



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 subcriterion 1b).

Brief Measure Information

NQF #: 0289

Corresponding Measures:

De.2. Measure Title: Median Time to ECG

Co.1.1. Measure Steward: Centers for Medicare and Medicaid Services

De.3. Brief Description of Measure: Median time from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with Probable Cardiac Chest Pain).

1b.1. Developer Rationale: Guidelines recommend patients presenting with chest discomfort or symptoms suggestive of ST-segment elevation myocardial infarction (STEMI) have a 12-lead electrocardiogram (ECG) performed within a target of 10 minutes of emergency department arrival (Krumholz, 2008). Evidence supports reperfusion benefits patients with identified STEMI (O'Gara, 2012). The diagnosis and management of STEMI patients is dependent upon practices within the emergency department. Timely ECGs assist in identifying STEMI patients and impact the choice of reperfusion strategy (Peacock, 2007). This measure will calculate the median time to ECG for chest pain or AMI patients and assist in identifying potential opportunities for improvement to decrease the median time to ECG.

S.4. Numerator Statement: Continuous Variable Statement:

Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with Probable Cardiac Chest Pain)

Included Populations:

- ICD-9-CM Principal or Other Diagnosis Code for AMI as defined in Appendix A1, OP Table 6.1 or an ICD-9-CM Principal or Other Diagnosis Code for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A1, OP Table 6.1a, and
- E/M Code for emergency department encounter as defined in Appendix A1, OP Table 1.0a, and
- Patients receiving an ECG as defined in the Appendix A1, and
- Patients discharged/transferred to a short term general hospital for inpatient care, to a Federal healthcare facility, or to a Critical Access Hospital.

Excluded Populations:

Patients less than 18 years of age

S.7. Denominator Statement: Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for AMI or Chest Pain patients (with Probable Cardiac Chest Pain).

Included Populations:

- An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and
- Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and
- An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, and
- Patients receiving an ECG

Excluded Populations:

- Patients less than 18 years of age

<p>Data Elements:</p> <ul style="list-style-type: none"> •Arrival Time •Birthdate •Discharge Code •E/M Code •ECG •ECG Date •ECG Time •ICD-9-CM Other Diagnosis Codes •ICD-9-CM Principal Diagnosis Code •Outpatient Encounter Date •Probable Cardiac Chest Pain <p>S.10. Denominator Exclusions: • Patients LESS THAN 18 years of age</p>
<p>De.1. Measure Type: Efficiency</p> <p>S.23. Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records</p> <p>S.26. Level of Analysis: Facility, Population : National</p>
<p>IF Endorsement Maintenance – Original Endorsement Date: Nov 15, 2007 Most Recent Endorsement Date: Jan 18, 2012</p>
<p>IF this measure is included in a composite, NQF Composite#/title:</p> <p>IF this measure is paired/grouped, NQF#/title:</p> <p>De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? NQF 0289 does not have to be grouped or paired with other measures to interpret results.</p>

1. Evidence, Performance Gap, Priority – Importance to Measure and Report
<p>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 subcriteria to pass this criterion and be evaluated against the remaining criteria.</p>
<p>1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form MeasSubm_Evidence_OP5_0289-635267787622018769.docx</p>
<p>1b. Performance Gap</p> <p>Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:</p> <ul style="list-style-type: none"> • considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or • disparities in care across population groups. <p>1b.1. Briefly explain the rationale for this measure (e.g., the benefits or improvements in quality envisioned by use of this measure) Guidelines recommend patients presenting with chest discomfort or symptoms suggestive of ST-segment elevation myocardial infarction (STEMI) have a 12-lead electrocardiogram (ECG) performed within a target of 10 minutes of emergency department arrival (Krumholz, 2008). Evidence supports reperfusion benefits patients with identified STEMI (O’Gara, 2012). The diagnosis and management of STEMI patients is dependent upon practices within the emergency department. Timely ECGs assist in identifying STEMI patients and impact the choice of reperfusion strategy (Peacock, 2007). This measure will calculate the median time to ECG for chest pain or AMI patients and assist in identifying potential opportunities for improvement to decrease the median time to ECG.</p> <p>1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. (This is required for endorsement maintenance. 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 included). This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use. OP-5 Distribution using Q1 2013 data 2825 Providers submitted 29,955 eligible cases.</p>

Min 0 minutes

Max 540 minutes *capped

5th percentile 1 minute

10th percentile 3 minutes

25th percentile 5 minutes

50th percentile 8 minutes

75th percentile 13 minutes

90th percentile 23 minutes

95th percentile 33 minutes

See hospital distribution by minutes in attachment provided.

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.

Data is from 1st quarter 2012 thru 1Q 2013; number of facilities and cases vary by quarter.

Trends (BM = Benchmark [top 10th percentile]; Natl= National)

1Q2012 BM 2 mins; Natl 8 mins

2Q2012 BM 2 mins; Natl 8 mins

3Q2012 BM 2 mins; Natl 8 mins

4Q2012 BM 3 mins; Natl 8 mins

1Q2013 BM 3 mins; Natl 8 mins

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 endorsement maintenance. 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 subcriterion on improvement (4b.1) under Usability and Use.

See also disparities at end of Testing data report. Data below is from 1st quarter 2013 data.

Race/Ethnicity: White; Median 7 minutes; IQR 3-15; total cases 24, 765

Race/Ethnicity: Black; Median 10 minutes; IQR 4-24; total cases 2,495

Race/Ethnicity: Hispanic; Median 9 minutes; IQR 4-22; total cases 1,300

Race/Ethnicity: Other; Median 8 minutes; IQR 3-17; total cases 1,395

IQR represents the Inter Quartile Range, the 25th and 75th percentiles

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.

2825 Providers submitted 29,955 eligible cases. Data is from 1st quarter 2013.

Facilities are able to sample (see sampling specifications included in submission fields).

1c. High Priority (previously referred to as High Impact)

The measure addresses:

- a specific national health goal/priority identified by DHHS or the National Priorities Partnership convened by NQF; OR
- a demonstrated high-priority (high-impact) aspect of healthcare (e.g., affects large numbers of patients and/or has a substantial impact for a smaller population; leading cause of morbidity/mortality; high resource use (current and/or future); severity of illness; and severity of patient/societal consequences of poor quality).

1c.1. Demonstrated high priority aspect of healthcare

Affects large numbers, A leading cause of morbidity/mortality, Patient/societal consequences of poor quality

1c.2. If Other:

1c.3. Provide epidemiologic or resource use data that demonstrates the measure addresses a high priority aspect of healthcare.

List citations in 1c.4.

In their 2013 report on heart disease and stroke statistics, the American Heart Association (AHA) estimates that there are 635,000 incident cases of acute myocardial infarction (AMI) or coronary heart disease death per year. additionally, they estimate that there are an additional 280,000 recurrent coronary attacks and 150,000 "silent first myocardial infarctions" annually. The AHA estimates

the prevalence of myocardial infarction to be 7.6 million American adults (1). Based on an analysis of Medicare data, AMI is associated with a risk-standardized mortality rate of 16.6% and a risk standardized readmission rate of 19.9% (2). In addition to serious medical consequences, AMI is associated with significant costs as well. In 2011, AMI was the 5th most expensive condition treated in U.S. hospitals, accounting for approximately \$11.5 billion or 3% of total national healthcare costs (3).

ED volume increased by 3-5% from 2011 to 2012. The acuity of patients seen in ED has increased. About 16.4% of patients seen in the ED are admitted to inpatient status. Over 68% of hospital admissions are processed through the ED.

From the CDC for 2010:

- Number of visits: 129.8 million
- Number of injury-related visits: 37.9 million
- Number of visits per 100 persons: 42.8
- Percent of visits with patient seen in fewer than 15 minutes: 25.1%
- Percent of visits resulting in hospital admission: 13.3%
- Percent of visits resulting in transfer to a different (psychiatric or other) hospital: 2.1%

Source: National Hospital Ambulatory Medical Care Survey: 2010 Emergency Department Summary Tables, tables 1, 4, 14, 24

1c.4. Citations for data demonstrating high priority provided in 1a.3

1. Go AS, Mozaffarian D, Roger VL, et al. Heart disease and stroke statistics—2013 update: a report from the American Heart Association. *Circulation*. 2013;127:e6-e245.
2. Krumholz HM, Lin Z, Keenan PS, et al. Relationship of hospital performance with readmission and mortality rates for patients hospitalized with acute myocardial infarction, heart failure, or pneumonia. *JAMA*. 2013;309(6):587-593.
3. Torio CM (AHRQ), Andrews RM (AHRQ). National inpatient hospital costs: the most expensive conditions by payer, 2011. HCUP Statistical Brief #160. August 2013. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.hcupus.ahrq.gov/reports/statbriefs/sb160.pdf>.

- Lloyd-Jones D, Adams RJ, Brown TM, Carnethon M, Dai S, De Simone G, Ferguson TB, Ford E, Furie K, Gillespie C, Go A, Greenlund K, Haase N, Hailpern S, Ho PM, Howard V, Kissela B, Kittner S, Lackland D, Lisabeth L, Marelli A, McDermott MM, Meigs J, Mozaffarian D, Mussolino M, Nichol G, Roger VL, Rosamond W, Sacco R, Sorlie P, Stafford R, Thom T, Wasserthiel-Smoller S, Wong ND, Wylie-Rosett J; on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2010 update: a report from the American Heart Association. *Circulation*. 2010;121:e46–e215.

Emergency Department Benchmarking Alliance (EDBA) Data Guide.

(CDC) National Hospital Ambulatory Medical Care Survey: 2010 Emergency Department Summary Tables, tables 1, 4, 14, 24

- Institute of Medicine of the National Academies. *Future of emergency care: Hospital-based emergency care at the breaking point*. The National Academies Press 2006.
- Institute of Medicine. IOM Report: the future of emergency care in the United States health system. *Acad Emer Med*. 2006;13(10):1081-5.
- Peacock WF, Hollander JE, Smalling RW, and Bresler MJ. Reperfusion Strategies in the emergency treatment of ST-segment elevation myocardial infarction. *Am J Emerg Med* 2007; 25: 353-66.

1c.5. If a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)

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 subcriteria 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).
<p>De.5. Subject/Topic Area (check all the areas that apply): Cardiovascular, Cardiovascular : Acute Myocardial Infarction</p> <p>De.6. Cross Cutting Areas (check all the areas that apply):</p>
<p>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.) http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FSpecsManualTemplate&cid=1228773271302</p> <p>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 not an eMeasure Attachment:</p> <p>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: Appendix_A_codes-635125067852198235-635161869680263775.xlsx</p> <p>S.3. For endorsement maintenance, please briefly describe any changes to the measure specifications since last endorsement date and explain the reasons. There were updates to data elements to provide clarification in abstraction, based on Q and As submitted. The documentation of LBBB (left bundle branch block) was removed as an inclusion term for interpretation of STEMI on the Initial ECG Interpretation. References in the MIFs were updated to reflect the most recent recommendations from the ACC/AHA.</p> <p>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) <u>IF an OUTCOME MEASURE</u>, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm. Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with Probable Cardiac Chest Pain)</p> <p>Included Populations:</p> <ul style="list-style-type: none"> • ICD-9-CM Principal or Other Diagnosis Code for AMI as defined in Appendix A1, OP Table 6.1 or an ICD-9-CM Principal or Other Diagnosis Code for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A1, OP Table 6.1a, and • E/M Code for emergency department encounter as defined in Appendix A1, OP Table 1.0a, and • Patients receiving an ECG as defined in the Appendix A1, and • Patients discharged/transferred to a short term general hospital for inpatient care, to a Federal healthcare facility, or to a Critical Access Hospital. <p>Excluded Populations: Patients less than 18 years of age</p> <p>S.5. Time Period for Data (What is the time period in which data will be aggregated for the measure, e.g., 12 mo, 3 years, look back to August for flu vaccination? Note if there are different time periods for the numerator and denominator.) Facilities are required to report this data quarterly.</p> <p>S.6. 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, 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) <u>IF an OUTCOME MEASURE</u>, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm. Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to</p>

transfer) for AMI or Chest Pain patients (with Probable Cardiac Chest Pain).

Included Populations:

- An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and
- Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and
- An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, and
- Patients receiving an ECG

Excluded Populations:

- Patients less than 18 years of age

Data Elements:

- Arrival Time
- Birthdate
- Discharge Code
- E/M Code
- ECG
- ECG Date
- ECG Time
- ICD-9-CM Other Diagnosis Codes
- ICD-9-CM Principal Diagnosis Code
- Outpatient Encounter Date
- Probable Cardiac Chest Pain

S.7. Denominator Statement *(Brief, narrative description of the target population being measured)*

Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for AMI or Chest Pain patients (with Probable Cardiac Chest Pain).

Included Populations:

- An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and
- Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and
- An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, and
- Patients receiving an ECG

Excluded Populations:

- Patients less than 18 years of age

Data Elements:

- Arrival Time
- Birthdate
- Discharge Code
- E/M Code
- ECG
- ECG Date
- ECG Time
- ICD-9-CM Other Diagnosis Codes
- ICD-9-CM Principal Diagnosis Code
- Outpatient Encounter Date
- Probable Cardiac Chest Pain

S.8. Target Population Category *(Check all the populations for which the measure is specified and tested if any):*

Senior Care

S.9. Denominator Details *(All information required to identify and calculate the target population/denominator such as definitions,*

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)

Patients with:

- An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and
- Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and
- An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, and
- Patients receiving an ECG as defined in the Data Dictionary

S.10. Denominator Exclusions (Brief narrative description of exclusions from the target population)

- Patients LESS THAN 18 years of age

S.11. Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, 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)

The calculation of ≥ 18 years of age on Outpatient Encounter Date is determined by: Outpatient Encounter Date - Birthdate

S.12. Stratification Details/Variables (All information required to stratify the measure results including the stratification variables, definitions, 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 with at S.2b)

None

S.13. Risk Adjustment Type (Select type. Provide specifications for risk stratification in S.12 and for statistical model in S.14-15)

No risk adjustment or risk stratification

If other:

S.14. Identify the statistical risk model method and variables (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development and testing should be addressed with measure testing under Scientific Acceptability)

None

S.15. Detailed risk model specifications (must be in attached data dictionary/code list Excel or csv file. Also indicate if available at measure-specific URL identified in S.1.)

Note: Risk model details (including coefficients, equations, codes with descriptors, definitions), should be provided on a separate worksheet in the suggested format in the Excel or csv file with data dictionary/code lists at S.2b.

S.15a. Detailed risk model specifications (if not provided in excel or csv file at S.2b)

S.16. Type of score:

Continuous variable

If other:

S.17. 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.18. Calculation Algorithm/Measure Logic (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; aggregating data; risk adjustment; etc.)

Algorithm Narrative for OP-5: ED Median Time to ECG

Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with Probable Cardiac Chest Pain).

1. Start. Run all cases that are included in the AMI and Chest Pain Hospital Outpatient Population Algorithms and pass the edits

defined in the Data Processing Flow through this measure. Proceed to ICD-9-CM Principal Diagnosis Code.

2. Check ICD-9-CM Principal Diagnosis Code.

a. If the ICD-9-CM Principal Diagnosis Code is not on Appendix A, OP Table 1.1, the case will proceed to Probable Cardiac Chest Pain.

b. If the ICD-9-CM Principal Diagnosis Code is on Appendix A, OP Table 1.1, the case will proceed to ECG.

3. Check Probable Cardiac Chest Pain.

a. If Probable Cardiac Chest Pain is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

b. If Probable Cardiac Chest Pain equals NO, the case will proceed to a Measure Category Assignment of B. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

c. If Probable Cardiac Chest Pain equals YES, the case will proceed to ECG.

4. Check ECG.

a. If ECG is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

b. If ECG equals NO, the case will proceed to a Measure Category Assignment of B. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

c. If ECG equals YES, the case will proceed to ECG Date.

5. Check ECG Date.

a. If ECG Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

b. If ECG Date equals UTD, the case will proceed to a Measure Category Assignment of Y. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

c. If ECG Date equals Non-UTD Value, the case will proceed to ECG Time.

6. Check ECG Time.

a. If ECG Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

b. If ECG Time equals UTD, the case will proceed to a Measure Category Assignment of Y. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

c. If ECG Time equals Non-UTD Value, the case will proceed to Arrival Time.

7. Check Arrival Time.

a. If Arrival Time equals UTD, the case will proceed to a Measure Category Assignment of Y. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

b. If Arrival Time equals Non-UTD Value, the case will proceed to Measurement Value.

8. Calculate the Measurement Value. Time in minutes is equal to the ECG Date and ECG Time (in minutes) minus the Outpatient Encounter Date and Arrival Time (in minutes).

9. Check Measurement Value.

a. If Measurement Value is less than 0 minutes, the case will proceed to a Measure Category Assignment of X and will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

b. If Measurement Value is greater than or equal to 0 minutes, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission Section.

S.19. Calculation Algorithm/Measure Logic Diagram URL or Attachment *(You also may provide a diagram of the Calculation Algorithm/Measure Logic described above at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1) Available at measure-specific web page URL identified in S.1*

S.20. Sampling *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*

IF a PRO-PM, identify whether (and how) proxy responses are allowed.

Sampling Approaches

Hospitals have the option to sample from their population, or submit their entire population. Hospitals that choose to sample must ensure that the sampled data represent their outpatient population by using either the simple random sampling or systematic random sampling method and that the sampling techniques are applied consistently within a quarter. For example, quarterly samples for a sampling population must use consistent sampling techniques across the quarterly submission period.

- Simple random sampling - selecting a sample size (n) from a population of size (N) in such a way that every case has the same chance of being selected.
- Systematic random sampling - selecting every kth record from a population of size (N) in such a way that a sample size of n is

obtained, where $k = N/n$ rounded to the lower digit. The first sample record (i.e., the starting point) must be randomly selected before taking every k th record. This is a two-step process:

- a) Randomly select the starting point by choosing a number between one and k using a table of random numbers or a computer-generated random number; and
- b) Then select every k th record thereafter until the selection of the sample size is completed.

Each hospital is ultimately responsible that the sampling techniques applied for their hospital adhere to the sampling requirements outlined in this manual. Performance measurement systems are responsible for ensuring that the sampling techniques are applied consistently across their client hospitals.

Monthly Sampling Guidelines

It is important to point out that if a hospital elects to use the monthly sampling guidelines, the hospital is still required to meet the minimum quarterly sampling requirements. A hospital may choose to use a larger sample size than is required. Hospitals whose population size is less than the minimum number of cases per quarter for the measure set cannot sample (i.e., the entire population of cases must be selected). Given the potential for substantial variation in monthly population sizes, the monthly sample sizes should be based on the known or anticipated quarterly population size. When necessary, appropriate oversampling should be employed to ensure that the hospital meets the minimum quarterly sample size requirements. Refer to Table 3 below for guidelines in determining the number of cases that need to be sampled for each population per month per hospital based on the quarterly population size.

Table 3: Sample Size Guidelines per Hospital
Population per Quarter

Quarterly Sample Size

≤ 80 use all cases

81-100 80

101-125 95

126-150 109

151-175 121

176-200 132

201-225 143

226-250 152

251-275 161

276-300 169

301-325 177

326-350 184

351-375 191

376-400 197

401-425 203

426-450 208

451-500 218

501-600 235

601-700 249

701-800 260

801-900 270

901-1,000 278

1,001-2,000 323

2,001-3,000 341

3,001-4,000 351

4,001-5,000 357

5,001-10,000 370

$\geq 10,001$ 377

S.21. Survey/Patient-reported data (If measure is based on a survey, provide instructions for conducting the survey and guidance on minimum response rate.)

IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.

N/A

S.22. Missing data (specify how missing data are handled, e.g., imputation, delete case.)Required for Composites and PRO-PMs.**Missing and Invalid Data**

For rejected data to be accepted, errors must be corrected and the data resubmitted before the transmission deadline.

- The majority of general data elements that are missing data* cause the encounter record to be rejected. Refer to the Data Dictionary Introduction in this manual for the complete list of general data elements.
- In addition, if both the ICD-9-CM Principal Diagnosis Code and the CPT® Code data elements are missing data*, the entire record will be rejected.
- Not all patients have ICD-9-CM Other Diagnosis Codes. Records will be accepted for missing data for this data element.
- Measure-specific data elements that are missing data* cause the record to be rejected if any measure algorithm results in a Measure Category Assignment = "X" (missing data). If no measure evaluates to a category assignment of "X", the record will be accepted.
- General and measure-specific data elements that contain invalid data cause the record to be rejected.

Note:

*A missing value occurs when the abstractor does not select an answer for a data element (leaves it blank) or the software incorrectly transmits a "null" instead of the correct value for a data element. A "UTD" allowable value is not considered missing data.

S.23. Data Source (Check *ONLY* the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.24.

Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records

S.24. Data Source or Collection Instrument (Identify the specific data source/data collection instrument e.g. name of database, clinical registry, collection instrument, etc.)

If a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.

Data collection occurs through vendors or via the CART tool which can be downloaded free of charge at

<http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=12054420570>**S.25. Data Source or Collection Instrument** (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

Available at measure-specific web page URL identified in S.1

S.26. Level of Analysis (Check *ONLY* the levels of analysis for which the measure is SPECIFIED AND TESTED)

Facility, Population : National

S.27. Care Setting (Check *ONLY* the settings for which the measure is SPECIFIED AND TESTED)

Hospital/Acute Care Facility

If other:

S.28. 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.)**2a. Reliability** – See attached Measure Testing Submission Form**2b. Validity** – See attached Measure Testing Submission Form[MeasSubm_MeasTesting_OP5_0289-635267787766476621.docx](#)

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.

Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry)

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*)

Some data elements are in defined fields in electronic sources

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.

It is difficult to capture the data element "Probable Cardiac Chest Pain" from electronic fields. A proxy would have to be used which may not accurately represent this concept. See the following specifications for Probable Cardiac Chest Pain:

Data Element Name: Probable Cardiac Chest Pain

Collected For: OP-4, OP-5

Definition: Documentation that a nurse or physician/APN/PA presumed the patient's chest pain to be cardiac in origin.

Suggested Data Collection Question: Was the patient's chest pain presumed to be cardiac in origin?

Format:

Length: 1

Type: Alphanumeric

Occurs: 1

Allowable Values:

Y (Yes) There was nurse or physician/APN/PA documentation the chest pain was presumed to be cardiac in origin.

N (No) There was no nurse or physician/APN/PA documentation the chest pain was presumed to be cardiac in origin or unable to determine from medical record documentation.

Notes for Abstraction:

- If there is documentation of a differential/working diagnosis of acute myocardial infarction select "Yes."
- Disregard documentation of inclusions/exclusions described with terms indicating the condition is not acute, such as "history of."
- If there is documentation by the nurse or physician of an exclusion term, select "No", unless there is a working/differential diagnosis of AMI continue to select "Yes".

EXCLUDED DATA SOURCES:

- Chest X-Ray Reports
- Radiology Reports

Suggested Data Sources:

NURSE or PHYSICIAN/APN/PA DOCUMENTATION ONLY

- Emergency Department record

Inclusion Guidelines for Abstraction:

Acute Myocardial Infarction and Chest Pain Inclusions

- Acute coronary syndrome
- Acute myocardial infarction (AMI)
- Angina
- Cardiac
- Cardiac Chest Pain
- Chest Pain
- Heart attack
- Ischemia
- Myocardial Infarction
- Unstable angina

The following qualifiers should be abstracted as positive findings if listed with any of the above inclusion terms;

- Appears to have
- Cannot exclude
- Cannot rule out
- Consider
- Consistent with (c/w)
- Could/may/might be
- Could/may/might have been
- Diagnostic of
- Differential diagnosis
- Evidence of
- Indicative of
- Likely
- Could/may/might have had
- Could/may/might indicate
- Most likely
- Possible
- Probable
- Questionable (?)
- Representative of
- Risk of
- Rule(d) out (r/o)
- Suggestive of
- Suspect
- Suspicious
- Versus (vs)
- Working diagnosis
- +

Exclusion Guidelines for Abstraction:

- Atypical Chest Pain
- Chest Pain musculoskeletal
- Chest Pain qualified by a non-cardiac cause
- Chest wall pain
- Non Cardiac Chest Pain
- Non-specific Chest Pain
- Traumatic Chest Pain
- Trauma
- MVA (Motor Vehicle Accident)

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.

[No feasibility assessment](#) **Attachment:**

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. Describe what you have learned/modified 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 a PRO-PM, consider implications for both individuals providing PROM data (patients, service recipients, respondents) and those whose performance is being measured.

[Specifications \(including codes and data elements\) are modified every 6 months according to feedback received from clinicians, facilities and experts. Data is available in the medical record and there are no feasibility or implementation issues identified. Missing data regarding timing issues can result in cases being assigned to a noncalculable outcome which does not impair the integrity of our](#)

data results but provides a mechanism for facilities to evaluate internal quality improvement efforts to assure accuracy and completion of data collection.

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).

None.

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.

Planned	Current Use (for current use provide URL)
Quality Improvement (Internal to the specific organization)	<p>Public Reporting CMS HOQR Program https://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1191255879384</p> <p>Payment Program CMS HOQR Program https://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1191255879384</p> <p>Regulatory and Accreditation Programs Joint Commission Accreditation http://www.jointcommission.org/accreditation_process_overview/</p> <p>Quality Improvement with Benchmarking (external benchmarking to multiple organizations) CMS HOQR Program https://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1191255879384</p>

4a.1. For each CURRENT use, checked above, provide:

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

CMS HOQR Program has approximately 3323 hospitals participating nationwide. See link above for purpose details.

Joint Commission Accreditation; geographic area and other information unknown, but similar to CMS program. See link above for purpose details.

4a.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?)

4a.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.*)

4b. 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.

4b.1. Progress on Improvement. (Not required for initial endorsement unless available.)

Performance results on this measure (current and over time) should be provided in 1b.2 and 1b.4. Discuss:

- Progress (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

Trends were provided for the last 5 quarters of available data.

4b.2. 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.

The 5 quarters of rolling data do not show significant variation. For the larger volume hospitals, the time interval may not improve due to increasing ED volume. The smaller hospitals may improve minutes, but not the larger, higher acuity facilities.

4c. 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).

4c.1. Were any unintended negative consequences to individuals or populations identified during testing; OR has evidence of unintended negative consequences to individuals or populations been reported since implementation? If so, identify the negative unintended consequences and describe how benefits outweigh them or actions taken to mitigate them.

No unintended consequences identified. The net benefits of accurately identifying a STEMI outweigh the consequences.

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.
Yes

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

0287 : Median Time to Fibrinolysis

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

5a. Harmonization

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 completely harmonized?

No

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

0289 is the median time from ED arrival to ECG, 0287 is the median time from emergency department arrival to administration of fibrinolytic therapy in AMI patients with ST-segment elevation on the ECG performed closest to arrival. The same population is targeted, but the measure focus is different and the timing of an ECG is important to the diagnosis of ST-elevation MI. Both measures are equally important to represent.

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.)

These are not considered competing measures, as the measure focus (process) is different.

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.

Available at measure-specific web page URL identified in S.1 Attachment:

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Co.3 Measure Developer if different from Measure Steward: Centers for Medicare & Medicaid Services

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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.

The measure set has a Technical Expert Panel that provides direction and support. The TEP is involved in revision of measure specifications based on guidelines and emerging science. All changes are vetted through this group.

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Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 Year the measure was first released: 2008

Ad.3 Month and Year of most recent revision: 10, 2014

Ad.4 What is your frequency for review/update of this measure? Bi-annual

Ad.5 When is the next scheduled review/update for this measure? 07, 2015

Ad.6 Copyright statement: N/A

Ad.7 Disclaimers: N/A

Ad.8 Additional Information/Comments: