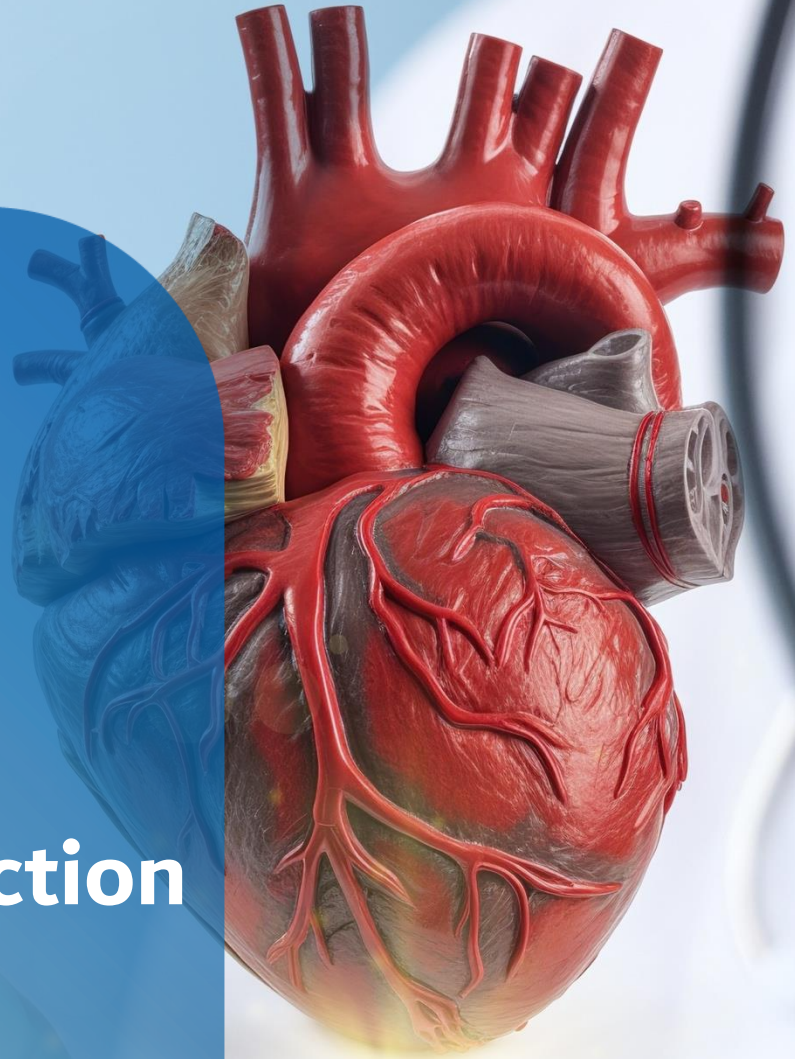


# EJADA Program

Myocardial Infarction  
KPIs and  
Recommendations

2023



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## Introduction

Myocardial infarction (MI), commonly referred to as a heart attack, is a medical emergency that continues to be a leading cause of morbidity and mortality worldwide. The outcomes of MI can be devastating, causing damage to the heart muscle and, if not addressed promptly and adequately, can lead to heart failure, arrhythmias, and even death. MI is usually a manifestation of coronary artery disease (CAD) and is predominantly linked to the atherosclerotic narrowing or occlusion of coronary arteries. This acute event occurs when a thrombus or plaque rupture interrupts the blood supply to a specific region of the heart, causing irreversible myocardial damage.

MI can present in various forms, including ST-segment elevation myocardial infarction (STEMI) and non-ST-segment elevation myocardial infarction (NSTEMI), each demanding tailored treatment approaches. The diagnosis is typically confirmed by clinical symptoms, electrocardiographic changes, and cardiac biomarker levels, particularly troponins. The risk factors for MI are well-established and encompass a complex interplay of genetic, lifestyle, and environmental elements. Prominent contributors to MI include hypertension, hyperlipidemia, diabetes mellitus, smoking, obesity, and a family history of CAD. In addition to these conventional risk factors, emerging research is shedding light on novel determinants such as air pollution, genetic predisposition, and inflammatory markers that further complicate the understanding of MI pathogenesis.

Pharmacotherapy plays a central role in the management of MI. The primary objectives of drug interventions are to alleviate symptoms, restore coronary blood flow, prevent further myocardial damage, and reduce the risk of recurrent cardiovascular events. Commonly prescribed medications include antiplatelet agents, such as aspirin and P2Y12 inhibitors, anticoagulants, beta-blockers, angiotensin-converting enzyme inhibitors (ACE inhibitors), and statins to lower cholesterol levels. Nonetheless, the use of these pharmacotherapeutic agents has limitations, side effects, and varying degrees of efficacy, underscoring the need for ongoing research to optimize treatment.

Despite substantial advancements in the treatment of MI over the years, several unmet needs persist. These include improving the timeliness of reperfusion therapy, addressing the challenges of personalized medicine, and managing post-MI complications more effectively. Additionally, innovative approaches are required to mitigate the long-term consequences of MI, such as heart failure, which remains a substantial concern even after successful MI management.

## Scope

The Ejada KPIs are quality indicators and ratings for physicians, facilities and insurance companies based on information collected by DHA systems from providers, payers and patients.

The myocardial infarction KPIs and Recommendations are based on International guidelines on myocardial infarction management and . The KPIs are designed for healthcare practioners and providers to follow international best practices in the management of myocardial infarction patients.

The myocardial Infarction KPIs cover the following aspects of myocardial infarction management:

- Efficient radiodiagnosis to swiftly confirm myocardial infarction , assess the extent of myocardial damage, and determine any potential complications
- Periodic screening for complications associated with myocardial infarction and instituting appropriate intervention
- Pharmacological management and tailored treatment approaches for myocardial infarction
- Non-pharmacological interventions for managing myocardial infarction
- Referrals to a cardiologist or cardiac specialist and long-term follow up of myocardial infarction patients

The KPIs and recommendations have been reviewed by leading experts in the UAE.

## List of Abbreviations

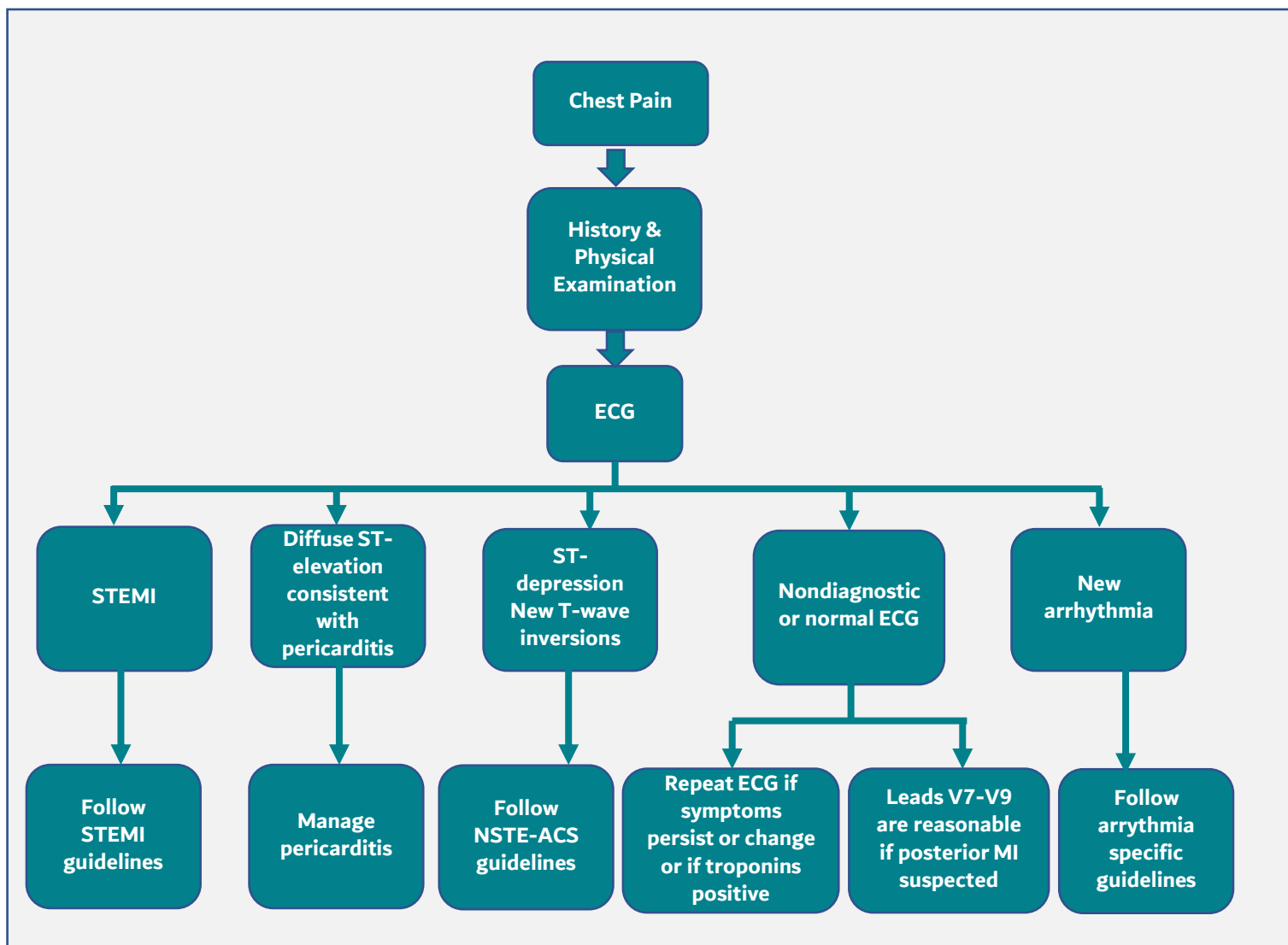
S.No.	Abbreviation	Full form
1	AMI	Acute Myocardial Infarction
2	ACEI	Prescription of Angiotensin-Converting Enzyme Inhibitor
3	ARB	Angiotensin Receptor Blocker
4	ACS	Acute Coronary Syndrome
5	cTn	Cardiac Troponin
6	CABG	Coronary Artery Bypass Graft Surgery
7	CAD	Coronary Artery Disease
8	CAC	Coronary Artery Calcium
9	CR	Cardiac Rehabilitation
10	DDC	Dubai Drug Code
11	ECG	Electrocardiograph
12	ED	Emergency Department
13	FMC	First Medical Contact
14	HMG-CoA	$\beta$ -Hydroxy $\beta$ -methylglutaryl-CoA
15	KOL	Key Opinion Leader
16	KPI	Key Performance Indicators
17	LVEF	Left Ventricular Ejection Fraction
18	LVSD	Left Ventricular Systolic Dysfunction
19	LMWH,	Low Molecular Weight Heparin
20	LVEF	Left Ventricular Ejection Fraction
21	MI	Myocardial Infarction
22	NSTE-ACS	Non-ST-segment-elevation acute coronary syndrome
23	PCI	Percutaneous Coronary Intervention
24	PET	Positron Emission Tomography
25	STEMI	ST-Segment Elevation Myocardial Infarction
26	SPECT	Single-Photon Emission Computerized Tomography
27	SCD	Sudden Cardiac Death
28	UFH	Unfractionated Heparin
29	UAE	United Arab Emirates
30	VF	Ventricular Fibrillation

## KPIs and their Measuring Parameters

Reporting Frequency: Monthly

S.No.	KPIs	Measuring Parameters
1	Electrocardiograph (ECG) Testing in Patients with Acute Chest Pain and Suspected Acute Myocardial Infarction (AMI)	ECG
2	Cardiac troponin (cTn) Test in Patients with Acute Chest Pain and Suspected AMI	Cardiac Troponin
3	Serum Lipid Profiling in AMI Patients	LDL profile
4	Cardiac Stress Tests for Patients with Acute Chest Pain and Suspected AMI	Exercise ECG, Stress Echocardiography, Stress Nuclear
5	Cardiac Imaging Test for Risk Stratification in AMI patients	Cardiovascular Magnetic Resonance Imaging
6	Evaluation of Left Ventricular Ejection Fraction (LVEF) in AMI Patients Using Transthoracic Echocardiogram	Transthoracic Echocardiogram
7	Angiography in AMI Patients with STEMI	Angiography
8	Prescription of Antiplatelet Therapy for AMI Patients	DDC list of drugs
9	Prescription of Oral Beta Blocker for AMI Patients	DDC list of drugs
10	Prescription of High-Intensity Statins for AMI patients	DDC list of drugs
11	Prescription of Angiotensin-Converting Enzyme Inhibitor (ACEI) or Angiotensin Receptor Blocker (ARB) for Left ventricular Systolic Dysfunction (LVSD) in AMI Patients	DDC list of drugs
12	Prescription of Thrombolytic / Fibrinolytic therapy for AMI patients with Acute STEMI	DDC list of drugs
13	Primary Percutaneous Coronary Intervention / Coronary Angioplasty for AMI patients with Acute STEMI	PCI, Coronary Angioplasty
14	Coronary Artery Bypass Graft Surgery (CABG) for AMI patients	CABG
15	Emergency Department Care for AMI Patients	ED Visits
16	Avoidable Hospitalization in AMI patients	Hospital admissions
17	Referral of AMI patients to Cardiac Rehabilitation	Cardiac Rehab Visits
18	Referral of AMI Patients to Smoking Cessation Clinics	Smoking cessation Clinic Visits

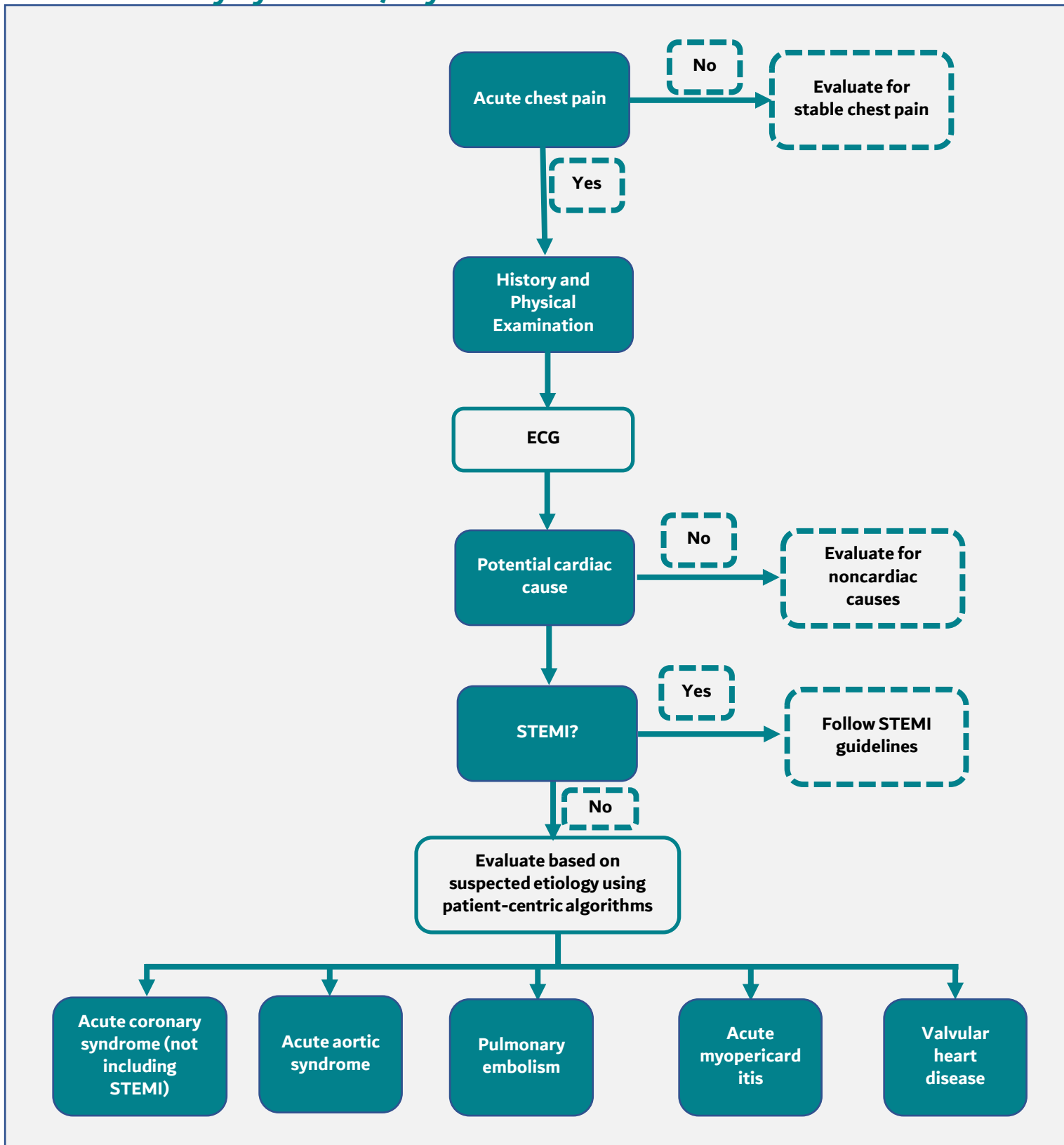
## Electrocardiographic - Directed Management of Chest Pain and Suspected Acute Coronary Syndrome/Myocardial Infarction



**ADAPTED & MODIFIED FROM:**  
 AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR  
 Guideline for the Evaluation and Diagnosis of Chest  
 Pain – 2021  
<https://doi.org/10.1161/CIR.0000000000001029>

Abbreviation: ECG, electrocardiogram; MI, myocardial infarction; NSTEMI-ACS, non-ST-segment-elevation acute coronary syndrome; STEMI, ST-segment-elevation myocardial infarction.

## Patient-Centric Algorithms for Acute Chest Pain and Suspected Acute Coronary Syndrome/Myocardial Infarction

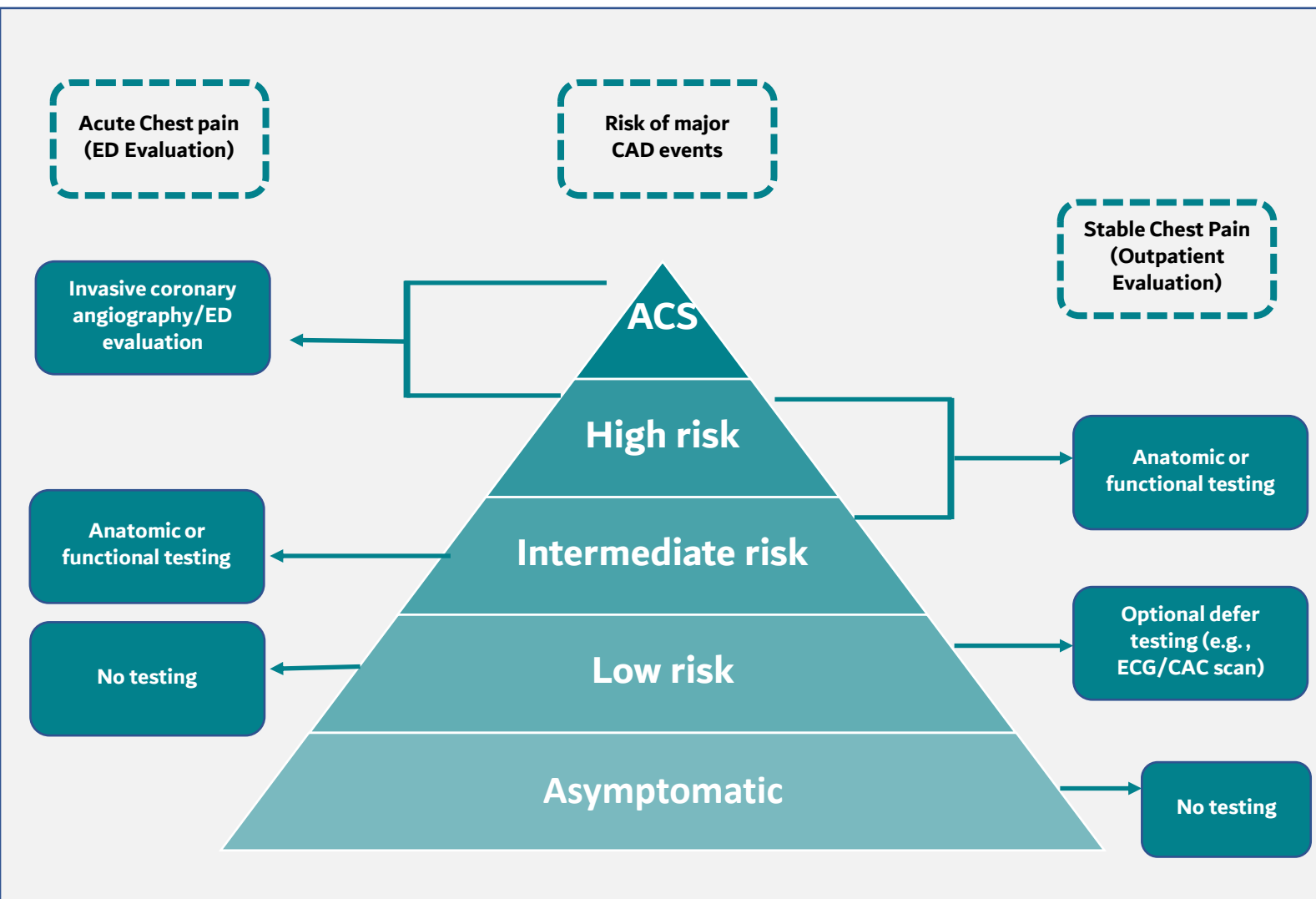


Abbreviation: ECG, electrocardiogram; MI, myocardial infarction; NSTEMI, non-ST-segment-elevation acute coronary syndrome; STEMI, ST-segment-elevation myocardial infarction.

**ADAPTED & MODIFIED FROM:**  
AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR  
Guideline for the Evaluation and Diagnosis of Chest Pain – 2021  
<https://doi.org/10.1161/CIR.0000000000001029>



## Cardiac Testing Considerations for Patients with Suspected Acute Coronary Syndrome/Myocardial Infarction



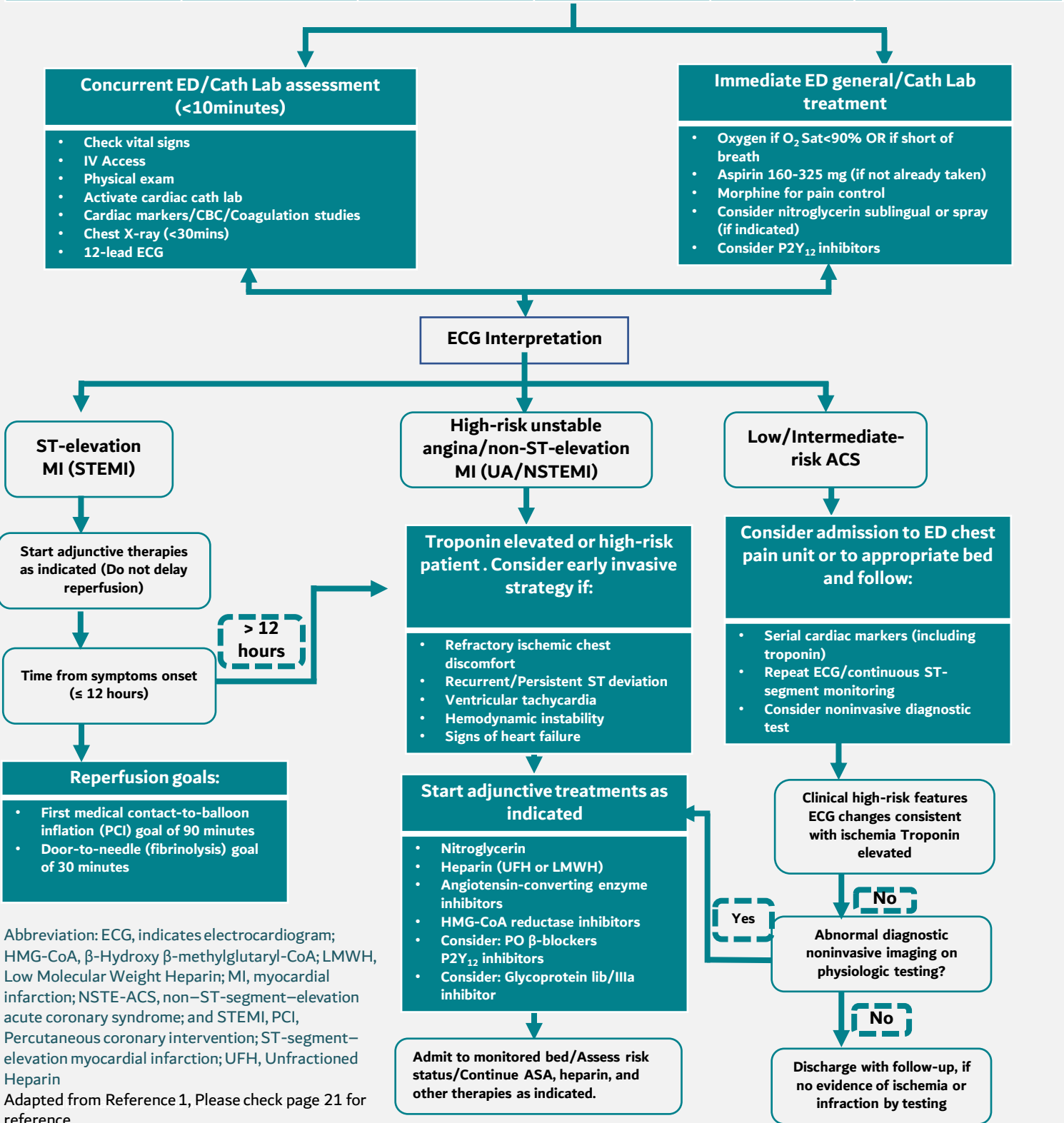
**ADAPTED & MODIFIED FROM:**  
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 Chest Pain – 2021  
<https://doi.org/10.1161/CIR.0000000000001029>

Abbreviation: ACS, acute coronary syndrome; CAC, coronary artery calcium; CAD, coronary artery disease; ED, emergency department; ECG, electrocardiogram.

# Algorithm for the Assessment and Management of Patients with Suspected Acute Coronary Syndrome/Myocardial Infarction

## Emergency medical services assessment and care and hospital preparation

Aspirin 160-325mg	Oxygen (If O <sub>2</sub> sat <90% OR if short of breath)	12-lead ECG	Activate cardiac cath lab	Morphine for pain control	Consider nitroglycerin sublingual or spray (if indicated)
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Abbreviation: ECG, indicates electrocardiogram; HMG-CoA,  $\beta$ -Hydroxy  $\beta$ -methylglutaryl-CoA; LMWH, Low Molecular Weight Heparin; MI, myocardial infarction; NSTEMI-ACS, non-ST-segment-elevation acute coronary syndrome; and STEMI, PCI, Percutaneous coronary intervention; ST-segment-elevation myocardial infarction; UFH, Unfractionated Heparin  
Adapted from Reference 1, Please check page 21 for reference

# Health Outcomes Indicators

## Electrocardiograph (ECG) Testing in Patients with Acute Chest Pain and Suspected Acute Myocardial Infarction (AMI)

Description Title	Electrocardiograph (ECG) Testing in Patients with Acute Chest Pain and Suspected Acute Myocardial Infarction (AMI)
<b>Definition</b>	Percentage of patients with acute chest pain and suspected AMI who received electrocardiograph (ECG) test during the measurement year
<b>Numerator</b>	Number of patients with acute chest pain and suspected AMI who received electrocardiograph (ECG) test during the measurement year
<b>Denominator</b>	Total number patients with acute chest pain and suspected AMI during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Electrocardiography (ECG) is important in the evaluation of both acute and stable chest pain to assess for evidence of AMI. In patients with chest pain in which an initial ECG is nondiagnostic, serial ECGs to detect potential ischemic changes should be performed, especially when clinical suspicion of AMI is high, symptoms are persistent, or the clinical condition deteriorates.

## Cardiac troponin (cTn) Test in Patients with Acute Chest Pain and Suspected AMI

Description Title	Cardiac troponin (cTn) Test in Patients with Acute Chest Pain and Suspected AMI
<b>Definition</b>	Percentage of patients with acute chest pain and suspected AMI, in whom cardiac troponin (cTn) test was carried out during the measurement year
<b>Numerator</b>	Number of patients with acute chest pain and suspected AMI, in whom cardiac troponin (cTn) test was carried out during the measurement year
<b>Denominator</b>	Total number patients with acute chest pain and suspected AMI during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Troponins are components of the myocardial cell contractile apparatus. When measured in the circulation, they are very sensitive and specific to diagnose myocardial necrosis. In the correct clinical setting (eg, angina/ ischemic symptoms, ischemic changes on the ECG, imaging evidence of ischemia), a pattern of rise and fall in troponin I or T levels is essential to the diagnosis of AMI. Although STEMI is usually readily diagnosed by the presence of acute current of injury on the presenting ECG, patients with NSTEMI-ACS can present with nonspecific changes on the ECG (eg, subtle or nonspecific ST or T wave changes). Thus, measuring troponin levels expeditiously help in the early diagnosis and risk stratification of these patients, which can lead to earlier triage and institution of appropriate medical and interventional treatments.

## Serum Lipid Profile in AMI Patients

Description Title	Serum Lipid Profile (Total cholesterol, Low-density lipid-cholesterol, High-density lipid-cholesterol, and Triglycerides) in AMI Patients
<b>Definition</b>	Percentage of AMI patients in whom serum lipid profile (total cholesterol, low-density lipid-cholesterol, high-density lipid-cholesterol, and triglycerides) was assessed during the measurement year
<b>Numerator</b>	Number of AMI patients in whom serum lipid profile (total cholesterol, low-density lipid-cholesterol, high-density lipid-cholesterol, and triglycerides) was assessed during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Phasic fluctuations in serum lipid profile are observed after AMI. The trend that follows include reduced total cholesterol, low-density lipid-cholesterol, and high-density lipid-cholesterol, and increased triglycerides. Periodic lipid profile must be evaluated in all patients admitted for AMI to understand the changing trend, initiate lifestyle measures to reach target lipid levels, and predict the choice of lipid-lowering therapy.

## Cardiac Stress Tests for Patients with Acute Chest Pain and Suspected AMI

Description Title	Cardiac Stress Tests (Exercise ECG/Stress Echocardiography/Stress Nuclear) in patients with Acute Chest Pain and Suspected AMI
<b>Definition</b>	Percentage of AMI patients for whom stress tests (exercise ECG/stress echocardiography/stress nuclear) was carried out during the measurement year
<b>Numerator</b>	Percentage of AMI patients for whom stress tests (exercise ECG/stress echocardiography/stress nuclear) was carried out during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Yearly
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Exercise ECG, stress echocardiography, and stress nuclear (PET/SPECT) are useful for the diagnosis of myocardial ischemia for intermediate-risk patients with acute chest pain and no known coronary artery disease (CAD).

## Cardiac Imaging Test for Risk Stratification in AMI patients

Description Title	Cardiac Imaging Test (Cardiovascular MRI) for Risk Stratification in AMI patients
<b>Definition</b>	Percentage of AMI patients for whom cardiac imaging test (cardiovascular MRI) was carried out for risk stratification during the measurement year
<b>Numerator</b>	Imaging of AMI patients for whom cardiac imaging test (cardiovascular MRI) was carried out for risk stratification during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Yearly
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Cardiac imaging tests aid in visualizing the factors responsible for arrhythmia-mediated sudden cardiac death (SCD), such as substrate, trigger and modulator. Further these tests have allowed improved SCD risk stratification, especially in the group of patients with an LVEF > 35%.

## Evaluation of Left Ventricular Ejection Fraction (LVEF) in AMI Patients Using Transthoracic Echocardiogram

Description Title	Evaluation of Left Ventricular Ejection Fraction (LVEF) in AMI Patients Using Transthoracic Echocardiogram
<b>Definition</b>	Percentage of AMI patients for whom left ventricular ejection fraction (LVEF) was evaluated using transthoracic echocardiogram during the measurement year
<b>Numerator</b>	Number of AMI patients for whom left ventricular ejection fraction (LVEF) was evaluated using transthoracic echocardiogram during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	LVEF is important from a therapeutic and prognostic standpoint for patients with acute AMI for several reasons including choice of specific therapies, predicting long-term survival following AMI. LV function can be assessed by a variety of modalities (eg, contrast ventriculography, echocardiography, CT angiography). However, a transthoracic echocardiogram is most useful. It is noninvasive, relatively inexpensive, and helps provide a comprehensive assessment of the LV function (regional and global) and size and rule out post-MI mechanical and other complications.

## Angiography in AMI Patients with STEMI

Description Title	Angiography in AMI Patients with STEMI
<b>Definition</b>	Percentage of AMI Patients with STEMI for whom immediate angiography was carried out during measurement year
<b>Numerator</b>	Number of AMI Patients with STEMI for whom immediate angiography was carried out during measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Yearly
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Many patients with cardiac arrest and ST elevation on the ECG often have high-risk coronary anatomy, which may benefit from timely coronary angiography to identify severe coronary artery disease and possibly guide/dictate revascularization. Immediate angiography and PCI when indicated should be performed in resuscitated out-of-hospital cardiac arrest patients whose initial ECG shows STEMI

## Prescription of Antiplatelet Therapy for AMI Patients

Description Title	Prescription of Antiplatelet Therapy (Aspirin / ADP P2Y <sub>12</sub> Blockers [Clopidogrel/Ticagrelor/Prasugrel]) for AMI Patients
<b>Definition</b>	Percentage of AMI patients who received antiplatelet therapy (aspirin / ADP P2Y <sub>12</sub> blockers [clopidogrel/ticagrelor/prasugrel]) during the measurement year
<b>Numerator</b>	Number of AMI patients who received antiplatelet therapy (aspirin / ADP P2Y <sub>12</sub> blockers [clopidogrel/ticagrelor/prasugrel]) during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Exclusion criteria</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Antiplatelet drugs play a crucial role in the treatment of patients with myocardial infarction, particularly in association with percutaneous coronary intervention. The choice of appropriate drug depends on the right risk assessment of the development of these complications in individual patients. Dual antiplatelet therapy (DAPT) with aspirin and a P2Y <sub>12</sub> -receptor antagonist plays a critical role in secondary prevention after an acute coronary syndrome (ACS). The use of DAPT lowers recurrent ischaemic events, including stent thrombosis, at the expense of bleeding complications when compared with aspirin alone.

## Prescription of Oral Beta Blocker for AMI Patients

Description Title	Prescription of Oral Beta Blocker (atenolol/betaxolol/bisoprolol/esmolol/acebutolol/metoprolol/nebivolol) for AMI Patients
Definition	Percentage of AMI patients (with < 40% LVEF) who were prescribed with oral beta blocker (atenolol/betaxolol/bisoprolol/esmolol/acebutolol/metoprolol/nebivolol) during the measurement year
Numerator	Number of AMI patients (with < 40% LVEF) who were prescribed with oral beta blocker (atenolol/betaxolol/bisoprolol/esmolol/acebutolol/metoprolol/nebivolol) during the measurement year
Denominator	Total number of AMI patients during the measurement year
Exclusion criteria	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
Reporting frequency	Dynamic
Unit of measure	Percentage (Numerator/Denominator x 100)
Measure target and/or threshold	Higher is better
Rationale	Beta blockers are excellent anti-ischemic and antianginal medications that decrease myocardial oxygen demand by reducing the heart rate, blood pressure, and contractility. They also reduce cardiac automaticity and the risk of VF after MI. In addition, they improve coronary perfusion by prolonging diastole. Oral beta blockers should therefore be administered to all patients with MI without contraindications for their use. Common contraindications for beta blockers use include heart failure or risk for cardiogenic shock, bradycardia, hypotension, heart block, or active bronchospasm, or acute cocaine ingestion. Patients with initial contraindications to beta blockers in the first 24 h after an AMI should be reevaluated to determine their subsequent eligibility.

## Prescription of High-Intensity Statins for AMI patients

Description Title	Prescription of High-Intensity Statins (Atorvastatin 40-80 mg / Rosuvastatin 20-40 mg / Simvastatin 80 mg) for AMI patients
Definition	Percentage of AMI patients who were prescribed with high-intensity statin (atorvastatin 40-80 mg / rosuvastatin 20-40 mg / simvastatin 80 mg) during the measurement year
Numerator	Number of AMI patients who were prescribed with high-intensity statin (atorvastatin 40-80 mg / rosuvastatin 20-40 mg / simvastatin 80 mg) during the measurement year
Denominator	Total number of AMI patients during the measurement year
Exclusion criteria	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
Reporting frequency	Dynamic
Unit of measure	Percentage (Numerator/Denominator x 100)
Measure target and/or threshold	Higher is better
Rationale	High-intensity statin was defined as atorvastatin administered at 40–80 mg, rosuvastatin at 20–40 mg, or simvastatin at 80 mg, i.e., medication amounts higher than the standard doses described in recent guidelines. Patients with an MI are at high risk for recurrent cardiovascular events. Statins inhibit the HMG-CoA reductase enzyme, the rate-limiting step in cholesterol biosynthesis, and are powerful drugs for lowering LDL-C, with reductions $\geq 50\%$ observed with the high-intensity statin regimens. Statins have been shown in multiple secondary prevention trials to reduce cardiovascular events, including coronary heart disease death, recurrent MI, cerebrovascular events, coronary revascularization, and all-cause mortality.



## Prescription of Angiotensin-Converting Enzyme Inhibitor (ACEI) or Angiotensin Receptor Blocker (ARB) for Left ventricular Systolic Dysfunction (LVSD) in AMI Patients

Description Title	Prescription of Angiotensin-Converting Enzyme Inhibitor (ACEI) or Angiotensin Receptor Blocker (ARB) Prescribed for Left ventricular Systolic Dysfunction (LVSD) in AMI Patients
<b>Definition</b>	Percentage of AMI patients with LVSD who were prescribed with ACEI or ARB during the measurement year
<b>Numerator</b>	Number of AMI patients with LVSD who were prescribed with ACEI or ARB during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	ACEIs improve survival in patients with AMI, particularly in those with reduced LVEF. They attenuate LV remodeling and infarct expansion and have a variety of additional beneficial effects (effects on ischemic preconditioning, fibrinolysis, recurrent MI, sudden death). ARBs are reasonable alternatives to ACEIs in patients with AMI and LVSD and can be used for patients who are intolerant to ACEIs. Common contraindications to the use of these agents include hypotension, shock, bilateral renal artery stenosis, worsening of renal function with ACEI/ARB exposure, and drug allergy.

## Prescription of Thrombolytic / Fibrinolytic therapy for AMI patients with Acute STEMI

Description Title	Prescription of Thrombolytic / Fibrinolytic therapy for AMI patients with Acute STEMI
<b>Definition</b>	Percentage of AMI patients with acute STEMI who received thrombolytic / fibrinolytic therapy (streptokinase/ alteplase/ reteplase/ tenecteplase/ urokinase/ prourokinase anistreplase) during the measurement year
<b>Numerator</b>	Number of AMI patients with acute STEMI who received thrombolytic/ fibrinolytic therapy (streptokinase/ alteplase/ reteplase/ tenecteplase/ urokinase/ prourokinase anistreplase) during the measurement year
<b>Denominator</b>	Total number of AMI with acute STEMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	In the absence of contraindications, thrombolytic also called as fibrinolytic therapy should be administered to patients with STEMI at non-PCI-capable hospitals when the anticipated FMC-to-device time at a PCI-capable hospital exceeds 120 minutes because of unavoidable delays. When fibrinolytic therapy is indicated or chosen as the primary reperfusion strategy, it should be administered within 30 minutes of hospital arrival.

## Primary Percutaneous Coronary Intervention / Coronary Angioplasty for AMI patients with Acute STEMI

Description Title	Primary Percutaneous Coronary Intervention / Coronary Angioplasty for AMI patients with Acute STEMI
<b>Definition</b>	Percentage of AMI patients with acute STEMI who received primary percutaneous coronary intervention/coronary angioplasty during the measurement year
<b>Numerator</b>	Number of AMI patients with acute STEMI who received primary percutaneous coronary intervention/coronary angioplasty during the measurement year
<b>Denominator</b>	Total number of AMI with acute STEMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Primary percutaneous coronary intervention (PCI) refers to the strategy of taking a patient who presents with STEMI directly to the cardiac catheterization laboratory to undergo mechanical revascularization using balloon angioplasty, coronary stents, aspiration thrombectomy, and other measures. Primary PCI has been shown to be superior to fibrinolytic therapy in recanalizing the infarct-related artery and imparts better clinical outcomes.

## Coronary Artery Bypass Graft Surgery (CABG) for AMI Patients

Description Title	Coronary Artery Bypass Graft Surgery (CABG) for AMI patients
<b>Definition</b>	Percentage of AMI patients who underwent coronary artery bypass graft surgery during the measurement year
<b>Numerator</b>	Number of AMI patients who underwent coronary artery bypass graft surgery during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Lower is better
<b>Rationale</b>	CABG has remained an important treatment option for acute coronary syndromes, particularly in patients (i) with ongoing ischemia and large areas of jeopardized myocardium, if percutaneous coronary intervention (PCI) cannot be performed; ii) following successful PCI of the culprit lesion with further indication for coronary artery bypass grafting; and (iii) where PCI is incomplete, not sufficient, or failed.

## Emergency Department Care for AMI Patients

Description Title	Emergency Department Care for AMI Patients
<b>Definition</b>	Percentage of AMI patients who received emergency department care during the measurement year
<b>Numerator</b>	Number of AMI patients who received emergency department care during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Patient deemed to have a high-risk condition or a contraindication to exercise
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Morbidity and mortality from myocardial infarction are remarkably reduced if patients and bystanders recognize symptoms early, activate the emergency medical service (e.g., admission to critical care unit/cardiac catheterization lab/non-aspirin antiplatelet therapy/intravenous antithrombotic therapy/fibrinolytic agents/glycoprotein IIb/IIIa inhibitors therapy), and thereby shorten the time to definitive treatment.

## Avoidable Hospitalization in AMI Patients

Description Title	Avoidable Hospitalization in AMI Patients
<b>Definition</b>	Average number of patients hospitalized with AMI in measurement year
<b>Numerator</b>	Total number of patients hospitalized with AMI in measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Typically, patients with confirmed diagnosis of AMI will need immediate hospitalization and appropriate institution of therapy

## Referral of AMI patients to Cardiac Rehabilitation

Description Title	Referral of AMI patients to Cardiac Rehabilitation
<b>Definition</b>	Percentage of AMI patients who were referred to cardiac rehabilitation during the measurement year
<b>Numerator</b>	Number of AMI patients who were referred to cardiac rehabilitation during the measurement year
<b>Denominator</b>	Total number of AMI patients during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Cardiac rehabilitation (CR) after hospitalization for acute coronary syndrome (ACS) has shown to reduce mortality, readmissions, and improve quality of life. Cardiac rehabilitation/secondary prevention programs are recommended for patients with UA/NSTEMI, particularly those with multiple modifiable risk factors and/or those moderate- to high-risk patients in whom supervised exercise training is particularly warranted. The most important time for this referral to take place is while the patient is hospitalized for a qualifying event/diagnosis (e.g., MI, chronic stable angina, CABG, PCI, cardiac valve surgery, or cardiac transplantation).

## Referral of AMI Patients to Smoking Cessation Clinics

Description Title	Referral of AMI Patients to Smoking Cessation Clinics
<b>Definition</b>	Percentage of AMI patients who are smokers and were referred to a smoking cessation clinic during the measurement year
<b>Numerator</b>	Number of AMI patients who are smokers and were referred to a smoking cessation clinic during the measurement year
<b>Denominator</b>	Total number of AMI patients who are smokers during the measurement year
<b>Exclusion criteria</b>	Pulmonary embolism, aortic dissection, pneumothorax, esophageal rupture, and cardiac tamponade
<b>Reporting frequency</b>	Dynamic
<b>Unit of measure</b>	Percentage (Numerator/Denominator x 100)
<b>Measure target and/or threshold</b>	Higher is better
<b>Rationale</b>	Cigarette smoking is a risk factor for cardiovascular disease (CVD) and smoking cessation reduces AMI risk.

## References

1. Writing Committee Members, Gulati M, Levy PD, Mukherjee D, Amsterdam E, Bhatt DL, Birtcher KK, Blankstein R, Boyd J, Bullock-Palmer RP, Conejo T. 2021 AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR guideline for the evaluation and diagnosis of chest pain: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Journal of the American College of Cardiology*. 2021 Nov 30;78(22):e187-285. <https://www.ahajournals.org/doi/10.1161/CIR.0000000000001030>
2. Jneid H, Addison D, Bhatt DL, Fonarow GC, Gokak S, Grady KL, Green LA, Heidenreich PA, Ho PM, Jurgens CY, King ML. 2017 AHA/ACC clinical performance and quality 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. *Circulation: Cardiovascular Quality and Outcomes*. 2017 Oct;10(10):e000032. <https://www.ahajournals.org/doi/10.1161/HCQ.0000000000000032>
3. Jernberg T, Jortveit J, Blondal M, Ibanez B, Hassager C. 2020 Update of the quality indicators for acute myocardial infarction: a position paper of the Association for Acute Cardiovascular Care: the study group for quality indicators from the ACVC and the NSTEMI-ACS guideline group. <http://europepmc.org/article/MED/33550362>
4. Kumar N, Kumar S, Kumar A, Shakoor T, Rizwan A. Lipid Profile of Patients with Acute Myocardial Infarction (AMI). *Cureus*. 2019 Mar 18;11(3):e4265. doi: 10.7759/cureus.4265. PMID: 31139524. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6519978/pdf/cureus-0011-00000004265.pdf>
5. Yu S, Jin J, Chen Z, Luo X. High-intensity statin therapy yields better outcomes in acute coronary syndrome patients: a meta-analysis involving 26,497 patients. *Lipids Health Dis*. 2020 Aug 23;19(1):194. doi: 10.1186/s12944-020-01369-6. PMID: 32829708; PMCID: PMC7444068. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7444068/pdf/12944\\_2020\\_Article\\_1369.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7444068/pdf/12944_2020_Article_1369.pdf)
6. Schiele F, Gale CP, Bonnefoy E, Capuano F, Claeys MJ, Danchin N, Fox KA, Huber K, Iakobishvili Z, Lettino M, Quinn T. Quality indicators for acute myocardial infarction: A position paper of the Acute Cardiovascular Care Association. *European Heart Journal: Acute Cardiovascular Care*. 2017 Feb 1;6(1):34-59. <https://academic.oup.com/ehjacc/article/6/1/34/5921602?login=false>
7. Longenecker JC, Alfaddagh A, Zubaid M, Rashed W, Ridha M, Alenezi F, Alhamdan R, Akbar M, Bulbanat BY, Al-Suwaidi J. Adherence to ACC/AHA performance measures for myocardial infarction in six Middle-Eastern countries: association with in-hospital mortality and clinical characteristics. *International journal of cardiology*. 2013 Aug 20;167(4):1406-11. [https://www.internationaljournalofcardiology.com/article/S0167-5273\(12\)00487-1/fulltext](https://www.internationaljournalofcardiology.com/article/S0167-5273(12)00487-1/fulltext)

