**High Sensitivity C-Reactive Protein (hsCRP)**

**Description**
The hsCRP test is a highly sensitive quantification of C-Reactive Protein (CRP), an acute-phase protein released into the blood by the liver during inflammation, which has been associated with the presence of CVD.

**Clinical Use**
The hsCRP test may be performed on individuals at intermediate risk (10-year risk of 10-20%) of developing CVD who are metabolically stable without inflammatory or infectious conditions.

**Clinical Significance**
- hsCRP is a well-documented clinical marker of general and cardiac-related inflammation.
- Apparently healthy individuals with elevated hsCRP values are up to 4x as likely to have coronary heart disease (CHD).
- Elevated hsCRP is associated with the risk of future adverse cardiovascular events (heart attack, stroke, and death) in apparently healthy individuals, individuals with stable coronary artery disease, or individuals who have previously experienced a heart attack.
- Reductions in both hsCRP and LDL cholesterol are associated with a reduction in the rate of atherosclerosis progression and improved clinical outcomes.
- In the JUPITER trial, introduction of statin therapy in patients with elevated hsCRP, even with normal lipid levels, significantly reduced risk for heart attack, stroke, and death.
- The CANTOS trial demonstrated that lowering hsCRP, independent of lipid levels, resulted in a 15% risk reduction of recurrent cardiovascular events.

**Testing Frequency**
The frequency of testing is determined by an individual’s medical history, but an elevated hsCRP level should be confirmed with an additional measurement at least one month later. For levels >10 mg/L, the test should be repeated in 2-3 weeks as levels above 10 mg/L can reflect acute infection.

**Sample Type**
The hsCRP test should be performed on a serum or EDTA plasma sample.

**Commercial Insurance or Medicare Coverage**
Coverage guidelines, also known as NDC (National Coverage Determination) or LCD (Local Coverage Determination) have been established or posted by CMS (Medicare & Medicaid). Guidelines should be reviewed for coverage and limitations. Limited information has been provided by the majority of the larger carriers (Aetna, United Healthcare, Cigna, Blues).

**Understanding Medical Necessity**
The following ICD-10 codes for hsCRP listed below, and in the Cleveland HeartLab Practitioner Guide, are provided as a convenience for the ordering physician. Additional diagnostic codes can be referenced on the CMS website or guidelines specified by insurance carriers. 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>
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<tbody>
<tr>
<td>Type 2 Diabetes Mellitus with Hyperglycemia</td>
<td>E11.65</td>
</tr>
<tr>
<td>Type 2 Diabetes Mellitus without Complications</td>
<td>E11.9</td>
</tr>
<tr>
<td>Pure Hypercholesterolemia, Unspecified</td>
<td>E78.00</td>
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<tr>
<td>Familial Hypercholesterolemia</td>
<td>E78.01</td>
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<tr>
<td>Pure Hyperglyceridemia</td>
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<tr>
<td>Mixed Hyperlipidemia</td>
<td>E78.2</td>
</tr>
<tr>
<td>Other Hyperlipidemia</td>
<td>E78.4</td>
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<tr>
<td>Hyperlipidemia, Unspecified</td>
<td>E78.5</td>
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<tr>
<td>Metabolic Syndrome</td>
<td>E88.81</td>
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<tr>
<td>Essential (Primary) Hypertension</td>
<td>I10</td>
</tr>
<tr>
<td>Atherosclerotic Heart Disease of Native Coronary Artery without Angina Pectoris</td>
<td>I25.10</td>
</tr>
</tbody>
</table>

**Sample Type**
Serum or EDTA Plasma

**Tube Type**
Tiger Top or Lavender Top
Treatment Considerations

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

- **Assess presence of acute (flu, cold, etc.) or chronic illness (bronchitis, chronic obstructive pulmonary disease (COPD), rheumatoid arthritis (RA), etc.).**

- **Assess LDL-C levels.**
  - If not at goal, consider lipid-lowering therapies described in the National Cholesterol Education Program/Adult Treatment Panel III (NCEP ATP III) Guidelines. If not contraindicated, statin-based therapy has shown a wide range of biological effects such as reducing CRP.

- **Assess the presence of coronary artery disease (CAD) with imaging techniques such as carotid intima-media thickness (CIMT) testing or coronary artery calcium (CAC) 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., transient ischemic attack or stroke).

- **Assess dental health (periodontal disease).**
  - Refer to dentist to identify gum disease.
  - **NOTE:** Poor dental health may cause significant inflammation and is associated with the presence of atherosclerosis.

- **Assess blood pressure.**
  - If not at goal, consider initiating, or titrating, antihypertensive therapy.
  - **NOTE:** An elevated blood pressure may contribute to endothelial dysfunction and coronary disease formation.

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

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**References**