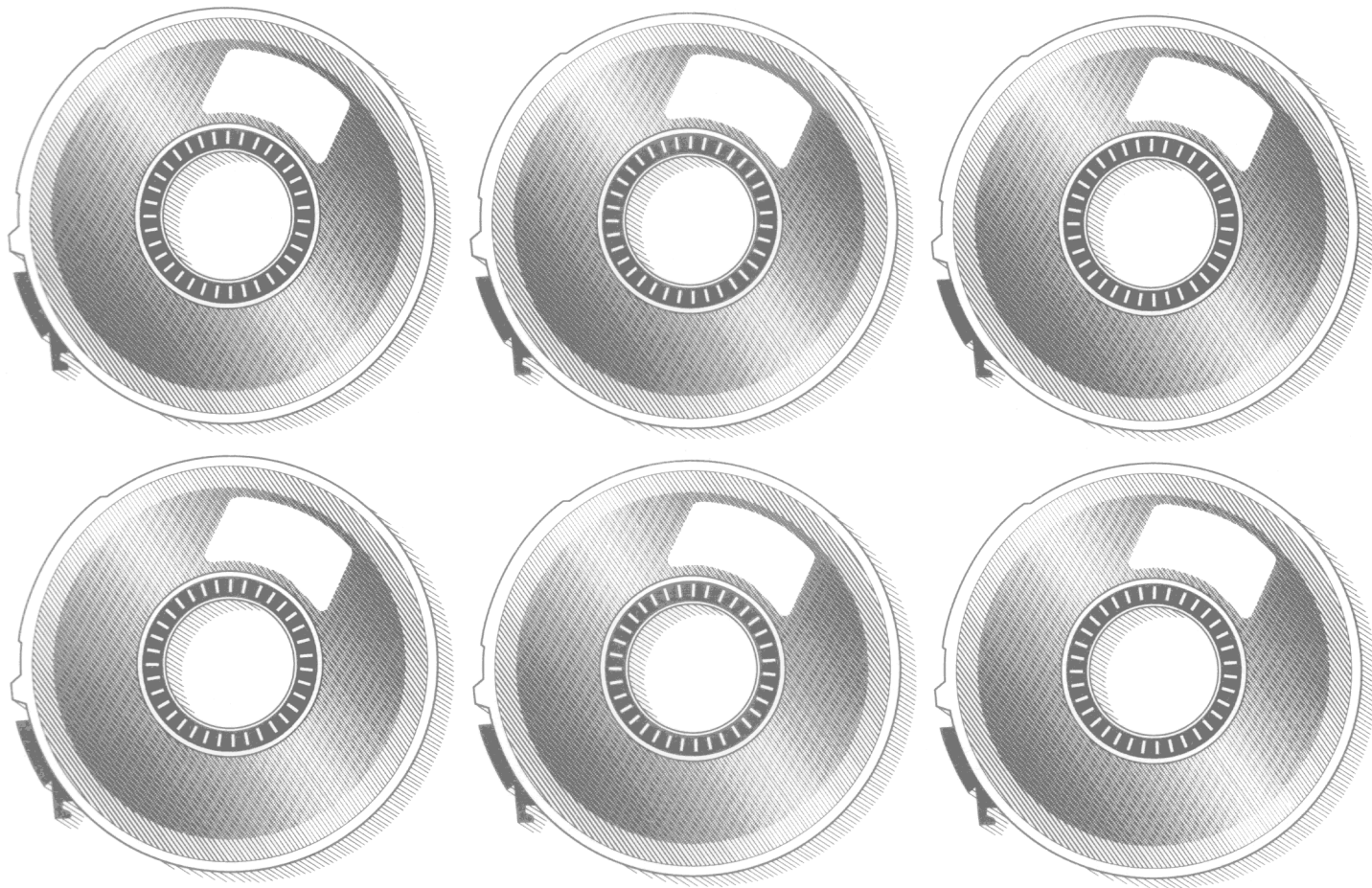


Public Use Data Tape Documentation

Biochemistry, Serology, Hematology,
Blood Slides, Urine Dipst.
Tape Number 4800

Version 2 (Reprint)

National Health and Nutrition Examination Survey, 1971-75



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control

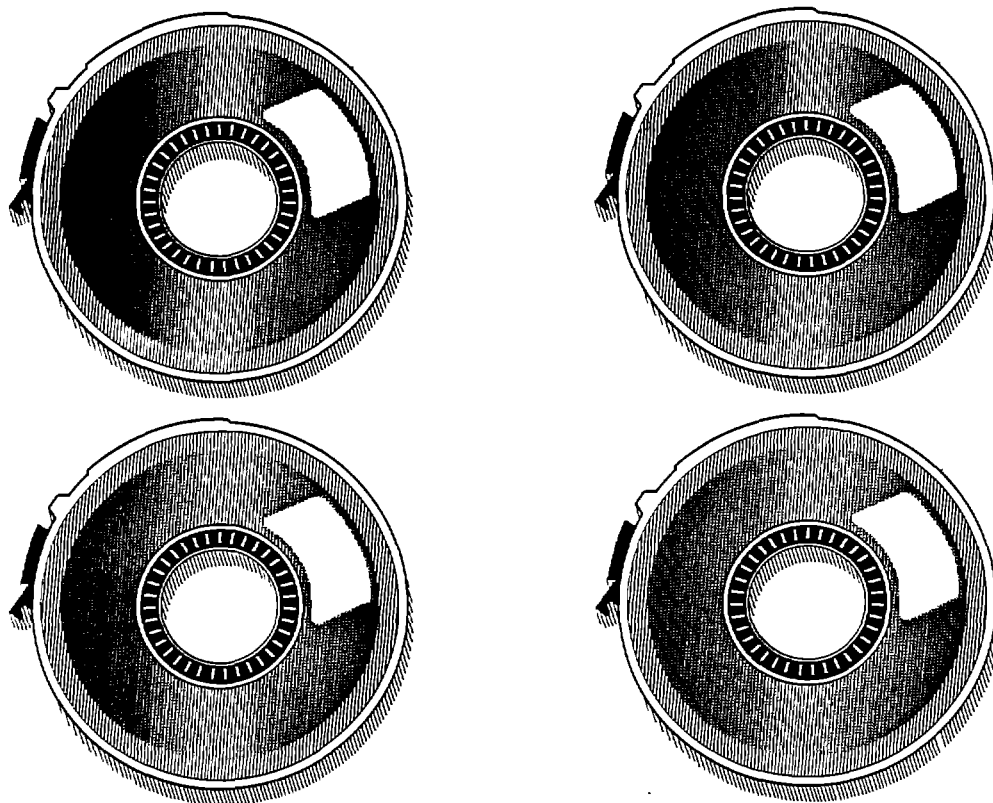
CDC
CENTERS FOR DISEASE CONTROL

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Center for Health Statistics

Hyattsville, MD
Reprinted October 1991

The data compilation and documentation necessary for the Biochemistry, Serology, Hematology, and Peripheral Blood Slides Data Tape were done by Clifford Johnson, Robinson Fulwood, Dale Hitchcock, Matthew Najjar, Everette Collins, Sidney Abraham, Arnold Engel and Evelyn Stanton of the Division of Health Examination Statistics, National Center for Health Statistics. A special note of gratitude is due Eugene Sides and Carol Flaherty who patiently typed and retyped this material.

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BIOCHEMISTRY, SEROLOGY, HEMATOLOGY, AND PERIPHERAL BLOOD SLIDES

Health and Nutrition Examination Survey, HANES I, 1971-1975

Description of Survey: A detailed description of the design, content and operation of HANES I is provided in the following reports: Plan and Operation of the Health and Nutrition Examination Survey, DHEW Pub. No. (HSM) 73-1310, Series 1, Nos. 10a and 10b, Public Health Service, Washington, D. C., U. S. Government Printing Office, February 1973. Also provided is a draft report on the augmentation survey of adults describing the relevant field work conducted between July 1974 and October 1975.

Target Population: HANES I was conducted on a nationwide probability sample of approximately 32,000 persons, ages 1-74 years, from the civilian, noninstitutionalized population of the coterminous United States, excepting those persons residing on Indian reservations. The survey started in April 1971 and for many survey components was completed in June 1974. The HANES I sample was selected so that certain population groups thought to be at high risk of malnutrition (persons with low incomes, preschool children, women of childbearing age and the elderly) were oversampled at known rates. Adjusted sampling weights were then computed within 60 age, sex and race categories in order to inflate the sample in such a manner as to closely reflect the noninstitutionalized population, ages 1-74 years, of the United States at the midpoint of the survey.

Although the main emphasis of HANES I was on nutrition, a subset of those sample persons aged 25-74 received a more detailed health examination which was continued through October 1975. No particular oversampling of subgroups of the population was done in this subsample (e.g., women of childbearing age were not oversampled as they were for the major nutrition component of HANES I). This subsample is also representative of the United States population aged 25-74 during the time of HANES I.

After the nutrition survey was completed, the detailed examination given to the 25-74 age group was continued until the total number of examined persons was approximately double the number of examinees who received the detailed examination during the nutrition survey.

In order to produce national estimates of the nutritional status of the U. S. population at an earlier date, a probability subsample of 35 stands of the 65 Primary Sampling Units (PSU's) was selected. This subsample also made it possible to produce national estimates of certain other aspects of health status in the population that were critically needed at an earlier date and examination components that for logistic reasons could not be continued for the remainder of the 65 PSU's. Included among the 35 PSU's were 10 of the 15 large certainty metropolitan areas and 1 PSU from each of the 25 noncertainty superstrata. The reduction from 15 to 10 large metropolitan areas was accomplished by randomly selecting one PSU from multiple-PSU standard metropolitan statistical areas; e.g., selecting the southern half of the Chicago

SMSA to represent the entire SMSA. (This selection procedure was based on operational considerations, and although unbiased, is recognized as not being statistically optimal.)

Data Collection: Information for all examined sample persons in HANES I was obtained by means of a household interview, a general medical history, a 24-hour dietary intake recall interview, a food frequency interview, a food program questionnaire, a general medical examination, dental, dermatological and ophthalmological examinations, anthropometric measurement, hand-wrist x-rays (of those ages 1-17 only) and 24 hematological, blood chemistry, and urological laboratory determinations.

In addition to the information received on all examined persons by means of the above questionnaires, procedures and measurements, the following data were gathered on the subsample of adults aged 25-74: a medical history supplement; supplementary questionnaires concerning arthritis, respiratory and cardiovascular conditions (when applicable); a health care needs questionnaire; a general well-being questionnaire; an extended medical examination; x-rays of the chest and hip and knee joints, audiometry; electrocardiography; goniometry; spirometry; pulmonary diffusion and tuberculin tests, along with additional laboratory determinations.

Use of HANES Data

With the goal of mutual benefit, NCHS requests the cooperation of recipients of data tapes in certain actions related to their use:

- A. Any published material derived from the data should acknowledge the National Center for Health Statistics as the original source. It should also include a disclaimer which credits any analyses, interpretations, or conclusions reached to the author (recipient of the tape) and not to NCHS, which is responsible only for the initial data.
- B. Consumers who wish to publish a technical description of the data will make a reasonable effort to insure that the description is not inconsistent with that published by NCHS. This does not mean, however, that NCHS will review such descriptions.

Errors in the Data Sets and Survey Differences

The data users' tapes have been subjected to a great deal of careful editing. However, due to the large volume of data in the series, it is likely that a small number of errors or discrepancies remain undetected. We would appreciate if any such errors are detected that they be brought to our attention so that new corrected copies of the tape can be created and errata sheets issued to previous purchasers.

Some of the continuous data items have extremely high or low values and we have verified that they do in fact appear that way on the hard documents; that is, we have verified that the values have not been incorrectly keyed.

In general, we have not attempted to resolve any differences that may exist between estimates derived from the various subsamples of HANES I. Nor have we made any comparisons between estimates from HANES I and previous surveys conducted by the Division of Health Examination Statistics.

Missing Data

Examination surveys are subject to the loss of information not only through the failure to examine all sample persons but also from the failure to obtain and record all items of information for examined persons. Other information obtained from the examined persons may subsequently be determined to be of unacceptable quality and excluded from the final data.

In order to provide national probability estimates for selected biochemical determinations from the first 65 locations of HANES, a procedure was developed to estimate the missing determinations for a sample person. Estimates were made for missing data on the basis of selecting another examined sample person of a similar age, sex, race, and location, and substituting that person's values for the missing items of data. All values imputed using this procedure have been indicated so by a special imputation code on the data tape. This method of imputing missing data has not been used at this time for locations 66-100 of HANES.

For children less than four years of age, the number of missing values was too great to use the previously defined imputation procedure. Therefore, all missing data for these children were not imputed but left as missing but applicable.

Variance Estimation

Because the Health and Nutrition Examination Survey is based upon a complex sample design, the assumptions of many statistical tests and routinely available statistical programs are not met. For this reason, when estimates of the variances of statistics from HANES are computed, the technique of estimation must be based upon complex sampling theory. In order to provide the user with the capability of estimating the complex sample variances, we have provided Strata and Primary Sampling Unit (PSU) codes on the HANES user tapes in tape positions 194-198. However, these codes are suitable for making variance estimates only for examination locations 1-65 and 1-100. To compute variance estimates for examination locations 1-35 or 66-100, it is necessary to recode the current Strata-PSU codes according to the specifications that follow. The resultant recoded Strata-PSU codes should be used only for locations 1-35 and 66-100.

One computer program that should be widely available sometime around the summer of 1978 as part of the Statistical Analysis System (available from the SAS Institute, Inc., Post Office Box 10066, Raleigh, North Carolina 27605) is capable of using the Strata-PSU codes provided for HANES to compute complex sample variances. Other programs may also be available.

In those Strata, referred to as certainty or self-representing Strata, the PSU codes are actually the segment numbers. Neither the Strata codes nor the PSU codes are the original codes used in the formation of the HANES sample design, but are none-the-less a unique recoding of the original codes. For further discussion of the sample design of HANES, the user should consult the publications of the National Center for Health Statistics-- Series 1-Nos. 10a and 14 and the detailed note for tape positions 158-193.

Recode Specifications for Strata-PSU Codes

First.--Create a file with only those records in the file for examination locations 1-35.*

Second.--Retain the original Strata-PSU codes in Strata 7-10 and 13 in the original form as the recoded Strata-PSU codes.

Third.--Recode the remaining strata according to the chart below.

Fourth.--Repeat the process for examination locations 66-100.*

<u>Old Strata #</u> <u>(tape positions 194-195)</u>	<u>New Strata #</u>	<u>New PSU #</u>
01	01	001
02	01	002
03	03	001
06	03	002
04	04	001
05	04	002
11	11	001
12	11	002
14	14	001
21	14	002
15	15	001
16	15	002
17	17	001
20	17	002
18	18	001
19	18	002
22	22	001
25	22	002
23	23	001
24	23	002
26	26	001
27	26	002
28	28	001
29	28	002
30	30	001
35	30	002
31	31	001
32	31	002
33	33	001
34	33	002

*See detailed note for tape positions 158-193.

TAPE CHARACTERISTICS

Title: Biochemistry, Serology, Hematology, Peripheral Blood Slides and
Urinary Data

Catalog Number: 4800

Data Set Name: HEHANESI.DU480011

Record Length: 600

Blocksize: 4200

Number of Records: 23808

Number of Reels: Varying

Recording Mode: Fixed Block, EBCDIC

Channel: 9 Track

Created by: Division of Health Examination Statistics
National Center for Health Statistics
Hyattsville, Maryland

General Notes

Asterisks on the Tape Description: Some of the data items were obtained only for a particular subsample of HANES. Consequently some of these items appear to have a great deal of missing data (coded as BLANK) due to nonresponse, but in fact the data are missing because the design of HANES dictated that the item was to be obtained only for a particular subsample. (For further discussion of the various subsamples in HANES the user should see the detailed note for tape positions 158-193.)

To alert the user to this fact asterisks were put on the tape description. One asterisk denotes that the data item was obtained only on examinees at locations 1-65, two asterisks denote that it was obtained only at locations 66-100 and three asterisks denote that it was obtained only on examinees receiving the detailed examination.

Demographic Information: An advance letter, announcing the forthcoming arrival of an interviewer from the U. S. Bureau of the Census, was mailed to each household that fell into the sample area. The interviewer subsequently visited the household to ascertain its composition and to administer a questionnaire, the primary purpose of which was to obtain demographic information. The questionnaire was administered to each potential sample person that was available and competent enough to respond to questions. In the event that a potential sample person was not at home at the time of interview, any responsible adult in the household was asked to respond to the questions for the absent person.

Demographic information for each of the examinees appears in tape positions 1-200.

Laboratory Examination: For all sample persons an attempt was made to obtain blood and urine samples. In the mobile examination center the laboratory technician was responsible for screening the urine specimen for sugar, albumin, and blood; for performing the basic hematology tests; and for preparing and packaging the urine and blood samples to be sent to the Center for Disease Control (CDC) in Atlanta, Georgia.

With the exception of the T-3 and T-4 determinations, which were performed by a private contractor, the remaining laboratory determinations described in this document were performed by CDC.

Some determinations were done on all sample persons, while others were performed only on detailed examinees or groups of examinees determined to be of special interest. Laboratory methodologies for all blood and urine determinations are available upon request from the Division of Health Examination Statistics.

Laboratory Data Editing: All laboratory results performed in the mobile examination center and at CDC were compiled and keypunched onto cards at CDC and sent to the Division of Health Examination Statistics. The data was checked for completeness of recording and certain range edits were run to check for unusually high or low values. Other edits were done to check for consistency and accuracy of the data. All unusual results were verified for correctness against original laboratory records on file in the Division of Health Examination Statistics or at CDC.

DEMOGRAPHIC DATA SUMMARY - HANES I

	<u>Tape Positions</u>
Sample sequence number	1
Size of place	10
SMSA-not SMSA	11
Type of living quarters	12
Land usage	13
 If rural, asked - How many acres of land are included	 14
If 10 acres or more asked - Sale of crops, etc. amount to \$50 or more ..	15
If 10 acres or less asked - Sale of crops, etc. amount to \$250 or more ..	16
Age - head of household	17
Sex - head of household	19
 Highest grade attended - head of household	 20
Race - head of household	22
Total number of persons in household	23
Total sample persons in household	25
Number of rooms in house	27
 Is there piped water	 28
If yes, is there hot and cold piped water	29
If yes to piped water - Does house have a sink with piped water	30
Does house have a range or cook stove	31
Does house have a refrigerator.....	32
 Are kitchen facilities used by anyone not living in household	 33
Total family income group	34
 NOTE: The following income questions were asked <u>only</u> if "Total Family Income" was less than \$7,000	
 During Past Year Did you or Any Members of Your Family Receive Money From:	
Wages or salaries	36
If yes - How much altogether before deductions	37
Social Security or Railroad Retirement	41
If yes - How much altogether	42
Welfare payments or other public assistance	46
 If yes - How much altogether	 47
Unemployment or Workman's Compensation	51
If yes - How much altogether	52
Government employee pensions or private pensions	56
If yes - How much altogether	57

Tape
Positions

Dividends, interest or rent	61
If yes - How much altogether	62
Net income from own non-farm business, professional practice or partnership	66
If yes - How much altogether	67
Net income from a farm	71
 If yes - How much altogether	72
Veteran's payments	76
If yes - How much altogether	77
Alimony, child support or contributions from persons not living in household	81
If yes - How much altogether	82
 Any other income	86
If yes - How much altogether	87
Total amount	91
Family unit code	95
Relationship to head of household	100
 Age at interview	101
Race of examined person	103
Sex of examined person	104
Marital status	105
Date of birth (month and year)	106
 Place of birth	110
Highest grade of regular school ever attended	112
Did he finish the grade	114
Is he attending school now	115
Has he ever attended a school of any kind	116
 If yes - What kind of school	117
Is any language other than English frequently spoken in the household .	118
If yes - What language	119
What is your main ancestry or national origin	120
What was he doing most of past three months	122
 If "something else" - What was he doing	123
If "keeping house" or "something else" - Did he work at a job or business at any time during the past three months	124
If "working" - Did he work full-time or part-time	125
Did he work at any time last week or the week before (not around house)	126
If no - Even though he did not work during that time, does he have a job or business	127

	<u>Tape Positions</u>
Was he looking for work or on lay-off from a job	128
If yes - Which	129
Class of worker	130
If self-employed in "own" business and not a farm, is the business incorporated	131
Business or industry code	132
Occupation code	135
Date of examination	138
Age at examination	144
Farm/non-farm	146
Poverty index	147
Region	150
FOOD PROGRAMS APPLICABILITY	151
Are you certified to participate in the food stamp program?	152
Are you buying food stamps now?	153
What is the main reason you aren't participating in the program?	154
Are you certified to participate in the commodity distribution program?	155
Are you receiving commodity foods now for your family?	156
Why aren't you participating in the program?	157
SAMPLE WEIGHTS	158
STRATA - Primary Sampling Unit (PSU)	194

Biochemistry, Serology, Hematology and Peripheral Blood Slides
and Urinary Data

SUMMARY

	<u>Tape Positions</u>
Catalog Number - 4800	201
Hour of collection	205
AM or PM (hour of collection)	207
Hours since last meal	208
Type of last meal	210
Have you taken vitamins within last 30 days	211
How many days since vitamins taken	212
Have you taken minerals within last 30 days	214
How many days since minerals taken	215
Have you taken aspirin within last 30 days	217
How many days since aspirin taken	218
Have you taken diuretics within last 30 days	220
How many days since diuretics taken	221
Have you taken other medication within last 30 days	223
How many days since other medication taken	224
Physical activity in past 24 hours	226
Serum Protein	227
Serum Protein imputation	231
Serum Albumin	232
Serum Albumin imputation	236
Serum Cholesterol	237
Serum Cholesterol imputation	241
Serum Magnesium	242
Serum Magnesium imputation	246
Hemoglobin	247
Hemoglobin imputation	251
Hematocrit	252
Hematocrit imputation	255
Serum Iron	256
Serum Iron imputation	260
Total Iron Binding Capacity	261
Total Iron Binding Capacity imputation	265
Percent Transferrin Saturation	266
Percent Transferrin Saturation imputation	270
Serum Sodium	271
Serum Potassium	274
Serum Folate	277
Sedimentation Rate	280
Weights for Hemoglobin and Hematocrit only	283
Weights for Iron, TIBC and % Transferrin Saturation Only	289

Leukoblasts	311
Promyelocytes	313
Myelocytes	315
Metamyelocytes	317
Band Neutrophils	319
Segmented Neutrophils	321
Eosinophils	323
Basophils	325
Lymphocytes	327
Monocytes	329
Anisocytosis	331
Poikilocytosis	332
Macrocytosis	333
Microcytosis	334
Hypochromia	335
Number of Nucleated Red Cells Per 100 White Cells	336
Platelet Estimate	338
Miscellaneous Findings	
First Glossary Code	339
Second Glossary Code	341
Third Glossary Code	343
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Fifth Glossary Code	347
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Morphological Interpretations	
First Glossary Code	351
Second Glossary Code	353
Third Glossary Code	355
Fourth Glossary Code	357
Fifth Glossary Code	359
Sixth Glossary Code	361
Quality of Slide	363
Technician Number	364
Slide Reading Results	365
Polio I	401
Polio II	404
Polio III	407
Measles	410
Rubella	413
Diphtheria	416
Tetanus	421
Amebiasis	426

Syphilis Screen - ART	431
Syphilis Verified - FTA.....	432
Syphilis - Quantitative - ART.....	433
Syphilis - Quantitative - VDRL.....	436
Hemoglobin Phenotype	441
Percent A2 Hemoglobin.....	443
Percent F Hemoglobin	446
Total bilirubin.....	451
SGOT.....	455
Alkaline Phosphatase.....	459
Uric Acid	463
Calcium	466
Phosphate.....	469
BUN	472
Creatinine.....	475
T4 Test	478
T3 Test.....	481
T4 Murphy-Pattee.....	484
Albumin (Protein).....	501
Glucose.....	502
pH.....	503
Hematest (Blood).....	504
Urobilinogen.....	505
Bilirubin.....	506
Ketones.....	507
Technician Number.....	508
Red Blood Cells.....	526
White Blood Cells.....	529
Urinary Iodine.....	532
Urinary Riboflavin.....	536
Urinary Thiamine.....	540
Urinary Creatinine.....	544
Urinary Iodine/Creatinine.....	548
Urinary Riboflavin/Creatinine.....	554
Urinary Thiamine/Creatinine.....	560
Serum Vitamin A.....	566
Serum Vitamin A Adjustment Code.....	569

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

ALL SAMPLE PERSONS
LOCATIONS 1-100

DEMOGRAPHIC DATA TAPE

(n=23808)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
			<u>DEMOGRAPHIC DATA</u>		
1-5		5	<u>Sample Sequence Number</u>		
6-9		4	<u>Catalog Number</u> 4271		
10		1	<u>Size of Place</u> 1 - Urbanized area with 3,000,000 or more 2 - Urbanized area with 1,000,000 to 2,999,999 3 - Urbanized area with 250,000 to 999,999 4 - Urbanized area under 250,000 5 - Urban place 25,000 or more outside urbanized area 6 - Urban place 10,000 to 24,999 outside urbanized area 7 - Urban place 2,500 to 9,999 outside urbanized area 8 - Rural	3810 2799 3158 2702 424 1179 1333 8403	Household Questionnaire See Detailed Notes
11		1	<u>SMSA - Not SMSA</u> 1 - In SMSA, in central city 2 - In SMSA, not in central city 4 - Not in SMSA	7960 6591 9257	Household Questionnaire See Detailed Notes
12		1	<u>Type of Living Quarters</u> 1 - Housing Unit 2 - Other unit	23602 206	Household Questionnaire
13		1	<u>Land Usage</u> 1 - All other 2 - Rural	15648 8160	Household Questionnaire
14		1	If Rural, asked <u>How Many Acres of Land Are Included?</u> 1 - 10 or more acres 2 - Less than 10 acres 9 - Not applicable	2205 5955 15648	Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
15		1	If 10 acres or more, asked if Sale of Crops, Etc. Amount to \$50 or more? 2 - Yes 4 - No 9 - Not applicable	1317 888 21603	Household Questionnaire
16		1	If 10 acres or less, asked if Sale of Crops, Etc. Amount to \$250 or more? 3 - Yes 5 - No 9 - Not applicable	153 5802 17853	Household Questionnaire
17-18		2	<u>Age - Head of Household</u> 16-92 as given 00 - Blank, but applicable	20744 5	* Household Questionnaire
19		1	Blank <u>Sex - Head of Household</u> 1 - Male 2 - Female	3059 16660 4089	* Household Questionnaire
20-21		2	Blank <u>Highest Grade Attended - Head of Household</u> 10 - None 21 - 1st grade 22 - 2nd grade 23 - 3rd grade 24 - 4th grade 25 - 5th grade 26 - 6th grade 27 - 7th grade 28 - 8th grade 31 - 9th grade 32 - 10th grade 33 - 11th grade 34 - 12th grade 41 - First year of college 42 - Second year of college 43 - Third year of college 44 - Fourth year of college 45 - Graduate 88 - Blank, but applicable	223 82 190 379 427 421 681 702 2405 1121 1458 1133 6153 746 1081 485 1317 1084 661 3059	* Household Questionnaire
			Blank		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
22		1	<u>Race - Head of Household</u> 1 - White 2 - Negro 3 - Other Blank	16387 4149 213 3059	* Household Questionnaire See Detailed Notes
23-24		2	<u>Total Number of Persons in Household</u> 01-19 - As given	23808	Household Questionnaire
25-26		2	<u>Total Sample Persons in Household</u> 01-07 - As given	23808	Household Questionnaire
			<u>Number of Rooms in House</u>	19747	
27		1	1-8 - As given 9 - 9 or more Blank	1002 3059	* Household Questionnaire
28		1	<u>Is there piped water?</u> 1 - Yes 2 - No Blank	20043 706 3059	* Household Questionnaire
29		1	If yes <u>Is there hot and cold piped water?</u> 1 - Yes 2 - No 9 - Not applicable Blank	19527 518 704 3059	* Household Questionnaire
30		1	If yes to piped water - <u>Does House Have a Sink with Piped Water?</u> 1 - Yes 2 - No 9 - Not applicable Blank	19866 181 702 3059	* Household Questionnaire
31		1	<u>Does House Have a Range or Cook Stove?</u> 1 - Yes 2 - No Blank	20513 236 3059	* Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
32		1	Does House have a Refrigerator? 1 - Yes 2 - No Blank	20487 262 3059	* Household Questionnaire
33		1	Are kitchen facilities used by anyone not living in household? 1 - Yes 2 - No 9 - Not applicable Blank	641 19418 690 3059	* Household Questionnaire
34-35		2	Total Family Income Group 11 - Under \$1,000 (including loss) 12 - \$1,000-1,999 13 - \$2,000-2,999 14 - \$3,000-3,999 15 - \$4,000-4,999 16 - \$5,000-5,999 17 - \$6,000-6,999 18 - \$7,000-9,999 19 - \$10,000-14,999 20 - \$15,000-19,999 21 - \$20,000-24,999 22 - \$25,000 and over 88 - Blank, but applicable NOTE: The following income questions were asked <u>only</u> if "Total Family Income" was less than \$7,000. DURING PAST YEAR DID YOU OR ANY MEMBERS OF YOUR FAMILY RECEIVE MONEY FROM:	545 1329 1525 1526 1426 1301 1194 5023 4927 2295 1025 873 819	Household Questionnaire See Detailed Notes
36		1	Wages or Salaries? 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	4738 3384 614 12013 3059	* Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
37-40		4	<u>If yes to above, how much altogether before deductions?</u> 0001-8000 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	4468 884 15397 3059	Household Questionnaire *
41		1	<u>Social Security or Railroad Retirement?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	2914 5226 595 12014 3059	Household Questionnaire *
42-45		4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	2852 657 17240 3059	Household Questionnaire *
46		1	<u>Welfare Payments or Other Public Assistance?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	2414 5716 605 12014 3059	Household Questionnaire *
47-50		4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	2383 636 17730 3059	Household Questionnaire *
51		1	<u>Unemployment or Workmen's Compensation?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	441 7690 604 12014 3059	Household Questionnaire *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

am	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	52-55	4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	423 622 19704 3059	Household Questionnaire *
	56	1	<u>Government Employee Pensions or Private Pensions?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	569 7561 605 12014 3059	Household Questionnaire *
	57-60	4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	553 621 19575 3059	Household Questionnaire *
	61	1	<u>Dividends, interest or rent?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	918 7212 602 12017 3059	Household Questionnaire *
	62-65	4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	870 650 19229 3059	Household Questionnaire *
	66	1	<u>Net income from own non-farm business, professional practice or partnership?</u> 1 - Yes 2 - No 3 - Loss 8 - Blank, but applicable 9 - Not applicable Blank	350 7772 17 596 12014 3059	Household Questionnaire *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
67-70		4	<u>If yes to above, how much altogether?</u> 0000-7500 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	316 647 19786 3059	Household Questionnaire *
71		1	<u>Net income from a farm?</u> 1 - Yes 2 - No 3 - Loss 8 - Blank, but applicable 9 - Not applicable Blank	406 7705 26 598 12014 3059	Household Questionnaire *
72-75		4	<u>If yes to above, how much altogether?</u> 0000-7500 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	388 642 19719 3059	Household Questionnaire *
76		1	<u>Veteran's Payments</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	452 7679 601 12017 3059	Household Questionnaire *
77-80		4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable Blank	441 612 19696 3059	Household Questionnaire *
81		1	<u>Alimony, child support or contributions from persons not living in household?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	439 7691 602 12017 3059	Household Questionnaire *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	82-85	4	<u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable	426 615 19708 3059	Household Questionnaire *
	86	1	Blank <u>Any other income?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable	325 7799 607 12018 3059	Household Questionnaire *
	87-90	4	Blank <u>If yes to above, how much altogether?</u> 0001-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable	313 619 19817 3059	Household Questionnaire *
- 24 -	91-94	4	Blank <u>Total Amount (Total of Positions 37-90)</u> 0000-6999 - As given 8888 - Blank, but applicable 9999 - Not applicable	7676 1060 12013 3059	Household Questionnaire *
	95-99	5	Blank <u>FAMILY UNIT CODE</u> 00001-23306	23808	Computer generated See Detailed Notes
	100	1	<u>Relationship to Head of Household</u> 1 - Head (1 person living alone or with non-relatives) 2 - Head (2 or more related persons in family) 3 - Wife 4 - Child 5 - Other relative	2244 6238 6513 7818 995	Household Questionnaire
	101-2	2	<u>Age at Interview</u> 01-74 - As given	23808	Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	103	1	<u>Race of Examined Person</u> 1 - White 2 - Negro 3 - Other	19111 4424 273	Household Questionnaire See Detailed Notes
	104	1	<u>Sex of Examined Person</u> 1 - Male 2 - Female	10152 13656	Household Questionnaire
	105	1	<u>Marital Status</u> 1 - Under 17 2 - Married 3 - Widowed 4 - Never married 5 - Divorced 6 - Separated 8 - Blank, but applicable	6781 11738 1493 2475 762 544 15	Household Questionnaire
	106-9	4	<u>Date of Birth (month, year)</u> 01-12 - Month as given 00-99 - Year (1896-1973) as given	23808 23808	Household Questionnaire
	110-11	2	<u>Place of Birth</u> 01-02 04-06 08-13 15-42 } As given 44-51 53-56 60-81 91-97 88 - Blank, but applicable	23663 145	Household Questionnaire See Detailed Notes

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	112-13	2	<u>Highest Grade of regular school ever attended?</u> 10 - None 21 - 1st Grade 22 - 2nd Grade 23 - 3rd Grade 24 - 4th Grade 25 - 5th Grade 26 - 6th Grade 27 - 7th Grade 28 - 8th Grade 31 - 9th Grade 32 - 10th Grade 33 - 11th Grade 34 - 12th Grade 41 - First year of college 42 - Second year of college 43 - Third year of college 44 - Fourth year of college 45 - Graduate 77 - Special School 88 - Blank, but applicable 99 - Not applicable	252 444 457 586 691 687 815 902 2165 1207 1458 1132 5751 852 1007 418 1134 756 18 110 2966	Household Questionnaire
	114	1	<u>Did he finish the grade?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable	13787 6537 266 3218	Household Questionnaire
	115	1	<u>Is he attending school now?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	3857 476 0 16416 3059	Household Questionnaire *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
116		1	<u>Has he ever attended a school of any kind?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable Blank	668 1127 0 18954 3059	Household Questionnaire
117		1	<u>If yes, what kind of school?</u> 1 - Nursery 2 - Kindergarten 3 - Other 4 - Headstart 5 - Daycare 8 - Blank, but applicable 9 - Not applicable Blank	150 362 73 45 38 0 20081 3059	Household Questionnaire
118		1	<u>Is any language other than English frequently spoken in the household?</u> 1 - Yes. 2 - No 8 - Blank, but applicable	2682 20923 203	Household Questionnaire
119		1	<u>If yes, what language?</u> 0 - German 1 - Italian 2 - French 3 - Polish 4 - Russian 5 - Spanish 6 - Chinese 7 - Other language 8 - Blank, but applicable 9 - Not applicable	168 161 422 116 20 1274 39 468 217 20923	Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	120-21	2	<u>What is your main ancestry or national origin?</u> 00 - German 01 - Irish 02 - Italian 03 - French 04 - Polish 05 - Russian 06 - English 07 - Spanish 08 - Mexican 09 - Chinese 10 - Japanese 11 - American Indian 12 - Negro 13 - Jewish 14 - American 15 - Other 88 - Blank, but applicable 99 - Don't know	4022 3021 777 1235 636 223 2979 483 717 48 53 380 4428 63 1652 2451 67 573	Household Questionnaire
	122	1	<u>What was he doing most of past three months?</u> 1 - Working 2 - Keeping house 3 - Something else 8 - Blank, but applicable 9 - Not applicable	8058 5883 3069 28 6770	Household Questionnaire
	123	1	<u>If "something else" from above, what was he doing?</u> 0 - Laid off 1 - Retired 2 - Student 3 - Other 4 - Ill 5 - Staying home 6 - Looking for work 7 - Unable to work 8 - Blank, but applicable 9 - Not applicable	46 1484 822 141 152 69 71 285 27 20711	Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
124		1	<u>If "keeping house" or "something else" from above, did he work at a job or business at any time during the past three months?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable	1272 7675 37 14824	Household Questionnaire
125		1	<u>If "Working" from above, did he work full-time or part-time?</u> 1 - Full-time 2 - Part-time 8 - Blank, but applicable 9 - Not applicable	7278 2046 39 14445	Household Questionnaire
126		1	<u>Did he work at any time last week or the week before? (not around house)</u> 1 - Yes. 2 - No 8 - Blank, but applicable 9 - Not applicable	8318 942 104 14444	Household Questionnaire
127		1	<u>If "no" to above, even though he did not work during that time, does he have a job or business?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable	543 8072 105 15088	Household Questionnaire
128		1	<u>If "no" in Position 126, was he looking for work or on lay-off from a job?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable	644 7971 105 15088	Household Questionnaire

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES 1)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	129	1	<u>If yes to above - which?</u> 1 - Looking 2 - Lay-off 3 - Both 8 - Blank, but applicable 9 - Not applicable	467 144 34 105 23058	Household Questionnaire
	130	1	<u>Class of Worker</u> 1 - Private paid 2 - Government-Federal 3 - Government-Other 4 - Own 5 - Non-paid 6 - Never worked 8 - Blank, but applicable 9 - Not applicable	6776 335 1294 980 135 63 29 14196	Household Questionnaire
	131	1	<u>If self-employed in "own" business and not a farm, is the business incorporated?</u> 1 - Yes 2 - No 8 - Blank, but applicable 9 - Not applicable	111 719 30 22948	Household Questionnaire
	132-34	3	<u>Business or Industry Code</u> 000 - Blank, but applicable 017-999 - As given	4 23804	Household Questionnaire See Detailed Notes
	135-37	3	<u>Occupation Code</u> 000 - Blank, but applicable 001-996 - As given	6 23802	Household Questionnaire See Detailed Notes
	138-43	6	<u>Date of Examination</u> Month - 01-12 as given Day - 01-31 as given Year - 71-75 as given	23808 23808 23808	Control Record

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES' I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	144-45	2	<u>Age at Examination</u> 01-75 - As given	23808	Computer generated
	146	1	<u>Farm</u> 1 - Farm 2 - Nonfarm	1470 22338	Computer generated See Detailed Notes
	147-49	3	<u>Poverty Index (X,XX)</u> 001-997 - As given 998 - Index computed 998 or greater 999 - Unknown	20002 25 722	Computer generated See Detailed Notes *
	150	1	Blank <u>Region</u> 1 - Northeast 2 - Midwest 3 - South 4 - West	3059 5211 5892 6329 6376	Computer generated See Detailed Notes
	151	1	<u>FOOD PROGRAMS APPLICABILITY</u> 1 - Not applicable 2 - No program available 3 - Food stamps available 4 - Commodities available 8 - Blank, but applicable Blank	14683 112 5142 760 52 3059	Food Programs Quest. *
	152	1	<u>Are you certified to participate in the food stamp program?</u> 1 - Yes 2 - No 9 - Don't know Blank	2374 1934 126 19374	Food Programs Quest. *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

em	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	153	1	<u>Are you buying stamps now?</u> 1 - Yes, regularly 2 - Yes, occasionally 3 - No 8 - Blank, but applicable Blank	1965 89 307 13 21434	Food Programs Quest. *
	154	1	<u>What is the main reason you aren't participating in the program?</u> 1 - No need 2 - Not enough money at the time 3 - No transportation 4 - Pride 5 - Other 8 - Blank, but applicable Blank	33 121 16 8 111 18 23501	Food Programs Quest. *
	155	1	<u>Are you certified to participate in the commodity distribution program?</u> 1 - Yes 2 - No 9 - Don't know Blank	215 423 25 23145	Food Programs Quest. *
	156	1	<u>Are you receiving commodity foods now for your family?</u> 1 - Yes, regularly 2 - Yes, occasionally 3 - No 8 - Blank, but applicable Blank	159 14 39 3 23593	Food Programs Quest. *
	157	1	<u>Why aren't you participating in the program?</u> 1 - No need 2 - No transportation 3 - Pride 4 - Other 8 - Blank, but applicable Blank	16 5 2 15 1 23769	Food Programs Quest. *

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
			<u>Sample Weights</u>		
	158-163	6	Detailed Persons - Locations 01-35 Blank	1892 21916	See Detailed Notes
	164-169	6	All Sample Persons - Locations 01-35 Blank	10127 13681	See Detailed Notes
	170-175	6	Detailed Persons - Locations 01-65 Blank	3854 19954	See Detailed Notes
	176-181	6	All Sample Persons - Locations 01-65 Blank	20749 3059	See Detailed Notes
	182-187	6	Detailed Persons - Locations 66-100 Blank	3059 20749	See Detailed Notes
	188-193	6	Detailed Persons - Locations 1-100 Blank	6913 16895	See Detailed Notes
	194-195	2	<u>Strata</u> ^{1/}		
	196-198	3	<u>Primary Sampling Units</u> ^{1/}		
	199-200	2	<u>Data User Work Area</u>		
^{1/} Use only for producing variance estimates for examination locations 1-65 or 1-100. See the General Note titled "Variance Estimation" for producing variance estimates for examination locations 1-35 or 66-100.					

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Biochemistry, Serology, Hematology, and Peripheral Blood Slides and Urinary Data
(n=23808)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
201-204		4	<u>Catalog Number</u> 4800		
205-206		2	<u>Hour of Collection</u> 01-12 - As given 88 - Blank, but applicable	23735 73	
207		1	<u>AM or PM</u> 1 - AM 2 - PM 8 - Blank, but applicable	9826 13909 73	
208-209		2	<u>Hours since last meal?</u> 00-70 - As given 88 - Blank, but applicable	23503 305	
210		1	<u>Type of last meal?</u> 1 - Light 2 - Medium 3 - Heavy 8 - Blank, but applicable	8114 10503 4658 533	
211		1	<u>Have you taken vitamins within last 30 days?</u> 1 - Yes 2 - No 8 - Blank, but applicable	7421 16038 349	
212-213		2	<u>How many days since vitamins taken?</u> 00-30 - As given 88 - Blank, but applicable 99 - Not applicable	7421 349 16038	

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	214	1	<u>Have you taken minerals within last 30 days?</u> 1 - Yes 2 - No 8 - Blank, but applicable	4317 19130 361	
	215- 216	2	<u>How many days since minerals taken?</u> 00-30 - As given 88 - Blank, but applicable 99 - Not applicable	4317 361 19130	
	217	1	<u>Have you taken aspirin within last 30 days?</u> 1 - Yes 2 - No 8 - Blank, but applicable	12504 10939 365	
	218- 219	2	<u>How many days since aspirin taken?</u> 00-30 - As given 88 - Blank, but applicable 99 - Not applicable	12504 365 10939	
	220	1	<u>Have you taken diuretics within last 30 days?</u> 1 - Yes 2 - No 8 - Blank, but applicable	1220 21731 857	
	221- 222	2	<u>How many days since diuretics taken?</u> 00-30 - As given 88 - Blank, but applicable 99 - Not applicable	1220 857 21731	

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	223	1	<u>Have you taken other medication within last 30 days?</u> 1 - Yes 2 - No 8 - Blank, but applicable	9478 13827 503	
	224- 225	2	<u>How many days since other medication taken?</u> 00-30 - As given 88 - Blank, but applicable 99 - Not applicable	9478 503 13827	
	226	1	<u>Physical activity in past 24 hours?</u> 1 - None 2 - Light 3 - Moderate 4 - Heavy 8 - Blank, but applicable	71 5178 12167 5782 610	
	227- 230	4	<u>Serum Protein</u> (Gm/100ml) (XXX.X - decimal not shown on tape) 0044-0133 - As given 9999 - Missing value (ages 1-3) Blank	20026 723 3059	*
	231	1	<u>Serum Protein Imputation</u> 0 - Not imputed 1 - Missing value imputed 9 - Missing value not imputed (ages 1-3) Blank	18769 1257 723 3059	*

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
232-235		4	<u>Serum Albumin</u> (Gm/100ml) (XXX.X - decimal not shown on tape) 0027-0061 - As given 9999 - Missing value (ages 1-3) Blank	20025 724 3059	*
236		1	<u>Serum Albumin Imputation</u> 0 - Not imputed 1 - Missing value imputed 9 - Missing value not imputed (ages 1-3) Blank	18770 1255 724 3059	*
237-240		4	<u>Serum Cholesterol</u> (Mg/100ml) (XXXX) 0049-0793 - As given 8888 - Missing value 9999 - Missing value (ages 1-3)	23000 81 727	
241		1	<u>Serum Cholesterol Imputation</u> 0 - Not imputed 1 - Missing and imputed 8 - Missing value not imputed 9 - Missing value not imputed (ages 1-3)	22074 926 81 727	
242-245		4	<u>Serum Magnesium</u> (Meq/liter) (XX.XX - decimal not shown on tape) 0082-0289 - As given 8888 - Missing value 9999 - Missing value (ages 1-3)	23025 54 729	
246		1	<u>Serum Magnesium Imputation</u> 0 - Not imputed 1 - Missing value imputed 8 - Missing value not imputed 9 - Missing value not imputed (ages 1-3)	21905 1120 54 729	

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
247-250		4	<u>Hemoglobin (Gm/100ml)</u> (XXX.X - decimal not shown on tape) 0050-0224 - As given 7777 - Unacceptable data 8888 - Missing value	22741 1049 18	SPECIAL NOTE: See Page 66
251		1	<u>Hemoglobin Imputation</u> 0 - Not imputed 1 - Missing value imputed 7 - Unacceptable data not imputed 8 - Missing value not imputed	21699 1042 1049 18	SPECIAL NOTE: See Page 66
252-254		3	<u>Hematocrit (Percent)</u> 019-068 - As given 777 - Unacceptable data 888 - Missing values	22709 1049 50	SPECIAL NOTE: See Page 66
255		1	<u>Hematocrit Imputation</u> 0 - Not imputed 1 - Missing value imputed 7 - Unacceptable data not imputed 8 - Missing values not imputed	22155 554 1049 50	SPECIAL NOTE: See Page 66
256-259		4	<u>Serum Iron (μg/100ml)</u> (XXXX. - decimal not shown on tape) 0017-0396 - As given 7777 - Unacceptable data 9999 - Missing value (ages 1-3) Blank	18882 1088 779 3059	SPECIAL NOTE: See Page 66 *
260		1	<u>Serum Iron Imputation</u> 0 - Not imputed 1 - Missing value imputed 7 - Unacceptable data not imputed 9 - Missing value not imputed (ages 1-3) Blank	17265 1617 1088 779 3059	SPECIAL NOTE: See Page 66 *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
261-264	4		<u>Total Iron Binding Capacity</u> (μ g/100ml) (XXXX. - decimal not shown on tape) 0112-0717 - As given 7777 - Unacceptable data 9999 - Missing value (ages 1-3) Blank	18907 1088 754 3059	SPECIAL NOTE: See Page 66 *
265	1		<u>Total Iron Binding Capacity Imputation</u> 0 - Not imputed 1 - Missing value imputed 7 - Unacceptable data not imputed 9 - Missing value not imputed (ages 1-3) Blank	17623 1284 1088 754 3059	SPECIAL NOTE: See Page 66 *
266-269	4		<u>% Transferrin Saturation</u> (Percent) (XXX.X - decimal not shown on tape) 0032-1000 - As given 7777 - Unacceptable data 9999 - Missing value (ages 1-3) Blank	18877 1088 784 3059	SPECIAL NOTE: See Page 66 *
270	1		<u>% Transferrin Saturation Imputation</u> 0 - Not imputed 1 - Missing value imputed 7 - Unacceptable data not imputed 9 - Missing value not imputed (ages 1-3) Blank	17238 1639 1088 784 3059	SPECIAL NOTE: See Page 66 *

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
271-273		3	<u>Serum Sodium</u> (XXX. - decimal not shown on tape) 121-157 - As given 888 - Blank, but applicable Blank	3003 56 20749	**
274-276		3	<u>Serum Potassium</u> (XX.X - decimal not shown on tape) 027-054 - As given 888 - Blank, but applicable Blank	2992 67 20749	**
277-279		3	<u>Serum Folate</u> (XX.X - decimal not shown on tape) 014-776 - As given 888 - Blank, but applicable Blank	2978 81 20749	**
280-282		3	<u>Sedimentation Rate</u> (XXX. - decimal not shown on tape) 001-072 - As given 888 - Blank, but applicable Blank	18165 2584 3059	*
			<u>WEIGHTS</u>		See Detailed Notes
283-288		6	All Sample Persons - Locations 1-65 (For Hemoglobin and Hematocrit Only) Blank	20749 3059	
289-294		6	All Sample Persons - Locations 1-65 (For Iron, Total Iron Binding Capacity and % Transferrin Saturation Only) Blank	20749 3059	
295-300		6	Blank - Data User Work Area		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
			<u>PERIPHERAL BLOOD FILM</u>		PERIPHERAL BLOOD FILM
301-310		10	Blank - Data User Work Area		
311-312		2	<u>Leukoblasts</u> (Percent of 100 Cells) 00 - As given Blank	5854 17954	***
313-314		2	<u>Promyelocytes</u> (Percent of 100 Cells) 00-06 - As given Blank	5854 17954	***
315-316		2	<u>Myelocytes</u> (Percent of 100 Cells) 00-19 - As given Blank	5854 17954	***
317-318		2	<u>Metamyelocytes</u> (Percent of 100 Cells) 00-08 - As given Blank	5854 17954	***
319-320		2	<u>Band Neutrophils</u> (Percent of 100 Cells) 00-22 - As given Blank	5854 17954	***
321-322		2	<u>Segmented Neutrophils</u> (Percent of 100 Cells) 02-94 - As given Blank	5854 17954	***
323-324		2	<u>Eosinophils</u> (Percent of 100 Cells) 00-17 - As given Blank	5854 17954	***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
					PERIPHERAL BLOOD FILM
325-326		2	<u>Basophils</u> (Percent of 100 Cells) 00-03 - As given Blank	5854 17954	***
327-328		2	<u>Lymphocytes</u> (Percent of 100 Cells) 03-95 - As given Blank	5854 17954	***
329-330		2	<u>Monocytes</u> (Percent of 100 Cells) 00-20 - As given Blank	5854 17954	***
331		1	<u>Anisocytosis</u> (Variation in Cell Size) 0 - Normal 1-4 - Gradation to Abnormal Blank	5450 404 17954	***
332		1	<u>Poikilocytosis</u> (Variation in Cell Shape) 0 - Normal 1-3 - Gradation to Abnormal Blank	5690 164 17954	***
333		1	<u>Macrocytosis</u> (Large Cell Prevalence) 0 - Normal 1-3 - Gradation to Abnormal Blank	5616 238 17954	***
334		1	<u>Microcytosis</u> (Small Cell Prevalence) 0 - Normal 1-4 - Gradation to Abnormal Blank	5701 153 17954	***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
					PERIPHERAL BLOOD FILM
	335	1	<u>Hypochromia (Staining Intensity of Cells)</u> 0 - Normal 1-4 - Gradation to Abnormal Blank	5732 122 17954	***
	336- 337	2	<u>Number of Nucleated Red Cells Per 100 White Cells</u> 00 - Normal 01-08 - As given Blank	5851 3 17954	****
	338	1	<u>Platelet Estimate</u> 0 - Normal 2 - Increased Platelet Count 3 - Decreased Platelet Count 9 - No Estimate Blank	5577 208 65 4 17954	***
			<u>MISCELLANEOUS FINDINGS</u>		See Detailed Note
	339- 340	2	<u>First Glossary Code</u> 01-27, 35-64, 70-73 - As given 88 - Blank, Slide Read Blank	678 5176 17954	***
	341- 342	2	<u>Second Glossary Code</u> 01-27, 35-64, 70-73 - As given 88 - Blank, slide read Blank	70 5784 17954	***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
					PERIPHERAL BLOOD FILM
343-344		2	<u>Third Glossary Code</u> 01-27, 35-64, 70-73 - As given 88 - Blank, slide read Blank	15 5839 17954	***
345-346		2	<u>Fourth Glossary Code</u> 01-27, 35-64, 70-73 - As given 88 - Blank, slide read Blank	5 5849 17954	***
347-348		2	<u>Fifth Glossary Code</u> 01-27, 35-64, 70-73 - As given 88 - Blank, slide read Blank	2 5852 17954	***
349-350		2	<u>Sixth Glossary Code</u> 01-27, 35-64, 70-73 - As given 88 - Blank, slide read Blank	1 5853 17954	***
			<u>MORPHOLOGICAL INTERPRETATIONS</u>		See Detailed Note
351-352		2	<u>First Glossary Code</u> 01-19, 31-43, 50-60, 70-71 - As given Blank	5854 17954	***
353-354		2	<u>Second Glossary Code</u> 01-19, 31-43, 50-60, 70-71 - As given 88 - Blank, slide read Blank	137 5717 17954	***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
					PERIPHERAL BLOOD FILM
355-356	2		<u>Third Glossary Code</u> 88- Blank, slide read Blank	5854 17954	***
357-358	2		<u>Fourth Glossary Code</u> 88 - Blank, slide read Blank	5854 17954	***
359-360	2		<u>Fifth Glossary Code</u> 88 - Blank, slide read Blank	5854 17954	***
361-362	2		<u>Sixth Glossary Code</u> 88 - Blank, slide read Blank	5854 17954	***
363	1		<u>Quality of Slide</u> 1 - Good-Satisfactory 2 - Fair 3 - Other 9 - Blank, but applicable Blank	4471 969 805 668 16895	***
364	1		<u>Technician (Reader) Number</u> 1-5 - As given 9 - Blank, but applicable Blank	5854 1059 16895	***
365	1		<u>Slide Reading Results</u> 1 - Missing or Unsatisfactory 2 - Available Blank	1059 5854 16895	***
366-400	35		Blank - Data User Work Area		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
			<u>SEROLOGY</u>		
401-403		3	<u>Polio I</u> Titer Range: Less than 1:10 to greater than 1:80 998 - Results unavailable 999 - Test not done Blank	6323 370 220 16895	See Detailed Note ***
404-406		3	<u>Polio II</u> Titer Range: Less than 1:10 to greater than 1:80 998 - Results unavailable 999 - Test not done Blank	6323 370 220 16895	See Detailed Note ***
407-409		3	<u>Polio III</u> Titer Range: Less than 1:10 to greater than 1:80 998 - Results unavailable 999 - Test not done Blank	6323 370 220 16895	See Detailed Note ***
410-412		3	<u>Measles</u> Titer Range: Less than 1:8 to greater than 1:40 998 - Results unavailable 999 - Test not done Blank	6502 168 243 16895	See Detailed Note ***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
413-415		3	<u>Rubella</u> Titer Range: Less than 1:8 to greater than 1:32 998 - Results unavailable 999 - Test not done Blank	6377 171 365 16895	See Detailed Note ***
416-420		5	<u>Diphtheria</u> Titer Range: Less than 1:0 (not reactive) to greater than 1:6000 99998 - Results unavailable 99999 - Test not done Blank	5201 1533 179 16895	See Detailed Note ***
421-425		5	<u>Tetanus</u> Titer Range: Less than 1:0 (not reactive) to greater than 1:5000 99998 - Results unavailable 99999 - Test not done Blank	5067 1530 316 16895	See Detailed Note ***
426-430		5	<u>Amebiasis</u> Titer Range: Less than 1:16 to greater than 1:4096 99998 - Results unavailable 99999 - Test not done Blank	6227 467 219 16895	See Detailed Note ***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
431		1	<u>Syphilis Screen - ART</u> (Automated Reagin Test) 1 - Reactive 2 - Non-reactive 8 - Unsuitable for testing 9 - Quantity insufficient Blank - Nonapplicable	36 2700 259 64 20749	**
432		1	<u>Syphilis Verified - (Flourescent Treppnema Pallidum Absorption Test)</u> 1 - Reactive 2 - Non-reactive 8 - Unsuitable for testing 9 - Quantity insufficient Blank - Nonreactive to ART Screen or nonapplicable	31 5 259 64 23449	**
433-435		3	<u>Quantitative Syphilis - ART</u> (Automated Reagin Test) 011 - Reactive 1:1 Dilution 012 - Reactive 1:2 Dilution 014 - Reactive 1:4 Dilution 018 - Reactive 1:8 Dilution 318 - Reactive at a dilution greater than 1:8 888 - Unsuitable for testing 999 - Quantity insufficient Blank - Nonreactive or nonapplicable	15 6 7 5 2 259 65 23449	**

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
436-438		3	<u>Quantitative Syphilis - VDRL (Venereal Disease Research Laboratory Slide Test)</u> 005 - Weakly Reactive 011 - Reactive 1:1 Dilution 012 - Reactive 1:2 Dilution 014 - Reactive 1:4 Dilution 018 - Reactive 1:8 Dilution 318 - Reactive at a dilution greater than 1:8 888 - Unsuitable for testing 999 - Quantity insufficient Blank - Nonreactive or nonapplicable	10 12 9 1 1 2 259 65 23449	***
439-440		2	BLANK, USER WORKSPACE		
441-442		2	<u>Hemoglobin Phenotype</u> 01 - AA (normal) 02 - AA ₂ (A ₂ = β thal trait) 05 - AF (F > 10%) 08 - AI 11 - AS 12 - SAF or SA (S- β thal) 17 - AC 18 - AD or AG (no further determination) 19 - AAF ($\uparrow$ F but < 10%) 20 - A+ fast 28 - Other unidentified 46 present 88 - Blank, but applicable (Hemoglobin phenotyping not done) 99 - Blank (not in phenotype study)	10770 3 6 1 89 2 18 9 17 2 1 1364 11526	See Detailed Note

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	443-445	3	<u>Percent A₂ Hemoglobin (xx.x)</u> (007-060) - As given 888 - Blank, but applicable (Phenotyping not done) 998 - Blank (no entry) 999 - Blank (not in hemoglobin phenotype study)	32 1364 10886 11526	See Detailed Notes.
	446-448	3	<u>Percent F Hemoglobin (xx.x)</u> (042-101) - As given 888 - Blank, but applicable (Phenotyping not done) 998 - Blank (no entry) 999 - Blank (not in hemoglobin phenotype study)	2 1364 10916 11526	See Detailed Notes.
	449-450	2	BLANK, USER WORKSPACE		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
			<u>SMA DETAILED BLOOD</u> (decimals not shown on tape)		
451-454		4	<u>Total Bilirubin (xx.xx)</u> 0010-0520 - as given 7777 - Unacceptable data 8888 - Blank, but applicable 9999 - Test not done Blank	5854 855 2 202 16895	***
455-458		4	<u>SGOT (xxx.x)</u> 0027-3100 - as given 7777 - Unacceptable data 8888 - Blank, but applicable 9999 - Test not done Blank	6315 358 1 239 16895	***
459-462		4	<u>Alkaline Phosphatase (xxx.x)</u> 0048-5800 - as given 7777 - Unacceptable data 8888 - Blank, but applicable 9999 - Test not done Blank	6364 360 2 187 16895	***
463-465		3	<u>Uric Acid (xx.x)</u> 007-125 - as given 777 - Unacceptable data 888 - Blank, but applicable 999 - Test not done Blank	6651 63 2 197 16895	***
466-468		3	<u>Calcium (xx.x)</u> 002-125 - as given 777 - Unacceptable data 888 - Blank, but applicable 999 - Test not done Blank	6256 456 1 200 16895	***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
469-471		3	<u>Phosphate (xx.x)</u> 014-075 - as given 777 - Unacceptable data 888 - Blank, but applicable 999 - Test not done Blank	6079 605 2 227 16895	***
472-474		3	<u>BUN (XX.X)</u> 008-490 - as given 777 - Unacceptable data 999 - Test not done Blank	2935 78 46 20749	**
475-477		3	<u>Creatinine (XX.X)</u> 004-090 - as given 777 - Unacceptable data 999 - Test not done Blank	2591 422 46 20749	***
478-480		3	<u>T₄ Test (x.x)</u> 010-250 - as given 99 - Blank, but applicable Blank	6004 909 16895	***
481-483		3	<u>T₃ Test (x.xx)</u> Less than 088 (Hyper) - as given 088-110 (Euthy) - as given Greater than 110 (Hypo) - as given 888 - Blank, but applicable 999 - Test not done Blank	38 5015 967 880 13 16895	***

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	484-486	3	<u>T4 Murphy-Pattee (xx.x)</u> 042-292 - as given Blank	208 23600	See Detailed Note.
	487-500	19	Blank - Data User Work Area		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
-53a-	501	1	<u>URINE DIPSTICK ANALYSIS</u>		
			<u>Albumin (Protein)(mg/100ml)</u>		
			0 - Negative	21000	
			1 - 30+	206	
			2 - 100++	91	
			3 - 300+++	31	
			4 - Over 1000++++	15	
			5 - Trace	395	
			8 - Blank, but applicable	1829	
			Blank	241	
	502	1	<u>Glucose</u>		
			0 - Negative	21300	
			1 - Light	78	
			2 - Medium	77	
			3 - Dark	144	
			4 - Very dark	84	
			5 - Trace	52	
			8 - Blank, but applicable	1832	
			Blank	241	
	503	1	<u>pH</u>		
			4 - Blank, but applicable	1817	
			5-9 - As given	21750	
			Blank	241	
	504	1	<u>Hematest (Blood)</u>		
			0 - Negative	21005	
			1 - Small	331	
			2 - Moderate	202	
			3 - Large	89	
			4 - Very large	1	
			5 - Trace	1	
			8 - Blank, but applicable	1938	
			Blank	241	

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
-53b-	505	1	<u>Urobilinogen</u> 1 - Negative, 0.1 or 1 2 - 4 3 - 8 4 - 12 8 - Blank, but applicable Blank	2901 3 0 18 137 20749	**
	506	1	<u>Bilirubin</u> 0 - Negative 1 - Small+ 2 - Moderate++ 3 - Large+++ 4 - Very large++++ 5 - Trace 8 - Blank, but applicable Blank	2886 32 2 1 0 1 137 20749	**
	507	1	<u>Ketones</u> 0 - Negative 1 - Small 2 - Moderate 3 - Large 8 - Blank, but applicable Blank	2864 38 17 4 136 20749	**
	508- 509	2	<u>Technician Number</u> 68-86, 89-90 - As given 88 - Blank, but applicable Blank	22642 925 241	
	510- 525	16	Blank - Data User Work Area		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	526-528	3	<u>Red Blood Cells</u> (millions/mm ³)(x.xx - decimal not shown on tape) 214-699 - As given 777 - Unacceptable data 888 - Blank, but applicable	17328 5152 1328	
	529-531	3	<u>White Blood Cells</u> (Thousands/mm ³)(xx.x - decimal not shown on tape) 021-560 - As given 777 - Unacceptable data 888 - Blank, but applicable	21236 280 2292	
	532-535	4	<u>Urinary Iodine</u> (µg/ml)(xx.xx - decimal not shown on tape) 0001-8625 - As given 8888 - Blank, but applicable Blank	19617 2132 3059	*
	536-539	4	<u>Urinary Riboflavin</u> (µg/ml)(xx.xx - decimal not shown on tape) 0001-6591 - As given 8888 - Blank, but applicable Blank	18191 2558 3059	*
	540-543	4	<u>Urinary Thiamine</u> (µg/ml)(xx.xx - decimal not shown on tape) 0001-2074 - As given 8888 - Blank, but applicable Blank	18333 2416 3059	*
	544-547	4	<u>Urinary Creatinine</u> (mg/dl)(xxx.x - decimal not shown on tape) 0008-8565, 9770 - As given 8888 - Blank, but applicable Blank	18701 2048 3059	*

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
548-553	6		Urinary Iodine/Creatinine ($\mu\text{g/gm}$) (xxxxxx. - decimal not shown on tape) 000002-541962 - As given 888888 - Blank, but applicable Blank	18592 2157 3059	*
554-559	6		Urinary Riboflavin/Creatinine ($\mu\text{g/gm}$) (xxxxxx. - decimal not shown on tape) 000004-192500 - As given 888888 - Blank, but applicable Blank	18167 2582 3059	*
560-565	6		Urinary Thiamine/Creatinine ($\mu\text{g/gm}$) (xxxxxx. - decimal not shown on tape) 000012-056250 - As given 888888 - Blank, but applicable Blank	18310 2439 3059	*
566-568	3		Serum Vitamin A ($\mu\text{g/dl}$) (xxx.-decimal not shown on tape) 009-279 - As given 888 - Blank, but applicable Blank	19088 1661 3059	* *See detailed notes
569	1		Serum Vitamin A Adjustment Code 1 = Adjusted 2 = Not adjusted 8 = Blank, but applicable Blank	3530 15558 1661 3059	* *See detailed notes
570-600	31		BLANK - DATA USER WORK AREA		

DETAILED NOTES

TAPE POSITION 10

Size of Place

Size of place classification was derived from the 1960 census. According to the definition used in the 1960 census, the urban population was comprised of all persons living in (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, villages and towns (except towns in New York, New England, and Wisconsin); (b) the densely settled urban fringe, whether incorporated or unincorporated, of urbanized areas; (c) towns in New England and townships in New Jersey and Pennsylvania which contained no incorporated municipalities as subdivisions and had either 2,500 inhabitants or more, or a population of 2,500 to 25,000 and a density of 1,500 persons or more per square mile; (d) counties in states other than the New England states, New Jersey, and Pennsylvania, that had no incorporated municipalities within their boundaries and had a density of 1,500 persons per square mile; and (e) unincorporated places of 2,500 inhabitants or more not included in any urban fringe. The remaining population was classified as rural.

Urban areas are further classified by population size for places within urbanized areas and other places outside urbanized areas.

DETAILED NOTES

TAPE POSITION 11

SMSA

A standard metropolitan statistical area is basically a county or a group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000.

In addition to the county or counties containing such a city or cities, contiguous counties are included in an SMSA if, according to the 1960 Census, they are socially and economically integrated with the central city.

Each SMSA must include at least one central city, and the complete title of an SMSA identifies the central city or cities.

DETAILED NOTES

TAPE POSITIONS 22 AND 103

Race

The race of the respondent was marked by observation and it was assumed the race of all related persons was the same as the respondent unless otherwise learned. The race categories were "White", "Negro" or "other." If the appropriate category could not be marked by observation, then race was asked. Persons of races other than White or Negro, such as Japanese, Chinese, American Indian, Korean, Hindu, Eskimo, etc. were reported as "Other." Mexicans were included with "White" unless definitely known to be American Indian or of other nonwhite race.

DETAILED NOTES
TAPE POSITIONS 34-35

Total Family Income Group

The income group represents the total combined family income for the past twelve (12) months. It includes income from all sources such as wages, salaries, social security or retirement benefits, help from relatives, rent from property and so forth. The income groups were not reconciled to the component parts (tape positions 36-94). The income component parts were not asked when the gross income was greater than \$6,999 per annum. However, amounts greater than \$6,999 appear in tape positions 37-40, 67-70, and 72-75. Some respondents reported a loss of income from their nonfarm business, professional practice, partnership or farm and this explains why some data fields are greater than \$6,999, but the individual total in tape positions 91-94 does not exceed this figure.

DETAILED NOTES

TAPE POSITIONS 95-99

Family Unit Code

-All related sample persons in the same family unit have the same computer generated family unit code. This will enable detailed analysis of the individual family unit.

DETAILED NOTES
TAPE POSITIONS 110-111

UNITED STATES			OUTLYING AREAS OF THE U.S.	
	Standard Abbreviation	Code	Name of Place	Code
ALABAMA	Ala.	01	American Samoa	60
ALASKA	Alaska	02	Canal Zone	61
ARIZONA	Ariz.	04	Canton and Enderbury Islands	62
ARKANSAS	Ark.	05	Caroline Islands	63
CALIFORNIA	Calif.	06	Cook Islands	64
COLORADO	Colo.	08	Gilbert and Ellice Islands	65
CONNECTICUT	Conn.	09	Guam	66
DELAWARE	Del.	10	Johnston Atoll	67
DIST. OF COLUMBIA	D.C.	11	Line Islands - Southern	68
FLORIDA	Fla.	12	Mariana Islands	69
GEORGIA	Ga.	13	Marshall Islands	70
HAWAII	Hawaii	15	Midway Islands	71
IDAHO	Idaho	16	Puerto Rico	72
ILLINOIS	Ill.	17	Ryukyn Islands - Southern	73
INDIANA	Ind.	18	Swan Islands	74
IOWA	Iowa	19	Tokelau Islands	75
KANSAS	Kans.	20	U.S. Misc. Caribbean	76
KENTUCKY	Ky.	21	U.S. Misc. Pacific Islands	77
LOUISIANA	La.	22	Virgin Islands	78
MAINE	Maine	23	Wake Islands	79
MARYLAND	Md.	24	Cuba	80
MASSACHUSETTS	Mass.	25	West Indies	81
MICHIGAN	Mich.	26	North America	91
MINNESOTA	Minn.	27	South America	92
MISSISSIPPI	Miss.	28	Europe	93
MISSOURI	Mo.	29	Africa	94
MONTANA	Mont.	30	Asia	95
NEBRASKA	Nebr.	31	Australasia	96
NEVADA	Nev.	32	Pacific Islands	97
NEW HAMPSHIRE	N.H.	33		
NEW JERSEY	J.J.	34		
NEW MEXICO	N. Mex.	35		
NEW YORK	N.Y.	36		
NORTH CAROLINA	N.C.	37		
NORTH DAKOTA	N. Dak.	38		
OHIO	Ohio	39		
OKLAHOMA	Okla.	40		
OREGON	Oreg.	41		
PENNSYLVANIA	Pa.	42		
RHODE ISLAND	R.I.	44		
SOUTH CAROLINA	S.C.	45		
SOUTH DAKOTA	S. Dak.	46		
TENNESSEE	Tenn.	47		
TEXAS	Tex.	48		
UTAH	Utah	49		
VERMONT	Vt.	50		
VIRGINIA	Va.	51		
WASHINGTON	Wash.	53		
WEST VIRGINIA	W. Va.	54		
WISCONSIN	Wis.	55		
WYOMING	Wyo.	56		

DETAILED NOTES

TAPE POSITIONS 132-134 AND 135-137

Industry and Occupation Codes

A person's occupation may be defined as his principal job or business. For this survey purpose, the principal job or business of a respondent is defined in one of the following ways: If the person worked during the two week interview period or had a job or business, the question concerning his occupation (or work) applies to his job during that period. If the respondent held more than one job, the question is directed to the one at which he spent the most time. It refers to the one he considers most important when equal time is spent at each job. A person who has not begun work at a new job, is looking for work, or is on layoff from work is questioned about his last full-time civilian job. A full-time job is defined as one at which the person spent 35 or more hours per week and which lasted two consecutive weeks or more. A person who has a job to which he has not yet reported and has never had a previous job or business is classified as a "new worker."

The 1970 census of population Alphabetical Index of Industries and Occupations was used in the coding of both the industry and occupation.

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DETAILED NOTES

TAPE POSITION 146

Land used for farming purposes (Code 1 in Tape Position 146) was identified as being rural land (Code 2 in Tape Position 13) consisting of 10 or more acres (Code 1 in Tape Position 14) with crop sales amounting to \$50 or more (Code 2 in Tape Position 15), or rural land (Code 2 in Tape Position 13) consisting of less than 10 acres (Code 2 in Tape Position 14) with crop sales amounting to \$250 or more (Code 3 in Tape Position 16). All Other land is classified as nonfarm (Code 2 in Tape Position 146).

TAPE POSITIONS 147-149

Poverty Index—Income status was determined by the Poverty Income Ratio (PIR). Poverty statistics published in the Census Bureau reports^{1/} were based on the poverty index developed by the Social Security Administration in 1964. (For a detailed discussion of the SSA poverty standards, see reference 2.) Modifications in the definition of poverty were adopted in 1969.^{3/} The standard data series in poverty for statistical use by all executive departments and establishments has been established.^{4/}

The two components of the PIR are the total income of the household (numerator) and a multiple of the total income necessary to maintain a family with given characteristics on a nutritionally adequate food plan^{3/} (denominator). The dollar value of the denominator of the PIR is constructed from a food plan (economy plan) necessary to maintain minimum recommended daily nutritional requirements. The economy plan is designated by the Department of Agriculture for "emergency or temporary use when funds are low."

For families of three or more persons, the poverty level was set at three times the cost of the economy food plan. For smaller families and persons living alone, the cost of the economy food plan was adjusted by the relatively higher fixed expenses of these smaller households.

The denominator or poverty income cutoff adjusts the family poverty income maintenance requirements by the family size, the sex of the family head, the age of the family head in families with one or two members, and the place of residence (farm, nonfarm). Annual revisions of the poverty income cutoffs are based on the changes in the average cost of living as reflected in the Consumer Price Index.

As shown in the table, the annual income considered to be the poverty level increases as the family size increases. A family with any combination of characteristics and with the same income as shown in the table has been designated as having a PIR or poverty level of 1.0. The same family with twice the income found in the table would have a PIR of 2.0. Ratios of less than 1.0 can be described as "below poverty," ratios greater than or equal to 1.0, as "at or above poverty."

Poverty thresholds are computed on a national basis only. No attempt has been made to adjust these thresholds for regional, State, or other local variation in the cost of living (except for the farm, nonfarm difference). None of the noncash public welfare benefits such as food stamp bonuses or free food commodities are included in the income of the low income families receiving these benefits.

^{1/}Current Population Reports, "Consumer Income," Series P-60, No. 77, May 7, 1971

^{2/}Orshansky, M.: "Counting the Poor: Another Look at the Poverty Profile," Social Security Bulletin, January 1965; "Who's Who Among the Poor: A Demographic View of Poverty," Social Security Bulletin, July 1965.

^{3/}Current Population Reports, "Special Studies," Series P-23, No. 28, August 12, 1969

^{4/}Circular No. A-46, Transmitted Memorandum No. 9, Executive Office of the President, Bureau of the Budget, August 29, 1969, and Exhibit L (rev.).

DETAILED NOTES

TAPE POSITIONS 147-149

Weighted average thresholds at the low income level in 1971 by size of family and sex of head, by farm-nonfarm residence

Size of family	Total	Nonfarm			Farm		
		Total	Male ¹ head	Female ¹ head	Total	Male ¹ head	Female ¹ head
All unrelated individuals-----	\$2,033	\$2,040	\$2,136	\$1,978	\$1,727	\$1,783	\$1,669
Under 65 years-----	2,093	2,098	2,181	2,017	1,805	1,853	1,715
65 years and over-----	1,931	1,940	1,959	1,934	1,652	1,666	1,643
All families-----	3,700	3,724	3,764	3,428	3,235	3,242	3,079
2 persons-----	2,612	2,633	2,641	2,581	2,219	2,224	2,130
Head under 65 years-----	2,699	2,716	2,731	2,635	2,317	2,322	2,195
Head 65 years and over-----	2,424	2,448	2,450	2,437	2,082	2,081	2,089
3 persons-----	3,207	3,229	3,246	3,127	2,745	2,749	2,627
4 persons-----	4,113	4,137	4,139	4,116	3,527	3,528	3,513
5 persons-----	4,845	4,880	4,884	4,837	4,159	4,159	4,148
6 persons-----	5,441	5,489	5,492	5,460	4,688	4,689	4,656
7 persons or more-----	6,678	6,751	6,771	6,583	5,736	5,749	5,516

¹For unrelated individuals, sex of the individual.

SOURCE: U.S. Department of Commerce, Social and Economic Statistics Administration, U.S. Bureau of the Census "Characteristics of the Low Income Population: 1971," Current Population Reports, Series P-60, No. 86, p. 18.

DETAILED NOTES

TAPE POSITION 150

Region

The United States was divided into four broad geographic regions of approximately equal population. Those regions, which deviate somewhat from the groups used by the Bureau of the Census, are as follows:

<u>Region</u>	<u>States Included</u>
Northeast	Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania
South	Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Arkansas
Midwest	Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri
West	Washington, Oregon, California, Nevada, New Mexico, Arizona, Texas, Oklahoma, Kansas, Nebraska, North Dakota, South Dakota, Idaho, Utah, Colorado, Montana, and Wyoming.

DETAILED NOTES

TAPE POSITIONS 158-193

HANES is a multistage, stratified, probability sample of loose clusters of persons in land-based segments. In addition, HANES is composed of two distinct examination components--a nutrition screening examination (taken by all examinees) and a more detailed examination taken by a pre-selected subsample of all examinees, ages 25-74. For the nutrition screening examination, locations 1-35 and 1-65 constituted national probability samples and for the detailed examination, locations 1-35, 1-65, 66-100 and 1-100 all constitute national probability samples. In other words, HANES is composed of six distinct subsamples of the U.S. population. For a more detailed discussion of the sample design see Series 1, No. 10a.

Since each of these six subsamples is a distinct subsample of the U.S. population, each subsample requires a different set of weights. The weights are based upon the probability of selection into the sample, adjustments for nonresponse and further adjustments to approximate the U.S. noninstitutionalized population as of the midpoint of each subsample.

In order to select all of those examinees in a particular subsample, i.e. received a particular exam component, it is necessary to exclude all examinees with a weight of zero or blank. It is also necessary to exclude all zero or blank weights because that is the only way to differentiate missing data due to nonresponse from data that is missing because the sample design dictated that a particular examinee was not supposed to receive a particular examination component.

It is suggested that any analyses that are desired by the researcher be performed using the greatest number of examinees possible; that is, if the researcher is interested in an exam component of the nutrition screening examination he should use the weight and consequently the data from the 65 location subsample rather than the 35 location subsample. For the detailed examination, the researcher should use the 100 location subsample rather than one of the others. However, some exam components were only done in a particular subsample; for example, only at the first 35 locations. In that case, the researcher has no choice in selecting a particular subsample.

There may be occasions when a researcher may want to make comparisons of estimates obtained from various subsamples. For example, the prevalence of some disease condition as estimated from the first 35 locations could be compared with an estimate based upon locations 66-100. The researcher may also want to formulate hypotheses using one subsample and test those hypotheses using another subsample.

DETAILED NOTE

TAPE POSITIONS 283-288, 289-294

Because of the complete loss of the Hemoglobin and Hematocrit data for three locations in HANES, it was necessary to calculate a new set of sample weights based on 62 locations which would still be representative of the U. S. population. This special sample weight applicable only to these two determinations is located in positions 283-288.

A similar loss of data occurred at three different locations for the determinations of Serum Iron, Total Iron Binding Capacity, and % Transferrin Saturation. A separate special sample weight based on 62 locations was calculated in order to provide for U. S. population estimates for these data. This sample weight is located in positions 289-294.

The original sample weights located in positions 158-193 of the demographic data should not be used when analyzing the above determinations.

DETAILED NOTE

TAPE LOCATIONS 339-350

MISCELLANEOUS FINDINGS - GLOSSARY

Red Cell Descriptive Terms

1. CABOT RINGS
2. ELLIPTOCYTES (OVALOCYTES) - USE ONLY WHEN THE PREDOMINANT CELL
3. HEMOGLOBIN C CRYSTALS
4. HOWELL-JOLLY BODIES
5. IMMATURE NUCLEATED CELLS
6. FRAGMENTED RED BLOOD CELLS (HELMET CELLS, ETC.)
7. ROULEAUX
8. POLYMACROCYTES (MACROCYTES WITH LOBULATED NUCLEUS)
9. SIDEROCYTES (PAPPENHEIMER BODIES)
10. MALARIA PARASITES
11. SCHUFFNER'S DOTS
12. MALARIA CRESCENT SHAPED GAMETOCYTES
13. MAURER'S DOTS
14. MALARIAL DOUBLE RINGS 1-3 TROPHOZOITES
15. OTHER MALARIAL FORMS
16. POLYCHROMATOPHILIA, SLIGHT
17. POLYCHROMATOPHILIA, MARKED
18. BASOPHILIC STIPPLING, SLIGHT
19. BASOPHILIC STIPPLING, MARKED
20. SPHEROCYTES (ANY TYPE), FEW
21. SPHEROCYTES, NUMEROUS
22. TARGET CELLS, FEW
23. TARGET CELLS, MANY
24. SICKLE CELLS, POINTED
25. SICKLE CELLS, BLUNT END
26. BURR CELLS OR SPINOCYTES, FEW
27. BURR CELLS OR SPINOCYTES, MANY

White Cell Descriptive Terms

35. ALDER'S GRANULATION
36. BASOPHILIC BANDS
37. BASOPHILIC METAMYELOCYTES
38. BASOPHILIC MYELOCYTES
39. HYPOSEGMENTATION (NEUTROPHILS)
40. AUER RODS
41. POLYPLOIDY, DIPLOID CELLS, TETRAPLOID CELLS, ETC.

MISCELLANEOUS FINDINGS - GLOSSARY - Continued

White Cell Descriptive Terms - Continued

- 42. EOSINOPHILIC BANDS
- 43. EOSINOPHILIC METAMYELOCYTES
- 44. EOSINOPHILIC MYELOCYTES
- 45. IMMATURE CELLS UNIDENTIFIED
- 46. MITOSES (WHITE CELLS)
- 47. MONOCYTES, ATYPICAL
- 48. MONOCYTES, VACUOLATED
- 49. NEUTROPHILS, VACUOLATED
- 50. PLASMOCYTES
- 51. STEM CELLS
- 52. TART CELLS
- 53. MARKED LEUKOCYTOSIS
- 54. TOXIC GRANULATION (NEUTROPHILS), SLIGHT
- 55. TOXIC GRANULATION, MARKED
- 56. SMUDGE CELLS, FEW
- 57. SMUDGE CELLS, MANY
- 58. HYPERSEGMENTATION OF NEUTROPHILS, FEW
- 59. HYPERSEGMENTATION OF NEUTROPHILS, MANY
- 60. MACROPOLYCYTES (ABNORMALLY LARGE NEUTROPHILS)
- 61. ATYPICAL LYMPHOCYTES OCCASIONAL (0-5%)
- 62. ATYPICAL LYMPHOCYTES PLASMACYTOID TYPE (6-20% of total)
- 63. MAJORITY OF THE LYMPHOCYTES ATYPICAL
- 64. DOEHLE (RNA) BODIES

Platelet Descriptive Terms

- 70. LARGE PLATELETS OR MACROTHROMBOCYTES
- 71. CLUMPS OF PLATELETS, OCCASIONAL
- 72. CLUMPS OF PLATELETS, MANY
- 73. PLATELETS BIZARRE, OR IRREGULAR SHAPES

DETAILED NOTE

TAPE LOCATIONS 351-362

MORPHOLOGICAL INTERPRETATIONS - GLOSSARY

1. NORMAL (RED CELLS, WHITE CELLS AND PLATELETS)

Red Cell Interpretation

2. ACQUIRED HEMOLYTIC PROCESS
3. HYPOCHROMIC MICROCYTOSIS
4. MACROCYTOSIS
5. NORMOCHROMIC MICROCYTOSIS
6. NORMOCYTIC NORMOCHROMIC
7. HYPOCHROMIC MACROCYTOSIS
8. HYPOCHROMIC NORMOCYTOSIS
9. HEMOGLOBINOPATHY, TYPE NOT DESIGNATED
10. HEMOGLOBINOPATHY, HOMOZYGOUS C
11. HEMOGLOBINOPATHY, (SC)
12. HEMOGLOBINOPATHY, SICKLE CELL DISEASE, DREPANOCYTOSIS
13. HEMOGLOBINOPATHY, (HEMOLYTIC CRISIS)
14. HEMOGLOBINOPATHY, (C-THALASSEMIA)
15. HEMOGLOBINOPATHY, (TRAIT S or C)
16. HEMOGLOBINOPATHY, THALASSEMIA - COOLEY'S ANEMIA
17. SPHEROCYTOSIS
18. OVALOCYTOSIS
19. MALARIA

White Cell Interpretation

31. INCREASED BANDS
32. EOSINOPHILIA, SLIGHT
33. EOSINOPHILIA, MARKED
34. PELGER-HUET ANOMALY - HYPOSEGMENTATION
35. INFECTIOUS MONONUCLEOSIS
36. LYMPHOPENIA (RELATIVE AND/OR ABSOLUTE)
37. MONOCYTOSIS (RELATIVE AND/OR ABSOLUTE)
38. LYMPHOCYTOSIS, (ABSOLUTE AND/OR RELATIVE)
39. NEUTROPENIA, SLIGHT (ABSOLUTE AND/OR RELATIVE)
40. NEUTROPENIA, MARKED (ABSOLUTE AND/OR RELATIVE)
41. AGRANULOCYTOSIS
42. LEUKEMOID REACTION, LEUCOCYTOSIS
43. MAY-HEGGLIN ANOMALY

MORPHOLOGICAL INTERPRETATIONS - GLOSSARY - CONTINUED

Immature cells seen which may be classified as follows:

50. IMMATURE CELLS, NOT IDENTIFIED
51. MAJORITY, IMMATURE PROLYMPHOCYTES AND/OR LYMPHOBLASTS
52. FEW IMMATURE CELLS, MAJORITY MATURE LYMPHOCYTES
53. FEW IMMATURE CELLS, MAJORITY MONOCYTES
54. MAJORITY IMMATURE CELLS, MONOBLASTS OR PROMONOCYTES
55. MAJORITY OF IMMATURE CELL BLASTS AND/OR PROGRANULOCYTES OR PROMONOCYTES
56. MAJORITY OF IMMATURE CELLS MYELOCYTES AND MONOCYTES
57. MAJORITY OF IMMATURE CELLS PROGRANULOCYTES AND/OR GRANULOBLASTS
58. MAJORITY OF IMMATURE CELLS MYELOCYTES OR BANDS
59. MAJORITY OF IMMATURE CELLS PLASMA CELLS
60. BIZARRE IMMATURE RUBRICYTES WITH OTHER IMMATURE CELLS

Platelet Interpretations

70. THROMBOCYTOPENIA
71. THROMBOCYTHEMIA

DETAILED NOTES

TAPE POSITIONS 401-430

Serological testing for the presence of Polio I, II and III; Measles; Rubella Tetanus; Diphtheria; and Amebiasis antibodies was done on the Detailed Sample of adults at locations 1-100 in HANES I. From the beginning of the survey certain procedural variations occurred which were not actually resolved until the augmentation portion of the survey which began at location 66.

Illustrative of these variations are titration series which begin at varied levels. As an example, Polio titration series done on serum samples taken during approximately the first 15 locations of HANES I, began at dilutions reactive at "less than 1:20." Later titration series were initialized at dilutions reactive at "less than 1:10." Similar problems exist for all other tests done except for Rubella and Amebiasis. However, since the titration series for Polio at the earlier locations began at a higher titer than is generally employed as a cut-off point for determining protection from, or susceptibility to, the disease (less than 1:10), the Polio data are more seriously affected by the procedural variations than are the rest of the serological test results.

The concentration of a given antibody in serum is expressed as a "titer." A titer is defined here as the highest dilution that still produces the test reaction with the appropriate antigens. The reciprocal of this quantity then has the following meaning: If 1 in 80 is the end-point dilution of a serum, then the serum must contain 80 times the concentration of antibody required for the reaction. The reciprocal of the end-point dilution is used on this tape as a definition of the titer.

For Polio I, II and III; Measles; and Rubella, the reciprocals of the actual titration series end-point values are coded in three digits. The first of these digits has a special meaning according to the following convention:

First Digit	Two Digit Titer Value
7 - reactive, dilution less than	1/XX
0 - reactive at specified dilution	1/XX
3 - reactive, dilution greater than	1/XX

Similarly for diptheria, tetanus, and amebiasis, the same convention using the first digit is involved. The titer series, however, may run further before an end-point is reached. The actual titer values then, are given in four digits, rather than two digits as above.

First Digit	Four Digit Titer Value
7 - reactive, dilution less than	1/XXXX
0 - reactive at specified dilution	1/XXXX
3 - reactive, dilution greater than	1/XXXX

There are blocks of missing data which involve largely serology data collected during the first sixty-five locations of HANES I. Especially affected by these missing data are the results of the Tetanus and Diptheria testing. This is due to deficiencies in record handling, sera which became lost or damaged in the mail, or sera which was damaged in the storage process. There is no reason to believe that these losses occur in a selective pattern, but for analytic purposes magnitude of the lost data compromises the full exploitation of the HANES I sample design.

Because relative freedom from the problems of missing data and variations in the testing procedures, the serology data collected from locations 66 to 100 during the augmentation portion of HANES I may be best suited for analysis purposes. Careful consideration should be given to the selection of data for the purpose of making national estimates. Data from locations 1-65 may be excluded from analysis by selecting those records which contain non-blanks in the sample weight field for locations 66-100 on the demographic portion of the data tape. (See Detailed Notes, tape positions 158-193.)

DETAILED NOTES

TAPE POSITIONS 401-409

HANES I SEROLOGY

TITRATION SERIES VALUES - POLIO I, II, III

SERA GATHERED AT LOCATIONS:

<u>1-100</u>	<u>1-65</u>	<u>66-100</u>
LT 10	LT 10	LT 10
10	10	10
LT 20	LT 20	20
20	20	GT 40
40	40	
GT 40	GT 40	
80	80	
GT 80	GT 80	

(LT = Less than) (GT = Greater than)

NOTE: Values are the reciprocals of the end points of a titration series.

DETAILED NOTES

TAPE POSITIONS 410-412

HANES I SEROLOGY

TITRATION SERIES VALUES - MEASLES

SERA GATHERED AT LOCATIONS:

<u>1-100</u>	<u>1-65</u>	<u>66-100</u>
LT 8	LT 8	LT 10
8	8	10
LT 10	LT 10	20
10	10	GT 40
16	16	
20	20	
32	32	
GT 32	GT 32	
40	40	
GT 40	GT 40	

(LT = Less than) (GT = Greater than)

NOTE: Values are the reciprocals of the end points of a titration series.

DETAILED NOTES

TAPE POSITIONS 413-415

HANES I SEROLOGY

TITRATION SERIES VALUES - RUBELLA

SERA GATHERED AT LOCATIONS:

<u>1-100</u>	<u>1-65</u>	<u>66-100</u>
LT 8	LT 8	LT 8
8	8	8
16	16	16
GT 32	GT 32	GT 32

(LT = Less than) (GT = Greater than)

NOTE: Values are the reciprocals of the end points of a titration series.

DETAILED NOTES

TAPE POSITIONS 416-420

HANES I SEROLOGY

TITRATION SERIES VALUES - DIPHTHERIA

SERA GATHERED AT LOCATIONS:

<u>1-100</u>		<u>1-65</u>		<u>66-100</u>	
LT	0 (No reaction)	LT	0 (No reaction)	LT	0 (No reaction)
LT	1	LT	1	LT	1
	1		1		1
LT	2	LT	2	LT	2
	2		2		2
LT	3	LT	3		5
	3		3		11
LT	5	LT	5		23
	5		5		46
LT	11	LT	11		93
	11		11		187
	23		23		375
	46		46		750
	93		93		1500
	187		187	GT	1500
	375		375	GT	3000
	750		750	GT	6000
	1500		1500		
GT	1500	GT	1500		
	3000		3000		
GT	3000	GT	3000		
	6000		6000		
GT	6000	GT	6000		

(LT = Less than) (GT = Greater than)

NOTE: Values are the reciprocals of the end points of a titration series.

DETAILED NOTES

TAPE POSITIONS 421-425

HANES I SEROLOGY

TITRATION SERIES VALUES - TETANUS

SERA GATHERED AT LOCATIONS:

<u>1-100</u>		<u>1-65</u>		<u>66-100</u>	
LT	0 (No reaction)	LT	0 (No reaction)	LT	0 (No reaction)
	0		0	LT	1
LT	1	LT	1		1
	1		1	LT	2
LT	2	LT	2		2
	2		2		4
LT	4	LT	4	LT	5
	4		4		19
LT	5	LT	5		38
	5		5		77
	7		7		155
LT	11	LT	11		310
	19		19		620
LT	22	LT	22		1250
	38		38	GT	1250
	77		77		2500
	155		155	GT	2500
	310		310	GT	5000
	620		620		
	1250		1250		
GT	1250		2500		
	2500		5000		
GT	2500	GT	5000		
	5000				
GT	5000				

(LT = Less than) (GT = Greater than)

NOTE: Values are the reciprocals of the end points of a titration series.

DETAILED NOTES

TAPE POSITIONS 426-430

HANES I SEROLOGY

TITRATION SERIES VALUES - AMEBIASIS

SERA GATHERED AT LOCATIONS:

<u>1-100</u>	<u>1-65</u>	<u>66-100</u>
LT 16	LT 16	LT 16
16	16	16
LT 32	LT 32	LT 32
32	32	32
64	64	64
128	128	128
256	256	256
512	512	512
1024	1024	1024
2048	2048	
GT 4096	GT 4096	

(LT = Less than)

(GT = Greater than)

NOTE: Values are the reciprocals of the end points of
a titration series.

DETAILED NOTE

TAPE POSITIONS 441-442

Hemoglobin Phenotyping was performed as a special study during HANES I on 12,282 sample persons. These persons do not represent a scientific subsample of the HANES I sample, although those persons examined at locations 66-100 may be used for estimation purposes by applying the appropriate sample weights.

Cellulose acetate electrophoresis was performed on all specimens. Those specimens that appeared abnormal were then tested further.

DETAILED NOTE

TAPE POSITIONS 443-445, 446-448

Percent A₂ hemoglobin was determined for examined persons with mean corpuscular volume (MCV) values below 70 percent.

Percent F hemoglobin was determined when the presence of this hemoglobin was detected.

DETAILED NOTE
TAPE POSITIONS 483-485

The T4 Murphy-Pattee test was performed for those sample persons who had a T4 test result greater than 7.5.

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Detailed note
Tape Position 556-558, 559
NHANES I Serum Vitamin A
Adjustment Procedure

Preface

Serum vitamin A values were obtained for 19,088 examinees at locations 1-65 during NHANES I. However, these data have not been previously released due to a quality control problem which occurred during a 6-month period in 1972. A recent collaborative effort between the Food and Drug Administration (FDA), National Center for Health Statistics (NCHS), and an Expert Panel on Vitamin A Nutriture convened by the Federation of American Societies for Experimental Biology (FASEB), led to the development of an adjustment procedure to correct sample values analyzed during the quality control problem period. The serum vitamin A values given in tape positions 556-558 include 3,530 which were adjusted by this procedure. The adjustment procedure lowered sample values obtained during the quality control problem period by 8.7%. The development and evaluation of the adjustment procedure is described in more detail in the following discussion.

In order to identify which sample values have been adjusted, an adjustment code variable is provided in tape position 559. It is recommended that data tape users read the following description of the adjustment procedure before analyzing the serum vitamin A data. For a description of how these data have been analyzed previously, the user is referred to the following report:

"Assessment of the Vitamin A Nutritional Status of the U.S. Population Based on Data Collected in the Health and Nutrition Examination Surveys." This report is available from the Life-Sciences Research Office of the Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD 20814.

Introduction - The Expert Panel on Vitamin A Nutriture (EPVAN), convened by the Life Sciences Research Office of FASEB, was asked to examine NHANES I serum vitamin A data as part of its review of the HANES data. A total of 18,452 sera samples were available from NHANES I for serum vitamin A analysis; however, quality control (QC) problems related to a contaminated reagent affected 3,432* samples analyzed during a six-month period extending from May 5 through November 1, 1972. Compared to values reported during other periods of the survey, QC pool values during the problem period were approximately 20 percent higher than normal QC values, and concurrently analyzed sample person serum vitamin A values were approximately 10 percent higher than normal sample values.

Although the EPVAN recognized the importance of using the entire NHANES I data base to provide national baseline serum vitamin A data, the members were concerned about potential biases if the problem data were included in their original form. The discrepancy in deviation between QC values and observed sample person values precluded the usual approach for this type of problem, i.e., use of QC values to adjust sample person values. Therefore, FDA and NCHS were requested by the EPVAN to evaluate other approaches for handling the "problem" data.

Proposed Adjustment Methods - Two possible approaches for dealing with the problem data were proposed by FDA/NCHS staff:

Method I - Discard all 3,432 samples analyzed during the problem period

* The EPVAN only reviewed serum vitamin A data for persons 3-74 years, so this value does not include 98 children under age 3 years whose serum vitamin A was analyzed during the problem QC period.

and restrict the statistical analysis of serum vitamin A to the remaining 15,110 of the NHANES I samples.

Method II - Replace all observed values for the problem period by adjusted values calculated by applying a simple multiplicative adjustment factor to the observed values.

Based on a preliminary evaluation of statistical issues associated with the two methods, FDA/NCHS statisticians concluded that Method II was preferable to Method I. This preference was based primarily on the following statistical and resource considerations inherent in Method I:

- a) 3,432 sample observations would be discarded, resulting in the loss of the entire data set for some Primary Sampling Units (PSU's). The loss of entire PSU's severely undermines the NHANES I sample design and could lead to biased estimates for the original target population.
- b) The power of statistical tests would be diminished due to both the reduced sample size and to less stable variance estimates caused by loss of the entire data set for some PSU's.
- c) The loss of entire PSU's also implied that new pseudo strata and PSU codes would be required and a new BRR variance data tape (based on a new orthogonal matrix) would have to be created.
- d) New post-stratification adjustment factors would be required for the reduced data set.

Although the EPVAN concurred with the preliminary statistical evaluation presented by FDA/NCHS statisticians, they both expressed concern about two issues associated with Method II:

- a) could a single adjustment factor work uniformly well in adjusting data for all demographic subgroups of interest?

- b) would an adjustment factor that was selected to shift a location parameter (the median) of the problem values to the level of the good values distort the higher order moments of the distribution, i.e., kurtosis, skewness, etc.?

The EPVAN requested that FDA/NCHS staff develop a methodology for calculating the adjustment factor and then conduct a set of analyses to address the issues cited above.

Calculation of the Adjustment Factor - The following steps describe the procedure used to calculate the adjustment factor. The calculation was based on the 20 age-sex-race cells defined previously by the EPVAN for presentation of data.

1. For each of the 20 age-sex-race cells, the 25th, 50th, and 75th percentiles were estimated separately for the good and problem data. Thus, let:

$\hat{p}_{1,ij}$ = estimate of the i th percentile for the j th age-sex-race cell using the good data.

$\hat{p}_{2,ij}$ = estimate of the i th percentile for the j th age-sex-race cell using the problem data.

($i = 1, 2, 3$; $j = 1, 2, \dots, 20$).

2. The proportional difference between the estimates based on the problem data and the estimates based on the good data were calculated for each percentile and for each age-sex-race cell. That is:

$$\Delta_{ij} = \frac{\hat{p}_{2ij} - \hat{p}_{1ij}}{\hat{p}_{1ij}} \quad \text{for } i = 1, 2, 3; \quad j = 1, 2, \dots, 20.$$

3. For each percentile i , the estimates Δ_{ij} were reasonably consistent across the twenty age-sex-race cells. Thus, it appeared reasonable to pool the estimated percent differences across the age-sex-race cells. The estimates were pooled in such a way that those based on larger sample sizes would have larger weight. Since the sample size within a cell was approximately proportional to the population size of the cell, each estimated proportional difference was weighted by the relative population of its age-sex-race cell. That is, the pooled proportional difference estimates for the i th percentile were defined to be:
- $$\Delta_{i.} = \sum_{j=1}^4 \pi_{ij} \Delta_{ij}$$

where π_{ij} is the U.S. Census Bureau estimate of the relative population size for age-sex-race cell j at the midpoint of NHANES I.

4. The pooled proportional difference estimates for the 25th, 50th, and 75th percentiles were found to be 0.0902, 0.0876, and 0.0821, respectively. Although these estimates are not exactly equal, it appeared reasonable to use the average to define an "overall" multiplicative adjustment factor. Thus, the average overall proportional difference estimate was

$$\Delta_{..} = \sum_{i=1}^3 \Delta_{i.} / 3$$

$$= 0.0866$$

and the overall multiplicative factor was

$$\alpha_{..} = 1 - \Delta_{..}$$

$$= 0.9134.$$

Analyses Performed to Evaluate Adjustment Method

The analyses performed to evaluate the adjustment method included the following:

- a) comparisons of NHANES I serum vitamin A distributions ("good" period only) with NHANES II serum vitamin A distributions for children ages 3-11 years.

The EPVAN requested that the NHANES II distribution be based only on data collected from locations that matched those sampled during the NHANES I problem QC period. However, data from the NHANES I problem QC period could not be compared to the same locations in NHANES II because NHANES II did not necessarily return to the same PSU's used in NHANES I, nor to the same states as were sampled in NHANES I. Even if the same states were used in both surveys, the actual locations may have differed in terms of important socioeconomic variables, thus making it difficult to match locations in NHANES I and NHANES II.

- b) comparisons of NHANES I serum vitamin A distributions between the "good" versus "problem" QC time periods by various one, two-, three- and four-way combinations of selected demographic variables (e.g., age, sex, race, region, poverty status, and urban/rural residence), as requested by the EPVAN. These distributions were then compared with the corresponding distributions produced after applying the adjustment factor.

When comparing NHANES I vitamin A distributions between "good" and "problem" QC periods, NCHS staff used age and sex to define all subgroups because physiological differences in serum vitamin A occur by age and sex. Thus, only distributions that included both these variables were examined. For example, region was not included as a criterion for defining subgroups in a one- or two-way analysis because of the difficulty in interpreting regional data without adjusting for age and sex differences.

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Additionally, NCHS staff concluded that a cell size of at least 100 persons was needed to compare cumulative distributions for two groups. All the two-way (age-sex) cells, and eleven of the 20 three-way (age-sex-race) cells contained enough persons to compare the distributions from the good versus problem periods. However, four-way distributions were not possible (e.g., age-sex-race-region) due to inadequate cell sizes.

Due to time and resource constraints, it was not possible to graph all two-way or three-way distributions of good vs. problem data and good vs. adjusted problem data. Therefore, cumulative distribution graphs for selected two-way and three-way distributions were prepared for groups most likely to have a high prevalence of low serum vitamin A-- children 3-5 years, and women 18-44 years. Examples of these graphs are shown in Figures 1 and 2. Figure 1 is a graph comparing good vs. problem data for 3-5 year-old white males, while figure 2 is the corresponding graph comparing good vs. adjusted problem data for this group. In addition to comparing distributions graphically, the percent of persons with serum vitamin A levels below 20 Mg/dl were compared

before and after applying the adjustment factor (Table 1). Results of these analyses indicated that good agreement existed between distributions based on the "good" QC period data and distributions based on the adjusted "problem" QC period data. (Note: The percentages shown in Table 1 are based on unweighted data because the sample weights could not be used with the data from the "good" QC period only." Because the data were unweighted, the percents presented in Table 1 do not necessarily match those based on the weighted data which are shown in the FASEB vitamin A report.

Recommendations - Based on the time constraints of the EPVAN and results of the above analyses, NCHS and FDA recommended the multiplicative adjustment method for handling the NHANES I vitamin A data collected during the problem QC period for the following reasons:

- A. there were no systematic biases in the pattern of differences between good and problem QC periods for the 25th, 50th, and 75th percentiles within or among any of the age-sex-race groups examined.
- B. application of an overall adjustment factor resulted in fairly uniform distributions across the entire range of vitamin A values, including both low and high serum vitamin A values. Thus, prevalence estimates for those with low serum vitamin A levels were similar regardless whether they were based on adjusted or unadjusted NHANES I vitamin A data.

Table 1. Comparison of Percent with Serum Vitamin A Values ≤ 20 by Age, Sex, and Race Groups, NHANES I Good QC Period vs. Combined Good and Adjusted Problem QC Periods, Unweighted Data

Race/Sex/Age	Percent with Serum Vitamin A ≤ 20 Ug/dl	
	Good QC Period Only	Good and Adjusted Problem QC Periods Combined
White		
MALES		
3-5 years	2.2	2.4
6-11 years	0.7	0.6
12-17 years	0.0	0.0
18-44 years	0.3	0.2
45-74 years	0.2	0.1
FEMALES		
3-5 years	0.7	1.0
6-11 years	0.8	0.7
12-17 years	0.3	0.3
18-44 years	0.1	0.2
45-74 years	0.1	0.2
Black		
MALES		
3-5 years	4.4	4.7
6-11 years	1.8	1.4
12-17 years	0.0	0.0
18-44 years	0.0	0.0
45-74 years	0.0	0.0
FEMALES		
3-5 years	6.5	5.6
6-11 years	2.4	1.8
12-17 years	0.5	0.4
18-44 years	0.7	0.5
45-74 years	0.3	0.2

* Adjusted vitamin A values are 8.66% lower than original values.

