National Health and Nutrition Examination Survey

2015-2016 Data Documentation, Codebook, and Frequencies

HIV Antibody Test (HIV_I)

Data File: HIV_I.xpt

First Published: September 2017

Last Revised: NA

Component Description

The estimated prevalence of human immunodeficiency virus (HIV) infection in the United States population is an important measure of the extent of the medical and financial burden the nation faces due to this virus. The current NHANES (1999-present) and HIV antibody data from NHANES III (1988–94) serves as a baseline for monitoring the changes in the epidemic over time in the general population of the United States.

Eligible Sample

Examined participants aged 18–59 years were eligible.

Description of Laboratory Methodology

HIV antibody blood assay test results:

All specimens that are submitted for testing are serum and were collected according to the protocols presented in the Laboratory Quality Assurance and Monitoring section below. Specimens are initially tested using the GS Combo Ag/Ab Enzyme Immunoassay (EIA) (Bio-Rad Laboratories, Redmond, WA). This test detects antibodies to HIV-1 both groups M and O or HIV type 2 (HIV-2) or both. Additionally the assay simultaneously detects HIV-1 p24 antigen. Any specimen that is reactive in the initial test is retested in duplicate with the same assay. Initially reactive specimens that are reactive in either or both of the duplicates in the repeat testing are referred to as “repeatedly reactive.” Repeatedly reactive specimens are tested with the Multispot HIV-1/HIV-2 Rapid Test (Bio-Rad Laboratories, Redmond, WA) which both detects and differentiates antibodies to HIV-1 and HIV-2. Multispot results that are Indeterminate or that cannot be differentiated as HIV-1 or HIV-2 are further tested using the Hologic Aptima HIV-1 RNA Qualitative Assay to confirm HIV-1 infection. Refer to the Laboratory Method Files section for detailed description of the laboratory methods used.

There were changes to the laboratory methods for this component in the NHANES 2015-2016 cycle.

Laboratory Method Files

HIV-1/HIV-2 Serology testing (September 2017)

HIV Antibody / HIV-1/HIV-2 Differentiation Assay (September 2017)

HIV-1 RNA (September 2017)

Laboratory Quality Assurance and Monitoring

Serum samples are processed, stored, and shipped to the Laboratory Branch, Division of HIV/AIDS Prevention (DHAP) in the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), Centers for Disease Control and Prevention, Atlanta, GA for analysis.

Detailed instructions for specimen collection and processing are discussed in the NHANES Laboratory Procedures Manual (LPM). Vials are stored under appropriate frozen (–30°C) conditions until they are shipped to the Laboratory Branch for testing.

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 LPM.

Mobile Examination Centers (MECs)

Laboratory team performance is monitored using several techniques. NCHS and contract consultants use a structured quality assessment evaluation during visits to evaluate both the quality of the laboratory work and the quality-control procedures. Each laboratory staff member is observed for equipment operation, specimen collection and preparation; testing procedures and constructive feedback are given to each staff member. Formal retraining sessions are conducted annually to ensure that required skill levels were maintained.

Analytical Laboratories

NHANES uses several methods to monitor the quality of the analyses performed by the contract laboratories. In the MEC, these methods include performing blind split samples collected on “dry run” sessions. In addition, contract laboratories randomly perform repeat testing on 2% of all specimens.

Progress reports containing any problems encountered during shipping or receipt of specimens, summary statistics for each control pool, QC graphs, instrument calibration, reagents, and any special considerations are submitted to NCHS quarterly. The reports are reviewed for trends or shifts in the data. The laboratories are required to explain any identified areas of concern.

All QC procedures recommended by the manufacturers were followed. Reported results for all assays meet the DHAP Laboratory Branches’ quality control and quality assurance performance criteria for accuracy and precision.

Data Processing and Editing

The data were reviewed. Incomplete data or improbable values were returned to the performing laboratory for confirmation.

Analytic Notes

Refer to the 2015 - 2016 Laboratory Data Overview for general information on NHANES laboratory data.

Demographic and Other Related Variables

The analysis of NHANES laboratory data must be conducted using the appropriate survey design and demographic variables. The NHANES 2015-2016 Demographics File contains demographic data, health indicators, and other related information collected during household interviews as well as the sample design variables. The recommended procedure for variance estimation requires use of stratum and PSU variables (SDMVSTRA and SDMVPSU, respectively) in the demographic data file.

This laboratory data file can be linked to the other NHANES data files using the unique survey participant identifier (i.e., SEQN).

The serum specimens were initially tested by enzyme immunoassay (EIA). Repeatedly reactive samples were confirmed using the Multispot HIV-1/HIV-2 rapid test. If the initial EIA was

negative, the HIV result was coded as negative. If the EIA was positive and the rapid test was positive, the result was coded as positive for either HIV-1 and/or HIV-2 as indicated. If the EIA was positive but the rapid test was either negative, indeterminate or undifferentiated, the Hologic Aptima HIV-1 RNA qualitative assay was performed. If this assay was reactive, the result was coded as positive for HIV-1. If the EIA was repeatedly reactive but the rapid test was negative and the Hologic Aptima HIV-1 RNA qualitative assay was negative, the result was coded as negative. The full testing algorithm and interpretive criteria may be found in the NHANES LPM.

Detection Limits

Since this data is reported as qualitative data, the use of lower limit of detections (LLODs) isn't applicable.

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.

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 18 YEARS - 59 YEARS

LBXHIVC - HIV-1, 2 Combo Test

Variable Name: LBXHIVC

SAS Label: HIV-1, 2 Combo Test

English Text: HIV-1, 2 Combo Test

Target: Both males and females 18 YEARS - 59 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
1	HIV-1/2 Reactive	17	17	
2	HIV-1/2 Non-reactive	3644	3661	
.	Missing	265	3926	

LBXHIV1 - HIV-1

Variable Name: LBXHIV1

SAS Label: HIV-1

English Text: HIV-1 antibody

Target: Both males and females 18 YEARS - 59 YEARS

Hard Edits: to

Code or Value	Value Description	Count	Cumulative	Skip to Item
1	Reactive	16	16	
2	Non-reactive	1	17	
3	Indeterminate	0	17	
.	Missing	3909	3926	

LBXHIV2 - HIV-2

Variable Name: LBXHIV2

SAS Label: HIV-2

English Text: HIV-2 antibody

Target: Both males and females 18 YEARS - 59 YEARS

Hard Edits: to

Code or Value	Value Description	Count	Cumulative	Skip to Item
1	Reactive	0	0	
2	Non-reactive	17	17	
3	Indeterminate	0	17	
.	Missing	3909	3926	

LBXHNAT - HIV Confirmatory Test

Variable Name: LBXHNAT

SAS Label: HIV Confirmatory Test

English Text: HIV Confirmatory Test

Target: Both males and females 18 YEARS - 59 YEARS

Hard Edits: to

Code or Value	Value Description	Count	Cumulative	Skip to Item
1	Reactive for HIV-1	0	0	
2	Non-reactive for HIV-1	2	2	
.	Missing	3924	3926	