

National Health and Nutrition Examination Survey 2003-2004

Documentation, Codebook, and Frequencies

MEC Exam Component: Body Measures Examination Data

**Survey Years:
2003 to 2004**

**SAS Export File:
BMX_C.XPT**



November 2005

NHANES 2003–2004 Data Documentation

Exam Component: Body Measures (BMX_C)

Years of Coverage: 2003–2004

First Published: November 2005

Last Revised: N/A

Component Description

NHANES body measures data are used to:

- estimate the prevalence of overweight and obesity in the U.S. population;
- study the association between body measures and NHANES body composition assessments;
- study health conditions and health-risk factors and conditions, including cardiovascular disease, diabetes, hypertension, physical inactivity, and dietary patterns; and
- monitor growth and development in infants and children.

The target age groups for the NHANES 2003–04 body measurement assessments are as follows:

Body weight:	All ages
Recumbent length:	0–47 months
Standing height:	2+ years
Upper leg length:	8+ years
Upper arm length:	2+ months
Head circumference:	0–6 months
Mid-upper arm circumference:	2+ months
Waist circumference:	2+ years
Mid-thigh circumference:	8+ years
Maximal calf circumference:	8+ years
Triceps skin fold:	2+ months
Sub scapular skin fold:	2+ months

Eligible Sample

All survey participants are eligible for the body measurement component. There were no medical, safety, or other exclusions for the body measurements protocol. For persons who used a wheelchair, the health technicians used their discretion to obtain as many measures as practical. No changes have been made to the NHANES body measurement protocol since the continuous NHANES began in 1999.

Protocol and Procedure

The body measurement assessments performed on survey participants varied according to the age of the survey participant. The body measurement protocol used age at the time of the screening interview. In some instances, several weeks elapsed between the initial screening interview and the health examination visit. The Demographics Data File includes an age variable for age at examination (RIDAGEEX).

Arm and leg measurements were made on the right side of the body. If an examinee had an amputation, medical condition, or medical appliance such as a cast that prevented measurements from being taken on the right side of the body, the examiner took measurements on the left side. The body measurements file does not identify persons with amputations due to data disclosure concerns. Body weight data for individuals who had limb amputations were excluded from the release file. This data set includes body measurements for women who were pregnant at the time of the exam. Pregnancy status is denoted by the Demographic Data File variable, RIDEXPRG. RIDEXPRG denotes pregnancy status for 8–59 year old females at the time of the health examination. Please refer to the Demographics File documentation for important information about the pregnancy status recode variables that were included in the NHANES 1999–2000, NHANES 2001–2002, and NHANES 2003–2004 public data files.

For general guidelines on standard procedures that were followed for the anthropometric measures, please refer to the Anthropometric Standardization Reference Manual (1). The body measurement techniques used in the survey are illustrated in the NHANES III Anthropometric Procedures Video. The video demonstrates the NHANES III anthropometric procedures in detail. The NHANES III video illustrates the proper technique for all of the measures taken in NHANES 2003–04 except the maximum calf circumference measurement. The video is available for purchase from the U.S. Government Printing Office.

For the procedures relevant to this component, please refer to NHANES website to obtain the Survey Operations Manual, Consent Documents, and brochures.

Quality Assurance & Quality Control

The NHANES health technicians completed a 2-day training program to learn the body measurement protocol. The training included an overview of the component using the NHANES III anthropometry videotape, demonstration by an expert examiner, and supervised practice exercises with an expert examiner and practice subjects of different ages. Health technician performance in the field was monitored using direct observation, data reviews, and expert examiner evaluations. The mobile examination centers (MECs) provided a standardized

environment for the collection of high quality data. As part of their required duties, the health technicians verified body measurement instrument calibration in the field; a schedule for performing the equipment calibration checks is monitored. Data entry errors were reduced through the use of automated data entry methods. Please refer to the Body Measures Component Manual for a detailed description of the quality assurance and control measures used in NHANES.

Data Processing and Editing

Data were reviewed for unusual and erroneous values. The initial checks used range criteria that were based on the NHANES III or NHANES 1999–2002 body measures data. Range checks for infants under 2 months of age were based on NHANES 1999–2002 because the NHANES III dataset does not include infants less than 2 months of age. The range checks for persons 2 months of age and older were based on NHANES III. During the data review, values that were above the 99th percentile or below the 1st percentile for a particular age or age-gender group were flagged for review. When records were flagged, the entire body measurements record was reviewed for reasonableness subject characteristics such as height, weight, age and gender were taken into consideration. Values that were unrealistic were deleted from this file. Unusual, but plausible values were flagged. The variable list includes the flag variables. Analysts may wish to review the flagged records to determine if they should be included in their analysis. No body measures data were changed and there are no imputed values in this file.

Analytic Notes

Component status code: NCHS added a final body measures component status code (BMDSTAT) to the NHANES 2003–2004 file to provide analysts with a quick method of determining complete and partial body measures examination records.

Flag Variables: The flag variables in this file denote unusual values were noted during data review. Typically, unusual values occurred when a subject was extremely short, tall, overweight or underweight. Analysts may wish to review the flagged values prior to analyzing the data.

Comment Codes: Comment codes were noted by the health technicians during data collection. The comment codes were added to document problems or situations that prevented a measurement from being taken altogether or situations that could modify the results reported. For example, the variable BMIWT is a body weight comment code. If a subject did not change into the exam gown and wore their own clothing instead, a code of BMIWT of '3' denoting 'clothing worn' was made.

Analysts should review the comment code information prior to analyzing the data.

Sample Weights: The examination sample weights should be used to analyze the body measurement data. Please refer to the NHANES Analytic Guidelines document for guidance on the use of the sample weights.

References

1. Lohman TG, Roche AF, Martorell R, editors. Anthropometric Standardization Reference Manual. Abridged ed. Champaign, IL: Human Kinetics Books; 1988.
2. Centers for Disease Control and Prevention, National Center for Health Statistics. NHANES III Anthropometric Procedures Video. The video is available for purchase from the U.S. Government Printing Office.

Locator Record

Title: Body Measures

Contact Number: 1-866-441-NCHS

Years of Content: 2003–2004

First Published: November 2005

Revised: N/A

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Body Measures

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)**

**MEC Examination
Body Measurements (BMX_C)
Person Level Data**

November 2005



SEQN	Target
	B(0 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	Respondent sequence number
English Text: Respondent sequence number.	
English Instructions:	

BMDSTATS	Target			
	B(0 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Body Measures Component Status Code			
English Text: Body Measures Component status Code				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Complete data for age group	7766	7766	
2	Partial: Height and weight obtained	207	7973	
3	Other partial exam	1573	9546	
4	No body measures exam data	97	9643	
.	Missing	0	9643	

BMDRECUF	Target			
	B(0 Mos. to 47 Mos.)			
Hard Edits	SAS Label			
	Height-Length difference flagged			
English Text: The difference between BMXRECUM and BMXHT for children 24-47 months is > 2.5cm.				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Difference between recumbent length and standing height was greater than 2.5 cm	27	27	
.	Missing	9616	9643	

BMDSUBF	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
	Unusual value noted during data review			
English Text: Unusual value noted during data review of BMXSUB				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Unusual value noted during data review	1	1	
.	Missing	9642	9643	

BMDTHICF	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Unusual value noted during data review			
English Text: Unusual value noted during data review of BMXTHICM				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Unusual value noted during data review	3	3	
.	Missing	9640	9643	

BMDLEGF	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Unusual value noted during data review			
English Text: Unusual value noted during data review of BMXLEG				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Unusual value noted during data review	14	14	
.	Missing	9629	9643	

BMDARMLF	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
	Unusual value noted during data review			
English Text: Unusual value noted during data review of BMXARML				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Unusual value noted during data review	5	5	
.	Missing	9638	9643	

BMDCALFF	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Unusual value noted during data review			
English Text: Unusual value noted during data review of BMXCALF				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Unusual value noted during data review	3	3	
.	Missing	9640	9643	

BMXWT	Target			
	B(0 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 440.0000	Weight (kg)			
English Text: Weight (kg)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
2.4 to 209.1	Range of Values	9529	9529	
.	Missing	114	9643	

BMIWT	Target			
	B(0 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Weight Comment			
English Text: Weight Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	24	24	
2	Exceeds capacity	0	24	
3	Clothing	338	362	
4	Medical appliance	17	379	
.	Missing	9264	9643	

BMXRECUM	Target			
	B(0 Mos. to 47 Mos.)			
Hard Edits	SAS Label			
16.0000 to 119.3000	Recumbent Length (cm)			
English Text: Recumbent Length (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
44.3 to 111.2	Range of Values	1230	1230	
.	Missing	8413	9643	

BMIRECUM	Target			
	B(0 Mos. to 47 Mos.)			
Hard Edits	SAS Label			
	Recumbent Length Comment			
English Text: Recumbent Length Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	38	38	
2	Exceeds capacity	0	38	
3	Not straight	0	38	
.	Missing	9605	9643	

BMXHEAD	Target			
	B(0 Mos. to 6 Mos.)			
Hard Edits	SAS Label			
00.0000 to 99.9999	Head Circumference (cm)			
English Text: Head Circumference (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
32.3 to 47.8	Range of Values	269	269	
.	Missing	9374	9643	

BMIHEAD	Target			
	B(0 Mos. to 6 Mos.)			
Hard Edits	SAS Label			
	Head Circumference Comment			
English Text: Head Circumference Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	1	1	
2	Exceeds capacity	0	1	
3	Not straight	0	1	
.	Missing	9642	9643	

BMXHT	Target			
	B(2 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
79.0000 to 208.4000	Standing Height (cm)			
English Text: Standing Height (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
79.7 to 204.4	Range of Values	8690	8690	
.	Missing	953	9643	

BMIHT	Target			
	B(2 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Standing Height Comment			
English Text: Standing Height Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	62	62	
2	Exceeds capacity	0	62	
3	Not straight	201	263	
.	Missing	9380	9643	

BMXBMI	Target			
	B(2 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Body Mass Index (kg/m**2)			
English Text: Body Mass Index (kg/m**2)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
12.4 to 64.97	Range of Values	8687	8687	
.	Missing	956	9643	

BMXLEG	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 200.0000	Upper Leg Length (cm)			
English Text: Upper Leg Length (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
24.7 to 54	Range of Values	7219	7219	
.	Missing	2424	9643	

BMILEG	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Upper Leg Length Comment			
English Text: Upper Leg Length Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	322	322	
.	Missing	9321	9643	

BMXCALF	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 200.0000	Maximal Calf Circumference (cm)			
English Text: Maximal Calf Circumference (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
17.5 to 70.5	Range of Values	7270	7270	
.	Missing	2373	9643	

BMICALF	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Maximal Calf Comment			
English Text: Maximal Calf Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	273	273	
.	Missing	9370	9643	

BMXARML	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 200.0000	Upper Arm Length (cm)			
English Text: Upper Arm Length (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
9 to 48	Range of Values	9190	9190	
.	Missing	453	9643	

BMIARML	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
	Upper Arm Length Comment			
English Text: Upper Arm Length Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	249	249	
.	Missing	9394	9643	

BMXARMC	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 200.0000	Arm Circumference (cm)			
English Text: Arm Circumference (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
10.8 to 58.8	Range of Values	9187	9187	
.	Missing	456	9643	

BMIARMC	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
	Arm Circumference Comment			
English Text: Arm Circumference Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	251	251	
.	Missing	9392	9643	

BMXWAIST	Target			
	B(2 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 200.0000	Waist Circumference (cm)			
English Text: Waist Circumference (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
32 to 170.7	Range of Values	8397	8397	
.	Missing	1246	9643	

BMIWAIST	Target			
	B(2 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Waist Circumference Comment			
English Text: Waist Circumference Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	319	319	
.	Missing	9324	9643	

BMXTHICR	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 200.0000	Thigh Circumference (cm)			
English Text: Thigh Circumference (cm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
28 to 94.8	Range of Values	7194	7194	
.	Missing	2449	9643	

BMITHICR	Target			
	B(8 Yrs. to 150 Yrs.)			
Hard Edits	SAS Label			
	Thigh Circumference Comment			
English Text: Thigh Circumference Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	338	338	
.	Missing	9305	9643	

BMXTRI	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 45.0000	Triceps Skinfold (mm)			
English Text: Triceps Skinfold (mm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
2.8 to 44.6	Range of Values	8586	8586	
.	Missing	1057	9643	

BMITRI	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
	Triceps Skinfold Comment			
English Text: Triceps Skinfold Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	548	548	
2	Exceeds capacity	302	850	
3	Hard to obtain	0	850	
.	Missing	8793	9643	

BMXSUB	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
0.0000 to 45.0000	Subscapular Skinfold (mm)			
English Text: Subscapular Skinfold (mm)				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
3 to 41.9	Range of Values	8065	8065	
.	Missing	1578	9643	

BMISUB	Target			
	B(2 Mos. to 150 Yrs.)			
Hard Edits	SAS Label			
	Subscapular Skinfold Comment			
English Text: Subscapular Skinfold Comment				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Could not obtain	1283	1283	
2	Exceeds capacity	90	1373	
3	Hard to obtain	0	1373	
.	Missing	8270	9643	