2017 AHA/ACC Clinical Performance and Quality Measures for Adults With ST-Elevation and Non–ST-Elevation Myocardial Infarction

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Disclosures

- Speakers Board
  - AstraZeneca
  - Jansen
  - Edwards Life Science

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Scope of the Problem

- Incidence 1 MI /42 second in USA
- AMI, and the estimated annual incidences of new and **recurrent MI** events are 550,000 and 200,000 respectively
- The rates of hospitalization and 30-day mortality for AMI have been on the decline
- overall mortality rate in 2008 after an AMI was still 7.8% at 30 days
- CVD/MI /stroke in patients on DAPT(PLATO trial-Clopidogrel arm) at 12 mo was 11.7% **(6.9% recurrent MI)**

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Definition of AMI

- Third Universal Definition of Myocardial Infarction consensus document published in 2012
- AMI is defined by **a rise and/or fall of cardiac biomarkers** (preferably cardiac troponin levels) with at least 1 value above the 99th percentile upper reference limit and with at least one of the following:
  - (a) **symptoms** of ischemia
  - (b) new or presumed new significant **ST-segment–T wave** changes or **new LBBB**
  - (c) development of pathological **Qwave on ECG**
  - (d) imaging evidence of new loss of viable myocardium or new regional wall motion abnormality
  - (e) identification of an **intracoronary thrombus** by angiography or autopsy.
- Type I or spontaneous MI, event related to atherosclerotic plaque disruption

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- American College of Cardiology (ACC)/American Heart Association (AHA) **performance measures** serve as **vehicles to accelerate** translation of **scientific evidence into clinical practice**.
- Goal :
  - provide practitioners and institutions with **tools to measure the quality of care**
  - **capture** important aspects of **care quality**, **while minimizing**, when possible, the **reporting burden**

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Quality Vs Performance measures

- The ACC/AHA Task Force on Performance Measures distinguishes quality measures from performance measures.
- **Quality measures** are those **metrics** that **may** be useful for local quality improvement **but are not yet appropriate** for public reporting or pay for performance programs (uses of performance measures).
- Quality measures are **metrics that are being tested** .If deemed useful upgraded to Performance measures

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- Task Force recognizes 17 Performance Measures (PM) and 7 Quality measures (QM)
- Updated from 2008→2017
  - Retired and added measures

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Performance Measures for Use in Patients With Inpatient STEMI and NSTEMI

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Clinical Case presentation

- 58 yo male presenting with acute inferior STEMI
- Outside hospital
- Non PCI capable facility
- ASA **+ No Heparin**
- Called receiving Hospital → accepted patient
- **Door in Door out** receiving hospital within 35 min
- Arrived at receiving facility **PCI within 100 min**

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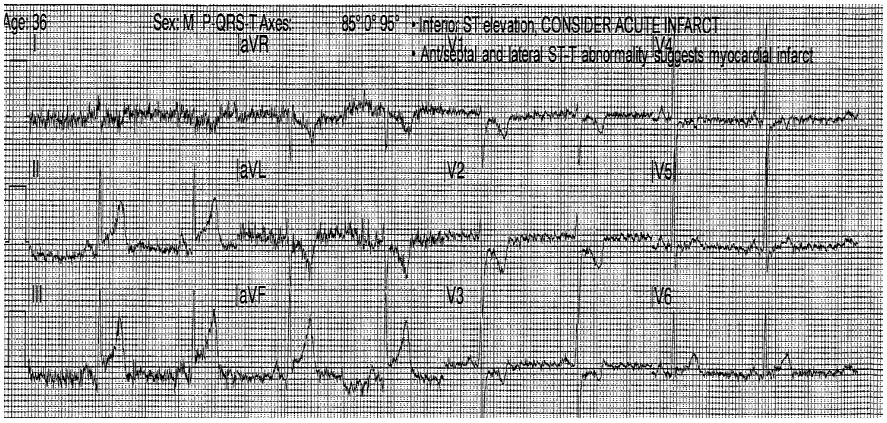
Clinical Case presentation



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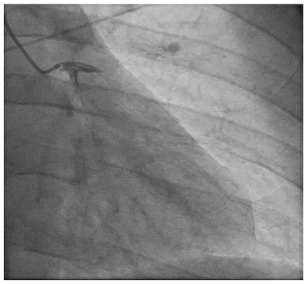

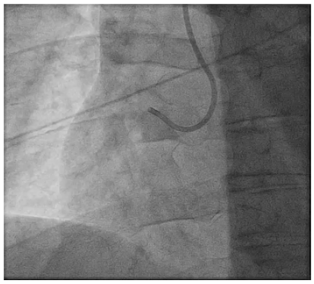

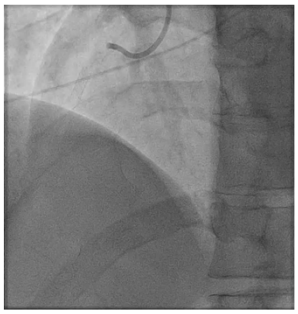

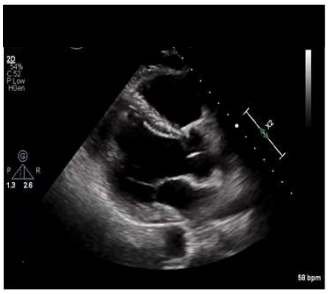

CRITICAL: AGH NAME: DATE/TIME:

I aVR V1 V4

II aVL V2 V5

III aVF V3 V6

II

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- Short hospital stay 48 hrs
- **LVEF** by echo 45%
- DC patient
- DAPT, asa, betablockers,simvastatin 40 mg
- no ACE inh /No ARB
- **No lipid Profile** obtained
- **No smoking cessation** instructed or documented
- **No cardiac rehab referral provided**

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PM-1 and PM-2
ASA

- ASA 162-325 mg on admission prior to PCI/Lytics for STEMI and NSTEMI
- ASA (81-325 mg) preferred 81 mg upon discharge and indefinitely

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PM-3 B-blockers at discharge

- Oral beta blockers should therefore be administered to **all patients with MI** without contraindications
- The effects of beta blockers appear also to be greatest among patients with MI complicated by heart failure, systolic cardiomyopathy, or ventricular arrhythmias
- Patients with AMI who are prescribed a beta blocker at hospital discharge
- Appropriate beta blockers to be used in patients with **AMI and LVSD** are: bisoprolol, carvedilol, extended-release metoprolol.

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PM-4

High intensity Statin

- 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**
- They have also been shown to **delay coronary atherosclerosis progression** and possibly induce plaque regression, on serial angiographic and intravascular ultrasonographic studies.
- **Paradigm of treating patients to LDL-C targets is largely abandoned**

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PM-5 evaluation of LVEF

- LVEF is important from a therapeutic and prognostic standpoint
- Patients with reduced LVEF may benefit from specific **medical therapies**,(ACEinh,B-b,ARB,Aldost.inh,ARNI)
- LVSD may help inform and guide the invasive strategy and **revascularization modality**
- LVEF is one of the strongest **predictors** of long-term **survival following AMI**.
- post-MI LVEF. This will help guide the need for **device therapy**

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PM-6 ACEin-ARB for LVSD

- Patients with AMI with LVSD (defined as chart documentation of a LVEF <40% or a narrative description of LVSF consistent with moderate or severe systolic dysfunction)

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PM-7 Door to needle time

- Acute STEMI: Time to Fibrinolytic Therapy
- Survival benefit of lytics is the best with 2 hrs of symptom onset
- ACCF/AHA guideline set a benchmark time goal from hospital arrival to drug administration, or DTN time, to be 30 min
- Fibrinolytic therapy should not be administered to patients with ST depression **except when a true posterior (inferobasal) MI is suspected or when associated with ST elevation in lead aVR**
- Documentation of a **medical reason** for **delayed fibrinolytic** therapy (e.g., cardiopulmonary arrest, initial suspicion of bleeding/ stroke or other contraindications to use fibrinolytic therapy, respiratory failure requiring intubation, intra-aortic balloon pump insertion, late presentation >12 h after symptom onset)
- Documentation of a **patient reason** (e.g., initial patient concern with bleeding hazards)

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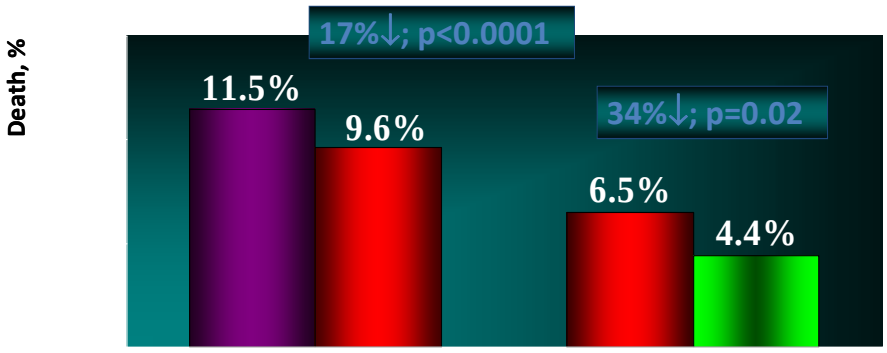
30 Day Mortality with Reperfusion Therapy in AMI

Meta-Analysis Comparison



FTT:

9 placebo controlled lytic trials (n=58,800)

11 PTCA-lytic trials (n=2,606) - PCAT

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PM-8 First Medical Contact-Device Time

- STEMI (or equivalent on ECG) FMC-DT benchmark 90 min
- Documentation for delay (similar to the Lytic therapy)

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PM-9 Reperfusion Therapy

- Patients with acute STEMI (or its equivalent)should receive reperfusion
- PCI preferred
- < 12hour onset of symptoms(unless Shock of severe CHF-No time parameter)
- FMC-Device< 90 min , FMC-DT<120 min(if transferred) ,DTN <30 min(if lytics)

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PM-10 Door-in-Door-Out Time

- Acute STEMI: Time From ED Arrival at STEMI Referral Facility to ED Discharge From STEMI Referral Facility in Patients Transferred for Primary PCI
- Unless : Documentation of a medical reason for the delay (e.g., cardiopulmonary arrest, balloon pump insertion, respiratory failure requiring intubation).Patient preference
- Referring facility is responsible

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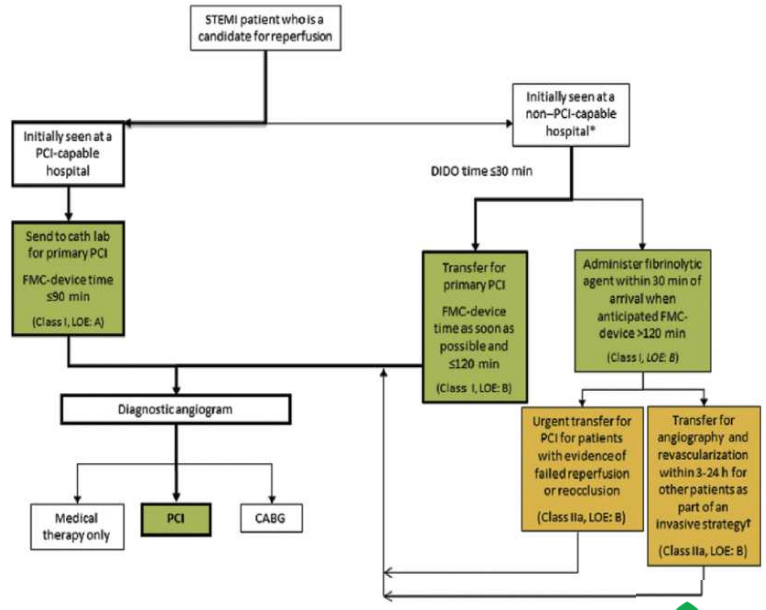

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PM-11 Time to Primary PCI Among Transferred Patients

- **FMC-Device time < 120 min**
- D-in D–out < 30 min
- Measure reportable at the facility level Both STEMI referral facility (non–PCI-capable) and STEMI receiving facility (PCI-capable) are accountable for this measure.
- Documentation of a medical reason for the delay (e.g., cardiopulmonary arrest, balloon pump insertion, respiratory failure requiring intubation)

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PM-12 Cardiac Rehabilitation Referral

- AMI patients who are referred to outpatient CR/secondary prevention program prior to hospital discharge
- **Exceptions**
  - Provider-oriented criteria (patient deemed to have a high-risk condition or a **contraindication to exercis**e, for example)
  - Healthcare system barriers (e.g., financial barriers or lack of CR programs near a patient's home)
- Pt eligible (MI, chronic stable angina, CABG, PCI, cardiac valve surgery, or cardiac transplantation,CHF)-Class I

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PM-13: AMI: P2Y12 Receptor Inhibitor Prescribed at Discharge

- Clopidogrel, prasugrel, or ticagrelor in PCI-treated patients(BMS or DES)
- Clopidogrel or ticagrelor in medically treated patients
- Clopidogrel in STEMI patients receiving fibrinolytic therapy
- Preferred therapy duration at least for 12 mo

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PM-14: STEMI: Immediate Angiography for Resuscitated Out-of-Hospital Cardiac Arrest in STEMI Patients

- 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 (usually with PCI)
- All patients with STEMI who are resuscitated from out-of-hospital cardiac arrest should undergo immediate angiography.
- **Immediate= 120 min within resuscitation**
- Inability
  - Futile effort/terminal illness/Patient ,Family wishes.
  - Too unstable to Tx to PCI facility

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PM-15: AMI: Non-Invasive Stress Testing Before Discharge in Conservatively Treated Patients

- All patients with AMI who are initially treated with a conservative management strategy (medical therapies alone without invasive coronary angiography as a planned initial therapy)-Usually are low risk patients
- Contraindication
  - intolerance to dobutamine or vasodilator test
  - Ongoing ischemia
  - terminal illness/futile not candidate for PCI

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PM-16: Acute NSTEMI: Early Cardiac Troponin Measurement (Within 6 Hours of Arrival)

- NSTE-ACS can present with nonspecific changes on the ECG
- troponin levels expedite early diagnosis and risk stratification →earlier triage and institution of appropriate medical and interventional treatments

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PM-17: AMI: Participation in a Regional or National Registries That Include Patients With Acute Myocardial Infarction

- Examples of such registries include the NCDR ACTION Registry-Get With The Guidelines, Mission Lifeline, and the D2B Alliance
- STEMI (Class I)
- NSTEMI(Class IIa)
- includes assessment and continuous quality improvement of emergency medical services and hospital-based activities

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Quality Improvement Measures for Inpatient STEMI and NSTEMI Patients

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QM-1: NSTEMI: Risk Stratification of NSTEMI Patients With a Risk Score

- Patients with NSTEMI who have a risk score documented during hospitalization
  - TIMI risk score
  - GRACE risk score
- Early invasive strategy(12-24Hrs) Vs Delayed invasive strategy(24-72Hrs)

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GRACE™ GLOBAL REGISTRY OF ACUTE CORONARY EVENTS

Non STE-ACS: In-hospital Mortality

Risk Category (tertiles)	GRACE Risk Score	Probability of Death In-hospital (%)
Low	1-108	<1
Intermediate	109-140	1-3
High	141-372	>3

Non STE-ACS: 6 Month Post-discharge Mortality

Risk Category (tertiles)	GRACE Risk Score	Probability of Death Post-discharge to 6 Months (%)
Low	1-88	<3
Intermediate	89-118	3-8
High	119-263	>8

Age		years
Heart rate/pulse	Norm: 60 - 100	beats/min
Systolic BP	Norm: 100 - 120	mm Hg
Creatinine	Norm: 0.7 - 1.3	mg/dL
Cardiac arrest at admission	No	Yes
ST segment deviation on EKG?	No	Yes
Abnormal cardiac enzymes	No	Yes
Killip class (signs/symptoms)	No CHF	
	Rales and/or JVD	
	Pulmonary edema	
	Cardiogenic shock	

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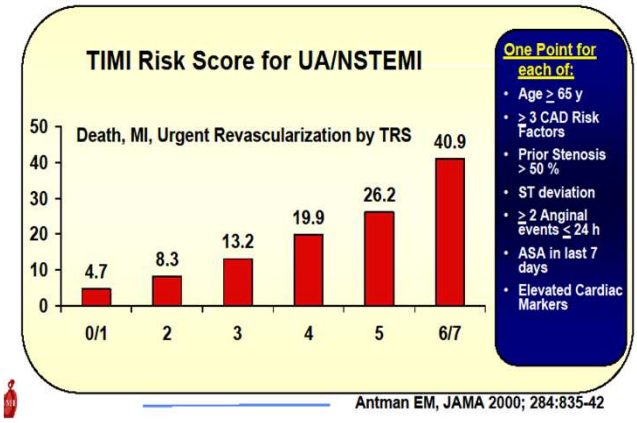
TIMI 11B



Antman EM, JAMA 2000; 284:835-42

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QM-2: Acute NSTEMI: Early Invasive Strategy (Within <24 Hours) for High-Risk NSTEMI Patients

- Patients with acute NSTEMI who are high risk and receive early invasive strategy (diagnostic angiography with intent to perform revascularization if appropriate based on coronary anatomy) within 24 h of admission
- A high-risk NSTEMI patient is best defined by an objective risk score (e.g., GRACE risk score >140 or TIMI risk score >4).

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QM-3: STEMI: Therapeutic Hypothermia for Comatose STEMI Patients With Out-of-Hospital Cardiac Arrest

- Therapeutic hypothermia should be started as soon as possible in comatose patients with STEMI and out-of-hospital cardiac arrest caused by ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT), including patients who undergo primary PCI (Class I, Level of Evidence: B)

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QM-4: AMI: Aldosterone Antagonist Prescribed at Discharge

- Post MI /LVEF< 0.4 and either HF or DM
- On ACEinh/ARB/Bb
- Contraindication :
  - Creat 2.0-2.5mg/dl,K>5.0

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QM-5: AMI: Inappropriate In-Hospital Use of NSAIDs

- Class III

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QM-6: AMI: Inappropriate Prescription of Prasugrel at Discharge in Patients With a History of Prior Stroke or TIA

- Class III

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QM-7: AMI: Inappropriate Prescription of High-Dose Aspirin With Ticagrelor at Discharge

- Class III

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TABLE 1 2017 AHA/ACC STEMI and NSTEMI Myocardial Infarction Clinical Performance and Quality Measures

No.	Measure Title	Care Setting	Attribution	Measure Domain
Performance Measures				
PM-1	Aspirin at Arrival	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-2	Aspirin Prescribed at Discharge	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-3	Beta Blocker Prescribed at Discharge	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-4	High-Intensity Statin Prescribed at Discharge	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-5	Evaluation of LVEF	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-6	ACEI or ARB Prescribed for LVSD	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-7	Time to Fibrinolytic Therapy*	Inpatient	Facility or Provider Level	Communication and Care Coordination
PM-8	Time to Primary PCI*	Inpatient	Facility or Provider Level	Communication and Care Coordination
PM-9	Reperfusion Therapy*	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-10	Time From ED Arrival at STEMI Referral Facility to ED Discharge From STEMI Referral Facility in Patients Transferred for Primary PCI*	Inpatient	Facility Level	Communication and Care Coordination
PM-11	Time From FMC (At or Before ED Arrival at STEMI Referral Facility) to Primary PCI at STEMI Receiving Facility Among Transferred Patients*	Inpatient	Facility Level	Communication and Care Coordination
PM-12	Cardiac Rehabilitation Patient Referral From an Inpatient Setting	Inpatient	Facility or Provider Level	Communication and Care Coordination
PM-13	PY12 Receptor Inhibitor Prescribed at Discharge	Inpatient	Facility or Provider Level	Effective Clinical Care
PM-14	Immediate Angiography for Resuscitated Out-of-Hospital Cardiac Arrest in STEMI Patients*	Inpatient	Facility or Provider Level	Effective Clinical Care

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TABLE 1 2017 AHA/ACC STEMI and NSTEMI Myocardial Infarction Clinical Performance and Quality Measures

PM-15	Noninvasive Stress Testing Before Discharge in Conservatively Treated Patients	Inpatient	Facility or Provider Level	Efficiency and Cost Reduction
PM-16	Early Cardiac Troponin Measurement† (Within 6 Hours of Arrival)	Inpatient	Facility or Provider Level	Efficiency and Cost Reduction
PM-17	Participation in ≥1 Regional or National Registries That Include Patients With Acute Myocardial Infarction Registry	Inpatient	Facility Level	Community, Population, and Public Health
Quality Measures				
QM-1	Risk Stratification of NSTEMI Patients With a Risk Score†	Inpatient	Facility or Provider Level	Effective Clinical Care
QM-2	Early Invasive Strategy (Within 24 Hours) in High-Risk NSTEMI Patients†	Inpatient	Facility or Provider Level	Effective Clinical Care
QM-3	Therapeutic Hypothermia for Comatose STEMI Patients With Out-of-Hospital Cardiac Arrest*	Inpatient	Facility or Provider Level	Effective Clinical Care
QM-4	Aldosterone Antagonist Prescribed at Discharge	Inpatient	Facility or Provider Level	Effective Clinical Care
QM-5	Inappropriate In-Hospital Use of NSAIDs	Inpatient	Facility or Provider Level	Patient Safety
QM-6	Inappropriate Prescription of Prasugrel at Discharge in Patients With a History of Prior Stroke or TIA	Inpatient	Facility or Provider Level	Patient Safety
QM-7	Inappropriate Prescription of High-Dose Aspirin With Ticagrelor at Discharge	Inpatient	Facility or Provider Level	Patient Safety

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TABLE 4 Retired STEMI and NSTEMI Measures From the 2008 Set

#	Care Setting	Measure Title	Rationale for Retiring the Measure
PM-12	Inpatient	Adult Smoking Cessation Advice/ Counseling	This measure is being retired because perfect scores are consistently achieved and the measure appears to have reached a ceiling effect. Therefore, given absence of room for further improvement, the writing committee opted to omit this measure from the inpatient performance measure set for AMI (realizing also that a separate outpatient CAD measure set will likely address smoking cessation advice/counseling). The writing committee also recognizes the importance of the American Medical Association/Physician Consortium for Performance Improvement Tobacco Use: Screening and Cessation Intervention measure that already exists (27).
QM-1	Inpatient	LDL Cholesterol Assessment	This measure is being retired to be concordant with the new lipid guidelines that no longer recommend LDL measurements to target statin prescription and/or dosing.
QM-2	Inpatient	Excessive Initial Heparin Dose	This measure is being retired because it covers only one aspect of medication use (e.g., overdosing) and misses other aspects such as under-dosing and inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines and has shortcomings pertinent to measure feasibility and accountability.
QM-3	Inpatient	Excessive Initial Enoxaparin Dose	This measure is being retired because it covers only one aspect of medication use (e.g., overdosing) and misses other aspects such as underdosing and inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines and has shortcomings pertinent to measure feasibility and accountability.

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TABLE 4 Retired STEMI and NSTEMI Measures From the 2008 Set

QM-4	Inpatient	Excessive Initial Abciximab Dose	This measure is being retired because it covers only one aspect of medication use, (e.g., overdosing) and misses other aspects such as underdosing and inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines and has shortcomings pertinent to measure feasibility and accountability.
QM-5	Inpatient	Excessive Initial Eptifibatide Dose	This measure is being retired because it covers only one aspect of medication use (e.g., overdosing) and misses other aspects such as underdosing and inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines and has shortcomings pertinent to measure feasibility and accountability.
QM-6	Inpatient	Excessive Initial Tirofiban Dose	This measure is being retired because it covers only one aspect of medication use (e.g., overdosing) and misses other aspects such as underdosing and inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines and has shortcomings pertinent to measure feasibility and accountability.
QM-7	Inpatient	Anticoagulant Dosing Protocol	This measure is being retired because it covers only one aspect of medication use and misses other aspects such as inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines and has shortcomings pertinent to measure feasibility and accountability.
QM-8	Inpatient	Anticoagulant Error Tracking System	This measure is being retired because it covers only limited aspects of medication use and misses other aspects such as inappropriate use. In addition, this is not a direct stand-alone Class I or III recommendation in the guidelines.

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TABLE 5 Revised STEMI and NSTEMI Measures

#	Care Setting	Measure Title	Rationale for Revision of the Measure
PM-4	Inpatient	Statin for AMI	This measure is being revised to reflect the 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults (14), which recommended statin use for all patients with established atherosclerotic cardiovascular disease, including patients with AMI.
PM- 5	Inpatient	Evaluation of LVEF	The title of this measure is being revised from "Evaluation of Left Ventricular Systolic Function" to "Evaluation of Left Ventricular Ejection Fraction." The treatment recommendations regarding the use of guideline-directed medication therapies are based on LVEF, not qualitative estimates of left ventricular systolic function. The 2013 ACCF/AHA STEMI guideline (12) explicitly recommended measuring LVEF. The 2014 AHA/ACC NSTE-ACS guidelines (11) likewise have medication recommendations based on knowledge of the ejection fraction.
PM-12	Inpatient	Cardiac Rehabilitation Referral	This measure is being adapted from the AACVPR/ACCF/AHA 2010 Update: Performance Measures on Cardiac Rehabilitation for Referral to Cardiac Rehabilitation/Secondary Prevention Services (28). One modification since the publication of that 2010 measurement set was the removal of patient reasons from the list of measure exceptions. Specifically, patient refusal does not constitute a justifiable reason for a clinician not offering a referral to a patient. If documentation in the medical record exists noting that the provider has informed and discussed referral to cardiac rehabilitation/secondary prevention program with the patient, but that the patient refuses a referral, then the healthcare provider would not be expected to send communication about the patient to the cardiac rehabilitation/secondary prevention program. This is consistent with HIPAA confidentiality regulations and shared decision making, and performance would then be considered met by the provider (preventing unjust penalization of the provider).
PM-13	Inpatient	$P2Y_{12}$ Receptor Inhibitor Prescribed at Discharge	In the 2008 ACC/AHA STEMI/NSTEMI measure set (2), a test measure entitled "Clopidogrel at Discharge" was included. Since then, 2 newer FDA-approved medications—ticagrelor and prasugrel—have emerged and demonstrated safety, efficacy, and clinical effectiveness after AMI. All 3 medications are inhibitors of the $P2Y_{12}$ receptor and are recommended in addition to aspirin (as part of a dual antiplatelet regimen) to reduce recurrent ischemic events after AMI.

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TABLE 6 New STEMI/NSTEMI Measures

No.	Care Setting	Measure Title	Rationale for Creating New Measure	Rationale for Designating as a Quality Measure as Opposed to a Performance Measure (If Applicable)
PM-14	Inpatient	Immediate Angiography for Resuscitated Out-of-Hospital Cardiac Arrest in STEMI Patients	This measure seeks to implement a Class I (Level of Evidence B) recommendation in the 2013 ACCF/AHA STEMI guideline (12) that immediate angiography with PCI when indicated should be performed in resuscitated out-of-hospital cardiac arrest patients whose initial ECG shows STEMI. The writing committee opted to include angiography only, which is easily measurable, and not PCI because of the difficulty associated with ascertaining PCI appropriateness or its lack thereof.	Not Applicable
PM-15	Inpatient	Noninvasive Stress Testing Before Discharge in Conservatively Treated Patients	This measure seeks to implement Class I (Level of Evidence B) recommendations in both the 2013 STEMI (12) and 2014 AHA/ACC NSTE-ACS (11) guidelines to perform noninvasive stress testing to detect inducible ischemia in medically treated STEMI and NSTEMI patients.	Not Applicable
PM-16	Inpatient	Early Cardiac Troponin	This measure seeks to implement Class I (Level of	Not Applicable
PM-17	Inpatient	Participation in Regional or National Acute Myocardial Infarction Registry	This measure seeks to implement Class I (Level of Evidence B) and Class IIa (Level of Evidence B) recommendations in the 2013 STEMI (12) and 2014 AHA/ACC NSTE-ACS guidelines (11), respectively. The writing group felt that participation in a regional or national AMI registry will help track and assess the outcomes, complications, and quality of care for patients with AMI, and is supported by evidence.	Not Applicable
QM-1	Inpatient	Risk Score Stratification for NSTEMI Patients	This measure seeks to implement a Class I (Level of Evidence A) recommendation in the 2014 AHA/ACC NSTE-ACS (11) guideline that risk scores should be used to assess prognosis in patients with NSTE-ACS. The writing committee realizes the importance of this measure to dictate the appropriate strategy (invasive versus ischemic-guided) and the timing of the strategy (early versus late invasive) in patients with NSTEMI.	The writing committee felt it was best to keep this as a quality measure because of issues related to the measure feasibility. Most registries do not include risk scores, and most risk scores (e.g., GRACE, TIMI, PURSUIT) are difficult to compute retrospectively from [illegible] respective components, and [illegible] to cause a significant abstraction burden.

TABLE 6 New STEMI/NSTEMI Measures

No.	Care Setting	Measure Title	Rationale for Creating New Measure	Rationale for Designating as a Quality Measure as Opposed to a Performance Measure (If Applicable)
QM-2	Inpatient	Early Invasive Strategy (Within 24 Hours) in High-Risk NSTEMI Patients	This measure seeks to implement a Class I (Level of Evidence A) recommendation in the 2014 AHA/ACC NSTE-ACS guideline (11) that an early invasive strategy should be performed in initially stabilized high-risk patients with NSTE-ACS.	The writing committee felt it was best to keep this as a quality measure for many reasons. The writing group acknowledges that early invasive strategy (compared with a delayed invasive strategy) in high-risk NSTE-ACS patients predominantly reduces recurrent ischemia (rather than the hard outcomes of recurrent MI or death). Although this strategy additionally reduces length of stay and costs, it creates a logistical burden on cardiac catheterization labs, especially during weekends. Finally, objective risk stratification by risk scores is usually not available in current registries; thus, ascertaining which patients benefit from early invasive strategy may not be readily feasible.
QM-3	Inpatient	Therapeutic Hypothermia for Comatose STEMI Patients With Out-of-Hospital Cardiac Arrest	This measure seeks to implement a Class I (Level of Evidence B) recommendation in the 2013 ACCF/AHA STEMI guideline (12) that therapeutic hypothermia should be started as soon as possible in comatose patients with STEMI and out-of-hospital cardiac arrest caused by VF or VT.	The writing committee felt it was best to keep this as a quality measure because of newer controversial data pertinent to the effectiveness, timing, and implementation of therapeutic hypothermia.
QM-4	Inpatient	Aldosterone Antagonist at Discharge	This measure seeks to implement Class I recommendations in the 2013 ACCF/AHA STEMI (12) and 2014 AHA/ACC NSTE-ACS (11) guidelines supporting the use of aldosterone antagonists in eligible patients with STEMI and NSTEMI, respectively.	The writing committee felt it is best to keep this as a quality measure because of issues related to the measure construct. This measure is likely to present a significant abstraction burden and may be relevant only to a small fraction of AMI patients (given the elaborate inclusion/exclusion criteria in the EPHESUS (29) clinical trial).

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TABLE 6 New STEMI/NSTEMI Measures

No.	Care Setting	Measure Title	Rationale for Creating New Measure	Rationale for Designating as a Quality Measure as Opposed to a Performance Measure (If Applicable)
QM-5	Inpatient	Inappropriate In-Hospital Use of NSAIDs	This measure seeks to implement Class III recommendations (Class III Harm, Level of Evidence: B) in both the 2013 ACCF/AHA STEMI (12) and 2014 AHA/ACC NSTE-ACS (11) guidelines, cautioning against the use of these drugs after AMI.	The writing committee felt it is best to keep this as a quality measure given the low impact associated with the use of NSAIDs during the brief hospitalization period (this is likely more relevant in the outpatient setting). The existence of an extensive and evolving list of NSAIDs may also create significant abstraction burden.
QM-6	Inpatient	Inappropriate Prescription of Prasugrel at Discharge in Patients With a History of Prior Stroke or TIA	This measure seeks to implement Class III recommendations (Class III HARM, Level of Evidence: B) in both the 2013 ACCF/AHA STEMI (12) and 2014 AHA/ACC NSTE-ACS (11) guidelines, cautioning against the use of prasugrel in patients with prior TIA/stroke, because of net clinical harm in these patients. The FDA also issued a black box warning on this.	The writing committee felt it is best to keep this as a quality measure only for the time being until more data become available pertinent to this measure and its impact in real-world patients.
QM-7	Inpatient	Inappropriate Prescription of High-Dose Aspirin With Ticagrelor at Discharge	This measure seeks to implement Class III recommendations (Class III HARM, Level of Evidence: B) in both the 2013 ACCF/AHA STEMI (12) and 2014 AHA/ACC NSTE-ACS (11) guidelines, cautioning against the use of high-dose aspirin >100 mg among patients receiving ticagrelor. The FDA also issued a black box warning on this.	The writing committee felt it is best to keep this as a quality measure only for the time being until more data become available pertinent to this measure and its impact in real-world patients.

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