

National Health and Nutrition Examination Survey 2003-2004

Documentation, Codebook, and Frequencies

MEC Laboratory Component:
Prostate Specific Antigen (PSA)
Exclusion Questions and Lab
Results

Survey Years:
2003 to 2004

SAS Export File:
L11PSA_C.XPT



February 2006

NHANES 2003–2004 Data Documentation

Laboratory Assessment: Lab 11PSA - Prostate-specific Antigen (PSA)

Years of Coverage: 2003–2004

First Published: February 2006

Last Revised: N/A

Component Description

Prostate cancer is the most common non-skin malignancy among men, with approximately 180,000 new cases diagnosed and 37,000 deaths in 1999. The total and free prostate-specific antigen (PSA) tests have been recognized as tumor markers for the screening, diagnosis, and management of prostate cancer.

Total and free PSAs were measured among men age 40 years and older. PSA exclusion questions (KIQ115, KIQ185, KIQ190, KIQ195, KIQ201, KIQ241, KIQ281, KIQ301, and KIQ311) were asked during the physician's examination. PSA immunoassay was performed on blood specimens using the Hybritech tests (Beckman Coulter, Fullerton, CA).

Eligible Sample

Male participants aged 40 years and older were tested for PSA. Those who reported having any of the following conditions were not eligible for PSA testing:

- Current infection or inflammation of the prostate gland (KIQ115)
- Rectal exam in the past week (KIQ185)
- Prostate biopsy in the past month (KIQ190)
- Cystoscopy in the past month (KIQ195)
- History of prostate cancer (KIQ201)

Description of Laboratory Methodology

Free PSA

The Access Hybritech free PSA assay is a two-site immuno-enzymatic "sandwich" assay. A sample was added to a reaction vessel with mouse monoclonal anti-free PSA alkaline phosphatase conjugate, and paramagnetic particles coated with a second mouse monoclonal anti-free PSA antibody. The free PSA in the sample bound to the immobilized monoclonal anti-free PSA on the solid phase, while at the same time, the monoclonal anti-PSA conjugate reacted with a different antigenic site on the sample free PSA. Separation in a magnetic field and washing removes material not bound to the solid phase. A chemiluminescent substrate, Lumi-Phos 530 was added to the reaction vessel, and light generated by the reaction was measured with a luminometer. The light production was proportional to the concentration of free PSA in the sample. The amount of analyte in the sample was determined by means of a stored, multi-point calibration curve.

Total PSA

Total PSA values were obtained using the Hybritech PSA method on the Beckman Access. A second sample was added to a reaction vessel with mouse monoclonal anti-PSA alkaline phosphatase conjugate and paramagnetic particles coated with a second mouse monoclonal anti-PSA antibody. The PSA in the sample bound to the immobilized monoclonal anti-PSA on the solid phase while, at the same time, the monoclonal anti-PSA conjugate reacted with a different antigenic site on the sample PSA. The light production was proportional to the concentration of PSA in the sample.

PSA ratio

This ratio was calculated by dividing the free PSA by the total PSA:

$$\text{LBDP3} = \text{round} ((\text{LBXP2}/\text{LBXP1}) * 100)$$

There were no changes to the equipment, lab method, 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 Laboratory/Medical Technologists Procedures Manual (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 are processed, stored and shipped to University of Washington, Seattle, WA. 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 Analytic methodology section.

Because of a potential disclosure risk, the KID221 question was recoded by creating an "85 or greater" response category. Any participant reported as being diagnosed with prostate cancer at age 85 years or older was recoded to an "85 or greater" years response.

One derived variable was created in this data file. This PSA ratio was

calculated by dividing the free PSA by the total PSA:

$$\text{LBDP3} = \text{round} ((\text{LBXP2}/\text{LBXP1}) * 100).$$

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

Analytic Notes

The analysis of NHANES 2003–2004 laboratory data must be conducted with the key survey design and basic demographic variables. The NHANES 2003–2004 Questionnaire Data Files contain demographic data, health indicators, and other related information collected during household interview and MEC examination. They also contain 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.

Data on health conditions that would make a sample person ineligible for PSA testing are missing for some people with non-missing PSA lab data. This omission exists mainly because some sample persons did not attend the physician's examination component of the MEC examination where such data were collected. It is advisable to exclude these observations for PSA analyses.

References

N/A

Locator Fields

Title: Prostate-specific antigen (PSA)

Contact Number: 1-866-441-NCHS

Years of Content: 2003–2004

First Published: February 2006

Revised: N/A

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Prostate specific antigen (PSA)

Record Source: NHANES 2003–2004

Survey Methodology: NHANES 2003–2004 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 (2003-2004)**

**Prostate Specific Antigen (PSA) Exclusion Questions and Lab Results (L11PSA_C)
Person Level Data**

February 2006



SEQN	Target
Hard Edits	M(40 Yrs. to 150 Yrs.)
	SAS Label
	Respondent sequence number
English Text: Respondent sequence number.	
English Instructions:	

KIQ110	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Willing to have blood tested for PSA			
English Text: Are you willing to have your blood tested for PSA?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	1381	1381	
2	No	33	1414	End of Section
7	Refused	0	1414	
9	Don't know	2	1416	
.	Missing	91	1507	

KIQ115	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Infection or inflammation of prostate			
English Text: {Do you/does SP} have an infection or inflammation of the prostate gland at the present time?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	14	14	
2	No	1353	1367	
7	Refused	0	1367	
9	Don't know	13	1380	
.	Missing	127	1507	

KIQ185	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Rectal exam in the last 7 days			
English Text: {Have you/Has SP} had a rectal exam in the last 7 days?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	21	21	
2	No	1359	1380	
7	Refused	0	1380	
9	Don't know	0	1380	
.	Missing	127	1507	

KIQ190	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Prostate biopsy in the last 4 weeks			
English Text: {Have you/Has SP} had a prostate biopsy in the last 4 weeks?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	2	2	
2	No	1376	1378	
7	Refused	0	1378	
9	Don't know	1	1379	
.	Missing	128	1507	

KIQ195	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Cystoscopy in the last 4 weeks			
English Text: {Have you/Has SP} had a cystoscopy in the last 4 weeks? (Cystoscopy is an internal examination of the prostate and bladder using a flexible tube-like instrument with a lens inserted through the penis.)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	3	3	
2	No	1376	1379	
7	Refused	0	1379	
9	Don't know	0	1379	
.	Missing	128	1507	

KIQ201	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Diagnosed with prostate cancer			
English Text: {Have you/Has SP} ever been told by a doctor or health professional that {you/he} had prostate cancer?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	57	57	
2	No	1322	1379	End of Section
7	Refused	0	1379	End of Section
9	Don't know	0	1379	End of Section
.	Missing	128	1507	

KID221	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Age at diagnosis of prostate cancer			
English Text: How old {were you/was SP} when {you were/he was} first told that {you/he} had prostate cancer?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
Age at diagnosis of prostate cancer	Value was recorded	56	56	
777	Refused	0	56	
999	Don't know	0	56	
< blank >	Missing	1451	1507	

KIQ241	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Ever had prostate surgery			
English Text: {Have you/Has SP} ever had surgery on {your/his} prostate?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	33	33	
2	No	24	57	KIQ301
7	Refused	0	57	KIQ301
9	Don't know	0	57	KIQ301
.	Missing	1450	1507	

KIQ281	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Was surgery for prostate cancer?			
English Text: Was the surgery for cancer of the prostate gland?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	30	30	
2	No	3	33	
7	Refused	0	33	
9	Don't know	0	33	
.	Missing	1474	1507	

KIQ301	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Radiation treatment for prostate cancer			
English Text: {Have you/Has SP} ever had radiation treatments for prostate cancer?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	24	24	
2	No	33	57	
7	Refused	0	57	
9	Don't know	0	57	
.	Missing	1450	1507	

KIQ311	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Taken medicines for prostate cancer			
English Text: {Have you/Has SP} ever taken prescribed medicines for prostate cancer?				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	19	19	
2	No	37	56	
7	Refused	0	56	
9	Don't know	1	57	
.	Missing	1450	1507	

LBXP1	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	PSA. total (ng/mL)			
English Text: Prostate specific antigen, total (ng/mL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.2 to 72.7	Range of Values	1301	1301	
0.1	Below Limit of Detection	20	1321	
.	Missing	186	1507	

LBXP2	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	PSA, free (ng/mL)			
English Text: Prostate specific antigen (PSA), free (ng/mL)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.05 to 5.27	Range of Values	1299	1299	
0.04	Below Limit of Detection	22	1321	
.	Missing	186	1507	

LBDP3	Target			
	M(40 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Prostate specific antigen ratio (%)			
English Text: Prostate specific antigen ratio (%)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
4 to 100	Range of Values	1321	1321	
.	Missing	186	1507	