



MEMORANDUM #83

TO: UNC Hospitals Housestaff, Attendings, Nursing Supervisors, Department Heads and Supervisors

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SUBJECT: Changes in Lipid Testing: Introduction of direct LDL cholesterol and calculation of non-HDL cholesterol

DATE: April 27, 2009

Effective May 3, 2009 the Core Laboratory will introduce direct testing for low density lipoprotein cholesterol (dLDL) and a calculation for non-HDL cholesterol.

LDL cholesterol testing: Two LDL cholesterol tests are now available. The direct LDL (dLDL) test is performed on serum using an enzymatic method on the Vitros 5,1 chemistry analyzers. A fasting sample is not required.

This test will automatically be performed when the calculated LDL (cLDL) is not appropriate, for example for a Fasting Lipid Panel when triglycerides > 400 mg/dL.

Reference ranges are the same for both the direct and the calculated LDL cholesterol and based on NCEP ATPIII guidelines (1-3).

Table with 2 columns: Classification and mg/dL. Rows include ATP III Classification Guidelines for Adults (Optimal to Very High) and Children (Desirable to High).

Non-HDL cholesterol: It will not be necessary to order this test separately. It will be performed at no charge as part of the Fasting and Non-Fasting Lipid Profiles. The non-HDL cholesterol fraction is calculated as: non-HDL cholesterol = total cholesterol – HDL cholesterol. This fraction is considered representative of the atherogenic lipoprotein particles. NCEP ATPIII recommends non-HDL-C as a secondary target of therapy in patients with increased triglycerides (1).

Recommended non-HDL Concentrations	
	mg/dL
Optimal	<130
Near optimal	130-159
Borderline high	160-189
High	190-219
Very high	>220

Fasting Lipid Panel (LPF): One of the few “AMA-/Medicare-approved” profiles, this group should be ordered when the patient is fasting. Panel members include total cholesterol, triglycerides, HDL-cholesterol, LDL-cholesterol, and will now include the calculated non-HDL cholesterol.

When the triglycerides are <400 mg/dL, the LDL-cholesterol will be calculated using the Friedewald equation: cLDL cholesterol = total cholesterol - (HDL + triglycerides/5). This calculation will be reported as cLDL at no charge to the patient.

When triglycerides are >400 mg/dL, LDL will be measured, reported as dLDL, and the patient will be charged for the testing.

Non-fasting Lipid Panel (LPNF): Panel members include total cholesterol, HDL-cholesterol and non-HDL cholesterol. The direct LDL may be ordered with this panel as an individual test.

For questions or more information regarding these changes, please contact Kathy McKinney or Dr. Catherine Hammett-Stabler at 6-2361.

References:

1. Treatment Panel III) Final Report on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Third Report of the National Cholesterol Education Program (NCEP) Expert Panel *Circulation* 2002;106:3143- 21.
2. <http://www.nhlbi.nih.gov/guidelines/cholesterol/index.htm>
3. Grundy SM, et al. Program Adult Treatment Panel III Guidelines Implications of Recent Clinical Trials for the National Cholesterol Education. *Circulation* 2004; 110:227-239.
4. Grundy SM. Low density lipoprotein, non-high density lipoprotein, and apolipoprotein B as targets for lipid-lowering therapy. *Circulation* 2002;106:2526-9.