# Cardiovascular Risk Reduction Guideline Summary

This guideline is informational only. It is not intended or designed as a substitute for the reasonable exercise of independent clinical judgment by practitioners, considering each patient’s needs on an individual basis.

Guideline recommendations apply to populations of patients. Clinical judgment is necessary to design treatment plans for individual patients.

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I. Definitions

**Hypertension**

The Hypertension Guidelines Project Management Team used the definition of hypertension to be a blood pressure at or above 140/90 mm Hg. Unless otherwise stated, the Hypertension guidelines pertain to uncomplicated hypertension, which is defined as hypertension in nonpregnant adults who do not have diabetes, heart failure, renal insufficiency, or known coronary heart disease.

<table>
<thead>
<tr>
<th>The JNC7 Report defines blood pressure as:</th>
<th>Systolic Blood Pressure (SBP) mm Hg</th>
<th>Diastolic Blood Pressure (DBP) mm Hg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt; 120</td>
<td>&lt; 80</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>120 – 139</td>
<td>80 – 89</td>
</tr>
<tr>
<td>Stage 1 hypertension</td>
<td>140 – 159</td>
<td>90 – 99</td>
</tr>
<tr>
<td>Stage 2 hypertension</td>
<td>≥ 160</td>
<td>≥ 100</td>
</tr>
</tbody>
</table>

**Primary and Secondary CAD Prevention**

Primary Prevention refers to people without established coronary artery disease (CAD).

Secondary Prevention refers to people with established CAD.

**CAD Risk Equivalents**

CAD Risk Equivalents refers to any of the following:

- Ischemic stroke/TIA,
  carotid artery stenosis (> 50%),
  peripheral artery disease (PAD),
  abdominal aortic aneurysm (AAA)
- Diabetes mellitus (DM) age 40 or older
- 10-year risk of coronary events > 20%¹
- Chronic kidney disease (CKD) stages 4 or 5

**Chronic Kidney Disease**

Chronic Kidney Disease (CKD) Stages 4 and 5 refers to National Kidney Foundation (NKF) Stages 4 and 5 and are defined as a Glomerular Filtration Rate (GFR) < 30 mL/min/1.73 m² for at least three months.

¹ Refer to the “Recommendations for Dyslipidemia Drug Treatment, Coronary Artery Disease Risk Assessment Tool” tables for 10-year risk.
II. Screening

Screening for Hypertension

1. The U.S. Preventive Services Task Force (USPSTF) strongly recommends that clinicians screen adults aged 18 and older for hypertension. Evidence-based: A

2. Blood pressure screening every two years is recommended. Consensus-based

3. It is recommended that the diagnosis of hypertension be established in the medical office. Consensus-based

Lipid Screening in Adults with No Nonlipid CAD Risk Factors

4. For adults who have no nonlipid CAD risk factors, baseline lipid screening is recommended at age 20 or at the first Kaiser Permanente visit after age 20. Consensus-based

5. For adults who have no nonlipid CAD risk factors, TC < 240 mg/dL and HDL-C ≥ 40 mg/dL, follow-up lipid screening is recommended beginning at age 35 for men and 45 for women. Evidence-based: A

6. For adults who have no nonlipid CAD risk factors, TC < 240 mg/dL and HDL-C ≥ 40 mg/dL, follow-up lipid screening is recommended beginning at age 35 for men and 45 for women. Evidence-based: I

7. For men aged 35 and women aged 45 who have no nonlipid CAD risk factors, TC < 240 mg/dL and HDL-C ≥ 40 mg/dL, follow-up lipid screening is recommended every five years as long as no nonlipid risk factors are identified, TC remains below 240 mg/dL, and HDL-C remains at or above 40 mg/dL. Consensus-based

8. In adults who have no nonlipid CAD risk factors, lipid screening should include a TC and HDL-C test which can be fasting or nonfasting. Evidence-based: B

9. A full fasting lipid profile is recommended if TC ≥ 240 mg/dL or HDL-C < 40 mg/dL or any time a new CAD risk factor2 is identified. Consensus-based

Lipid Screening in Adults with Nonlipid CAD Risk Factors

10. For adults with nonlipid CAD risk factors, baseline lipid screening is recommended at age 20 or at the first Kaiser Permanente visit after age 20. Evidence-based: B

11. For adults with nonlipid CAD risk factors, a fasting lipid panel (12-hour) is recommended. Consensus-based

12. For adults with nonlipid CAD risk factors, lipid screening with a fasting lipid panel should be performed annually and any time a new risk factor is identified. Consensus-based

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2 Nonlipid risk factors for coronary artery disease (CAD) are defined as family history of coronary, peripheral or carotid artery disease in a first-degree male relative under age 55, or female relative under age 65; hypertension (BP > 140/90 mm Hg or taking hypertension medication), diabetes mellitus, and cigarette smoking. (Source: NCEP-ATP III)
Screening for Type 2 Diabetes

13 Screening is recommended for asymptomatic adults with sustained blood pressure > 135/80 mmHg (either treated or untreated) to establish an appropriate blood glucose target. 

Evidence-based: B

14 Screening is an option for all other adults with risk factors for diabetes. 

- Age 45 years or older,
- Under age 45 and overweight (BMI ≥ 25 kg/m², may be lower in some ethnic groups) with additional risk factors:
  - Physical inactivity,
  - First-degree relative with diabetes,
  - Member of a high-risk ethnic population (e.g., black/African-American, Latino, Native American, Asian American, Pacific Islander),
  - Women who delivered a baby weighing > 9 lbs or were diagnosed with Gestational Diabetes Mellitus (GDM),
  - Hypertension (≥ 140/90 mmHg or on therapy for hypertension),
  - HDL cholesterol level < 35 mg/dL (0.90 mmol/l) and/or a triglyceride level > 250 mg/dL (2.82 mmol/l),
  - Women with polycystic ovarian syndrome (PCOS),
  - A1C ≥ 5.7%, IGT or IFG on previous testing,
  - Other clinical conditions associated with insulin resistance (e.g., severe obesity [defined as BMI ≥ 40], acanthosis nigricans), and/or
  - History of cardiovascular disease.

Consensus-based

15 In the absence of sufficient evidence to recommend an optimal screening frequency, regions are encouraged to set appropriate screening intervals. 

Consensus-based

Test to Screen for Impaired Glucose Control (IGC)

16 If a test for impaired glucose control is desired, a Fasting Plasma Glucose (FPG) test is recommended. 

Consensus-based

17 HbA1c will be re-evaluated as a routine screening test. 

Consensus-based

Postpartum Screening for Diabetes in Women with a History of Gestational Diabetes Mellitus (GDM)

18 Screening for diabetes six weeks after delivery is recommended for women with gestational diabetes. 

Consensus-based

Screening for CAD

19 Exercise stress testing, CT angiography, and coronary artery calcium scoring are not recommended for screening asymptomatic individuals for CAD. 

Consensus-based
III. Behavioral and Lifestyle Modifications

Smoking Cessation

20 For all patients with CAD who smoke, complete smoking cessation is strongly recommended. Evidence-based: A

21 Smoking cessation, moderate-to-high levels of physical activity and a reduced-fat, Mediterranean and/or high oily fish diet, are recommended for primary prevention of atherosclerotic disease. Consensus-based

22 Smoking cessation, moderate-to-high levels of physical activity and a reduced-fat, Mediterranean and/or high oily fish diet, are recommended for secondary prevention of atherosclerotic disease. Evidence-based: B

Lifestyle Modifications

23 For patients with impaired glucose tolerance (IGT) or impaired fasting glucose (IFG), the GDT strongly recommends that first-line therapy include methods to promote healthy eating and to increase physical activity, which are targeted to achieve a sustained weight loss (5 to 7%), and delay the onset of diabetes.

24 For patients for patients with HDL-C < 40 mg/dL without CAD, lifestyle modification is recommended. Consensus-based

25 Weight reduction is recommended for patients with a BMI ≥ 25 kg/m^2 on antihypertensive medications. Consensus-based

26 A moderately low-sodium, low-fat diet with a high intake of fruits and vegetables (DASH diet) is recommended to supplement pharmacotherapy for patients with hypertension. Consensus-based

27 There is currently insufficient evidence to recommend for or against low-carbohydrate diets for the primary or secondary prevention of atherosclerotic disease. Consensus-based

28 For all patients with CAD, a diet rich in fruits, vegetables, legumes, nuts, whole grains, and n-3 (omega-3) polyunsaturated fatty acids is recommended. Evidence-based

29 For all patients with CAD consuming a usual Western diet, the following modifications in dietary fat are recommended:

- Increase intake of n-3 (omega-3) polyunsaturated fatty acids to a level of ~ 1 g/day from a variety of sources (flaxseed, canola, and soybean oils, nuts, fish, and fish oil supplements).
- Replace saturated fatty acids with polyunsaturated and monounsaturated fatty acids.
- Reduce or eliminate intake of trans-fatty acids.

Consensus-based

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3 Included studies defined impaired glucose tolerance as a glucose level of 140 to 199 post 75 g glucose load. The ADA defines impaired fasting glucose as FPG levels ≥ 100 mg/dl (5.6 mmol/L) but < 126 mg/dl (7.0 mmol/L).
Physical Activity

30 Physical activity (at least 30 minutes of walking or equivalent at least three times per week) is recommended for patients with hypertension who are on medications. Consensus-based

31 For all patients with CAD, 30 to 60 minutes of exercise (walking, jogging, cycling, or other aerobic activity) at least three to four times weekly is recommended. Evidence-based: B

32 Either supervised or non-supervised exercise is recommended. Consensus-based

Alcohol Consumption

33 It is recommended that hypertension patients who consume alcohol have no more than one alcoholic drink (for women) or two alcoholic drinks (for men) daily. Consensus-based

34 For those patients who already drink alcohol, advise men to limit intake to two drinks a day, and women to one drink a day. (A drink is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of liquor.) Consensus-based

35 Promoting alcohol consumption in patients with or without atherosclerotic disease is not recommended because of the risk of developing alcohol-related problems. Consensus-based

Medication and Lifestyle Adherence

36 Assist patients to achieve medication and lifestyle adherence by means of a vigorous step-care approach to therapy and an organized system of regular medical follow-up and review. Evidence-based: B

37 Once-daily medication and combination therapy are recommended whenever possible. Evidence-based: B

38 Address issues of depression and anxiety issues in order to maximize patient adherence. See Depression Guidelines at: http://cl.kp.org/pkc/national/cmi/programs/depression/guideline/index.html Consensus-based

IV. Pharmacotherapy

A. Treatment Initiation

1. Cardioprotective Medications

a. Antiaggregant/Anticoagulant Therapy

39 For all patients with CAD, daily aspirin is recommended indefinitely, unless there is clear contraindication such as active bleeding, major coagulopathy, or true aspirin allergy. Evidence-based: B

40 In CAD patients who are not at increased embolic risk and who tolerate aspirin, aspirin is recommended in preference to both oral anticoagulant therapy and the combination of aspirin and oral anticoagulant therapy. Evidence-based
41 All patients with CAD should take aspirin therapy indefinitely regardless of stenting status.

42 For CAD patients on concomitant ACE Inhibitors, low-dose aspirin (81 mg) is recommended. *Consensus-based*

43 Aspirin is not recommended for patients with uncontrolled hypertension. *Evidence-based: D*

44 For primary CVD prophylaxis and in the absence of known CAD, stroke, or diabetes mellitus:
   A. When the CHD risk is high, *low-dose aspirin (81 mg daily)* is recommended. A shared decision-making approach, with a review of the benefits and harms, is recommended. *Evidence-based: B*
   B. For individuals with an intermediate risk of CHD, low-dose aspirin (81 mg daily) is an option. Use of aspirin should be based on a shared decision-making approach and on each individual's benefit/risk status. *Evidence-based: C*

45 For the initial six months following coronary artery stent placement, aspirin (81 to 325 mg) is recommended. Following this period, aspirin (81 to 162 mg) is recommended. *Consensus-based*

46 For all other patients with CAD in whom aspirin therapy is being initiated, daily aspirin (81 to 162 mg) is recommended. *Consensus-based*

**Other Anticoagulants in Patients with CAD**

47 Low-dose aspirin (81 mg/day) is conditionally recommended for most patients with established CAD receiving warfarin for thromboembolic prophylaxis.

*Note: The balance between benefits and harms requires individualized assessment and should be tailored to the individual patient's preferences and clinical circumstances. Low-dose aspirin (81 mg/day) is recommended because the risk of bleeding increases with higher aspirin dose.*

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4 A validated risk calculator such as Framingham should be applied. Using the ATP III Framingham 10-year Hard CHD risk calculator: low risk is < 10%, intermediate risk is 10 to 20%, and high risk is > 20%. Using the SCAL/NW Dyslipidemia Guideline CAD Risk Tables (based on Framingham 1991) 10-year Total CHD risk calculator: low risk is < 12.5%, intermediate risk is 12.5 to 25%, and high risk is > 25%.

5 The benefit for men is primarily reduction in nonfatal MI and the benefit for women is stroke reduction. Low-dose aspirin increases the risk of GI bleeding and hemorrhagic stroke, and the risk of hemorrhagic stroke may increase with uncontrolled hypertension, particularly stage 2 hypertension. NNTs to prevent one adverse CV outcome vs. NNHs (usually a GI bleed requiring a transfusion) for men and women on low-dose aspirin for primary CV prophylaxis for 6.4 years are: women NNT = 333 and NNH = 400; men NNT = 270 and NNH = 303.
Warfarin is recommended for post-MI patients with left ventricular thrombus, unless otherwise indicated. *Consensus-based*

Long-term warfarin therapy may be used in consultation with cardiology for post-MI patients with large transmural anterior infarctions. *Consensus-based*

In stable CAD patients who tolerate aspirin well (and who are not post-procedure), clopidogrel is not recommended as either a substitute for or in addition to aspirin. *Consensus-based*

In stable CAD patients with contraindications to aspirin, clopidogrel is recommended. *Consensus-based*

**Anticoagulation Post-Stent**

Dual antiplatelet therapy with a thienopyridine plus aspirin is strongly recommended for patients following coronary stent placement. The preferred thienopyridines are as follows: first-line – clopidogrel; acceptable alternative – prasugrel; least-preferred – ticlopidine.

- For patients who suffer stent thrombosis while on clopidogrel plus aspirin, prasugrel plus aspirin may be considered.

For patients with ACS and a coronary artery bare metal stent (BMS) or drug eluting stent (DES) post-placement treatment with thienopyridine plus aspirin is strongly recommended for at least 12 months.

- In patients with a high risk of bleeding, who also have a high risk of discontinuation, BMS placement with a shorter duration of dual antiplatelet therapy (less than 12 months) is an option.

For patients with stable angina and a drug-eluting stents (DES), uninterrupted dual antiplatelet treatment with a thienopyridine and aspirin is strongly recommended for at least 12 months.

- Delay of any elective procedures which would require stopping or interrupting this therapy is strongly recommended until after one year (12 consecutive months) of dual antiplatelet therapy is completed.
- Prior to stopping dual antiplatelet therapy in patients with coronary DES, consultation with the patient's treating cardiologist is strongly recommended.  
- For patients with a drug-eluting stent and who must have procedures that mandate stopping dual antiplatelet therapy, it is strongly recommended that aspirin be continued if at all possible, and dual antiplatelet therapy be restarted as soon as possible after the procedure.

For patients with stable angina and a bare metal stent (BMS), uninterrupted dual antiplatelet treatment with a thienopyridine and aspirin for at least one month is strongly recommended.

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6 Healthcare providers who perform invasive or surgical procedures and are concerned about peri-procedural and post-procedural bleeding should be made aware that the premature discontinuation of dual antiplatelet therapy in the first year following coronary DES placement carries a significant risk for the development of acute DES thrombosis, which in turn carries a high mortality rate (i.e., upwards of 50%).
Aspirin in patients with Atherosclerotic peripheral arterial disease (PAD), carotid stenosis, or abdominal aortic aneurysm (AAA):

56 For patients with symptomatic atherosclerotic peripheral arterial disease (claudication, revascularization or end-organ damage) or repaired AAA, clinicians should prescribe low-dose (81 mg/day) aspirin therapy

1. For patients with symptomatic atherosclerotic peripheral arterial disease (claudication, revascularization or end-organ damage) or repaired AAA, clinicians should prescribe low-dose (81 mg/day) aspirin therapy. (Strong Recommendation)

2. For patients with asymptomatic atherosclerotic peripheral arterial disease (includes calcifications or stenosis, abnormalities of carotid intimal medial thickness (IMT), abnormal ankle-brachial index (ABI), and AAA that have had no repair, no revascularization, or no end-organ damage) clinicians may prescribe low-dose (81 mg/day) aspirin therapy. (Weak Recommendation)
b. **Lipid-Lowering Medications**

*Identifying Patients Appropriate for Lipid-Lowering Treatment*

56 Use the Kaiser Permanente “Recommendations for Dyslipidemia Drug Treatment” tables\(^7\) to identify people appropriate for lipid-lowering drug treatment. *Consensus-based*

**Choice of Drug**

57 A statin (simvastatin, lovastatin, atorvastatin, or pravastatin) is recommended as drug therapy for prevention of a future cardiovascular event in patients with established atherosclerotic disease. *Evidence-based: A*

58 Simvastatin is recommended as first-line therapy whenever statins are indicated. *Consensus-based*

59 Initiate statin therapy with at least simvastatin 40 mg daily. *Consensus-based*

60 There is insufficient evidence to determine which lipid-lowering therapy is superior, due to the lack of direct head-to-head trials. *Evidence-based: I*

**Table 1: Recommendations for Lipid Screening, Testing and Monitoring**

<table>
<thead>
<tr>
<th>Test</th>
<th>Age to Initiate Screening</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>No CAD Risk Factors</td>
<td>TC + HDL-C(^*) or Fasting Lipid Panel</td>
<td>Age 20 or first KP visit</td>
</tr>
<tr>
<td>One or more CAD Risk Factors or known CAD or CAD Risk Equivalents</td>
<td>Fasting Lipid Panel</td>
<td>When CAD, CAD Risk Equivalency, or CAD Risk Factor is identified</td>
</tr>
</tbody>
</table>

* TC + HDL-C can be nonfasting.
\(^\dagger\) There is insufficient evidence to recommend for or against follow-up lipid screening in men age 20 to 34 or in women 20 to 44 with normal baseline lipid levels.

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\(^7\) http://cl.kp.org/pkc/nw/cpg/cpgs/support/dyslipidemia/risks.html
## Table 2. LDL-C Treatment Recommendations

<table>
<thead>
<tr>
<th>People with:</th>
<th>Baseline LDL-C (mg/dL)</th>
<th>Lifestyle Modifications are Recommended in ALL Patients</th>
<th>Target LDL-C (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Coronary Syndrome</td>
<td>Any</td>
<td>Atorvastatin 80 mg 1/2 tab</td>
<td>&lt; 100 OPTIONAL &lt; 70&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>≥ 160</td>
<td>Atorvastatin 80 mg 1/2 tab</td>
<td>&lt; 100</td>
</tr>
<tr>
<td></td>
<td>&lt; 160</td>
<td>Simvastatin 40 mg</td>
<td></td>
</tr>
<tr>
<td>• CAD or Ischemic Stroke/TIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Diabetes Mellitus (DM) age ≥ 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• AAA or PAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Carotid artery stenosis (&gt; 50%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Framingham 10-year risk² &gt; 20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• DM age &lt; 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WITH ≥ 1 risk factor&lt;sup&gt;4&lt;/sup&gt;</td>
<td>≤ 160</td>
<td>Atorvastatin 80 mg 1/2 tab</td>
<td>&lt; 100</td>
</tr>
<tr>
<td></td>
<td>100 - 159</td>
<td>Simvastatin 40 mg</td>
<td>&lt; 100</td>
</tr>
<tr>
<td></td>
<td>&lt; 100</td>
<td>Simvastatin 40 mg OPTIONAL (for Framingham 10-year risk² &gt;20%, hsCRP&lt;sup&gt;5&lt;/sup&gt; also OPTIONAL)</td>
<td></td>
</tr>
<tr>
<td>DM age &lt; 40 WITHOUT risk factors&lt;sup&gt;4&lt;/sup&gt;</td>
<td>≤ 160</td>
<td>Atorvastatin 80 mg 1/2 tab</td>
<td>&lt; 100</td>
</tr>
<tr>
<td></td>
<td>130 - 159</td>
<td>Simvastatin 40 mg</td>
<td>&lt; 100</td>
</tr>
<tr>
<td></td>
<td>&lt; 130</td>
<td>Simvastatin 40 mg OPTIONAL</td>
<td></td>
</tr>
<tr>
<td>CKD Stage 4 or 5 (GFR &lt; 30 mL/min /1.73 m²)</td>
<td>≥ 100</td>
<td>Simvastatin 20 mg</td>
<td>&lt; 100</td>
</tr>
<tr>
<td></td>
<td>&lt; 100</td>
<td>Simvastatin 20 mg OPTIONAL</td>
<td></td>
</tr>
<tr>
<td>Framingham 10-year risk² 10 to 20%</td>
<td>≥ 220</td>
<td>Atorvastatin 80 mg 1/2 tab</td>
<td>&lt; 130</td>
</tr>
<tr>
<td></td>
<td>130 to 219</td>
<td>Simvastatin 40 mg</td>
<td>&lt; 130</td>
</tr>
<tr>
<td></td>
<td>&lt; 130</td>
<td>hsCRP&lt;sup&gt;5&lt;/sup&gt; OPTIONAL</td>
<td></td>
</tr>
<tr>
<td>Framingham 10-year risk² &lt; 10%</td>
<td>≥ 220</td>
<td>Atorvastatin 80 mg 1/2 tab</td>
<td>&lt; 130</td>
</tr>
<tr>
<td></td>
<td>190 to 219</td>
<td>Simvastatin 40 mg</td>
<td>&lt; 130</td>
</tr>
<tr>
<td></td>
<td>160 to 189 WITH FHx of premature CAD&lt;sup&gt;3&lt;/sup&gt; and Framingham 10-year risk² 5 to 9%</td>
<td>Simvastatin 40 mg</td>
<td>&lt; 130</td>
</tr>
<tr>
<td></td>
<td>• WITH FHx of premature CAD&lt;sup&gt;3&lt;/sup&gt; and Framingham 10-year risk² &lt; 5%, or</td>
<td>Simvastatin 40 mg OPTIONAL or hsCRP&lt;sup&gt;5&lt;/sup&gt; OPTIONAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• WITHOUT FHx of premature CAD&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>130 to 159 WITH FHx of premature CAD&lt;sup&gt;3&lt;/sup&gt; and Framingham 10-year risk² 5 to 9%</td>
<td>Simvastatin 40 mg</td>
<td>&lt; 130</td>
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<tr>
<td></td>
<td>• WITH FHx of premature CAD&lt;sup&gt;3&lt;/sup&gt; and Framingham 10-year risk² &lt; 5%, or</td>
<td>Simvastatin 40 mg OPTIONAL or hsCRP&lt;sup&gt;5&lt;/sup&gt; OPTIONAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• WITHOUT FHx of premature CAD&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 130</td>
<td>hsCRP&lt;sup&gt;5&lt;/sup&gt; OPTIONAL</td>
<td></td>
</tr>
</tbody>
</table>
**Statin Initiation**

61 In patients with established CAD, initiate statins at a dose sufficient to reduce LDL-C to < 100 mg/dL and by at least 30 to 40%. Treatment is recommended even if baseline LDL-C is < 100 mg/dL. *Evidence-based: B*

62 In patients with acute coronary syndrome, if baseline lipid values are desired, a fasting lipid panel (12 hours) is recommended as soon as possible, but definitely within 48 hours after hospital admission. *Consensus-based*

63 In patients with acute coronary syndrome, if a fasting lipid panel is not possible, a nonfasting lipid panel is recommended as soon as possible after hospital admission. *Consensus-based*

64 In patients with acute coronary syndrome, it is strongly recommended that treatment with a high-dose, high-potency statin, such as atorvastatin 80 mg ½ tablet, be initiated as soon as possible regardless of baseline LDL-C. *Evidence-based: A*

**Note:** Risk factors for rhabdomyolysis (e.g., advanced age, frailty, multiple comorbidities, impaired renal function, potentially interacting drugs) favor the lower end of this dose range.  

65 For patients ages 65 to 85 with established atherosclerotic disease, a statin (lovastatin, simvastatin, pravastatin) is recommended for prevention of a future cardiovascular event. *Evidence-based: A*

66 For patients ages 85 or older with established atherosclerotic disease, a statin is recommended. *Consensus-based*

67 Initiate statin treatment for all patients with noncoronary atherosclerosis (carotid artery disease [> 50% stenosis], peripheral artery disease, and abdominal aortic aneurysm), regardless of baseline LDL-C. *Consensus-based*

68 Initiate statin treatment for all patients with stroke or TIA, regardless of baseline LDL-C. *Evidence-based: A*

69 Statin therapy is recommended for all patients with diabetes and CAD.

70 Statin therapy is recommended for all patients aged 40 or older with diabetes, regardless of baseline LDL-C. NNT = 23  
*Evidence-based: A*

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8 For details, please refer to the link for Table 3. Lipid-Lowering Medications from the Dyslipidemia Guideline: http://cl.kp.org/pkc/national/cmi/programs/dyslipidemia/guideline/files/DyslipidemiaMgmtAdults2008.pdf#page=8

9 For every 23 diabetics or people with coronary disease, aged 40 to 80 years, who are treated with 40 mg of simvastatin daily, for five years, one mortality or fatal or non-fatal vascular event will be prevented.
c. **Beta Blockers**

71 For CAD patients, non-intrinsic sympathomimetic activity (non-ISA) beta-blocker therapy is recommended, unless contraindicated. **Consensus-based**

*Note: Drugs without ISA are atenolol, betaxolol, bisoprolol, carvedilol, labetalol, nadolol, metoprolol, propranolol, and timolol. Drugs with ISA are acebutolol, and pindolol.*

72 For CAD patients with either left ventricular systolic dysfunction (LVSD) (NYHA Class II-IV) or asymptomatic LVSD (NYHA Class I), beta-blockers are strongly recommended. **Evidence-based**

73 For CAD patients with left ventricular systolic dysfunction carvedilol, metoprolol succinate, or bisoprolol is the recommended choice of beta-blocker therapy. **Evidence-based**

**Peri-Operative Beta Blockers**

74 **A. For patients with Coronary Artery Disease (CAD) or Left Ventricular Systolic Dysfunction (LVSD)**

1. **Currently taking beta blocker:**
   
   For patients undergoing non-cardiac surgery, clinicians should continue beta blocker therapy in the perioperative period for patients with CAD or LVSD currently taking beta blockers. *(Strong Recommendation)*

2. **Not currently taking beta blocker:**
   
   For patients with CAD or LVSD undergoing non-cardiac surgery and not currently taking beta blockers:

   - Clinicians should initiate beta blockers at least 1 week before surgery.* *(Strong Recommendation)*
   
   - In the absence of compelling indications for urgent beta blocker therapy (e.g. tachyarrhythmias or uncontrolled hypertension), there is insufficient evidence to make a recommendation for or against initiating beta blockers 24 hours to 1 week before surgery.

   - In the absence of compelling indications for urgent beta blocker initiation (e.g., tachyarrhythmias, uncontrolled hypertension), clinicians should not initiate beta blockers less than 24 hours before surgery. *(Strong Recommendation)*

   - If beta blockers are not initiated in the pre-operative period, they should be initiated once the patient is stable in the post-operative period. *(Strong Recommendation)*
**B. Patients without CAD or LVSD**

1. Currently taking beta blocker:
   For patients without CAD or LVSD undergoing non-cardiac surgery and currently on beta blocker therapy for other indications, clinicians should continue beta blocker therapy in the perioperative period. *(Strong Recommendation)*

2. Not currently taking beta blocker:
   Unless there are compelling indications for urgent beta blocker initiation (e.g. tachyarrhythmias, uncontrolled hypertension), for patients without CAD or LVSD undergoing non-cardiac surgery and not currently on beta blocker therapy, clinicians should not prescribe perioperative beta blockers. *(Strong Recommendation)*

*Contraindications and Cautions(1)*

- Beta blockers are not recommended for patients with severe reversible airway disease, high degree heart block, or other contraindications to their use.
- Initiating beta blockade should be approached with caution in patients with resting heart rates < 55.

**d. Calcium Channel Blockers**

75 Calcium channel blockers (CCBs) are NOT recommended to reduce morbidity or mortality from CAD. *(Evidence-based)*

76 In CAD patients with normal ventricular systolic function, calcium channel blockers (CCBs) may be used for the treatment of angina pectoris or hypertension when beta-blockers and ACE inhibitors are ineffective or contraindicated. *(Consensus-based)*

77 In patients with CAD, immediate release formulations of nifedipine are NOT recommended due to the increased risk of cardiovascular mortality. *(Evidence-based)*

78 Amlodipine$^{10}$ and felodipine$^{10}$ (second generation dihydropyridine calcium channel blockers) are options for the treatment of angina pectoris or hypertension in patients with LVSD. *(Evidence-based)*

79 The GDT recommends against the use of calcium channel blockers (CCBs) other than amlodipine$^{10}$ and felodipine$^{10}$ in patients with LVSD. *(Evidence-based)*

$^{10}$ Not FDA-approved for heart failure.
e. **ACE-Inhibitors and ARBs**

**ACE-Inhibitor Therapy**

80 For patients with CAD, with or without LVSD, angiotensin-converting enzyme (ACE) inhibitor therapy is recommended for long-term use, unless contraindicated. *Evidence-based: B*

81 In normotensive adults under age 55 who have diabetes and microalbuminuria, an ACE inhibitor is recommended to prevent progression to end-stage renal disease. *Consensus-based*

82 The GDT recommends ACE inhibitor therapy for patients with diabetes aged ≥ 55 years with one or more cardiovascular risk factors (total cholesterol > 200 mg/l, HDL cholesterol ≤ 35 mg/l, hypertension, microalbuminuria, or current smoking); or a history of CVD (CAD, stroke, or peripheral vascular disease). *Evidence-based: B*

83 In normotensive adults with diabetes and microalbuminuria (or albuminuria) and ACE inhibitor allergy or intolerance, there is insufficient evidence to recommend for or against the use of angiotension receptor blockers to prevent progression to end-stage renal disease. *Evidence-based: I*

**ARB Therapy**

84 The GDT recommends that if a person with diabetes, hypertension, and microalbuminuria (or albuminuria) is intolerant to an ACE inhibitor, then, in the absence of contraindications, an ARB be substituted to prevent progression of renal disease. *Consensus-based*

85 Angiotensin II Receptor Blocker (ARB) therapy is recommended for the following patients with CAD who are intolerant to ACE Inhibitors:

- Patients with CAD and diabetes with hypertension and microalbuminuria (or albuminuria).
- Patients with CAD and left ventricular systolic dysfunction (LVSD). *Consensus-based*

86 For patients with CAD and hypertension (without LVSD, microalbuminuria, or diabetes) who are intolerant to ACE Inhibitors, ARB therapy is an option equal to other antihypertensive medications. *Evidence-based*

87 For all other patients with CAD who are intolerant to ACE Inhibitors, there is insufficient evidence to recommend for or against ARB therapy. *Evidence-based*

**Microalbumin Monitoring**

88 The GDT recommends that continued monitoring of microalbumin be optional in people with diabetes and established microalbuminuria, who are on an ACE inhibitor or ARB. *Consensus-based*

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11 For patients on concomitant aspirin, low-dose aspirin (81 mg) is recommended to preserve ACE inhibitor benefit.
2. Goal-Directed Therapy
   
a. Dyslipidemia

   **LDL-C and HDL-C Treatment Targets**

89 For any patient on lipid-lowering therapy, the treatment goal is LDL-C < 100 mg/dL. *Consensus-based*

90 For people without pre-existing CVD who have a 10-year CAD risk > 20%, the LDL-C goal is < 100 mg/dL. *Consensus-based*

91 An LDL-C goal of < 100 mg/dL, with an optional goal of < 70 mg/dL, is recommended for all people with diabetes age 40 or older. *Consensus-based*

*Note: In some people, a target LDL-C < 70 to 100 mg/dL may be difficult to achieve. In these cases, use clinical judgment to weigh the benefits and risks of intensifying drug therapy.*

92 The treatment goal for patients with noncoronary atherosclerosis is LDL-C < 100 mg/dL, with an optional LDL-C goal of < 70 mg/dL. *Consensus-based*

93 In people with established CAD, an LDL-C goal of < 70 mg/dL is optional. *12 Consensus-based*

94 The treatment goal for patients with chronic kidney disease NKF Stages 4 or 5 is LDL-C < 100 mg/dL. *Consensus-based*

95 For patients with HDL-C < 40 mg/dL, there is insufficient evidence to establish a goal for HDL-C. *Consensus-based*

   **Treatment Initiation**

96 Initiate treatment for all patients with LDL-C ≥ 190 mg/dL, regardless of baseline CAD risk. *Consensus-based*

   **Hypertension**

97 No recommendation for or against the use of antilipemic therapy in hypertensive patients in the absence of other significant risk factors. *Evidence-based: I*

98 Patients with hypertension should be treated for hyperlipidemia according to their total cardiovascular risk profile. *Consensus-based*

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*12 One study among patients with acute coronary syndrome supports an LDL-C goal of < 70 mg/dL, while another study suggests that an LDL-C goal of < 80 mg/dL may be appropriate for patients with stable CAD. However, based on the balance of costs/harms vs. benefits, the LDL-C goal is optional.*
Treatment initiation and LDL-C goals for patients with metabolic syndrome are the same as those for primary and secondary prevention patients who do not have metabolic syndrome. **Consensus-based**

### 10-year CAD Risk

**Determine the 10-year risk using the “Recommendations for Dyslipidemia Drug Treatment” tables and, if indicated, initiate statin as per recommendations in tables. **Consensus-based**

**Initiate treatment in people without pre-existing CVD who have a 10-year CAD risk > 20% and LDL-C ≥ 100 mg/dL. **Consensus-based**

**For patients ages 65 to 79 use the “Recommendations for Dyslipidemia Drug Treatment” tables to determine CAD risk and identify people appropriate for lipid-lowering drug treatment. **Consensus-based**

**For patients ages 65 to 79 with no known atherosclerotic disease who are at high enough risk to warrant drug treatment, statin therapy is recommended. **Consensus-based**

**For patients ages 65 to 79 with no known atherosclerotic disease who are at high enough risk to warrant drug treatment, statin therapy is recommended. **Consensus-based**

**For patients ages 80 or older the “Recommendations for Dyslipidemia Drug Treatment” tables for age group 75 to 79 may be used to determine CAD risk, keeping in mind that risk increases with age (e.g., those aged 80 or older would generally be at higher risk than that calculated for the 75 to 79 age group). **Consensus-based**

**For patients ages 80 or older with no known atherosclerotic disease, statin therapy is recommended for those at sufficient risk to warrant medication. **Consensus-based**

**For patients ages 80 or older with no known atherosclerotic disease, statin therapy is recommended for those at sufficient risk to warrant medication. **Consensus-based**

**For people without pre-existing CVD who have a 10-year CAD risk > 20% and LDL-C < 100mg/dL, treatment is optional. **Consensus-based**

**For patients under age 40 with no known atherosclerotic disease, adding statin therapy to lifestyle therapy is RECOMMENDED for patients with LDL-C ≥ 130 mg/dL. **Consensus-based**

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13 People with metabolic syndrome are at an increased risk for CAD. According to a definition adapted from NCEP ATP III, metabolic syndrome is defined by the presence of three or more of the following:
- Abdominal Obesity – defined as waist circumference > 40 inches (102 cm) in men, and > 35 inches (88 cm) in women (waist circumference is the ATP III criterion), or BMI ≥ 30 kg/m² (BMI is the World Health Organization criterion)
- Triglycerides ≥ 150mg/dL
- HDL-C < 40 mg/dL for men or < 50 mg/dL for women
- Blood Pressure ≥ 130/85 mmHg
- Fasting Plasma Glucose 100 to 125 mg/dL

Note: above-normal FPG may imply insulin resistance; the American Diabetes Association has adopted normal FPG < 100 mg/dL, ATP III uses FPG < 110 mg/dL.


15 As with any medical intervention, whether to initiate lipid-lowering treatment should be evaluated in context of an individual’s “physiologic” age, life expectancy, quality of life, and personal preferences.
For patients under age 40 with no known atherosclerotic disease, adding statin therapy to lifestyle therapy is an OPTION for patients with LDL-C 100 to 129 mg/dL WITHOUT DM > 10 years, HTN, HDL-C < 40 mg/dL, FHx\(^{16}\) of premature CAD, or currently smoking. \textit{Consensus-based}

For patients under age 40 with no known atherosclerotic disease, adding statin therapy to lifestyle therapy is an OPTION for patients with LDL-C < 100 mg/dL WITH DM > 10 years, HTN, HDL-C < 40 mg/dL, FHx\(^{17}\) of premature CAD, or currently smoking. \textit{Consensus-based}

For patients under age 40 with no known atherosclerotic disease, adding statin therapy to lifestyle therapy is RECOMMENDED for patients with LDL-C 100 to 129 mg/dL WITH DM > 10 years, HTN, HDL-C < 40 mg/dL, FHx\(^{17}\) of premature CAD, or currently smoking. \textit{Consensus-based}

\textbf{Chronic Kidney Disease}

Initiate statin treatment for all patients with chronic kidney disease NKF Stages 4 or 5 if baseline LDL-C \(\geq\) 100 mg/dL. \textit{Consensus-based}

Treatment is optional for all patients with chronic kidney disease NKF Stages 4 or 5 if baseline LDL-C < 100 mg/dL. \textit{Consensus-based}

\textbf{Diabetes}

For patients with diabetes age 39 or younger WITH > 1 risk factor:\(^{17}\)
\begin{itemize}
  \item Statin therapy is RECOMMENDED when LDL-C > 100 mg/dL.
  \item Statin therapy is OPTIONAL when LDL-C < 100 mg/dL.
\end{itemize}

For patients with diabetes age 39 or younger WITHOUT risk factors:\(^ {18}\)
\begin{itemize}
  \item Statin therapy is RECOMMENDED when LDL-C > 130 mg/dL.
  \item Statin therapy is OPTIONAL when LDL-C < 130 mg/dL.
\end{itemize}

\textbf{Initial Treatment of Dyslipidemia}

If LDL-C cannot be controlled by lifestyle modification alone, a statin is recommended to prevent CAD events. \textit{Evidence-based: A}

Initiate statins at a dose sufficient to reduce LDL-C to < 130 mg/dL and by at least 30\% to 40\%. \textit{Consensus-based}

Initiate statin therapy with at least 40 mg simvastatin daily.\(^ {18}\)

\begin{flushleft}
\textsuperscript{16} FHx of premature CAD = Family history of premature CAD = Clinical CAD or sudden death in a first-degree relative aged < 55 (men) and < 65 (women).

\textsuperscript{17} Risk factors include: duration of diabetes > 10 years, HDL-C < 40 mg/dL, current smoker or family history of premature CAD [clinical CAD or sudden death in a first-degree relative aged < 55 (men) and < 65 (women)].

\textsuperscript{18} Lower doses recommended for patients at high risk for rhabdomyolysis.
\end{flushleft}
Use of CRP

For men ≥ 50 years of age and women ≥ 60 years of age who were not determined to need statins according to 10-year risk using the “Recommendations for Dyslipidemia Drug Treatment” tables, it is optional to measure hsCRP, and if two hsCRP levels are both ≥ 2 mg/dL, initiate simvastatin 40 mg daily. Evidence-based: C

Do not use hsCRP to monitor or adjust lipid-lowering therapy. Consensus-based

There is insufficient evidence to recommend for or against use of hsCRP in men < 50 or women < 60 years of age. Evidence-based: I

The hsCRP test is not recommended for people with existing CAD and should not be ordered. Consensus-based

b. Hypertension

Target Blood Pressure

When treating an individual with hypertension, the target office blood pressure is ≤ 139 / ≤ 89 mm Hg. Consensus-based

When treating an individual with a prior diagnosis of stroke (excluding subarachnoid hemorrhage, subdural hematoma, and post-traumatic stroke), the target office blood pressure is ≤ 129 / ≤ 79 mm Hg for hypertension and ≤ 119 / ≤ 79 mm Hg for prehypertension. Consensus-based

The GDT recommends that the target blood pressure be < 130/80 mmHg for patients with diabetes and hypertension. Evidence-based: A – (Diastolic Blood Pressure) Consensus-based – (Systolic Blood Pressure)

The optimal goal blood pressure for patients with CAD or CAD risk equivalents (AAA, peripheral arterial disease, or carotid arterial disease) is < 130/80 mm Hg. Consensus-based

The optimal goal blood pressure for patients with CAD and diabetes or renal disease is < 130/80 mm Hg. Consensus-based

19 http://cl.kp.org/pkc/nw/cpg/cpgs/support/dyslipidemia/risks.html

20 The long-term absolute benefit or cost-effectiveness of this treatment approach is not known.

21 In nonpregnant adults who do not have diabetes, heart failure, chronic kidney disease, or known coronary heart disease.
Treatment Initiation

126 If an individual has blood pressure of 140 to 159 mm Hg systolic, OR 90 to 99 mm Hg diastolic (Stage 1), and does not have target organ damage or diabetes mellitus, then:

A If there is documentation of elevated blood pressure (≥ 140 mm Hg systolic, OR ≥ 90 mm Hg diastolic) for ≥ 2 to 3 months prior to the current measurement, then initiate pharmacotherapy. Consensus-based

B If this is the first elevated measurement, wait approximately ≥ two to three months. After ≥ two to three months, if blood pressure is ≥ 140 mm Hg systolic, OR ≥ 90 mm Hg diastolic, then initiate pharmacotherapy. Consensus-based

127 If an individual has blood pressure of 160 to 179 mm Hg systolic, OR 100 to 109 mm Hg diastolic (Stage 2), and does not have target organ damage or diabetes mellitus, then:

A If there is documentation of elevated blood pressure (≥ 140 mm Hg systolic, OR ≥ 90 mm Hg diastolic) for one or more months prior to the current measurement, then initiate pharmacotherapy. Consensus-based

B If this is the first elevated measurement, wait approximately one month. After one month, if blood pressure is ≥ 140 mm Hg systolic, OR ≥ 90 mm Hg diastolic, then initiate pharmacotherapy. Consensus-based

128 If an individual has blood pressure ≥ 180 mm Hg systolic, OR ≥ 110 mm Hg diastolic then initiate pharmacotherapy. Consensus-based

129 The GDT recommends initiating antihypertensive drug therapy in patients with diabetes with a systolic blood pressure of ≥ 140 mmHg and/or diastolic ≥ 85 to 90 mmHg. Consensus-based

130 In patients with diabetes, after three months of lifestyle therapy, if systolic BP is 130 to 139 or diastolic BP is 80 to 89, initiate drug therapy. Consensus-based

131 In patients with diabetes, when BP is ≥150 to 160/90 mmHg, the GDT recommends initiating therapy with two drugs, either as a separate prescription or in fixed dose combinations. Consensus-based

Note: For patients with diabetes and hypertension, the target blood pressure is < 130/80 mmHg.

Initial Treatment of Hypertension

132 Thiazide diuretics (either as a single agent or in combination) are strongly recommended as first-line agents for initial therapy in people with hypertension. Evidence-based: A

133 Combination therapy consisting of a thiazide diuretic plus an ACEI is an option for initial therapy for Stage 1 hypertension (systolic blood pressure 140 to 159 mm Hg, OR diastolic blood pressure 90 to 99 mm Hg). Consensus-based

134 Combination therapy of a thiazide diuretic plus an ACEI is recommended for Stage 2 hypertension (systolic blood pressure > 160 mm Hg, OR diastolic blood pressure > 100 mm Hg). Consensus-based
The GDT strongly recommends a thiazide-type diuretic for the treatment of diabetes and hypertension (HTN) in the absence of heart failure, known coronary heart disease, or microalbuminuria. *Evidence-based: A*

The GDT has determined that because most individuals with HTN and diabetes will need more than one drug to control their HTN effectively, combination therapy with HCTZ/ACE inhibitors as first-line therapy is an option. *Consensus-based*

**Discrete Populations**

Combination therapy with a thiazide diuretic plus an ACE inhibitor is recommended as initial treatment for patients who are post-stroke, or post-TIA\(^{22}\) with hypertension or prehypertension. *Evidence-based: B*

ACEIs are not recommended for women of childbearing potential. *Consensus-based*

To treat chronic hypertension in women of childbearing potential:
- Thiazide diuretics are the first choice.
- CCBs are the second choice.
- BBs are the third choice. *Consensus-based*

When pregnancy occurs, women receiving antihypertensive therapy should be referred to OB/GYN for hypertension management. *Consensus-based*

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\(^{22}\) Transient ischemic attack (TIA) is defined as evidence of an acute disturbance of focal neurological or monocular function with symptoms lasting less than 24 hours thought to be due to arterioembolic or thrombotic vascular disease.
B. Step-Care

1. Lipid Step-Care

A In patients at sufficient risk of cardiovascular events to warrant lipid-lowering treatment, clinicians should prescribe a high-dose, high-potency statin that would be expected to achieve at least a 30 to 40% LDL-C reduction (e.g., simvastatin 40 mg or equivalent). *(Strong recommendation)*

B In patients who are on a high-dose, high-potency statin (e.g., simvastatin 40 mg or equivalent) but who are not at LDL-C goal, clinicians should increase statin intensity (e.g., titrate as needed to a higher-dose, higher-potency statin, such as atorvastatin 40 mg). *(Strong recommendation)*

C In patients who are already on a higher-dose, higher-potency statin (e.g., atorvastatin 40 mg) but who are not at LDL-C goal, clinicians may:

- Increase statin intensity (e.g., change to atorvastatin 80 mg)
- Add niacin (e.g., niacin sustained release)
- Continue higher-dose, higher-potency statin (e.g., atorvastatin 40 mg)
- Add ezetimibe
- Add a bile acid sequestrant (e.g., colestid)

D In patients who are on a statin, clinicians should not prescribe a fibrate for cardiovascular risk reduction. *(Strong recommendation)*

2. Hypertension Step-Care

Because most people with hypertension will need more than one drug to control their hypertension effectively:

142 **For two drugs:**
   If blood pressure is not controlled on a thiazide-type diuretic alone, then a thiazide-type diuretic + ACEI is recommended. *Consensus-based*

143 **For three drugs:**
   If blood pressure is not controlled on a thiazide-type diuretic + ACEI, then a thiazide-type diuretic + ACEI + dihydropyridine calcium channel blocker is recommended. *Consensus-based*

144 **For four drugs:**
   If blood pressure is not controlled on a thiazide-type diuretic + ACEI + dihydropyridine calcium channel blocker alone, then a thiazide-type diuretic + ACEI + dihydropyridine calcium channel blocker + a beta-blocker or spironolactone is recommended. *Consensus-based*
3. Elevated Triglycerides

Treatment strategies for ELEVATED triglycerides include the following:

For TG ≥ 500 mg/dL:
- Intensify diet and exercise AND
- Fibrate OR
- Omega-3 fatty acids

Then:
- Niacin OR
- Initiate or intensify statin therapy OR
- Combinations of above
Until TG < 500 mg/dL

Then:

For TG 200 - 499 mg/dL:
- Intensify diet and exercise AND
- Initiate or intensify statin therapy

Until LDL-C is at goal

If TG still ≥ 200 mg/dL and non-HDL-C > 30 mg/dL above LDL-C goal:
- Fibrate OR
- Omega-3 fatty acids OR
- Niacin OR
- Initiate or intensify statin therapy, even if LDL-C is at goal OR
- Combinations of above

Until non-HDL-C ≤ 30 mg/dL above LDL-C goal.

Note: If unable to reach goals, or if there are any questions regarding the above, consult a lipid specialist.

Consensus-based
C. Adjuncts

Supplements

146 Fish oil supplements (~1 g/day of eicosapentaenoic acid/docosahexaenoic acid [EPA/DHA]) are optional for post-myocardial infarction patients for the purpose of reducing CAD events. Evidence-based: I

147 There is insufficient evidence to recommend for or against fish oil supplements for the purpose of reducing CAD events in people who have not had a myocardial infarction (MI). Evidence-based: I

148 For patients with CAD, supplemental vitamins C, E, and beta carotene are not recommended for prevention of cardiovascular mortality or subsequent coronary events. Evidence-based: D

149 For patients with CAD, supplemental folic acid, vitamin B6, and vitamin B12 are not recommended. Evidence-based: D

Hormone Therapy

150 For postmenopausal women with CAD, unopposed estrogen therapy and estrogen and progestin combination therapy are not recommended for the prevention of cardiovascular events. Women taking these therapies solely to prevent cardiovascular events are strongly recommended to discontinue these therapies. Evidence-based

151 Women currently taking hormone therapy solely for the prevention of cardiovascular events are advised to discontinue use either all at once or by tapering the dose. Consensus-based

V. Other Conditions

A. Diabetes

Intervention to Delay the Onset of Type 2 Diabetes

152 If therapy goals are not achieved in a reasonable time frame through lifestyle interventions alone, the evidence supports the option of adding drug therapy with metformin.

Evidence-based: A - (Intervention to Delay Onset of Type 2 Diabetes)
Evidence-based: A - (Definition of Impaired Glucose Tolerance)
Consensus-based - (Definition of Impaired Fasting Glucose)
**Glucose Control**

153 An overall treatment goal of HbA1c < 7% is recommended for adults with known diabetes.\(^{23}\) *Consensus-based*

154 An individualized HbA1c goal using shared decision-making is recommended.
- A less stringent treatment goal\(^{24}\) is recommended for patients > 65 years of age, or with significant comorbidities.
- Conversely, more stringent goals are an option in individual patients. *Consensus-based*

155 The GDT strongly recommends intensive glucose control in patients with diabetes, if not contraindicated. *Evidence-based: A*

**Drug Therapy for Glucose Lowering in Type 2 Diabetes**

156 The GDT recommends metformin as the first-line glucose lowering drug in patients with type 2 diabetes with BMI > 27. *Evidence-based: B*

157 The GDT recommends metformin as the first-line glucose lowering drug in patients with type 2 diabetes with BMI \(\leq\) 27. *Consensus-based*

158 Following failure to achieve goals on monotherapy, the GDT recommends more than one medication. *Consensus-based*

159 The GDT has determined that there is insufficient evidence to recommend an optimal medication combination for type 2 diabetes not controlled with a single agent. *Consensus-based*

**Multifactorial Interventions for Preventing CVD in Diabetes**

160 The GDT recommends concurrent treatment of cardiovascular (CV) risk factors for the prevention of CV events in patients with type 2 diabetes. *Consensus-based*

**Postpartum Follow-Up of Gestational Diabetes Mellitus (GDM)**

161 Information and education about the increased risk of developing type 2 diabetes following gestational diabetes is recommended for women with gestational diabetes. *Consensus-based*

162 For women with recent gestational diabetes, long-term postpartum follow-up including advice on diet, exercise and behavior modification, is recommended to prevent future progression to type 2 diabetes. *Consensus-based*

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\(^{23}\) HEDIS 2009 lists the following exclusions (comorbidities) for the HbA1c indicator < 7% goal: ≥ 65 years of age; and/or coronary artery bypass graft (CABG) or percutaneous transluminal coronary angioplasty (PTCA) in the current and/or prior measurement year, regardless of setting; ischemic vascular disease (IVD) in the current and/or prior measurement year, regardless of setting; and at least one encounter in the measurement year, regardless of setting, of the following – chronic heart failure (CHF); prior myocardial infarction (MI); chronic renal failure (CRF)/end-stage renal disease (ESRD); dementia; blindness; and/or amputation.

\(^{24}\) HEDIS 2009 offers HbA1c < 8% as a treatment goal for those not eligible for the treatment goal of < 7%. Eligibility is based on laboratory data to identify the most recent HbA1c test during the measurement year.
**Retinal Screening for People with Diabetes**

163 The GDT recommends that diabetes patients with background retinopathy, or more severe disease, should be monitored at least annually; and those without retinopathy should be screened every one to two years. *Consensus-based*

**Foot Screening For People with Diabetes**

164 The GDT recommends that all patients with diabetes should have a foot screening that includes a monofilament test. *Evidence-based: B*

165 Patients with an abnormal monofilament test are at a high risk for lower limb complications and are candidates for entry into a podiatry population-based foot care program, or equivalent. *Evidence-based: B*

**Frequency of Foot Screening For People with Diabetes**

166 The GDT recommends annual foot screenings for patients with diabetes. *Consensus-based*

**B. Comorbid Conditions**

**CAD plus Mild to Moderate Reversible Airway Disease or COPD**

167 CAD patients with concomitant mild to moderate reversible airway disease or chronic obstructive pulmonary disease (COPD), cardioselective beta-blockers are recommended. *Evidence-based*

168 For CAD patients with concomitant mild to moderate reversible airway disease or chronic obstructive pulmonary disease (COPD), discuss the risks and benefits of treatment with the patient and instruct the patient to report any increase in airway symptoms. *Consensus-based*

169 Initiating beta-blocker therapy is NOT recommended:

- For patients with severe airway disease requiring frequent hospitalization or intubation.
- During acute exacerbation of airway disease.
- When airway disease is unstable or poorly controlled. *Consensus-based*
Depression in CAD

Mental Health Outcomes:

170 The GDT recommends that the treatment of depression in CAD patients should be based on the patients’ mental health condition(s), for the purpose of improving mental health outcomes. Consensus-based

Cardiovascular Outcomes:

171 The GDT recommends against treating depression in patients who are post-MI with cognitive behavioral therapy in order to improve cardiovascular outcomes. Evidence-based: D

172 The GDT makes no recommendation for or against treating depression in patients with CAD, who are not post-MI, with cognitive behavioral therapy in order to improve cardiovascular outcomes. Evidence-based: I

173 The GDT makes no recommendation for or against treating depression in patients with CAD with antidepressant medications in order to improve cardiovascular outcomes. Evidence-based: I

VI. Education and Self-Management

Hypertension

174 Home self-measurement of blood pressure is recommended to:

A Identify a low-risk subpopulation of individuals with “white coat hypertension,” without target organ disease or diabetes, for whom medication may not be necessary. These individuals have home blood pressure levels ≤ 134/84 mm Hg but have office blood pressure levels ≥ 140 / ≥ 90 mm Hg. Consensus-based

B Attain control in patients with uncontrolled hypertension (> 135/85 mm Hg by home monitoring) according to drug treatment algorithms, and by using telephone/e-mail/fax or other electronic patient communications in conjunction with standard provider-based clinic visits. Consensus-based

C Monitor controlled hypertension over time. Consensus-based
The following quality standards are recommended for home self-measurement of blood pressure:

A Only devices with documented yearly validation within 5 mm Hg systolic and 5 mm Hg diastolic of a blood pressure measure by a nurse, physician, or trained observer are acceptable, preferably those devices approved by Association for the Advancement of Medical Instrumentation, British Hypertension Society, or European Hypertension Society. *Consensus-based*

B Devices with visual or printout memory or using telemonitoring are preferred. *Consensus-based*

C Eligible patients should have observation of blood pressure competency, with particular attention to miscuffing and common pitfalls of technique during yearly validation. Only brachial pressures are acceptable. *Consensus-based*

D A minimum of six home blood pressures should be used, half of which were obtained in the morning. *Consensus-based*

E Control by home blood pressure monitoring is defined as a mean of ≤ 134/84 mm Hg. *Consensus-based*

F Since no home blood pressure equivalency for an office blood pressure of < 129/79 mm Hg has been demonstrated in the literature, home blood pressure should not be used exclusively as a surrogate in the care of patients with diabetes or chronic kidney disease with a targeted office blood pressure ≤ 129/79 mm Hg. *Consensus-based*

**Patient Education for Hypertension**

176 The use of patient education in conjunction with other strategies, particularly in the context of team care utilizing nurses and pharmacists is recommended. *Evidence-based: B*

177 Educating patients about their goal pressure is recommended because patients who are knowledgeable about their goal blood pressure are more likely to achieve it. *Consensus-based*

**Diabetes Self-Management**

178 The GDT recommends patient training in self-care behaviors as a component of any diabetes management program. *Evidence-based: A – (Effect on Glucose Control)*

Consensus-based – (Effect on Other Outcomes)

**Self-Monitoring of Blood Glucose in Type 1 Diabetes**

179 The GDT strongly recommends that patients with type 1 diabetes monitor their blood glucose. *Evidence-based: A*

180 The GDT strongly recommends that when self-monitoring of blood glucose (SMBG) is used, results be accompanied by an appropriate adjustment in therapy. *Evidence-based: A*
Self-Monitoring of Blood Glucose in Type 2 Diabetes

181 The GDT recommends self-monitoring of blood glucose (SMBG) for patients with type 2 diabetes. *Consensus-based*

182 When SMBG is used, the GDT recommends that results be accompanied by an appropriate adjustment in therapy. *Consensus-based*

Self-Titration of Diabetes Medications

183 The GDT recommends self-titration of bedtime insulin dosage for patients with type 2 diabetes to enhance glucose control. *Evidence-based: B*