Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

Brief Measure Information

NQF #: 3533e
Corresponding Measures:
De.2. **Measure Title:** Hospital Harm – Severe Hyperglycemia
Co.1.1. **Measure Steward:** Centers for Medicare & Medicaid Services
De.3. **Brief Description of Measure:** This ratio electronic clinical quality measure (eCQM) assesses the number of hospital days with a severe hyperglycemic event (a blood glucose result >300 mg/dL, or a day in which a blood glucose value was not documented and it was preceded by two consecutive days where at least one glucose value is >=200 mg/dL) per the total qualifying hospital days among inpatient encounters for patients 18 years and older who have either:

1. A diagnosis of diabetes mellitus,
2. Received at least one administration of insulin or an anti-diabetic medication during the hospital admission, or
3. Had an elevated blood glucose level (>200 mg/dL) during their hospital admission.

1b.1. **Developer Rationale:** This eCQM relates to glycemic management in the hospital inpatient setting. Rates of inpatient severe hyperglycemic events – an extremely elevated blood glucose level – can be considered an indicator of quality of care provided by a hospital. Severe hyperglycemia is associated with a range of harms, including increased in-hospital mortality, infection rates, and hospital length of stay.1,2,3,4,5,6,7,8 The rate of severe hyperglycemic events varies across hospitals, which suggests that there are opportunities for improvement in glycemic management.9,10,11 The implementation of this eCQM will aim to achieve several improvements in quality. For instance, this eCQM will encourage providers to develop interventions aimed at better glycemic control and prevent severe hyperglycemia for hospital inpatients. In addition to avoiding direct patient harm from the severe hyperglycemic event, lower rates of severe hyperglycemia among hospitalized individuals would be expected to result in lower rates of mortality, infection, and hospital length of stays. Adopting this eCQM has the potential to improve quality of care for individuals at risk of hyperglycemia and, therefore, advance the quality of care in patient safety, which is a priority area identified by the National Quality Strategy. This will fill a gap in measurement and provide incentives for hospital quality improvement, as there is no hyperglycemia measure in any CMS program. With a systematic EHR-based patient safety measure in place, hospitals can more reliably assess harm reduction efforts and modify their improvement efforts in near real-time. In addition, we can expect to make greater achievements in reducing harms and enhancing hospital performance on patient safety outcomes.

References:
1. Pasquel FJ, Spiegelman R, McCauley M, et al. Hyperglycemia During Total Parenteral Nutrition: An Important Marker of Poor Outcome and Mortality in Hospitalized Patients. Diabetes Care. 2010;33(4):739-741
2. Rady MY, Johnson DJ, Patel BM, Larson JS, Helmers RA. Influence of Individual Characteristics on Outcome of Glycemic Control in Intensive Care Unit Patients With or Without Diabetes Mellitus. Mayo Clin Proc. 2005;80(12):1558-1567.
3. Umpierrez GE, Isaacs SD, Bazargan N, You X, Thaler LM, Kitabchi AE. Hyperglycemia: An Independent Marker of In-Hospital Mortality in Patients with Undiagnosed Diabetes. J Clin Endocrinol Metab. 2002;87(3):978-982.
4. Falciglia M, Freyberg RW, Almenoff PL, D´Alessio DA, Render ML. Hyperglycemia-Related Mortality in Critically Ill Patients Varies with Admission Diagnosis. Crit Care Med. 2009;37(12):3001-3009.
5. Lee LJ, Emons MF, Martin SA, et al. Association of Blood Glucose Levels with In-Hospital Mortality and 30-Day Readmission in Patients Undergoing Invasive Cardiovascular Surgery. Curr Med Res Opin. 2012;28(10):1657-1665.
6. King JT, Jr., Goulet JL, Perkal MF, Rosenthal RA. Glycemic Control and Infections in Patients with Diabetes Undergoing Noncardiac Surgery. Ann Surg. 2011;253(1):158-165.
7. Jackson RS, Amdur RL, White JC, Macsata RA. Hyperglycemia is Associated with Increased Risk of Morbidity and Mortality after Colectomy for Cancer. J Am Coll Surg. 2012;214(1):68-80.

8. Umpierrez GE, Hellman R, Korytkowski MT, et al. Management of Hyperglycemia in Hospitalized Patients in Non-Critical Care Setting: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2012;97(1):16-38.
9. Swanson CM, Potter DJ, Kongable GL, Cook CB. Update on Inpatient Glycemic Control in Hospitals in the United States. Endocr Pract. 2011;17(6):853-861.
10. Cook CB, Kongable GL, Potter DJ, Abad VJ, Leija DE, Anderson M. Inpatient Glucose Control: A Glycemic Survey of 126 U.S. Hospitals. J Hosp Med. 2009;4(9):E7-E14.
11. Matheny ME, Shubina M, Kimmel ZM, Pendergrass ML, Turchin A. Treatment Intensification and Blood Glucose Control among Hospitalized Diabetic Patients. J Gen Intern Med. 2008;23(2):184-189.

S.4. **Numerator Statement:** The total number of hyperglycemic days across all encounters divided by the total number of eligible days across all encounters. Hospital days are measured in 24-hour periods, starting from the time of arrival at the hospital (including Emergency Department). Days with a hyperglycemic event are defined as:
- A day with at least one blood glucose value >300 mg/dL; or
- A day in which a blood glucose value was not documented and it was preceded by two consecutive days where at least one glucose value is >=200 mg/dL.

We do not count >300 mg/DL events the first 24-hour period after admission to the hospital (including the Emergency Department) or the last time period before discharge, if it was less than 24 hours.
S.6. **Denominator Statement:** The initial population is all patients 18 years and older at the start of the measurement period with a discharged inpatient hospital admission during the measurement period, as well as either:

1. A diagnosis of diabetes that starts before or during the encounter; or
2. Administration of at least one dose of insulin or any anti-diabetic medication during the encounter; or
3. Presence of at least one blood glucose value >200 mg/dL at any time during the encounter.

The eCQM includes inpatient encounters which began in the Emergency Department or in observation status.

The denominator is the total number of eligible days across all encounters which match the initial population criteria. We do not count the the first 24-hour period after admission to the hospital (including the Emergency Department) or the last time period before the discharge, if it was less than 24 hours. By excluding the first 24 hours of admission, we allow for correction of severe hyperglycemia that was present on admission. By excluding the last time period before discharge if it was less than 24 hours, we account for the fact that hospitals may not always be able to check glucose during the last time period, especially if it is only a few hours long. Eligible encounters that exceed 10 days are truncated to equal 10 days.
S.8. **Denominator Exclusions:** N/A; there are no denominator exclusions.

De.1. **Measure Type:** Outcome
S.17. **Data Source:** Electronic Health Records
S.20. **Level of Analysis:** Facility

IF Endorsement Maintenance – Original Endorsement Date: Jul 31, 2020 **Most Recent Endorsement Date:** Jul 31, 2020

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. **IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?** This eCQM is intended to be used simultaneously with the eCQM assessing severe hypoglycemia events (NQF#3503e) during acute short-term care admissions for patients age 18 years and older. The Hospital Harm - Severe Hypoglycemia eCQM functions as a balancing measure for this eCQM by minimizing the potential for unintended consequences such as fluctuating glycemic values and hypoglycemia.

1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. ***Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the***

remaining criteria.

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form
HospitalHarm_HyperglycemiaEvidenceForm-637088185545788261.docx
1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?
Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.
Yes

1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

1b.1. **Briefly explain the rationale for this measure** *(e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)*
If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.
This eCQM relates to glycemic management in the hospital inpatient setting. Rates of inpatient severe hyperglycemic events – an extremely elevated blood glucose level – can be considered an indicator of quality of care provided by a hospital. Severe hyperglycemia is associated with a range of harms, including increased in-hospital mortality, infection rates, and hospital length of stay.1,2,3,4,5,6,7,8 The rate of severe hyperglycemic events varies across hospitals, which suggests that there are opportunities for improvement in glycemic management.9,10,11 The implementation of this eCQM will aim to achieve several improvements in quality. For instance, this eCQM will encourage providers to develop interventions aimed at better glycemic control and prevent severe hyperglycemia for hospital inpatients. In addition to avoiding direct patient harm from the severe hyperglycemic event, lower rates of severe hyperglycemia among hospitalized individuals would be expected to result in lower rates of mortality, infection, and hospital length of stays. Adopting this eCQM has the potential to improve quality of care for individuals at risk of hyperglycemia and, therefore, advance the quality of care in patient safety, which is a priority area identified by the National Quality Strategy. This will fill a gap in measurement and provide incentives for hospital quality improvement, as there is no hyperglycemia measure in any CMS program. With a systematic EHR-based patient safety measure in place, hospitals can more reliably assess harm reduction efforts and modify their improvement efforts in near real-time. In addition, we can expect to make greater achievements in reducing harms and enhancing hospital performance on patient safety outcomes.

References:
1. Pasquel FJ, Spiegelman R, McCauley M, et al. Hyperglycemia During Total Parenteral Nutrition: An Important Marker of Poor Outcome and Mortality in Hospitalized Patients. Diabetes Care. 2010;33(4):739-741
2. Rady MY, Johnson DJ, Patel BM, Larson JS, Helmers RA. Influence of Individual Characteristics on Outcome of Glycemic Control in Intensive Care Unit Patients With or Without Diabetes Mellitus. Mayo Clin Proc. 2005;80(12):1558-1567.
3. Umpierrez GE, Isaacs SD, Bazargan N, You X, Thaler LM, Kitabchi AE. Hyperglycemia: An Independent Marker of In-Hospital Mortality in Patients with Undiagnosed Diabetes. J Clin Endocrinol Metab. 2002;87(3):978-982.
4. Falciglia M, Freyberg RW, Almenoff PL, D´Alessio DA, Render ML. Hyperglycemia-Related Mortality in Critically Ill Patients Varies with Admission Diagnosis. Crit Care Med. 2009;37(12):3001-3009.
5. Lee LJ, Emons MF, Martin SA, et al. Association of Blood Glucose Levels with In-Hospital Mortality and 30-Day Readmission in Patients Undergoing Invasive Cardiovascular Surgery. Curr Med Res Opin. 2012;28(10):1657-1665.
6. King JT, Jr., Goulet JL, Perkal MF, Rosenthal RA. Glycemic Control and Infections in Patients with Diabetes Undergoing Noncardiac Surgery. Ann Surg. 2011;253(1):158-165.
7. Jackson RS, Amdur RL, White JC, Macsata RA. Hyperglycemia is Associated with Increased Risk of Morbidity and Mortality after Colectomy for Cancer. J Am Coll Surg. 2012;214(1):68-80.
8. Umpierrez GE, Hellman R, Korytkowski MT, et al. Management of Hyperglycemia in Hospitalized Patients in Non-Critical Care Setting: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2012;97(1):16-38.
9. Swanson CM, Potter DJ, Kongable GL, Cook CB. Update on Inpatient Glycemic Control in Hospitals in the United States. Endocr Pract. 2011;17(6):853-861.
10. Cook CB, Kongable GL, Potter DJ, Abad VJ, Leija DE, Anderson M. Inpatient Glucose Control: A Glycemic Survey of 126 U.S. Hospitals. J Hosp Med. 2009;4(9):E7-E14.
11. Matheny ME, Shubina M, Kimmel ZM, Pendergrass ML, Turchin A. Treatment Intensification and Blood Glucose Control among Hospitalized Diabetic Patients. J Gen Intern Med. 2008;23(2):184-189.

1b.2. **Provide performance scores on the measure as specified (current and over time) at the specified level of analysis**. *(This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

This eCQM was tested with seven hospitals in four regions (West, Midwest, Southeast, South). Hospitals varied in size (100-799 beds) and EHR systems (Cerner, Meditech, Epic). Six of the seven hospitals were teaching hospitals, and two were located in rural areas while five hospitals were located in urban areas. A detailed list of the characteristics of measured facilities and patient population can be found in the attached Measure Testing Form, Section 1.7.

The measure performance, including the denominator observations (hospital days), numerator observations (hospital days), and performance rate by hospital, follows.

Hospital 1
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator: 4,776
- Numerator: 510
- Performance rate: 10.1%
- 95% confidence interval: 9.8%, 11.6%
- Standard Deviation: 0.5%

Hospital 2
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator: 1,362
- Numerator: 112
- Performance rate: 8.2%
- 95% confidence interval: 6.8%, 9.7%
- Standard Deviation: 0.7%

Hospital 3
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator: 2,643
- Numerator: 330
- Performance rate: 12.5%
- 95% confidence interval: 11.2%, 13.7%
- Standard Deviation: 0.6%

Hospital 4
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator: 4,219
- Numerator: 548
- Performance rate: 13.0%
- 95% confidence interval: 12.0%, 14.0%
- Standard Deviation: 0.5%

Hospital 5
- Data collection period: 1/1/2018 - 10/31/2018
- Denominator: 3,413
- Numerator: 667
- Performance rate: 19.5%
- 95% confidence interval: 18.2%, 20.9%
- Standard Deviation: 0.7%

Hospital 6
- Data collection period: 1/1/2018 - 10/31/2018

- Denominator: 3,323
- Numerator: 512
- Performance rate: 15.4%
- 95% confidence interval: 14.2%, 16.7%
- Standard Deviation: 0.6%

Hospital 7
- Data collection period: 1/1/2018 - 10/31/2018
- Denominator: 25,595
- Numerator: 3,865

Hospital 7 was not able to map POC glucose lab data at the time of testing, and therefore we could not include this hospital in the calculation of the performance rate. Of note, Hospital 7 did have POC glucose lab data that were available in structured fields, deemed accurate, and captured as part of normal clinical workflow, however these data were not codified using national standards nor were they mapped to such in the EHR system.

Overall Performance Rate for Hospitals 1-6
- Performance Rate: 13.6%
- 95% confidence interval: 13.1%, 14.1%
- Standard deviation: 0.2%

1b.3. **If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.**

N/A

1b.4. **Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability.** *(This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.) For measures that show high levels of performance, i.e., "topped out", disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

Data below are from initial development testing; this eCQM is not yet implemented.

The measure performance was stratified for disparities by age, gender, race, and ethnicity.

Hospital 1 (Alpha dataset per Testing Form)
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator (number of eligible hospital days): 4,776

Hospital 2 (Alpha dataset per Testing Form)
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator (number of eligible hospital days): 1,362

Hospital 3 (Alpha dataset per Testing Form)
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator (number of eligible hospital days): 2,643

Hospital 4 (Alpha dataset per Testing Form)
- Data collection period: 1/1/2018 – 3/31/2018
- Denominator (number of eligible hospital days): 4,219

Hospital 5 (Beta dataset per Testing Form)
- Data collection period: 1/1/2018 - 10/31/2018
- Denominator (number of eligible hospital days): 3,413

Hospital 6 (Beta dataset per Testing Form)
- Data collection period: 1/1/2018 - 10/31/2018

- Denominator (number of eligible hospital days): 3,323

Across Sites (n = 19,736, 6 hospitals)
Age//Denominator//Numerator//Measure Rate (95% Confidence Interval)
18-64//7,471//1,128//15.1% (14.1%, 16.1%)
65+//12,265//1,551//12.6% (12.1%, 13.3%)

Gender//Denominator//Numerator//Measure Rate (95% Confidence Interval)
Male//10,037 //1,265//12.6% (12.0%, 13.3%)
Female//9,699//1,414//14.6% (13.9%, 15.3%)

Race//Denominator//Numerator//Measure Rate (95% Confidence Interval)
Black or African American//1,597//219//13.7% (12.1%, 15.5%)
White//14,094//2,000//14.2% (13.6%, 14.8%)
Other//3,911//450//11.5% (10.5%, 12.6%)
Unknown//134//10//7.5% (3.6%, 13.3%)

Ethnicity//Denominator//Numerator//Measure Rate (95% Confidence Interval)
Hispanic or Latino//1.149//126//11.0% (9.2%, 12.9%)
Non-Hispanic//12,876//1,887//14.7% (14.1%, 15.3%)
Unknown//5,711//666//11.7% (10.8%, 12.5%)

While testing meets or exceeds NQF requirements for number of facilities and EHRs, we note that these results are derived from a small dataset that may not be generalizable to the entire population. The disparities datasets include characteristics that may be documented as 'unknown' in some facilities, which limits the usability of the results.

1b.5. **If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4**
N/A

2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. ***Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.***

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. **Subject/Topic Area** *(check all the areas that apply):*

De.6. **Non-Condition Specific***(check all the areas that apply):*

De.7. **Target Population Category** *(Check all the populations for which the measure is specified and tested if any):*

S.1. **Measure-specific Web Page** *(Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)*
Final measure specifications for implementation will be made publicly available on CMS' appropriate quality reporting website, once the finalized through the NQF endorsement and CMS pre-rulemaking and rulemaking processes.

S.2a. **If this is an eMeasure**, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)
This is an eMeasure **Attachment:** HospitalHarm_BonnieTestCasesResults031519.pdf,HyperG_v5_7_Artifacts.zip

S.2b. **Data Dictionary, Code Table, or Value Sets** *(and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)*
Attachment **Attachment:** Hospital_Harm_Hyperglycemia_Feasibility_Scorecard.xlsx

S.2c. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.
No, this is not an instrument-based measure **Attachment:**

S.2d. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.
Not an instrument-based measure

S.3.1. **For maintenance of endorsement:** Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.
No

S.3.2. **For maintenance of endorsement,** please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.
Although this measure is not undergoing maintenance and is being considered for endorsement as a new measure, we would like to provide a comparison between this new eCQM and the previously NQF-endorsed measure from which it was adapted: #2362e Glycemic Control - Hyperglycemia, which was developed by the Health Services Advisory Group (HSAG). The predecessor measure has been subsequently retired by CMS. Adaptations made to the predecessor specifications are as follows:

Numerator differences:
- The current Hospital Harm – Severe Hyperglycemia eCQM defines a severe hyperglycemic event as a hospital day with at least one blood glucose value >300 mg/dL; or a day in which a blood glucose value was not documented, and it was preceded by two consecutive days where at least one glucose value is >=200 mg/dL.
- The previous NQF-endorsed measure defined hyperglycemic hospital days as days in which: (1) two or more blood glucose levels were elevated (>200 mg/dL [11.1 mmol/L]), measured at least six hours apart; Or (2) a single blood glucose level was elevated, if only one value was available that day; Or (3) no blood glucose level was measured that day, and it was not preceded by two normoglycemic days.

Rationale for the change: Clinical experts supported using a higher threshold to define severe hyperglycemia (>300 mg/dL) as a clearer indication of patient harm. The higher threshold will likely improve the acceptability among clinicians and avoid the unintended consequence of hypoglycemia.

Denominator differences: N/A

Exclusion differences:
- The current Hospital Harm – Severe Hyperglycemia eCQM includes patients on metformin and patients admitted with a diabetic ketoacidosis (DKA) or hyperosmolar hyperglycemic state (HHS).
- The previous NQF-endorsed measure excluded patients on metformin only (i.e., for polycystic ovarian syndrome) and patients admitted with a diagnosis of DKA or HHS.

Rationale for the change: In testing for the current eCQM, a negligible number of patients entered the denominator only through the use of metformin. Clinical experts advised that hospitals should be able to decrease glucose levels below 300 mg/dL within 24 hours for patients admitted for DKA or HHS.

Definition of Hospital Days:

- The current Hospital Harm – Severe Hyperglycemia eCQM uses 24-hour windows starting with the arrival date and time to define hospital days.
- The previous NQF-endorsed measure used calendar days to define hospital days.

Rationale for the change: The new approach is easier for hospitals to compute and simplifies the eCQM logic to exclude hyperglycemia that is present on admission.

Risk Adjustment/Stratification:
- The current Hospital Harm – Severe Hyperglycemia eCQM is not risk adjusted or stratified.
- The previous NQF-endorsed measure stratified results by care units (intensive care unit [ICU] vs. non-ICU), type of patients (medical vs. surgical), and daily cumulative steroid dose (<10 mg, 10-499 mg, and >500 mg prednisone equivalents).

Rationale for the change: Input from our clinical experts indicated that although patients in the ICU and those receiving steroids are at increased risk of hyperglycemia, extreme values over 300 mg/dL are avoidable with careful monitoring and proper medical management.

Measure Calculation:
- The current Hospital Harm – Severe Hyperglycemia eCQM calculates the total number of hyperglycemic days across all encounters divided by the total number of eligible days across all encounters.
- The previous NQF-endorsed measure calculated the average percentage of hyperglycemic hospital days in hyperglycemia for each admission.

Rationale for the change: The new approach accounts for the length of stay and mitigates the impact of extreme values on a hospital's score.

S.4. **Numerator Statement** *(Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.*
IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
The total number of hyperglycemic days across all encounters divided by the total number of eligible days across all encounters. Hospital days are measured in 24-hour periods, starting from the time of arrival at the hospital (including Emergency Department). Days with a hyperglycemic event are defined as:
- A day with at least one blood glucose value >300 mg/dL; or
- A day in which a blood glucose value was not documented and it was preceded by two consecutive days where at least one glucose value is >=200 mg/dL.

We do not count >300 mg/DL events the first 24-hour period after admission to the hospital (including the Emergency Department) or the last time period before discharge, if it was less than 24 hours.

S.5. **Numerator Details** *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)*
IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
This is an eCQM, and therefore uses electronic health record (EHR) data to calculate the measure score. The 24-hour window for data collection is during an inpatient hospitalization, beginning at hospital arrival (whether through the Emergency Department, observation stay, or direct admission to inpatient).

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

Glucose tests are represented by LOINC codes in the value set Glucose Lab Test (2.16.840.1.113762.1.4.1045.134). Codes include laboratory and point-of-care glucose tests, including glucose in blood, serum or plasma, venous blood, and arterial blood; and

fasting glucose in venous blood and serum or plasma.

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/.

S.6. **Denominator Statement** *(Brief, narrative description of the target population being measured)*
The initial population is all patients 18 years and older at the start of the measurement period with a discharged inpatient hospital admission during the measurement period, as well as either:

1. A diagnosis of diabetes that starts before or during the encounter; or
2. Administration of at least one dose of insulin or any anti-diabetic medication during the encounter; or
3. Presence of at least one blood glucose value >200 mg/dL at any time during the encounter.

The eCQM includes inpatient encounters which began in the Emergency Department or in observation status.

The denominator is the total number of eligible days across all encounters which match the initial population criteria. We do not count the the first 24-hour period after admission to the hospital (including the Emergency Department) or the last time period before the discharge, if it was less than 24 hours. By excluding the first 24 hours of admission, we allow for correction of severe hyperglycemia that was present on admission. By excluding the last time period before discharge if it was less than 24 hours, we account for the fact that hospitals may not always be able to check glucose during the last time period, especially if it is only a few hours long. Eligible encounters that exceed 10 days are truncated to equal 10 days.

S.7. **Denominator Details** *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*
IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
This eCQM includes all patients 18 years and older at the start of the measurement period, and all payers. The measurement period is 12 months.

- Glucose tests are represented by LOINC codes in the value set Glucose Lab Test (2.16.840.1.113762.1.4.1045.134).
- Inpatient Encounters are represented using the value set of SNOMEDCT codes (2.16.840.1.113883.3.666.5.307).
- Emergency Department Visits are represented using the value set of SNOMEDCT codes (2.16.840.1.113883.3.117.1.7.1.292).
- Observation Services are represented using the value set of SNOMEDCT codes (2.16.840.1.113762.1.4.1111.143).
- Patients who were given at least one administration of insulin or any anti-diabetic medication during the encounter are defined by the value set of RXNORM codes (2.16.840.1.113883.3.1260.1.1978). This value set includes medications and insulin capable of causing severe hyperglycemia (blood glucose value >300 mg/dL).
- Diabetes are represented using the value set of ICD10CM, ICD9CM, SNOMEDCT codes (2.16.840.1.113883.3.464.1003.103.12.1001). This value set includes patients diagnosed with diabetes before or during the encounter.

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/.

S.8. **Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*
N/A; there are no denominator exclusions.

S.9. **Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*
N/A

S.10. **Stratification Information** *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that*

exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)
N/A; this eCQM is not stratified.

S.11. **Risk Adjustment Type** (Select type. Provide specifications for risk stratification in measure testing attachment)
No risk adjustment or risk stratification
If other:

S.12. **Type of score:**
Ratio
If other:

S.13. **Interpretation of Score** *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*
Better quality = Lower score

S.14. **Calculation Algorithm/Measure Logic** (*Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)*
Target population: Inpatient encounters, all payers, where individuals are aged 18 years and older at the start of the measurement period and have:

1. A diagnosis of diabetes that starts before or during the encounter; or
2. Administration of at least one dose of insulin or any anti-diabetic medication during the encounter; or
3. Presence of at least one blood glucose value >200 mg/dL at any time during the encounter.

To create the denominator:
1. If the inpatient encounter occurred during the measurement period, go to Step 2. If not, do not include in the denominator.
2. Determine the patient's age in years. The patient's age is equal to the measurement period start date minus the birth date. If the patient is at least 18 years old, go to Step 3. If less than 18 years old, do not include in the denominator.
3. Determine if the patient had a diagnosis of diabetes mellitus before or during the hospital encounter, or if the patient was administered at least one dose of insulin or an anti-diabetic medication during the encounter, or if the patient had a glucose level of >200 mg/dL during the hospital encounter. If any of these three conditions exist, then include in the denominator. If not, do not include in the denominator.
4. (As the denominator is measured in days, which are defined as 24-hour periods starting at the time of arrival to the hospital (including the Emergency Department)): if the 24-hour period is not the first 24-hour period of the hospital admission, and is not the last period prior to hospital discharge if less than 24 hours, then include in the denominator. If it is the first 24-hour period or the last period prior to discharge that is less than 24 hours, do not include in the denominator.

a) By excluding for >300 mg/dL events the first 24 hours of admission, we allow for correction of severe hyperglycemia that was present on admission. By excluding the last time period before discharge if it was less than 24 hours, we account for the fact that hospitals may not always be able to check glucose during the last time period, especially if it is only a few hours long.

To create the numerator:
1. During any 24-hour period from arrival to the hospital (including the Emergency Department) except for the first 24-hour period and the last period prior to hospital discharge if less than 24 hours, any 24-hour period with a blood glucose level >300 mg/dL;
Or
2. A 24-hour period in which a blood glucose value was not documented, and it was preceded by two consecutive days where at least one glucose value is >=200 mg/dL.

If either of these 2 events occur, then include in the numerator. If not, do not include in the numerator.

S.15. **Sampling** *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*
IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.
N/A; this eCQM does not use a sample or survey.

S.16. **Survey/Patient-reported data** *(If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)*
Specify calculation of response rates to be reported with performance measure results.
N/A; this eCQM does not use a sample or survey.

S.17. **Data Source** *(Check ONLY the sources for which the measure is SPECIFIED AND TESTED).*
If other, please describe in S.18.
Electronic Health Records

S.18. **Data Source or Collection Instrument** *(Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)*
IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.
Hospitals collect EHR data using certified electronic health record technology (CEHRT). The measure authoring tool (MAT) output, which includes the human readable and XML artifacts of the clinical quality language (CQL) for the eCQM are contained in the specifications attached. No additional tools are used for data collection for eCQMs.

S.19. **Data Source or Collection Instrument** *(available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)*
No data collection instrument provided

S.20. **Level of Analysis** *(Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)*
Facility

S.21. **Care Setting** *(Check ONLY the settings for which the measure is SPECIFIED AND TESTED)*
Inpatient/Hospital
If other:

S.22. **COMPOSITE Performance Measure** - Additional Specifications *(Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)*
N/A

2. Validity – See attached Measure Testing Submission Form
Hospital_Harm_Hyperglycemia_Testing_Attachment_7.29.19.docx

2.1 For maintenance of endorsement
Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

2.2 For maintenance of endorsement
Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

2.3 For maintenance of endorsement
Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. **Data Elements Generated as Byproduct of Care Processes.**

Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, depression score)

If other:

3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

3b.1. **To what extent are the specified data elements available electronically in defined fields** (*i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields*) Update this field for **maintenance of endorsement**.

ALL data elements are in defined fields in electronic health records (EHRs)

3b.2. **If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.** For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

3b.3. **If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.**

Attachment: Hospital_Harm_Hyperglycemia_Feasibility_Scorecard-637075211214470286.xlsx

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. **Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.**

IF instrument-based, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

N/A. This measure is not instrument-based.

3c.2. **Describe any fees, licensing, or other requirements to use any aspect of the measure as specified** *(e.g., value/code set, risk model, programming code, algorithm)*.

There are no fees associated with the use of this eCQM. Value sets are housed in the Value Set Authority Center (VSAC), which is provided by the National Library of Medicine (NLM), in coordination with the Office of the National Coordinator for Health Information Technology and the Centers for Medicare & Medicaid Services.

Viewing or downloading value sets requires a free Unified Medical Language System® (UMLS) Metathesaurus License, due to usage restrictions on some of the codes included in the value sets.

Individuals interested in accessing value set content can request a UMLS license at (https://uts.nlm.nih.gov/license.html).

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. **Current and Planned Use**

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)
Public Reporting Payment Program Not in use	

4a1.1 **For each CURRENT use, checked above (update for maintenance of endorsement), provide:**

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

N/A; this eCQM is under endorsement review and is not currently used in any accountability programs.

4a1.2. **If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons?** (*e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?*)

This eCQM is not currently publicly reported or used in any accountability programs. However, this measure is being developed for the Hospital Inpatient Quality Reporting (HIQR) and the Promoting Interoperability (PI) for Eligible Hospitals and Critical Access Hospitals programs pending NQF endorsement, MAP pre-rulemaking evaluation, and the CMS rulemaking process.

4a1.3. **If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement.** (*Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.*)

N/A; the measure is not in current use. This measure is being developed for the Hospital Inpatient Quality Reporting (HIQR) and the Promoting Interoperability (PI) for Eligible Hospitals and Critical Access Hospitals programs pending NQF endorsement, MAP pre-rulemaking evaluation, and the CMS rulemaking process. CMS also may consider this measure for the Hospital-Acquired Conditions Reduction Program (HAC-RP) at some point in the future pending NQF endorsement, pre-rulemaking and rulemaking processes.

4a2.1.1. **Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.**
How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

N/A; this measure is not publicly reported nor used in any accountability applications. Implementation is planned pending NQF endorsement, MAP pre-rulemaking evaluation, and the CMS rulemaking process.

4a2.1.2. **Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**

N/A; this measure is not publicly reported nor used in any accountability applications. Implementation is planned pending finalization of the NQF endorsement and CMS rulemaking processes.

4a2.2.1. **Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**
Describe how feedback was obtained.
N/A; this measure is not publicly reported nor used in any accountability applications. Implementation is planned pending finalization of the NQF endorsement, MAP pre-rulemaking considerations, and CMS rulemaking processes.

4a2.2.2. **Summarize the feedback obtained from those being measured.**
N/A; this measure is not publicly reported nor used in any accountability applications. Implementation is planned pending finalization of the NQF endorsement and CMS rulemaking processes.

4a2.2.3. **Summarize the feedback obtained from other users**
While this measure does not have usability information from measured entities since it has not been implemented and is being submitted to NQF for endorsement, our team sought input from multiple stakeholder groups throughout the measure development cycle. We follow a transparent measure development process and highly value the feedback received on the measure. During this process, a technical expert panel composed of a variety of stakeholders was engaged at various stages of the development to obtain balanced, expert input. We also solicited and received feedback on the measure through an MMS Blueprint Public Comment Period during development.

4a2.3. **Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**
As noted above, input received from the TEP was instrumental in the development and specification of this measure. Feedback received during public comment was also explored during the measure testing process.

Improvement
Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b1. **Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)**
If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.
This is a newly developed eCQM, which is a significant departure from the retired predecessor measure on glycemic control, so there is no time trend information available regarding facility performance improvement. This eCQM is not currently in use in any quality improvement programs, but a primary goal of is measure is to provide hospitals with performance information necessary to implement focused quality improvement efforts.

4b2. Unintended Consequences
The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4b2.1. **Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.**
We did not identify any unintended consequences during measure development or testing. However, we are committed to monitoring this measure's use and assessing potential unintended consequences for patients over time.

4b2.2. **Please explain any unexpected benefits from implementation of this measure.**
No unexpected benefits were noted during measure development testing.

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same

target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

5. Relation to Other NQF-endorsed Measures
Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.
No

5.1a. **List of related or competing measures (selected from NQF-endorsed measures)**

5.1b. **If related or competing measures are not NQF endorsed please indicate measure title and steward.**

5a. Harmonization of Related Measures
The measure specifications are harmonized with related measures;
OR
The differences in specifications are justified

5a.1. **If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):**
Are the measure specifications harmonized to the extent possible?

5a.2. **If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.**
N/A

5b. Competing Measures
The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);
OR
Multiple measures are justified.

5b.1. **If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):**
Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)
N/A

Appendix

A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.
Attachment:

Contact Information

Co.1 **Measure Steward (Intellectual Property Owner):** Centers for Medicare & Medicaid Services
Co.2 **Point of Contact:** Helen, Dollar-Maples, Helen.Dollar-Maples@cms.hhs.gov, 410-786-7214-
Co.3 **Measure Developer if different from Measure Steward:** IMPAQ International, LLC
Co.4 **Point of Contact:** Stacie, Schilling, nqf@impaqint.com, 443-259-5133-

Additional Information

Ad.1 **Workgroup/Expert Panel involved in measure development**

Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.

Technical Expert Panel Members
David Baker, MD, MPH, The Joint Commission
Cynthia Barnard, PhD, MBA, MSJS, Northwestern Memorial Healthcare
Lisa Freeman, BA, Connecticut Center for Patient Safety
Patrick Guffey, MD, University of Colorado Department of Anesthesiology
David Hopkins, MS, PhD, Stanford University
Kevin Kavanagh, MD, MS, Health Watch USA
Joseph Kunisch, PhD, RN-BC, Memorial Hermann Hospital System
Timothy Lowe, PhD, Premier Inc.
Christine (Chris) Norton, MA, Patient/Consumer/Caregiver
Amita Rastogi, MD, MHA, CHE, MS, Remedy Partners
Karen Zimmer, MD, MPH, Jefferson School of Population Health
Julia Hallisy, The Empowered Patient Coalition (served from March 2017 to September 2017)
Jennifer Meddings, MD, MSc, University of Michigan Health System (served from March 2017 to October 2018)
Eric Thomas, MD, MPH, McGovern Medical School at University of Texas Health (served from March 2017 to October 2018)

Technical Advisory Group Members
Andy Anderson, MD, MBA, FACP, RWJBarnabas Health and Rutgers University
J. Matthew Austin, MS, PhD, John Hopkins Medicine
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John Bott, MSSW, MBA, The Leapfrog Group
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Christine Sammer, DrPH, RN, CPPS, FACHE, Adventist Health System
Brett Stauffer, MD, MHS, Baylor Scott and White Health
Brooks Udelsman, MD/MHS, Massachusetts General Hospital
Boback Ziaeian, MD, PhD, UCLA
Similar to the TEP, these Technical Advisory Group members responded to the posted Call for TEP members. The Technical Advisory Group was used in a manner similar to a TEP, providing feedback on clinical acceptability of measure specifications and feasibility of the measure.

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 **Year the measure was first released:**

Ad.3 **Month and Year of most recent revision:**

Ad.4 **What is your frequency for review/update of this measure?** We anticipate annual updates and potentially triannual endorsement maintenance cycles.

Ad.5 **When is the next scheduled review/update for this measure?**

Ad.6 **Copyright statement:** Limited proprietary coding is contained in the Measure specifications for user convenience. Users of proprietary code sets should obtain all necessary licenses from the owners of the code sets. CPT(R) contained in the Measure specifications is copyright 2004-2016 American Medical Association. LOINC(R) copyright 2004-2016 Regenstrief Institute, Inc. This material contains SNOMED Clinical Terms(R) (SNOMED CT[R]) copyright 2004-2016 International Health Terminology Standards

Development Organisation. ICD-10 copyright 2016 World Health Organization. All Rights Reserved.

Ad.7 **Disclaimers:** This measure and specifications are subject to further revisions. This performance measure is not a clinical guideline and does not establish a standard of medical care, and has not been tested for all potential applications. THE MEASURES AND SPECIFICATIONS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. Due to technical limitations, registered trademarks are indicated by (R) or [R] and unregistered trademarks are indicated by (TM) or [TM].

Ad.8 **Additional Information/Comments:** This measure was originally developed, specified, and tested by Yale New Haven Health Service Corporation Center for Outcomes Research and Evaluation, and by Mathematica Policy Research on behalf of the Centers for Medicare and Medicaid Services (CMS). IMPAQ International, LLC assumed developer responsibility for this measure in March 2019.