

High-Sensitivity C-Reactive Protein (hsCRP)

MDL Test Number: 663

Methodology: Immunoassay

CPT Codes: 86141



Specimen Collection Platform:

Serum in Serum Separator Tube (SST)

Turnaround Time:

24 - 72 hours

Stability:

Room temperature

Test Additions*:

30 days to add tests

Specimen Collection:



1. Immediately after blood collection, invert the tube(s) gently 5 times to ensure mixing of clot activator.



2. Allow the tube to rest upright for at least 30 minutes after collection to ensure proper clotting.



3. Centrifuge for at least 15 minutes at 2200-2500 RPM within one hour of collection.



4. Do not remove the stopper or pour off serum.



What is High-Sensitivity C-Reactive Protein (hsCRP)?

C-reactive protein (CRP) is a protein made by the liver whenever there is inflammation anywhere in the body. It normally sits at a very low level, but it responds fast: within a day or two of an infection or an injury, production can climb to roughly a thousand

times its resting level. Because CRP answers inflammation of any cause, a raised result shows that inflammation is present without showing where it is or what started it.

The high-sensitivity version of the test measures the same protein but reads the very low levels found in people who are otherwise well. That matters because small, long-standing elevations, far below anything seen in an infection, track with the slow inflammation in artery walls that leads to heart disease. A standard CRP test asks whether someone has significant inflammation now. hsCRP asks how much background inflammation an apparently healthy person is carrying.

Why test for High-Sensitivity C-Reactive Protein (hsCRP)?

hsCRP is ordered for two quite different purposes, and which one applies changes how the number should be read:

- **Cardiovascular risk assessment in adults whose estimated ten-year risk falls in the borderline or intermediate range**, where the decision to begin preventive treatment is not clear-cut. A raised hsCRP is treated as a factor that pushes estimated risk upward, and is read together with a lipid panel rather than in place of one.
- **Assessing risk in women, whose heart disease is more often missed by scoring systems built mainly on men.** Risk rises after menopause, and inflammation contributes to it independently of cholesterol.
- **Polycystic ovary syndrome, also called polyendocrine metabolic ovarian syndrome (PMOS/PCOS)**, which carries chronic low-grade inflammation. Pooled data show CRP roughly doubled in women with PMOS/PCOS compared with controls, and the difference holds in women who are not overweight.
- **Excess body fat, particularly around the abdomen.** Fat tissue itself releases inflammatory signals, so hsCRP tends to rise with body weight and falls when weight is lost.
- **Endometriosis and other long-standing inflammatory conditions**, where an hsCRP may be used alongside the clinical picture rather than as a test for the condition itself.
- **Detecting and following inflammation from infection, tissue injury, or an inflammatory disorder** — the test's other approved use, which produces far higher numbers than risk assessment does.



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Special Instructions:

- **Estrogen taken by mouth:** Combined oral contraceptives and oral menopausal hormone therapy raise CRP, roughly doubling it, because tablets pass through the liver before reaching the rest of the body. Estrogen delivered through the skin as a patch or gel does not have this effect. Tell the ordering provider which form is being used and when it started.
- **Recent illness, injury, or surgery:** The manufacturer directs that testing for cardiovascular risk not be done while there is any sign of infection, systemic inflammation, or trauma. An acute rise swamps the small differences that risk assessment depends on, so wait until recovery is complete.
- **Repeat testing for risk assessment:** Levels vary from day to day. The manufacturer directs that risk assessment use the average of results repeated about two weeks apart in someone whose health is stable, rather than a single value.
- **Biotin supplements:** Biotin, sometimes sold as vitamin B7 and found in hair, skin, and nail products, can interfere with tests of this kind. This test showed no meaningful change up to 1500 nanograms per milliliter, well above what an ordinary supplement produces. Tell the ordering provider about any biotin being taken.
- **Comparing results over time:** Results from different methods and different laboratories are not interchangeable. Serial results should be run by the same laboratory on the same method wherever possible.

Limitations:

Every laboratory test has limits. For hsCRP, the main ones are:

- A raised hsCRP shows that inflammation is present somewhere. It does not show where, and it does not identify the cause.
- A value that stays above 10 milligrams per liter without explanation is usually pointing at something other than cardiovascular risk. The manufacturer directs that such results be evaluated for non-cardiac causes, and risk assessment cannot be interpreted while they persist.
- The test reports results between 0.2 and 100 milligrams per liter. Results below the lower figure are reported as less than 0.2 milligrams per liter, which is comfortably inside the low-risk category.
- Serial hsCRP measurements are not used to judge whether a treatment is working, and screening the whole adult population is not recommended.
- Two things in a sample can interfere with a test of this kind. Heterophilic antibodies—antibodies against animal proteins that some people carry — are more common in people routinely exposed to animals or animal products, and can produce an odd result. Asfotase alfa, a manufactured form of alkaline phosphatase used to treat hypophosphatasia, interferes with tests that detect using alkaline phosphatase. The manufacturer directs that samples from patients taking it be run by a different method.
- An hsCRP result is one piece of a larger picture. It is meant to be read together with the patient's symptoms, medical history, and other test results — never on its own.

Reference Range(s):

Results are reported in milligrams per liter (mg/L). The manufacturer does not publish an ordinary reference interval for this test. It publishes risk categories from a joint statement of the American Heart Association and the Centers for Disease Control and Prevention, plus a healthy-volunteer study. The categories describe cardiovascular risk in someone who is not acutely unwell; they are not a normal range in the usual sense.

- **Low cardiovascular risk:** below 1 mg/L
- **Average cardiovascular risk:** 1 to 3 mg/L
- **High cardiovascular risk:** above 3 mg/L
- **Healthy adults:** a study of 100 apparently healthy volunteers gave a median of 1.4 mg/L, with the top of that same group reaching 11 mg/L

A result outside these ranges is not automatically a problem, and a result inside them does not rule one out. Only the ordering provider can interpret what a given number means for a given patient. Patients should always go by the reference range printed on their own laboratory report.

Analyte	Disorder	Expected Value*
hsCRP	Acute infection or inflammation	↑↑
hsCRP	PCOS/PMOS	↑
hsCRP	Endometriosis	↑
hsCRP	Obesity	↑
hsCRP	Elevated cardiovascular risk	↑

*↑ – Increased, ↑↑ – Markedly Increased.

What are some references that discuss the medical necessity of testing High-Sensitivity C-Reactive Protein (hsCRP)?

1. Mensah GA, et al. Inflammation and cardiovascular disease: 2025 ACC scientific statement. *J Am Coll Cardiol*, **87**, 1381–1404 (2026).
2. Arnett DK, et al. 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease. *Circulation*, **140**, e596–e646 (2019).
3. Vongpatanasin W, et al. Differential effects of oral versus transdermal estrogen replacement therapy on C-reactive protein in postmenopausal women. *J Am Coll Cardiol*, **41**, 1358–1363 (2003).
4. Escobar-Morreale HF, et al. Circulating inflammatory markers in polycystic ovary syndrome: a systematic review and metaanalysis. *Fertil Steril*, **95**, 1048–1058 (2011).
5. Visser M, et al. Elevated C-reactive protein levels in overweight and obese adults. *JAMA*, **282**, 2131–2135 (1999).



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