

Appendix 3: Summary definitions of in-hospital process-of-care, outcome and system indicators based on chart-abstracted data to measure the quality of care for patients with acute myocardial infarction

1. IN-HOSPITAL PROCESS-OF-CARE INDICATORS — PHARMACOLOGIC

1.1 Acetylsalicylic acid (ASA) within 24 hours before hospital arrival or within 3 hours after hospital arrival

- Numerator Patients with acute myocardial infarction who received ASA within 24 hours before hospital arrival or within 3 hours after hospital arrival
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarctionExclusions
 - 1) Active bleeding on arrival
 - 2) Allergy to ASA
 - 3) Documented reason for nonuse of ASA (e.g., high risk of bleeding or patient refusal)

1.2 ASA prescribed at hospital discharge

- Numerator Patients with acute myocardial infarction who are prescribed ASA at hospital discharge
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction and alive at dischargeExclusions
 - 1) Evidence of:
 - i. Active bleeding on arrival, or
 - ii. Active bleeding during hospital stay
 - 2) Allergy to ASA
 - 3) Documented reason for nonuse of ASA (e.g., high risk of bleeding or patient refusal)

1.3 β -Blocker prescribed at hospital discharge

- Numerator Patients with acute myocardial infarction who are prescribed a β -blocker at hospital discharge
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction and alive at dischargeExclusions
 - 1) Bradycardia (heart rate < 60 beats/min) on day of discharge or day before discharge while not taking β -blocker
 - 2) Conduction disorder defined as a second- or third-degree heart block on electrocardiogram (ECG) on arrival or during hospital stay while not on a pacemaker
 - 3) Allergy or intolerance to β -blocker
 - 4) Documented reason for nonuse of β -blocker (e.g., symptomatic hypotension, systolic blood pressure < 100 mm Hg, severe chronic obstructive pulmonary disease, asthma or patient refusal)

1.4 Angiotensin-converting-enzyme (ACE) inhibitor or angiotensin-receptor blocker prescribed at hospital discharge

- Numerator Patients with acute myocardial infarction who are prescribed an ACE inhibitor or angiotensin-receptor blocker at hospital discharge
- Denominator Inclusions
 - 1) Patients with acute myocardial infarction alive at discharge and
 - 2) Left ventricular ejection fraction < 40% and
 - 3) Patients with diabetes, hypertension, heart failure or chronic kidney disease

Exclusions

- 1) Severe aortic stenosis
- 2) Allergy or intolerance to ACE inhibitors or angiotensin-receptor blockers
- 3) Documented reason for nonuse of an ACE inhibitor or angiotensin-receptor blocker at discharge (e.g., symptomatic hypotension, severe renal dysfunction, hyperkalemia, bilateral renal artery stenosis or patient refusal)

1.5 Statin prescribed at hospital discharge

- Numerator Patients with acute myocardial infarction who are prescribed a statin at hospital discharge
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction and alive at discharge
 Exclusions
 - 1) Documented reason for nonuse of statins (e.g., statin intolerance, liver disease or patient refusal)

1.6 Fibrinolytic therapy within 30 minutes after hospital arrival

- Numerator Patients with acute myocardial infarction who received fibrinolytic therapy within 30 minutes after hospital arrival
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction and
 - 2) ST-segment elevation or a new left bundle branch block on ECG and
 - 3) Fibrinolytic therapy received within 6 hours after hospital arrival and
 - 4) Fibrinolytic therapy documented as primary reperfusion therapy
 Exclusions
 - 1) Fibrinolytic therapy received in ambulance or in field
 - 2) Documented reason for delay in receiving fibrinolytic therapy (e.g., nondiagnostic ECG or patient refusal)

2. IN-HOSPITAL PROCESS-OF-CARE INDICATORS — NONPHARMACOLOGIC**2.1 ECG within 10 minutes after hospital arrival**

- Numerator Patients with acute myocardial infarction who had an ECG within 10 minutes after hospital arrival (triage time or registration time, whichever occurs earlier)
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction
 Exclusions
 - 1) Documented reason for delay in ECG (e.g., atypical signs or symptoms, ongoing cardiac arrest or patient refusal)

2.2 Primary percutaneous coronary intervention within 90 minutes after hospital arrival

- Numerator Patients with acute myocardial infarction who received primary percutaneous coronary intervention within 90 minutes after first hospital arrival
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction and,
 - 2) ST-segment elevation or a new left bundle branch block on ECG and
 - 3) Primary coronary intervention performed within 24 hours after hospital arrival
 Exclusions
 - 1) Patients who received fibrinolytic therapy before percutaneous coronary intervention
 - 2) Documentation of percutaneous coronary intervention as nonprimary
 - 3) Documented reason for delay in percutaneous coronary intervention (e.g., patient refusal)

2.3 Reperfusion therapy in eligible patients with ST-segment elevation myocardial infarction

- Numerator Patients with acute myocardial infarction who received reperfusion therapy (fibrinolytic therapy or primary percutaneous coronary intervention)

- Denominator Inclusions
 - 1) Patients with ST-segment elevation myocardial infarction or a new left bundle branch block on ECG who are eligible for fibrinolytic therapy or primary percutaneous coronary intervention and
 - 2) Patients who present within 12 hours after symptom onset
 Exclusions
 - 1) Documented reason for not receiving reperfusion therapy (e.g., patient refusal)

2.4 Risk stratification (i.e., cardiac catheterization, exercise stress testing, perfusion imaging or stress echocardiography)

- Numerator Patients with acute myocardial infarction who underwent risk stratification (i.e., cardiac catheterization, exercise stress testing, perfusion imaging or stress echocardiography) during hospital stay or were referred for risk stratification (e.g., outpatient or transfer to another hospital) after discharge
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction
 Exclusions
 - 1) Primary or rescue percutaneous coronary intervention
 - 2) Documented reason for no cardiac catheterization or noninvasive stress test (e.g., physical limitations, do-not-resuscitate status or patient refusal)

2.5 Left ventricular function assessment

- Numerator Patients with acute myocardial infarction who had assessment of left ventricular function (e.g., via echocardiography, radionuclide angiography or left ventriculography) during their hospital stay or were referred for assessment after hospital discharge
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction
 Exclusions
 - 1) Primary or rescue percutaneous coronary intervention
 - 2) Documented reason for no assessment of left ventricular function (e.g., recent assessment of left ventricular function or patient refusal)

2.6 Smoking cessation advice, counselling or therapy during hospital stay

- Numerator Patients with acute myocardial infarction who are smokers and who received smoking cessation advice, counselling or therapy during hospital stay
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction and
 - 2) Active smokers or history of smoking in the past year
 Exclusions
 - 1) Documented reason for no smoking cessation advice, counselling or therapy (e.g., patient refusal)

2.7 Referral to cardiac rehabilitation

- Numerator Patients with acute myocardial infarction who are referred to cardiac rehabilitation during hospital stay or at discharge
- Denominator Inclusions
 - 1) Confirmed acute myocardial infarction
 Exclusions
 - 1) Documented reason for no referral to cardiac rehabilitation (e.g., patient-associated factors [e.g., patient refusal], provider-associated factors [e.g., patient with a high-risk condition or a contraindication to exercise], health care system-associated factors [e.g., financial obstacles or absence of a cardiac rehabilitation program near patient's home])

3. OUTCOME INDICATOR

3.1 In-hospital mortality

- Numerator Patients with acute myocardial infarction who died in hospital during this encounter/stay
- Denominator
 - Inclusions
 - 1) Confirmed acute myocardial infarction
 - Exclusions
 - 1) None

4. SYSTEM INDICATORS

4.1 Fibrinolytic therapy within 60 minutes after call for emergency medical services

- Numerator Patients with acute myocardial infarction who were eligible for fibrinolytic therapy and received it within 60 minutes after call for emergency medical services
- Denominator
 - Inclusions
 - 1) Confirmed acute myocardial infarction and
 - 2) ST-segment elevation or new left bundle branch block on ECG and
 - 3) Fibrinolytic therapy within 6 hours after hospital arrival and
 - 4) Fibrinolytic therapy is primary reperfusion therapy
 - 5) Call made to emergency medical services
 - Exclusions
 - 1) In-field fibrinolysis
 - 2) Walk-in patients
 - 3) Documented reason for delay in receiving fibrinolytic therapy (e.g., patient refusal)

4.2 Primary percutaneous coronary intervention within 120 minutes after call for emergency medical services

- Numerator Patients with acute myocardial infarction who were eligible for percutaneous coronary intervention and received primary percutaneous coronary intervention within 120 minutes after call for emergency medical services
- Denominator
 - Inclusions
 - 1) Confirmed acute myocardial infarction and
 - 2) ST-segment elevation or new left bundle branch block on ECG and
 - 3) Percutaneous coronary intervention performed within 24 hours after hospital arrival
 - 4) Call made to emergency medical services
 - Exclusions
 - 1) Patients who received fibrinolytic therapy before percutaneous coronary intervention
 - 2) Documentation of percutaneous coronary intervention as nonprimary
 - 3) Documented reason for delay in percutaneous coronary intervention (e.g., patient refusal)

4.3 Pre-hospital 12-lead ECG

- Numerator Patients with acute myocardial infarction who had a prehospital 12-lead ECG done by emergency medical services personnel
- Denominator
 - Inclusions
 - 1) Confirmed acute myocardial infarction and
 - 2) Ambulance transportation
 - Exclusions
 - 1) Walk-in patients
 - 2) Documented reason for no prehospital ECG (e.g., patient refusal)