TYPE 2 DIABETES AND METABOLIC SYNDROME

Recommendations for Healthcare Providers
Metabolic syndrome is a complex of interrelated risk factors for diabetes and cardiovascular disease (CVD), which include\[1,2\]:

- elevated fasting glucose
- elevated blood pressure
- elevated triglyceride levels
- low levels of high-density lipoprotein cholesterol (HDL-C)
- abdominal obesity

Three abnormal findings out of 5 would indicate a person has metabolic syndrome.\[1\]

Since metabolic syndrome does not include factors that determine absolute risk (eg, age, sex, cigarette smoking, and low-density lipoprotein cholesterol levels), it is not considered an absolute risk indicator. However, people with metabolic syndrome have a 5 times greater risk of developing type 2 diabetes.\[1\]

**Metabolic syndrome is both a public health and a clinical problem**\[1\]

Due to the risk factors, the syndrome is increasingly common, which relates to increased obesity and sedentary lifestyles\[3\]:

- In the public health arena, more attention must be given to lifestyle modifications to reduce obesity and to increase physical activity.
- At a clinical level, patients with metabolic syndrome need to be identified so that their multiple risk factors, including lifestyle risk factors, can be reduced.

*In 2010, approximately 23% of adults 20 years of age and older in the United States had metabolic syndrome.*\[3\]
CRITERIA FOR METABOLIC SYNDROME DIAGNOSIS

The International Diabetes Federation (IDF) and the American Heart Association/National Heart, Lung, and Blood Institute (AHA/NHLBI) Diagnostic Criteria for Determining Metabolic Syndrome

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<tr>
<td>Waist circumference:</td>
<td>≥102 cm in men; ≥88 cm in women</td>
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<td>Raised triglycerides:</td>
<td>≥150 mg/dL or drug treatment for raised triglycerides</td>
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<tr>
<td>Reduced HDL-C:</td>
<td>&lt;40 mg/dL in men; &lt;50 mg/dL in women or drug treatment for reduced HDL-C</td>
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<td>Raised blood pressure:</td>
<td>≥130 mm Hg systolic; ≥85 mm Hg diastolic or drug treatment of previously diagnosed hypertension</td>
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<td>Elevated fasting glucose:</td>
<td>≥100 mg/dL or drug treatment for elevated glucose</td>
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Treating Patients With Metabolic Syndrome

With metabolic syndrome driving growing epidemics of type 2 diabetes and CVD, there is an overwhelming consensus to identify patients early. By doing so, lifestyle modifications and treatment may prevent diabetes and/or cardiovascular disease.2

- Once a diagnosis of metabolic syndrome is made, managing the condition should be aggressive in its aim to reduce the risk of CVD and type 2 diabetes.2
- Patients should undergo a full cardiovascular risk assessment (including smoking status) in conjunction with the following healthy lifestyle changes2:
  - Increased calorie restriction to lose 5% to 10% of body weight in the first year
  - Increased physical activity
  - Change in diet

Moderate weight loss and regular activity may provide clinical benefits in individuals with type 2 diabetes. Regular exercise may also help prevent type 2 diabetes in high-risk individuals.4

For patients who require more than lifestyle modifications

Patients at high risk for CVD also may require drug therapy to treat metabolic syndrome.2 However, since there are not yet specific pharmacological agents available to treat metabolic syndrome, treatment must instead focus on the individual components of the syndrome.2 By lowering the risk of each component, the overall risks of CVD and diabetes may be reduced.2