CMS Measures Management System (MMS) Hub

Measure Information Form and Instructions

Project Title: Diagnostic Delay of Venous Thromboembolism in Primary Care (DOVE) eCQM

Date: Information included is current on *01/12/2023.*

Project Overview: The Centers for Medicare & Medicaid Services (CMS) contracted with *Brigham and Women's Hospital* to develop *the Diagnostic Delay of Venous Thromboembolism in Primary Care (DOVE) eCQM.* The *contract* name is *Diagnosis of Venous Thromboembolism (VTE) in Primary Care: A Data Science and Machine Learning Approach*. The *contract* number is *2020P003979.*

1. Measure Name/Title (CMS Consensus-Based Entity [CBE] Measure Submission Form, Measure Specifications sp.01)

Briefly convey as much information as possible about the measure focus and target population.

Diagnostic Delay of Venous Thromboembolism in Primary Care (DOVE)

2. Descriptive Information

2.1 Measure Type

Identify a measure type from the list. Patient-reported outcome-based performance measures (PRO-PMs) include health-related quality of life, functional status, symptom burden, and health-related behavior. For composite measures, please also identify the measure type of the components.

- ☐process
- ☒outcome
- ☐PRO-PM
- ☐cost /resource use
- ☐efficiency
- ☐structure
- ☐intermediate outcome
- ☐population health
- ☐composite
  - ☐process
  - ☐outcome
  - ☐other
- ☐other

2.2 Brief Description of Measure (CMS CBE Measure Submission Form, Measure Specifications sp.02 and sp.06)

This description should be concise and include type of score, measure focus, target population, and time frame.

This eCQM assesses the rate of delayed diagnosis of VTE in the primary care setting. Delayed diagnosis is defined as diagnosis of VTE that occurs >24 hours following a primary care visit where VTE symptoms were first present. (within 30 days) The target population for this measure is all patients, 18 years and older, across all payers.

2.3 If Paired or Grouped (CMS CBE Measure Submission Form, Measure Specifications sp.03)
Provide the reason why you must report the measure with other measures to interpret results appropriately.

This measure is not paired or grouped with any other measures.

3. Measure Specifications
These items follow the CMS CBE requirements for measure submission and provide information required for measure evaluation.
3.1 Measure-Specific Webpage (CMS CBE Measure Submission Form, Measure Specifications sp.09)
Provide a Uniform Resource Locator (URL) link, if available, to a webpage where you can obtain current, detailed specifications, including code lists, risk adjustment model details, and supplemental materials. Do not enter a URL linking to a home page or to general information. If no URL is available, indicate N/A.

None available

3.2 If this is an electronic clinical quality measure (eCQM) (CMS CBE Measure Submission Form, Measure Specifications sp.10)
If not an eCQM, state N/A.
If an eCQM, attach the zipped output from the Measure Authoring Tool (MAT) and Bonnie testing results. Use the specification fields from the online form for the plain language description of the specifications.

Bonnie testing (where 100% of patients passed) and MAT Human Readable files are attached.

3.3 Data Dictionary, Code Table, or Value Sets (CMS CBE Measure Submission Form, Measure Specifications sp.11)
Attach the data dictionary, code table, or value sets (and risk model codes and coefficients when applicable). The preferred file format is either .xls or .csv. If not used, contact CMS for further directions.

Value sets and data dictionary are attached.

3.4 For an instrument-based measure (CMS CBE Measure Submission Form, Measure Specifications sp.23 and sp.24)
If not an instrument-based measure, indicate N/A.
Attach copy of the instrument, if available.
Indicate the responder (i.e., patient, family or other caregiver, clinician) or indicate if not an instrument-based measure.

N/A, not instrument based.

3.5 Updates since last submission (CMS CBE Measure Submission Form, Specifications: Maintenance Update spma.01 and spma.02)

If this is the first submission, state N/A.
Are there changes to the specifications since the last updates/submission? If yes, update the specifications for 3.1 (CMS CBE Measure Submission Form, Measure Specifications sp.09) and 3.6-3.24 (CMS CBE Measure Submission Form, Measure Specifications sp.12-sp.22, sp.25-sp.30) and explain reasons for the changes here (CMS CBE Measure Submission Form, Measure Specifications sp.07, sp.08, and sp.12).
Briefly describe any changes to the measure specifications since the last endorsement date and explain the reasons for the changes.

N/A, new measure.

3.6 Numerator Statement (CMS CBE Measure Submission Form, Measure Specifications sp.12)

Briefly describe the measure focus or what the measure measures about the target population—cases from the target population with the target process, condition, or event based on the evidence.
For example:
Patients in the target population who received/had [measure focus] {during [time frame]} if different from the target population
Do not include the rationale for the measure.
For outcome measures, state the measured outcome. Describe calculation of the risk-adjusted outcome later in the calculation algorithm. (CMS CBE Measure Submission Form, Measure Specifications sp.22)

The subset of the denominator where the patient's VTE diagnosis occurs greater than 24 hours following a primary care visit (within 30 days).

3.7 Numerator Details (CMS CBE Measure Submission Form, Measure Specifications sp.13)

Include all information necessary to identify and calculate the cases from the target population with the target process, condition, event, or outcome. Provide definitions and specific data collection items and responses. For measures based on a coded data set, identify the code set, the specific codes, and the code descriptors. If using this to format submissions to the CMS CBE, and the list of codes and descriptors exceeds one page, provide the list in a Microsoft Excel or .csv file.
For outcome measures, describe how to identify and count the observed outcome. The calculation algorithm should also describe how to calculate the risk adjustment. (CMS CBE Measure Submission Form, Measure Specifications sp.22)
Provide the time period for measure data aggregation (e.g., 12 months, 3 years, another specified look-back period).

A patient is included in the numerator if they are included in the denominator population and their VTE diagnosis occurs > 24 hours following their primary care visit.

3.8 Denominator Statement (CMS CBE Measure Submission Form, Measure Specifications sp.14)

Provide a narrative description of the broadest population (based on the evidence) for which the target process, condition, event, or outcome is applicable. Include the time period for measure data aggregation, if different from the numerator.
Example
Patient [age] with [condition] in [setting] during [time frame]
For outcome measures, state the target population for the outcome. The calculation algorithm should also describe how to calculate the risk adjustment. (CMS CBE Measure Submission Form, Measure Specifications sp.22)

All adult patients (18+) presenting in primary care with VTE-related symptoms who are diagnosed with VTE following a primary care visit (within 30 days). VTE-related symptoms are identified in the EHR either as structured data (using the VTE-related symptoms value set, OID 2.16.840.1.113762.1.4.1206.51) or identified in unstructured data I clinical notes by a natural language processing (NLP) algorithm. A VTE diagnosis is defined using ICD billing codes, CPT imaging codes, and RxNorm codes for therapeutic anticoagulants, all three codes must be present for an eligible VTE encounter.

Table 1: VTE-related symptoms:

cough	hypotension	lightheadedness
syncope	tachycardia	hemoptysis
shortness of breath	calf pain	leg pain
foot pain	Calf numbness	leg numbness
foot numbness	calf tingling	leg tingling
foot tingling	calf redness	leg redness
foot redness	calf swelling	leg swelling
foot swelling	calf tenderness	leg tenderness
foot tenderness	calf warmth	leg warmth
foot warmth		

3.9 Denominator Details (CMS CBE Measure Submission Form, Measure Specifications sp.15)
Provide all definitions and instructions needed to identify and calculate the target population/ denominator (e.g., definitions, time period for data collection, specific data collection items/responses, codes/value sets). For measures based on a coded data set, identify the code set, the specific codes, descriptors, definitions, and specific data collection items as appropriate. (If using this to format submissions to CMS CBE, and the list of codes and descriptors exceeds one page, provide the list in an .xls or .csv file in the required format listed in CMS CBE Measure Submission Form, Measure Specifications sp.11.)
For outcome measures, describe how to identify the target population. The calculation algorithm should also describe how to calculate the risk adjustment. (CMS CBE Measure Submission Form, Measure Specifications sp.22)
To be included in the measure cohort for analysis, patients must meet the following inclusion criteria.

1. Aged 18 years or older on the date of the primary care visit
2. A primary care visit is defined as an office visit with a provider of any of the following specialties
    - Family medicine

- General Medicine
- Internal Medicine
- Nurse Practitioner
- Physician Assistant

3. Have any VTE-related symptoms recorded during their primary care visit (see **Table 1**)
4. Receive a diagnosis of Venous Thromboembolism within 30 days of their primary care visit. For a patient to have a VTE diagnosis, they must have all of the following (see attached value sets for relevant codes):
    - ICD-10 CM code for VTE.
    - CPT Imaging scan for VTE linked to the same encounter as the ICD-10 code.
    - Anticoagulant order placed within the same encounter as the imaging scan.

3.10 Denominator Exclusions (CMS CBE Includes "Exception" in the "Exclusion" Field) (CMS CBE Measure Submission Form, Measure Specifications sp.16)

If no denominator exclusions, state N/A and skip to 3.12.
Identify patients in the target population who should not receive the process (i.e., medical treatment), or are not eligible for the outcome for some other reason, particularly if their inclusion may bias results. Exclusion should be evidence-based. If no denominator exclusions, indicate N/A and skip to 3.12.
Example
Patients in the [target population] who [have some additional characteristic, condition, procedure]

This eCQM excludes patients who are on hospice or palliative care.

3.11 Denominator Exclusion Details (CMS CBE Includes "Exception" in the "Exclusion" Field) (CMS CBE Measure Submission Form, Measure Specifications sp.17)

Provide all information needed to identify and calculate exclusions from the denominator (e.g., definitions and/or specific data collection items and responses). For measures based on a coded data set, identify the code set, specific codes, descriptors, definitions, and specific data collection items for the codes as appropriate. Provide lists of individual codes with descriptors that exceed one page in an .xls or .csv file in the required format listed in 3.3. (CMS CBE Measure Submission Form, Measure Specifications sp.11)

Patients will be excluded from the denominator if:

1. Patient is on hospice or palliative care
    - *Rationale: These patients have different goals than non-hospice or palliative care patients which may affect their VTE diagnosis.*

Denominator Exclusion Value Sets		
Hospice care	Brigham and Women's Hospital	*2.16.840.1.113762.1.4.1108.15*
Palliative care	Brigham and Women's Hospital	*2.16.840.1.113883.3.464.1003.101.12.1090*

3.12 Stratification Details/Variables (CMS CBE Measure Submission Form, Measure Specifications sp.18)

Provide instructions for calculating the measure by category (e.g., age), including the stratification variables, all codes, logic, definitions, specific data collection items/responses, and the risk model

covariate and coefficients for the clinically adjusted version of the measure, when appropriate. Provide lists of individual codes with descriptors that exceed one page in an .xls or .csv file in the required format listed in 3.3. (CMS CBE Measure Submission Form, Measure Specifications sp.11)

The measure is not stratified.

3.13 Risk Adjustment Type (CMS CBE Measure Submission Form, Measure Specifications sp.19)
Select the risk adjustment type. Provide specifications for risk stratification in 3.14 (CMS CBE Measure Submission Form, Measure Specifications sp.20) and for the statistical model in 3.16-3.17 (CMS CBE Measure Submission Form, Measure Specifications sp.22, sp.25, and sp.26).

☒ no risk adjustment or risk stratification
☐stratification by risk category/subgroup
☐statistical risk model
☐other

3.14 Type of Score (CMS CBE Measure Submission Form, Measure Specifications sp.20)

☐count
☒ rate/proportion
☐ratio
☐categorical (e.g., yes or no)
☐continuous variable (CV) (e.g., an average)
☐composite/scale
☐other (specify) Click or tap here to enter text.

3.15 Interpretation of Score (CMS CBE Measure Submission Form, Measure Specifications sp.21)
Provide an interpretation that classifies whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score.

A lower score is indicative of higher quality of care.

3.16 Calculation Algorithm/Measure Logic (CMS CBE Measure Submission Form, Measure Specifications sp.22)
Describe the sequence of steps necessary to calculate the measure score, including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; time period of data; and any other calculations.
You may provide a diagram of the calculation algorithm/measure logic at a measure-specific webpage URL identified in 3.1 (CMS CBE Measure Submission Form, Measure Specifications sp.09) or in an attached appendix.

Step 1: define the target population:

Identify all patients aged 18 years or older who presented in primary care with VTE-related symptoms (identified in the clinical notes by the NLP algorithm) who are diagnosed with VTE following a primary care visit within 30 days.

Step 2: define the denominator:
Identify qualifying VTE events. A qualifying VTE event is defined using the following three criterion within 30 days of the primary care visit (all must be present for measure inclusion):

- ICD-10 CM code for VTE.
- CPT codes of imaging for VTE linked to the same encounter as the ICD billing codes relating to VTE.
- RxNorm anticoagulant order placed within the same encounter as the imaging scan.

Apply the exclusion criteria (patients in hospice or palliative care within 90 days of the eligible encounter) to all patients from the target population. If a VTE patient has more than one eligible presentation to primary care within 6 months after applying the exclusion criteria, we will use the first eligible admission and exclude subsequent eligible admissions in that period.

Step 3: define the numerator:
Identify all patients from the denominator who had a VTE diagnosed >24 hours following a primary care visit (within 30 days) where the patient presented with VTE symptoms.

Step 4: calculate the rate:
Divide the number of patients in the numerator (Step 3) by the number of patients in the denominator (Step 2) and multiple by 100. The measure is reported as a percentage: XX out of 100.

3.17 Sampling (CMS CBE Measure Submission Form, Measure Specifications sp.25 and sp.26)
If the measure is based on a sample or survey, provide instructions for obtaining the sample and conducting the survey, along with minimum response rate required. If the measure is an instrument-based quality measure (e.g., PRO-PM), identify whether (and how) to allow proxy responses.

Not applicable; this measure is not based on a sample.

3.18 Survey/Patient-Reported Data (CMS CBE Measure Submission Form, Measure Specifications sp.27)
If the measure is not based on a survey or instrument, state N/A.
If the measure is based on a survey or instrument, provide instructions for data collection and guidance on the minimum response rate. If the measure is a PRO-PM, specify how to report the calculation of response rates with quality measure results.
Specify how to handle missing data (e.g., imputation, delete case). This item is a requirement for composite measures and PRO-PMs.

Not applicable; this measure is not based on survey or patient-reported data.

3.19 Data Source (CMS CBE Measure Submission Form, Measure Specifications sp.28)
Indicate all sources for which the measure is specified and tested.

☐administrative data
☐claims data
☐paper patient medical records
☐electronic patient medical records
☒ electronic clinical data
☐registries
☐standardized patient assessments
☐patient-reported data and surveys
☐non-medical data
☐other—describe in 3.20 (CMS CBE Measure Submission Form, Measure Specifications sp.29)

3.20 Data Source or Collection Instrument (CMS CBE Measure Submission Form, Measure Specifications sp.29)
Identify the specific data source/data collection instrument (e.g., name of database, clinical registry, collection instrument). If the measure is instrument-based (e.g., PRO-PM), identify the specific the tools/instruments used to collect the measure information and standard methods, modes, and languages of administration.

Routinely collected information documented in the EHR.

3.21 Data Source or Collection Instrument (Reference) (CMS CBE Measure Submission Form, Measure Specifications sp.30)
Provide the reference for the data source or collection instrument. Attach a copy or specify where to find the URL.

Not applicable, no instrument.

3.22 Level of Analysis (CMS CBE Measure Submission Form, Measure Specifications sp.07)
Indicate only the levels for which the measure is specified and tested.
☐individual clinician
☒ group/practice
☐hospital/facility/agency
☐health plan
☐accountable care organization
☐geographic population
☒ other (specify) Integrated health system

3.23 Care Setting (CMS CBE Measure Submission Form, Measure Specifications sp.08)
Indicate only the settings for which the measure is specified and tested.
☐ambulatory surgery center
☒ clinician office/clinic
☐outpatient rehabilitation
☐urgent care – ambulatory
☐behavioral health: inpatient

☐behavioral health: outpatient
☐dialysis facility
☐emergency medical services/ambulance
☐emergency department
☐home health
☐hospice
☒ hospital
☐hospital: critical care
☐hospital: acute care facility
☐imaging facility
☐laboratory
☐pharmacy
☐nursing home/skilled nursing facility (SNF)
☐inpatient rehabilitation facility (IRF)
☐long-term acute care
☐birthing center
☐no applicable care setting
☒ other (specify) outpatient, primary care

3.24 Composite Measure (CMS CBE Composite Measure Submission Form, Measure Specifications sp.30)

This section is for additional specifications as needed. Use it for aggregation and weighting rules or calculation of individual quality measures if not individually endorsed.

Not applicable; this measure is not a composite measure.

REFERENCES