Hospital Outpatient Quality Measures
Acute Myocardial Infarction (AMI)

Set Measure ID #	Measure Short Name
OP-1[*]	Median Time to Fibrinolysis
OP-2[*]	Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival
OP-3[*]	Median Time to Transfer to Another Facility for Acute Coronary Intervention
OP-4[ǂ]	Aspirin at Arrival
OP-5[ǂ]	Median Time to ECG

[*]Measures only applicable to AMI Population
[ǂ] Measures apply to both the AMI Population and Chest Pain Population

OP Acute Myocardial Infarction General Data Element List

General Data Element Name	Collected For:
Arrival Time	All Records
Birthdate	All Records
CMS Certification Number ‡, †	All Records
First Name	All Records
Hispanic Ethnicity	All Records
Last Name	All Records
National Provider Identifier ‡, †	Optional for All Records
Outpatient Encounter Date	All Records
Patient HIC#	Collected by CMS for patients with a *Payment Source* of Medicare who have a standard HIC number
Patient Identifier	All Records
Payment Source	All Records
Physician 1	Optional for All Records
Physician 2	Optional for All Records
Postal Code	All Records
Race	All Records
Sex	All Records

[‡]Transmission Data Element
[†]Defined in the Transmission Data Element List within the Hospital Outpatient Measure Data Transmission section of this manual.

OP Acute Myocardial Infarction Specific Data Element List

OP AMI Data Element Name	Collected For:
Aspirin Received	OP-4
Discharge Code	OP-1, OP-2, OP-3, OP-4, OP-5
E/M Code	OP-1, OP-2, OP-3, OP-4, OP-5
ECG	OP-5
ECG Date	OP-5
ECG Time	OP-5
ED Departure Date	OP-3
ED Departure Time	OP-3
Fibrinolytic Administration	OP-1, OP-2, OP-3
Fibrinolytic Administration Date	OP-1, OP-2
Fibrinolytic Administration Time	OP-1, OP-2
ICD-10-CM Other Diagnosis Codes	OP-4, OP-5
ICD-10-CM Principal Diagnosis Code	OP-1, OP-2, OP-3, OP-4, OP-5
Initial ECG Interpretation	OP-1, OP-2, OP-3
Probable Cardiac Chest Pain	OP-4, OP-5
Reason for Delay in Fibrinolytic Therapy	OP-1, OP-2
Reason for No Aspirin on Arrival	OP-4
Reason for Not Administering Fibrinolytic Therapy	OP-3
Transfer for Acute Coronary Intervention	OP-3

OP-1, OP-2, OP-3, OP-4, and OP-5 Hospital Outpatient Emergency Department AMI Population

Acute Myocardial Infarction

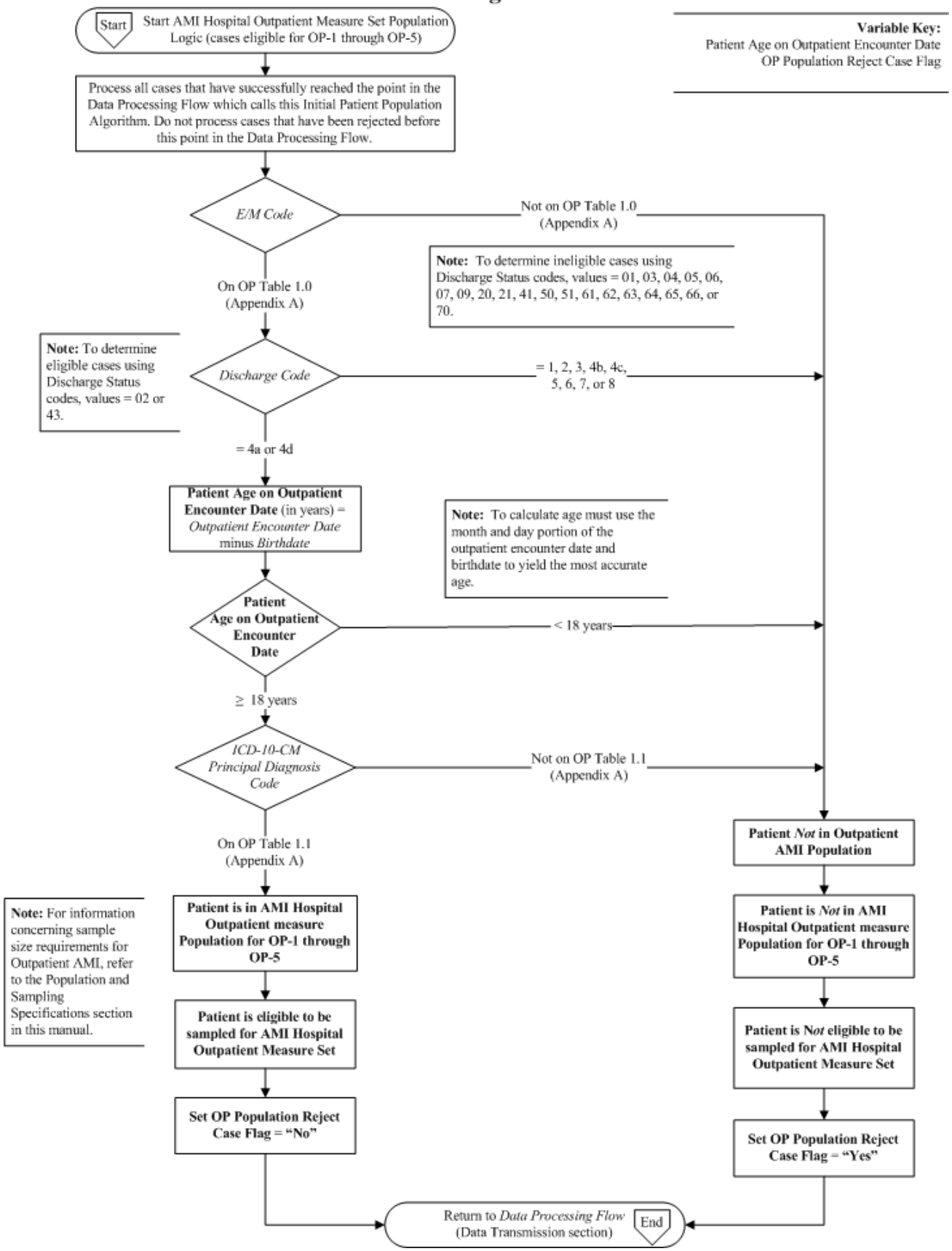
The population of the OP-1 through OP-5 AMI measures is identified using 5 data elements:

- *E/M Code*
- *Discharge Code*
- *Outpatient Encounter Date*
- *Birthdate*
- *ICD-10-CM Principal Diagnosis Code*

Patients seen in a Hospital Emergency Department (*E/M Code* in Appendix A, OP Table 1.0) are included in the OP-1 through OP-5 AMI Hospital Outpatient Population and are eligible to be sampled if they have:

- Discharged/transferred to a short-term general hospital for inpatient care or to a federal healthcare facility (*Discharge Code*), and
- A Patient Age on *Outpatient Encounter Date (Outpatient Encounter Date – Birthdate)* ≥ 18 years, and
- An *ICD-10-CM Principal Diagnosis Code* for AMI defined in Appendix A, OP Table 1.1.

AMI Hospital Outpatient Population Algorithm
OP-1 through OP-5



Algorithm Narrative for OP-1 through OP-5:
AMI Hospital Outpatient Population

1. Start AMI Hospital Outpatient Measure Set Population Logic (cases eligible for OP-1 through OP-5).

2. Start processing all cases that have successfully reached the point in the data processing flow which call this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Data Processing Flow: Clinical in the Data Transmission section.

3. Check *E/M Code*
   a. If *E/M Code* is not in Appendix A, OP Table 1.0, patient is not in the Outpatient AMI Population. Patient is not in the AMI Hospital Outpatient Measure Population for OP-1 through OP-5. Patient is not eligible to be sampled for the AMI Hospital Outpatient Measure Set. Set the OP Population Reject Case Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   b. If *E/M Code* is in Appendix A, OP Table 1.0, continue processing and proceed to *Discharge Code.*

4. Check *Discharge Code.*
   a. If Discharge Code equals 1, 2, 3, 4b, 4c, 5, 6, 7, or 8 (Discharge Status code values would = 01, 03, 04, 05, 06, 07, 09, 20, 21, 41, 50, 51, 61, 62, 63, 64, 65, 66, 70), patient is not in the Outpatient AMI Population. Patient is not in the AMI Hospital Outpatient Measure Population for OP-1 through OP-5. Patient is not eligible to be sampled for the AMI Hospital Outpatient Measure Set. Set the OP Population Reject Case Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   b. If *Discharge Code* equals 4a or 4d (Discharge Status code values would = 02 or 43), continue processing and proceed to Patient Age on *Outpatient Encounter Date*.

5. Calculate Patient Age on *Outpatient Encounter Date*. Patient age, in years, is equal to the *Outpatient Encounter Date* minus the *Birthdate.* Use the month and day portion of the *Outpatient Encounter Date* and the *Birthdate* to yield the most accurate age.

6. Check Patient Age.
   a. If patient age is less than 18 years, patient is not in the Outpatient AMI Population. Patient is not in the AMI Hospital Outpatient Measure Population for OP-1 through OP-5. Patient is not eligible to be sampled for the AMI Hospital Outpatient Measure Set. Set the OP Population Reject Case Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   b. If patient age is greater than or equal to 18 years, continue processing and proceed to *ICD-10-CM Principal Diagnosis Code*.

7. Check *ICD-10-CM Principal Diagnosis Code*.
   a. If the *ICD-10-CM Principal Diagnosis Code* is not in Appendix A, OP Table 1.1, patient is not in the Outpatient AMI Population. Patient is not in the AMI Hospital Outpatient Measure Population for OP-1 through OP-5. Patient is not eligible to be sampled for the AMI Hospital Outpatient Measure Set. Set the OP Population Reject Case Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   b. If the *ICD-10-CM Principal Diagnosis Code* is in Appendix A, OP Table 1.1, patient is in the AMI Hospital Outpatient Measure Population for OP-1 through OP-5. Patient is eligible to be sampled for the AMI Hospital Outpatient Measure Set. Set the OP Population Reject Case Flag to No. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

Measure Information Form

Performance Measure Name: Median Time to Fibrinolysis

Measure ID #: OP-1

Measure Set: Hospital Outpatient Acute Myocardial Infarction

Outpatient Setting: Emergency Department

Description: Median time from emergency department arrival to administration of fibrinolytic therapy in ED patients with ST-segment elevation on the electrocardiogram (ECG) performed closest to ED arrival and prior to transfer.

Rationale: Time to fibrinolytic therapy is a strong predictor of outcome in patients with an acute myocardial infarction. Nearly 2 lives per 1,000 patients are lost per hour of delay (Fibrinolytic Therapy Trialists' Collaborative Group, 1994). National guidelines recommend that fibrinolytic therapy be given within 30 minutes of hospital arrival in patients with ST-segment elevation myocardial infarction (Antman, 2008).

Type of Measure: Process

Improvement Noted As: A decrease in the median value

Continuous Variable Statement: Time (in minutes) from emergency department arrival to administration of fibrinolytic therapy in AMI patients with ST-segment elevation on the ECG performed closest to ED arrival and prior to transfer.

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-10-CM Principal Diagnosis Code* for AMI as defined in Appendix A, OP Table 1.1, and
- ST-segment elevation on the ECG performed closest to ED arrival, and
- *Fibrinolytic Administration* as defined in the Data Dictionary.

Excluded Populations:
- Patients less than 18 years of age
- Patients who did not receive *Fibrinolytic Administration* within 30 minutes and had a *Reason for Delay in Fibrinolytic Therapy*

Data Elements:
- *Arrival Time*
- *Birthdate*
- *Discharge Code*
- *E/M Code*
- *Fibrinolytic Administration*
- *Fibrinolytic Administration Date*
- *Fibrinolytic Administration Time*
- *ICD-10-CM Principal Diagnosis Code*
- *Initial ECG Interpretation*
- *Outpatient Encounter Date*
- *Reason for Delay in Fibrinolytic Therapy*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-10-CM diagnosis and procedure codes, which require retrospective data entry.

Data Accuracy: Variation may exist in the assignment of ICD-10-CM codes; therefore, coding practices may require evaluation to ensure consistency. There may be additional variation by provider, facility, and documentation protocol for chart-abstracted data elements.

Measure Analysis Suggestions: The median time to fibrinolysis should be analyzed in conjunction with the measure rate for fibrinolysis received within 30 minutes of emergency department arrival (OP-2). These measures, used together, will assist in understanding the median time to fibrinolysis and will identify the number of AMI patients that are receiving fibrinolysis within 30 minutes of emergency department arrival and potential opportunities for improvement to decrease the median time to fibrinolysis.

Sampling: Yes; for additional information see the Population and Sampling Specifications section.

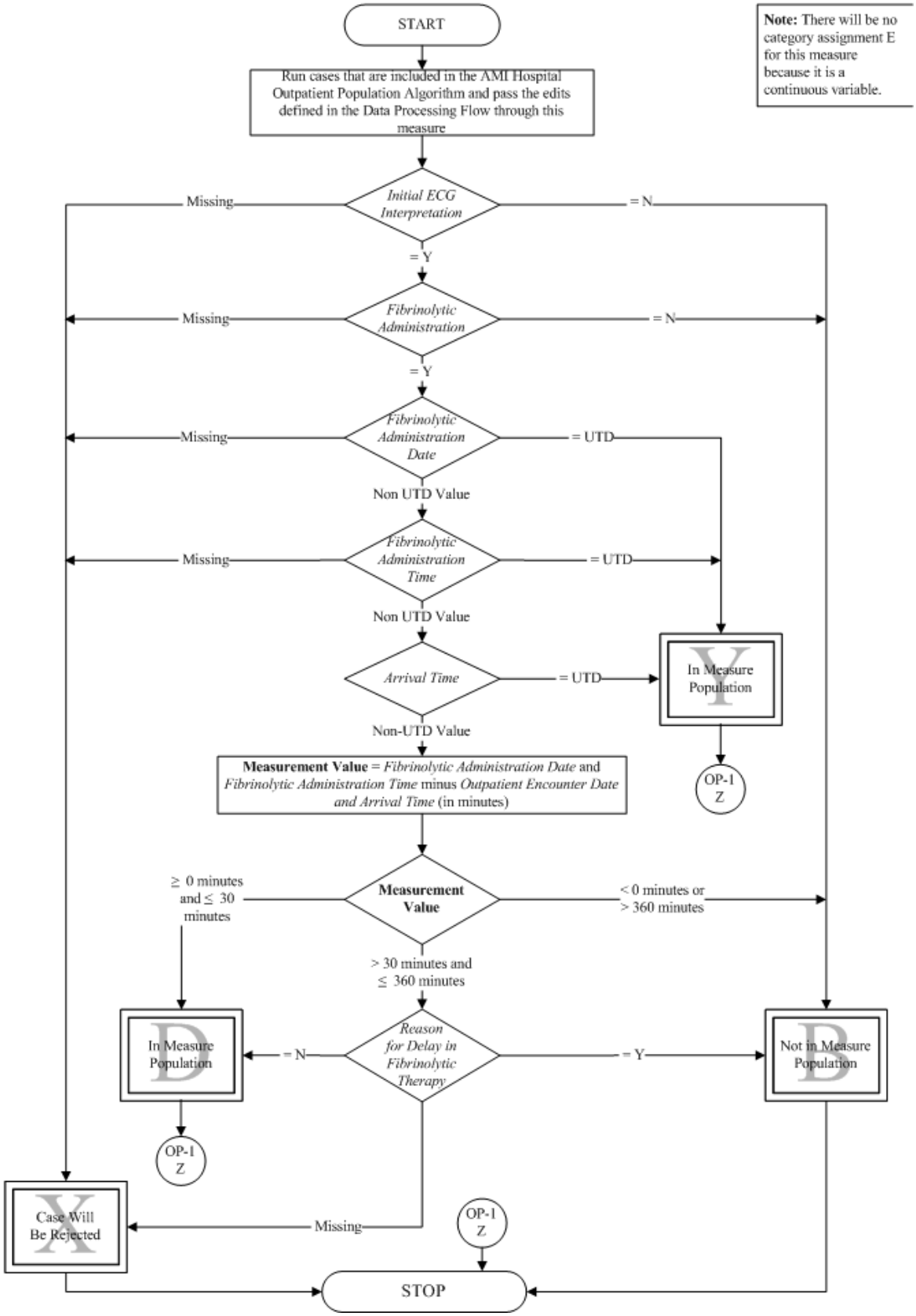
Data Reported As: Aggregate measure of central tendency

Selected References:

- Fibrinolytic Therapy Trialists' (FTT) Collaborative group. Indications for fibrinolytic therapy in suspected acute myocardial infarction: collaborative overview of early mortality and major morbidity results from all randomized trials of more than 1000 patients. Lancet. 1994; 343:311-22.
- Krumholz HM, Anderson JL, Bachelder BL, Fesmire FM, Fihn SD, Foody JM, et al. AAC/AHA 2008 performance measures for adults with ST-Elevation and Non-ST-Elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non-ST-Elevation Myocardial Infarction). J Am Coll Cardiol. 2008:52:2046-99.
- O'Gara PT, Kusher FG, Ascheim DD, Casey DE, Chung MK, Lemos JA, Ettinger SM, et al. 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction: Executive Summary: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation, 2013; 127:1-88. Published online December 17, 2012.

OP-1: Median Time to Fibrinolysis

Continuous Variable Statement: Time (in minutes) from emergency department arrival to administration of fibrinolytic therapy in AMI patients with ST-segment elevation on the ECG performed closest to ED arrival and prior to transfer.



Algorithm Narrative for OP-1:
Median Time to Fibrinolysis

Continuous Variable Statement: Time (in minutes) from emergency department arrival to administration of fibrinolytic therapy in AMI patients with ST-segment elevation on the ECG performed closest to ED arrival and prior to transfer.

1. Start. Run cases that are included in the AMI Hospital Outpatient Population Algorithm and pass the edits defined in the Data Processing Flow through this measure. Proceed to *Initial ECG Interpretation.*

2. Check *Initial ECG Interpretation.*
   a. If *Initial ECG Interpretation* 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 *Initial ECG Interpretation* 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 *Initial ECG Interpretation* equals Yes, the case will proceed to *Fibrinolytic Administration*.

3. Check *Fibrinolytic Administration.*
   a. If *Fibrinolytic Administration* 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 *Fibrinolytic Administration* 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 *Fibrinolytic Administration* equals Yes, the case will proceed to *Fibrinolytic Administration Date* and *Time*.

4. Check *Fibrinolytic Administration Date*.
   a. If *Fibrinolytic Administration 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 *Fibrinolytic Administration 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 *Fibrinolytic Administration Date* equals Non-UTD Value, the case will proceed to *Fibrinolytic Administration Time*.

5. Check *Fibrinolytic Administration Time*.
   a. If *Fibrinolytic Administration 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 *Fibrinolytic Administration 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 *Fibrinolytic Administration Time* equals Non-UTD Value, the case will proceed to *Arrival Time*.

6. 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.

7. Calculate the Measurement Value. Time in minutes is equal to the *Fibrinolytic Administration Date* and *Fibrinolytic Administration Time* (in minutes) minus the *Outpatient Encounter Date* and *Arrival Time* (in minutes).

8. Check Measurement Value.
   a. If Measurement Value is greater than or equal to 0 minutes and less than or equal to 30 minutes, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   b. If Measurement Value is less than 0 minutes or greater than 360 minutes, 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 Measurement Value is greater than 30 minutes and less than or equal to 360 minutes, the case will proceed to *Reason for Delay in Fibrinolytic Therapy*.

9. Check *Reason for Delay in Fibrinolytic Therapy*.
   a. If *Reason for Delay in Fibrinolytic Therapy* is missing, the case will proceed to a Measure Category Assignment of X and the case will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   b. If *Reason for Delay in Fibrinolytic Therapy* equals Yes, 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 *Reason for Delay in Fibrinolytic Therapy* equals No, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

NQF-Endorsed Voluntary Consensus Standards for Hospital Care
Measure Information Form

Performance Measure Name: Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival

Measure ID #: OP-2

Measure Set: Hospital Outpatient Acute Myocardial Infarction

Outpatient Setting: Emergency Department

Description: Emergency Department acute myocardial infarction (AMI) patients with ST-segment elevation on the ECG closest to arrival time receiving fibrinolytic therapy during the ED stay and having a time from ED arrival to fibrinolysis of 30 minutes or less.

Rationale: Time to fibrinolytic therapy is a strong predictor of outcome in patients with an acute myocardial infarction. Nearly 2 lives per 1,000 patients are lost per hour of delay. (Fibrinolytic Therapy Trialists' Collaborative Group, 1994). National guidelines recommend that fibrinolytic therapy be given within 30 minutes of hospital arrival in patients with ST-segment elevation myocardial infarction (Antman, 2008).

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Emergency Department AMI patients whose time from ED arrival to fibrinolysis is 30 minutes or less.

Included Populations: Not applicable

Excluded Populations: None

Data Elements:
- *Arrival Time*
- *Fibrinolytic Administration Date*
- *Fibrinolytic Administration Time*
- *Outpatient Encounter Date*

Denominator Statement: Emergency Department AMI patients with ST-segment elevation on ECG who received fibrinolytic therapy.

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-10-CM Principal Diagnosis Code* for AMI as defined in Appendix A, OP Table 1.1, and
- ST-segment elevation on the ECG performed closest to ED arrival, and
- *Fibrinolytic Administration.*

Excluded Populations:
- Patients less than 18 years of age
- Patients who did not receive *Fibrinolytic Administration* within 30 minutes **and** had a *Reason for Delay in Fibrinolytic Therapy*

Data Elements:

- *Birthdate*
- *Discharge Code*
- *E/M Code*
- *Fibrinolytic Administration*
- *ICD-10-CM Principal Diagnosis Code*
- *Initial ECG Interpretation*
- *Reason for Delay in Fibrinolytic Therapy*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-10-CM diagnosis and procedure codes, which require retrospective data entry.

Data Accuracy: Variation may exist in the assignment of ICD-10-CM codes; therefore, coding practices may require evaluation to ensure consistency. There may be additional variation by provider, facility, and documentation protocol for chart-abstracted data elements.

Measure Analysis Suggestions: The measure rate for fibrinolytic agent received within 30 minutes of emergency department arrival should be analyzed in conjunction with the ED Median Time to Fibrinolysis measure (OP-1). These measures, used together, will assist in understanding the number of AMI patients that are receiving fibrinolysis within 30 minutes of emergency department arrival and will identify the emergency department's median time to fibrinolysis and potential opportunities for improvement to increase the rate of patients receiving fibrinolysis in 30 minutes or less.

Sampling: Yes; for additional information see the Population and Sampling Specifications section.

Data Reported As: Aggregate rate generated from count data reported as a proportion

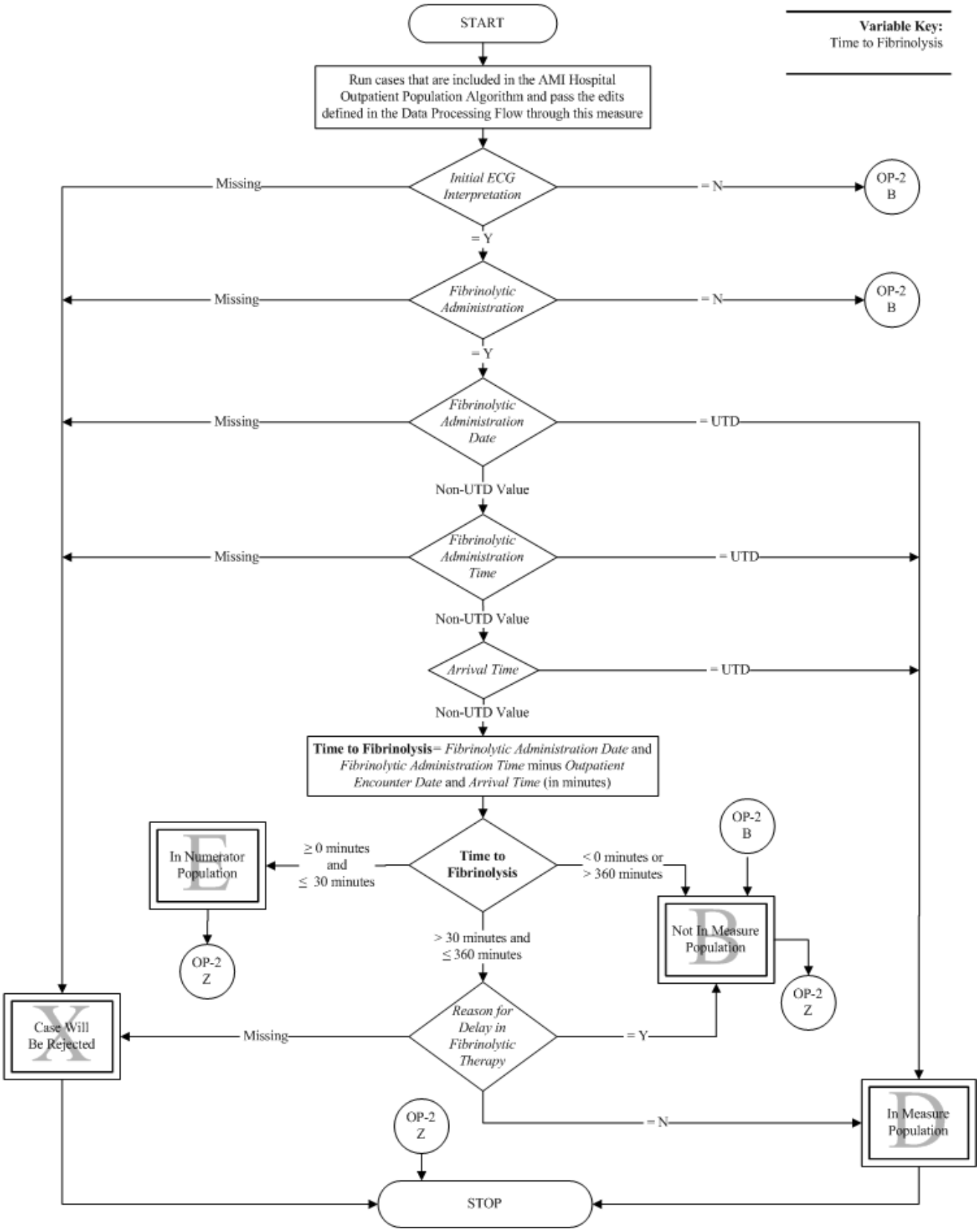
Selected References:

- Fibrinolytic Therapy Trialists' (FTT) Collaborative Group. Indications for fibrinolytic therapy in suspected acute myocardial infarction: collaborative overview of early mortality and major morbidity results from all randomized trials of more than 1000 patients. Lancet, 1994; 343:33:311-22.
- Krumholz HM, Anderson JL, Bachelder BL, Fesmire FM, Fihn SD, Foody JM, et al. AAC/AHA 2008 performance measures for adults with ST-Elevation and Non-ST-Elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non-ST-Elevation Myocardial Infaction). J Am Coll Cardiol. 2008:52:2046-99.
- O'Gara PT, Kusher FG, Ascheim DD, Casey DE, Chung MK, Lemos JA, Ettinger SM, et al. 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction: Executive Summary: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation, 2013; 127:1-88. Published online December 17, 2012.

OP-2: Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival

Numerator: Emergency Department AMI patients whose time from ED arrival to fibrinolysis is 30 minutes or less.

Denominator: Emergency Department AMI patients with ST-segment elevation on ECG who received fibrinolytic therapy.



Algorithm Narrative for OP-2:
Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival

Numerator: Emergency Department AMI patients whose time from ED arrival to fibrinolysis is 30 minutes or less.

Denominator: Emergency Department AMI patients with ST-segment elevation on ECG who received fibrinolytic therapy.

1. Start. Run all cases that are included in the AMI Hospital Outpatient Population Algorithm and pass the edits defined in the Data Processing Flow through this measure. Proceed to *Initial ECG Interpretation.*

2. Check *Initial ECG interpretation.*
   a. If *Initial ECG interpretation* 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 *Initial ECG Interpretation* 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 Initial *ECG interpretation* equals Yes, the case will proceed to *Fibrinolytic Administration*.

3. Check *Fibrinolytic Administration*.
   a. If *Fibrinolytic Administration* 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 *Fibrinolytic Administration* 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 *Fibrinolytic Administration* equals Yes, the case will proceed to *Fibrinolytic Administration Date*.

4. Check *Fibrinolytic Administration Date*.
   a. If *Fibrinolytic Administration 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 *Fibrinolytic Administration Date* equals UTD, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   c. If *Fibrinolytic Administration Date* equals Non-UTD Value, the case will proceed to *Fibrinolytic Administration Time*.

5. Check *Fibrinolytic Administration Time*.
   a. If *Fibrinolytic Administration 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 *Fibrinolytic Administration Time* equals UTD, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
   c. If *Fibrinolytic Administration Time* Equals Non-UTD Value, the case will proceed to *Arrival Time*.

6. Check *Arrival Time*.
    a. If *Arrival Time* equals UTD, the case will proceed to a Measure Category Assignment of D. 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 Time to Fibrinolysis.

7. Calculate the Time to Fibrinolysis. Time in minutes is equal to the *Fibrinolytic Administration Date* and *Fibrinolytic Administration Time* (in minutes) minus the *Outpatient Encounter Date* and *Arrival Time* (in minutes).

8. Check the Time to Fibrinolysis.
    a. If Time to Fibrinolysis is greater than or equal to 0 minutes and less than or equal to 30 minutes, the case will proceed to a Measure Category Assignment of E. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If Time to Fibrinolysis is less than 0 minutes or greater than 360 minutes, 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 Time to Fibrinolysis is greater than 30 minutes and less than or equal to 360 minutes, the case will proceed to *Reason for Delay in Fibrinolytic Therapy*.

9. Check *Reason for Delay in Fibrinolytic Therapy*.
    a. If *Reason for Delay in Fibrinolytic Therapy* is missing, the case will proceed to a Measure Category Assignment of X and the case will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If *Reason for Delay in Fibrinolytic Therapy* equals Yes, 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 *Reason for Delay in Fibrinolytic Therapy* equals No, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

NQF-Endorsed Voluntary Consensus Standards for Hospital Care
Measure Information Form

Performance Measure Name: Median Time to Transfer to Another Facility for Acute Coronary Intervention

Measure ID #: OP-3

Measure Set: Hospital Outpatient Acute Myocardial Infarction

Outpatient Setting: Emergency Department

Set Measure ID #	Performance Measure Name
OP-3a	Median Time to Transfer to Another Facility for Acute Coronary Intervention-Overall Rate
OP-3b	Median Time to Transfer to Another Facility for Acute Coronary Intervention-Reporting Measure
OP-3c	Median Time to Transfer to Another Facility for Acute Coronary Intervention-Quality Improvement Measure

Description: Median time from emergency department arrival to time of transfer to another facility for acute coronary intervention

Rationale: The early use of primary angioplasty in patients with ST-segment elevation myocardial infarction (STEMI) results in a significant reduction in mortality and morbidity. The earlier primary coronary intervention is provided, the more effective it is (Brodie, 1998 and DeLuca, 2004). National guidelines recommend the prompt initiation of percutaneous coronary intervention (PCI) in patients presenting with ST-segment elevation myocardial infarction (Antman, 2008). Patients transferred for primary PCI rarely meet recommended guidelines for door-to-balloon time of 90 minutes or less (Krumholz, 2008).

Type of Measure: Process

Improvement Noted As: A decrease in the median value

Continuous Variable Statement: Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention.

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-10-CM Principal Diagnosis Code* for AMI as defined in Appendix A, OP Table 1.1, and
- ST-segment elevation on the ECG performed closest to ED arrival, and
- Patients with *Transfer for Acute Coronary Intervention*

Excluded Populations:
- Patients less than 18 years of age
- Patients receiving *Fibrinolytic Administration*

Data Elements:

- *Arrival Time*
- *Birthdate*
- *Discharge Code*
- *ED Departure Date*
- *ED Departure Time*
- *E/M Code*
- *Fibrinolytic Administration*
- *ICD-10-CM Principal Diagnosis Code*
- *Initial ECG Interpretation*
- *Outpatient Encounter Date*
- *Reason for Not Administering Fibrinolytic Therapy*
- *Transfer for Acute Coronary Intervention*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-10-CM diagnosis and procedure codes, which require retrospective data entry.

Data Accuracy: Variation may exist in the assignment of ICD-10-CM codes; therefore, coding practices may require evaluation to ensure consistency. There may be additional variation by provider, facility, and documentation protocol for chart-abstracted data elements.

Measure Analysis Suggestions: None

Sampling: Yes; for additional information see the Population and Sampling Specifications section.

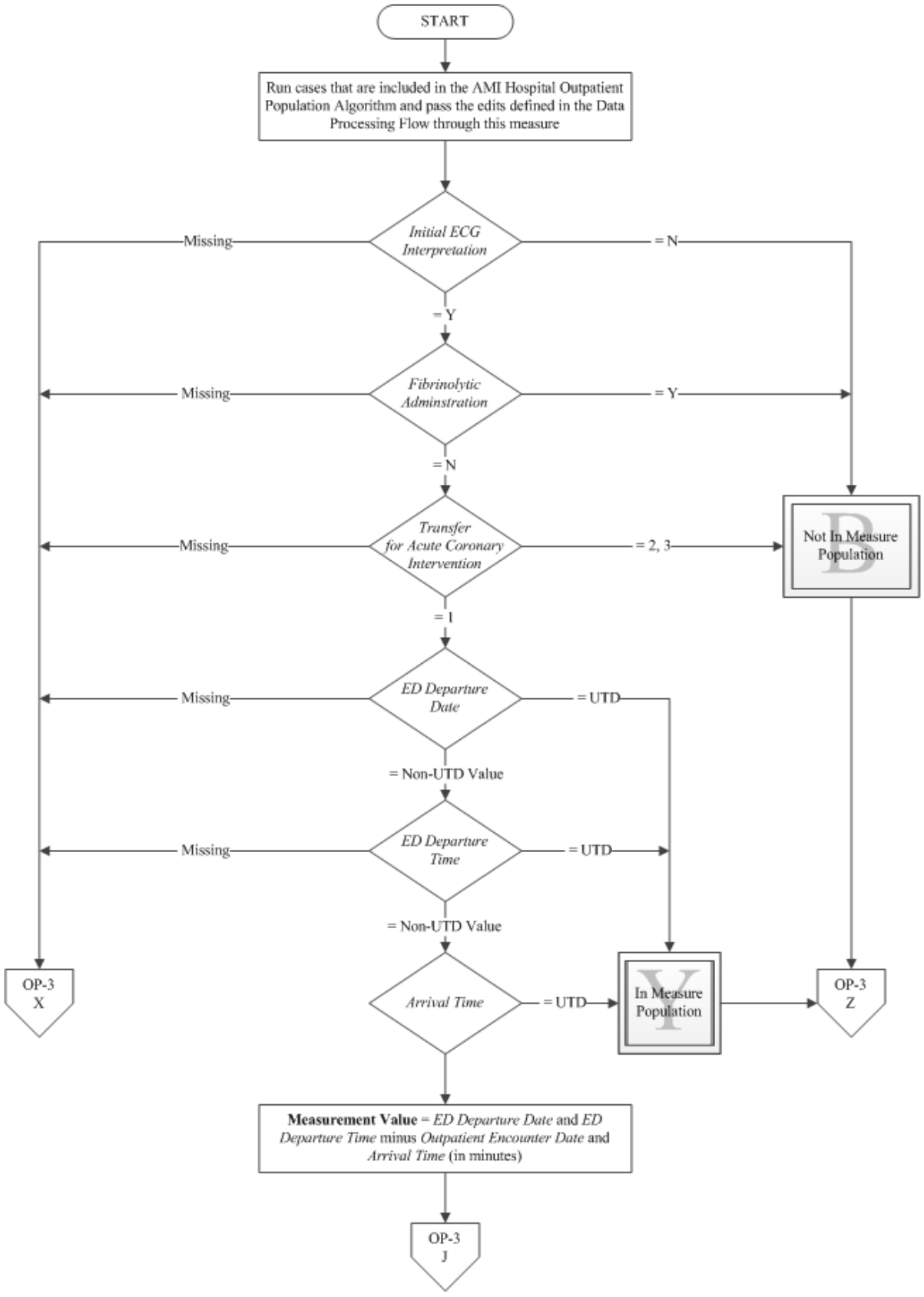
Data Reported As: Aggregate measure of central tendency

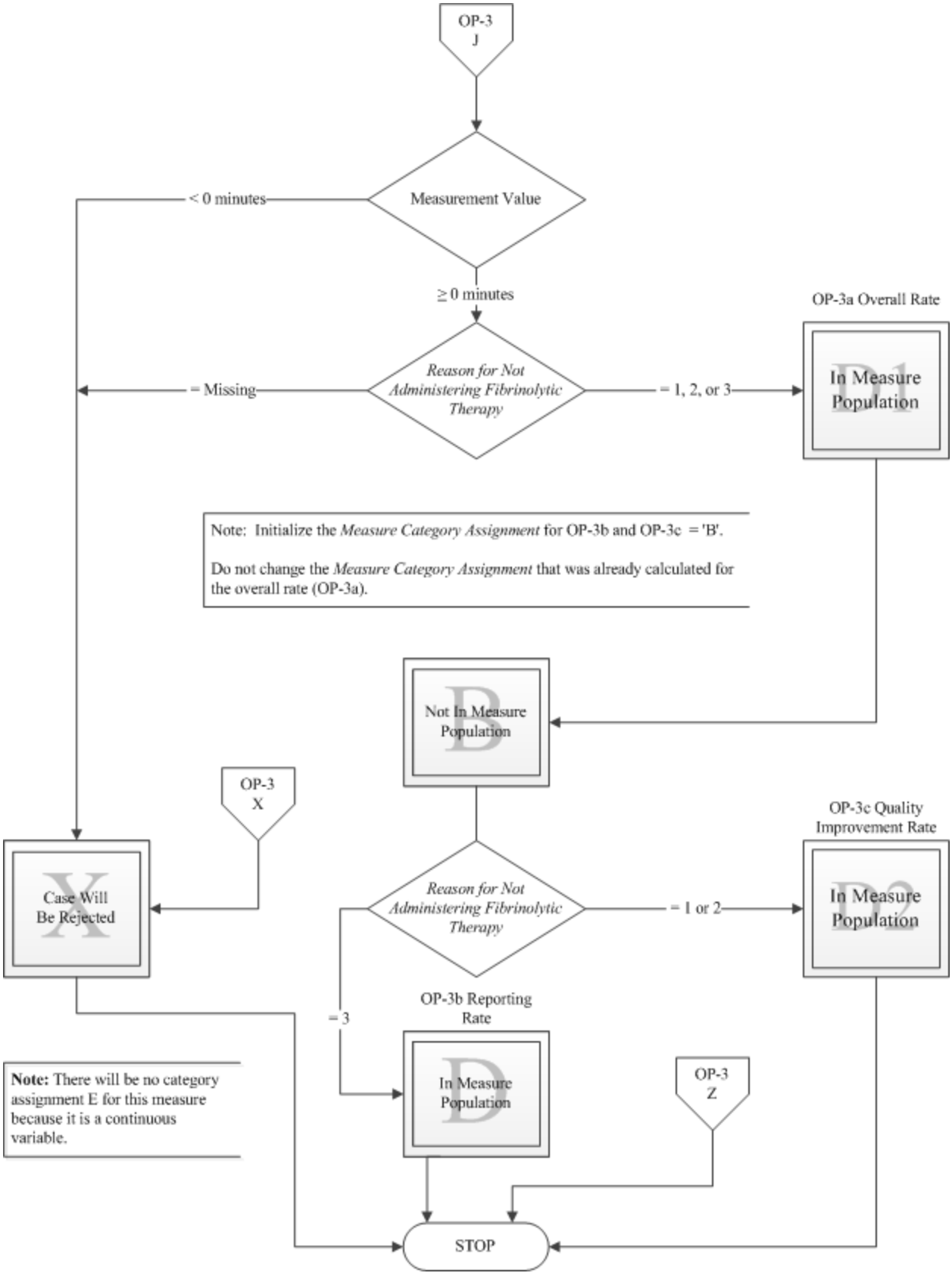
Selected References:

- Brodie BR, Stuckey TD, Wall TC, Kissling G, Hansen CJ, Muncy DB, Weintraub RA, Kelly TA. Importance of time and reperfusion for 30-day and late survival and recovery of left ventricular function after primary angioplasty for acute myocardial infarction. J Am Coll Cardiol. 1998; 32-1312-9.
- DeLuca G, Surapranata H, Ottervanger JP, Antman EM. Time delay to treatment and mortality in primary angioplasty for acute myocardial infarction: every minute of delay counts. Circulation 2004; 109:1223-1225.
- Herron J, Miller L, Turkman DF, Nsa W, Drye EE, Bernheim SM, Ling SM, Rapp MT, Han LF, Bratzler DW, Bradley EH, Nallamothu BK, Ting HH, Krumholz H. National performance on door in door out time among patients transferred for primary percutaneous coronary intervention. Arch Intern Med. Nov 2011; 171 (21):1879-1886.
- Krumholz HM, Anderson JL, Bachelder BL, Fesmire FM, Fihn SD, Foody JM, et al. ASS/AHA 2008 performance measures for adults with ST-Elevation and non-ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non-ST-Elevation Myocardial Infarction). J Am Coll Cardiol. 2008; 52:2046-99.
- Nallamothu BK, Bates ER, Herrin J, Wang Y, Bradley EH, Krumholz HM; NRMI Investigators. Times to treatment in transfer patients undergoing primary percutaneous coronary intervention in the United States: National Registry of Myocardial Infarction (NRMI) -33/4 analysis. Circulation. 2005; 111:761-7.
- O'Gara PT, Kusher FG, Ascheim DD, Casey DE, Chung MK, Lemos JA, Ettinger SM, et al. 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction: Executive Summary: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation, 2013; 127:1-88. Published online December 17, 2012.

OP-3: Median Time to Transfer to Another Facility for Acute Coronary Intervention

Continuous Variable Statement: Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention





Algorithm Narrative for OP-3:
Median Time to Transfer to Another Facility for Acute Coronary Intervention

Continuous Variable Statement: Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention.

1. Start. Run all cases that are included in the AMI Hospital Outpatient Population Algorithm and pass the edits defined in the Data Processing Flow through this measure. Proceed to *Initial ECG Interpretation*.

2. Check *Initial ECG Interpretation*.
   a. If *Initial ECG Interpretation* 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 *Initial ECG Interpretation* 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 *Initial ECG Interpretation* equals Yes, the case will proceed to *Fibrinolytic Administration*.

3. Check *Fibrinolytic Administration.*
   a. If *Fibrinolytic Administration* 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 *Fibrinolytic Administration* equals Yes, 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 *Fibrinolytic Administration* equals No, the case will proceed to *Transfer for Acute Coronary Intervention*.

4. Check *Transfer for Acute Coronary Intervention.*
   a. If *Transfer for Acute Coronary Intervention* 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 *Transfer for Acute Coronary Intervention* equals 2 or 3, 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 *Transfer for Acute Coronary Intervention* equals 1, the case will proceed to *ED Departure Date*.

5. Check *ED Departure Date*.
   a. If *ED Departure 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 *ED Departure 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 *ED Departure Date* equals Non-UTD Value, the case will proceed to *ED Departure Time*.

6. Check *ED Departure Time*.
   a. If *ED Departure 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 *ED Departure 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 *ED Departure 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 the Measurement Value.

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

9. Check the 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 *Reason for Not Administering Fibrinolytic Therapy*.

10. Check *Reason for Not Administering Fibrinolytic Therapy*.
    a. If *Reason for Not Administering Fibrinolytic Therapy* is missing, the case will proceed to a Measure Category Assignment of X and the case will be rejected. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If *Reason for Not Administering Fibrinolytic Therapy* equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of D1, the OP-3a Overall Rate. Initialize the Measure Category Assignment for OP-3b and OP-3c equal to B. Do not change the Measure Category Assignment that was already calculated for the overall rate of OP-3a. Proceed to *Reason for Not Administering Fibrinolytic Therapy*.

11. Check *Reason for Not Administering Fibrinolytic Therapy*.
    a. If *Reason for Not Administering Fibrinolytic Therapy* equals 1 or 2, the case will proceed to a Measure Category Assignment of D2, the OP-3c Quality Improvement Rate. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If *Reason for Not Administering Fibrinolytic Therapy* equals 3, the case will proceed to a Measure Category Assignment of D, the OP-3b Reporting Rate. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

Measure Information Form

Performance Measure Name: Aspirin at Arrival

Measure ID #: OP-4

Measure Set: Hospital Outpatient Acute Myocardial Infarction and Hospital Outpatient Chest Pain

Outpatient Setting: Emergency Department

Description: Emergency Department acute myocardial infarction (AMI) patients or chest pain patients (with *Probable Cardiac Chest Pain*) who received aspirin within 24 hours before ED arrival or prior to transfer.

Rationale: The early use of aspirin in patients with AMI results in a significant reduction in adverse events and subsequent mortality. The benefits of aspirin therapy on mortality are comparable to fibrinolytic therapy. The combination of aspirin and fibrinolytics provides additive benefits for patients with ST-segment elevation myocardial infarction (ISIS-2, 1988). Aspirin is also effective in patients with non-ST-segment elevation myocardial infarction (Theroux, 1988 and RISC Group, 1990). National guidelines strongly recommend early aspirin for patients hospitalized with AMI (Antman, 2008 and Wright, 2011).

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Emergency Department AMI or Chest Pain patients (with *Probable Cardiac Chest Pain*) who received aspirin within 24 hours before ED arrival or prior to transfer.

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:
- *Aspirin Received*

Denominator Statement: Emergency Department 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, 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-10-CM Principal Diagnosis Code* for AMI as defined in Appendix A, OP Table 1.1 or an *ICD-10-CM Other Diagnosis Codes* for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, with *Probable Cardiac Chest Pain*

Excluded Populations:
- Patients less than 18 years of age
- Patients with a documented *Reason for No Aspirin on Arrival*

Data Elements:

- *Birthdate*
- *Discharge Code*
- *E/M Code*
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- *Outpatient Encounter Date*
- *Probable Cardiac Chest Pain*
- *Reason for No Aspirin on Arrival*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-10-CM diagnosis and procedure codes, which require retrospective data entry.

Data Accuracy: Variation may exist in the assignment of ICD-10-CM codes; therefore, coding practices may require evaluation to ensure consistency. There may be additional variation by provider, facility, and documentation protocol for chart-abstracted data elements.

Measure Analysis Suggestions: None

Sampling: Yes; for additional information see the Population and Sampling Specifications section. Sampling requirements apply to each distinct Hospital Outpatient measure set (AMI and Chest Pain).

Data Reported As: Aggregate rate generated from count data reported as a proportion.

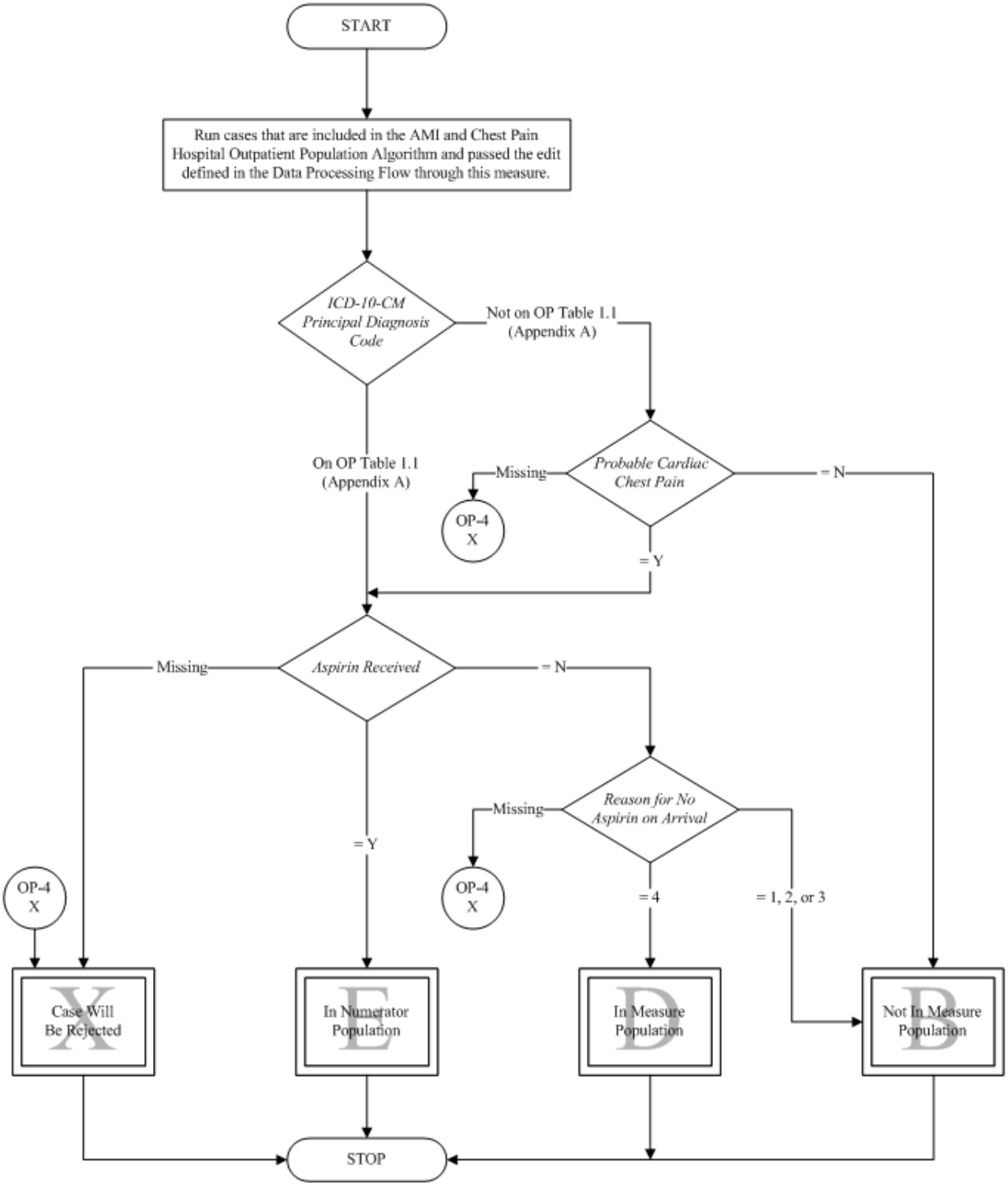
Selected References:

- Antman EM, Hand M, Armstrong PW, Bates ER, Green LA, Halasyamani LK, et al. 2007 focused update of the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Group to Review New Evidence and Update the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction). J Am Coll Cardiol. 2008; 51:210–47.
- Krumholz HM, Anderson JL, Bachelder BL, Fesmire FM, Fihn SD, Foody JM, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non-ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non-ST-Elevation Myocardial Infarction). J Am Coll Cardiol. 2008; 52:2046-99.
- Randomized trial of intravenous streptokinase, oral aspirin, both or neither among 17,187 cases of suspected acute myocardial infarction: ISIS-2. ISIS-2 (Second International Study of Infarct Survival) Collaborative Group. Lancet. 1988 Aug 13; 2(8607):349-60.
- Risk of myocardial infarction and death during treatment with low dose aspirin and intravenous heparin in men with unstable coronary artery disease. The RISC Group. Lancet 1990; 336(8719):827-30.
- Theroux P, Ouimet H, McCans J et al. Aspirin, heparin, or both to treat acute unstable angina. N Engl J Med 1988; 319:1105-11.
- Wright RS, Anderson JL, Adams CD, Bridges CR, Casey DE Jr, Ettinger SM, et al. 2011 ACCF/AHA focused update of the guidelines for the management of patients with unstable angina/non–ST-elevation myocardial infarction (updating the 2007 guideline): a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2011; 57:1920–59.

OP-4: Aspirin at Arrival

Numerator: Emergency Department AMI or Chest Pain patients (with *Probable Cardiac Chest Pain*) who received aspirin within 24 hours before ED arrival or prior to transfer.

Denominator: Emergency Department AMI or Chest Pain patients (with *Probable Cardiac Chest Pain*).



Algorithm Narrative for OP-4:
Aspirin at Arrival

Numerator: Emergency Department AMI or Chest Pain patients (with *Probable Cardiac Chest Pain)* who received aspirin within 24 hours before ED arrival or prior to transfer.

Denominator: Emergency Department AMI or Chest Pain patients (with *Probable Cardiac Chest Pain*).

1. Start. Run cases that are included in the AMI and Chest Pain Hospital Outpatient Population Algorithms and passed the edit defined in the Data Processing Flow through this measure. Proceed to *ICD-10-CM Principal Diagnosis Code.*

2. Check *ICD-10-CM Principal Diagnosis Code*.
   a. If the *ICD-10-CM Principal Diagnosis Code* is not in Appendix A, OP Table 1.1, the case will proceed to *Probable Cardiac Chest Pain*.
   b. If the *ICD-10-CM Principal Diagnosis Code* is in Appendix A, OP Table 1.1, the case will proceed to *Aspirin Received.*

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 *Aspirin Received*.

4. Check *Aspirin Received.*
   a. If *Aspirin Received* 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 *Aspirin Received* equals No, the case will proceed to *Reason for No Aspirin on Arrival*.
   c. If *Aspirin Received* equals Yes, the case will proceed to a Measure Category Assignment of E. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

5. Check *Reason for No Aspirin on Arrival*.
   a. If *Reason for No Aspirin on Arrival* 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 *Reason for No Aspirin on Arrival* equals 1, 2, or 3, 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 *Reason for No Aspirin on Arrival* equals 4, the case will proceed to a Measure Category Assignment of D. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

Measure Information Form

Performance Measure Name: Median Time to ECG

Measure ID #: OP-5

Measure Set: Hospital Outpatient Acute Myocardial Infarction and Hospital Outpatient Chest Pain

Outpatient Setting: Emergency Department

Description: 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*)

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 (Antman, 2008). The diagnosis and management of STEMI patients are 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 identify the median time to ECG for chest pain or AMI patients and potential opportunities for improvement to decrease the median time to ECG.

Type of Measure: Process

Improvement Noted As: A decrease in the median value

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-10-CM Principal Diagnosis Code* for AMI as defined in Appendix A, OP Table 1.1 or an *ICD-10-CM 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-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- *Outpatient Encounter Date*
- *Probable Cardiac Chest Pain*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-10-CM diagnosis and procedure codes, which require retrospective data entry.

Data Accuracy: Variation may exist in the assignment of ICD-10-CM codes; therefore, coding practices may require evaluation to ensure consistency. There may be additional variation by provider, facility, and documentation protocol for chart-abstracted data elements.

Measure Analysis Suggestions: None

Sampling: Yes; for additional information see the Population and Sampling Specifications section. Sampling requirements apply to each distinct Hospital Outpatient measure set (AMI and Chest Pain).

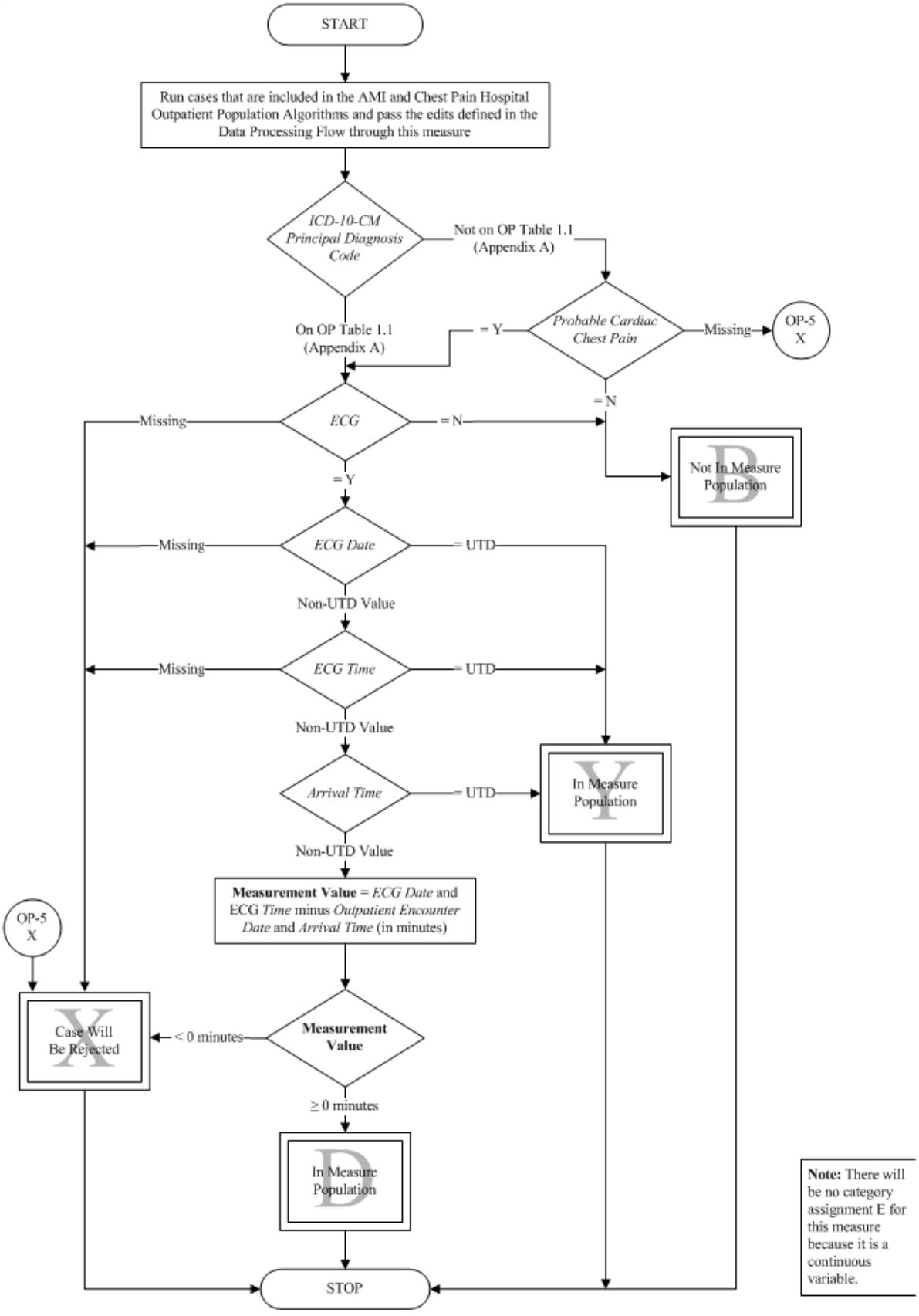
Data Reported As: Aggregate measure of central tendency

Selected References:

- Krumholz HM, Anderson JL, Bachelder BL, Fesmire FM, Fihn SD, Foody JM, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non-ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non-ST-Elevation Myocardial Infarction). J Am Coll Cardiol. 2008; 52:2046-99.
- O'Gara PT, Kusher FG, Ascheim DD, Casey DE, Chung MK, Lemos JA, Ettinger SM, et al. 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction: Executive Summary: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation, 2013; 127 1-88. Published online December 17, 2012.
- 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.

OP-5: 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*).



Algorithm Narrative for OP-5:
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-10-CM Principal Diagnosis Code*.

2. Check *ICD-10-CM Principal Diagnosis Code*.
   a. If the *ICD-10-CM Principal Diagnosis Code* is not in Appendix A, OP Table 1.1, the case will proceed to *Probable Cardiac Chest Pain*.
   b. If the *ICD-10-CM Principal Diagnosis Code* is in 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.