



Memorandum - Core #222

To: UNC Medical Center Attending Physicians, Faculty Practice Physicians, Housestaff, Clinical Nurse Coordinators, Department Heads and Supervisors

From: *MCW* Herbert C. Whinna, MD, PhD, Medical Director, McLendon Clinical Laboratories
SWC Steven W. Cotten, PhD; Director, UNCCMC Automatic Chemistry Laboratory

Date: April 21, 2025

Subject: Standardization of Lipid Panel Reporting and updating LDL calculations

Effective 4/22/25 UNC Health will be standardizing the reporting of all lipid panels in EPIC and updating the equation used to estimate LDL Cholesterol. These changes reflect current best practices and align with recommendations from multiple professional societies.

Standard Guidelines for Reporting Lipids

Current Lipid Panel Naming	New Lipid Panel Naming	Adult Reference Range (mg/dL)*
Cholesterol	Cholesterol, Total	<200
HDL	Cholesterol, HDL	>50
LDL Calculated	Cholesterol, LDL, Calculated	<100
Non-HDL	Cholesterol, Non-HDL, Calculated	<130
Triglycerides	Triglycerides	<150
VLDL Calculated	<i>REMOVED</i>	
Chol/HDL Ratio	<i>REMOVED</i>	

*Reference ranges established by NCEP and carried forward by US multi-society guidelines

New Lipid Panel Naming	Pediatric Reference Ranges (mg/dL)
Cholesterol, Total	<170
Cholesterol, HDL	>45
Cholesterol, LDL, Calculated	<110
Cholesterol, Non-HDL, Calculated	<120

Triglycerides	2-9 years = <75 10-17 <90
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Estimation of LDL Cholesterol

Estimation of LDL Cholesterol will now use the “updated Sampson” equation instead of the Friedewald equation. This modern equation, generated by the NIH, provides improved accuracy for estimation of LDL across a range of triglyceride and HDL concentrations and better aligns with the reference method measurement for LDL. Additionally, the updated equation is more accurate than automated direct measurement of LDL (direct LDL assays are not standardized). With the updated Sampson equation, LDL can be accurately estimated with triglyceride concentrations up to 800 mg/dL. Therefore, it is no longer recommended that laboratories or physicians reflex to direct LDL measurement when triglycerides are >800 mg/dL. When triglyceride concentrations exceed 800 mg/dL, the primary therapeutic intervention should focus on lowering triglyceride levels rather than obtaining an LDL value.

Questions should be directed to Steven.Cotten@unchealth.unc.edu.

References:

Academy of Diagnostics and laboratory Medicine Guidance document on the measurement and reporting of lipids and Lipoproteins. PMID: 39225455
<https://pubmed.ncbi.nlm.nih.gov/39225455/>

An improved method for estimating low LDL-C based on the enhance Sampson-NIH equation. PMID: 38331834
<https://pubmed.ncbi.nlm.nih.gov/38331834/>

The Sampson-NIH Equation is the preferred Calculation Method for LDL-C
PMID: 38006320
<https://pubmed.ncbi.nlm.nih.gov/38006320/>