

GWTG-CAD STEMI Receiving Center Measures

July 2020

Updates appear in yellow highlight

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Achievement Measures

ACE-Inhibitor or Angiotensin Receptor Blocker (ARB) for LVSD at Discharge

Percentage of ST-elevation Myocardial Infarction patients with left ventricular systolic dysfunction (EF < 40% or with moderate or severe LVSD) who are prescribed and ACEI or ARB at hospital discharge

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial patient population who have an ejection fraction < 40% or moderate or severe systolic dysfunction

Data Elements for Calculation

Same as initial patient population
AND

LVF Assessment is not null
AND

LVF Assessment < 40%

Exclusions: (Always remove from denominator)

Patients who:

- Are discharged to another acute care facility OR
- Expire OR
- Are discharged on comfort measures OR
- Are receiving hospice services OR
- Are discharged AMA OR
- For whom both ACEI and ARB are contraindicated

Discharge Status = 2 (Hospice-Home) OR = 3 (Hospice-Healthcare Facility) OR = 4 (Acute Care Facility) OR = 6 (Expired) OR = 7 (Left Against Medical Advice/AMA)
OR

Comfort Measures Only = 1 (Yes)
OR

(ACEI at Discharge Prescribed = 3 [None--Contraindicated])
AND

ARB at Discharge Prescribed = 3 [None--Contraindicated])

Exceptions: (Remove from denominator if present and numerator is not met)

None

N/A

Numerator

Patients who were prescribed an ACEI or ARB at discharge

ACEI at Discharge Prescribed = 1 (Yes)
OR

ARB at Discharge Prescribed = 1 (Yes)

Note: Entresto is a combination of sacubitril, a neprilysin inhibitor (ARNI), and valsartan, an angiotensin II receptor blocker (ARB). If Entresto, or another combination drug containing an ARB, is prescribed at discharge, this would fulfill the numerator.

Arrival at First Facility to Primary PCI ≤ 120 minutes

Percentage of ST-elevation Myocardial Infarction patients transferred from a STEMI Referring Hospital who received primary PCI within ≤ 120 minutes of arrival at the first facility (STEMI Referring Hospital door-to-device time)

For admissions with STEMI diagnosed on subsequent ECG, arrival date/time is set to 0 and Arrival at First Facility to Primary PCI is set to Subsequent ECG time to Primary PCI.

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

Data Elements for Calculation

All patients in the initial population:

- Who were transferred in from another acute care facility
AND
- For whom PCI is the primary reperfusion strategy
AND
- Whose arrival time at the first facility and first device activation time are not missing
AND
- Time from arrival at first facility to first device activation time is not negative (less than zero)
AND
- Time from arrival at first facility to first device activation is not > 12 hours

Same as initial patient population
AND

Transferred from other facility = 1 (Yes)
AND

Indication for PCI = 1 (Primary PCI for STEMI)
AND

Arrival at Outside Facility Time is not null
AND

Arrival at Outside Facility Time is in MM/DD/YYYY HH:MM format
AND

First PCI Date/Time is not null
AND

First PCI Date/Time is in MM/DD/YYYY HH:MM format
AND

[First PCI Date/Time MINUS Arrival at Outside Facility Time ≥0 AND ≤ 12 hours

Exclusions: (Always remove from denominator)	
<ul style="list-style-type: none"> Patients who receive thrombolytics prior to PCI STEMI was first identified on subsequent ECG done at the receiving hospital. 	<p>(Thrombolytics = 1 (Yes) AND</p> <p>Dose Start Date/Time is not null AND</p> <p>Dose Start Date/Time is in MM/DD/YYYY HH:MM format AND</p> <p>[Dose Start Date/Time < First PCI Date/Time) OR</p> <p>(MM/DD/YYYY of Dose Start Date/Time < MM/DD/YYYY of First PCI Date/Time) OR</p> <p>[STEMI or STEMI Equivalent First Noted = 2 (Subsequent ECG) AND</p> <p>Subsequent ECG, Date/Time of positive ECG is not null AND</p> <p>Subsequent ECG, Date/Time of positive ECG is in MM/DD/YYYY HH:MM format AND</p> <p>(Subsequent ECG, Date/Time of positive ECG > Transfer Out Date/Time)]</p>
Exceptions: (Remove from denominator if present and numerator is not met)	
<ul style="list-style-type: none"> Patients who did not receive primary PCI within 120 minutes AND had a documented non-system reason for delay Patients currently enrolled in a clinical trial related to reperfusion therapy 	<p>Non-system reason for delay in PCI = 1 (Difficult vascular access) OR = 2 (Patient delays in providing consent) OR = 3 (Other) OR = 4 (Cardiac arrest and/or need for intubation) OR = 5 (Difficulty crossing the culprit lesion) OR = 7 [Emergent placement of LV support device prior to PCI] OR</p> <p>(Enrolled in Clinical Trial During Hospitalization = 1 [Yes] AND</p> <p>Type of Clinical Trial = 2 [Related to reperfusion therapy])]</p>

Numerator

Patients who received primary PCI:

- Within 120 minutes of arrival at the first facility for patients with STEMI first noted on first ECG

OR

- Within 120 minutes of subsequent ECG time for patients with STEMI first noted on subsequent ECG **AND** the subsequent ECG was done at the STEMI Referring Hospital

[STEMI or STEMI Equivalent First Noted = 1 (First ECG)

AND

(First PCI Date/Time MINUS Arrival at Outside Facility Time) ≤ 120 minutes]

OR

[STEMI or STEMI Equivalent First Noted = 2 (Subsequent ECG)

AND

Subsequent ECG, Date/Time of positive ECG is not null

AND

Subsequent ECG, Date/Time of positive ECG is in MM/DD/YYYY HH:MM format

AND

Transfer Out Date/Time is not null

AND

Transfer Out Date/Time is in MM/DD/YYYY HH:MM format

AND

(Arrival at Outside Facility Time ≤ Subsequent ECG, Date/Time of positive ECG)

AND

(Subsequent ECG, Date/Time of positive ECG < Transfer Out Date/Time)

AND

(First PCI Date/Time MINUS If subsequent ECG, Date/Time of positive ECG) ≤ 120 minutes]

Aspirin at Discharge

Percentage of ST-elevation Myocardial Infarction patients prescribed aspirin at discharge

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth \geq 18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial patient population

Data Elements for Calculation

Same as initial patient population

Exclusions: (Always remove from denominator)

Patients who:

- Are discharged to another acute care facility OR
- Expire OR
- Are discharged on comfort measures OR
- Are receiving hospice services OR
- Are discharged AMA OR
- Are prescribed warfarin, dabigatran, rivaroxaban or apixaban at discharge OR
- For whom aspirin is contraindicated

Anticoagulation at Discharge: Medication = 1 (Coumadin (warfarin) OR = 3 (Dabigatran) OR = 10 (Rivaroxaban) OR = 7 (Apixaban)
OR

Discharge Status = 2 (Hospice-Home) OR = 3 (Hospice-Healthcare Facility) OR = 4 (Acute Care Facility) OR = 6 (Expired) OR = 7 (Left Against Medical Advice/AMA)
OR

Comfort Measures Only = 1 (Yes)
OR

Aspirin at Discharge: Prescribed = 3 [None—Contraindicated]

Exceptions: (Remove from denominator if present and numerator is not met)

Patient currently enrolled in a clinical trial precluding the use of aspirin in its protocol

Enrolled in Clinical Trial During Hospitalization = 1 [Yes]
AND

Type of Clinical Trial = 1 [Precluding the use of aspirin in its protocol]

Numerator

Patients who are prescribed aspirin at discharge

Aspirin at Discharge: Prescribed (presasa) = 1 (Yes)

Beta-Blocker at Discharge

Percentage of ST-elevation Myocardial Infarction patients prescribed a beta blocker at hospital discharge

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥ 18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial patient population

Data Elements for Calculation

Same as initial patient population

Exclusions: (Always remove from denominator)

Patients who:

- Are discharged to another acute care facility OR
- Expire OR
- Are discharged on comfort measures OR
- Are receiving hospice services OR
- Are discharged AMA OR
- For whom beta-blockers are contraindicated

Discharge Status = 2 (Hospice-Home) OR = 3 (Hospice-Healthcare Facility) OR = 4 (Acute Care Facility) OR = 6 (Expired) OR = 7 (Left Against Medical Advice/AMA)
OR

Comfort Measures Only = 1 (Yes)
OR

Beta-blocker at Discharge Prescribed = 3 [None—Contraindicated]

Exceptions: (Remove from denominator if present and numerator is not met)

None

N/A

Numerator

Patients who were prescribed a beta-blocker at discharge

Beta-blocker at Discharge Prescribed = 1 (Yes)

Cardiac Rehabilitation Patient Referral from an Inpatient Setting

Percentage of patients hospitalized with ST elevation Myocardial Infarction who were referred to an outpatient cardiac rehabilitation (CR) program during their hospital stay

Initial Patient Population

All patients age 18 years and older with STEMI	<u>Arrival Date/Time</u> is not null AND <u>Date of Birth</u> is not null AND <u>Arrival Date/Time</u> MINUS Date of Birth ≥18 years AND <u>STEMI or STEMI Equivalent</u> = 1(Yes)
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Denominator

Include:	Data Elements for Calculation
All patients in the initial patient population	Same as initial patient population

Exclusions: (Always remove from denominator)

<ul style="list-style-type: none"> • Patients who are comfort measures only • Patients who are discharged/transferred to hospice, • Patients who are discharged/transferred to another acute care facility, • Patients who expire • Patients who leave against medical advice 	<u>Comfort Measures Only</u> = 1 (Yes) OR <u>Discharge Status</u> = 2 (Hospice-Home) OR = 3 (Hospice-Healthcare Facility) OR = 4 (Acute Care Facility) OR = 6 (Expired) OR = 7 (Left Against Medical Advice/AMA)
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Exceptions: (Remove from denominator if present and numerator is not met)

Patients who were not referred to an early outpatient cardiac rehabilitation (CR) program prior to discharge AND Have a documented medical, patient-oriented or healthcare system reason why a referral to cardiac rehabilitation was not made	<u>Patient Referred to Cardiac Rehab</u> = 3 (No-Medical Reason) OR = 4 (No-Patient-Oriented Reason) OR = 5 (No-Healthcare System Reason)
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Numerator

Patients who are referred* to an outpatient CR program prior to hospital discharge OR Who refused referral to an outpatient CR program	<u>Patient Referred to Cardiac Rehab</u> = 1 (Yes)
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*Referral is defined as:

1. Documented communication between the healthcare provider and the patient to recommend an outpatient CR program

AND

2A. Official referral order is sent to outpatient CR program **OR** 2B. Documentation of patient refusal to justify why patient information was not sent to the CR program

ECG within 10 minutes of Arrival at this Receiving Center

Percentage of ST-elevation Myocardial Infarction patients who present directly to Receiving Center and receive an ECG within 10 minutes of arrival

Initial Patient Population

All patients age 18 years and older with STEMI

Data Elements for Calculation

Arrival Date/Time is not null
AND
Date of Birth is not null
AND
Arrival Date/Time MINUS Date of Birth ≥18 years
AND
 STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial population who present to the ED at the Receiving Center (EMS from home or walk-in)

Data Elements for Calculation

Patients included in initial patient population
AND
Means of transport to first facility = 1 (Air) OR = 2 (Ambulance) OR = 3 (Walk-in)
AND
Arrival Date/Time is not null
AND
First ECG Date/Time is not null
AND
Arrival Date/Time is in MM/DD/YYYY HH:MM format
AND
First ECG Date/Time is in MM/DD/YYYY HH:MM format
AND
 (First ECG Date/Time MINUS Arrival Date/Time) ≥ 0 **AND** ≤ 12 hours

- AND**
- Arrival time and first ECG time are not missing **AND** are in MMD/DD/YYYY HH:MM format
 - AND**
 - Time from arrival to ECG time is not negative (less than zero)
 - AND**
 - Time from arrival to ECG is ≤ 12 hours

Exclusions: (Always remove from denominator)

- Patients who were transferred from another acute care facility
- Patients with ECG performed prior to arrival at the Receiving Center

Transferred from other facility = 1 (Yes)
OR
First ECG Obtained = 1 (Prior to hospital arrival)

Exceptions: (Remove from denominator if present and numerator is not met)

Patients who did not receive ECG within 10 minutes of arrival at the Receiving Center **AND** had a documented non-system reason for delay in the first ECG.

First ECG Non-System Reason for Delay = 1 (Yes)

Numerator

Patients who received ECG within 10 minutes of arrival at the Receiving Center.

First ECG Date/Time MINUS Arrival Date/Time ≤ 10 min

High-Intensity Statin at Discharge

Percentage of ST-elevation Myocardial Infarction patients who are prescribed a high-intensity statin at hospital discharge

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null

AND

Arrival Date/Time MINUS Date of Birth ≥18 years

AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

Same as initial patient population

Data Elements for Calculation

Same as Initial Patient Population

Exclusions: (Always remove from denominator)

Patients who:

- Are discharged AMA OR
- Expire during hospitalization OR
- Are discharged to hospice or are on comfort measures OR
- Are transferred to another acute care facility

Discharge Status = 2 (Hospice-Home) OR = 3 (Hospice-Healthcare Facility) OR = 4 (Acute Care Facility) OR = 6 (Expired) OR = 7 (Left Against Medical Advice/AMA)
OR

Comfort Measures Only = 1 (Yes)

Exceptions: (Remove from denominator if present and numerator is not met)

- Documentation of a medical reason for not prescribing a high-intensity statin (e.g., allergy, intolerance or contraindications to high-intensity statin(s), risk of interaction between drugs, or other medical reasons) OR
- Documentation of a patient reason for not prescribing a statin (e.g., patient refusal) OR
- Documentation of prescription of a moderate-intensity statin for patients > 75 years of age OR
- Patient currently enrolled in a clinical trial related to lipid-lowering therapy

Non-System Reason for not Prescribing High-Intensity Statin = 1 [Yes, Medical Reason]
OR = 2 [Yes, Patient Reason]
OR

[(Arrival Date/Time MINUS Date of Birth) > 75 years
AND

Statin at Discharge Prescribed = 1 (Yes)
AND

[(Medication (Statin at discharge) = 1 [Amlodipine + Atorvastatin (Caduet)] AND Dose (Statin at discharge) = 12 [2.5/10 mg] or = 13 [2.5/20 mg] or = 15 [5/10 mg] or = 16 [5/20 mg] or = 19 [10/10 mg] or = 20 [10/20 mg])
OR

(Medication (Statin at discharge) = 2 [Atorvastatin (Lipitor)] AND Dose (Statin at discharge) = 5 [10 mg] or = 6 [20 mg])
OR

(Medication (Statin at discharge) = 3 [Ezetemibe + Simvastatin (Vytorin)] AND Dose (Statin at discharge) = 20 [10/20 mg] or = 21 [10/40 mg])

OR

(Medication (Statin at discharge) = 4 [Fluvastatin (Lescol)] AND Dose (Statin at discharge) = 11 [80mg])

OR

(Medication (Statin at discharge) = 13 [Fluvastatin XL (Lescol XL)] AND Dose (Statin at discharge) = 11 [80mg])

(Medication (Statin at discharge) = 6 [Lovastatin Extended Release (Aldoprev)] AND Dose (Statin at discharge) = 8 [40 mg] OR = 10 [60 mg])

OR

(Medication (Statin at discharge) = 5 = [Lovastatin (Mevacor)] AND Dose (Statin at discharge) = 8 [40 mg])

OR

(Medication (Statin at discharge) = 7 [Lovastatin + Niacin (Advicor)] AND Dose (Statin at discharge) = 27 [40/1000 mg])

OR

(Medication (Statin at discharge) = 8 [Pitavastatin (Livalo)] AND Dose (Statin at discharge) = 2 [2 mg] OR = 3 [4 mg])

OR

(Medication (Statin at discharge) = 9 [Pravastatin (Pravachol)] AND Dose (Statin at discharge) = 8 [40 mg] OR = 11 [80 mg])

OR

(Medication (Statin at discharge) = 10 [Rosuvastatin (Crestor)] AND Dose (Statin at discharge) = 4 [5 mg] OR = 5 [10 mg])

OR

(Medication (Statin at discharge) = 11 [Simvastatin (Zocor)] AND Dose (Statin at discharge) = 6 [20 mg] OR = 8 [40 mg])

OR

(Medication (Statin at discharge) = 12 [Simvastatin + Niacin (Simcor)] AND Dose (Statin at discharge) = 23 [20/500 mg] OR = 24 [20/750 mg] OR = 25 [20/1000] OR = 26 [40/500 mg] OR = 27 [40/1000] OR = 28 [40/2000 mg (2 X 20/1000)]

OR

Statin Level of Intensity (doseintstat) = 2 [Moderate]]]

OR

[Enrolled in Clinical Trial During Hospitalization = 1 (Yes)

AND

Type of Clinical Trial = 5 [Related to lipid-lowering therapy]]

Numerator

Patients who were prescribed a high-intensity statin at discharge

Statin at Discharge Prescribed = 1 (Yes)

AND

[(Medication (Statin at discharge)) = 1 [Amlodipine + Atorvastatin (Caduet)]

AND Dose (Statin at discharge) = 14 [2.5/40 mg] OR = 17 [5/40 mg] OR = 18 [5/80 mg] OR = 21 [10/40 mg])

OR

(Medication (Statin at discharge)) = 2 [Atorvastatin (Lipitor)] AND Dose (Statin at discharge) = 9 [≥ 40 mg])

OR

(Medication (Statin at discharge)) = 3 [Ezetimibe + Simvastatin (Vytorin)] AND Dose (Statin at discharge) = 22 [10/80 mg])

OR

(Medication (Statin at discharge)) = 10 [Rosuvastatin (Crestor)] AND Dose (Statin at discharge) = 7 [≥ 20 mg])

OR

(Medication (Statin at discharge)) = 11 [Simvastatin (Zocor)] AND Dose (Statin at discharge) = 11 [80 mg])

OR

Statin Level of Intensity (doseintstat) = 3 [High]

Mission: Lifeline EMS First Medical Contact to Primary PCI ≤ 90 minutes OR ≤ 120 Minutes when Transport Time is Prolonged

Percentage of ST-elevation Myocardial Infarction patients transported directly to a Receiving Center by EMS who received primary PCI within 90 minutes of EMS first medical contact OR, when EMS transport time was ≥ 45 minutes, who received primary PCI within 120 minutes of EMS first medical contact AND within 30 minutes of arrival at the Receiving Center

Initial Patient Population	Data Elements for Calculation
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All patients age 18 years and older with STEMI	<p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Date of Birth</u> is not null AND</p> <p><u>Arrival Date/Time</u> MINUS Date of Birth ≥ 18 years AND</p> <p><u>STEMI or STEMI Equivalent</u> = 1 (Yes)</p>
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Denominator	Include:
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All patients in the initial population for whom PCI is the primary reperfusion strategy AND: <ul style="list-style-type: none"> • Who have STEMI or STEMI equivalent first noted on the first ECG AND • Who arrive at the Receiving Center via ambulance AND • Whose arrival time, first medical contact time, and first device activation time are not missing AND are in MM/DD/YYYY HH:MM format AND • Time from first medical contact to first device activation time is not negative (less than zero) AND • Time from first medical contact to first device activation is not > 12 hours 	<p>Same as initial patient population AND</p> <p><u>Indication for PCI</u> = 1 (Primary PCI for STEMI) AND</p> <p><u>STEMI or STEMI Equivalent First Noted</u> = 1 (First ECG) AND</p> <p><u>Means of Transport to First Facility</u> = 2 (Ambulance) AND</p> <p><u>Arrival Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>EMS First Medical Contact Time</u> is not null AND</p> <p><u>EMS First Medical Contact Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>First PCI Date/Time</u> is not null AND</p>
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	<p><u>First PCI Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p>[<u>First PCI Date/Time</u> MINUS <u>EMS First Medical Contact Date</u>] ≥ 0 AND ≤12 hours</p>
<p>Exclusions: (Always remove from denominator)</p>	
<ul style="list-style-type: none"> • Patients who are transferred from another acute care facility • Patients who receive thrombolytics prior to PCI • 	<p><u>Transferred from other facility</u> = 1 (Yes) OR</p> <p>(<u>Thrombolytics</u> = 1 (Yes) AND</p> <p><u>Dose Start Date/Time</u> is not null AND</p> <p>(<u>Dose Start Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>Dose Start Date/Time</u> < <u>First PCI Date/Time</u>) OR</p> <p>(MM/DD/YYYY of <u>Dose Start Date/Time</u> < MM/DD/YYYY of <u>First PCI Date/Time</u>))</p>
<p>Exceptions: (Remove from denominator if present and numerator is not met)</p>	
<ul style="list-style-type: none"> • Documented non-system reason for delay • Documented EMS non-system reason for delay • Patient currently enrolled in a clinical trial related to reperfusion therapy 	<p><u>Non-system reason for delay in PCI</u> = 1 (Difficult vascular access) OR = 2 (Patient delays in providing consent) OR = 3 (Other) OR = 4 (Cardiac arrest and/or need for intubation) OR = 5 (Difficulty crossing the culprit lesion) OR = 7 [Emergent placement of LV support device prior to PCI] OR</p> <p><u>EMS Non-System Reason for Delay</u> is not null OR</p> <p>(<u>Enrolled in Clinical Trial During Hospitalization</u> = 1 [Yes] AND</p> <p><u>Type of Clinical Trial</u> = 2 [Related to reperfusion therapy])</p>

Numerator

Patients who received a primary PCI within 90 minutes of EMS first medical contact

OR

Whose scene departure date and/or time is not missing **AND** is in MM/DD/YYYY HH:MM format

AND

Who had an EMS transport time of ≥ 45 minutes

AND

Who received a primary PCI:

- Within 120 minutes of EMS first medical contact

AND

- Within 30 minutes of arrival at the Receiving Center

**(First PCI Date/Time MINUS EMS First Medical Contact Date ≤ 90 minutes
OR**

**[(First PCI Date/Time MINUS EMS First Medical Contact Date ≤ 120 minutes
AND**

**(First PCI Date/Time MINUS Arrival Date/Time) ≤ 30 minutes
AND**

**[EMS Depart Scene Date/Time is not null
AND**

**EMS Depart Scene Date/Time is in MM/DD/YYYY HH:MM format
AND**

(Arrival Date/Time MINUS EMS Depart Scene Date/Time) ≥ 45 minutes]]

Primary PCI ≤ 90 minutes

Percentage of direct admit (non-transfer) ST-elevation Myocardial Infarction patients who received primary PCI within 90 minutes of arrival at the Receiving Center (door-to-device time)

For admissions with STEMI diagnosed on subsequent ECG, arrival date/time is set to 0 and Arrival to Primary PCI is set to Subsequent ECG time to Primary PCI.

Initial Patient Population

All patients age 18 years and older with STEMI

Data Elements for Calculation

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial population:

- For whom PCI is the primary reperfusion strategy
AND
- Whose arrival time and first device activation time are not missing
AND
- Time from arrival to first device activation time is not negative (less than zero)
AND
- Time from arrival to first device activation is not > 12 hours

Data Elements for Calculation

Same as initial patient population
AND

Indication for PCI = 1 (Primary PCI for STEMI)
AND

Arrival Date/Time is in MM/DD/YYYY HH:MM format
AND

First PCI Date/Time is not null
AND

First PCI Date/Time is in MM/DD/YYYY HH:MM format
AND

[First PCI Date/Time MINUS Arrival Date/Time] ≥ 0 AND ≤12 hours

Exclusions: (Always remove from denominator)	
<ul style="list-style-type: none"> Patients who are transferred from another acute care facility Patients who receive thrombolytics prior to PCI 	<p>Transferred from other facility = 1 (Yes) OR</p> <p>(Thrombolytics = 1 (Yes) AND</p> <p>Dose Start Date/Time is not null AND</p> <p>(Dose Start Date/Time is in MM/DD/YYYY HH:MM format AND</p> <p>Dose Start Date/Time < First PCI Date/Time) OR</p> <p>(MM/DD/YYYY of Dose Start Date/Time < MM/DD/YYYY of First PCI Date/Time)</p>
Exceptions: (Remove from denominator if present and numerator is not met)	
<ul style="list-style-type: none"> Patients who did not receive primary PCI within 90 minutes AND had a documented non-system reason for delay Patient currently enrolled in clinical trial related to reperfusion therapy 	<p>Non-system reason for delay in PCI = 1 (Difficult vascular access) OR = 2 (Patient delays in providing consent) OR = 3 (Other) OR = 4 (Cardiac arrest and/or need for intubation) OR = 5 (Difficulty crossing the culprit lesion) OR = 7 [Emergent placement of LV support device prior to PCI] OR</p> <p>(Enrolled in Clinical Trial During Hospitalization = 1 [Yes] AND Type of Clinical Trial = 2 [Related to reperfusion therapy])</p>
Numerator	
<p>Patients who received primary PCI:</p> <ul style="list-style-type: none"> Within 90 minutes of arrival at the Receiving Center for patients with STEMI first noted on first ECG <p>OR</p> <ul style="list-style-type: none"> Within 90 minutes of subsequent ECG time for patients with STEMI first noted on subsequent ECG AND the subsequent ECG was performed <i>on or after</i> arrival to the Receiving Center <p>OR</p> <ul style="list-style-type: none"> Within 90 minutes of arrival at the Receiving Center for patients with STEMI first noted on subsequent ECG AND the subsequent ECG was performed <i>prior to</i> arrival at the Receiving Center 	<p>[STEMI or STEMI Equivalent First Noted = 1 (First ECG) AND</p> <p>(First PCI Date/Time MINUS Arrival Date/Time) ≤ 90 minutes] OR</p> <p>[STEMI or STEMI Equivalent First Noted = 2 (Subsequent ECG) AND</p> <p>Subsequent ECG, Date/Time of positive ECG is not null AND Subsequent ECG, Date/Time of positive ECG is in MM/DD/YYYY HH:MM format AND</p> <p>Subsequent ECG, Date/Time of positive ECG ≥ Arrival Date/Time AND</p>

(First PCI Date/Time MINUS If subsequent ECG, Date/Time of positive ECG) ≤ 90 minutes]

OR

[STEMI or STEMI Equivalent First Noted = 2 (Subsequent ECG)

AND

Subsequent ECG, Date/Time of positive ECG is not null

AND

Subsequent ECG, Date/Time of positive ECG is in MM/DD/YYYY HH:MM format

AND

Subsequent ECG, Date/Time of positive ECG < Arrival Date/Time

AND

(First PCI Date/Time MINUS Arrival Date/Time) ≤ 90 minutes)]

Quality Measure

Time from FMC (at or Before ED Arrival at STEMI Referring Hospital) to Primary PCI at STEMI Receiving Facility Among Transferred Patients (Plus Measure)

Percentage ST-elevation Myocardial Infarction patients whose time from first medical contact (at or before ED arrival to the STEMI Referring Hospital to primary PCI at the STEMI Receiving Center is ≤ 120 minutes

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥ 18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial population for whom PCI is the primary reperfusion strategy **AND**
Who were transferred in from another acute care facility
AND
Who have STEMI or STEMI equivalent first noted on the first ECG

Data Elements for Calculation

Same as initial patient population
AND

Indication for PCI = 1 (Primary PCI for STEMI)
AND

Transferred from other facility = 1 (Yes)
AND

STEMI or STEMI Equivalent First Noted = 1 (First ECG)

Exclusions: (Always remove from denominator)

- First PCI date/time is missing or is not in MM/DD/YYYY HH:MM format
OR
- Patients who arrived at referring hospital via air or ambulance and EMS First Medical Contact Time is missing or is not in MM/DD/YYYY HH:MM format
OR
- Patients who arrived at referring hospital via walk-in and Arrival Date/Time at Outside Hospital is missing or is not in MM/DD/YYYY HH:MM format
OR
- Calculated time from FMC at or prior to arrival at referring hospital is less than 0 OR greater than 12 hours
OR
STEMI was first noted on subsequent ECG
OR
- Patients who received thrombolytics prior to PCI

First PCI Date/Time is null
OR

First PCI Date/Time is not in MM/DD/YYYY HH:MM format
OR

[Means of Transport to First Facility = 1 (Air) OR = 2 (Ambulance)
AND

(EMS First Medical Contact Time is null
OR

EMS First Medical Contact Time is not in MM/DD/YYYY HH:MM format)]
OR

[Means of Transport to First Facility = 3 (Walk-in)
AND

(Arrival at Outside Facility Time is null
OR

Arrival at Outside Facility Time is not in MM/DD/YYYY HH:MM format)]
OR

[Means of Transport to First Facility = 1 (Air) OR = 2 (Ambulance)
AND

(First PCI Date/Time MINUS EMS First Medical Contact Date < 0 OR > 12 hours]
OR

[Means of Transport to First Facility = 3 (Walk-in)
AND

(First PCI Date/Time MINUS Arrival at Outside Facility Time) < 0 OR > 12 hours]
OR

(Thrombolytics = 1 (Yes)
AND

Dose Start Date/Time is not null
AND

Dose Start Date/Time is in MM/DD/YYYY HH:MM format
AND

Dose Start Date/Time < First PCI Date/Time]
OR

(MM/DD/YYYY of Dose Start Date/Time < MM/DD/YYYY of First PCI Date/Time)

Exceptions: (Remove from denominator if present and numerator is not met)	
<ul style="list-style-type: none"> Patients who did not receive primary PCI within 120 minutes AND had a documented non-system reason for delay OR Patients who are currently enrolled in a clinical trial related to STEMI and reperfusion therapy. 	<p><u>Non-system reason for delay in PCI</u> = 1 (Difficult vascular access) OR = 2 (Patient delays in providing consent) OR = 3 (Other) OR = 4 (Cardiac arrest and/or need for intubation) OR = 5 (Difficulty crossing the culprit lesion) OR = 7 [Emergent placement of LV support device prior to PCI]</p> <p>OR</p> <p><u>EMS Non-System Reason for Delay</u> is not null</p> <p>OR</p> <p><u>[Patient currently enrolled in a clinical trial]</u> = 1 (Yes)</p> <p>AND</p> <p><u>Type of Clinical Trial</u> = 2 (Related to reperfusion therapy)]</p>
Numerator	
<p>Patients who received primary PCI within 120 minutes of first medical contact (at or before arrival at the STEMI Referring Facility)</p>	<p><u>[Means of Transport to First Facility]</u> = 1 (Air) OR = 2 (Ambulance)</p> <p>AND</p> <p><u>(First PCI Date/Time MINUS EMS First Medical Contact Time ≤ 120 minutes]</u></p> <p>OR</p> <p><u>[Means of Transport to First Facility]</u> = 3 (Walk-in)</p> <p>AND</p> <p><u>(First PCI Date/Time MINUS Arrival at Outside Facility Time ≤ 120 minutes]</u></p>

Reporting Measures

Adult Smoking Cessation Advice

Percentage of ST-elevation Myocardial Infarction patients who smoke cigarettes who receive smoking cessation advice/counseling during admission.

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial patient population with a history of smoking cigarettes anytime during the year prior to arrival

Data Elements for Calculation

Same as initial patient population
AND

History of Smoking = 1 (Yes)

Exclusions: (Always remove from denominator)

Patients who:

- Are discharged to another acute care facility OR
- Expire OR
- Are discharged on comfort measures OR
- Are receiving hospice services OR
- Are discharged AMA

Discharge Status = 2 (Hospice-Home) OR = 3 (Hospice-Healthcare Facility) OR = 4 (Acute Care Facility) OR = 6 (Expired) OR = 7 (Left Against Medical Advice/AMA)
OR

Comfort Measures Only = 1 (Yes)

Exceptions: (Remove from denominator if present and numerator is not met)

None

Numerator

Patients who are given smoking cessation advice or counseling during admission

Smoking Cessation Counseling = 1 (Yes)

Arrival to STEMI Referring Hospital to Transfer to PCI Center within 45 minutes (Door In Door Out)

Percentage of ST-elevation Myocardial Infarction patients who are transferred to the Receiving Center for primary PCI within 45 minutes of arrival at the STEMI Referring Hospital

Initial Patient Population

All patients age 18 years and older with STEMI	<p style="background-color: #e0e0e0; margin: 0; padding: 2px;">Data Elements for Calculation</p> <p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Date of Birth</u> is not null</p> <p>AND</p> <p><u>Arrival Date/Time</u> MINUS Date of Birth ≥18 years</p> <p>AND</p> <p><u>STEMI or STEMI Equivalent</u> = 1 (Yes)</p>
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Denominator

<p style="background-color: #e0e0e0; margin: 0; padding: 2px;">Include:</p> <p>All patients in the initial population who are transferred to the Receiving Center from another acute care hospital (STEMI Referring Hospital)) for primary PCI</p> <p style="margin-left: 20px;">AND</p> <ul style="list-style-type: none"> • Who have STEMI or STEMI equivalent noted on first EKG <p style="margin-left: 20px;">AND</p> <ul style="list-style-type: none"> • Arrival time at the STEMI Referring Hospital and transfer time are not missing AND are in MMD/DD/YYYY HH:MM format <p style="margin-left: 20px;">AND</p> <ul style="list-style-type: none"> • Time from arrival at the STEMI Referring Hospital to transfer is not negative (less than zero) <p style="margin-left: 20px;">AND</p> <ul style="list-style-type: none"> • Time from arrival at the STEMI Referring Hospital to transfer is < 24 hours. 	<p style="background-color: #e0e0e0; margin: 0; padding: 2px;">Data Elements for Calculation</p> <p>Same as initial patient population</p> <p>AND</p> <p><u>Transferred from other facility</u> = 1 (Yes)</p> <p>AND</p> <p><u>STEMI or STEMI Equivalent First Noted</u> = 1 (First ECG)</p> <p>AND</p> <p><u>Arrival at outside hospital</u> is not null</p> <p>AND</p> <p><u>Arrival at outside hospital</u> is in MM/DD/YYYY HH:MM format</p> <p>AND</p> <p><u>Transfer Out Date/Time</u> is not null</p> <p>AND</p> <p><u>Transfer Out Date/Time</u> is in MM/DD/YYYY HH:MM format</p> <p>AND</p> <p><u>[Transfer Out Date/Time MINUS Arrival at outside hospital]</u> ≥ 0 AND < 24 hours</p>
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Exclusions: (Always remove from denominator)	
Patients who receive thrombolytic therapy prior to arrival at the Receiving Center	<p>[Thrombolytics = 1 (Yes) AND</p> <p>Dose Start Date/Time is not null AND</p> <p>Dose Start Date/Time is in MM/DD/YYYY HH:MM format AND</p> <p>(Dose Start Date/Time < Arrival Date/Time OR MM/DD/YYYY of Dose Start Date/Time < MM/DD/YYYY of Arrival Date/Time)]</p>
Exceptions: (Remove from denominator if present and numerator is not met)	
Patients who were not transferred out for primary PCI within 45 minutes of arrival at the STEMI Referring Hospital AND had a documented non-system reason for delay in PCI	<p>Non-system Reason for Delay = 2 [Patient delays in providing consent] OR = 4 [Cardiac arrest and/or need for intubation] OR = 7 [Emergent placement of LV support device prior to PCI]</p>
Numerator	
Patients who were transferred out for primary PCI within 45 minutes of arrival at the STEMI Referring Hospital.	<p>[Transfer Out Date/Time _MINUS Arrival at outside hospital] ≤ 45 minutes</p>

Aspirin at Arrival

Percentage of ST-elevation Myocardial Infarction patients who receive aspirin within 24 hours before or after first medical contact (if arriving via EMS, Air, or Mobile ICU), or within 24 hours before or after hospital arrival (if arriving via privately owned vehicle).

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial patient population

Data Elements for Calculation

Same as initial patient population

Exclusions: (Always remove from denominator)

Patients who:

- Were on warfarin, dabigatran, rivaroxaban or apixaban at home OR
- Were transferred from another acute care facility OR
-
- Are discharged on the day of or the day after arrival OR
- Are discharged on comfort measures OR
- Are discharged AMA OR
- Died on the day of or the day after arrival OR
- Or for whom aspirin is contraindicated

Patient Current Medications = 1 (Dabigatran) OR = 2 (Rivaroxaban) OR = 3 (Apixaban) OR = 4 (Warfarin)
OR

Transferred from Outside Facility = 1 (Yes)
OR

Discharge Status = 7 (Left Against Medical Advice/AMA)
OR

[MM/DD/YYYY of Discharge Date/Time = MM/DD/YYYY of Arrival Date/Time]
OR

[(MM/DD/YYYY of Discharge Date/Time = MM/DD/YYYY of Arrival Date/Time + 1]
OR

Discharge Status = 6 (Expired)
AND

	<p>(MM/DD/YYYY of <u>Discharge Date/Time</u> = MM/DD/YYYY of <u>Arrival Date/Time</u> OR (MM/DD/YYYY of <u>Discharge Date/Time</u>) = MM/DD/YYYY of <u>Arrival Date/Time</u> + 1)] OR <u>Comfort Measures Only</u> = 1 (Yes) OR <u>Aspirin within 24 Hours of Arrival</u> = 3 (Contraindicated)</p>
Exceptions: (Remove from denominator if present and numerator is not met)	
<ul style="list-style-type: none"> Patients who are discharged to another acute care facility Patient currently enrolled in a clinical trial precluding the use of aspirin in its protocol 	<p><u>Discharge Status</u> = 4 (Acute Care Facility) OR <u>(Enrolled in Clinical Trial During Hospitalization</u> = 1 [Yes] AND <u>Type of Clinical Trial</u> = 1 [Precluding the use of aspirin in its protocol!])</p>
Numerator	
Patients who received aspirin within 24 hours of first medical contact	<u>Aspirin within 24 Hours of Arrival</u> = 1 (Yes)

ECG within 10 minutes of Arrival at First Hospital for Patients Transferred for PCI

Percentage of ST-elevation Myocardial Infarction patients who are transferred to the Receiving Center who received an ECG within 10 minutes of arrival at the STEMI Referring Hospital

Initial Patient Population

All patients age 18 years and older with STEMI	<p style="text-align: center;">Data Elements for Calculation</p> <p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Date of Birth</u> is not null AND</p> <p><u>Arrival Date/Time</u> MINUS Date of Birth ≥18 years AND</p> <p><u>STEMI or STEMI Equivalent</u> = 1 (Yes)</p>
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Denominator

<p>Include:</p> <p>All patients in the initial population who are transferred to the Receiving Center from another acute care hospital (STEMI Referring Hospital)</p> <p>AND</p> <ul style="list-style-type: none"> Arrival time at the STEMI Referring Hospital, Arrival Time at the Receiving Center, and first ECG time are not missing AND are in MMD/DD/YYYY HH:MM format AND Time from arrival at the STEMI Referring Hospital to ECG is not negative (less than zero) AND Time from arrival at the STEMI Referring Hospital to ECG is ≤ 12 hours 	<p style="text-align: center;">Data Elements for Calculation</p> <p>Same as initial patient population AND</p> <p><u>Transferred from other facility</u> = 1 (Yes) AND</p> <p><u>First ECG Date/Time</u> < <u>Arrival Date/Time</u> AND</p> <p><u>Arrival at outside hospital</u> is not null AND</p> <p><u>First ECG Date/Time</u> is not null AND</p> <p><u>Arrival Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>Arrival at outside hospital</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>First ECG Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>(First ECG Date/Time</u> MINUS <u>Arrival at outside hospital</u>) ≥ 0 AND ≤ 12 hours</p>
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Exclusions: (Always remove from denominator)	
<ul style="list-style-type: none"> Patients with ECG performed prior to arrival at the first hospital (STEMI Referring Hospital) Patients who received thrombolytics prior to arrival 	<p>First ECG Obtained = 1 (Prior to hospital arrival) OR</p> <p>Thrombolytics = 1 (Yes) AND</p> <p>Dose Start Date/Time is not null AND</p> <p>Dose Start Date/Time is in MM/DD/YYYY HH:MM format AND</p> <p>(Dose Start Date/Time < Arrival Date/Time OR MM/DD/YYYY of Dose Start Date/Time < MM/DD/YYYY of Arrival Date/Time)]</p>
Exceptions: (Remove from denominator if present and numerator is not met)	
Patients who did not receive ECG within 10 minutes of arrival at the Referring Center AND had a documented non-system reason for delay in the first ECG.	First ECG Non-System Reason for Delay = 1 (Yes)
Numerator	
Patients who received ECG within 10 minutes of arrival at the STEMI Referring Hospital.	First ECG Date/Time MINUS Arrival at outside hospital ≤ 10 minutes

Emergency Department (ED) Length of Stay < 30 Minutes for STEMI

Percentage of ST-elevation Myocardial Infarction patients who present to the ED at the Receiving Center who receive primary PCI and have ED length of stay ≤ 30 minutes

Initial Patient Population

All patients age 18 years and older with STEMI	<p>Data Elements for Calculation</p> <p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Date of Birth</u> is not null</p> <p>AND</p> <p><u>Arrival Date/Time</u> MINUS Date of Birth ≥18 years</p> <p>AND</p> <p><u>STEMI or STEMI Equivalent</u> = 1 (Yes)</p>
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Denominator

Include:	Data Elements for Calculation
<ul style="list-style-type: none"> • All patients in the initial population who present to the ED at the Receiving Center (EMS from home or walk-in) for whom PCI is the primary reperfusion strategy AND • Who have STEMI or STEMI equivalent noted on the first EKG OR on a subsequent ECG, if the subsequent ECG was done prior to arrival at the Receiving Center AND • Whose arrival time, ED transfer out Date/Time and Date/Time of subsequent positive ECG (if done prior to arrival at the Receiving Center) are not missing AND are in MMD/DD/YYYY HH:MM format AND • Time from arrival to ED transfer out is not negative (less than zero) AND • Time from arrival to ED transfer out is ≤ 12 hours. 	<p>Patients included in initial patient population AND</p> <p><u>Means of transport to first facility</u> = 1 (Air) OR = 2 (Ambulance) OR = 3 (Walk-in) AND</p> <p><u>Patient first evaluated</u> = 1 (ED) AND</p> <p><u>Indication for PCI</u> = 1 (Primary PCI for STEMI) AND</p> <p>[<u>STEMI or STEMI Equivalent First Noted</u> = 1 (First ECG) OR <u>(STEMI or STEMI Equivalent First Noted</u> = 2 (Subsequent ECG) AND</p> <p><u>Date/Time of positive ECG</u> is not null AND</p> <p><u>Date/Time of positive ECG</u> is in MM/DD/YYYY HH:MM format AND</p>

	<p><u>Date/Time of positive ECG</u> < <u>Arrival Date/Time</u>)] AND</p> <p><u>ED Transfer Out Date/Time</u> is not null AND</p> <p><u>ED Transfer Out Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Arrival Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p>(<u>ED Transfer Out Date/Time</u> MINUS <u>Arrival Date/Time</u>) ≥ 0 AND ≤ 12 hours</p>
Exclusions: (Always remove from denominator)	
None	N/A
Exceptions: (Remove from denominator if present and numerator is not met)	
None	N/A
Numerator	
Patients whose length of stay in the ED was ≤ 30 minutes	[<u>ED Transfer Out Date/Time</u> MINUS <u>Arrival Date/Time</u>] ≤ 30 minutes

Hospital Pre-arrival Cath Lab Activation for STEMI

Percentage of ST-elevation Myocardial Infarction patients for whom the cath lab was activated prior to arrival at the STEMI Receiving Center

Initial Patient Population

All patients age 18 years and older with STEMI

Data Elements for Calculation

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients in the initial population who are transported directly to the Receiving Center by EMS

AND

Who have STEMI or STEMI equivalent noted on ECG done prior to arrival at the Receiving Center

AND

Arrival date/time and cath lab activation date/time are not missing and are in MM/DD/YYYY HH:MM format

AND

For whom EMS provided pre-arrival STEMI alert or notification to the Receiving Center

Data Elements for Calculation

Same as initial patient population
AND

Means of transport to first facility = 1 (Air) OR = 2 (Ambulance)
AND

Arrival Date/Time is in MM/DD/YYYY HH:MM format
AND

[(STEMI or STEMI Equivalent First Noted = 1 (First ECG)
AND

First ECG Obtained = 1 (Prior to hospital arrival))
OR

(STEMI or STEMI Equivalent First Noted = 2 (Subsequent ECG)
AND

Date/Time of positive ECG is not null
AND

Date/Time of positive ECG is in MM/DD/YYYY HH:MM format
AND

	<p><u>Date/Time of positive ECG</u> < <u>Arrival Date/Time</u>)]</p> <p>AND</p> <p><u>Cath Lab Activation</u> is not null</p> <p>AND</p> <p><u>Cath Lab Activation</u> is in MM/DD/YYYY HH:MM format</p> <p>AND</p> <p>[<u>Destination Pre-arrival alert or notification</u> is not null</p> <p>OR</p> <p><u>Method of 1st notification</u> = 1 (ECG Transmission) OR = 2 (Phone Call) OR = 3 (Radio)]</p>
Exclusions: (Always remove from denominator)	
Patients who were transferred from another acute care facility	<u>Transferred from other facility</u> = 1 (Yes)
Exceptions: (Remove from denominator if present and numerator is not met)	
None	N/A
Numerator	
Patients for whom the cath lab was activated prior to arrival at the Receiving Center	<u>Cath Lab Activation</u>) < <u>Arrival Date/Time</u>

Mission: Lifeline EMS First Medical Contact to Primary PCI ≤ 90 minutes

Percentage of ST-elevation Myocardial Infarction patients transported directly to a Receiving Center by EMS who received primary PCI within 90 minutes of EMS first medical contact

Initial Patient Population	Data Elements for Calculation
<p>All patients age 18 years and older with STEMI</p>	<p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Date of Birth</u> is not null</p> <p>AND <u>[Arrival Date/Time</u> MINUS Date of Birth] ≥18 years</p> <p>AND <u>STEMI or STEMI Equivalent</u> = 1 (Yes)</p>
Denominator	Denominator
Include:	Denominator
<p>All patients in the initial population for whom PCI is the primary reperfusion strategy AND:</p> <ul style="list-style-type: none"> • Who have STEMI or STEMI equivalent first noted on the first ECG AND • Who arrive at the Receiving Center via ambulance AND • Whose arrival time, first medical contact time, EMS depart scene time and first PCI time are not missing AND are in MM/DD/YYYY HH:MM format • AND • Time from first medical contact to first device activation time is not negative (less than zero) AND • Time from first medical contact to first PCI is not > 12 hours 	<p>Same as initial patient population AND</p> <p><u>Indication for PCI</u> = 1 (Primary PCI for STEMI) AND</p> <p><u>STEMI or STEMI Equivalent First Noted</u> = 1 (First ECG) AND</p> <p><u>Means of Transport to First Facility</u> = 2 (Ambulance) AND</p> <p><u>Arrival Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>EMS First Medical Contact Time</u> is not null AND</p> <p><u>EMS First Medical Contact Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>First PCI Date/Time</u> is not null AND</p>

	<p>First PCI Date/Time is in MM/DD/YYYY HH:MM format AND</p> <p>[First PCI Date/Time MINUS EMS First Medical Contact Date] ≥ 0 AND ≤12 hours</p>
<p>Exclusions: (Always remove from denominator)</p>	
<ul style="list-style-type: none"> Patients who are transferred from another acute care facility Patients who receive thrombolytics prior to PCI 	<p>Transferred from other facility = 1 (Yes) OR</p> <p>(Thrombolytics = 1 (Yes) AND</p> <p>Dose Start Date/Time is not null AND</p> <p>Dose Start Date/Time is in MM/DD/YYYY HH:MM format AND</p> <p>(Dose Start Date/Time < First PCI Date/Time OR</p> <p>MM/DD/YYYY of Dose Start Date/Time < MM/DD/YYYY of First PCI Date/Time))</p>
<p>Exceptions: (Remove from denominator if present and numerator is not met)</p>	
<ul style="list-style-type: none"> Documented non-system reason for delay in PCI Documented EMS non-system reason for delay Patients currently enrolled in a clinical trial related to reperfusion therapy 	<p>Non-system reason for delay in PCI = 1 (Difficult vascular access) OR = 2 (Patient delays in providing consent) OR = 3 (Other) OR = 4 (Cardiac arrest and/or need for intubation) OR = 5 (Difficulty crossing the culprit lesion) OR = 7 [Emergent placement of LV support device prior to PCI] OR</p> <p>EMS Non-System Reason for Delay is not null OR</p> <p>(Enrolled in Clinical Trial During Hospitalization = 1 [Yes] AND</p> <p>Type of Clinical Trial = 2 [Related to reperfusion therapy])</p>
<p>Numerator</p>	
<p>Patients who received a primary PCI within 90 minutes of EMS first medical contact</p>	<p>[First PCI Date/Time MINUS EMS First Medical Contact Date] ≤ 90 minutes</p>

Mission: Lifeline EMS First Medical Contact to Primary PCI ≤ 120 minutes when Transport Time is Prolonged

Percentage of ST-elevation Myocardial Infarction patients transported directly to a Receiving Center by EMS who had a transport time ≥ 45 minutes and who received primary PCI within 120 minutes of EMS first medical contact AND within 30 minutes of arrival at the Receiving Center

Initial Patient Population	Data Elements for Calculation
<p>All patients age 18 years and older with STEMI</p>	<p><u>Arrival Date/Time</u> is not null AND</p> <p><u>Date of Birth</u> is not null</p> <p>AND <u>Arrival Date/Time</u> MINUS Date of Birth ≥18 years</p> <p>AND <u>STEMI or STEMI Equivalent</u> = 1 (Yes)</p>
Denominator	
Include:	
<p>All patients in the initial population for whom PCI is the primary reperfusion strategy AND:</p> <ul style="list-style-type: none"> • Who have STEMI or STEMI equivalent first noted on the first ECG AND • Who arrive at the Receiving Center via ambulance AND • Whose arrival time, first medical contact time, EMS depart scene time and first device activation time are not missing AND are in MM/DD/YYYY HH:MM format AND • Time from first medical contact to first device activation time is not negative (less than zero) AND • Time from first medical contact to first device activation is not > 12 hours 	<p>Same as initial patient population AND</p> <p><u>Indication for PCI</u> = 1 (Primary PCI for STEMI) AND</p> <p><u>STEMI or STEMI Equivalent First Noted</u> = 1 (First ECG) AND</p> <p><u>Means of Transport to First Facility</u> = 2 (Ambulance) AND</p> <p><u>Arrival Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>EMS First Medical Contact Time</u> is not null AND</p> <p><u>EMS First Medical Contact Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>EMS Depart Scene Date/Time</u> is not null AND</p>

	<p><u>EMS Depart Scene Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p><u>First PCI Date/Time</u> is not null AND</p> <p><u>First PCI Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p>[<u>First PCI Date/Time</u> MINUS <u>EMS First Medical Contact Date</u>] ≥ 0 AND ≤12 hours AND</p> <p><u>Arrival Date/Time</u> MINUS <u>EMS Depart Scene Date/Time</u> ≥ 45 minutes</p>
<p>Exclusions: (Always remove from denominator)</p>	
<ul style="list-style-type: none"> • Patients who are transferred from another acute care facility • Patients who receive thrombolytics prior to PCI 	<p><u>Transferred from other facility</u> = 1 (Yes) OR</p> <p>(<u>Thrombolytics</u> = 1 (Yes) AND</p> <p><u>Dose Start Date/Time</u> is not null AND</p> <p><u>Dose Start Date/Time</u> is in MM/DD/YYYY HH:MM format AND</p> <p>(<u>Dose Start Date/Time</u> < <u>First PCI Date/Time</u> OR</p> <p>MM/DD/YYYY of <u>Dose Start Date/Time</u> < MM/DD/YYYY of <u>First PCI Date/Time</u>)</p>
<p>Exceptions: (Remove from denominator if present and numerator is not met)</p>	
<ul style="list-style-type: none"> • Documented non-system reason for delay in PCI • Documented EMS non-system reason for delay • Patients currently enrolled in a clinical trial related to reperfusion therapy 	<p><u>Non-system reason for delay in PCI</u> = 1 (Difficult vascular access) OR = 2 (Patient delays in providing consent) OR = 3 (Other) OR = 4 (Cardiac arrest and/or need for intubation) OR = 5 (Difficulty crossing the culprit lesion) OR = 7 [Emergent placement of LV support device prior to PCI] OR</p> <p><u>EMS Non-System Reason for Delay</u> is not null OR</p> <p>(<u>Enrolled in Clinical Trial During Hospitalization</u> = 1 [Yes] AND</p> <p><u>Type of Clinical Trial</u> = 2 [Related to reperfusion therapy])</p>

Numerator

Patients who had an EMS transport time of ≥ 45 minutes

AND

Who received a primary PCI:

- Within 120 minutes of EMS first medical contact

AND

- Within 30 minutes of arrival at the Receiving Center

First PCI Date/Time MINUS EMS First Medical Contact Date ≤ 120 minutes

AND

First PCI Date/Time MINUS Arrival Date/Time ≤ 30 minutes

Composite Measure

Overall Mission Lifeline® Composite Score—STEMI Receiving Center

Proportion of performance opportunities that were met among eligible opportunities for all 9 individual achievement measures.

Initial Patient Population

All patients age 18 years and older with STEMI

Arrival Date/Time is not null
AND

Date of Birth is not null
AND

Arrival Date/Time MINUS Date of Birth ≥18 years
AND

STEMI or STEMI Equivalent = 1 (Yes)

Denominator

Include:

All patients with STEMI

Count of all measure opportunities [i.e., count of all denominators (i.e., all eligible STEMI patients) for all of the 9 component measures]

Measures include:

- ACE Inhibitor or Angiotensin Receptor Blocker (ARB) for LVSD at Discharge
- **Arrival at First Facility to Primary PCI ≤ 120 minutes**
- Aspirin at Discharge
- Beta-Blocker at Discharge
- Cardiac Rehabilitation Patient Referral from an Inpatient Setting
- ECG within 10 minutes of Arrival at this Receiving Center
- **High-Intensity Statin at Discharge**
- Mission: Lifeline EMS First Medical Contact to Primary PCI ≤ 90 minutes OR ≤ 120 Minutes when Transport Time is Prolonged
- Primary PCI ≤ 90 minutes

Data Elements for Calculation

Sum of denominator counts for each of the 9 measures.

Data elements as per the individual measures

Exclusions: (Always remove from denominator)

Per the individual component measures

Per the individual component measures

Exceptions: (Remove from denominator if present and numerator is not met)

Per the individual component measures

Per the individual component measures

Numerator

Count of all measure opportunities that were met (i.e., count of all patients in the numerators for all of the 9 component measures)

Sum of the numerator counts for each of the 9 component measures