CBE ID

3533e

Title

Hospital Harm - Severe Hyperglycemia

Project

Management of Acute Events, Chronic Disease, Surgery, and Behavioral Health

Endorsement Status

Endorsed with Conditions

E&M Committee Rationale/Justification

When the measure returns for maintenance review in 5 years, the developer will have: Considered the potential for risk adjustment through empirical analysis.

Is Under Review

No

Next Maintenance Cycle

Fall 2030

Previous Endorsement Cycle

Fall 2025

Initial Endorsement

Fri, 07/31/2020 - 20:57

Steward

Centers for Medicare & Medicaid Services

1.0 New or Maintenance

Maintenance

1.1 Measure Structure

Single Measure

1.3 Electronic Clinical Quality Measure (eCQM)

Yes

1.6 Measure Description

This measure assesses the ratio of inpatient hospital days for patients age 18 and older with a severe hyperglycemic event per the total qualifying inpatient hospital days for that encounter.

1.6a Material Specification Change(s)

Yes

1.6b Summary of Specification Changes

Since initial CBE endorsement, there have been two material changes to the measure specification. The first is that the denominator inclusion criteria were updated from patients with a blood glucose reading of greater than 200 mg/dL to a blood glucose reading of greater than or equal to 200 mg/dL.

The second change is the addition of exclusions for the denominator and numerator. In this ratio measure, the numerator and denominator both have the same exclusions. We did not conduct testing of the data elements and coded attributes added to capture the exclusions because (1) all are available in structured data fields and (2) all are in use in other program eCQMs. As a result, we have confidence in their ability to be reported on for the measure.

The measure now excludes inpatient hospitalizations for 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
    - This test result is captured by the "Laboratory Test, Performed: Glucose Lab Test Mass Per Volume" data element using the value set "Glucose Lab Test Mass Per Volume" (2.16.840.1.113762.1.4.1248.34).
    - This data element is used in the Hospital Harm – Severe Hypoglycemia (CBE endorsed with conditions) and Hospital Harm – Severe Hyperglycemia measures.
- Who have comfort care measures ordered or provided during the encounter
    - Comfort care is captured by the "Intervention, Order: Comfort Measures" and "Intervention, Performed: Comfort Measures" data elements using the value set "Comfort Measures" (1.3.6.1.4.1.33895.1.3.0.45)
    - These data elements are used in six eCQMs:
        - Venous Thromboembolism Prophylaxis
        - Intensive Care Unit Venous Thromboembolism Prophylaxis
        - Discharged on Antithrombotic Therapy
        - Anticoagulation Therapy for Atrial Fibrillation/Flutter
        - Antithrombotic Therapy by End of Hospital Day 2
        - Hospital Harm – Severe Hyperglycemia
- Who have a discharge disposition of hospice care at home or in a health care facility
    - Discharge to hospice care is represented by the "Discharge Disposition: Discharged To Health Care Facility For Hospice Care" and "Discharge Disposition: Discharged To Home For Hospice Care" data elements with the dischargeDisposition attribute using the value sets "Discharged to Health Care Facility for Hospice Care" (2.16.840.1.113883.3.117.1.7.1.207) and "Discharged to Home for Hospice Care" (2.16.840.1.113883.3.117.1.7.1.209)
    - These data elements are used in three eCQMs:
        - Discharged on Antithrombotic Therapy
        - Anticoagulation Therapy for Atrial Fibrillation/Flutter
        - Hospital Harm – Severe Hyperglycemia

Details on the data elements and coded attributes added to capture the exclusions are available in the eCQM Data Element Repository (DERep) on the eCQI Resource Center (https://ecqi.healthit.gov/mc-workspace-2/data-element-repository).

1.7 Measure Type

Outcome

1.8 Level of Analysis

Facility

1.9 Care Setting

Hospital: Acute Care Facility, Hospital: Critical Access, Hospital: Inpatient

1.10 Measure Rationale

The goal of this eCQM is to improve patient safety by preventing severe hyperglycemia (defined by this measure as blood glucose >300 mg/dL) among hospitalized patients. The measure assesses severe hyperglycemia in patients who receive a hypoglycemic medication, have a diabetes diagnosis, or have an elevated blood glucose value (>=200 mg/dL) during their inpatient hospitalization.

Hyperglycemia can be challenging to address in the inpatient setting because many factors influence blood glucose levels, including acute illness, nutritional intake, use of glucocorticoids, and presence of diabetes. Elevated blood glucose levels >200 mg/dL are associated with mortality, infections, and hospital complications (Dhatariya, 2024). As hyperglycemia worsens, patients may experience lethargy, focal neurologic deficits, or altered mental status, which could progress to coma (Mouri, 2023). However, strategies do exist for hospitals to prevent severe hyperglycemia. These include establishing protocols and computerized provider order entry to prevent medication-related errors, and performing consistent audits, monitoring, and staff education (ADA, 2025).

Blood glucose levels that constitute hyperglycemia vary among clinical guidelines and depend on individual patient factors, such severity of illness (Wilson, 2025; Huang, 2024). This measure provides a standardized, actionable definition of severe hyperglycemia for hospitals to monitor and respond to.

Monitoring severe hyperglycemia to prevent adverse outcomes within the inpatient setting is an important feature of quality care. Diabetes prevalence, a major risk factor for severe hyperglycemia, is high among U.S. adults, with 14.7% estimated to have diabetes and 3.4% to have undiagnosed diabetes. People with diabetes have frequent interactions with the health care system, with approximately 7.86 million hospital encounters in 2020 (CDC, 2024). Hyperglycemia occurs frequently among hospitalized patients, not just among patients with diabetes; prevalence of elevated blood glucose >180 mg/dL is estimated to be 32.2% among intensive care unit (ICU) patients and 32.0% among non-ICU patients regardless of diabetes diagnosis (Swanson, 2011).

A priority population for hyperglycemic management are surgical patients. Patients with peri- and postoperative hyperglycemia are at increased risk of poor outcomes and longer hospital stays

(Levy, 2019; Mouri, 2023). Engaging multidisciplinary teams for surgical patients at risk for hyperglycemia has been shown to improve outcomes.

Advancements in glycemic control for patients with diabetes, such as continuous glucose monitoring (CGM) and insulin pumps, have the potential to benefit inpatient care for patients with diabetes (ADA, 2025). Professional societies continue to explore evidence for management of these processes in inpatient settings to strengthen guidelines.

References:

1. American Diabetes Association (ADA) Professional Practice Committee. (2025). Diabetes care in the hospital: Standards of care in diabetes – 2025. *Diabetes Care*, *48*(Supplement_1), S321-S334. https://doi.org/10.2337/dc25-S016

2. Centers for Disease Control and Prevention. (2024, May 15). *National Diabetes Statistics Report*. Diabetes. https://www.cdc.gov/diabetes/php/data-research/index.html

3. Dhatariya K, Umpierrez GE. Management of Diabetes and Hyperglycemia in Hospitalized Patients. (2024 Oct 20). In: Feingold KR, Ahmed SF, Anawalt B, et al., (Eds.). Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK279093/

4. Huang, M., Li, D., Zhang, C., Yang, R., Bai, X., & Gan, X. (2025). Implementation of an Evidence-Based Protocol for Blood Glucose Management in Critically Ill Adult Patients: A Pilot Study. *Nursing in Critical Care*, *30*(4), e70080. https://doi.org/10.1111/nicc.70080

5. Levy, N., & Dhatariya, K. (2019). Pre-operative optimisation of the surgical patient with diagnosed and undiagnosed diabetes: a practical review. *Anaesthesia*, *74 Suppl 1*, 58–66. https://doi.org/10.1111/anae.14510

6. Mouri M.I., Badireddy M. Hyperglycemia. (2023 Apr 24). In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK430900/

7. Swanson, C. M., Potter, D. J., Kongable, G. L., & Cook, C. B. (2011). Update on inpatient glycemic control in hospitals in the United States. *Endocrine Practice : Official Journal of the American College of Endocrinology and the American Association of Clinical Endocrinologists*, *17*(6), 853–861. https://doi.org/10.4158/EP11042.OR

8. Wilson, L. M., Herzig, S. J., Marcantonio, E. R., Steinman, M. A., Schonberg, M. A., Wang, B. X., Hileman-Kaplan, E., & Anderson, T. S. (2025). Management of Diabetes and Hyperglycemia in the Hospital: A Systematic Review of Clinical Practice Guidelines. *Diabetes Care*, *48*(4), 655–664. https://doi.org/10.2337/dc24-2510

1.11 Measure Webpage

https://ecqi.healthit.gov/ecqm/hosp-inpt/2026/cms0871v5

1.12 eCQM Data Model

Quality Data Model (QDM) and Clinical Quality Language (CQL)

1.12a Attach MADiE Output

3533e-1.12a-QDM-Fall2025.zip

1.13 Data Dictionary

Attached

1.13a Attach Data Dictionary

3533e-1.13a-DataDict-Fall25.xlsx

1.14 Numerator

Inpatient hospitalizations for patients with a hyperglycemic event day within the first 10 days of the encounter except during the first 24 hours and the last period before discharge from the hospital if that period is less than 24 hours.A hyperglycemic event day is defined as: A day with at least one glucose value >300 mg/dL.ORA 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.

1.14a Numerator Details

This measure uses measure observations to calculate a ratio. Measure Observation 2, associated with the numerator of the ratio, is: The total number of hyperglycemic event days during inpatient hospitalizations that meet the numerator criteria and do not meet the numerator exclusion criteria.

The first step in identifying relevant days for Measure Observation 2 is to identify inpatient hospitalizations eligible for the initial population: Inpatient hospitalizations* that end during the measurement period for patients age 18 and older who have 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

Once inpatient hospitalizations eligible for the initial population are identified, the next step in identifying relevant days for Measure Observation 2 is to identify the subset of numerator-eligible hospitalizations: Inpatient hospitalizations with a hyperglycemic event day*** within the first 10 days of the encounter except during the first 24 hours and the last period before discharge from the hospital if that period is less than 24 hours. Numerator exclusions specific to the identification of numerator-relevant inpatient hospitalizations are described in the ‘Denominator Exclusions’ sections below.

Once the relevant hospitalizations are identified for the numerator, the final step is to evaluate each hospital day**** of these numerator-eligible hospitalizations to assess whether it is an

eligible hospital day***** and if it qualifies as a 'hyperglycemic event day.' Hyperglycemic event days across numerator-eligible inpatient hospitalizations are summed for Measure Observation 2.

*Inpatient hospitalizations include time in the emergency department (ED) and/or in observation status when the transition between discharge from these encounters and admission to the inpatient encounter is one hour or less.

**The specimen source for the glucose test is blood, serum, plasma, or interstitial fluid, and can be obtained by a laboratory test, a point-of-care (POC) test, or a continuous glucose monitor (CGM). Glucose test results from urine specimens are not considered because they are not as accurate to determine current glucose status, and values vary based on age, medications, and kidney function. The measure uses mg/dL as the unit of measurement for glucose results.

***A hyperglycemic event day 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 on each of the two days was >=200 mg/dL.

****Hospital days are not defined as midnight-to-midnight but are full 24-hour periods that start at the beginning of the inpatient hospitalization period, excluding the last period before discharge if that period is less than 24 hours.

*****Hospital day 1 (i.e., the first 24 hours of the inpatient hospitalization) is not considered an eligible hospital day. The measure does not count any hyperglycemic events that occur in the first 24 hours to account for potentially poor glucose control outside of the hospital setting or that preceded the start of hospital care. Eligible hospital days range from day 2 up to day 10. However, the measure does allow day 1 to be counted when determining hyperglycemic event days as one of the preceding days for a day where no glucose result is found. In this instance, the measure could evaluate day 1 as one of the two days preceding the day with no glucose result to see if there was a glucose value >=200 mg/dL on day 1.

All data elements necessary to calculate this eCQM are defined within value sets available in the Value Set Authority Center (VSAC) and listed below:

- Diabetes diagnoses are represented using the value set Diabetes (2.16.840.1.113883.3.464.1003.103.12.1001)
- Emergency Department Visits are represented using the value set Emergency Department Visit (2.16.840.1.113883.3.117.1.7.1.292)
- Glucose tests are represented using the value set Glucose Lab Test Mass Per Volume (2.16.840.1.113762.1.4.1248.34)
- Hypoglycemic medications are represented using the value set Hypoglycemics Treatment Medications (2.16.840.1.113762.1.4.1196.394)
- Inpatient Encounters are represented using the value set of Encounter Inpatient SNOMEDCT codes (2.16.840.1.113883.3.666.5.307)
- Observation Services are represented using the value set of Observation Services SNOMEDCT codes (2.16.840.1.113762.1.4.1111.143)

To access the value sets for the eCQM, please visit the Value Set Authority Center (VSAC),

sponsored by the National Library of Medicine, at https://vsac.nlm.nih.gov/.

1.15 Denominator

Inpatient hospitalizations for patients age 18 years and older that end during the measurement period, as well as either:A diagnosis of diabetes that starts before or during the encounter; orAdministration of at least one dose of insulin or any hypoglycemic medication that starts during the encounter; orPresence of at least one glucose value >=200 mg/dL at any time during the encounter.

1.15a Denominator Details

This measure uses measure observations to calculate a ratio. Measure Observation 1, associated with the denominator of the ratio, is: The total number of eligible days of inpatient hospitalizations that meet the initial population/denominator criteria and do not meet the denominator exclusion criteria.

The first step in identifying relevant days for Measure Observation 1 is to identify inpatient hospitalizations eligible for the initial population: Inpatient hospitalizations* for patients age 18 and older that end during the measurement period, who have 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

As the denominator criteria is equal to the initial population criteria for this measure, inpatient hospitalizations that meet the initial population criteria are also eligible for the measure's denominator. Denominator exclusions specific to the identification of denominator-relevant hospitalizations are described in the 'Denominator Exclusions' sections below.

Once the relevant hospitalizations are identified for the denominator, the next step is to evaluate each hospital day*** of these denominator-eligible hospitalizations to assess whether it is an eligible hospital day.**** Eligible hospital days across denominator-eligible inpatient hospitalizations are summed for Measure Observation 1.

*Inpatient hospitalizations include time in the emergency department (ED) and/or in observation status when the transition between discharge from these encounters and admission to the inpatient encounter is one hour or less.

**The specimen source for the glucose test is blood, serum, plasma, or interstitial fluid, and can be obtained by a laboratory test, a point-of-care (POC) test, or a continuous glucose monitor (CGM). Glucose test results from urine specimens are not considered because they are not as accurate to determine current glucose status, and values vary based on age, medications, and kidney function. The measure uses mg/dL as the unit of measurement for glucose results.

***Hospital days are not defined as midnight-to-midnight but are full 24-hour periods that start at the beginning of the inpatient hospitalization period, excluding the last period before discharge if

that period is less than 24 hours.

****Hospital day 1 (i.e., the first 24 hours of the hospitalization period) is not considered an eligible hospital day. Eligible hospital days range from day 2 up to day 10.

All data elements necessary to calculate this eCQM are defined within value sets available in the Value Set Authority Center (VSAC) and listed below:

- Diabetes diagnoses are represented using the value set Diabetes (2.16.840.1.113883.3.464.1003.103.12.1001)
- Emergency Department Visits are represented using the value set Emergency Department Visit (2.16.840.1.113883.3.117.1.7.1.292)
- Glucose tests are represented by the value set Glucose Lab Test Mass Per Volume (2.16.840.1.113762.1.4.1248.34)
- Hypoglycemic medications are represented by the value set Hypoglycemics Treatment Medications (2.16.840.1.113762.1.4.1196.394)
- Inpatient Encounters are represented using the value set of Encounter Inpatient (2.16.840.1.113883.3.666.5.307)
- Observation Services are represented using the value set Observation Services (2.16.840.1.113762.1.4.1111.143)

To access the value sets for the eCQM, please visit the Value Set Authority Center, sponsored by the National Library of Medicine, at https://vsac.nlm.nih.gov/

1.15b Denominator Exclusions

In this ratio measure, the numerator and denominator use the same exclusion criteria:

Inpatient hospitalizations for 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
- Who have comfort care measures ordered or provided during the encounter
- Who have a discharge disposition to hospice care at home or in a health care facility

1.15c Denominator Exclusions Details

As noted above, in this ratio measure, the numerator and denominator use the same exclusion criteria. Inpatient hospitalizations for patients who have a glucose test result >600 mg/dL at the start of their inpatient hospitalization, who have comfort care measures ordered or performed during the inpatient hospitalization, or who are discharged to hospice care are excluded.

When this measure was submitted for initial CBE endorsement, there were no exclusion criteria. The measure developer added an exclusion for the 2023 reporting period for blood glucose levels >=1,000 mg/dL at the start of the encounter to prevent hospitals from being penalized for patients admitted with severe hyperglycemia that may take time to resolve. We received feedback from the Patient Safety Hospital Harm (HH) Technical Expert Panel (TEP), a representative of the

American Diabetes Association, and from implementers with concerns that values below 1,000 mg/dL could also take time to resolve and laboratory instruments may not register values as high as 1000 mg/dL. In consultation with the Patient Safety HH TEP and clinical subject matter experts, we lowered the blood glucose threshold to >600 mg/dL beginning with the 2026 reporting period.

The exclusions for inpatient hospitalizations for patients who have comfort care measures ordered or performed during the inpatient hospitalization or who are discharged to hospice care were first reflected in the 2025 reporting period. The measure developer added these exclusions to align with guidance from the American Diabetes Association, which indicates that elevated blood glucose levels may be acceptable in terminally ill patients with short life expectancy (ADA, 2025).

The measure uses mg/dL as the unit of measurement for glucose results. The specimen source for the glucose test is blood, serum, plasma, or interstitial fluid, and can be obtained by a laboratory test, a POC test, or a continuous glucose monitor (CGM). Glucose test results from urine specimens are not considered because they are not as accurate to determine current glucose status, and values vary based on age, medications, and kidney function.

All data elements necessary to calculate this eCQM are defined within value sets available in the Value Set Authority Center (VSAC) and listed below:

- Diabetes diagnoses are represented using the value set Diabetes (2.16.840.1.113883.3.464.1003.103.12.1001)
- Emergency Department Visits are represented using the value set Emergency Department Visit (2.16.840.1.113883.3.117.1.7.1.292)
- Glucose tests are represented by the value set Glucose Lab Test Mass Per Volume (2.16.840.1.113762.1.4.1248.34)
- Hypoglycemic medications are represented by the value set Hypoglycemics Treatment Medications (2.16.840.1.113762.1.4.1196.394)
- Inpatient Encounters are represented using the value set of Encounter Inpatient (2.16.840.1.113883.3.666.5.307)
- Observation Services are represented using the value set Observation Services (2.16.840.1.113762.1.4.1111.143)
- Comfort Measures are represented using the value set Comfort Measures (1.3.6.1.4.1.33895.1.3.0.45)
- Discharged to Hospice care is represented by the value sets Discharged to Health Care Facility for Hospice Care (2.16.840.1.113883.3.117.1.7.1.207) and Discharged to Home for Hospice Care (2.16.840.1.113883.3.117.1.7.1.209)

To access the value sets for the eCQM, please visit the Value Set Authority Center, sponsored by the National Library of Medicine, at https://vsac.nlm.nih.gov/

References:

1. American Diabetes Association (ADA) Professional Practice Committee. (2025). Diabetes care in the hospital: Standards of care in diabetes – 2025. *Diabetes Care*, *48*(Supplement_1), S321-

S334. https://doi.org/10.2337/dc25-S016

1.15d Age Group

Adults (18-64 years), Older Adults (65 years and older)

1.16 Type of Score

Ratio

1.17 Measure Score Interpretation

Better performance = Lower score

1.18 Calculation of Measure Score

The steps to calculate the ratio for this measure are included in the attached measure score calculation diagram.

This measure includes two measure observations used to calculate the ratio of the number of inpatient hospital days with a hyperglycemic (high blood glucose) event over the total number of eligible inpatient hospital days (<= 10 days) for that encounter.

Measure Observation 1, associated with the denominator of the ratio is: The total number of eligible days of the inpatient hospitalizations that meet the initial population/denominator criteria and do not meet the denominator exclusion criteria.

Measure Observation 2, associated with the numerator of the ratio is: The total number of hyperglycemic event days during the inpatient hospitalizations that meet the numerator criteria and do not meet the numerator exclusion criteria. Multiple hyperglycemic events can occur during a 'day,' but this is still considered one hyperglycemic event day. Hyperglycemic event days are defined as days with a glucose level >300 mg/dL OR days where glucose was not measured that were immediately preceded by two contiguous, consecutive days where at least one glucose value during each of the two days was >=200 mg/dL.

Hospital days are not defined as midnight-to-midnight but are full 24-hour periods that start at the beginning of the inpatient hospitalization period, excluding the last period before discharge if that period is less than 24 hours.

Day 1 is not considered an eligible hospital day for the Measure Observations because the measure does not count any hyperglycemic events that occur in the first 24 hours. Eligible hospital days range from day 2 up to day 10. However, the measure does allow day 1 to be counted for the numerator as one of the preceding days for a day where no glucose result is found. In this instance, the measure could evaluate day 1 as one of the two days preceding the day with no glucose result to see if there was a glucose value >=200 mg/dL on day 1.

1.18a Attach measure score calculation diagram

3533e-1.18a-MeasCalc-Fall2025.pdf

1.19 Measure Stratification Details

The measure is not stratified.

1.20 Types of Data Sources

Electronic Health Records

1.21a Data Collection Tool URL(s)

http://example.com

1.25 Data Source Details

This eCQM uses electronic health record (EHR) data from hospitals to calculate the measure score. Hospitals collect EHR data using certified EHR technology (CEHRT). The measure specification is available as a package via MADiE export. There are two versions of the measure available – a Quality Data Model (QDM) version currently in use utilizing clinical quality language (CQL) and a Fast Healthcare Interoperability Resources (FHIR) version under development that aligns with the QDM version. No additional tools are used for eCQM data collection.

1.26 Minimum Sample Size

The measure is in the Centers for Medicare & Medicaid Services (CMS) Hospital Inpatient Quality Reporting (IQR) Program, which requires hospitals to have at least five hospitalizations in the initial population and no zeros in the denominator for submission of quarterly data (Heilman, 2024).

Reference:

Heilman, Erin. (2024, September 13). *2025 Hospital IQR Requirements*. Medisolv. https://blog.medisolv.com/articles/2025-hospital-iqr-requirements

2.1 Attach Logic Model

3533e-2.1-LogicModel-Fall2025.pdf

2.2 Evidence of Measure Importance

Performance monitoring

Measuring glycemic events helps hospitals identify areas to address to improve patient health and cut costs. This measure provides standardized values that institutions can use to monitor performance and track the progress of quality improvement initiatives (Khan, 2022). Standardization of measurement also allows comparison of a hospital's glycemic outcomes against a benchmark.

Recommendations for processes of care associated with measure outcome

The American Association of Clinical Endocrinology (AACE), ADA, and the Endocrine Society have published clinical practice recommendations to prevent severe hyperglycemia for individuals within the inpatient setting. Examples of relevant recommendations include:

/ All hospitalized persons should have laboratory glucose testing on admission. Persons with diabetes mellitus or with admission hyperglycemia >140 mg/dL should have glucose monitoring during hospitalization. – Grade B; Best Evidence Level: 1 (Blonde, 2022)

/ In people with diabetes using a personal continuous glucose monitoring (CGM) device, the use of CGM should be continued during hospitalization if clinically appropriate, with confirmatory POC glucose measurements for insulin dosing decisions and hypoglycemia assessment, if resources and training are available, and according to an institutional protocol. – Level of evidence: B (ADA, 2025a)

/ When caring for hospitalized people with diabetes (with an existing or new diagnosis) or stress hyperglycemia, consult with a specialized diabetes or glucose management team when available. – Level of evidence: B (ADA, 2025a)

/ Initiate bedside POC capillary glucose monitoring at an appropriately chosen schedule to guide therapy for hyperglycemia during hospitalization in all persons with DM, persons without prior DM who have hyperglycemia, and persons receiving therapies with a high risk of hyperglycemia, such as corticosteroids and enteral or parenteral nutrition. Grade A; Best Evidence Level 1 (Blonde, 2022)

/ Allow continuation of personal CGM in the inpatient setting with or without algorithm-driven insulin pump (ADIP) therapy rather than discontinuation – Strength of recommendation: Conditional, Certainty of evidence: Very low (McCall, 2023)

/ In adults with insulin-treated diabetes prior to admission who are hospitalized for noncritical illness, continue with the scheduled insulin regimen modified for nutritional status and severity of illness to maintain glucose targets in the range of 100 to 180 mg/dL (5.6 to 10.0 mmol/L). – Strength of recommendation: Strong, Certainty of evidence: Low (Korytkowski, 2022)

/ In adult patients using insulin pump therapy for diabetes management prior to admission for noncritical illness, we suggest that these patients continue insulin pump therapy when possible. Where expertise is not accessible, we suggest that patients with anticipated hospital length of stay (LOS) of more than 1 to 2 days be transitioned to scheduled subcutaneous (SC) basal bolus insulin (BBI) before discontinuation of an insulin pump. – Strength of recommendation: Conditional, Certainty of evidence: Low (Korytkowski, 2022)

Recommendations for structures of care associated with measure outcome

Guidelines from ADA and the Endocrine Society also offer structure of care recommendations that hospitals can put in place to reduce the likelihood of severe hyperglycemia events occurring. Examples of these recommendations include:

/ Institutions should implement protocols using validated written or computerized provider order entry sets for management of dysglycemia in the hospital (including emergency department,

intensive care unit (ICU) and non-ICU wards, gynecology-obstetrics/delivery units, dialysis suites, and behavioral health units) that allow for a personalized approach, including glucose monitoring, insulin and/or noninsulin therapy, hypoglycemia management, diabetes self-management education, nutrition recommendations, and transitions of care – Level of evidence: B (ADA, 2025a)

/ Inpatient glycemic surveillance and management programs should leverage EHR data for inpatients to identify those at risk for and those having hypoglycemic and hyperglycemic episodes to develop mechanisms for managing and mitigating these adverse outcomes – Strength of recommendation: Strong, Certainty of evidence: Very low (McCall, 2023)

Measure outcome association with downstream harms

Approximately 12% to 25% of hospitalized patients experience hyperglycemia (blood glucose > 140 mg/dL). In hospitalized patients, hyperglycemia is associated with increased length of stay, complications, and disability after discharge (Korytkowski, 2022).

Definitions of rating scales:

AACE evidence ratings range from 1 (strong evidence) to 4 (no evidence) (Blonde, 2022). Grades from A (very strong) to D (primarily based on expert opinion) are assigned based on the evidence rating and presence of positive or negative subjective factors and recommendation qualifiers. Subjective factors include study design, data analysis, and interpretation of results. Recommendation qualifiers include presence of other recommendations, dissenting opinions, economics, evidence base, relevance, resource availability, and risk to benefit.

ADA level of evidence recommendations are assigned ratings of A, B, or C depending on the quality of the evidence in support of the recommendation, not the strength of the recommendation (ADA, 2025b). Recommendations with A-level evidence are based on large, well-designed randomized controlled trials or well-done meta-analyses of randomized controlled trials. Recommendations with lower levels of evidence may be equally important but are not as well supported. Expert opinion E is a separate category informed by key opinion leaders in diabetes for recommendations that cover important elements of clinical care where there is no evidence from clinical trials, clinical trials may be impractical, or there is conflicting evidence.

The Endocrine Society uses the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology to assess the certainty of evidence and make recommendations (Endocrine Society, 2022). Certainty of evidence is determined based on study design and quality across all evidence for an outcome. Each outcome is assigned a ranking of high, moderate, low, or very low based on consideration of all evidence, with high indicating confidence that the true effect lies close to the estimate of effect. Recommendations are either strong or conditional. A strong recommendation indicates desirable consequences clearly outweigh undesirable consequences, whereas a conditional recommendation indicates desirable consequences probably outweigh undesirable consequences.

References:

1. American Diabetes Association (ADA) Professional Practice Committee. (2025a). Diabetes care in the hospital: Standards of care in diabetes – 2025. *Diabetes Care*, *48*(Supplement_1), S321-S334. https://doi.org/10.2337/dc25-S016

2. American Diabetes Association (ADA) Professional Practice Committee. (2025b). Introduction and Methodology: Standards of Care in Diabetes – 2025. *Diabetes Care*, *48*(Supplement_1), S1-S5. https://doi.org/10.2337/dc25-SINT

3. Blonde, L., Umpierrez, G. E., Reddy, S. S., McGill, J. B., Berga, S. L., Bush, M., Chandrasekaran, S., DeFronzo, R. A., Einhorn, D., Galindo, R. J., Gardner, T. W., Garg, R., Garvey, W. T., Hirsch, I. B., Hurley, D. L., Izuora, K., Kosiborod, M., Olson, D., Patel, S. B., Pop-Busui, R., … Weber, S. L. (2022). American Association of Clinical Endocrinology Clinical Practice Guideline: Developing a Diabetes Mellitus Comprehensive Care Plan-2022 Update. *Endocrine Practice, 28*(10), 923–1049. https://doi.org/10.1016/j.eprac.2022.08.002

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2.4 Performance Gap

We assessed measure performance using Hospital IQR Program data from the CMS Center for Clinical Standards and Quality (CCSQ) Centralized Data Repository (CDR) for reporting period 2023 (January 1, 2023 – December 31, 2023), the first year data are currently available for the Hospital Harm - Severe Hyperglycemia measure. The measure was voluntarily reported by 310 hospitals with 1,556,829 denominator eligible hospital days that met the Hospital IQR Program quarterly scoring thresholds of at least 5 patients in the initial population count and 1 patient in the denominator count.

The Hospital Harm - Severe Hyperglycemia measure calculates a ratio, with Measure Observation 1 associated with the denominator and Measure Observation 2 associated with numerator.

Measure Observation 1 and Measure Observation 2 counts of eligible days for quarters that met the scoring threshold were combined to calculate an individual hospital's reporting period measure score.

The distribution of scores is described in Table 1 below. The overall mean performance score was 0.077 (range 0.000 – 0.444). For this measure, a lower score indicates better quality. While a majority of hospitals met or were lower than the mean performance score, approximately 21% of hospitals performed above the mean score, suggesting that there is room for improvement.

Multiple years of data are not yet available to observe a change in performance over time. However, the overall score observed for the 2023 reporting period (0.077) was lower than that for the initial endorsement submission (0.136). A major limitation to this comparison is the much smaller sample size used during the initial endorsement (19,736 encounter-days from 6 hospitals) compared to the Hospital IQR Program dataset (1,556,829 encounter-days at 310 hospitals). Any inference made from the results here and the initial endorsement should take the difference in sample size used to compute the scores into account.

Table 1. Performance Scores by Decile

Performance Gap

	Overall	Minimum	Decile_1	Decile_2	Decile_3	Decile_4	Decile_5	Decile_6	Decile_7	Decile_8	Decile_9	Decile_10	Maximum
Mean Performance Score	0.0770	0	0	0.0130	0.0325	0.0586	0.0712	0.0816	0.0935	0.106	0.126	0.188	0.444
N of Entities	310	1	31	31	31	31	31	31	31	31	31	31	1
N of Persons / Encounters / Episodes	1,556,829	5	34,686	58,150	143,051	230,643	358,788	246,925	239,137	193,746	32,278	19,425	18

2.6 Meaningfulness to Target Population

Patient and caregiver representatives from the Patient Safety HH TEP were asked if they felt that the Hospital Harm - Severe Hyperglycemia measure "is meaningful and produces information that is valuable in making care decisions." Measure background, purpose, and definitions were reviewed prior to polling the representatives. Responses recorded from a total of six representatives were scored on a 4-point Likert scale (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree). The representatives unanimously agreed that the measure is meaningful and produces information that is valuable in making care decisions, with a mean polling score of 3.5.

3.1 Contributions Towards Closing Care Gaps

Not applicable

4.1a Data Structure and Availability

All of the data elements used within the measure are available in a structured format within EHR systems, captured as part of the typical course of patient care, and coded using nationally accepted terminology.

4.1b Implementation Costs and Burden

This eCQM has been in the Hospital IQR Program for two years and no barriers to measure reporting have been shared with CMS through the ONC JIRA issue tracking system where implementers can share questions or comments on the measure. Administrative burden and cost associated with data collection are low because the measure uses data elements that are available in a structured format within EHR systems.

4.1c Confidentiality

In order to maintain patient confidentiality, eCQM data are collected through the Hospital Quality Reporting (HQR) Secure Portal (https://ecqi.healthit.gov/tool/hospital-quality-reporting-hqr-system). HQR is the only CMS-approved website for secure communications and health care quality data exchange between quality improvement organizations, hospitals, physician offices, nursing homes, end-stage renal disease networks and facilities, and data vendors.

The measure scores are publicly reported in aggregate at the hospital level and only reported for hospitals that meet a minimum case count; therefore, patient confidentiality is not a concern.

4.2 Attach Feasibility Scorecard

3533e-4.2-Feasibility-Fall25.xlsx

4.3 Feasibility Informed Final Measure

No feasibility assessment was conducted for maintenance endorsement as this is an established measure. We have submitted the feasibility scorecard from the measure's initial endorsement for section 4.2. No reports of feasibility issues have been reported by implementers; therefore, no adjustments were made to the measure based on feasibility.

The measure has been updated since its initial feasibility testing, as described in Section 1.6b. Summary of Specification Changes. The data elements and coded attributes added to the measure are present in other eCQMs, described in the Data Element Repository on the eCQI Resource Center (for example, https://ecqi.healthit.gov/mcw/2026/ecqm-dataelement/interventionorderco...). As a result, we have confidence in their ability to be reported on for the measure.

4.4 Proprietary Information

Not a proprietary measure and no proprietary components

5.1.1 Data Used for Testing

We acquired hospital-level and encounter-level Hospital IQR Program data from the CMS Center for Clinical Standards and Quality (CCSQ) central data repository (CDR) Hospital Quality Report (HQR) dataset. The HQR system consumes Quality Reporting Document Architecture (QRDA) files and processes the data based on measure logic to determine measure outcomes. QRDA allows a

variety of EHR systems to report data in a structured, consistent format for reporting quality measure results.

Data for reporting period 2023 (January 1, 2023 – December 31, 2023) were used for testing. This is the first year data are currently available in the CCSQ CDR for the Hospital Harm - Severe Hyperglycemia measure. Measure reporting was voluntary for 2023.

- The hospital-level dataset has 1,556,829 denominator eligible inpatient encounter-days from 310 hospitals. In this dataset, quarterly data are not included for a hospital if the facility does not meet the Hospital IQR Program threshold of at least five patients in the initial population and one patient in the denominator for submission of quarterly data.
- The encounter-level dataset includes 563,314 denominator eligible patient encounters reported by hospitals, regardless of whether the encounter was excluded from the hospital-level dataset for the hospital not reaching the data threshold. Patients appear in the encounter-level dataset multiple times if they had multiple eligible encounters.

5.1.1a Dates of Testing Data

January 1, 2023 – December 31, 2023.

5.1.2 Differences in Data

Hospital-level data are used for Section 2: Importance. Both hospital-level and encounter-level data are used for Section 5: Scientific Acceptability. Data from 2023 are used for all sections.

5.1.3 Characteristics of Measured Entities

All subsection (d) hospitals within the United States included within the Hospital IQR Program are eligible to report the measure. CCSQ data does not include information about hospital characteristics, but geography and episodes are available on the Provider Data Catalog (PDC) website (https://data.cms.gov/provider-data/). Hospital IQR Program data from more than 4,000 Medicare-certified hospitals, including Veterans Administration hospitals, are made publicly available on the PDC website. During reporting period 2023, 310 hospitals voluntarily reported the measure. Of those, 290 hospitals from 43 states met the minimum case threshold and had data available for download on the Timely and Effective Care – Hospital page of the PDC. Hospitals are not included in this publicly available dataset if their denominator count is less than 11. Counts of days for denominator-eligible encounters for the hospitals included in this dataset range from 25 to 105,801, with an average of 5,284 days per hospital.

5.1.4 Characteristics of Units of the Eligible Population

Table 1, available in attachment 3533e-5.1.4-Accept-Fall25.xlsx submitted in Section 7. Supplemental Information, uses the encounter-level dataset to provide details on the characteristics of the eligible population including age, sex, and insurance payer.

5.2.1 Level(s) of Reliability Testing Conducted

Accountable entity level (i.e., measure score) (e.g., signal-to-noise analysis)

5.2.2 Method(s) of Reliability Testing

Measure Score Reliability

We assessed signal-to-noise reliability that describes how well the measure can distinguish the performance of one hospital from another (Adams and Mehrota, 2010; Yu and Mehrota, 2013). The signal is the proportion of the variability in measured performance that can be explained by real differences in performance. Scores can range from 0 to 1. A reliability of 0 implies that all the variability in a measure is attributable to chance. A reliability of 1 implies that all the variability is attributable to real differences in performance.

We use the Adam's beta-binomial method (Adams, 2009) to calculate signal-to-noise ratio reliability. Using variability between hospitals (signal: provider-to-provider variance) and variability within hospitals (noise: provider-specific-error variance), the reliability for each hospital can be defined as: reliability = signal variance / (signal variance + noise variance). We estimate the beta-binomial signal variance using denominators and harm rates from all hospitals. The noise variance is estimated based on the denominator and harm rate of an individual hospital.

Three exclusions were added to the measure after initial CBE endorsement. As noted in the CMS Measures Management System Hub, the CMS CBE does not require data element reliability testing for eCQMs for data based on structured fields (CMS, 2025). Reliability of the data elements used for these three new exclusions is evidenced by their use of structured data fields, associated value sets, documentation within the DERep, and use in other eCQMs implemented within CMS reporting programs, as discussed in Section 1.6b Summary of Specification Changes.

References:

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4. Yu, H, Mehrota, A, Adams J. (2013). Reliability of utilization measures for primary care physician profiling. *Healthcare*, 1, 22-29.

5.2.3 Reliability Testing Results

Accountable Entity–Level Reliability Testing Results

Table 2 below contains the distribution of reliability statistic estimates across hospitals for the Hospital Harm - Severe Hyperglycemia measure. Hospitals are grouped into deciles based on N, the number of days of denominator-eligible encounters. For example, the “reliability” row of this table contains the mean reliability estimate among hospitals for each decile of N. Similarly, the “mean performance score” row of this table contains the mean score among hospitals in each decile of N. The row “N of Persons / Encounters / Episodes” of this table contains the sum for N of episodes (days) for hospitals in each decile group. The overall column provides the mean reliability and mean performance score for all hospitals. The minimum and maximum columns provide estimates for the hospitals with the lowest and highest N, respectively.

5.2.4 Interpretation of Reliability Results

The mean signal-to-noise ratio of 0.949 indicates high reliability. Reliability estimates across deciles ranged from 0.830 – 1.0. While there was some variation of the reliability estimate for each decile, reliability estimates across all deciles exceeded the acceptable reliability threshold of 0.6 as determined by the CBE (Partnership for Quality Measurement (PQM), 2024).

Reference:

1. Partnership for Quality Measurement. (2024). Endorsement and Maintenance (E&M) Guidebook. https://p4qm.org/sites/default/files/2024-08/Del-3-6-Endorsement-and-Ma...;

Table 2. Accountable Entity Level Reliability Testing Results by Denominator, Target Population Size

Accountable Entity-Level Reliability Testing Results

	Overall	Minimum	Decile_1	Decile_2	Decile_3	Decile_4	Decile_5	Decile_6	Decile_7	Decile_8	Decile_9	Decile_10	Maximum
Reliability	0.949	0.246	0.830	0.894	1	0.981	0.982	0.966	0.954	0.945	0.961	0.973	1
Mean Performance Score	0.0770	0	0.188	0.126	0	0.0130	0.0325	0.106	0.0586	0.0935	0.0816	0.0712	0.444
N of Entities	310	1	31	31	31	31	31	31	31	31	31	31	1
N of Persons / Encounters / Episodes	1556829	5	19425	32278	34686	58150	143051	193746	230643	239137	246925	358788	106000

5.3.1 Level(s) of Validity Testing Conducted

Accountable entity level (i.e., measure score) (e.g., criterion validity)

5.3.2 Type of Accountable Entity Level Validity Testing Conducted

Empirical validity testing at the accountable entity-level (e.g., criterion validity, construct validity, known groups analysis)

5.3.3 Method(s) of Validity Testing

Construct Validity

We conducted correlational analyses to gather evidence of convergent validity for the Hospital

Harm - Severe Hyperglycemia measure. Specifically, we calculated Spearman's rank correlations between hospital performance scores for hospitals reporting on the Hospital Harm - Severe Hyperglycemia measure and two other hospital-level measures of patient safety or harm event: the Hospital Harm - Severe Hypoglycemia and Patient Safety Indicators (PSI) Patient Safety and Adverse Events Composite (PSI 90) measures.

The Hospital Harm - Severe Hypoglycemia measure is the most appropriate comparator measure for convergent validity testing because both measures are eCQMs, neither are risk adjusted, there is a large overlap of hospitals reporting on both measures, and both are outcome measures of hospital processes related to appropriate patient monitoring and appropriate drug administration (see logic model, Section 2.1). The PSI 90 measure, composed of 10 measures for patient safety covering a broad range of outcomes stemming from varying processes of care (see note below), also includes overlap with the Hospital Harm - Severe Hyperglycemia measure. We hypothesized that while there would be a positive correlation between both pairs of measures, there would be a stronger coefficient of correlation between the Hospital Harm - Severe Hyperglycemia and Hospital Harm - Severe Hypoglycemia measures than for the Hospital Harm - Severe Hyperglycemia and PSI 90 measures. Data for all measures were acquired from the CCSQ CDR. Data were obtained for reporting period 2023 for the Hospital Harm - Severe Hypoglycemia measure and data covering reporting period July 1, 2021 – June 30, 2023 were obtained for the PSI 90 measure.

Three exclusions were added to the measure after initial CBE endorsement. As noted in the CBE guidance, previous testing can be used to confirm validity of added data elements. As such, we demonstrate validity of the data elements used for these three new exclusions by the data elements' use in other implemented measures and through their existence in the DERep, as discussed in Section 1.6b Summary of Specification Changes.

Note: The PSI 90 measure is constructed from the following ten components:

1. CMS PSI 03 Pressure Ulcer Rate

2. CMS PSI 06 Iatrogenic Pneumothorax Rate

3. CMS PSI 08 In-Hospital Fall-Associated Fracture Rate

4. CMS PSI 09 Postoperative Hemorrhage or Hematoma Rate

5. CMS PSI 10 Postoperative Acute Kidney Injury Requiring Dialysis Rate

6. CMS PSI 11 Postoperative Respiratory Failure Rate

7. CMS PSI 12 Perioperative Pulmonary Embolism (PE) or Deep Vein Thrombosis (DVT) Rate

8. CMS PSI 13 Postoperative Sepsis Rate

9. CMS PSI 14 Postoperative Wound Dehiscence Rate

10. CMS PSI 15 Abdominopelvic Accidental Puncture or Laceration Rate

5.3.4 Validity Testing Results

The Hospital Harm - Severe Hyperglycemia and Hospital Harm - Severe Hypoglycemia measures: r_s = 0.346 (p-value <0.001). The Hospital Harm - Severe Hyperglycemia and PSI 90 measures: r_s = 0.115 (p-value = 0.171).

5.3.5 Interpretation of Validity Results

Construct Validity

A moderate positive correlation in the expected direction (r_s = 0.346) was observed between the Hospital Harm - Severe Hyperglycemia and Hospital Harm - Severe Hypoglycemia measures, which demonstrates that a moderately strong common construct of patient safety underlies these measures. A weak positive correlation in the expected direction (r_s = 0.115) that was not statistically significant was observed between the Hospital Harm – Severe Hyperglycemia and PSI 90 measures. As we expected, there was a stronger correlation observed between the Hospital Harm - Severe Hyperglycemia and Hospital Harm - Severe Hypoglycemia measures than for the Hospital Harm - Severe Hyperglycemia and PSI 90 measures. These results support the assumption that facilities' glycemic control protocols drive outcomes on the Hospital Harm - Severe Hyperglycemia and Hospital Harm - Severe Hypoglycemia measures, and the correlation between these two measures indicate each measure is accurately capturing glycemia adverse drug events resulting from the related processes of care. The weaker association between the Hospital Harm - Severe Hyperglycemia and PSI 90 measure shows that the PSI 90 measure is broadly associated as a benchmark measure of patient safety. Our interpretation is based on the following correlation interpretation thresholds developed by Cohen (1992):

0.10 indicates a small effect size

0.30 indicates a medium effect size

0.50 indicates a large effect size

Reference:

1. Cohen J. (1992). A power primer. *Psychological bulletin, 112*(1), 155–159. https://doi.org/10.1037//0033-2909.112.1.155

5.4.1 Methods Used to Address Risk Factors

No risk adjustment or stratification

5.4.1b Rationale For No Adjustment or Stratification

Risk adjustment promotes fair and accurate comparison of health care outcomes across hospitals by controlling for patient-level characteristics within the population of interest and outside of the

hospital's control. Patient-level characteristics include clinical (e.g., types, number, or severity of conditions), demographic (e.g., age), functional (e.g., ability to walk), and social (e.g., income) (CMS, 2023).

The Hospital Harm - Severe Hyperglycemia measure has not been risk adjusted since its inception because severe hyperglycemia is considered to be preventable with proper medication and adequate medical nutrition therapy. Inpatient management of hyperglycemia, including A1C measurement on admission, tailoring glycemic goals based on clinical judgment of patients' care needs, and preadmission treatment of hyperglycemia in people scheduled for elective surgery can all improve patient outcomes (ADA, 2025).

To reaffirm that this measure should not be risk adjusted, we polled experts from the Patient Safety HH TEP on whether they agreed that the Hospital Harm - Severe Hyperglycemia measure should remain unadjusted and whether hospitals should be able to effectively manage comorbidities related to severe hypoglycemic events. The 19 members present unanimously agreed that the measure should remain unadjusted.

Concurrently, we reached out to a member of the Endocrine Society and a representative of the American Diabetes Association for their input on whether the measure should be risk adjusted. They acknowledged there are patients at higher risk for hyperglycemia (such as ICU patients, septic patients, and surgical patients with severe conditions), but they mentioned that clinicians can manage this risk with guideline aligned clinical care. They also mentioned that some of these patients may be removed from the measure by the current measure exclusions. These experts did mention a few additional patient characteristics that they expressed should be considered for risk adjustment or exclusion, including patients who receive solid organ transplant (SOT) and patients who receive other high-dose steroids. Given this feedback, we have added supplemental data elements to collect information on patients who have received SOT or high dose pulse steroids to understand the feasibility of identifying these patients and to estimate the size of the associated patient population. Once data has been collected, CMS may conduct analyses to assess the impact of excluding or risk adjusting for these patient populations.

Based on the Patient Safety HH TEP input and findings from our literature review, the measure will continue to be not risk adjusted. However, once data on patients with SOT and patients receiving pulse dose steroids becomes available, CMS will evaluate how to most appropriately handle these two patient populations.

References:

1. American Diabetes Association (ADA) Professional Practice Committee. (2025). Diabetes care in the hospital: Standards of care in diabetes – 2025. *Diabetes Care*, *48*(Supplement_1), S321-S334. https://doi.org/10.2337/dc25-S016

2. Centers for Medicare & Medicaid Services (CMS). (2023, August). *Risk Adjustment and Risk Stratification in Quality Measurement*. https://mmshub.cms.gov/sites/default/files/Risk-Adjustment-Quality-Meas...;

6.1.1 Current Status

In use

6.1.2 Current or Planned Use(s)

Public Reporting, Payment Program

6.1.3 Program Details

Name of the program and sponsor
Centers for Medicare & Medicaid Services (CMS) Hospital Inpatient Quality Reporting (IQR) Program
URL of the program
https://www.cms.gov/medicare/quality/initiatives/hospital-quality-initiative/in…
Purpose of the program

The Hospital IQR Program is a pay-for-reporting program for acute care hospitals. Through this reporting program, CMS strives to improve the care provided by the nation's hospitals and publicly display quality information to consumers and others.

Geographic area and percentage of accountable entities and patients included

Nation-wide (except Maryland); includes over 4,000 hospitals, including hospitals paid through IPPS and voluntarily, critical access hospitals, and 70 million Medicare Beneficiaries. Voluntary reporting of the Hospital Harm – Severe Hyperglycemia measure began in calendar year 2023; mandatory reporting begins in calendar year 2026.

Applicable level of analysis and care setting

Acute care and critical access hospitals

,
Name of the program and sponsor
Centers for Medicare & Medicaid Services (CMS) Medicare Promoting Interoperability Program
URL of the program
https://www.cms.gov/medicare/regulations-guidance/promoting-interoperability-pr…
Purpose of the program

The program encourages eligible hospitals and critical access hospitals to adopt, implement, upgrade, and demonstrate meaningful use of certified electronic health record technology (CEHRT).

Geographic area and percentage of accountable entities and patients included

The program is open to over 4,000 eligible hospitals and more than 1,350 critical access hospitals that receive federal funds from Medicare and over 70 million Medicare Beneficiaries.

Applicable level of analysis and care setting

Acute care and critical access hospitals

6.2.1 Actions of Measured Entities to Improve Performance

Use of interdisciplinary teams and standardized care protocols have been shown to reduce severe hyperglycemic events at inpatient facilities. Coupled with EHR systems that provide alerts and advances in diabetes management, there are a range of strategies measured entities can use to prevent severe hyperglycemic events.

Use of a toolkit developed by an interdisciplinary team to standardize processes to prevent and promptly manage hyperglycemic events resulted in a 23% decrease in patient-days with episodes of severe hyperglycemia (blood glucose >300 mg/dL). This equates to 30,065 fewer event days (Fakih, 2025).

For patients diagnosed with diabetes, the ADA (2025) encourages establishing protocols and structured order sets for glycemic control and performing regular audits and ongoing staff training programs to maintain adherence. Additionally, the use of interdisciplinary inpatient diabetes management service teams has been shown to reduce hyperglycemic episodes and reduce costs through decreased length of stay and preventing hospital readmissions (Haque, 2021).

Dedicating clinical pharmacy staff to surgical services can aid in glucose management, including among traditionally high-risk patients such as those on parenteral and enteral nutrition and systemic corticosteroids (Nguyen, 2016)

For patients with diabetes, use of CGM devices has continued to increase in recent years and these devices are becoming more prevalent among patients in inpatient settings. While considerations for their safe use remain, they have been shown to result in lower blood glucose levels in patients hospitalized for non-critical illness. Additionally, allowing continued use of insulin pump therapy for those patients who use it in the outpatient setting decreases the risk of hyperglycemic events in the inpatient setting (Siesa, 2022). Among older patients with diabetes, using simplified regimens to address hyperglycemia has safety advantages and comparable efficacy to more complex regimens (Davis, 2020).

More advanced use of technological solutions within the hospital setting includes the use of EHR-integrated insulin dosing algorithms with inpatients who are fasting or on parental or enteral nutrition. This intervention decreased incidents of severe hyperglycemia (defined by this study as blood glucose >250 mg/dL) (Rushakoff, 2025). As another example, Judson et al. (2022) describe a program that has reduced glycemic events and improved staff education though a virtual specialist consultation and written recommendations.

References:

1. American Diabetes Association Professional Practice Committee. (2025). Diabetes care in the hospital: Standards of care in diabetes – 2025. *Diabetes Care*, *48*(Supplement_1), S321-S334. https://doi.org/10.2337/dc25-S016

2. Davis, G. M., DeCarlo, K., Wallia, A., Umpierrez, G. E., & Pasquel, F. J. (2020). Management of

Inpatient Hyperglycemia and Diabetes in Older Adults. *Clinics in Geriatric Medicine*, 36(3), 491–511. https://doi.org/10.1016/j.cger.2020.04.008

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6.2.2 Feedback on Measure Performance

We receive feedback on this measure through the ONC JIRA issue tracking system (https://oncprojectracking.healthit.gov/support/secure/Dashboard.jspa), which allows eCQM vendors and implementers to submit questions. From when the measure became available for review in 2021 through June 30, 2025, vendors and implementers have submitted 80 comments on the measure through JIRA.

6.2.3 Consideration of Measure Feedback

Most questions received through JIRA asked for clarification on how to report the measure. For these types of questions, if there was a grammatical update to the measure needed to improve

clarity, we would implement that change. As one example of responding to this type of feedback, we added language to the measure specification explaining how measure observations are used to calculate the ratio measure.

For questions or suggestions that were technical or clinical in nature, we would consult with internal clinical or technical experts and/or the Patient Safety HH TEP before making a change. As an example of responding to this feedback, we lowered the exclusion threshold for high blood glucose values from >=1,000 mg/dL to >600 mg/dL.

6.2.4 Progress on Improvement

2023 was the first year that this measure was available for reporting. As such, there are not enough data to track performance score trends.

6.2.5 Unexpected Findings

Implementers have not notified CMS of any unexpected findings.

Patients and caregivers from the Patient Safety HH TEP were polled on whether they believed that there were “no unintended consequences or concerns” regarding the Hospital Harm - Severe Hyperglycemia measure. Measure background, purpose, and definitions were reviewed prior to polling the representatives. Responses recorded from a total of six representatives were scored on a 4-point Likert scale (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree). The mean polling score was 2.8, two members disagreed and four members agreed or strongly agreed.

One Patient Safety HH TEP member who disagreed was concerned that the early glucose value threshold of >=1,000 mg/dL to exclude a patient from the numerator and denominator of the measure was too high. Patient Safety HH TEP members felt a lower threshold was more appropriate to capture patients entering the facility with uncontrolled hyperglycemia. In response to feedback, the value was lowered to >600 mg/dL for the 2026 reporting period.

The other member that disagreed stated that the measure could increase the frequency of blood glucose testing, which could impose burden on staff and increase the cost of the hospitalization. While we report this feedback for transparency, we disagree that frequent blood testing on patients at risk for hyperglycemia should be seen as burdensome. Instead, we see this as appropriate monitoring of at-risk patients as recommended by clinical guidelines.

7.1 Supplemental Attachment

3533e-5.1.4-Accept-Fall25.xlsx

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The measure developer is different from the measure steward

Yes

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