What is the PULS Cardiac Test?
The PULS (Protein Unstable Lesion Signature) Cardiac Test is a risk calculator that measures key clinical risk factors and nine distinct protein biomarkers to identify a patient’s 5-year absolute risk of having an acute coronary event (myocardial infarction or unstable angina).

How does the PULS Cardiac Test differ from other risk calculators?
Common risk score calculators, such as the Framingham or Reynolds Risk Score, are used to identify a patient’s 10-year risk of a cardiovascular event. These calculators rely heavily on established clinical risk factors which may not fully estimate cardiovascular risk in the general population. PULS uses similar key clinical risk factors in addition to distinct protein biomarkers to provide an improved assessment of a patient’s near-term (5-year) risk for an acute coronary event. PULS was validated in the Multi-Ethnic Study of Atherosclerosis (MESA), where it correctly reclassified 42.7% of patients considered “intermediate risk” by the Framingham Risk Score. Correct risk stratification using the PULS score can help practitioners to better estimate a patient’s risk and more appropriately manage their care.

Who should get a PULS Cardiac Test?
The PULS Cardiac Test may be performed on individuals with one or more risk factors for coronary heart disease. This includes - but is not limited to - a family history of early heart disease, poor diet/lifestyle, elevated LDL cholesterol, high blood sugar/diabetes, high blood pressure, overweight/obesity, or smoking.

What does an elevated PULS Score mean?
The PULS Score is calculated using individual clinical risk factors combined with protein biomarkers. A PULS Score elevated beyond the patient’s Target Score indicates the patient has greater cardiovascular risk than expected for a person of equivalent age and sex. Those with borderline or elevated scores should be further evaluated to assess disease status.

How can I interpret the protein biomarker elevations?
The protein biomarkers incorporated into the PULS Cardiac Test are associated with biological pathways of the body’s immune response to endothelial damage that can lead to unstable lesion formation/rupture. These protein values are critical components of the PULS algorithm and influence the PULS Score, which aids in the identification of those who might appear healthy but may have increased cardiovascular risk. Two of the nine proteins measured (HDL and HbA1c) have established individual clinical value and are shown on the PULS Cardiac Test report.

Can the PULS Score be modified? If so, when should patients be retested?
The PULS Cardiac Test combines modifiable and non-modifiable clinical risk factors with protein biomarkers to generate a single PULS Score. Therapeutic intervention of modifiable factors can improve various components of the clinical measurements which may result in a reduction of the PULS Score.
The practitioner’s discretion and patient’s medical history may determine how often The PULS Cardiac Test should be retested. It may be recommended for those at moderate to high risk to be tested more frequently.

How can inflammation testing complement an elevated PULS Score?
Evidence suggests that inflammation within the artery wall is a primary contributor to heart attack risk. The practitioner may consider a multi-marker inflammatory assessment for additive utility in identifying the acuity of risk found with the PULS Cardiac Test. Cleveland HeartLab’s inflammation biomarkers are different than those used in the PULS Score algorithm.

References