Measure Information Form

Measure Name

Specifications Tab

Descriptive Information

Measure Name (Measure Title De.2.)

NQF 2363: Glycemic Control – Severe Hypoglycemia

Measure Type De.1.

Intermediate Outcome

Brief Description of Measure De.3.

The rate of severe hypoglycemic events following the administration of an anti-diabetic agent

If Paired or Grouped De.4.

This measure is paired with NQF 2362: Glycemic Control – Hyperglycemia. The purpose of the pairing is to serve as a balancing measure and avoid unintended consequences.

Subject/Topic Areas De.5.

Endocrine: Diabetes
Cross Cutting Areas: Safety: Safety, Safety: Medication Safety

Measure Specifications

Measure-Specific Web Page S.1.

Not applicable

If This is an eMeasure S.2a.

Health Quality Measure Format (HQMF) specifications are available on the Office of the National Coordinator (ONC) Project Tracking System under eCQM Development Project (i.e., MUCD Project):
http://jira.oncprojectracking.org/i#browse/MUCD-45

Data Dictionary Code Table S.2b.

Not applicable

For Endorsement Maintenance S.3.

Not applicable

Numerator Statement S.4.

Total number of severe hypoglycemic events (<40 mg/dL) that were preceded by administration of rapid/short-acting insulin within 12 hours or an anti-diabetic agent other than rapid/short-acting insulin within 24 hours, were not followed by another glucose value greater than 80 mg/dL within five minutes, and were at least 20 hours apart

Time Period for Data S.5.

Measure data will be aggregated annually (12 months) and reported on a rolling quarter.

Numerator Details S.6.

Table 1. LOINC Codes Used to Identify Glucose Tests*
2309-0 – Glucose [Mass/Volume] in Blood
2340-8 – Glucose [Mass/Volume] in Blood by Test Strip Auto
2341-6 – Glucose [Mass/Volume] in Blood by Test Strip Manual
2345-7 – Glucose [Mass/Volume] in Serum or Plasma
32016-8 – Glucose [Mass/Volume] in Capillary Blood
41651-1 – Glucose [Mass/Volume] in Arterial Blood
41652-9 – Glucose [Mass/Volume] in Venous Blood
41653-7 – Glucose [Mass/Volume] in Capillary Blood by Glucometer

*Definition of eligible glucose tests: random or peri-prandial blood (capillary, serum, plasma, whole blood) glucose tests excluding fasting or post-glucose
Note: Laboratory and point-of-care glucose tests are both required for the calculated measure rate to be valid.

Denominator Statement S.7.

Total number of hospital days with at least one anti-diabetic agent administered

Target Population Category S.8.

Populations at Risk: Populations at Risk

Denominator Details S.9.

The following are the diabetic medications by class for the denominator. The route of administration includes all oral, inhalation, and injectable formulations of the medications listed below.

Table 2. Anti-Diabetic Medications
Generic Names – Brand Names – Rx Norm Codes:

Metformin:
metformin – (Glucophage, Riomet, Glumetza, Fortamet, Appformin) – (476506, 358336, 860996, 860975, 860981, 541765, 311571, 311570, 311572, 861025, 860999, 861004, 860978, 861007, 860984, 861010)

Anti-Diabetic Amylin Analogs:
pramlintide – (Symlin) – (861042, 861044, 861039, 861035)

Anti-Diabetic Combinations:
glipizide-metformin (Metaglip, Glipizide/Metformin HCL) – (861731, 861736, 861740)
glyburide-metformin (Glucovance, Glyburide/Metformin HCL) – (861743, 861748, 861753)
linagliptin-metformin
pioglitazone-glimepiride (Duetact) – (647237, 647239)
pioglitazone-metformin (Actoplus MET) – (899989, 899996, 899994, 900001, 861783, 861822)
rosiglitazone-glimepiride (Avandaryl) – (602544, 602549, 706895, 602550, 706896)
rosiglitazone-metformin (Avandamet) – (861760, 861763, 861806, 861816)
saxagliptin-metformin (Kombiglyze) – (1043563, 1043570, 1043578, 1043568, 1043575, 1043583)

sitagliptin-metformin (Janumet) – (861769, 861819)
repaglinide-metformin (Prandimet) – (861787, 861790)
sitagliptin-simvastatin (Juvisync) – (1189804, 1189808, 1189821)

Dipeptidyl Peptidase-4 (dpp-4) Inhibitors:
sitagliptin – (Januvia) – (665033, 665038, 665042)
saxagliptin – (Onglyza) – (858042, 858036)
linagliptin – (Tradjenta) – (1100702)

Incretin Mimetics:
exenatide – (Byetta, Bydureon) – (847915, 847910)
liraglutide – (Victoza) – (897122)

Insulin:
insulin detemir – (Levemir) – (847239, 484322)
insulin glargine – (Lantus, Solostar) – (847230, 311041)
insulin isophane & reg (human) – (Humulin, Novolin, Relion) – (245265, 311048, 847187, 847256)
insulin isophane (human) – (Humulin, Novolin, Relion) – (311028, 847278, 847197)

Rapid/Short-Acting Insulin:
insulin aspart – (Novolog) – (311040, 847263)
insulin aspart protamine & aspart (human) – (Novolog) – (847191, 351297)
insulin glulisine – (Apidra) – (847259, 485210)
insulin lispro (human) – (Humalog) – (847207, 847416, 242120)
insulin lispro protamine & lispro (human) – (Humalog) – (847252, 847211, 259111, 260265)
insulin regular (human) includes inhalation – (Humulin, Exubera, Novolin) – (763020, 763015, 847417, 847203, 763002, 763007, 763013, 763014, 311034, 249220)

Meglitinides:
nateglinide – (Starlix) – (311919, 314142)
repaglinide – (Prandin) – (200257, 200256, 200258)

Sulfonylureas:
chlorpropamide – (Diabinese) – (197495, 197496)
glimepiride – (Amaryl) – (199245, 199246, 199247)
glipizide – (Glucotrol) – (315107, 310489, 314006, 844827, 310488, 844809, 844824, 310490)
glyburide – (Micronase, Diabeta) – (197737, 310534, 310537)
tolazamide – (Tolazamide) – (198292, 198293)
tolbutamide – (Tolbutamide) – (198294)
glyburide micronized – (Glynase, Glycron) – (252960, 310536, 310539, 314000)

Thiazolidinediones:
pioglitazone – (Actos) – (317573, 312440, 312441)
rosiglitazone – (Avandia) – (312859, 312860, 312861)

Denominator Exclusions (NQF Includes "Exceptions" in the "Exclusion" Field) S.10.

Admissions with lengths of stay greater than 120 days are excluded.

Denominator Exclusion Details (NQF Includes "Exceptions" in the "Exclusion" Field) S.11.

Not applicable

Stratification Details/Variables S.12.

None

Risk Adjustment Type S.13.

No risk adjustment or risk stratification

Statistical Risk Model and Variables S.14.

Not applicable

Detailed Risk Model Specifications S.15.

Not applicable

Type of Score S.16.

Ratio

Interpretation of Score S.17.

Better quality = lower score

Calculation Algorithm/Measure Logic S.18.

Target Population: Inpatient admissions/encounters where individuals are at least 18 years of age as of the admission date, both admission and discharge dates are within the measurement period, and the length of stay is less than or equal to 120 days

Denominator: Total number of hospital days with at least one anti-diabetic agent administered

Create Denominator:

1. Was the admission during the measurement period? If Yes, go to Step 2. If No, exclude from measure population.
2. Determine the patient's age in years. The patient's age is equal to the admission date minus the birth date. If the patient is at least 18 years of age, go to Step 3. If less than 18 years of age, exclude from the measure population.
3. Determine the length of hospital stay in days. The length of stay is equal to the discharge date minus the admission date. If the length of stay is less than or equal to 120 days, move to Step 4. If the length of stay is greater than 120 days, exclude from the measure population.
4. Determine if there was at least one anti-diabetic medication (Table 2) administered. If Yes, go to Step 5. If No, exclude from the measure population.
5. For each admission, determine the number of hospital days that had at least one anti-diabetic medication administered.
6. Sum the number of hospital days identified in Step 5 from all the qualifying admissions; this is the denominator for the measure population.

Numerator: Total number of severe hypoglycemic events (<40 mg/dL) that were preceded by administration of rapid/short-acting insulin within 12 hours or an anti-diabetic agent other than rapid/short-acting insulin within 24 hours, were not followed by another glucose value greater than 80 mg/dL within five minutes, and were at least 20 hours apart

Create Numerator:

1. Determine if, during the admission, any random or peri-prandial blood glucose tests were conducted (Table 1). If Yes, go to Step 2. If No, exclude from the measure population.
2. Determine if the admission included blood glucose results of less than 40 mg/dL from either random or peri-prandial blood glucose tests. If Yes, go to Step 3. If No, exclude from the measure population. Each result of less than 40 mg/dL from a random or peri-prandial blood glucose test indicates a Hypoglycemic Event.
3. For each Hypoglycemic Event identified in the admission, determine if there was an administration of a rapid/short-acting insulin within 12 hours or any other anti-diabetic medication within 24 hours before the event (Table 2). If Yes, go to Step 4. If No, then the event is excluded from the measure population.
4. For each remaining Hypoglycemic Event, determine that there was not a blood glucose result that was greater than 80 mg/dL within five minutes of the event. If Yes, go to Step 5. If No, exclude the event from the measure

population.
5. For each remaining Hypoglycemic Event, determine if this event occurred more than 20 hours after the previous event. If Yes, then this event is a valid event; go to Step 6. If No, exclude the event from the measure population.
6. Determine the total number of valid Hypoglycemic Events remaining from all the qualifying admissions. This is the numerator for the measure population.

Calculation Algorithm/Measure Logic Diagram URL or Attachment S.19.

Not applicable

Sampling S.20.

Not applicable; this measure does not use a sample or survey.

Survey/Patient-Reported Data S.21.

Not applicable; this measure does not use a sample or survey.

Missing Data S.22.

Missing data in the electronic health record (EHR) environment can occur due to oversight or when ascertainment or documentation is not considered relevant for clinical or administrative purposes. One concern is that patients may not have certain laboratory values because they are not deemed clinically indicated by the respective provider. This scenario will create missing data, which can only be remediated if ascertainment and documentation were required for measurement purposes (as they are not for clinical reasons). In order to optimize the validity of available information, safeguards have been incorporated into the measure specifications, where hospital variation may introduce bias in measurement or documentation.

Formative and field testing revealed that distinct data fields that were expected to be fully populated did not have missing values. These concerned socio-demographic and payer information, assignment of at least one diagnosis code, and admission and discharge dates.

Data Source S.23.

Electronic Clinical Data: Electronic Clinical Data
Electronic Clinical Data: Electronic Health Record
Electronic Clinical Data: Laboratory
Electronic Clinical Data: Pharmacy

Data Source or Collection Instrument S.24.

- Hospital electronic health record (EHR) data
- For measure calculation, the following EHR data are required:
  - Inpatient (IP) Master Patient file with demographic, diagnostic, and procedural information for inpatients
  - Glucose Tests file with the names, results, and times of glucose tests
  - Medication administration records (MARs) for anti-diabetic drugs
  - Location file with the care units and the start and end times of patients' stays

Data Source or Collection Instrument (Reference) S.25.

Not applicable

Level of Analysis S.26.

Facility

Care Setting S.27.

Hospital/Acute Care Facility

Composite Performance Measure S.28.

Not applicable

Version Number and Effective Date

Version 1.0
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Measure Steward

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