National Health and Nutrition Examination Survey

2011-2012 Data Documentation, Codebook, and Frequencies

Cholesterol - Total (TCHOL_G)

Data File: TCHOL_G.xpt

First Published: September 2013

Last Revised: NA

Component Description

The goals of this component are: 1) to monitor the prevalence and trends in major cardiovascular conditions and risk factors in the U.S.; and 2) to evaluate prevention and treatment programs targeting cardiovascular disease in the U.S. The main element of the cardiovascular disease laboratory component in NHANES is blood lipid levels. Cardiovascular disease is the leading cause of death in the United States. The data will be used to monitor the status of hyperlipidemia and the success of the National Cholesterol Education Program.

Eligible Sample

Participants aged 6 years and older were tested.

Description of Laboratory Methodology

Blood specimens were processed, stored, and shipped to University of Minnesota, Minneapolis, MN for analysis.

Detailed specimen collection and processing instructions are discussed in the NHANES Laboratory/Medical Technologists Procedures Manual (LPM). Vials are stored under appropriate frozen (−20°C) conditions until they are shipped to University of Minnesota for testing.

Roche Modular P chemistry analyzer

In this enzymatic method, esterified cholesterol is converted to cholesterol by cholesterol esterase. The resulting cholesterol is then acted upon by cholesterol oxidase to produce cholest-4-en-3-one and hydrogen peroxide. The hydrogen peroxide then reacts with 4-aminophenazone in the presence of peroxidase to produce a colored product that is measured at 505 nm (secondary wavelength = 700 nm). The final step is known as the Trinder reaction. This method is a single reagent, endpoint reaction that is specific for cholesterol.

Cholesterol, a steroid molecule with a hydroxyl group in the C3 position, is synthesized in many types of tissue, but mainly in the liver and intestinal wall. About 75 per cent of cholesterol is newly synthesized, with the remainder originating from dietary intake. Cholesterol measurement is performed to screen for atherosclerotic risk and in the diagnosis and treatment of disorders involving elevated cholesterol as well as lipid and lipoprotein metabolic disorders.

There were no changes (from the previous 2 years of NHANES) to equipment, lab methods, or lab site.

Detailed instructions on specimen collection and processing can be found in the NHANES Laboratory/Medical Technologists Procedures Manual (LPM)

Data Processing and Editing

The analytical methods are described in the *Description of Laboratory Methodology* section above.

One derived calculated variable was created in this data file. The formula for its derivation is as follows:

LBXTC and LBDTCSI:
The total cholesterol in mg/dL (LBXTC) was converted to mmol/L (LBDTCSI) by multiplying by 0.02586.

Laboratory Quality Assurance and Monitoring

The NHANES quality assurance and quality control (QA/QC) protocols meet the 1988 Clinical Laboratory Improvement Act mandates. Detailed QA/QC instructions are discussed in the NHANES Laboratory/Medical Technologists Procedures Manual (LPM).

Analytic Notes

Refer to the 2011-2012 Laboratory Data Overview for general information on NHANES laboratory data.

The analysis of NHANES 2011-2012 laboratory data must be conducted using the appropriate survey design and demographic variables. The NHANES 2011-2012 Demographics File contains demographic data, health indicators, and other related information collected during household interviews as well as the sample weight variables. The Fasting Questionnaire File includes auxiliary information such as fasting status, the time of venipuncture, and the conditions precluding venipuncture. The demographics and fasting questionnaire files may be linked to the laboratory data file using the unique survey participant identifier (i.e., SEQN).

In cases, where the result was below the limit of detection, the value for that variable is the detection limit divided by the square root of two.

Exam sample weights should be used for analyses. Please refer to the NHANES Analytic Guidelines and the on-line NHANES Tutorial for further details on the use of sample weights and other analytic issues.

References

- Package insert for C.F.A.S. Lipids, 2005.
- Roche/Hitachi Modular Analytics Operator's Manual, version 2.0, October 2006.
- Roche/Hitachi System Application Sheet for HDL-C plus 2nd generation, 2005.
- Roche/Hitachi System Application Sheet for HDL-C plus 3rd generation, 2007.

Codebook and Frequencies

SEQN - Respondent sequence number

Variable Name:	SEQN
SAS Label:	Respondent sequence number
English Text:	Respondent sequence number
Target:	Both males and females 6 YEARS - 150 YEARS

LBXTC - Total Cholesterol(mg/dL)

Variable Name: LBXTC

SAS Label: Total Cholesterol(mg/dL)

English Text: Total Cholesterol(mg/dL)

Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
59 to 523	Range of Values	6988	6988	
.	Missing	833	7821	

LBDTCSI - Total Cholesterol(mmol/L)

Variable Name: LBDTCSI

SAS Label: Total Cholesterol(mmol/L)

English Text: Total Cholesterol(mmol/L)

Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
1.53 to 13.52	Range of Values	6988	6988	
.	Missing	833	7821	