

**Table 10C. Metabolic Risk Factors for Metabolic Syndrome and Therapeutic Recommendations**

Metabolic Risk Factor/Target Goal	Therapeutic Recommendations
<p><b>Atherogenic dyslipidemia:</b></p> <p>Primary target &gt; Elevated LDL-C</p> <p>High risk patients<sup>*</sup>: &lt;100 mg/dL (2.6 mmol/L) for very high-risk patients<sup>†</sup> in this category, optional goal &lt;70 mg/dL</p> <p>Moderately high-risk patients<sup>§</sup>: &lt;130 mg/dL (3.4 mmol/L) for higher-risk patients<sup>  </sup> in this category, optional goal is &lt;100 mg/dL (2.6 mmol/L)</p> <p>Moderate-risk patients<sup>¶</sup>: &lt;130 mg/dL (3.4 mmol/L)</p> <p>Lower-risk patients<sup>#</sup>: &lt;160 mg/dL (4.9 mmol/L)</p> <p>Secondary target &gt; Elevated non-HDL-C</p> <p>High risk patients &lt; 130 mg/dL (optional &lt;100 mg/dL)</p> <p>Moderate risk patients &lt;160 mg/dL (optional &lt;130 mg/dL)</p> <p>Lower risk patients &lt;190 mg/dL</p> <p>Tertiary target &gt; Reduced HDL-C</p>	<p>High-risk patients: lifestyle therapies<sup>†</sup> plus LDL-C-lowering drug to achieve recommended goal</p> <p>If baseline LDL-C <math>\geq</math> 100 mg/dL, initiate LDL-lowering drug therapy</p> <p>If on-treatment LDL-C <math>\geq</math>100 mg/dL, intensify LDL-lowering drug therapy (may require LDL-lowering drug combination)</p> <p>If baseline LDL-C &lt;100 mg/dL, initiate LDL-lowering therapy based on clinical judgment (ie, assessment that patient is at very high risk)</p> <p>Moderately high-risk patients: lifestyle therapies + LDL-lowering drug if necessary to achieve recommended goal when LDL-C <math>\geq</math>130 mg/dL (3.4 mmol/L) after lifestyle therapies</p> <p>If baseline LDL-C is 100 to 129 mg/dL, LDL-lowering therapy can be introduced if patient's risk is assessed to be in upper ranges of this risk category</p> <p>Moderate-risk patients: lifestyle therapies + LDL-C lowering drug if necessary to achieve recommended goal when LDL-C <math>\geq</math>160 mg/dL (4.1 mmol/L) after lifestyle therapies</p> <p>Lower-risk patients: lifestyle therapies + LDL-C lowering drug if necessary to achieve recommended goal when LDL-C <math>\geq</math>190 mg/dL after lifestyle therapies (for LDL-C 160 to 189 mg/dL, LDL-lowering drug is optional)</p> <ol style="list-style-type: none"> <li>1) Intensify LDL-lowering therapy</li> <li>2) Add fibrate (preferably fenofibrate) or nicotinic acid if non-HDL-C remains high after LDL-lowering therapy, giving preference to high-risk patients</li> <li>3) If TG <math>\geq</math>500 mg/dL, initiate fibrate or nicotinic acid first before initiating LDL-lowering therapy</li> </ol> <p>Maximize lifestyle therapies including weight reduction and increased physical activity</p> <p>Consider adding fibrate or nicotinic acid after LDL-lowering drug therapy</p>
<p><b>Elevated BP</b></p> <p>Reduce BP &lt;140/90 mm Hg (&lt;130/80 if diabetic)</p>	<p>If BP <math>\geq</math>120/80 mm Hg, initiate lifestyle modification including weight control, increased physical activity, alcohol moderation, sodium restriction, and increased consumption of fruits, vegetables, and low-fat dairy</p>

	If BP $\geq$ 140/90 mm Hg (or $\geq$ 130/80 mm Hg if diabetic or chronic renal disease) add BP medications as tolerated to achieve BP goal
Elevated glucose  For IFG (FBS $\geq$ 100 mg/dL), delay progression to type 2 diabetes mellitus  For diabetes, hemoglobin A <sub>1C</sub> <7.0%	For IFG, encourage weight reduction and increased physical activity  For type 2 diabetes mellitus, lifestyle and pharmacotherapy to achieve HbA <sub>1C</sub> <7.0%  Modify other risk factors and behaviors (eg Abdominal obesity, physical inactivity, elevated BP, lipid abnormalities)
Prothrombotic state  Reduce thrombotic and fibrinolytic risk factors	For high-risk patients, initiate low-dose aspirin therapy and in patients with ASCVD, consider clopidogrel if aspirin is contraindicated  For moderately high-risk patients, consider low-dose aspirin prophylaxis
Proinflammatory state	No specific therapies beyond lifestyle therapy

<sup>†</sup>High-risk patients are those with established ASCVD, diabetes, or 10-year risk for coronary heart disease >20%. For cerebrovascular disease, high-risk condition includes transient ischemic attack or stroke of carotid origin or >50% carotid stenosis.

<sup>†</sup>Lifestyle therapies include weight reduction, increased physical activity, and antiatherogenic diet.

<sup>‡</sup>Very high-risk patients are those who are likely to have major CVD events in the next few years, and diagnosis depends on clinical assessment. Factors that may confer very high risk include recent acute coronary syndromes, and established coronary heart disease + any of the following: multiple major risk factors (especially diabetes), severe and poorly controlled risk factors (especially continued cigarette smoking), and multiple risk factors of metabolic syndrome.

<sup>§</sup>Moderately high-risk patients are those with 10-year risk for coronary heart disease 10% to 20%.

<sup>||</sup>Factors that can raise individuals to upper range of moderately high risk are multiple major risk factors, severe and poorly controlled risk factors (especially continued cigarette smoking), metabolic syndrome, and documented advanced subclinical atherosclerotic disease (eg coronary calcium or carotid intimal-medial thickness >75<sup>th</sup> percentile for age and sex).

<sup>¶</sup>Moderate-risk patients are those with 2+ major risk factors and 10-year risk <10%.

<sup>#</sup>Lower-risk patients are those with 0 or 1 major risk factor and 10-year risk <10%.

Grundy SM, Cleeman JI, Daniels SR, et al. Diagnosis and management of the metabolic syndrome. An American Heart Association and National Heart, Lung, and Blood Institute Scientific Statement. *Circulation*. 2005;112. Epub 2005 Sept 12.