Measure Information Form (MIF): Community-Onset Sepsis – 30-Day Mortality

Patient Safety Measure Development and Maintenance

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SUBMITTED TO
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Center for Clinical Standards and Quality (CCSQ)

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PROJECT
Patient Safety Measure Development and Maintenance
Contract Number: 75FCMC18D0027

TASK & DELIVERABLE
Chapter 3 Information Gathering
Deliverable 3-3 Measure Information Form

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TABLE OF CONTENTS

Overview

PROJECT TITLE: Patient Safety Measure Development and Maintenance

DATE: Information included is current as of May 13, 2022.

PROJECT OVERVIEW: The Centers for Medicare & Medicaid Services (CMS) has contracted with AIR to develop, maintain, reevaluate, and implement patient safety measures for CMS' hospital-level quality reporting programs. The contract name is Patient Safety Measure Development and Maintenance. The contract number is 75FCMC18D0027 (Task Order: 75FCMC19F0001)

1. Measure Name

Community-Onset Sepsis – 30-Day Mortality

2. Descriptive Information

2.1 MEASURE TYPE

Outcome

2.2 BRIEF DESCRIPTION OF MEASURE

This hybrid electronic clinical quality measure (eCQM), with risk adjustment, assesses the proportion of inpatient hospitalizations for adult patients admitted with community-acquired sepsis who die within 30 days of presentation.

The detailed specifications for this measure are still in development and this measure has not gone through the testing process.

2.3 IF PAIRED OR GROUPED

Not Applicable.

3. Measure Specifications

3.1 MEASURE-SPECIFIC WEB PAGE

Not Applicable

3.2 HQMF SPECIFICATIONS

The detailed specifications for this measure are still in development and have not gone through the testing process.

3.3 DATA DICTIONARY, CODE, TABLE, OR VALUE SETS

Codes are still in development undergoing review.

Value Set Name	Hyperlink to the Value Set Authority Center
Anticoagulants for All Indications	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.22
aPTT Tests	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.109
Bilirubin Mass Per Volume	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.108
Body temperature	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1045.152
COVID 19	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.140
Creatinine Mass Per Volume	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.21
Discharged Against Medical Advice	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.110
Discharged Alive	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.111
Do Not Resuscitate Status	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.129
Heart Rate	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.100
Hospice Care	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.112
Immune Modulators	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.124
Infection	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.98
Influenza	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.116
INR	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.117.1.7.1.213
IV Antibiotics for Sepsis	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.17.4077.2.2059
Mean Arterial Pressure	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.103
Mechanical Ventilation	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.107
Medicare payer	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1104.10
Platelet Count	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.117.1.7.1.267
Present on Admission or Clinically Undetermined	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1147.197
Respiratory Rate	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.101
Sepsis	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.99
Systolic Blood Pressure	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.104
Vasopressors	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1248.102
White blood cells count lab test	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1045.129

3.4 INSTRUMENT-BASED MEASURE

Not Applicable.

3.5 ENDORSEMENT MAINTENANCE

Not Applicable. This is a *de novo* measure.

3.6 NUMERATOR STATEMENT

Discharges for patients meeting the denominator criteria who die within 30 days of presentation to the hospital with severe sepsis.

The detailed specifications for this measure are still in development and has not gone through the testing process.

3.7 NUMERATOR DETAILS

This is a hybrid eCQM, and therefore uses electronic health record data together with data from Medicare claims and Medicare beneficiary eligibility files to calculate the measure score. The time period for data collection begins during an inpatient hospitalization, at hospital arrival (whether through emergency department, observation stay, or directly admitted as inpatient), and encompasses all deaths within 30 days recorded by Medicare.

Additional details of the specifications for this measure are still in development.

3.8 DENOMINATOR STATEMENT

Inpatient hospitalizations of Medicare beneficiaries between 18 and 115 years of age at the start of the encounter meeting the definition for severe sepsis.

3.9 DENOMINATOR DETAILS

This measure includes all Medicare beneficiaries between 18 and 115 years of age at the time of admission. Measurement period is one year. The measure is at the hospital admission level; only one numerator event is counted per encounter.

Severe sepsis is defined as a combination of clinical findings, suspected infection, and organ dysfunction, as follows:

- Clinical findings, based on Systemic Inflammatory Response Syndrome (SIRS) criteria (≥2 of the following criteria within 6 hours of presentation):
    - Temperature >38^{o} C or <36^{o} C
    - HR >90/min
    - RR >20/min
    - WBC >12,000 or <4,000 cells/mm^{3}
- Suspected infection (either of the following criteria):
    - ICD-10-CM diagnosis of infection (of suspected bacterial origin) or sepsis present on admission (POA)
    - Administration of antibiotics within 30 hours of presentation and continuation for ≥3 days or until discharge
- Presence of organ dysfunction (≥1 of the following criteria within 6 hours of presentation, in the absence of an alternative explanation):
    - Administration of vasopressors
    - Mean arterial pressure (MAP) <65 mmHg or Systolic Blood Pressure (SBP) <90 mmHg
    - Initiation of mechanical ventilation
    - Creatinine >2.0 mg/dL (and at least 0.5 greater than, or 2x, baseline value)
    - Total bilirubin >2.0 mg/dL
    - Platelet count <100,000/mm^{3}
    - INR >1.5 or aPTT >60 sec

The detailed specifications for this measure are still in development and has not gone through the testing process.

3.10 DENOMINATOR EXCLUSIONS

Exclude inpatient hospitalizations for patients:

- Who lack continuous Medicare fee-for-service (FFS) Part A and B enrollment. Continuous enrollment is a duration of at least 30 days before through 30 days after the encounter start date
- Discharged against medical advice
- Discharged alive within 6 hours of presentation
- Who had a prior enrollment in hospice
- Who had a prior inpatient episode of sepsis within a 30-day window (not transferred)
- Who had a hospitalization following transfer from another facility's ED or inpatient care
- Who had an influenza or COVID-19 infection present on admission

3.11 DENOMINATOR EXCLUSION DETAILS

TBD. The detailed specifications for this measure are still in development.

3.12 STRATIFICATION DETAILS AND VARIABLES

Not Applicable.

3.13 RISK ADJUSTMENT TYPE

Statistical risk model

3.14 TYPE OF SCORE

Rate/proportion

3.15 INTERPRETATION OF SCORE

A lower score is indicative of better quality.

3.16 CALCULATION ALGORITHM AND MEASURE LOGIC

To calculate the hospital-level measure result, divide the total numerator events by the total number of qualifying encounters (denominator).

Qualifying encounters (denominator) include inpatient hospitalizations of Medicare beneficiaries between 18 and 115 years of age at the start of the encounter who meet the definition for severe sepsis.

Severe sepsis is defined as a combination of clinical findings, suspected infection, and organ dysfunction, as follows:

Clinical findings, based on Systemic Inflammatory Response Syndrome (SIRS) criteria (≥2 of the following criteria within 6 hours of presentation):

- Temperature >38o C or <36o C
- HR >90/min
- RR >20/min
- WBC >12,000 or <4,000 cells/mm3

Suspected infection (any one of the following criteria):

- Diagnosis of infection (of suspected bacterial origin) present on admission (POA)
- Diagnosis of sepsis present on admission (POA)
- Administration of antibiotics within 30 hours of presentation and continuation for ≥3 days or until discharge

Presence of organ dysfunction (≥1 of the following criteria within 6 hours of presentation, in the absence of an alternative explanation):

- Administration of vasopressors
- Mean arterial pressure (MAP) <65 mmHg or Systolic Blood Pressure (SBP) <90 mmHg
- Initiation of mechanical ventilation
- Creatinine >2.0 mg/dL (and at least 0.5 greater than, or 2x, baseline value)
- Total bilirubin >2.0 mg/dL
- Platelet count <100,000/mm3
- INR >1.5 or aPTT >60 sec Start with those encounters that meet the denominator.

Remove all encounters for patients:

- Who lack of continuous Medicare fee-for-service (FFS) Part A and B enrollment. Continuous enrollment is a duration of at least 30 days before through 30 days after the encounter start date

- Discharged against medical advice
- Discharged alive within 6 hours of presentation
- Who had a prior enrollment in hospice
- Who had a prior inpatient episode of sepsis within a 30-day window (not transferred)
- Who had a hospitalization following transfer from another facility's ED or inpatient care
- Who had an influenza or COVID-19 infection present on admission

To create the numerator, count those discharges for patients who die within 30 days of presentation to the hospital with severe sepsis.

3.17 SAMPLING

Not Applicable

3.18 SURVEY/PATIENT-REPORTED DATA

Not Applicable

3.19 DATA SOURCE

Electronic clinical health record data and Medicare claims data

3.20 DATA SOURCE OR COLLECTION INSTRUMENT

Hospitals collect EHR data using certified electronic health record technology (CEHRT). The MAT output includes the human readable and XML artifacts of the clinical quality language (CQL) for the measure. No additional tools are used for data collection for eCQMs. Claims data and data from the Medicare beneficiary eligibility files are also used.

3.21 DATA SOURCE OR COLLECTION INSTRUMENT REFERENCE

No data collection instrument is used.

3.22 LEVEL OF ANALYSIS

Facility

3.23 CARE SETTING

Inpatient/Hospital

3.24 COMPOSITE PERFORMANCE MEASURE

Not Applicable