**

```
"Encounter with Hospitalization Period" Hospitalization
  with ["Diagnosis": "Diabetes"] DiabetesCondition
    such that DiabetesCondition.prevalencePeriod starts before end of Hospitalization.hospitalizationPeriod
     return Hospitalization.encounter
```

**Encounter with Hospitalization Period**

```
"Qualifying Encounter" QualifyingHospitalization
        return Tuple {
       encounter: QualifyingHospitalization,
       hospitalizationPeriod: Global."HospitalizationWithObservation" ( QualifyingHospitalization )
       }
```

**Qualifying Encounter**

```
["Encounter, Performed": "Encounter Inpatient"] InpatientEncounter
     where InpatientEncounter.relevantPeriod ends during day of "Measurement Period"
    and AgeInYearsAt (date from start of InpatientEncounter.relevantPeriod ) >= 18
```

# HH-Hyper Initial Population (3)

**Initial Population: "Encounter with Hypoglycemic Medication”**

**Encounter with Hypoglycemic Medication**

```
"Encounter with Hospitalization Period" Hospitalization
  with ["Medication, Administered": "Hypoglycemics Treatment Medications"]
HypoglycemicMedication
    such that Global."NormalizeInterval" ( HypoglycemicMedication.relevantDatetime,
HypoglycemicMedication.relevantPeriod ) starts during Hospitalization.hospitalizationPeriod
  return Hospitalization.encounter
```

# HH-Hyper Initial Population (4)

**Initial Population: "Encounter with Elevated Glucose Greater Than or Equal to 200”**

**Encounter with Elevated Glucose Greater Than or Equal to 200**

```
"Encounter with Hospitalization Period" Hospitalization
        with ["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] GlucoseTest
          such that Global."EarliestOf" ( GlucoseTest.relevantDatetime, GlucoseTest.relevantPeriod )
during Hospitalization.hospitalizationPeriod
            and GlucoseTest.result >= 200 'mg/dL'
        return Hospitalization.encounter
```

# HH-Hyper Denominator

Equals Initial Population

**Denominator: “Initial Population”**

# HH-Hyper Denominator Exclusions (1)

- Inpatient hospitalizations for patients with ~~an initial~~ a glucose result of >=1000 mg/dL anytime between 1 hour prior to the start of the encounter to 6 hours after the start of the encounter.

– Inpatient hospitalizations for patients who have comfort care measures ordered or provided during the encounter.

– Inpatient hospitalizations for patients who have a discharge disposition to home or to a health care facility for hospice care.

**Denominator Exclusions: "Encounter with ~~First~~ Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care"**

# HH-Hyper Denominator Exclusions (2)

**Denominator Exclusions: "Encounter with ~~First~~ Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care"**

~~**Encounter with First Glucose Greater Than or Equal to 1000**~~

~~"Initial Population" InpatientHospitalization~~
~~with "Initial Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start" FirstGlucoseResult~~
~~such that FirstGlucoseResult.result is not null~~
~~and FirstGlucoseResult.result >= 1000 'mg/dL'~~
~~and Global."EarliestOf" ( FirstGlucoseResult.relevantDatetime, FirstGlucoseResult.relevantPeriod ) during Interval[( start of Global."HospitalizationWithObservation" ( InpatientHospitalization ) - 1 hour ), ( start of Global."HospitalizationWithObservation" ( InpatientHospitalization ) + 6 hours )]~~
~~return InpatientHospitalization~~

~~**Initial Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start**~~

~~"Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start" GlucoseResult1000~~
~~where not ( GlucoseResult1000.id in "Glucose Tests Earlier Than Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start".id )~~

# HH-Hyper Denominator Exclusions (3)

**Denominator Exclusions: "Encounter with ~~First~~ Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care"**

**Encounter with ~~First~~ Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care**

"Encounter with Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"
union "Encounter with Comfort Measures during Hospitalization"
union "Encounter with Discharge for Hospice Care"

**Encounter with Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start**

```
  from
"Initial Population" InpatientHospitalization,
["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] GlucoseTest
let GlucoseTestTime: Global."EarliestOf" ( GlucoseTest.relevantDatetime, GlucoseTest.relevantPeriod ),
HospitalPeriod: Global."HospitalizationWithObservation" ( InpatientHospitalization )
where GlucoseTest.result is not null
  and GlucoseTest.result >= 1000 'mg/dL'
  and GlucoseTestTime during Interval[( start of HospitalPeriod - 1 hour ), ( start of HospitalPeriod + 6 hours )]
  and GlucoseTestTime before end of InpatientHospitalization.relevantPeriod
return InpatientHospitalization
```

# HH-Hyper Denominator Exclusions (4)

**Denominator Exclusions: "Encounter with ~~First~~ Early Glucose Greater Than or Equal to 1000 or withComfort or Hospice Care"**

**Encounter with ~~First~~ Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care**

"Encounter with Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"
union "Encounter with Comfort Measures during Hospitalization"
union "Encounter with Discharge for Hospice Care"

**Encounter with Comfort Measures during Hospitalization**

"Initial Population" InpatientHospitalization
with "Comfort Measures Care" ComfortCare
such that Coalesce(start of Global."NormalizeInterval"(ComfortCare.relevantDatetime, ComfortCare.relevantPeriod), ComfortCare.authorDatetime) during Global."HospitalizationWithObservation" ( InpatientHospitalization )

**Encounter with Discharge for Hospice Care**

"Initial Population" InpatientHospitalization
where InpatientHospitalization.dischargeDisposition in "Discharged to Home for Hospice Care"
or InpatientHospitalization.dischargeDisposition in "Discharged to Health Care Facility for Hospice Care"

# HH-Hyper Numerator (1)

Inpatient hospitalizations with a hyperglycemic event within the first 10 days of the encounter minus the first 24 hours, and minus the last period before discharge from the hospital if less than 24 hours.

A hyperglycemic event is defined as:

– A day with at least one glucose value >300 mg/dL.

OR

– 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 >=200 mg/dL.

**Numerator: "Encounter with Hyperglycemic Events"**

# HH-Hyper Numerator (2)

**Numerator: "Encounter with Hyperglycemic Events"**

**Encounter with Hyperglycemic Events**

```
"Days with Hyperglycemic Events" HyperglycemicEventDays
 where exists ( HyperglycemicEventDays.eligibleEventDays EligibleEventDay
    where EligibleEventDay.hasHyperglycemicEvent
 )
 return HyperglycemicEventDays.encounter
```

# HH-Hyper Numerator (3)

**Days with Hyperglycemic Events**

```
"Days with Glucose Results" EncounterWithResultDays
  let eligibleEventDays: EncounterWithResultDays.relevantDays EncounterDay
    where EncounterDay.dayNumber > 1
    return Tuple {
      dayNumber: EncounterDay.dayNumber,
      dayPeriod: EncounterDay.dayPeriod,
      hasHyperglycemicEvent: ( EncounterDay.hasSevereResult
          or ( EncounterDay.hasNoGlucoseTest
              and EncounterWithResultDays.relevantDays[EncounterDay.dayNumber - 2].hasElevatedResult
              and EncounterWithResultDays.relevantDays[EncounterDay.dayNumber - 3].hasElevatedResult )
      )
    }
  return Tuple {
    encounter: EncounterWithResultDays.encounter,
    relevantPeriod: EncounterWithResultDays.relevantPeriod,
    eligibleEventDays: eligibleEventDays
  }
```

# HH-Hyper Numerator (4)

**Days with Glucose Results**

```
"Days in Hospitalization" InpatientHospitalDays
 return Tuple {
   encounter: InpatientHospitalDays.encounter,
   relevantPeriod: InpatientHospitalDays.relevantPeriod,
   relevantDays: ( InpatientHospitalDays.relevantDays EncounterDay
      return Tuple {
       dayNumber: EncounterDay.dayNumber,
       dayPeriod: EncounterDay.dayPeriod,
       hasSevereResult: exists ( ["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] GlucoseTest
          where GlucoseTest.result > 300 'mg/dL'
            and Global."EarliestOf" ( GlucoseTest.relevantDatetime, GlucoseTest.relevantPeriod ) during EncounterDay.dayPeriod ),
       hasElevatedResult: exists ( ["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] GlucoseTest
          where GlucoseTest.result >= 200 'mg/dL'
            and Global."EarliestOf" ( GlucoseTest.relevantDatetime, GlucoseTest.relevantPeriod ) during EncounterDay.dayPeriod ),
       hasNoGlucoseTest: not exists ( ["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] GlucoseTest
          where Global."EarliestOf" ( GlucoseTest.relevantDatetime, GlucoseTest.relevantPeriod ) during EncounterDay.dayPeriod )
      }
  )
}
```

# HH-Hyper Numerator (5)

**Days in Hospitalization**

```
"Measurement Population" EligibleInpatientHospitalization
  let period: Global."HospitalizationWithObservation" ( EligibleInpatientHospitalization ),
  relevantPeriod: "~~Hospital Days Max 10~~ HospitalDaysMax10"(period)
  return Tuple {
    encounter: EligibleInpatientHospitalization,
    hospitalizationPeriod: period,
    relevantPeriod: relevantPeriod,
    relevantDays: "~~Days In Period~~ DaysInPeriod"(relevantPeriod)
  }
```

# HH-Hyper Numerator Exclusions

Inpatient hospitalizations that meet the Denominator Exclusions:

- Inpatient hospitalizations for patients with a glucose result of >=1000 mg/dL anytime between 1 hour prior to the start of the encounter to 6 hours after the start of the encounter.
- Inpatient hospitalizations for patients who have comfort care measures ordered or provided during the encounter.
- Inpatient hospitalizations for patients who have a discharge disposition to home or to a health care facility for hospice care.

**Numerator Exclusions: "Encounter with Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care"**

# HH-Hyper Measure Observation 1 (Association: Denominator)

Encounter Observation 1, associated with the denominator of the ratio: The total number of eligible days of the inpatient hospitalization which match the initial population/denominator criteria and did not meet the denominator exclusion criteria.

**Measure Observation 1 (Association: Denominator)**

```
Sum (
  if QualifyingEncounter.id in "Denominator Exclusions".id then singleton from ( "Days with
Hyperglycemic Events" EncounterWithEventDays
      where EncounterWithEventDays.encounter = QualifyingEncounter
      return 0
  )
  else singleton from ( "Days with Hyperglycemic Events" EncounterWithEventDays
    where EncounterWithEventDays.encounter = QualifyingEncounter
    return Count( EncounterWithEventDays.eligibleEventDays )
)
)
```

# HH-Hyper Measure Observation 2 (Association: Numerator)

Encounter Observation 2, associated with the numerator of the ratio: The total number of hyperglycemic days during the inpatient hospitalization that meet the numerator criteria and did not meet the numerator exclusion criteria. Days with a hyperglycemic event are defined as:
- All days with a glucose level >300 mg/dL (except those occurring in the first 24-hour period after admission to the hospital (including the emergency department and observation)), OR
- All days where a glucose was not measured, and it was immediately preceded by two contiguous, consecutive days where at least one glucose value during each of the two days was >=200 mg/dL.

**Measure Observation 2 (Association: Numerator)**

```
Sum (
 if QualifyingEncounter.id in "Denominator Exclusions".id then singleton from ( "Days with Hyperglycemic Events"
EncounterWithEventDays
    where EncounterWithEventDays.encounter = QualifyingEncounter
    return 0
)
  else  singleton from ( "Days with Hyperglycemic Events" EncounterWithEventDays
    where EncounterWithEventDays.encounter = QualifyingEncounter
    return Count(EncounterWithEventDays.eligibleEventDays EligibleEventDay
      where EligibleEventDay.hasHyperglycemicEvent )
)
)
```

# Hospital Harm – Hypoglycemia (HH-Hypo) (CMS816v4)

# HH-Hypo – Background

**Measure Description:** The measure assesses the number of inpatient hospitalizations for patients age 18 and older who were administered at least one hypoglycemic medication during the encounter and who suffer the harm of a severe hypoglycemic event during the encounter

**Rationale and Intent:**

- Inpatient hypoglycemic events are one of the most common adverse drug events
- Rates of inpatient hypoglycemic events indicate quality of care
- Severe hypoglycemia is preventable by careful use of antihyperglycemic medications

# 2024 vs 2025 Reporting Year (1)

| Measure Components | 2024 Reporting Year | 2025 Reporting Year |
|---|---|---|
| Description | The measure assesses the number of inpatient hospitalizations for patients age 18 and older who were administered at least one hypoglycemic medication during the encounter, who suffer the harm of a severe hypoglycemic event during the encounter | The measure assesses the number of inpatient hospitalizations for patients age 18 and older who were administered at least one hypoglycemic medication during the encounter~~,~~ and who suffer the harm of a severe hypoglycemic event during the encounter |
| Initial Population | Inpatient hospitalizations that end during the measurement period for patients age 18 and older and at least one hypoglycemic medication was administered during the encounter.<br>The measure includes instances of administration of hypoglycemic medications in the emergency department or in observation status at the start of an inpatient hospitalization when assessing inclusion of encounters in the measure denominator. | Inpatient hospitalizations that end during the measurement period for patients age 18 and older and at least one hypoglycemic medication ~~was administered~~ administration starts during the encounter~~.~~<br>~~The measure includes instances of administration of hypoglycemic medications in the emergency department or in observation status at the start of an inpatient hospitalization when assessing inclusion of encounters in the measure denominator.~~ |

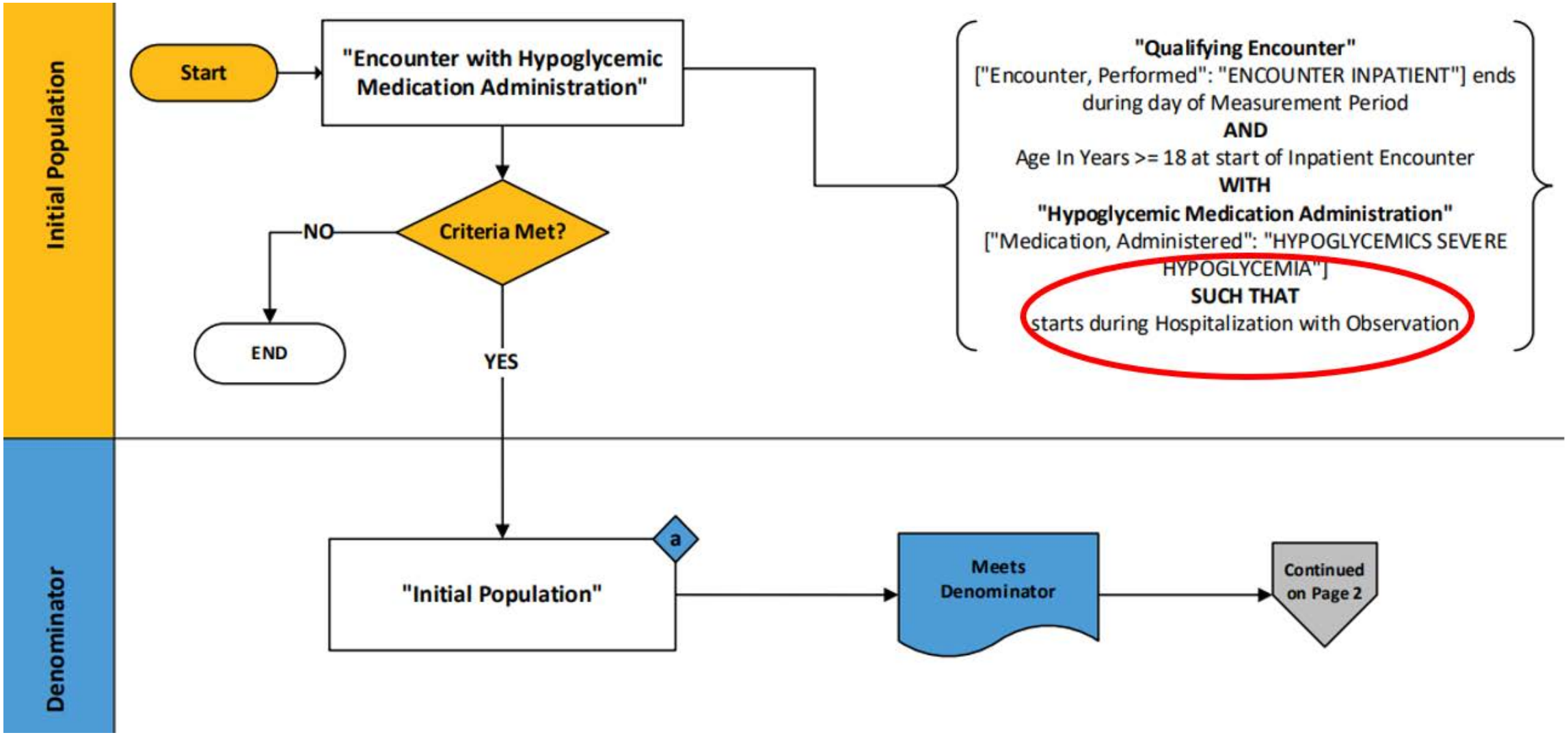
# 2024 vs 2025 Reporting Year (2)

| Measure Components | 2024 Reporting Year | 2025 Reporting Year |
|---|---|---|
| Denominator | Equals Initial Population | No change |
| Numerator | Inpatient hospitalizations where a severe hypoglycemic event occurred during the encounter, which is:<br><br>- A glucose result less than 40 mg/dL<br>AND<br>- A hypoglycemic medication administered within 24 hours prior to the start of the severe hypoglycemic event (i.e., the glucose result less than 40 mg/dL)<br>AND<br>- No subsequent repeat test for glucose with a result greater than 80 mg/dL within five minutes of the time of the initial glucose test with result less than 40mg/dL<br>Only one qualifying severe hypoglycemic event is counted in the numerator, and only one severe hypoglycemic event is counted per encounter.<br>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. | Inpatient hospitalizations where a severe hypoglycemic event occurred during the encounter~~, which~~. A severe hypoglycemic event is:<br>- A glucose test with a result less than 40 mg/dL<br>AND<br>- A hypoglycemic medication was administered within 24 hours ~~prior to~~before the start of the severe hypoglycemic event (i.e., the glucose test with a result less than 40 mg/dL)<br>AND<br>- ~~No~~There was no subsequent repeat test for glucose with a result greater than 80 mg/dL within five minutes ~~of~~or less from the ~~time~~start of the initial glucose test with a result less than 40 mg/dL<br>Only one qualifying severe hypoglycemic event is counted in the numerator, and only one severe hypoglycemic event is counted per encounter.<br>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. |

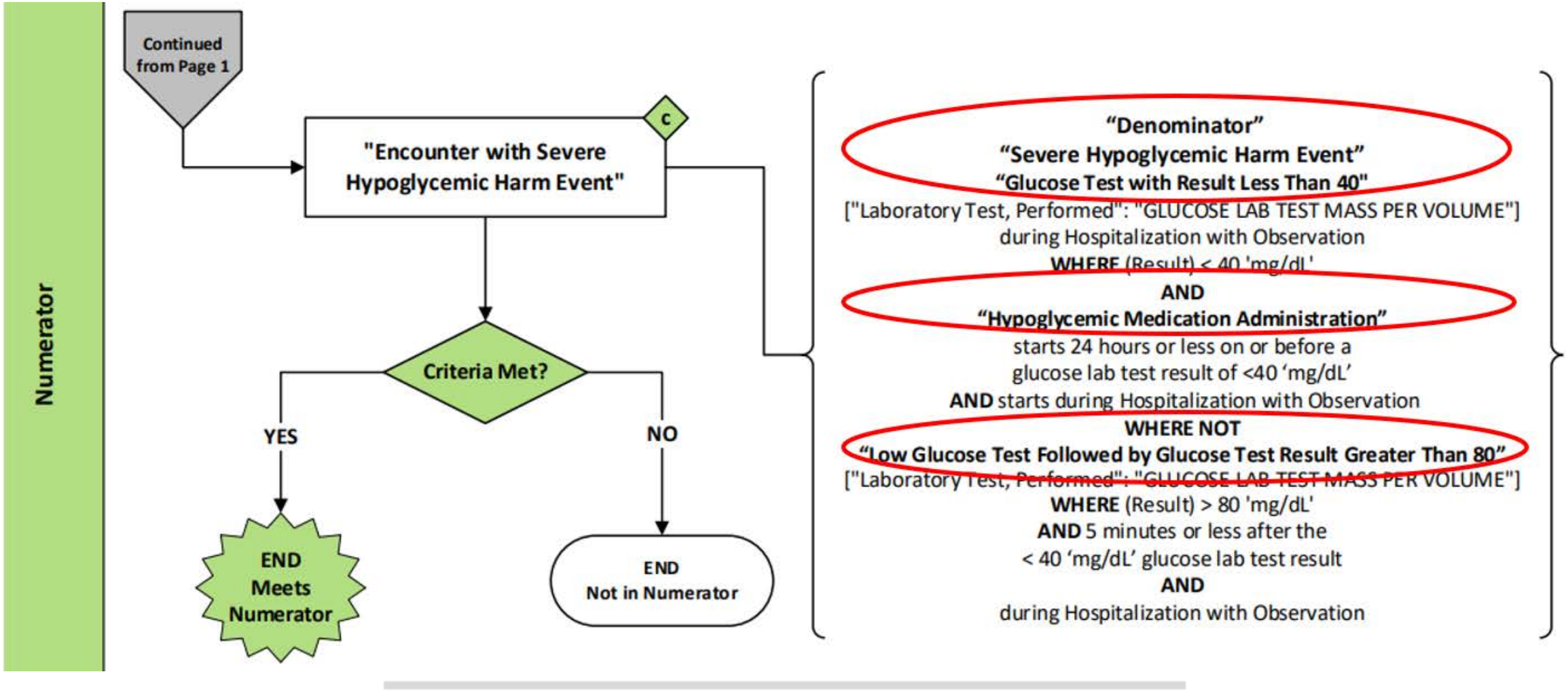
# Hospital Harm – Severe Hypoglycemia (HH-Hypo) (CMS816v4)

## Measure Flow

# Initial Population and Denominator



# Numerator



# Sample Calculation

| Sample Calculation |
| --- |
| $\text{Performance Rate} = \frac{\text{Numerator } (c = 20)}{\text{Denominator } (a = 80)} = 25\%$ |

# Hospital Harm – Severe Hypoglycemia (HH-Hypo) (CMS816v4)

## Logic Detail

# HH-Hypo – Initial Population

Inpatient hospitalizations that end during the measurement period for patients age 18 and older and at least one hypoglycemic medication administration starts during the encounter

## Initial Population: "Encounter with Hypoglycemic Medication Administration"

**Encounter with Hypoglycemic Medication Administration**

"Qualifying Encounter" ~~InpatientHospitalization~~EncounterInpatient
with "Hypoglycemic Medication Administration" HypoglycemicMedication
such that Global."NormalizeInterval" ( HypoglycemicMedication.relevantDatetime, HypoglycemicMedication.relevantPeriod )
starts during Global.HospitalizationWithObservation
(~~InpatientHospitalization~~EncounterInpatient
)

**Qualifying Encounter**

["Encounter, Performed": "Encounter Inpatient"] InpatientEncounter
where InpatientEncounter.relevantPeriod ends during day of "Measurement Period"
and AgeInYearsAt(date from start of InpatientEncounter.relevantPeriod) >= 18

**Hypoglycemic Medication Administration**

["Medication, Administered": "Hypoglycemics Severe Hypoglycemia"]

# HH-Hypo – Denominator

Equals Initial Population

**Denominator: “Initial Population”**

# HH-Hypo – Numerator (1)

Inpatient hospitalizations where a severe hypoglycemic event occurred during the encounter. A severe hypoglycemic event is:
- 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 (i.e., the glucose test with a result less than 40 mg/dL)

AND
- There was no subsequent repeat test for glucose with a result greater than 80 mg/dL within five minutes or less from the start of the initial glucose test with a result less than 40 mg/dL

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.

**Numerator: "Encounter with Severe Hypoglycemic Harm Event"**

# HH-Hypo – Numerator (2)

**Numerator: “Encounter with Severe Hypoglycemic Harm Event”**

**Encounter with Severe Hypoglycemic Harm Event**
from
“Denominator” ~~Qualifying Encounter~~Inpatient Hospitalization
"Severe Hypoglycemic Harm Event" HypoglycemicEvent
let GlucoseTestTime: Global."EarliestOf" ( HypoglycemicEvent.relevantDatetime,
HypoglycemicEvent.relevantPeriod ),
HospitalizationInterval: Global."HospitalizationWithObservation"
( ~~QualifyingEncounter~~InpatientHospitalization )
where GlucoseTestTime during HospitalizationInterval
return ~~QualifyingEncounter~~InpatientHospitalization

**Severe Hypoglycemic Harm Event**
“Glucose Test Result Less Than 40” LowGlucoseTest
where not (LowGlucoseTest.id in "Low Glucose Test Followed By Glucose Test Result Greater Than 80".id )

# HH-Hypo – Numerator (3)

## Numerator: “Encounter with Severe Hypoglycemic Harm Event”

**Severe Hypoglycemic Harm Event**

“Glucose Test Result Less Than 40” LowGlucoseTest
where not (LowGlucoseTest.id in "Low Glucose Test Followed By Glucose Test Result Greater Than 80".id )

**Glucose Test with Result Less Than 40**

```
from
  "Denominator" QualifyingEncounter,
  "Hypoglycemic Medication Administration" HypoglycemicMedication,
  ["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] GlucoseTest
  let HospitalizationInterval: Global."HospitalizationWithObservation" ( QualifyingEncounter ),
  ~~HypoglycemicMedicationStart~~HypoglycemicMedicationInterval: Global."NormalizeInterval" (
HypoglycemicMedication.relevantDatetime, HypoglycemicMedication.relevantPeriod ),
  GlucoseTestTime: Global."EarliestOf" ( GlucoseTest.relevantDatetime, GlucoseTest.relevantPeriod )
  where GlucoseTestTime during HospitalizationInterval
    and GlucoseTest.result < 40 'mg/dL'
    and ~~HypoglycemicMedicationStart~~HypoglycemicMedicationInterval starts 24 hours or less before or on GlucoseTestTime
  return GlucoseTest
```

# HH-Hypo – Numerator (4)

## Numerator: “Encounter with Severe Hypoglycemic Harm Event”

**Severe Hypoglycemic Harm Event**

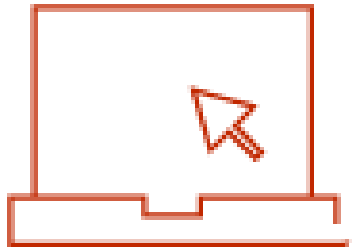
“Glucose Test Result Less Than 40” LowGlucoseTest
where not (LowGlucoseTest.id in "Low Glucose Test Followed By Glucose Test Result Greater Than 80".id )

**Low Glucose Test Followed By Glucose Test Result Greater Than 80**

```
from
  "Denominator" QualifyingEncounter,
  "Glucose Test with Result Less Than 40" LowGlucoseTest,
  ["Laboratory Test, Performed": "Glucose Lab Test Mass Per Volume"] FollowupGlucoseTest
  let GlucoseTestTime: Global."EarliestOf" ( LowGlucoseTest.relevantDatetime, LowGlucoseTest.relevantPeriod ),
  FollowupGlucoseTestTime: Global."EarliestOf" ( FollowupGlucoseTest.relevantDatetime, FollowupGlucoseTest.relevantPeriod )
  where FollowupGlucoseTestTime 5 minutes or less after GlucoseTestTime
    and GlucoseTestTime during Global."HospitalizationWithObservation" ( QualifyingEncounter )
    and FollowupGlucoseTestTime during Global."HospitalizationWithObservation" ( QualifyingEncounter )
    and FollowupGlucoseTest.id !~ LowGlucoseTest.id
    and FollowupGlucoseTest.result > 80 'mg/dL'
  return LowGlucoseTest
```

# Resources

## eCQI Resource Center



**CMS EH Measures**
https://ecqi.healthit.gov/eligible-hospital/critical-access-hospital-eCQMs

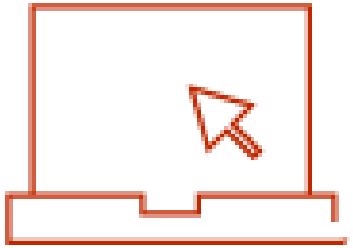
**Get Started with eCQMs**
https://ecqi.healthit.gov/ecqms?qt-tabs_ecqm=education

**Teach Me Clinical Quality Language (CQL) Video Series -**
https://ecqi.healthit.gov/cql?qt-tabs_cql=2

**Hospitalization with Observation -**
https://www.youtube.com/watch?v=3yqwOU2XcZM&ab_channel=CMSHHSgov

**What is a Value Set -**
https://register.gotowebinar.com/recording/4766956164118938369

# Resources (2)



**Value Set Authority Center (VSAC) Support -**
https://www.nlm.nih.gov/vsac/support/index.html

**Pioneers In Quality -**
https://www.jointcommission.org/measurement/pioneers-in-quality/

**Expert to Expert -**
https://www.jointcommission.org/measurement/quality-measurement-webinars-and-videos/expert-to-expert-webinars/

**ASTP/ONC Issue Tracking System -**
https://oncprojectracking.healthit.gov/

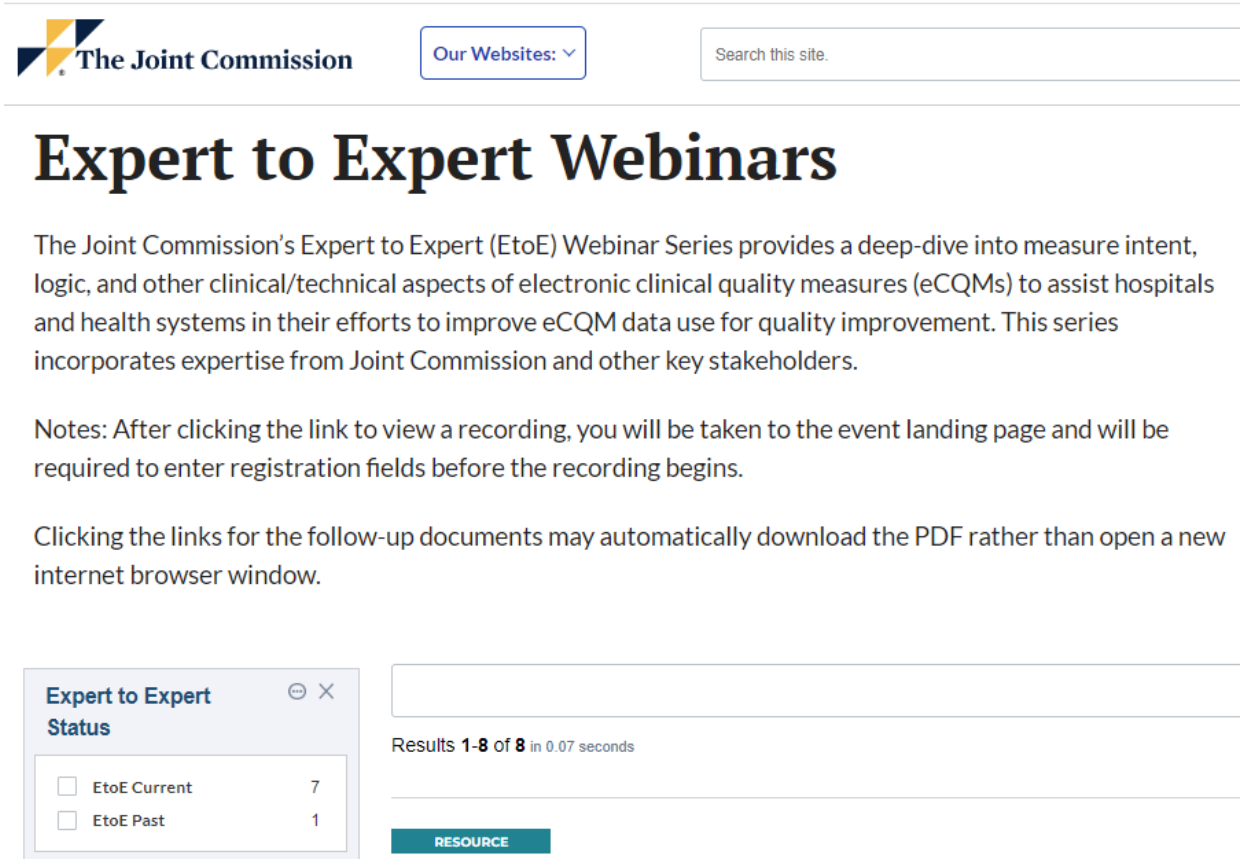
# Live Q&A Segment

- Please submit questions via the question pane
- Click the Question mark icon in the toolbar
- Type and submit your question
- Include slide reference number when possible
- All questions **not answered verbally** during the live event will be addressed in a **written follow-up Q&A document**
- The follow-up document will be posted to the Joint Commission website several weeks after the live event

# Webinar recording

All Expert to Expert webinar recording links, slides, transcripts, and Q&A documents can be accessed within several weeks of the live event on the Joint Commission's webpage via this link:

https://www.jointcommission.org/measurement/quality-measurement-webinars-and-videos/expert-to-expert-webinars/



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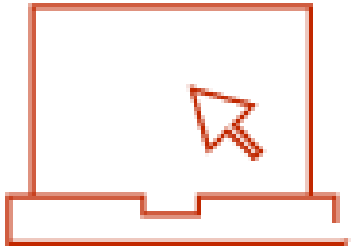
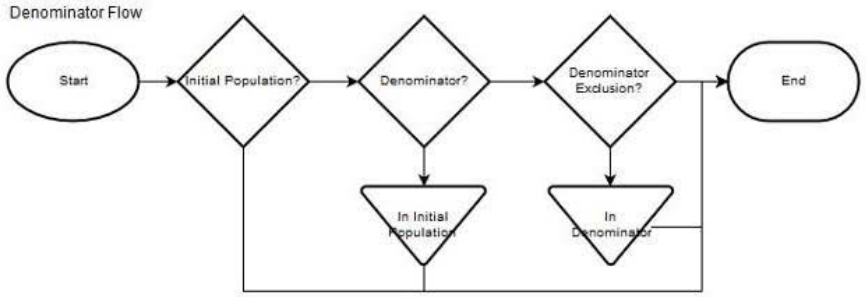
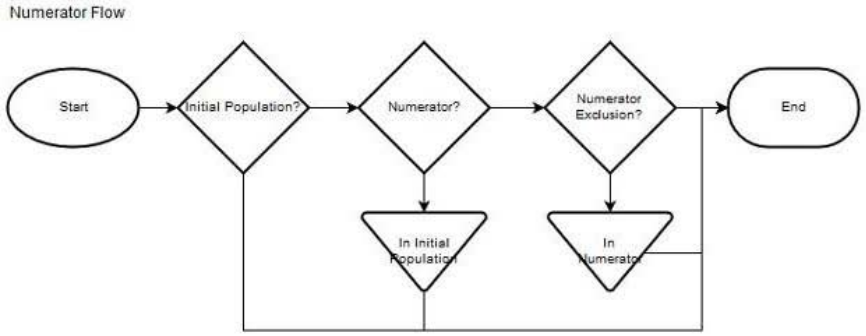
pioneersinquality@jointcommission.org



https://www.jointcommission.org/measurement/quality-measurement-webinars-and-videos/expert-to-expert-webinars/

# Appendix A: Ratio Measure Flow




- Initial population (IPOP): Identify those cases that meet the IPOP criteria. (Some ratio measures will require multiple initial populations, one for the numerator, and one for the denominator.)
- Denominator (DENOM): Identify that subset of the IPOP that meet the DENOM criteria.
- Denominator exclusion (DENEX): Identify that subset of the DENOM that meet the DENEX criteria.
- Numerator (NUMER): Identify that subset of the IPOP that meet the NUMER criteria.
- Numerator exclusion (NUMEX): Identify that subset of the NUMER that meet the NUMEX criteria.

# Appendix B: HH-Hyper Numerator/Denominator Exclusions Example (1)

| Patient has a dose of insulin administered one hour after the start of the encounter | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Encounter start at 11:00AM** | | | | | | | | |
| | **7-Hour Window – 1 Hour Prior to Start of the Encounter to 6 Hours after the Start of the Encounter** | | | | | | | |
| | **10:00 AM** | **11:00AM** | **12:00PM** | **1:00PM** | **2:00PM** | **3:00PM** | **4:00PM** | **5:00PM** |
| **Glucose Test 1** | 1,050 mg/dL | | | | | | | |
| **Glucose Test 2** | | | | 850 mg/dL | | | | |
| **Glucose Test 3** | | | | | | | 600 mg/dL | |

This encounter meets the Numerator/Denominator Exclusions criteria, because there is a glucose test result of greater than or equal to 1,000 mg/dL (at 10AM) in the 1 hour prior to the start of the encounter.

# Appendix C: HH-Hyper Numerator/Denominator Exclusions Example (2)

| Patient has a diabetes diagnosis | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Encounter start at 11:00AM** | | | | | | | | | |
| | **7-Hour Window – 1 Hour Prior to Start of the Encounter to 6 Hours after the Start of the Encounter** | | | | | | | | |
| | **10:00 AM** | **11:00AM** | **12:00PM** | **1:00PM** | **2:00PM** | **3:00PM** | **4:00PM** | **5:00PM** | **6:00PM** |
| **Glucose Test 1** | 600 mg/dL | | | | | | | | |
| **Glucose Test 2** | | | | 850 mg/dL | | | | | |
| **Glucose Test 3** | | | | | | | 900 mg/dL | | |
| **Glucose Test 4** | | | | | | | | | 1,100 mg/dL |

This encounter does **not** meet the Numerator/Denominator Exclusions criteria, because the glucose test result of greater than or equal to 1,000 mg/dL (at 6PM) results from a glucose test administered *after* the first six hours after the start of the encounter.

# Appendix D: HH-Hyper Measure Observations Example (1)

| Day Index | 24-Hour Intervals Start and End Time | Eligible Days (Measure Observation 1) | Glucose Results | Hyperglycemic Event Day (Measure Observation 2) |
|---|---|---|---|---|
| 1 | September 1, 15:00 (admission) – September 2, 14:59 | First 24 hours is not an eligible day. | 160 mg/dL | No, because the first 24 hours is not an eligible day. |
| 2 | September 2, 15:00 – September 3, 14:59 | Eligible day 1 | 305 mg/dL | Yes, because the result is greater than 300 mg/dL. |
| 3 | September 3, 15:00 – September 4, 14:59 | Eligible day 2 | 230 mg/dL | No, because the result is not greater than 300 mg/dL. |
| 4 | September 4, 15:00 – September 5, 14:59 | Eligible day 3 | 202 mg/dL | No, because the result is not greater than 300 mg/dL. |
| 5 | September 5, 15:00 – September 5, 19:00 (discharge) | Last period is not an eligible day, because it is less than 24 hours. | No result | No, because the last period before inpatient discharge is less than 24 hours and therefore excluded. |

# Appendix E: HH-Hyper Measure Observations Example (2)

| Day Index | 24-Hour Intervals Start and End Time | Eligible Days (Measure Observation 1) | Glucose Results | Hyperglycemic Event Day (Measure Observation 2) |
|---|---|---|---|---|
| 1 | September 1, 15:00 (admission) – September 2, 14:59 | First 24 hours is not an eligible day. | 150 mg/dL | No, because the first 24 hours is not an eligible day. |
| 2 | September 2, 15:00 – September 3, 14:59 | Eligible day 1 | 202 mg/dL | No, because the result is not greater than 300 mg/dL. |
| 3 | September 3, 15:00 – September 4, 14:59 | Eligible day 2 | 250 mg/dL | No, because the result is not greater than 300 mg/dL. |
| 4 | September 4, 15:00 – September 5, 14:59 | Eligible day 3 | No result | Yes, because this is a day with no results, and it is preceded by two consecutive, contiguous days with daily results greater than or equal to 200 mg/dL. |
| 5 | September 5, 15:00 – September 5, 19:00 (discharge) | Last period is not an eligible day, because it is less than 24 hours. | 301 mg/dL | No, because the last period before inpatient discharge is less than 24 hours and therefore excluded. |

# Acronyms

| Acronym | |
|---|---|
| CBE | Consensus-Based Entity |
| CE | Continuing Education |
| CMS | Centers for Medicare& Medicaid Services |
| eCQM | Electronic Clinical Quality Measure |
| ED | Emergency Department |
| EH | Eligible Hospital |
| EHR | Electronic Health Record |
| FY | Fiscal Year |
| QDM | Quality Data Model |
| VOIP | Voice Over IP Phone |