**HDL2b**

CPT Code 82664  
Sample Type Serum  
Order Code C324  
Tube Type Tiger Top

**Sample Type**  
The HDL2b test should be performed on a serum sample.

**Commercial Insurance or Medicare Coverage**  
Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination), have not been established or posted by CMS (Medicare & Medicaid). We have reviewed the larger Carriers (Aetna, United HealthCare, Cigna, Blues) and information has not been posted or is limited. Medical necessity and specificity of diagnosis should be provided when ordering this test.

**Understanding Medical Necessity**  
The following ICD-10 codes for HDL2b are listed as a convenience for the ordering physician. The ordering physician should report the diagnosis code that best describes the reason for performing the test.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Diagnosis Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2 Diabetes Mellitus without Complications</td>
<td>E11.9</td>
</tr>
<tr>
<td>Other Specified Diabetes Mellitus without Complications</td>
<td>E13.9</td>
</tr>
<tr>
<td>Pure Hyperglyceridemia</td>
<td>E78.1</td>
</tr>
<tr>
<td>Mixed Hyperlipidemia</td>
<td>E78.2</td>
</tr>
<tr>
<td>Other Hyperlipidemia</td>
<td>E78.4</td>
</tr>
<tr>
<td>Hyperlipidemia, Unspecified</td>
<td>E78.5</td>
</tr>
<tr>
<td>Metabolic Syndrome</td>
<td>E88.81</td>
</tr>
<tr>
<td>Essential (primary) Hypertension</td>
<td>I10</td>
</tr>
</tbody>
</table>

**Description**  
HDL cholesterol, like LDL cholesterol, can be divided into several subfractions, based on density, size and protein composition. The HDL2 subfraction (HDL2a, HDL2b) consists of larger, more buoyant particles while particles in the HDL3 subfraction (HDL3a, HDL3b, HDL3c) are smaller and denser. The largest and most buoyant HDL particle is HDL2b.

One primary function of HDL particles is to promote reverse cholesterol transport, or the movement of cholesterol from the tissues to the liver for excretion. HDL is first formed in the liver as the smaller HDL3 particles. Once released, HDL3 particles travel in the blood, where they receive cholesterol by various enzymatic events, eventually resulting in the formation of HDL2b particles. Assessment of HDL2b particles may provide a more powerful measure of cardiovascular risk than other HDL2 or HDL3 subfractions, individually or combined.

**Clinical Indication**  
The HDL2b test may be used for individuals at risk of diabetes or cardiovascular disease, those with cardiovascular disease or those with low total HDL levels or high triglyceride levels.

**Clinical Significance**  
- Elevated total cholesterol and low HDL cholesterol levels, as well as high triglyceride levels, are associated with low HDL2b levels.
- Reduced HDL2b levels have been associated with insulin resistance.
- Women tend to have higher levels of HDL2b than men, and HDL2b levels tend to decrease as a person’s BMI increases.
- HDL2b levels may be significantly increased by a combination of caloric restriction and high-intensity exercise.

Reduced HDL2b levels are associated with:  
- Elevated triglyceride levels  
- Insulin resistance  
- Increased BMI

HDL2b levels may be increased by:  
- Aerobic exercise  
- Moderate alcohol consumption  
- Fish oil
Treatment Considerations

**WOMEN**

- **Assess HDL-C levels.**
  - If HDL-C levels are not at goal, consider niacin or fenofibrate therapy. Fenofibrate therapy is indicated for use in patients with primary hypercholesterolemia or mixed dyslipidemia to increase HDL-C levels.
  - Assess CoQ10 levels as recent evidence suggests that low ApoA1 and/or HDL-C levels are associated with low CoQ10 levels.

- **Assess risk for pre-diabetes/diabetes.**

- **Assess smoking habits.**
  
  NOTE: Smoking cessation is essential as individuals who smoke are at increased risk of heart disease and blood clots.

- **Assess triglyceride levels.**
  - If triglyceride levels are not at goal, first consider fasting status at time of blood draw, risk of pre-diabetes/diabetes, alcohol intake, thyroid status, renal function, smoking status or pregnancy.
  - If the aforementioned have been addressed and triglycerides remain high, consider statins, niacin, fenofibrate, omega-3 fatty acids, PPAR agonists or combination therapy if not contraindicated.

**MEN**

- **Assess the presence of CAD with imaging techniques such as CIMT or coronary artery calcium scoring.**
  - Consider aspirin therapy if not contraindicated.
  - Consider clopidogrel if history of CAD (i.e., myocardial infarction or revascularization) and/or a history of cerebrovascular disease (i.e., TIA or stroke).

- **Assess lifestyle habits.**
  - Consider diet/exercise/weight reduction efforts if appropriate.

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**References**

8. Toyama K et al. Rosuvastatin combined with regular exercise preserves coenzyme Q10 levels associated with a significant increase in high-density lipoprotein cholesterol in patients with coronary artery disease. Atherosclerosis. 2001; 217: 158-164.