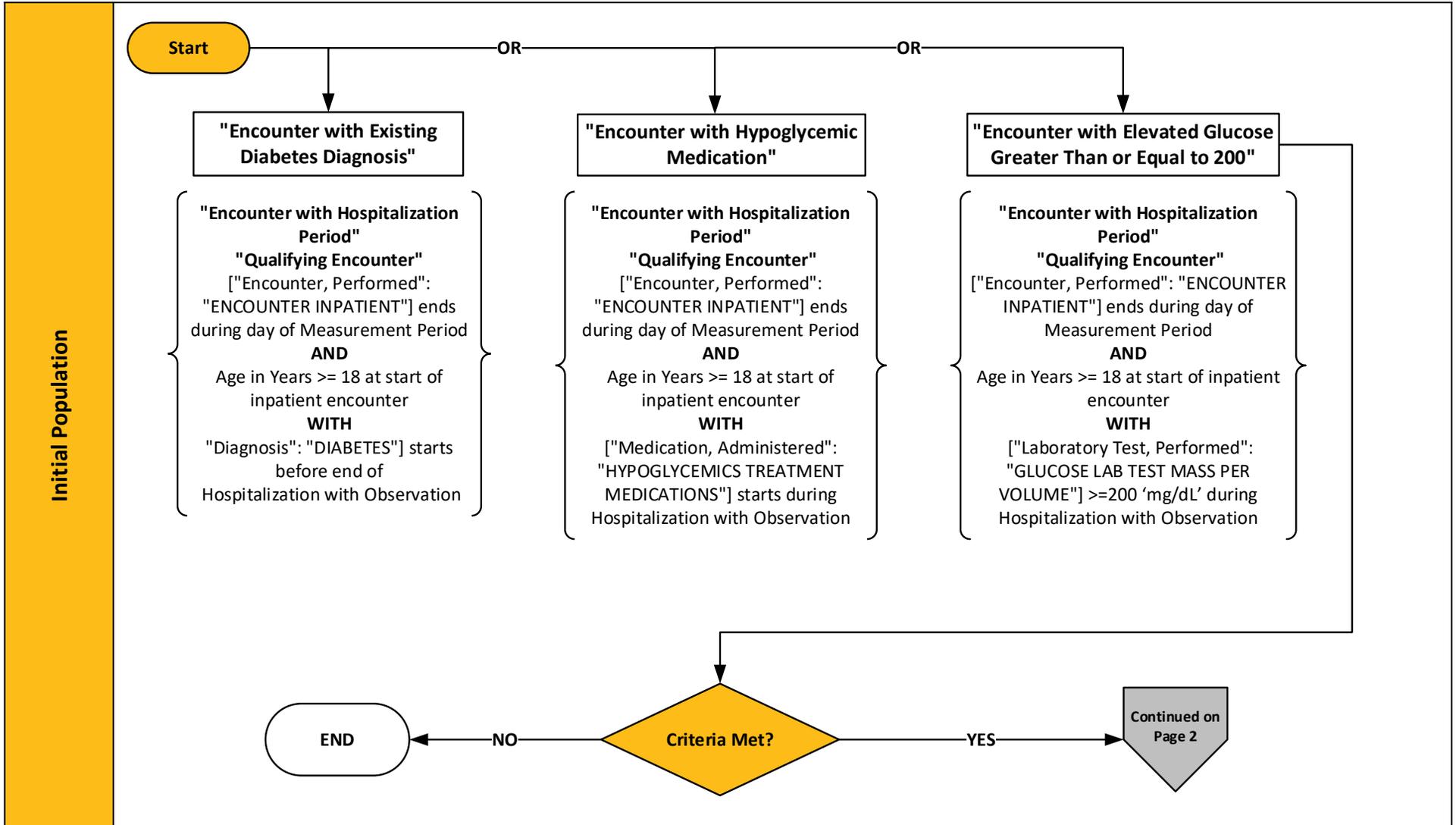# 2024 eCQM Flow – **CMS871v3: Hospital Harm - Severe Hyperglycemia (HH-02)*** NQF# 3533e

This flow diagram represents an overview of population criteria requirements. Please refer to the eCQM measure specification for a complete list of definitions, direct reference codes, data or timing elements included in this measure and required for submission.
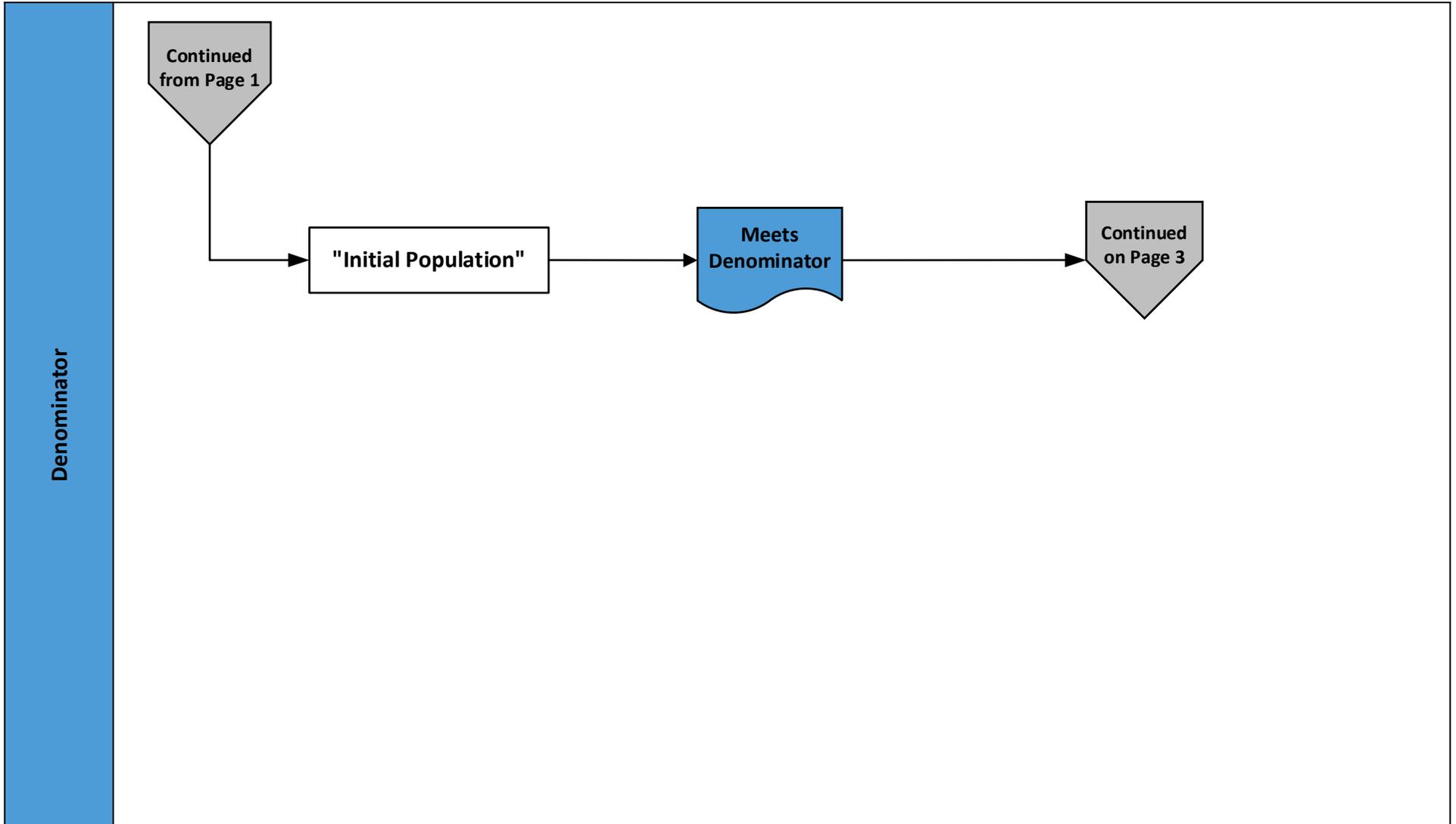
Measure Flow Diagram

Initial Population

Start —OR— —OR—

"Encounter with Existing Diabetes Diagnosis"

"Encounter with Hospitalization Period"
"Qualifying Encounter"
["Encounter, Performed": "ENCOUNTER INPATIENT"] ends during day of Measurement Period
AND
Age in Years >= 18 at start of inpatient encounter
WITH
"Diagnosis": "DIABETES"] starts before end of Hospitalization with Observation

"Encounter with Hypoglycemic Medication"

"Encounter with Hospitalization Period"
"Qualifying Encounter"
["Encounter, Performed": "ENCOUNTER INPATIENT"] ends during day of Measurement Period
AND
Age in Years >= 18 at start of inpatient encounter
WITH
["Medication, Administered": "HYPOGLYCEMICS TREATMENT MEDICATIONS"] starts during Hospitalization with Observation

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

"Encounter with Hospitalization Period"
"Qualifying Encounter"
["Encounter, Performed": "ENCOUNTER INPATIENT"] ends during day of Measurement Period
AND
Age in Years >= 18 at start of inpatient encounter
WITH
["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"] >=200 'mg/dL' during Hospitalization with Observation

Criteria Met?

NO → **END**

YES → **Continued on Page 2**

2024 eCQM Flow – **CMS871v3: Hospital Harm - Severe Hyperglycemia (HH-02)*** NQF# 3533e

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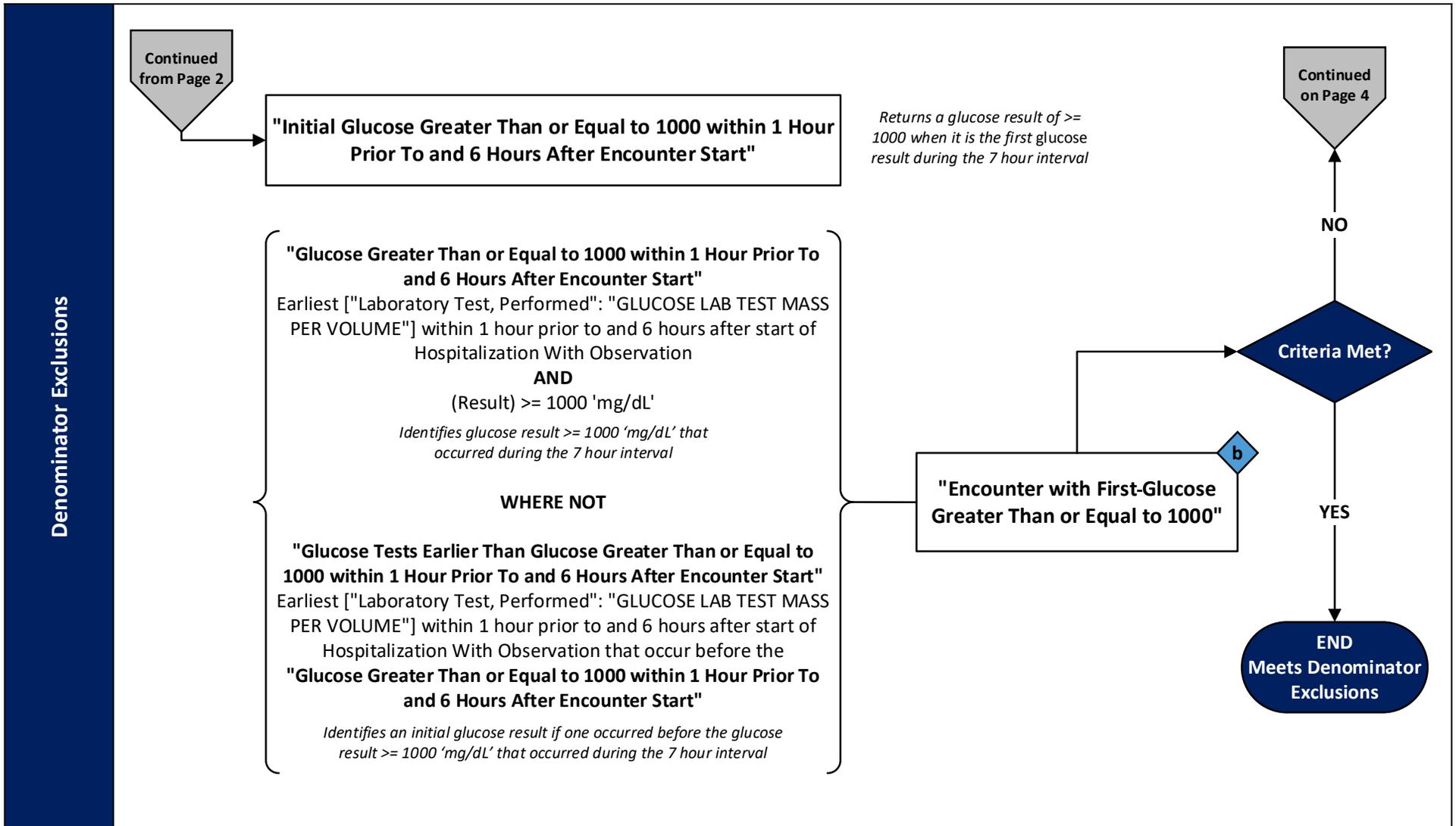
Measure Flow Diagram (Continued)

Denominator

Continued from Page 1 → "Initial Population" → Meets Denominator → Continued on Page 3

2024 eCQM Flow – **CMS871v3: Hospital Harm - Severe Hyperglycemia (HH-02)*** NQF# 3533e

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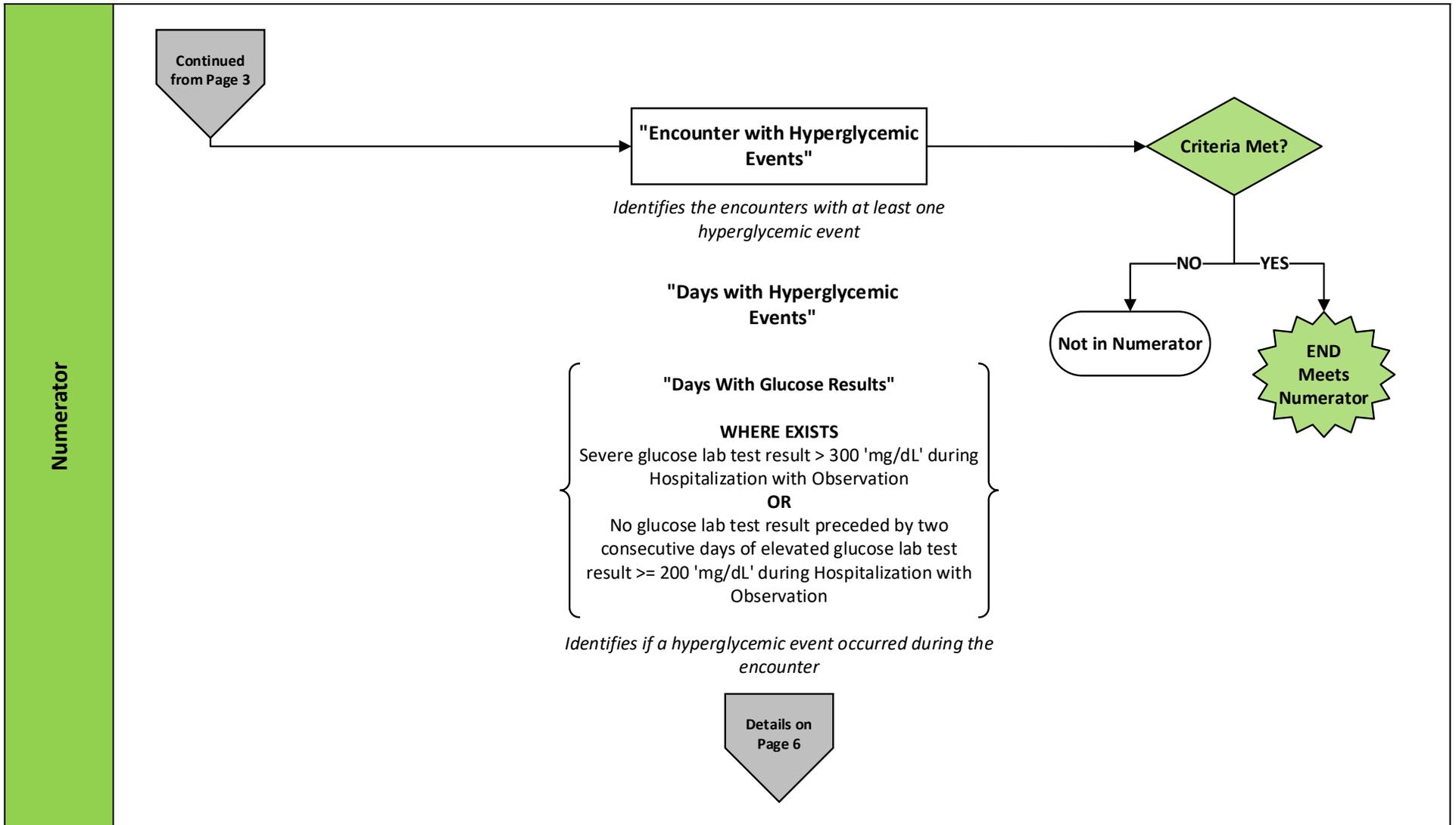
Measure Flow Diagram (Continued)

Denominator Exclusions

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

Returns a glucose result of >= 1000 when it is the first glucose result during the 7 hour interval

"Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"
Earliest ["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"] within 1 hour prior to and 6 hours after start of Hospitalization With Observation
AND
(Result) >= 1000 'mg/dL'

Identifies glucose result >= 1000 'mg/dL' that occurred during the 7 hour interval

WHERE NOT

"Glucose Tests Earlier Than Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"
Earliest ["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"] within 1 hour prior to and 6 hours after start of Hospitalization With Observation that occur before the
"Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"

Identifies an initial glucose result if one occurred before the glucose result >= 1000 'mg/dL' that occurred during the 7 hour interval

"Encounter with First-Glucose Greater Than or Equal to 1000"

b

Criteria Met?

NO

YES

END
Meets Denominator Exclusions

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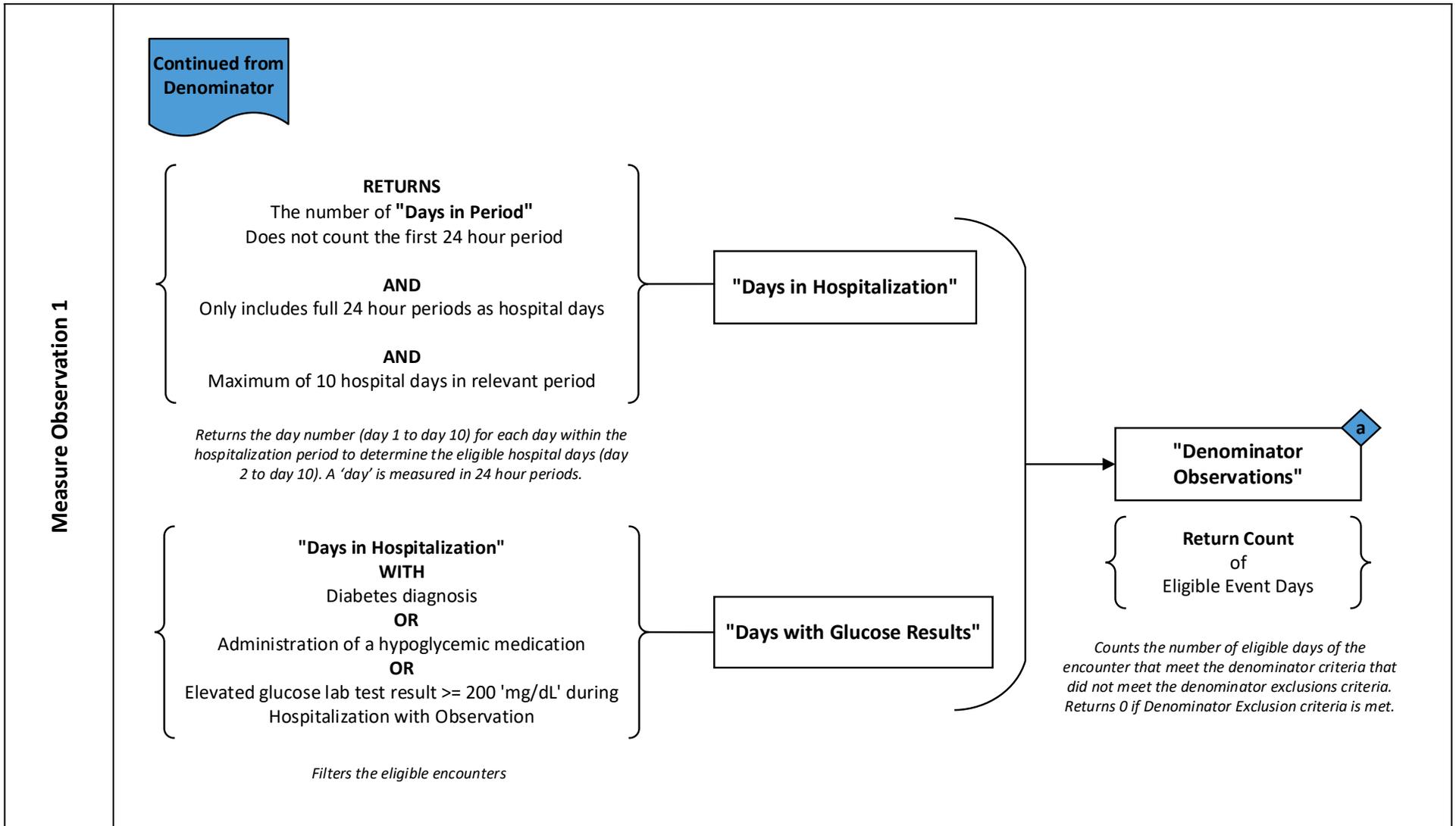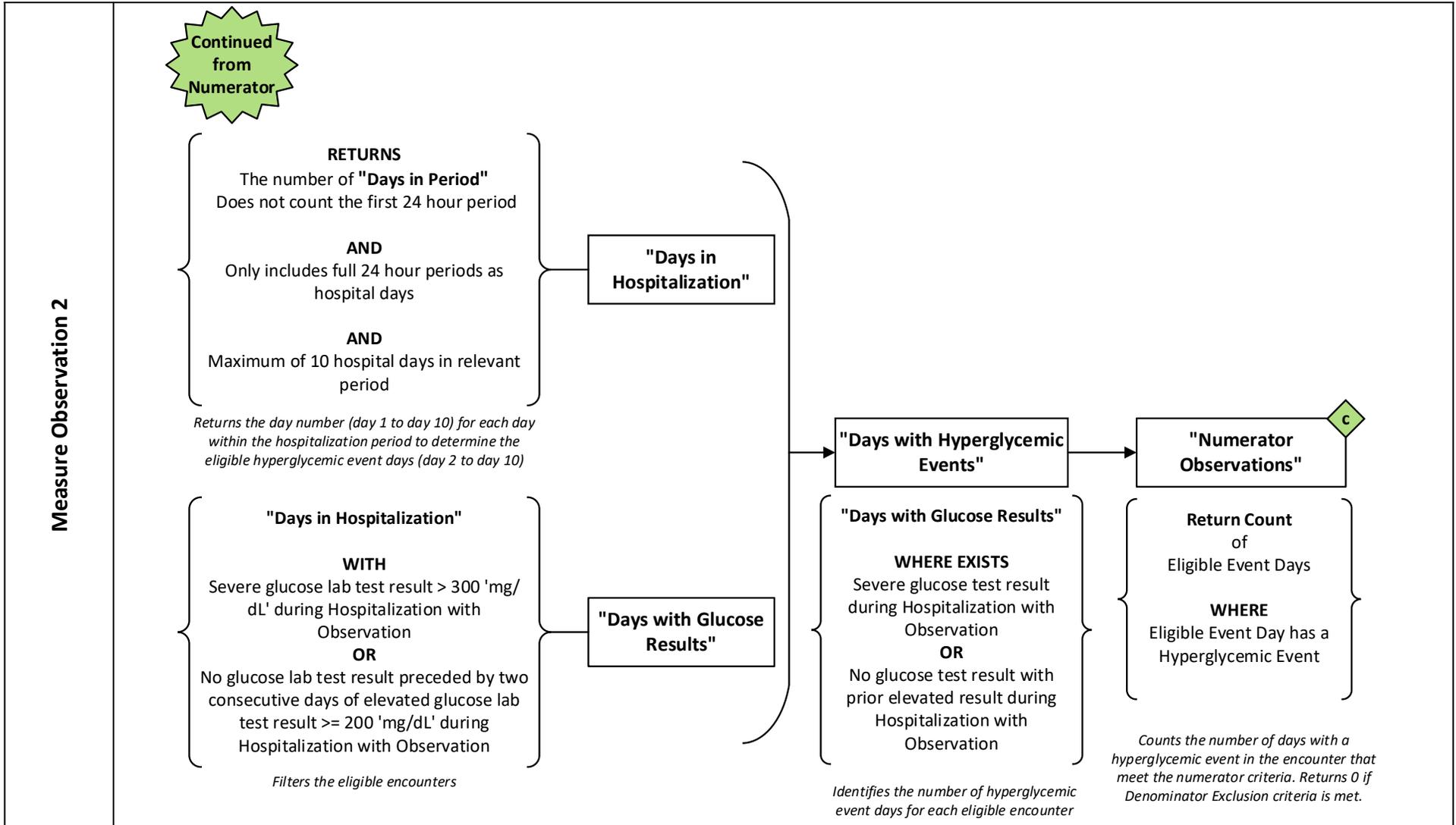
Measure Flow Diagram (Continued)

Numerator

Continued from Page 3

"Encounter with Hyperglycemic Events"

Identifies the encounters with at least one hyperglycemic event

Criteria Met?

NO → Not in Numerator

YES → **END Meets Numerator**

"Days with Hyperglycemic Events"

"Days With Glucose Results"

WHERE EXISTS
Severe glucose lab test result > 300 'mg/dL' during Hospitalization with Observation
OR
No glucose lab test result preceded by two consecutive days of elevated glucose lab test result >= 200 'mg/dL' during Hospitalization with Observation

Identifies if a hyperglycemic event occurred during the encounter

Details on Page 6

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Measure Flow Diagram (Continued)

Continued from Denominator

Measure Observation 1

RETURNS
The number of **"Days in Period"**
Does not count the first 24 hour period

AND
Only includes full 24 hour periods as hospital days

AND
Maximum of 10 hospital days in relevant period

→ **"Days in Hospitalization"**

Returns the day number (day 1 to day 10) for each day within the hospitalization period to determine the eligible hospital days (day 2 to day 10). A 'day' is measured in 24 hour periods.

"Days in Hospitalization"
WITH
Diabetes diagnosis
OR
Administration of a hypoglycemic medication
OR
Elevated glucose lab test result >= 200 'mg/dL' during Hospitalization with Observation

→ **"Days with Glucose Results"**

Filters the eligible encounters

"Denominator Observations" [a]

Return Count
of
Eligible Event Days

Counts the number of eligible days of the encounter that meet the denominator criteria that did not meet the denominator exclusions criteria. Returns 0 if Denominator Exclusion criteria is met.

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Measure Flow Diagram (Continued)

Measure Observation 2

Continued from Numerator

RETURNS
The number of **"Days in Period"**
Does not count the first 24 hour period

AND
Only includes full 24 hour periods as hospital days

AND
Maximum of 10 hospital days in relevant period

"Days in Hospitalization"

Returns the day number (day 1 to day 10) for each day within the hospitalization period to determine the eligible hyperglycemic event days (day 2 to day 10)

"Days in Hospitalization"

WITH
Severe glucose lab test result > 300 'mg/dL' during Hospitalization with Observation
OR
No glucose lab test result preceded by two consecutive days of elevated glucose lab test result >= 200 'mg/dL' during Hospitalization with Observation

"Days with Glucose Results"

Filters the eligible encounters

"Days with Hyperglycemic Events"

"Days with Glucose Results"

WHERE EXISTS
Severe glucose test result during Hospitalization with Observation
OR
No glucose test result with prior elevated result during Hospitalization with Observation

Identifies the number of hyperglycemic event days for each eligible encounter

"Numerator Observations"

C

Return Count
of
Eligible Event Days

WHERE
Eligible Event Day has a Hyperglycemic Event

Counts the number of days with a hyperglycemic event in the encounter that meet the numerator criteria. Returns 0 if Denominator Exclusion criteria is met.

2024 eCQM Flow – **CMS871v3: Hospital Harm - Severe Hyperglycemia (HH-02)*** NQF# 3533e

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Measure Flow Diagram (Continued)

Sample Calculation
Performance Rate = $\dfrac{\text{Measure Observations 2 associated with the Numerator (c = 100)}}{\text{Measure Observations 1 associated with the Denominator (a = 550)} - \text{Denominator Exclusions (b = 50)}}$ = 20%

2024 eCQM Flow – **CMS871v3: Hospital Harm - Severe Hyperglycemia (HH-02)*** NQF# 3533e

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Measure Flow Narrative

The measure flow diagram on the preceding pages illustrates the steps to determine the population criteria for this measure.

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
Initial Population	Start by identifying the initial population criteria as 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 or during the encounter; or - Administration of at least one dose of insulin or any hypoglycemic medication during the encounter; or - Presence of at least one glucose value >=200 mg/dL at any time during the encounter Inpatient hospitalizations: Includes time in the emergency department and observation when the transition between these encounters (if they exist) and the inpatient encounter are within an hour or less of each other
Denominator	The denominator is equal to the initial population
Denominator Exclusions	The denominator exclusions criteria are used to identify a subset of the denominator population by excluding 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

This flow diagram represents an overview of population criteria requirements. Please refer to the eCQM measure specification for a complete list of definitions, direct reference codes, data or timing elements included in this measure and required for submission.

Measure Flow Narrative (Continued)

The measure flow diagram on the preceding pages illustrates the steps to determine the population criteria for this measure.

Numerator	The numerator criteria identify a subset of the denominator population (that did not meet the denominator exclusions criteria) by including 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: 1) A day with at least one glucose value >300 mg/dL; OR 2) A day where a glucose test 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
Measure Observations	There are two Measure Observations: 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 exclusions criteria. 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. 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. The length of stay for all eligible inpatient hospitalizations is truncated to <=10 days when the length exceeds 10 days. Do not count the last day if it was less than a 24-hour period, as this is not considered a full day.