

**National Health and Nutrition
Examination Survey 2005–2006**

**Documentation, Codebook,
and Frequencies**

**Complete Blood Count with 5-Part
Differential in Whole Blood**

Laboratory

**Survey Years:
2005 to 2006**

**SAS Transport File:
CBC_D.XPT**



November 2007

NHANES 2005–2006 Data Documentation

Laboratory Assessment: Complete Blood Count with 5-Part Differential in Whole Blood (CBC_D)

First Published: November 2007

Last Revised: N/A

Component Description

The objectives of this component are to:

- 1) Provide data for monitoring secular trends in measures of nutritional status in the U.S. population;
- 2) Evaluate the effect of people's habits and behaviors such as physical activity and the use of alcohol, tobacco, and dietary supplements on people's nutritional status; and
- 3) Evaluate the effect of changes in nutrition and public health policies - including welfare reform legislation, food fortification policy, and child nutrition programs - on the nutritional status of the U.S. population.

These data will be used to estimate deficiencies and toxicities of specific nutrients in the population and subgroups, to provide population reference data, and to estimate the contribution of diet, supplements, and other factors to Whole Blood levels of nutrients. Data will be used for research to further define nutrient requirements as well as optimal levels for disease prevention and health promotion.

Eligible Sample

Participants aged 1 year and over were tested.

Description of Laboratory Methodology

The methods used to derive CBC parameters are based on the Beckman Coulter method of counting and sizing, in combination with an automatic diluting and mixing device for sample processing, and a single beam photometer for hemoglobinometry. The WBC differential uses VCS technology. See Chapter 7 of the NHANES Laboratory/Medical Technologists Procedures Manual (LPM) for details.

The Beckman Coulter MAXM instrument in the Mobile Examination Centers (MECs) produces a complete blood count on blood specimens and provides a distribution of blood cells for all participants.

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

A detailed description of the laboratory method used can be found on the NHANES website.

Laboratory Quality Control and Monitoring

The NHANES quality control and quality assurance protocols (QA/QC) meet the 1988 Clinical Laboratory Improvement Act mandates. Detailed quality control and quality assurance instructions are discussed in the NHANES LPM. Read the LABDOC file for detailed QA/QC protocols.

A detailed description of the quality assurance and quality control procedures can be found on the NHANES website.

Data Processing and Editing

Blood specimens were measured at the NHANES MECs. Detailed specimen collection and processing instructions are discussed in the NHANES LPM. Read the LABDOC file for detailed data processing and editing protocols. The analytical methods are described in the **Description of the Laboratory Methodology** section.

This file contains no top coding.

Five derived variables were created in this data file. The formula for their derivation is as follows:

$LBDLYMNO = LBXWBCSI * LBXLYPCT/100$ (round to 1 decimal)

$LBDMONO = LBXWBCSI * LBXMOPCT/100$ (round to 1 decimal)

$LBDNENO = LBXWBCSI * LBXNEPCT /100$ (round to 1 decimal)

$LBDEONO = LBXWBCSI * LBXEOPCT/100$ (round to 1 decimal)

$LBDBANO = LBXWBCSI * LBXBAPCT/100$ (round to 1 decimal)

Detailed instructions on specimen collection and processing can be found on the NHANES website.

Analytic Notes The analysis of NHANES 2005–2006 laboratory data must be conducted with the key survey design and basic demographic variables. The NHANES 2005–2006 Household Questionnaire Data Files contain demographic data, health indicators, and other related information collected during household interviews. They also contain all survey design variables and sample weights for these age groups. The phlebotomy file includes auxiliary information such as the conditions precluding venipuncture. The household questionnaire and phlebotomy files may be linked to the laboratory data file using the unique survey participant identifier SEQN.

References N/A

Locator Fields

Title: Complete Blood Count with 5-Part Differential in Whole Blood

Contact Number: 1-866-441-NCHS

Years of Content: 2005–2006

First Published: November 2007

Revised: N/A

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Complete Blood Count with 5-Part Differential in Whole Blood

Record Source: NHANES 2005–2006

Survey Methodology: NHANES 2005–2006 is a stratified multistage probability sample of the civilian non-institutionalized population of the U.S.

Medium: NHANES Web site; SAS transport files

**National Health and Nutrition Examination Survey
Codebook for Data Production (2005-2006)**

Laboratory Section:

**Complete Blood Count with 5-Part Differential in Whole Blood
(CBC_D)**

November 2007



SEQN	Target
	B(1 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	Respondent sequence number
English Text: Respondent sequence number.	
English Instructions:	

LBXWBCSI	Target
	B(1 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	White blood cell count (1000 cells/uL)
English Text: White blood cell count (1000 cells/uL)	
English Instructions:	

Code or Value	Description	Count	Cumulative	Skip to Item
2.3 to 55.9	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXLYPCT	Target
	B(1 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	Lymphocyte percent (%)
English Text: Lymphocyte percent (%)	
English Instructions:	

Code or Value	Description	Count	Cumulative	Skip to Item
5.3 to 86.6	Range of Values	8378	8378	
.	Missing	1062	9440	

LBXMOPCT	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Monocyte percent (%)			
English Text: Monocyte percent (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.6 to 39.8	Range of Values	8378	8378	
.	Missing	1062	9440	

LBXNEPCT	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Segmented neutrophils percent (%)			
English Text: Segmented neutrophils percent (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
6.6 to 92.7	Range of Values	8378	8378	
.	Missing	1062	9440	

LBXEOPCT	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Eosinophils percent (%)			
English Text: Eosinophils percent (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.1 to 32.9	Range of Values	8378	8378	
.	Missing	1062	9440	

LBXBAPCT	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Basophils percent (%)			
English Text: Basophils percent (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0 to 15.8	Range of Values	8378	8378	
.	Missing	1062	9440	

LBDLYMNO	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Lymphocyte number (1000 cells/uL)			
English Text: Lymphocyte number (1000 cells/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.4 to 48.4	Range of Values	8378	8378	
.	Missing	1062	9440	

LBDMONO	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Monocyte number (1000 cells/uL)			
English Text: Monocyte number (1000 cells/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0 to 3.2	Range of Values	8378	8378	
.	Missing	1062	9440	

LBDNENO	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Segmented neutrophils num (1000 cell/uL)			
English Text: Segmented neutrophils num (1000 cell/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.5 to 17.8	Range of Values	8378	8378	
.	Missing	1062	9440	

LBDEONO	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Eosinophils number (1000 cells/uL)			
English Text: Eosinophils number (1000 cells/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0 to 3.8	Range of Values	8378	8378	
.	Missing	1062	9440	

LBDBANO		Target		
		B(1 Yrs. to 150 Yrs.)		
Hard Edits		SAS Label		
		Basophils number (1000 cells/uL)		
English Text: Basophils number (1000 cells/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0 to 1.4	Range of Values	8378	8378	
.	Missing	1062	9440	

LBXRBCSI		Target		
		B(1 Yrs. to 150 Yrs.)		
Hard Edits		SAS Label		
		Red blood cell count (million cells/uL)		
English Text: Red blood cell count (million cells/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
2.44 to 7.08	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXHGB	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Hemoglobin (g/dL)			
English Text: Hemoglobin (g/dL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
5.8 to 19.3	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXHCT	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Hematocrit (%)			
English Text: Hematocrit (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
19.7 to 55.5	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXMCVSI	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Mean cell volume (fL)			
English Text: Mean cell volume (fL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
51.1 to 121.9	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXMCHSI	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Mean cell hemoglobin (pg)			
English Text: Mean cell hemoglobin (pg)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
14.7 to 42.8	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXMC	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	MCHC (g/dL)			
English Text: Mean cell hemoglobin concentration (g/dL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
28.8 to 39.5	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXRDW	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Red cell distribution width (%)			
English Text: Red cell distribution width (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
10.7 to 26.5	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXPLTSI	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Platelet count SI (1000 cells/uL)			
English Text: Platelet count SI (1000 cells/uL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
4 to 1000	Range of Values	8400	8400	
.	Missing	1040	9440	

LBXMPSI	Target			
	B(1 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Mean platelet volume (fL)			
English Text: Mean platelet volume (fL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
5 to 12.4	Range of Values	8400	8400	
.	Missing	1040	9440	