

FACT SHEET: Laboratory Testing for Patients at Risk for Heart Disease, Heart Attack, and Sudden Cardiac Arrest

Your primary care physician, cardiologist, or if you go to an emergency department, an emergency physician may order one or some of the following tests to assess and track your risk for heart disease or to diagnose an active heart condition. These tests are performed on a small sample of blood drawn from a vein.

For Risk Identification and Risk Factor Management

Lipid profile – This test measures the amount of cholesterol (both the good kind, called HDL, and the bad kind, LDL) and triglycerides in your blood. High levels of LDL and triglycerides are associated with increased risk of coronary heart disease and heart attack. The effectiveness of statins and other anti-lipid medications can be determined by checking lipid levels.

Glucose – This measures the amount of sugar in your blood. High levels are an indication of diabetes and the metabolic syndrome which are associated with increased risk of coronary artery disease and heart attacks. Glucometers are simple devices which allow patients with one of these conditions to check their own glucose levels on a regular basis.

C-reactive protein (CRP) – This protein is considered a marker of inflammation and is elevated in the blood when a variety of conditions are present, including coronary artery disease. This test is used in combination with other tests and patient risk factors to help determine the likelihood of heart disease and the need for treatment.

Genetic testing – Various tests are available to check for specific genes and genetic mutations that may be associated with increased risk of certain heart conditions. These are typically performed in family members with an inherited condition or some other known risk. For example, some inherited forms of Long QT syndrome and Hypertrophic Cardiomyopathy – which put patients at a higher risk for sudden cardiac arrest (SCA) – can be diagnosed through genetic testing. Some genetic tests may be useful in tailoring treatment as well.

For Diagnosis of Acute Heart Conditions

Troponin – This is an enzyme that is released from heart muscle when cells are injured from an event such as a heart attack. This is considered the best single blood test to diagnose a myocardial infarction (heart attack), but is not positive until several hours after the injury occurs. It remains elevated for up to two weeks so this simple test can be useful in diagnosing heart attacks when the patient delays seeking care or had delayed onset of symptoms. Identifying the heart attack event is critical for follow-up care. As it relates to sudden cardiac arrest (SCA), a heart attack can damage and/or weaken the heart so as to raise the risk of SCA. The diagnosis of a heart attack generally leads to other more extensive imaging tests to determine the patient's condition and treatment options.

Creatine kinase (CK) – This was the test previously used as the standard for diagnosing a heart attack. This is also an enzyme released from heart muscle, but is also found in other muscles, so it is not necessarily indicative of a heart attack. Because levels rise in a few hours and return to normal in 2-3 days, this test can help determine when the heart attack occurred.

BNP (Brain natriuretic peptide) – This is a protein released from the heart tissue when it is under strain and is helpful in determining the presence of acute or chronic heart failure in some patients.