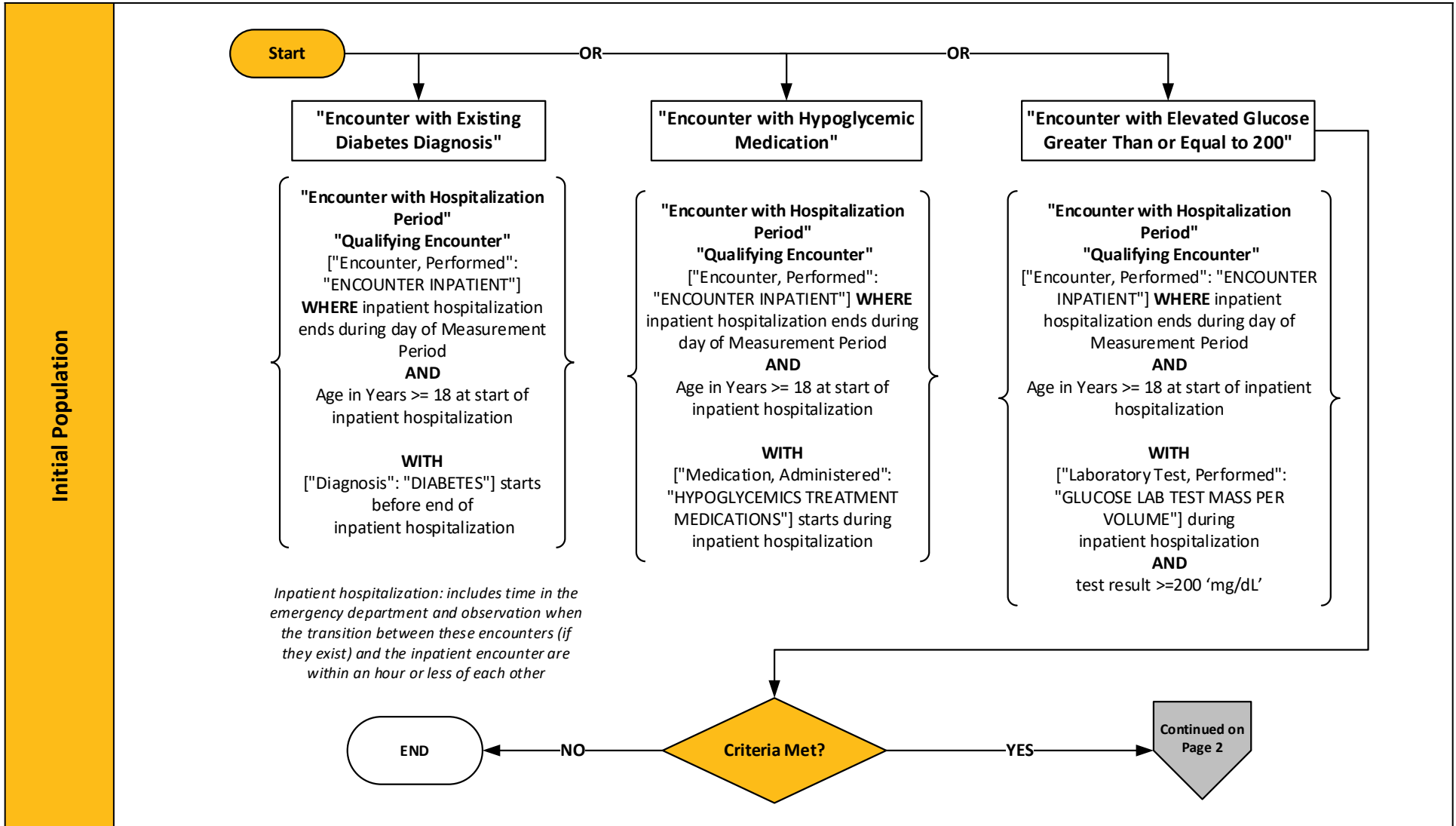# 2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 3533e

*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.
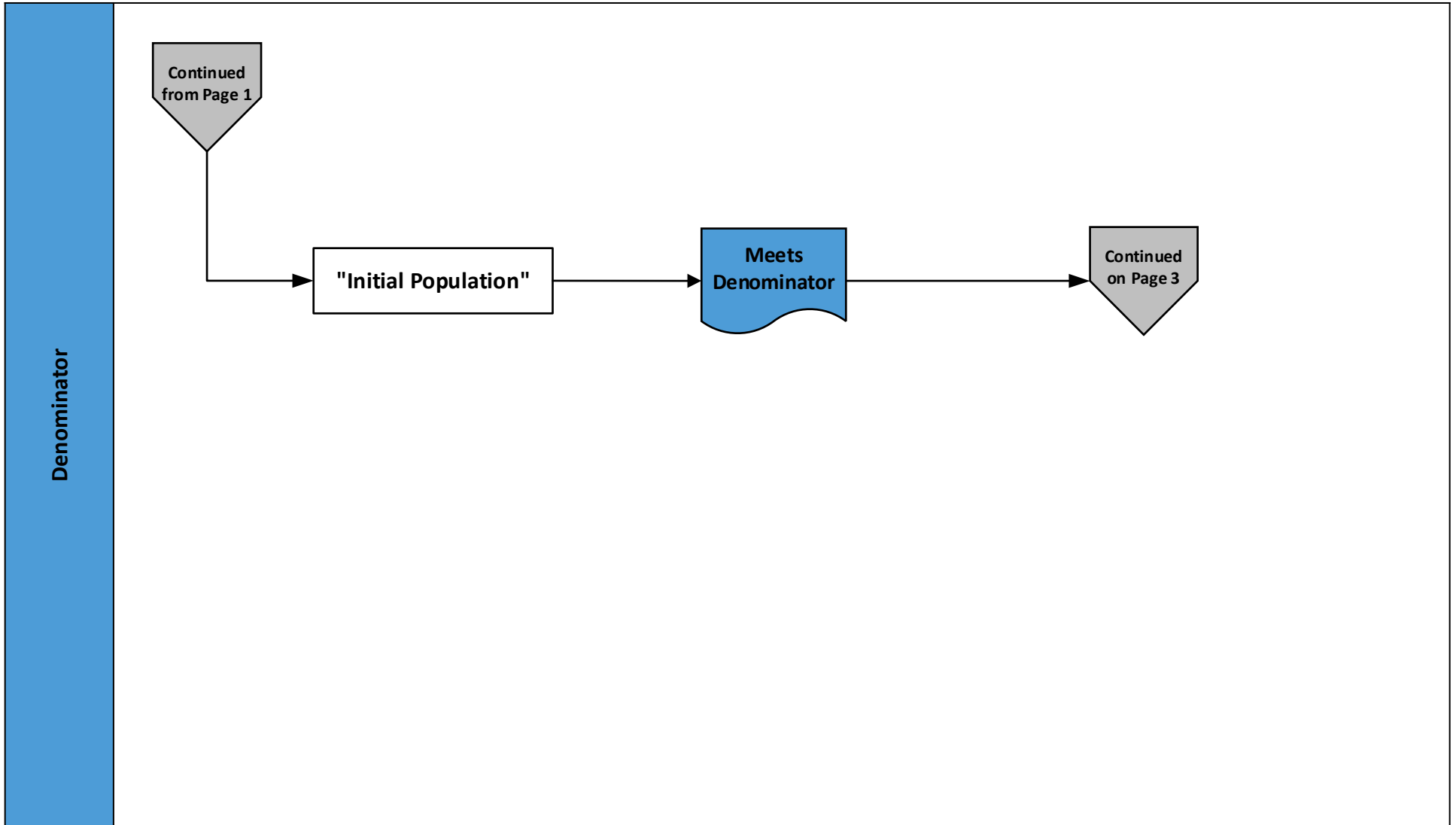
Measure Flow Diagram

Initial Population

Start — OR — OR

"Encounter with Existing Diabetes Diagnosis"

"Encounter with Hospitalization Period"
"Qualifying Encounter"
["Encounter, Performed": "ENCOUNTER INPATIENT"]
WHERE inpatient hospitalization ends during day of Measurement Period
AND
Age in Years >= 18 at start of inpatient hospitalization

WITH
["Diagnosis": "DIABETES"] starts before end of inpatient hospitalization

Inpatient hospitalization: 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

"Encounter with Hypoglycemic Medication"

"Encounter with Hospitalization Period"
"Qualifying Encounter"
["Encounter, Performed": "ENCOUNTER INPATIENT"] **WHERE** inpatient hospitalization ends during day of Measurement Period
AND
Age in Years >= 18 at start of inpatient hospitalization

WITH
["Medication, Administered": "HYPOGLYCEMICS TREATMENT MEDICATIONS"] starts during inpatient hospitalization

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

"Encounter with Hospitalization Period"
"Qualifying Encounter"
["Encounter, Performed": "ENCOUNTER INPATIENT"] **WHERE** inpatient hospitalization ends during day of Measurement Period
AND
Age in Years >= 18 at start of inpatient hospitalization

WITH
["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"] during inpatient hospitalization
AND
test result >=200 'mg/dL'

Criteria Met? — NO → **END**

Criteria Met? — YES → **Continued on Page 2**

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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.
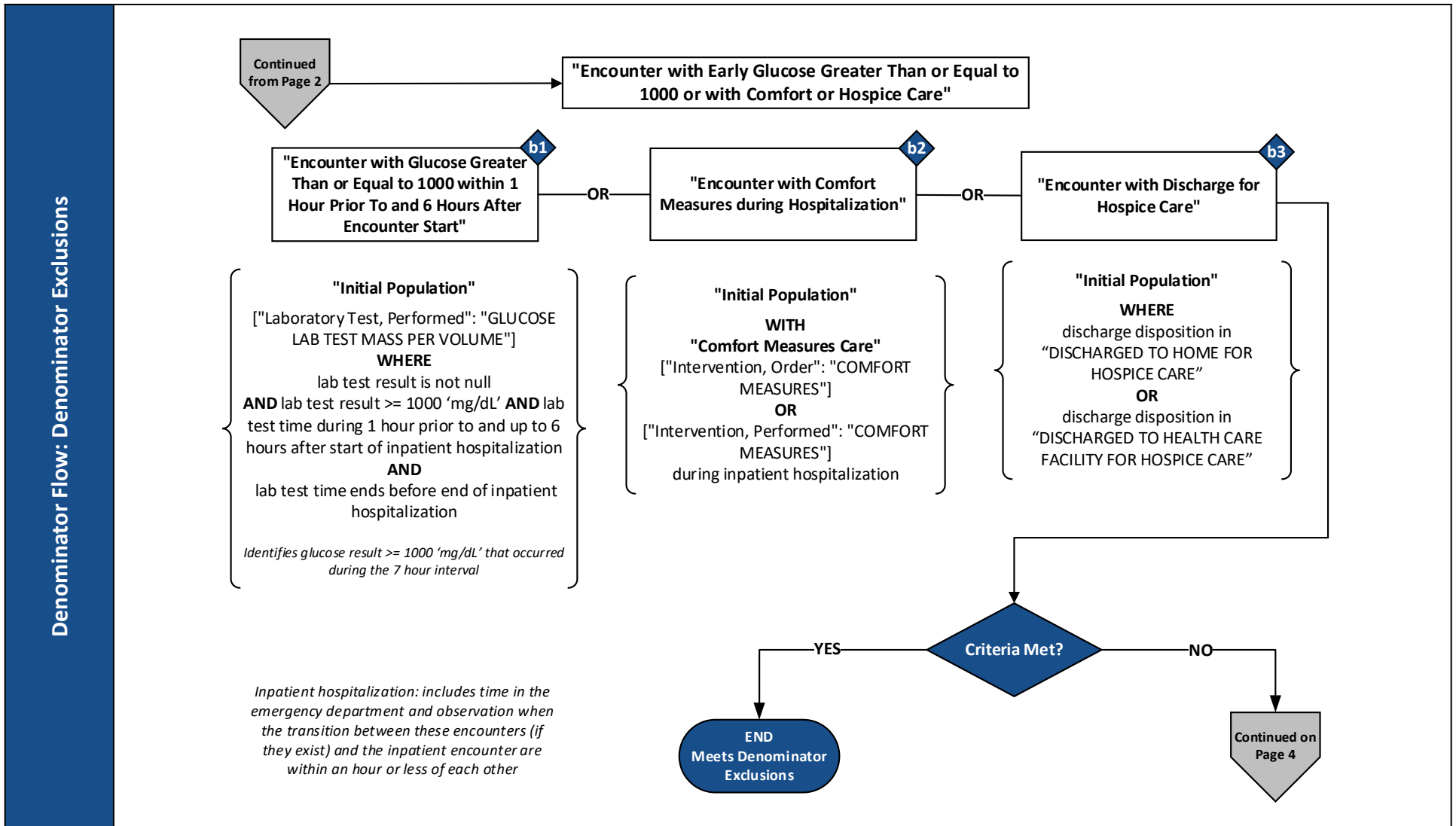
Measure Flow Diagram (Continued)

Denominator

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

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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.
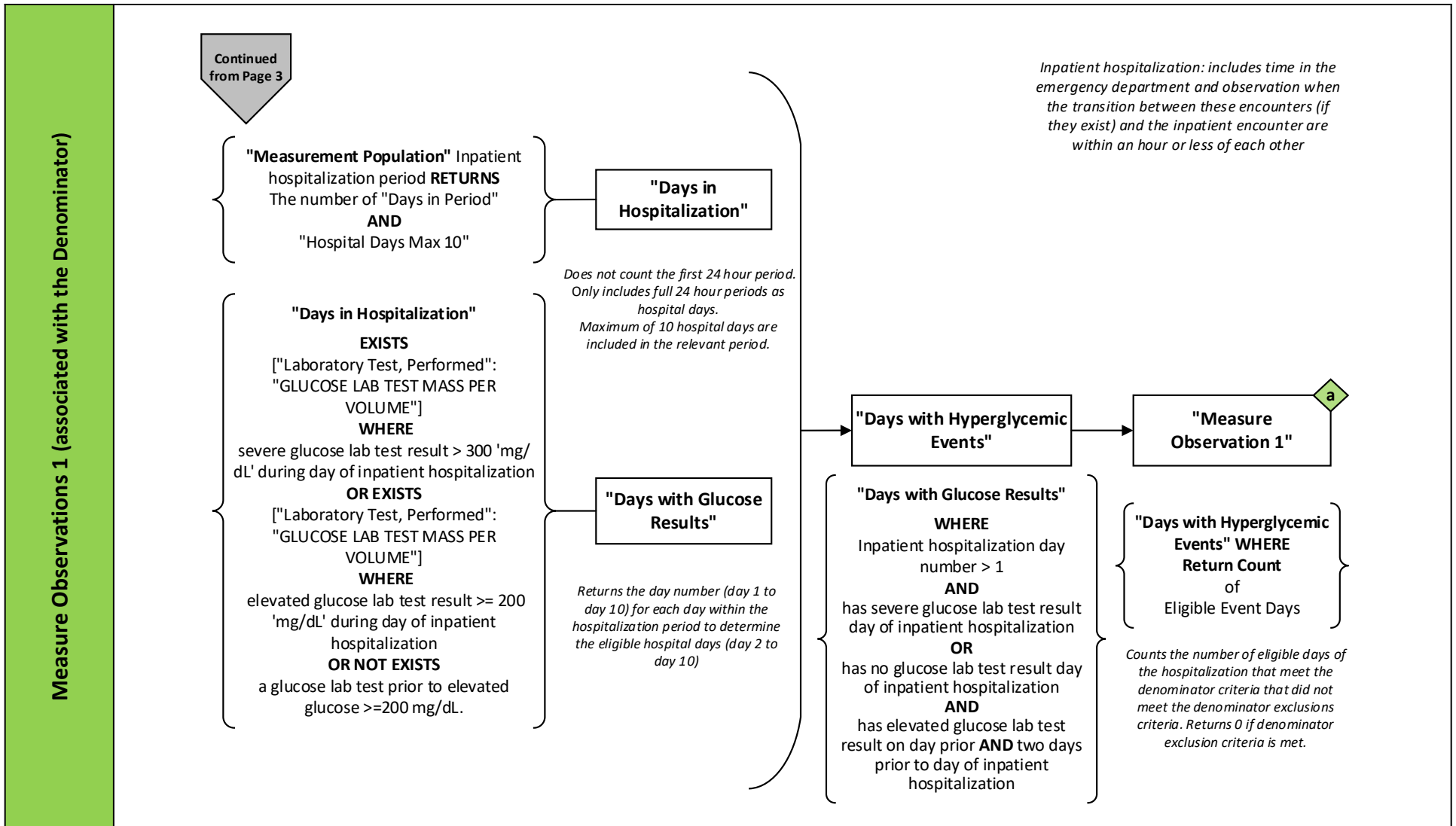
Measure Flow Diagram (Continued)

Denominator Flow: Denominator Exclusions

Continued from Page 2

"Encounter with Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care"

b1 "Encounter with Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"

OR

b2 "Encounter with Comfort Measures during Hospitalization"

OR

b3 "Encounter with Discharge for Hospice Care"

"Initial Population"

["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"]
WHERE
lab test result is not null
AND lab test result >= 1000 'mg/dL' **AND** lab test time during 1 hour prior to and up to 6 hours after start of inpatient hospitalization
AND
lab test time ends before end of inpatient hospitalization

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

"Initial Population"
WITH
"Comfort Measures Care"
["Intervention, Order": "COMFORT MEASURES"]
OR
["Intervention, Performed": "COMFORT MEASURES"]
during inpatient hospitalization

"Initial Population"
WHERE
discharge disposition in "DISCHARGED TO HOME FOR HOSPICE CARE"
OR
discharge disposition in "DISCHARGED TO HEALTH CARE FACILITY FOR HOSPICE CARE"

Inpatient hospitalization: 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

Criteria Met?

YES → **END Meets Denominator Exclusions**

NO → Continued on Page 4

*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.
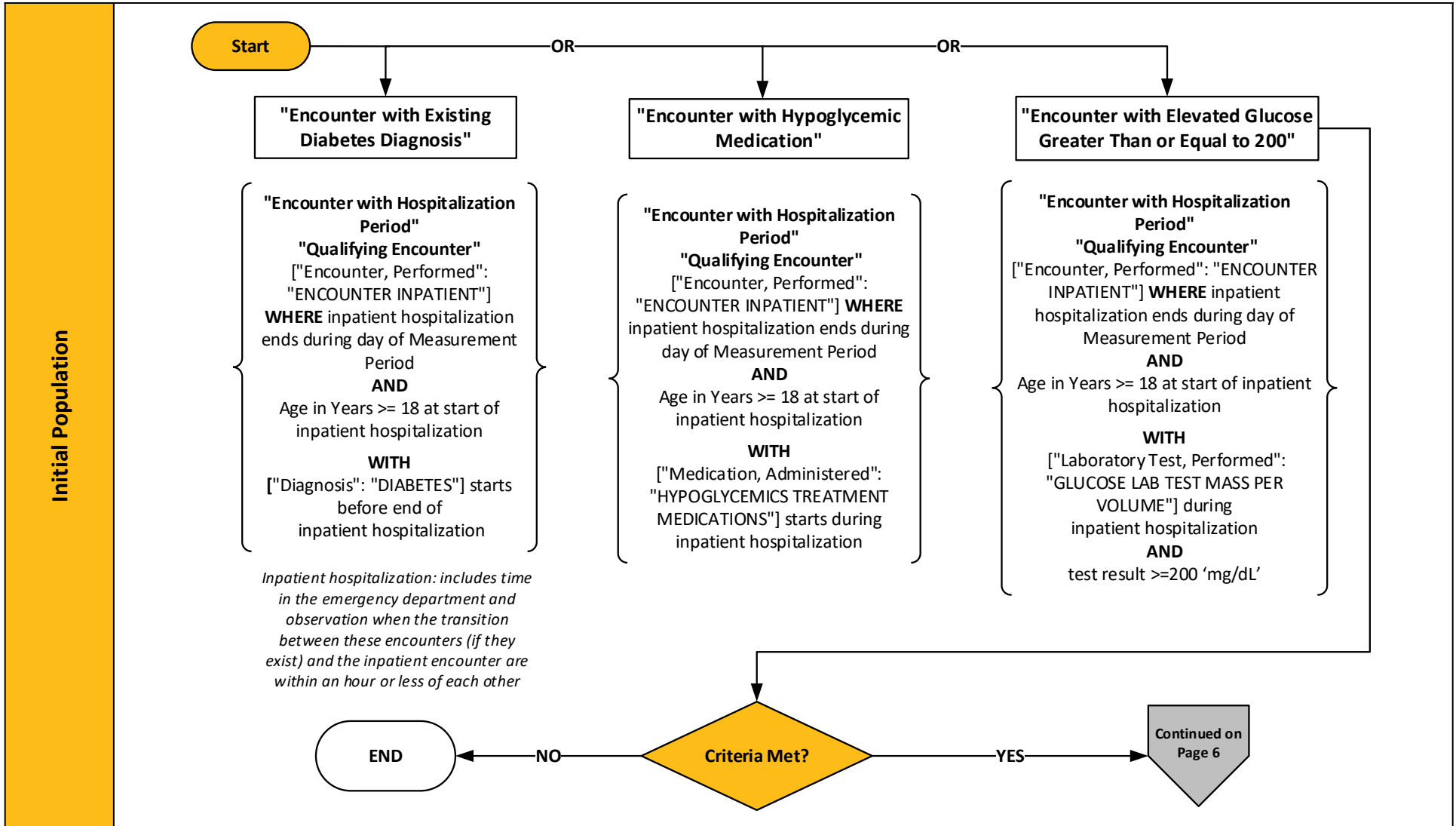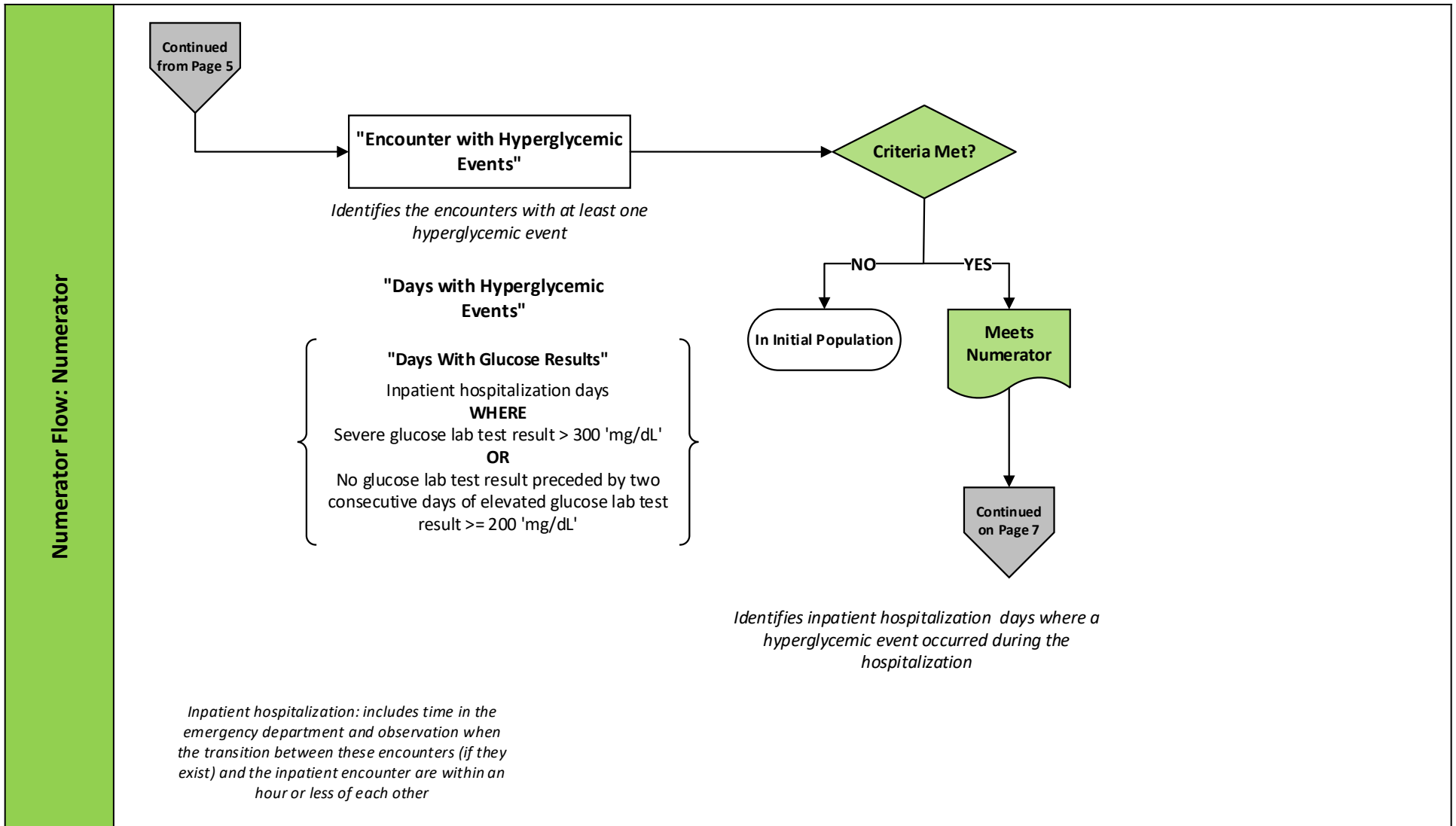
Measure Flow Diagram (Continued)

Continued from Page 3

Inpatient hospitalization: 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

"Measurement Population" Inpatient hospitalization period **RETURNS** The number of "Days in Period" **AND** "Hospital Days Max 10"

"Days in Hospitalization"

Does not count the first 24 hour period. Only includes full 24 hour periods as hospital days. Maximum of 10 hospital days are included in the relevant period.

"Days in Hospitalization"
EXISTS
["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"]
WHERE
severe glucose lab test result > 300 'mg/dL' during day of inpatient hospitalization
OR EXISTS
["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"]
WHERE
elevated glucose lab test result >= 200 'mg/dL' during day of inpatient hospitalization
OR NOT EXISTS
a glucose lab test prior to elevated glucose >=200 mg/dL.

"Days with Glucose Results"

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)

"Days with Hyperglycemic Events"

"Days with Glucose Results"
WHERE
Inpatient hospitalization day number > 1
AND
has severe glucose lab test result day of inpatient hospitalization
OR
has no glucose lab test result day of inpatient hospitalization
AND
has elevated glucose lab test result on day prior **AND** two days prior to day of inpatient hospitalization

"Measure Observation 1"

a

"Days with Hyperglycemic Events" WHERE Return Count of Eligible Event Days

Counts the number of eligible days of the hospitalization that meet the denominator criteria that did not meet the denominator exclusions criteria. Returns 0 if denominator exclusion criteria is met.

Measure Observations 1 (associated with the Denominator)

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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.
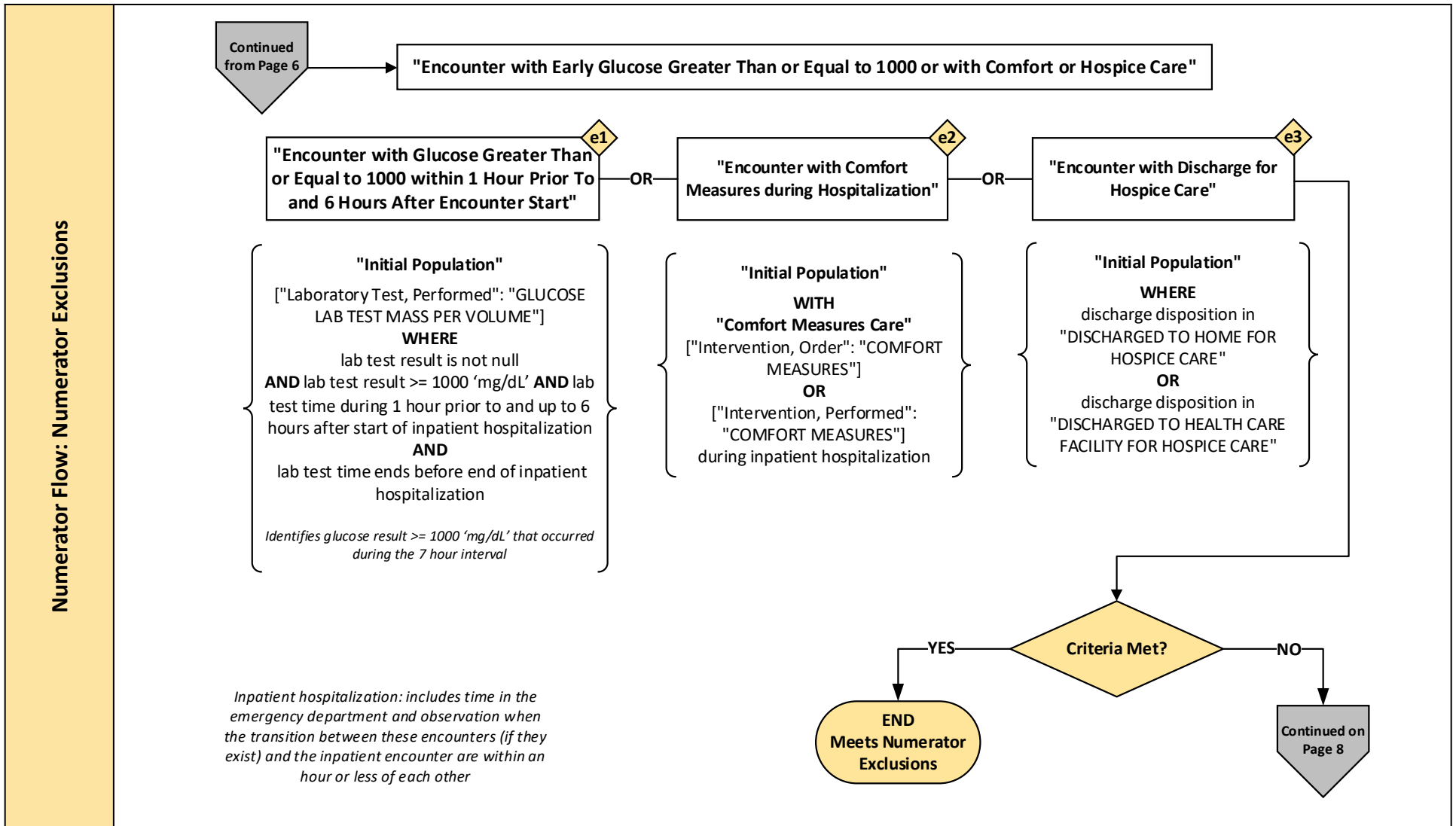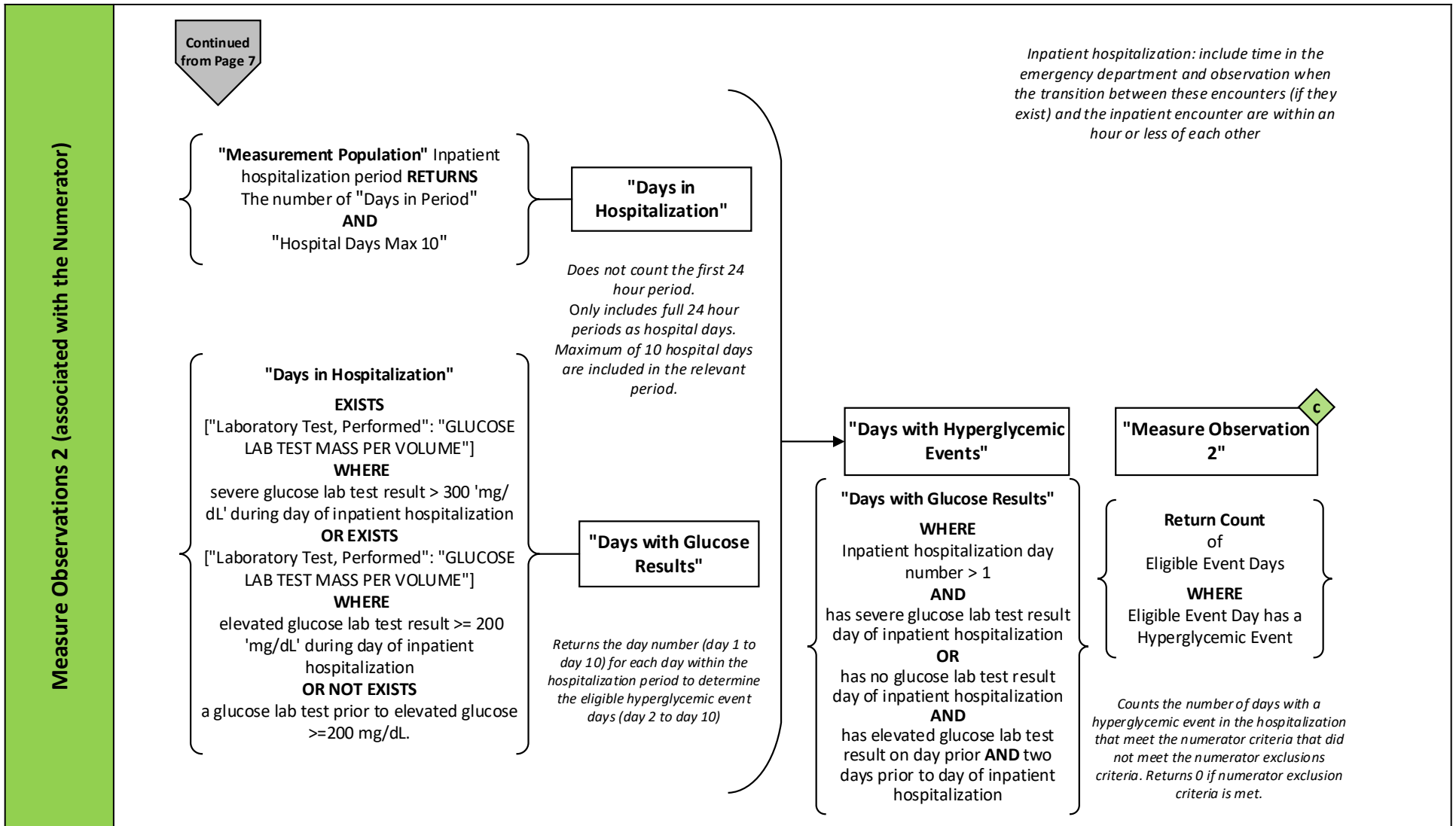
Measure Flow Diagram (Continued)

Initial Population

Start — OR — OR

"Encounter with Existing Diabetes Diagnosis"

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

Inpatient hospitalization: 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

"Encounter with Hypoglycemic Medication"

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

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

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

Criteria Met? — NO → **END**

Criteria Met? — YES → **Continued on Page 6**

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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 (Continued)

Numerator Flow: Numerator

Continued from Page 5

"Encounter with Hyperglycemic Events"

Identifies the encounters with at least one hyperglycemic event

"Days with Hyperglycemic Events"

"Days With Glucose Results"

Inpatient hospitalization days
WHERE
Severe glucose lab test result > 300 'mg/dL'
OR
No glucose lab test result preceded by two consecutive days of elevated glucose lab test result >= 200 'mg/dL'

Criteria Met?

NO → In Initial Population

YES → **Meets Numerator**

Continued on Page 7

Identifies inpatient hospitalization days where a hyperglycemic event occurred during the hospitalization

Inpatient hospitalization: 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

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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 (Continued)

Numerator Flow: Numerator Exclusions

Continued from Page 6

→ "Encounter with Early Glucose Greater Than or Equal to 1000 or with Comfort or Hospice Care"

e1 "Encounter with Glucose Greater Than or Equal to 1000 within 1 Hour Prior To and 6 Hours After Encounter Start"

—OR—

e2 "Encounter with Comfort Measures during Hospitalization"

—OR—

e3 "Encounter with Discharge for Hospice Care"

"Initial Population"

["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"]
WHERE
lab test result is not null
AND lab test result >= 1000 'mg/dL' **AND** lab test time during 1 hour prior to and up to 6 hours after start of inpatient hospitalization
AND
lab test time ends before end of inpatient hospitalization

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

---

"Initial Population"
WITH
"Comfort Measures Care"
["Intervention, Order": "COMFORT MEASURES"]
OR
["Intervention, Performed": "COMFORT MEASURES"]
during inpatient hospitalization

"Initial Population"
WHERE
discharge disposition in "DISCHARGED TO HOME FOR HOSPICE CARE"
OR
discharge disposition in "DISCHARGED TO HEALTH CARE FACILITY FOR HOSPICE CARE"

Inpatient hospitalization: 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

Criteria Met?

YES → **END Meets Numerator Exclusions**

NO → **Continued on Page 8**

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 (Continued)

Measure Observations 2 (associated with the Numerator)

Continued from Page 7

"Measurement Population" Inpatient hospitalization period **RETURNS**
The number of "Days in Period"
AND
"Hospital Days Max 10"

"Days in Hospitalization"

Does not count the first 24 hour period.
Only includes full 24 hour periods as hospital days.
Maximum of 10 hospital days are included in the relevant period.

Inpatient hospitalization: include 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

"Days in Hospitalization"

EXISTS
["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"]
WHERE
severe glucose lab test result > 300 'mg/dL' during day of inpatient hospitalization
OR EXISTS
["Laboratory Test, Performed": "GLUCOSE LAB TEST MASS PER VOLUME"]
WHERE
elevated glucose lab test result >= 200 'mg/dL' during day of inpatient hospitalization
OR NOT EXISTS
a glucose lab test prior to elevated glucose >=200 mg/dL.

"Days with Glucose Results"

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 with Hyperglycemic Events"

"Days with Glucose Results"
WHERE
Inpatient hospitalization day number > 1
AND
has severe glucose lab test result day of inpatient hospitalization
OR
has no glucose lab test result day of inpatient hospitalization
AND
has elevated glucose lab test result on day prior **AND** two days prior to day of inpatient hospitalization

"Measure Observation 2" (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 hospitalization that meet the numerator criteria that did not meet the numerator exclusions criteria. Returns 0 if numerator exclusion criteria is met.

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 (Continued)

Sample Calculation
$$\text{Performance Rate} = \frac{\text{Measure Observations 2 associated with the Numerator } (c = 100) - \text{Numerator Exclusions } (e1+e2+e3 = 50)}{\text{Measure Observations 1 associated with the Denominator } (a = 550) - \text{Denominator Exclusions } (b1+b2+b3 = 50)} = 10\%$$

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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 Narrative: Denominator Flow

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
Denominator Flow: 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 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
Denominator Flow: Denominator	The denominator is equal to the initial population
Denominator Flow: Denominator Exclusions	The denominator exclusions criteria are used to identify a subset of the denominator population by excluding 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 - Who have comfort care measures ordered or provided during the encounter - Who have a discharge disposition to home or to a health care facility for hospice care
Denominator Flow: Measure Observation 1	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 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

2025 eCQM Flow – **CMS871v4: Hospital Harm - Severe Hyperglycemia (HH-Hyper)*** CBE# 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 Narrative: Numerator Flow

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

Numerator Flow: 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 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
Numerator Flow: Numerator	The numerator criteria identify a subset of the initial population (that did not meet the numerator 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: - 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 Flow: Numerator Exclusions	The numerator exclusions criteria are used to identify a subset of the numerator population by excluding 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 - Who have comfort care measures ordered or provided during the encounter - Who have a discharge disposition to home or to a health care facility for hospice care
Numerator Flow: Measure Observations 2	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 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