

Table 2: Summary of STEMI and Secondary Prevention Guidelines:

Therapeutic category	Description of Recommendation	Classification of recommendation and (level of evidence)
A: ACE inhibitors and ARBs	<ul style="list-style-type: none"> -ACE inhibitors should be started and continued indefinitely in STEMI patients with a left ventricular ejection fraction (LVEF) $\leq 40\%$, and for those with hypertension, DM, or chronic kidney disease.¹⁰ - Use of ACE inhibitor therapy is reasonable for lower risk STEMI patients with normal LVEF and well controlled risk factors (i.e., hypertension) and revascularization has been performed.¹⁰ - Angiotensin receptor blockers (ARBs) should be recommended in ACE inhibitor intolerant patients and may be considered in combination with ACE inhibitors when systolic dysfunction is present.¹⁰ 	<p>I(A)</p> <p>IIa(B)</p> <p>I(A)-IIb(B)</p>
A: Analgesics	<ul style="list-style-type: none"> - Non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided before, during, and after presentation of STEMI due to increased risk of mortality.¹⁰ (Note this does not include aspirin therapy.) - Intravenous morphine sulfate is the analgesic of choice for acute pain associated with STEMI. Acetaminophen, small doses of narcotics, or non-acetylated salicylates are recommended for outpatient treatment of chronic musculoskeletal pain.¹⁰ 	<p>I(C)-III(C)</p> <p>I(C)</p>
A: Antiplatelet agents (aspirin)	<ul style="list-style-type: none"> -For post-percutaneous coronary intervention (PCI) STEMI patients without aspirin resistance, allergy, or increased risk of bleeding, aspirin 162-325 mg daily should be given for at least 1 month after bare metal stent implantation, 3 months after sirolimus-eluting stent implantation, and 6 months after paclitaxel-eluting stent implantation. After the initial post-stent period of 1-6 months, the dose of aspirin for chronic therapy should be reduced to 81-162 mg daily.¹⁰ -For patients at risk of bleeding, lower dose aspirin (81-162 mg daily) is reasonable during the initial period of 1-6 months after stent implantation.¹⁰ 	<p>I(B)</p> <p>IIa(C)</p>
A: Antiplatelet agents (clopidogrel)	<ul style="list-style-type: none"> -For post-PCI patients receiving a drug-eluting stent, clopidogrel 75 mg daily should be given for at least 12 months if not at high risk for bleeding. For post-PCI patients receiving a bare metal stent, clopidogrel should be given for a minimum of 1 month and ideally up to 12 months (unless the patient is at increased risk of bleeding, then it should be given for a minimum of 2 weeks).¹⁰ -For STEMI patients who are not undergoing stent implantation (medical therapy alone or angioplasty without stent placement), treatment with clopidogrel should continue for a minimum of 14 days.¹⁰ -Long-term maintenance therapy (i.e., 1 year) with clopidogrel 75 mg daily is reasonable in STEMI patients regardless of whether they undergo reperfusion with fibrinolytic therapy or PCI.¹⁰ -Clopidogrel dosing should be discontinued a minimum of 5 days (7 days preferable) prior to coronary artery bypass grafts (CABG).¹⁰ -In patients <75 years of age who receive fibrinolytic therapy or do not receive either PCI or fibrinolytic therapy, it is reasonable to administer an oral loading dose of clopidogrel 300 mg.¹⁰ 	<p>I(B)</p> <p>I(B)</p> <p>IIa(C)</p> <p>I(B)</p> <p>IIa(C)</p>

Therapeutic category	Description of Recommendation	Classification of recommendation and (level of evidence)
A: Anticoagulants (warfarin)	<ul style="list-style-type: none"> - Managing warfarin to INR of 2.0-3.0 for atrial fibrillation or flutter is recommended, and in post-STEMI patients when clinically indicated (e.g., atrial fibrillation, left ventricular thrombus).¹⁰ - Use of warfarin in conjunction with aspirin and/or clopidogrel is associated with increased bleeding risk and patients should be monitored closely.¹⁰ - In patients requiring warfarin, clopidogrel, and aspirin therapy, an INR of 2.0-2.5 is recommended with low dose aspirin (81 mg daily) and clopidogrel (75 mg daily).¹⁰ 	<p>I(A)</p> <p>I(B)</p> <p>I(C)</p>
A: Aldosterone blockade (eplerenone or spironolactone)	<ul style="list-style-type: none"> - Use of aldosterone blockade is recommended in post-STEMI patients without significant renal dysfunction or hyperkalemia and are receiving therapeutic doses of an ACE inhibitor and beta blocker, have an LVEF \leq 40%, and have either diabetes or heart failure.¹⁰ 	I(A)
B: Blood pressure	<ul style="list-style-type: none"> - Goal: <140/90 mmHg (130/80 mmHg for patients with diabetes and chronic kidney disease)¹⁰ <li style="text-align: center;">or - Goal: <130/80 mmHg in all patients with high CHD risk, stable angina, or ACS.¹¹ - All hemodynamically stable high risk CHD, stable angina, and ACS patients should receive beta-blocker and ACE-inhibitor or ARB for CVD risk reduction in addition to blood pressure control.¹¹ - Recommend lifestyle modification including weight control, sodium reduction, and increased consumption of fresh fruits, vegetables, and low-fat dairy products.¹⁰ 	<p>I(B)</p> <p>I(B)</p> <p>I(A)</p> <p>I(B)</p>
B: Beta-blockers	<ul style="list-style-type: none"> - STEMI patients should start oral beta-blocker therapy within 24 hours of presentation and continue indefinitely unless contraindicated.¹⁰ - Loading doses of an IV beta-blocker should not be administered to acute STEMI patients who have any of the following: 1) signs of heart failure, 2) evidence of a low output state, 3) increased risk for cardiogenic shock, or 4) other relative contraindications to beta-blockade (PR interval greater than 0.24 seconds, second- or third-degree heart block, active asthma, or reactive airway disease).¹⁰ - Patients with early contraindication to beta-blocker therapy should be reevaluated for candidacy as secondary prevention.¹⁰ 	<p>I(A-B)</p> <p>III(A)</p> <p>I(C)</p>
C: Cigarettes (Tobacco)	<ul style="list-style-type: none"> - Goal: Complete cessation and no second hand tobacco smoke exposure.¹⁰ - The status and willingness of ACS patients and household members to quit smoking should be assessed at all visits.¹⁰ - All willing patients should be assisted by counseling and plan development; special programs, follow-ups and pharmacotherapy (including nicotine replacement therapy) should be arranged.¹⁰ 	<p>I(B)</p> <p>I(B)</p> <p>I(B)</p>

Therapeutic category	Description of Recommendation	Classification of recommendation and (level of evidence)
C: Cholesterol	<ul style="list-style-type: none"> - Goal: LDL cholesterol (LDL-C) <100mg/dL or <70mg/dL.¹⁰ - Initiate drug therapy if LDL-C >100 mg/dL with a statin; combination pharmacotherapy may be required to reach goals.¹⁰ - If triglycerides are >500 mg/dL, fibrates and niacin should be used first to prevent pancreatitis before initiating therapy to lower LDL-C.¹⁰ - If triglycerides are ≥150 mg/dL or HDL-C ≤40mg/dL, emphasize weight management, physical activity, and smoking cessation.¹⁰ - Start dietary therapy in all patients, limiting intake of saturated fats, trans fats, and cholesterol.¹⁰ - It is reasonable to add plant stanol/sterols (2 g per day) and viscous fiber (>10g/day) to further lower LDL-C.¹⁰ - In patients with ACS, a fasting lipid profile should be assessed within 24 hours of presentation.¹⁰ 	<p>I(A), IIa(A)</p> <p>I(A)</p> <p>I(C)</p> <p>I(B)</p> <p>I(B)</p> <p>IIa(A)</p> <p>I(A)</p>
D: Depression	<ul style="list-style-type: none"> - Studies have demonstrated that depression increases the risk of cardiac death after MI, though the mechanism is not well understood. While clinical trials have failed to demonstrate improvement in mortality rates after treating depression post-MI, patients should still be screened for depression and treated appropriately.¹² 	
D: Diabetes	<ul style="list-style-type: none"> - Goal: HbA_{1c} <7% - Initiate lifestyle and pharmacotherapy to achieve near normal HbA_{1c}.¹⁰ 	I(B)
D: Diet	<ul style="list-style-type: none"> - Recommend initiating a Mediterranean-style diet that includes consuming fresh fruits and vegetables, whole grains, nuts, chicken, fish, olive oil, lean dairy products, red wine, and limiting consumption of red meat, simple sugars, sodium, and fat. - Mediterranean- and Okinawan-style diets are best at reducing CVD risks and inflammation. Diets of unprocessed, fiber rich, plant-based foods such as vegetables and fruits, whole grains, legumes, and nuts blunt the post-prandial increase in glucose, decrease triglyceride levels, and prevent endothelial dysfunction, hypercoagulability, sympathetic hyperactivity and inflammation.¹⁵ 	

Therapeutic Category	Description of Goals and Recommendations	Classification of Recommendation and (Level of Evidence)
E: Exercise	<ul style="list-style-type: none"> - Goal: 30-60 minutes of moderate-intensity aerobic exercise most days of the week (preferably every day), supplemented by increased daily lifestyle activities (walking breaks, gardening, household work).¹⁰ - It may be reasonable to encourage resistance training 2 days a week.¹⁰ - Initial weight loss goal from baseline should be 10%.¹⁰ - Goal: BMI: 18.5 to 24.5 kg/m² and waist circumference <40 inches for men and <35 inches for women. If above these values, consider lifestyle changes and treatment for metabolic syndrome.¹⁰ - Strongly advise all high-risk patients (i.e., recent ACS, revascularization, and heart failure) to use cardiac rehabilitation programs for supervised exercise training.^{9,10} 	<p>I(B)</p> <p>I(B)</p> <p>I(B)</p> <p>IIb(C)</p> <p>I(B)</p>
E: Ethanol	<ul style="list-style-type: none"> - It is reasonable to recommend avoidance of alcoholic beverages in all patients. For patients who choose to consume alcohol, one serving per day of red wine or dark colored beers, which contain large amounts of plant derived polyphenolic compounds, may be considered.¹³ 	
F: Fish oil	<ul style="list-style-type: none"> - Encourage increased consumption of omega-3-fatty acids in the form of fatty fish, or in capsule form (1 g daily) for risk reduction.¹⁰ 	IIb(B)
F: Influenza vaccination	<ul style="list-style-type: none"> - All patients with CVD should receive an annual influenza vaccine.¹⁰ 	I(B)
H: Hyperglycemia	<ul style="list-style-type: none"> - It is reasonable to consider intensive glucose control in patients with significant hyperglycemia (plasma glucose >180 mg/dL).¹⁴ - Insulin administered as a continuous intravenous infusion is the most effective method of controlling blood glucose levels in hospitalized ICU patients with ACS.¹⁴ - For CHD patients hospitalized in non-ICU settings, efforts should be directed at maintaining plasma glucose levels <180 mg/dL with subcutaneous insulin therapy.¹⁴ 	
I: Intervention (reperfusion therapy)	<ul style="list-style-type: none"> - STEMI patients presenting to a hospital with PCI capability should be treated within 90 minutes of first medical contact.¹⁰ - STEMI patients presenting to a non-PCI hospital and who cannot be transferred to a PCI center to undergo treatment within 90 minutes should receive fibrinolytic therapy within 30 minutes unless contraindicated.¹⁰ 	<p>I(A)</p> <p>I(B)</p>

Table 3: American Heart Association’s Classification of Recommendations and Levels of Evidence¹⁰

	Class I Benefit >>>Risk (Procedure/treatment should be performed or administered)	Class IIa Benefit >>Risk (It is reasonable to perform or administer procedure/treatment)	Class IIb Benefit ≥Risk (Procedure/treatment may be considered)	Class III Risk ≥Benefit (Procedure/treatment should not be performed or administered since it is not helpful and may be harmful)
Level A Multiple (3-5) populations evaluated	<ul style="list-style-type: none"> • Recommendation that procedure/treatment is effective/useful • Sufficient evidence from multiple randomized trials or meta-analyses 	<ul style="list-style-type: none"> • Recommendation in favor of procedure/treatment being effective/useful • Some conflicting evidence from multiple randomized trials or meta-analyses 	<ul style="list-style-type: none"> • Recommendation’s efficacy/usefulness less well established • Greater conflicting evidence from multiple randomized trials or meta-analyses 	<ul style="list-style-type: none"> • Recommendation that procedure/treatment is not effective/useful and may be harmful • Sufficient evidence from multiple randomized trials or meta-analyses
Level B Limited (2-3) populations evaluated	<ul style="list-style-type: none"> • Recommendation that procedure/treatment is effective/useful • Limited evidence from single randomized trial or nonrandomized studies 	<ul style="list-style-type: none"> • Recommendation in favor of procedure/treatment being effective/useful • Some conflicting evidence from single randomized trial or nonrandomized studies 	<ul style="list-style-type: none"> • Recommendation’s efficacy/usefulness less well established • Greater conflicting evidence from single randomized trial or nonrandomized studies 	<ul style="list-style-type: none"> • Recommendation that procedure/treatment is not effective/useful and may be harmful • Limited evidence from single randomized trial or nonrandomized studies
Level C Very limited (1-2) populations evaluated	<ul style="list-style-type: none"> • Recommendation that procedure/treatment is effective/useful • Only expert opinion, case studies, or standard-of-care 	<ul style="list-style-type: none"> • Recommendation in favor of procedure/treatment being effective/useful • Only diverging expert opinion, case studies, or standard-of-care 	<ul style="list-style-type: none"> • Recommendation’s efficacy/usefulness less well established • Only diverging expert opinion, case studies, or standard-of-care 	<ul style="list-style-type: none"> • Recommendation that procedure/treatment is not effective/useful and may be harmful • Only expert opinion, case studies, or standard-of-care