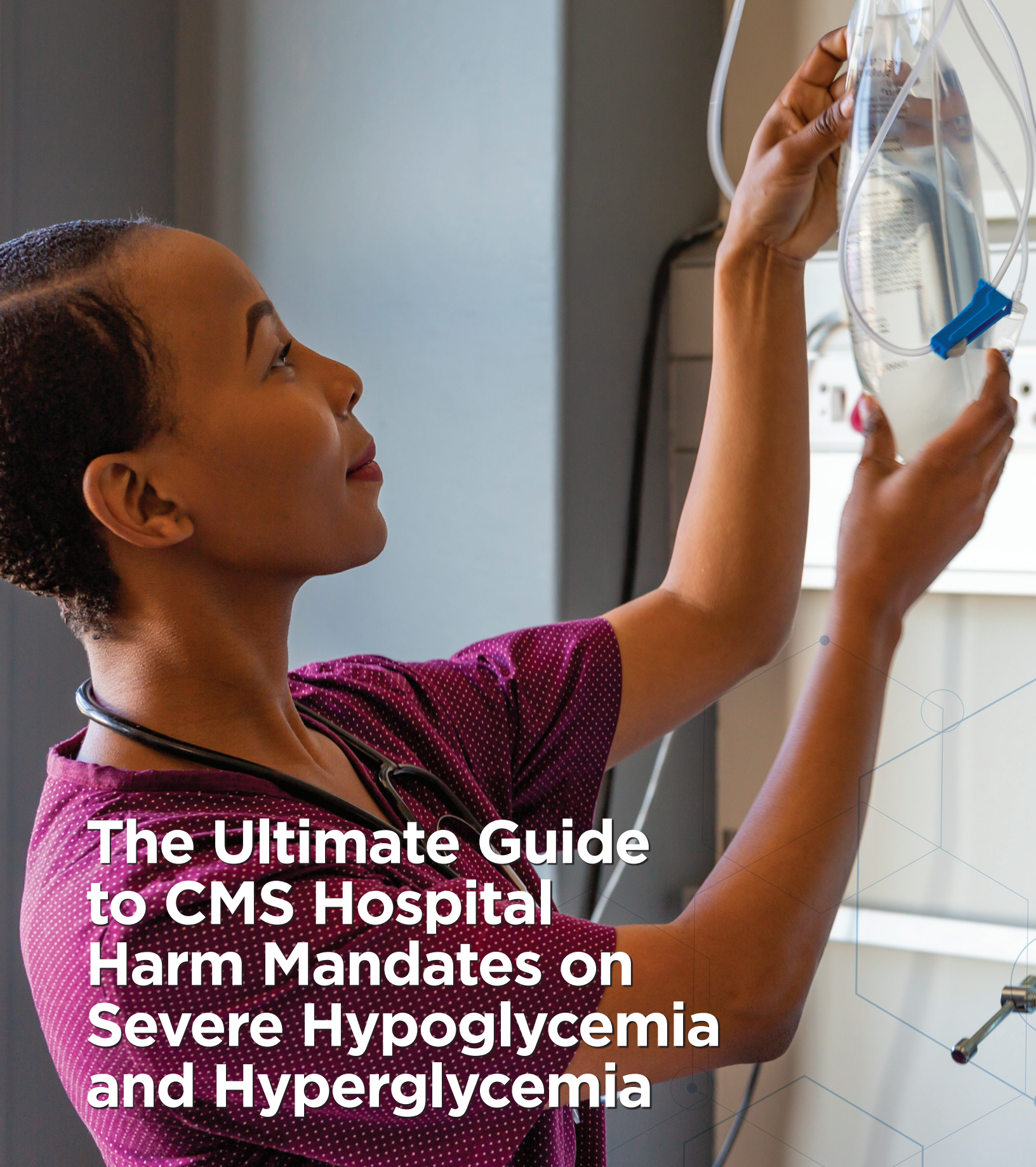




The Ultimate Guide to CMS Hospital Harm Mandates on Severe Hypoglycemia and Hyperglycemia

SUMMARY

In April 2024, The Centers for Medicare & Medicaid Services (CMS) announced proposed changes to the reporting requirements for Electronic Clinical Quality Measures (eCQMs) beginning in CY 2026. These changes will impact Medicare reimbursement in fiscal year 2028.¹ In light of this proposed rule, **all hospitals will be required to report on two additional clinical quality measures related to Hospital Harm: Severe Hypoglycemia and Severe Hyperglycemia** as part of the Inpatient Quality Reporting (IQR) program.

To minimize patient harm and the potential impact on reimbursement, hospitals will need to have protocols and clinical decision support tools available to enhance glycemic control. An insulin dosing application like EndoTool can significantly improve glycemic control, recommending safer insulin doses based on patient-specific physiological factors and response to treatment.

EndoTool can monitor glycemic metrics in real time and drill down to individual nursing units to identify areas requiring additional focus.

This publication will provide:

- The definitions and components of the eCQMs related to severe hypoglycemia and hyperglycemia.
- Best practice recommendations for inpatient glycemic control.
- Explore how an insulin dosing software like EndoTool can optimize outcomes in glycemic management.

Hypoglycemia rates with EndoTool are significantly lower compared to other computerized glucose management systems, with a reduction of up to 98.7% in severe hypoglycemia episodes (<40 mg/dL) and up to 96.4% in mild hypoglycemia episodes (<70 mg/dL).²



What are CMS Severe Hypoglycemia and Severe Hyperglycemia Hospital Harm Measures?

Since 2022, CMS has included the severe hypoglycemia and severe hyperglycemia measures as self-selected eQMs. These measures will remain as self-selected until 2025.³ Starting 2026 however, hospitals would be required to report on these measures for severe hypoglycemia and severe hyperglycemia.¹ The rule states that the financial impact for reimbursement will commence in fiscal year 2028. Through this ruling, CMS has expressed a profound commitment to enhance the focus on a frequently occurring yet often overlooked aspect of inpatient care; glycemic management.

Hypoglycemia is the third most common adverse drug event in hospitals.⁷

Challenges Related to Glycemic Management in Inpatient Settings

The Agency for Healthcare Research and Quality (AHRQ) has categorized insulin and other hypoglycemic agents as high-alert medications linked with potential adverse events.⁴ Both hyperglycemia and hypoglycemia are directly associated with poor patient outcomes including increased risk of infection, longer stays and even death in hospitalized patients.^{5,6}

Approximately 25% of all hospital inpatient days involve patients with a diagnosis of diabetes.⁸ Most people with diabetes are hospitalized for reasons other than the need to control blood glucose and as a result, the management of diabetes is often not a priority.⁹ Many hospitals reported an inability to track the quality of care in inpatient diabetes and about 60% reported the lack of an automated capability to track and analyze glucose data in inpatient settings.¹⁰

Manual vs. Computerized Dosing Protocols

One of the major reasons for gaps in care related to glucose management is the reliance on methods that require manual calculations.¹¹ These methods lack the ability to personalize insulin doses or account for glycemic fluctuations often associated with hospitalization in patients. The American Diabetes Association (ADA) and Society of Critical Care Medicine (SCCM) now recommend that insulin should be administered using computerized dosing protocols that account for patient response and variability.⁵

Despite the suboptimal outcomes associated with poor glycemic management, the impact of this in terms of cost, patient morbidity and mortality at the institutional level is not usually apparent. Hospital leadership therefore often does not focus on monitoring and improving glycemic control.^{5,11}

It is speculated that with glycemic eQMs, there will be associated public transparency and financial implications that will drive better awareness and resource allocation towards improved glycemic control.

CMS Mandates on Hypoglycemia and Hyperglycemia

The components of each measure require a detailed explanation and an understanding of the inclusion and exclusion criteria.

Severe Hyperglycemia

eCQM for severe hyperglycemia¹²
(Patients 18+)

=

Admissions with hyperglycemic events (N)
No. of qualifying inpatient hospitalizations (D)

A hyperglycemic event (N) is defined as:
Glucose Value > 300 mg/dL
At least one glucose value greater than 300 mg/dL on a single day.

OR

Missing Glucose Test
A glucose test and result not found on a day immediately preceded by two contiguous consecutive days where at least one glucose value during each of the two days was greater than or equal to 200 mg/dL.

The glucose value can be obtained from point of care testing, laboratory testing or from a continuous glucose monitor. Only one hyperglycemic event is counted so that the measure is tracking any hospitalization that has a hyperglycemic event.

Only a hyperglycemic episode that occurs after the first 24-hour period of a hospitalization (which includes time spent in the ED) is included. Episodes that occur after the tenth day of hospitalization are excluded. Finally, admissions with a blood glucose greater than 1000 mg/dL noted within the first six hours of hospitalization are excluded from the numerator and denominator.

Timeframe to Include an Admission with a Hyperglycemic Event

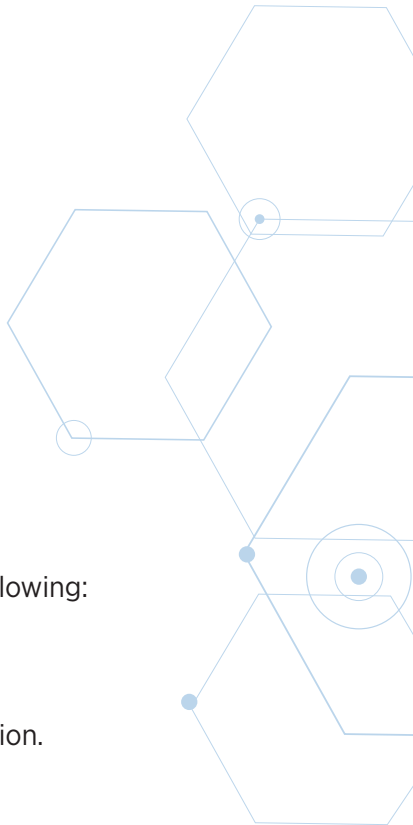


1 Day of hospitalization = 24 hours

No. of Qualifying Inpatient Hospitalizations (D)

The qualifying hospitalizations included in the denominator are those **with one** of the following:

- 1. A diagnosis of diabetes.
- 2. Administered a hypoglycemic agent during admission.
- 3. At least one glucose value greater than or equal to 200 mg/dL during the hospitalization.



Severe Hypoglycemia

The measure assesses the number of inpatient hospitalizations for patients aged 18 and older who were:⁷

1. Administered at least one hypoglycemic medication during the encounter and;
2. Who suffer the harm of a severe hypoglycemic event during the encounter.

The test can be conducted via a laboratory test, a point of care test, or a continuous glucose monitor.

A severe hypoglycemic event is defined as:

Glucose test result <40 mg/dL within 24 hours of administering a hypoglycemic medication.

Exclusion

If a repeat test within five minutes yields a result >80 mg/dL, the initial hypoglycemic value is disregarded.

Counting

Only one hypoglycemic event is counted per hospitalization.



Key Considerations for eQMs on Severe Hypoglycemia and Hyperglycemia

These measures account for various clinical scenarios beyond the hospital care team's control:

- For hyperglycemia, **the first 24 hours of an encounter are excluded**, as a patient may present with hyperglycemia due to acute illness or poor outpatient control.
- Excluding patients admitted with a **blood glucose level over 1000 mg/dL**, given the unlikelihood of reducing their blood glucose to below 300 mg/dL by the second day.
- For hypoglycemia measures, it excludes patients who **have not received a hypoglycemic agent within 24 hours** prior to the event to account for patients who may have been hypoglycemic on admission due to factors like severe liver disease or drug overdose.
- A single hyperglycemic or hypoglycemic event is **weighted the same as multiple events** during hospitalization.

Best Practices for Compliance to Improve Glycemic Control

The ADA continually updates the standards for management of diabetes in hospitalized patients which can improve glycemic control:¹³



Initiate or intensify insulin

for hyperglycemia if there are two glucoses greater than 180 mg/dL.



Critical care glycemic goal

The range should be 140-180 unless protocols are used to minimize hypoglycemia.



Non-critical care glycemic goal

A glycemic goal of 100-180 mg/dL is recommended.



Point of care glucose monitoring

Should occur before meals or every 4-6 hours for those not eating.



Discouraging sliding scale insulin

The sole use of sliding scale insulin is discouraged.



Continuous intravenous insulin infusion

Most effective in the critical care setting.

Optimizing Patient Safety and Compliance with EndoTool

EndoTool insulin dosing platform safely improves glycemic control and reduces hyperglycemic and hypoglycemic events by providing personalized IV and subcutaneous insulin dosing recommendations.

Hospitals Consistently Achieve Superior Outcomes with EndoTool

Measure	Definition	Rate
Severe Hypoglycemia	No. of Glucose readings <40 mg/dL	0.01%
Severe Hyperglycemia	No. of glucose readings >300 mg/dL (after reaching the prescribed goal range blood glucose)	0.42%

EndoTool customer data 2023. Data on File.

Severe hypoglycemia is statistically near zero with and without kidney failure, not seen with any other computerized insulin dosing protocol.

As the CMS glycemic measures become available for public review, we anticipate that those hospitals utilizing EndoTool will compare favorably.

EndoTool has several features that align with the ADA inpatient treatment guidelines and prevent dangerous excursions of blood glucose levels:



Multiple dosing modes: patients with poor nutritional intake can be treated with basal-correction insulin whereas those with good intake can be easily transitioned to basal-bolus-correction.

Adjusted insulin dosing recommendation: if blood glucoses are lower than anticipated (especially fasting glucose values).

Insulin stacking prevention: if the half-life of insulin is increased due to renal insufficiency.

Adjusted mealtime insulin dosing: for changes in carbohydrate intake.

Prompts and advisories: for regular blood glucose checks including additional glucose checks for patients at risk for hypoglycemia.

Real-time analytics: real-time monitoring for efficacy and safety in glucose management, simplifying the reporting process.

Looking to the Future

The upcoming mandatory CMS measures for glycemic control are a long-awaited step towards the improvement of inpatient diabetes management. Inpatient diabetes management can be challenging amongst competing patient care demands. However, with the high prevalence of diabetes in hospitalized patients, safe and effective management cannot be overlooked.

The CMS measures underscore the importance of delivering this care to patients. In this challenging environment, a robust clinical decision support tool such as EndoTool can effectively identify areas of performance improvement while also serving as a valuable resource for bridging those gaps.

Take the first step towards enhanced glycemic control with EndoTool by visiting MonarchMedTech.com today.





REFERENCES

1. Centers for Medicare & Medicaid Services. (n.d.). FY 2025 Hospital Inpatient Prospective Payment System (IPPS) and Long-Term Care Hospital Prospective Payment System (LTCH PPS) Proposed Rule. Retrieved from <https://www.cms.gov/newsroom/fact-sheets/fy-2025-hospital-inpatient-prospective-payment-system-ipps-and-longterm-care-hospital-prospective>
2. Salinas, P. D., & Mendez, C. E. (2019). Glucose Management Technologies for the Critically Ill. *Journal of Diabetes Science and Technology*, 13(4), 682-690. DOI: 10.1177/1932296818822838. <https://journals.sagepub.com/doi/epub/10.1177/1932296818822838>
3. Quality Reporting Center. (2024, January). Electronic Clinical Quality Measures (eCQMs) Available for Calendar Year 2024. Retrieved from https://www.qualityreportingcenter.com/globalassets/2024/01/iqr/ecqm_cy-2024-availableecqms-table_jan_final508.pdf
4. Agency for Healthcare Research and Quality. (n.d.). Diabetes: National Healthcare Quality and Disparities Report Chartbook. Retrieved from <https://www.ahrq.gov/research/findings/nhqrdr/chartbooks/effectivetreatment/diabetes.html>
5. American Diabetes Association. (2021). 15. Diabetes Care in the Hospital: Standards of Medical Care in Diabetes—2021. *Diabetes Care*, 44(Supplement 1), S211-S220. Retrieved from https://diabetesjournals.org/care/article/44/Supplement_1/S211/30817/15-Diabetes-Care-in-the-Hospital-Standards-of
6. American Academy of Family Physicians. (2017). Diagnosis and Management of Pneumonia and Influenza in the Outpatient Setting. *American Family Physician*, 96(10), 648-656. Retrieved from: <https://www.aafp.org/pubs/afp/issues/2017/1115/p648.html>
7. Centers for Medicare & Medicaid Services. (n.d.). eCQM: CMS816v0. Retrieved from <https://ecqi.healthit.gov/sites/default/files/ecqm/measures/CMS816v0.html>
8. Rubin, D.J. (2015). Hospital Readmission of Patients with Diabetes. *Curr Diab Rep*, 15, 17.
9. Sharma, S., & Rayman, G. (2022). Glycaemic management in patients with diabetes in hospital. *Medicine*, Advance online publication. <https://doi.org/10.1016/j.mpmed.2022.07.008>
10. Cook, C. B., Elias, B., Kongable, G. L., Potter, D. J., Shepherd, K. M., & McMahon, D. (2010). Diabetes and hyperglycemia quality improvement efforts in hospitals in the United States: Current status, practice variation, and barriers to implementation. *Endocrine Practice*, 16(2), 219-230. <https://doi.org/10.4158/EP09234.OR>
11. Messler, J. (2021, December 1). As CMS drives cost and quality improvements, here's why glucose management is the newest focus. *MedCity News*. Retrieved from <https://medcitynews.com/2021/12/as-cms-drives-cost-and-qualityimprovements-heres-why-glucose-management-is-the-newest-focus/>
12. Centers for Medicare & Medicaid Services. (n.d.). CMS0871v2. Retrieved from <https://ecqi.healthit.gov/ecqm/eh/2023/cms0871v2?compare=2023to2025>
13. American Diabetes Association. (2024). 16. Diabetes Care in the Hospital: Standards of Medical Care in Diabetes—2024. *Diabetes Care*, 47(Supplement 1), S295-S305. Retrieved from https://diabetesjournals.org/care/article/47/Supplement_1/S295/153950/16-Diabetes-Care-in-the-Hospital-Standards-of-Care



Experience the future
of care with EndoTool's
patient-specific insulin dosing.

Transforming diabetes across the full continuum of care



ABOUT GLOOKO

Glooko is a global portfolio of companies advancing intelligent connected diabetes and glycemic care across the care continuum. Through its offerings, Glooko is the only organization delivering integrated support from hospital to home. Together, these capabilities empower patients, healthcare providers, and health systems with data-driven tools that improve outcomes, simplify workflows, and scale care across inpatient and outpatient care settings.

[Glooko.com](https://glooko.com) | [MonarchMedTech.com](https://monarchmedtech.com)

EndoTool is developed and marketed by Monarch Medical Technologies, a Glooko Company. EndoTool is an FDA-cleared Class II medical device indicated for inpatient use as described in its Instructions for Use. Glooko's diabetes management platform and EndoTool are currently independent solutions. Patient-specific refers to EndoTool's ability to use available patient information within the hospital's electronic medical record to provide individualized insulin dosing recommendations. Recommendations are intended to assist, not replace, clinical judgment. All treatment decisions remain the responsibility of the licensed healthcare provider.