MAYO CLINIC LABORATORIES

Test Definition: LPNF1

Lipid Panel, Non-Fasting

Overview

Useful For

Evaluation of cardiovascular risk

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
CHOL	Cholesterol, Total, S	Yes	Yes
TRIGN	Triglycerides, Non-Fasting, S	Yes	Yes
HDCH	Cholesterol, HDL, S	Yes	Yes
CLDLN	LDL Cholesterol, Non-Fasting	No	Yes
NHDCH	Non HDL Cholesterol	No	Yes

Method Name

CHOL, TRIGN, HDCH: Enzymatic Colorimetric

CLDLN: Friedewald Equation

NHDCH: Total Cholesterol-HDL Cholesterol

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 1 mL

Collection Instructions:

1. Serum gel tube must be centrifuged within 2 hours of draw time.

2. Red-top tube must be centrifuged and aliquoted within 2 hours of draw time.

Reject Due To

Gross hemolysis	Reject

Specimen Minimum Volume

0.5 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	7 days	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Cardiovascular disease is the number one cause of death in the United States with an estimated 1.5 million heart attacks and 0.5 million strokes occurring annually, many in individuals who have no prior symptoms. Prevention of ischemic cardiovascular events is key. Risk factors, including age, smoking status, hypertension, diabetes, cholesterol, and HDL cholesterol, are used by physicians to identify individuals likely to have an ischemic event.

Reference Values

The National Lipid Association and the National Cholesterol Education Program (NCEP) have set the following guidelines for lipids (total cholesterol, triglycerides, HDL cholesterol, LDL cholesterol, and non HDL cholesterol) in adults ages 18 and up:

TOTAL CHOLESTEROL

Desirable: <200 mg/dL

Borderline high: 200-239 mg/dL

High: > or =240 mg/dL

TRIGLYCERIDES

Males

<200 mg/dL

Females

<175 mg/dL

HDL CHOLESTEROL

Males

> or =40 mg/dL

Females

> or =50 mg/dL

LDL CHOLESTEROL

Desirable: <100 mg/dL

Above desirable: 100-129 mg/dL

Borderline high: 130-159 mg/dL

High: 160-189 mg/dL

Very high: > or =190 mg/dL

NON HDL CHOLESTEROL

Desirable: <130 mg/dL

Above desirable: 130-159 mg/dL

Borderline high: 160-189 mg/dL

High: 190-219

Very high: > or =220 mg/dL

The Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents has set the following guidelines for lipids (total cholesterol, triglycerides, HDL cholesterol, LDL cholesterol, and non-HDL cholesterol) in children ages 2-17 years of age:

TOTAL CHOLESTEROL

Acceptable: <170 mg/dL

Borderline high: 170-199 mg/dL

High: > or =200 mg/dL

TRIGLYCERIDES

2-9 years:

Acceptable: <75 mg/dL

Borderline high: 75-99 mg/dL

High: > or =100mg/dL

10-17 years:

Acceptable: <90 mg/dL

Borderline high: 90-129 mg/dL

High: > or =130 mg/dL

HDL CHOLESTEROL

Low HDL: <40 mg/dL

Borderline low: 40-45 mg/dL

Acceptable: >45 mg/dL

LDL CHOLESTEROL

Acceptable: <110 mg/dL

Borderline high: 110-129 mg/dL

High: > or =130 mg/dL

NON HDL CHOLESTEROL

Acceptable: <120 mg/dL

Borderline high: 120-144 mg/dL

High: > or =145 mg/dL

Interpretation

Mayo Clinic has adopted the National Lipid Association classifications, which are included as reference values on Mayo Clinic and Mayo Clinical Laboratories reports (see Reference Values). Lipids are most commonly measured to assess cardiovascular risk. Maintaining desirable concentrations of lipids lowers the risk of heart attacks or strokes. Establishing appropriate treatment strategies and lipid goals require the results for each component of a lipid profile to be considered in context with other risk factors including, age, sex, smoking status, family and personal history of heart disease. Nonfasting lipids are endorsed by the 2013 American College of Cardiology/American Heart Association (ACC/AHA) guidelines, in which a follow-up fasting sample is recommended if triglycerides exceed normal levels.

Cautions

Cholesterol levels fluctuate over time. The American Heart Association recommends a minimum of 2 measures at least 2 weeks apart before beginning a new treatment plan.

Clinical Reference

1. Jacobson TA, Ito MK, Maki KC, et al: National Lipid Association recommendations for patient-centered management of dyslipidemia: part 1-executive summary. J Clin Lipidol 2014 Sep-Oct;8(5):473-488

2. Goff DC, Lloyd-Jones DM, Gennett G, et al: 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk. Circulation 2014;129:S49-S73

3. Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents; National Heart, Lung, and Blood Institute: Expert panel on integrated guidelines for cardiovascular health and risk reduction in children and adolescents. Pediatrics 2011;128;S213-S256

Performance

Method Description

Cholesterol, Total:

Cholesterol is measured by an automated enzymatic method. The reagents include cholesterol ester hydrolase, cholesterol oxidase, and a coupled colorimetric end-point chemistry system. The method is referenced to the Centers of Disease Control standardized method performed in the Cardiovascular Risk Assessment Laboratory.(Package inserts: Bayer Cholesterol Reagent, Bayer Diagnostics Corp, Tarrytown, NY; Roche Cholesterol Reagent, Roche Diagnostics Corp, Indianapolis)

Cholesterol, HDL:

High-density lipoprotein (HDL) cholesterol is measured by an automated enzymatic method. Sulfated alpha-cyclodextrin forms water soluble complexes selectively with low-density lipoprotein (LDL), very-low-density lipoprotein, and chylomicrons, and renders these lipoprotein particles resistant to the enzymatic activity of polyethylene glycol (PEG)-modified cholesterol esterase and cholesterol oxidase. PEG-modified cholesterol esterase selectively converts HDL cholesterol esters to free cholesterol, which in the presence of O2 reacts with PEG-cholesterol oxidase to produce delta-cholestenone and hydrogen peroxide. In the presence of peroxidase, the hydrogen peroxide generated reacts with 4-aminophenazone and N-ethyl-N(3 methylphenyl)-N-succinyl ethylene diamine to form a quinone amine dye. The color intensity of this dye, measured photometrically at 600 nm, is proportional to the HDL-cholesterol concentration in the specimen. This method is referenced to the Centers of Disease Control and Prevention (CDC) standardized method performed in the Cardiovascular Risk Assessment Laboratory.(Package insert: Roche HDL-C Reagent, Roche Diagnostic Corp, Indianapolis)

Triglycerides:

Serum triglycerides are measured by an automated enzymatic method. The chemistry includes hydrolysis of the triglycerides and phosphorylation of the resulting glycerol. The method is referenced to the Center of Disease Control standardized method performed in the Cardiovascular Risk Assessment Laboratory.(Package inserts: Bayer Triglyceride Reagent, Bayer Diagnostics Corp, Tarrytown, NY; Roche Triglyceride Reagent, Roche Diagnostics Corp, Indianapolis)

Cholesterol, LDL:

The LDL cholesterol is calculated from serum cholesterol, serum triglycerides, and HDL cholesterol according to the following formula by Friedewald, et al: LDL=Cholesterol-HDL-(Triglycerides/5) (Friedewald WT, Levy RI, Fredrickson DS: Estimation of the concentration of low-density lipoprotein cholesterol in plasma, without use of the preparative ultracentrifuge. Clin Chem 1972 June;18[6]:499-502)

HDCH: Enzymatic Colorimetric

NHDCH: Total Cholesterol-HDL Cholesterol

PDF Report
No

Specimen Retention Time
1 week

Performing Laboratory Location
Rochester

Fees & Codes

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
80061-Lipid panel (if all 3 performed)

82465-Cholesterol, total (if all 3 are not performed)

84478-Triglycerides (if all 3 are not performed)

83718-Cholesterol, HDL (if all 3 are not performed)

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
LPNF1	Lipid Panel, Non-Fasting	24331-1

Result ID	Reporting Name	LOINC®
CHOL	Cholesterol, Total, S	2093-3
HDCH	Cholesterol, HDL, S	2085-9
NHDCH	Non HDL Cholesterol	43396-1

TRIGN	Triglycerides, Non-Fasting, S	2571-8
CLDLN	LDL Cholesterol, Non-Fasting	13457-7