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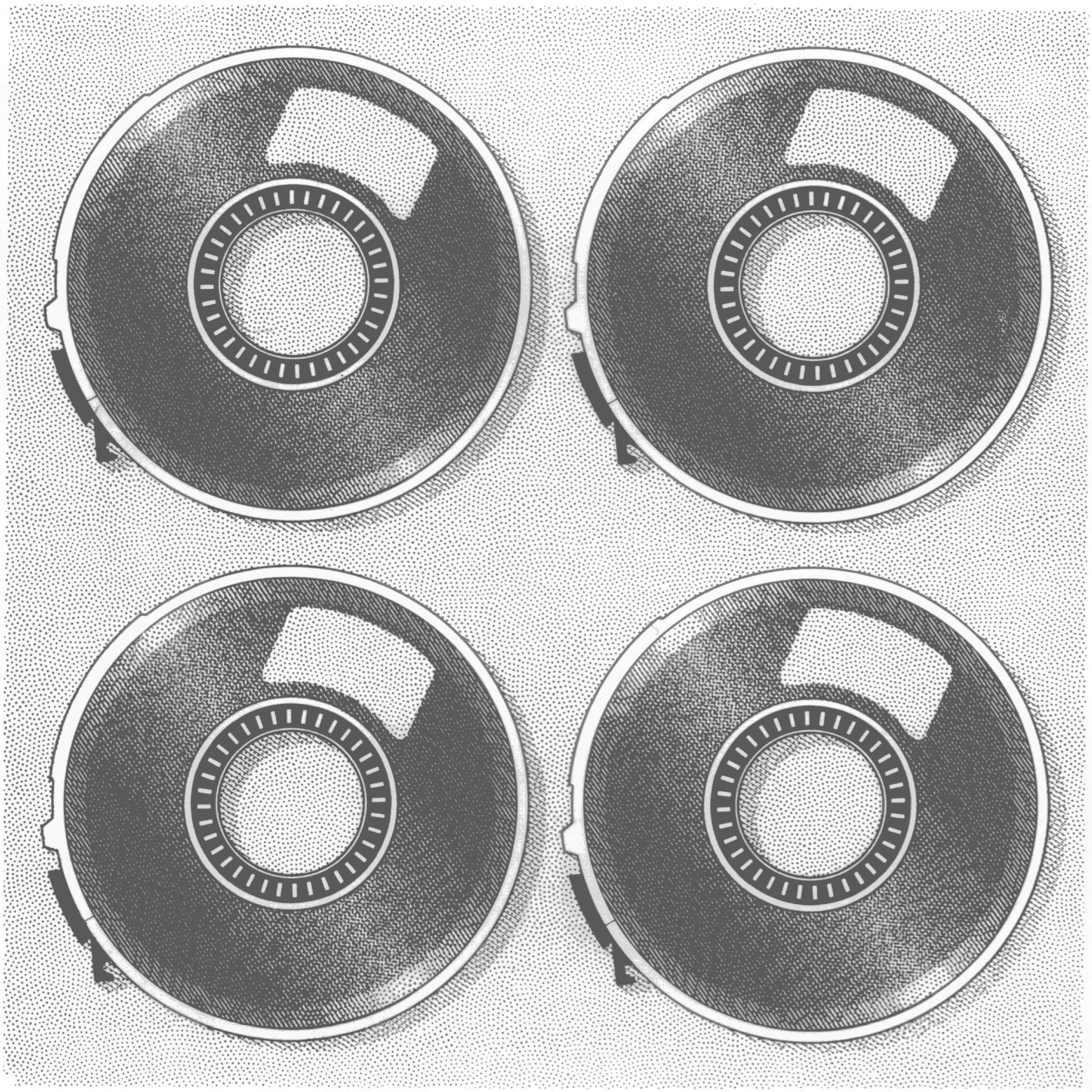
Public Use Data Tape Documentation

Spirometry-Best Trials Only
Ages 25-74
Tape Number 4250

National Health and Nutrition Examination Survey, 1971-75

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



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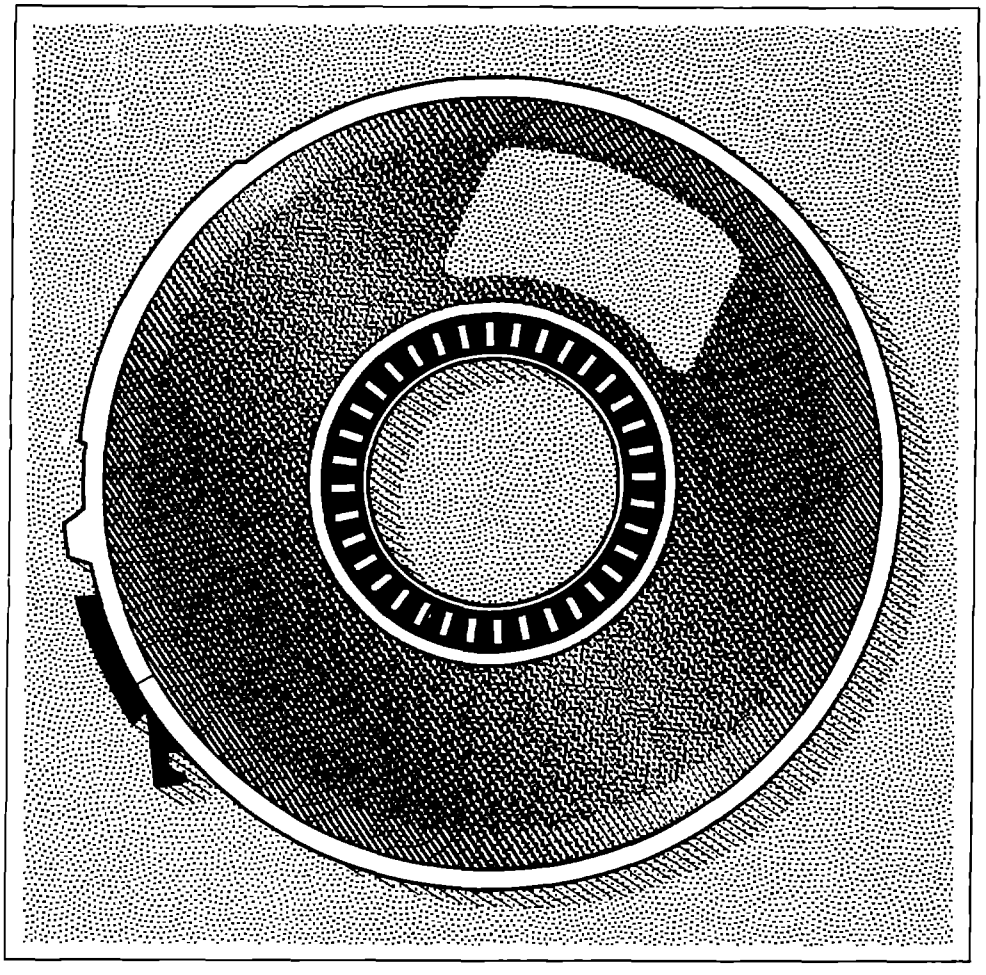

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Center for Health Statistics

Hyattsville, Maryland
November 1985

The data compilation and documentation necessary for the Spirometry Data Tape were done by Terence Drizd, John Varty, Evelyn Stanton, Mary Dudley, and Everette Collins of the Division of Health Examination Statistics, National Center for Health Statistics.

CONTENTS

SPIROMETRY DATA TAPE

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

Description of Survey: A detailed description of the design, content and operation of the 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 report on the augmentation survey of adults describing the relevant field work conducted between July 1974 and October 1975 (Plan and Operation of the HANES I Augmentation Survey of Adults 25-74 Years, United States, 1974-1975, DHEW, Pub. No. (PHS) 78-1314, Series 1, No. 14, Public Health Service, Washington, D. C., U.S Government Printing Office, June, 1978.)

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, 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.

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 include also 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 resonable 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.

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.*

Old Strata # (tape positions 194-195)	New Strata #	New PSU #
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: Spirometry Data Tape

Catalog Number: 4250

Data Set Name: HEHANESI.DU425001

Record Length: 525

Blocksize: 3675

Number of Records: 6913

Number of Reels: 1

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 is 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.

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.

Test Instruction and Performance: The 6,913 examinees included in the detailed sample were eligible to perform the Forced Expiratory Spirogram (FES). This test provides measures of respiratory performance and is the only effort-dependent test conducted in HANES I. The FES, as administered by the HANES I technicians, consisted of five (5) maximal expirations. After a careful, standardized explanation and demonstration by the technician, the examinee was required to inhale maximally from room air. Then, after the technician had started the recording equipment, the examinee placed the tube of the spirometer into his own mouth, over the tongue, and exhaled as quickly and completely as possible. During the whole trial, the technician verbally exhorted the examinee to a maximum effort. At the end of each trial, the examinee was allowed to rest for a few moments while the technician provided remedial instruction, if necessary.

At the end of the five-trial set, the technician evaluated the paper tracings of the trials generated by the recording equipment (see Data Recording System Section). The primary criteria for acceptance were reproducibility (trials with over three liters of volume had to be within 5% of each other on the best two trials; those under three liters were required to agree within 10%) and acceptable flow rate patterns. Additionally, the technicians were trained to recognize procedural errors (Venturi's, inhalation artifacts, etc.) and to void trials on which these occurred. If a set of five trials did not satisfy these criteria, the examinee was asked to rest a short time and then return for another set of five trials. If the second set was still not acceptable, the examinee was asked to rest a longer time (20 minutes), and the chief technician then administered a final set of five trials.

For several reasons, not all examinees performed an acceptable FES. No examinee was allowed to perform an FES prior to receiving the physician's examination, and in a number of cases the physician dictated that the examinee not perform the FES. Also, as with any effort-dependent test, some of the subjects were unwilling to exert themselves sufficiently to generate acceptable data. Finally, a number of the subjects experienced insuperable difficulty in understanding the instructions or performing the test, due to language difficulties, mental insufficiency, physical disabilities, or excessive discomfort.

Data Reduction: The raw data was recorded on 9-track magnetic computer tape. Two hundred and seventy-five (275) of these tapes (which contained both EKG and spirometry data as well as identifying information at the head of each record) were generated by the Mobile Examination Centers and were sent to the NCHS computer center in Research Triangle Park, North Carolina, for eventual analysis by the IBM 370-158 located on the premises.

Data reduction was a six-step process. At each step of the process, the output was reviewed by an analyst whose sole responsibility was the preparation of this data set for release to the general public. Errors in the identifying information were corrected; truncated and blank records were deleted; and electronic noise "spikes" were removed via linear interpolation.

For each spirometry effort, 9216 eight-bit bytes of information were recorded. These included 18 bytes of identifying information and 4599 two-byte data words, representing 9.198 seconds of the volume signal sampled at the rate of 500 samples per second. Electrocardiographic (EKG) examinations were also performed during the HANES I. The signal was sampled at the same rate and recorded on the magnetic tape as well.

The first step of the six-step process mentioned above involved the separation of the spirometric data from the EKG data, with a consequent reduction to only 18 reels of high-density (6250 bit-per-inch) tape. During this step all identification information was verified or corrected as necessary.

The second step consisted of the calculation of some simple statistics (minimum, maximum, mean, standard deviation, minimum and maximum one-point derivatives, and minimum and maximum moving three-point median derivatives) to assess the quality of each record and to insure that each was of the type indicated by the identification information (electronic calibration, pneumatic calibration, or spirogram). Again, incorrect identification information was corrected and it was during this step that incomplete or blank records were identified and deleted. Noise "spikes," usually of a duration of less than two or three 500ths of a second, were replaced with linearly interpolated values.

The third step consisted of the calculation of a calibration constant for each tape, using the pneumatic calibration, as described in another publication.[1] This step was necessary because the conversion from analog signal to digital representation was not a strict one-to-one relationship and because differences in equipment condition, power characteristics, etc., created a variable relationship between volume input and digital representation output. At the beginning of each tape and at the beginning of each test session, the technician configured the spirometer (an Ohio 800) to generate a sinusoidal wave of five liters amplitude. The digital amplitudes were calculated from the recorded data, and the ratio of the two amplitudes was used as a calibration constant to be applied to the data recorded on that tape. If the coefficient of variation for the amplitudes exceeded three percent, (that is, the standard deviation of the recorded amplitudes was greater than three percent of the mean of the amplitudes) the data on the tape was fragmented until no fragment had a coefficient of variation greater than three percent.

The fourth step concerned estimating the stability of the signal. This step was crucial, since the subsequent program which generated the parameters for each trial used this estimate to establish "windows" around certain criteria for identifying critical points in the trial, such as zero time. The estimate was derived by first identifying the end of the baseline of the spirogram using the gross criterion of the first one-point positive derivative greater than one liter per second plus a user-supplied tolerance for baseline variability. If the baseline was over 0.15 seconds long, all the one-point derivatives for the baseline were summed. The same process was applied to all the spirograms, the mean and standard deviation of the baseline derivatives were calculated, and the latter value, if acceptable, was used as input into the parameter calculation program.

The fifth step involved the calculation of the 55 parameters (positions 226-500) described in the tape documentation. The methodology used in this step is described at length in another publication.[1] The output from this step is available on request.

Finally, a best trial for each subject was chosen, using the simple criterion of highest summed Forced Vital Capacity (FVC) and Forced Expiratory Volume at one second (FEV_1). Subjects with no trials free of procedural errors were deleted. Reproducibility was evaluated using the criteria described in the section on Test Instruction and Performance, and a reproducibility code was appended.

Lastly, a provisional diagnosis was made (based on the FEV_1/FVC ratio and the relationship between predicted and observed FVC's), and a diagnostic code of normal, restrictive, obstructive or restrictive/obstructive was appended (see detailed note-Pos. 515). The output from this step consisted of 5,544 trials.

1/ Discher, D., et al. "Computer Assisted Spirometry Data Analysis Program for the HANES, 1971-1980". In press.

Data Recording System: The instrumentation used to acquire and store the spirometry signals consisted of an electronic spirometer, a storage X-Y oscilloscope to display the flow-volume curve, a linear strip chart recorder to provide a permanent record of the volume signal, and a data acquisition unit to encode, convert, and record the volume signal on digital tape.

The spirometer used for all trials was a Model 800 "electronic" spirometer manufactured by Ohio Medical Instruments Corporation. Through the use of a low-voltage potentiometer, this spirometer converts the volume of expired air to a current that is transmitted to the Ohio Flow-Volume Converter. Here the signal is filtered, amplified, and converted to digital form. The volume signal was recorded on a digital base acquisition system (Beckman Digicorder Model No. DRS-1000) along with 18 digits of identifying information for each record, entered on thumb wheel switches by the technician.

The X-Y oscilloscope and the strip chart recorder were used by the technician for monitoring purposes while conducting the examination. The former provided a temporary graphic record of the relationship between volume and flow on each trial, allowed estimates of maximum flow and total volume expired at the end of each trial, and facilitated technician detection of procedural errors. The strip chart recorder, along with providing a permanent record, was used by the technicians to check for a sufficient baseline and a satisfactory termination of effort and to establish reproducibility.

Along with electrocardiographic and spirometric data, two types of calibration records were generated. The first type, a five-volt square wave, was generated by the technician at the beginning of each FES, using the signal generation capability of the Flow-Volume Converter. These records were used to evaluate the functioning of the electronic portion of the system, and were called electronic calibrations.

The other type of calibration record, a pneumatic calibration, was generated by the spirometer itself. An internal volume pump was used to drive the spirometer piston to "inhale" and "exhale" exactly five liters of air. The sinusoidal wave thus generated and recorded was measured by computer analysis and used to estimate a calibration constant (see section on Data Reduction.)

Quality Control and Technician Retraining: Several quality control systems were employed during the collection of spirometric data during HANES I. These systems were complementary in that they monitored different facets of the data collection process, but the most important of them involved periodic field visits to the mobile examination centers (MEC's) by qualified spirometric consultants. During these visits, the consultant observed the administration of at least one FES by each technician. At the completion of the testing session, and after reviewing a sample of all the strip charts recorded at that location, the consultant usually held a classroom discussion for the technicians to explain errors in technique, to provide some understanding of the physiology of spirometry, and to suggest ways to improve examinee cooperation.

Additionally, the chief technician was required to review a sample of all the strip charts recorded at each location and to provide retraining as necessary. When a field visit was not scheduled the strip charts were often sent to the consultant who reviewed them and sent his comments and suggestions both to the field staff and to headquarters, where they came to the attention of the supervisory technician and responsible analytic personnel.

Finally, during the setup of the MEC's at most sites, a biomedical engineer checked equipment performance and made any necessary repairs or adjustments, based on a number of calibration techniques available to him. Test tapes were not generated at that time due to the unavailability of analysis programs.

DEMOGRAPHIC DATA SUMMARY - HANES I

	Tape Positions
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 only 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

SPIROMETRY DATA TAPE SUMMARY - HANES I

	Tape Positions
Catalog Number	201
Height	205
Height Imputation Code	208
Weight	209
Weight Imputation Code	214
Technician Number	215
Reliability Code	217
Trial Number	218
Time of achieving 0.2 liters volume, measured from start of expiration	226
Flow at 0.2 liters volume	231
Volume at 1/4 seconds after start of expiration	236
Flow at 1/4 seconds after start of expiration	241
Time of peak flow, measured from start of expiration	246
Volume at peak flow	251
Peak flow	256
Time of achieving 1.0 liters volume, measured from start of expiration	261
Flow at 1.0 liters volume	266
Volume at 1/2 seconds after start of expiration	271
Flow at 1/2 seconds after start of expiration	276
Volume at time of peak flow plus .10 seconds	281
Flow at time of peak flow plus .10 seconds	286
Time of achieving 1.2 liters volume, measured from start of expiration	291
Flow at 1.2 liters volume	296
Volume at 3/4 seconds after start of expiration	301
Flow at 3/4 seconds after start of expiration	306
Volume at time of peak flow plus .50 seconds	311
Flow at time of peak flow plus .50 seconds	316
Time of achieving 2.0 liters volume, measured from start of expiration	321
Flow at 2.0 liters volume	326
Volume at 1.0 seconds after start of expiration	331
Flow at 1.0 seconds after start of expiration	336
Volume at time of peak flow plus 1.0 seconds	341
Flow at time of peak flow plus 1.0 seconds	346
Time of achieving 3.0 liters volume, measured from start of expiration	351
Flow at 3.0 liters volume	356
Volume at 2.0 seconds after start of expiration	361
Flow at 2.0 seconds after start of expiration	366
Volume at time of peak flow plus 2.0 seconds	371
Flow at time of peak flow plus 2.0 seconds	376

	Tape Positions
Time of achieving 4.0 liters volume, measured from start of expiration.....	381
Flow at 4.0 liters volume.....	386
Volume at 3.0 seconds after start of expiration.....	391
Flow at 3.0 seconds after start of expiration.....	396
Volume at time of peak flow plus 3.0 seconds.....	401
Flow at time of peak flow plus 3.0 seconds.....	406
Time of achieving 5.0 liters volume, measured from start of expiration.....	411
Flow at 5.0 liters volume.....	416
Volume at 4.0 seconds after start of expiration.....	421
Flow at 4.0 seconds after start of expiration.....	426
Volume at time of peak flow plus 4.0 seconds.....	431
Flow at time of peak flow plus 4.0 seconds.....	436
Time of achieving 6.0 liters volume, measured from start of expiration.....	441
Flow at 6.0 liters volume.....	446
Time of achieving 25% of forced vital capacity.....	451
Flow at 25% of forced vital capacity.....	456
Time of achieving 50% of forced vital capacity.....	461
Flow at 50% of forced vital capacity.....	466
Forced Vital Capacity.....	471
Mid Expiratory Flow Rate.....	476
Maximum Mid Expiratory Flow.....	481
Time of achieving 75% of forced vital capacity.....	486
Flow at 75% of forced vital capacity.....	491
Forced Vital Capacity time.....	496
BTPS factor.....	501
Calibration factor.....	508
Diagnosis Code.....	515
Reproducibility Code.....	516
Best Trial Code.....	517

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

DETAILED PERSONS
LOCATIONS 1-100

DEMOGRAPHIC DATA TAPE

(n=6913)

Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
		DEMOGRAPHIC DATA		
1-5	5	Sample Sequence Number		
6-9	4	Catalog Number		
		4271	6913	
10	1	Size of Place		
		1 - Urbanized area with 3,000,000 or more	1076	Household Questionnaire
		2 - Urbanized area with 1,000,000 to 2,999,999	824	See Detailed Notes
		3 - Urbanized area with 250,000 to 999,999	1091	
		4 - Urbanized area under 250,000	627	
		5 - Urban place 25,000 or more outside urbanized area	120	
		6 - Urban place 10,000 to 24,999 outside urbanized area	338	
		7 - Urban place 2,500 to 9,999 outside urbanized area	403	
		8 - Rural	2434	
11	1	SMSA - Not SMSA		
		1 - In SMSA, in central city	2038	Household Questionnaire
		2 - In SMSA, not in central city	2175	See Detailed Notes
		4 - Not in SMSA	2700	
12	1	Type of Living Quarters		
		1 - Housing Unit	6872	Household Questionnaire
		2 - Other unit	41	
13	1	Land Usage		
		1 - All other	4535	Household Questionnaire
		2 - Rural	2378	
14	1	If Rural, asked		
		How Many Acres of Land Are Included?		Household Questionnaire
		1 - 10 or more acres	658	
		2 - Less than 10 acres	1720	
		9 - Not applicable	4535	

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?		Household Questionnaire
			2 - Yes	402	
			4 - No	256	
			9 - Not applicable	6255	
	16	1	If 10 acres or less, asked if Sale of Crops, Etc. Amount to $250 or more?		Household Questionnaire
			3 - Yes	50	
			5 - No	1670	
			9 - Not applicable	5193	
			Age - Head of Household		
	17-18	2	19-89 as given	3852	
			00-Blank, but applicable	2	Household Questionnaire*
			Blank	3059	
	19	1	Sex - Head of Household		Household Questionnaire
			1 - Male	3217	
			2 - Female	637	
			Blank	3059	
	20-21	2	Highest Grade Attended - Head of Household		
			10 - None	54	Household Questionnaire*
			21 - 1st grade	18	
			22 - 2nd grade	31	
			23 - 3rd grade	74	
			24 - 4th grade	82	
			25 - 5th grade	104	
			26 - 6th grade	156	
			27 - 7th grade	147	
			28 - 8th grade	557	
			31 - 9th grade	194	
			32 - 10th grade	261	
			33 - 11th grade	168	
			34 - 12th grade	1047	
			41 - First year of college	117	
			42 - Second year of college	204	
			43 - Third year of college	71	
			44 - Fourth year of college	216	
			45 - Graduate	234	
			88 - Blank, but applicable	119	
			Blank	3059	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	22	1	Race - Head of Household		Household Questionnaire
			1 - White	3209	See Detailed Notes
			2 - Negro	612	
			3 - Other	33	
			Blank	3059	
	23-24	2	Total Number of Persons in Household		
			01-16 - As given	6913	Household Questionnaire
	25-26	2	Total Sample Persons in Household		
			01-06 - As given	6913	Household Questionnaire
	27	1	Number of Rooms in House		
			1-8 - As given	3678	
			9 - 9 or more	176	
			Blank	3059	Household Questionnaire *
	28	1	Is there piped water?		
			1 - Yes	3753	
			2 - No	101	Household Questionnaire
			Blank	3059	*
	29	1	If yes		
			Is there Hot and cold piped water?		
			1 - Yes	3655	Household Questionnaire
			2 - No	100	*
			9 - Not applicable	99	
			Blank	3059	
	30	1	If yes to piped water		
			Does House Have a Sink with Piped Water?		
			1 - Yes	3726	Household Questionnaire
			2 - No	29	*
			9 - Not applicable	99	
			Blank	3059	
	31	1	Does House Have a Range or Cook Stove?		
			1 - Yes	3815	
			2 - No	39	Household Questionnaire
			Blank	3059	*

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	32	1	Does House have a Refrigerator?		Household Questionnaire
			1 - Yes	3815	
			2 - No	39	
			Blank	3059	
	33	1	Are kitchen facilities used by anyone not living in household?		Household Questionnaire
			1 - Yes	124	
			2 - No	3627	
			9 - Not applicable	103	
			Blank	3059	
	34-35	2	Total Family Income Group		Household Questionnaire
			11 - Under $1,000 (including loss	117	See Detailed Notes
			12 - $1,000-1,999	330	
			13 - $2,000-2,999	378	
			14 - $3,000-3,999	392	
			15 - $4,000-4,999	372	
			16 - $5,000-5,999	336	
			17 - $6,000-6,999	329	
			18 - $7,000-9,999	1202	
			19 - $10,000-14,999	1519	
			20 - $15,000-19,999	842	
			21 - $20,000-24,999	431	
			22 - $25,000 and over	390	
			88 - Blank, but applicable	275	
			NOTE: The following income questions were asked only if "Total Family Income" was less than $7,000.		
			DURING PAST YEAR DID YOU OR ANY MEMBERS OF YOUR FAMILY RECEIVE MONEY FROM:		
	36	1	Wages or Salaries?		Household Questionnaire
			1 - Yes	763	
			2 - No	697	
			8 - Blank, but applicable	140	
			9 - Not applicable	2254	
			Blank	3059	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	37-40	4	If yes to above, how much altogether before deductions?		Household Questionnaire
			0001-6999 - As given	709	
			8888 - Blank, but applicable	194	
			9999 - Not applicable	2951	
			Blank	3059	
	41	1	Social Security or Railroad Retirement?		Household Questionnaire
			1 - Yes	721	
			2 - No	737	
			8 - Blank, but applicable	142	
			9 - Not applicable	2254	
			Blank	3059	
	42-45	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	699	
			8888 - Blank, but applicable	164	
			9999 - Not applicable	2991	
			Blank	3059	
	46	1	Welfare Payments or Other Public Assistance?		Household Questionnaire
			1 - Yes	319	
			2 - No	1133	
			8 - Blank, but applicable	148	
			9 - Not applicable	2254	
			Blank	3059	
	47-50	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	314	
			8888 - Blank, but applicable	153	
			9999 - Not applicable	3387	
			Blank	3059	
	51	1	Unemployment or Workmen's Compensation?		Household Questionnaire
			1 - Yes	59	
			2 - No	1391	
			8 - Blank, but applicable	150	
			9 - Not applicable	2254	
			Blank	3059	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	52-55	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	57	
			8888 - Blank, but applicable	152	
			9999 - Not applicable	3645	
			Blank	3059	
	56	1	Government Employee Pensions or Private Pensions?		Household Questionnaire
			1 - Yes	154	
			2 - No	1299	
			8 - Blank, but applicable	147	
			9 - Not applicable	2254	
			Blank	3059	
	57-60	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	149	
			8888 - Blank, but applicable	152	
			9999 - Not applicable	3553	
			Blank	3059	
	61	1	Dividends, interest or rent?		Household Questionnaire
			1 - Yes	231	
			2 - No	1223	
			8 - Blank, but applicable	146	
			9 - Not applicable	2254	
			Blank	3059	
	62-65	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	212	
			8888 - Blank, but applicable	165	
			9999 - Not applicable	3477	
			Blank	3059	
	66	1	Net income from own non-farm business, professional practice or partnership?		Household Questionnaire
			1 - Yes	67	
			2 - No	1384	
			3 - Loss	4	
			8 - Blank, but applicable	145	
			9 - Not applicable	2254	
			Blank	3059	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	67-70	4	If yes to above, how much altogether?		Household Questionnaire
			0001-7500 - As given	57	
			8888 - Blank, but applicable	159	
			9999 - Not applicable	3638	
			Blank	3059	
	71	1	Net income from a farm?		Household Questionnaire
			1 - Yes	102	
			2 - No	1348	
			3 - Loss	5	
			8 - Blank, but applicable	145	
			9 - Not applicable	2254	
			Blank	3059	
	72-75	4	If yes to above, how much altogether?		Household Questionnaire
			0000-6999 - As given	98	
			8888 - Blank, but applicable	154	
			9999 - Not applicable	3602	
			Blank	3059	
	76	1	Veteran's Payments		Household Questionnaire
			1 - Yes	104	
			2 - No	1348	
			8 - Blank, but applicable	147	
			9 - Not applicable	2255	
			Blank	3059	
	77-80	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	99	
			8888 - Blank, but applicable	152	
			9999 - Not applicable	3603	
			Blank	3059	
	81	1	Alimony, child support or contributions from persons not living in household?		Household Questionnaire
			1 - Yes	50	
			2 - No	1403	
			8 - Blank, but applicable	146	
			9 - Not applicable	2255	
			Blank	3059	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	82-85	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	47	
			8888 - Blank, but applicable	149	
			9999 - Not applicable	3658	
			Blank	3059	
	86	1	Any other income?		Household Questionnaire
			1 - Yes	63	
			2 - No	1386	
			8 - Blank, but applicable	150	
			9 - Not applicable	2255	
			Blank	3059	
	87-90	4	If yes to above, how much altogether?		Household Questionnaire
			0001-6999 - As given	60	
			8888 - Blank, but applicable	153	
			9999 - Not applicable	3641	
			Blank	3059	
	91-94	4	Total Amount (Total of Positions 37-90)		Household Questionnaire
			0001-6999 - As given	1363	
			8888 - Blank, but applicable	237	
			9999 - Not applicable	2254	
			Blank	3059	
	95-99	5	FAMILY UNIT CODE		Computer generated
			00001-23180	6913	See Detailed Notes
	100	1	Relationship to Head of Household		Household Questionnaire
			1 - Head (1 person living alone or with non-relatives)	849	
			2 - Head (2 or more related persons in family)	3120	
			3 - Wife	2601	
			4 - Child	163	
			5 - Other relative	180	
	101-2	2	Age at Interview		Household Questionnaire
			25-74 - As given	6913	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	103	1	Race of Examined Person		Household Questionnaire
			1 - White	5968	See Detailed Notes
			2 - Negro	873	
			3 - Other	72	
	104	1	Sex of Examined Person		Household Questionnaire
			1 - Male	3171	
			2 - Female	3742	
	105	1	Marital Status		Household Questionnaire
			1 - Under 17	0	
			2 - Married	5314	
			3 - Widowed	598	
			4 - Never married	451	
			5 - Divorced	343	
			6 - Separated	201	
			8 - Blank, but applicable	6	
	106-9	4	Date of Birth (month, year)		Household Questionnaire
			01-12 - Month as given	6913	
			00-99 - Year (1896-1975) as given	6913	
	110-11	2	Place of Birth		Household Questionnaire
			01-02, 04-06, 08-13, 15-42, 44-51, 53-56, 60-81, 91-97 - As given	6881	See Detailed Notes
			88 - Blank, but applicable	32	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	112-13	2	Highest Grade of regular school ever attended?		Household Questionnaire
			10 - None	66	
			21 - 1st Grade	21	
			22 - 2nd Grade	41	
			23 - 3rd Grade	92	
			24 - 4th Grade	110	
			25 - 5th Grade	128	
			26 - 6th Grade	203	
			27 - 7th Grade	211	
			28 - 8th Grade	780	
			31 - 9th Grade	334	
			32 - 10th Grade	480	
			33 - 11th Grade	343	
			34 - 12th Grade	2334	
			41 - First year of college	324	
			42 - Second year of college	399	
			43 - Third year of college	146	
			44 - Fourth year of college	464	
			45 - Graduate	404	
			77 - Special School	0	
			88 - Blank, but applicable	33	
			99 - Not applicable	0	
	114	1	Did he finish the grade?		Household Questionnaire
			1 - Yes	5436	
			2 - No	1307	
			8 - Blank, but applicable	104	
			9 - Not applicable	66	
	115	1	Is he attending school now?		Household Questionnaire
			1 - Yes	0	
			2 - No	0	
			8 - Blank, but applicable	0	
			9 - Not applicable	3854	
			Blank	3059	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	116	1	Has he ever attended a school of any kind?		Household Questionnaire
			1 - Yes	0	
			2 - No	0	
			8 - Blank, but applicable	0	
			9 - Not applicable	3854	
			Blank	3059	
	117	1	If yes, what kind of school?		Household Questionnaire
			9 - Not applicable	3854	
			Blank	3059	
	118	1	Is any language other than English frequently spoken in the household?		Household Questionnaire
			1 - Yes.	673	
			2 - No	6198	
			8 - Blank, but applicable	42	
	119	1	If yes, what language?		Household Questionnaire
			0 - German	47	
			1 - Italian	54	
			2 - French	93	
			3 - Polish	59	
			4 - Russian	8	
			5 - Spanish	242	
			6 - Chinese	19	
			7 - Other language	144	
			8 - Blank, but applicable	49	
			9 - Not applicable	6198	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	120-21	2	What is your main ancestry or national origin?		Household Questionnaire
			00 - German	1256	
			01 - Irish	940	
			02 - Italian	242	
			03 - French	325	
			04 - Polish	207	
			05 - Russian	67	
			06 - English	975	
			07 - Spanish	112	
			08 - Mexican	128	
			09 - Chinese	20	
			10 - Japanese	14	
			11 - American Indian	82	
			12 - Negro	868	
			13 - Jewish	24	
			14 - American	478	
			15 - Other	979	
			88 - Blank, but applicable	15	
			99 - Don't know	181	
	122	1	What was he doing most of past three months?		Household Questionnaire
			1 - Working	3741	
			2 - Keeping house	2207	
			3 - Something else	952	
			8 - Blank, but applicable	13	
			9 - Not applicable	0	
	123	1	If "something else" from above, what was he doing?		Household Questionnaire
			0 - Laid off	32	
			1 - Retired	549	
			2 - Student	56	
			3 - Other	57	
			4 - Ill	68	
			5 - Staying home	29	
			6 - Looking for work	23	
			7 - Unable to work	138	
			8 - Blank, but applicable	13	
			9 - Not applicable	5948	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	124	1	If "keeping house" or "something else" from above, did he work at a job or business at any time during the past three months?		Household Questionnaire
			1 - Yes	401	
			2 - No	2755	
			8 - Blank, but applicable	16	
			9 - Not applicable	3741	
	125	1	If "Working" from above, did he work full-time or part-time?		Household Questionnaire
			1 - Full-time	3439	
			2 - Part-time	702	
			8 - Blank, but applicable	17	
			9 - Not applicable	2755	
	126	1	Did he work at any time last week or the week before? (not around house)		Household Questionnaire
			1 - Yes.	3738	
			2 - No	384	
			8 - Blank, but applicable	36	
			9 - Not applicable	2755	
	127	1	If "no" to above, even though he did not work during that time, does he have a job or business?		Household Questionnaire
			1 - Yes	277	
			2 - No	2861	
			8 - Blank, but applicable	37	
			9 - Not applicable	3738	
	128	1	If "no" in Position 126, was he looking for work or on lay-off from a job?		Household Questionnaire
			1 - Yes	218	
			2 - No	2920	
			8 - Blank, but applicable	37	
			9 - Not applicable	3738	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	129	1	If yes to above - which?		
			1 - Looking	127	Household Questionnaire
			2 - Lay-off	72	
			3 - Both	19	
			8 - Blank, but applicable	37	
			9 - Not applicable	6€ 3	
	130	1	Class of Worker		Household Questionnaire
			1 - Private paid	2900	
			2 - Government-Federal	175	
			3 - Government-Other	584	
			4 - Own	512	
			5 - Non-paid	49	
			6 - Never worked	9	
			8 - Blank, but applicable	16	
			9 - Not applicable	2668	
	131	1	If self-employed in "own" business and not a farm, is the business incorporated?		Household Questionnaire
			1 - Yes	70	
			2 - No	369	
			8 - Blank, but applicable	16	
			9 - Not applicable	6458	
	132-34	3	Business or Industry Code		Household Questionnaire
			017-999 - As given	6909	See Detailed Notes
			000 - Blank, but applicable	4	
	135-37	3	Occupation Code		Household Questionnaire
			001-995 As given	6907	See Detailed Notes
			000- Blank, but applicable	6	
	138-43	6	Date of Examination		Control Record
			Month - 01-12 as given	6913	
			Day - 01-31 as given	6913	
			Year - 71-75 as given	6913	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	144-45	2	Age at Examination		Computer generated
			25-75 - As given	6913	
	146	1	Farm		Computer generated
			1 - Farm	452	See Detailed Notes
			2 - Nonfarm	6461	
	147-49	3	Poverty Index (X.XX)		Computer generated
			001-997 - As given	3671	See Detailed Notes
			998 - Index computed 998 or greater	9	*
			999 - Unknown	174	
			Blank	3059	
	150	1	Region		Computer generated
			1 - Northeast	1609	See Detailed Notes
			2 - Midwest	1710	
			3 - South	1763	
			4 - West	1831	
	151	1	FOOD PROGRAMS APPLICABILITY		Food Programs Quest.
			1 - Not applicable	2952	*
			2 - No program available	14	
			3 - Food stamps available	771	
			4 - Commodities available	107	
			8 - Blank, but applicable	10	
			Blank	3059	
	152	1	Are you certified to participate in the food stamp program?		Food Programs Quest.
			1 - Yes	299	*
			2 - No	348	
			9 - Don't know	19	
			Blank	6247	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
	153	1	Are you buying stamps now?		Food Programs Quest.
			1 - Yes, regularly	238	*
			2 - Yes, occasionally	14	
			3 - No	46	
			8 - Blank, but applicable	1	
			Blank	6614	
	154	1	What is the main reason you aren't participating in the program?		Food Programs Quest.
			1 - No need	8	*
			2 - Not enough money at the time	15	
			3 - No transportation	1	
			4 - Pride	2	
			5 - Other	17	
			8 - Blank, but applicable	3	
			Blank	6867	
	155	1	Are you certified to participate in the commodity distribution program?		Food Programs Quest.
			1 - Yes	19	*
			2 - No	73	
			9 - Don't know	3	
			Blank	6818	
	156	1	Are you receiving commodity foods now for your family?		Food Programs Quest.
			1 - Yes, regularly	17	*
			2 - Yes, occasionally	0	
			3 - No	2	
			Blank	6894	
	157	1	Why aren't you participating in the program?		Food Programs Quest.
			1 - No need	1	*
			2 - No transportation	0	
			3 - Pride	0	
			4 - Other	1	
			Blank	6911	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION & CODES	Control Counts	HANES I Data Source
			Sample Weights		See Detailed Notes
	158-163	6	Detailed Persons - Locations 01-35	1892	See Detailed Notes
			Blank	5021	
	164-169	6	Blank - Data User Work Area		
	170-175	6	Detailed Persons - Locations 01-65	3854	See Detailed Notes
			Blank	3059	
	176-181	6	Blank - Data User Work Area		
	182-187	6	Detailed Persons - Locations 66-100	3059	See Detailed Notes
			Blank	3854	
	188-193	6	Detailed Persons - Locations 1-100	6913	See Detailed Notes
	194-195	2	Strata	6913	
	196-198	3	Pseudo Primary Sampling Units	6913	
	199-200	2	Work Area		

HEALTH AND NUTRITION EXAMINATION SURVEY (HANES I)

SPIROMETRY DATA TAPE - BEST TRIALS ONLY

(n=6,913)

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	201-204	4	CATALOG NUMBER 4250		
	205-207	3	Height (in inches - xx.x - decimal not shown on tape)		
			52.3 - 80.7 - as given	6906	
			888 - blank, but applicable	7	
	208	1	Imputation Code		
			0 - as observed	6892	
			1 - missing data - imputed	14	
			8 - blank, but applicable	7	
	209-213	5	Weight (in pounds - xxx.xx - decimal not shown on tape)		
			071.50 - 400.00 - as given	6909	
			88888 - blank, but applicable	4	
	214	1	Imputation Code		
			0 - as observed	6890	
			1 - missing data - imputed	19	
			8 - missing data - **not** imputed	4	
	215-216	2	Technician Number		
			33, 69-75, 78, 81-87, 90, 92-95 - as given	5544	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	-217	1	Reliability code		
			0 - no procedural errors	102	
			1 - no stable base line	0	
			2 - volume increasing at end of record	0	
			3 - $FEV_{1.00}$ less than 4% greater than $FEV_{0.50}$ OR $FEV_{2.00}$ less than 4% greater than $FEV_{1.00}$	0	
			4 - inhalation artifact	0	
			5 - venturi	0	
			6 - volume less than 0.2 liters	0	
			7 - hesitation artifact	5442	
			8 - premature termination at end of trial	0	
			Blank	1369	
	218-219	2	Trial Number		
			01 - 13 - as given	5544	
			Blank	1369	
	220-225	6	BLANK - DATA USER WORK AREA		

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	226-230	5	Time (in 1000th of seconds) of achieving 0.2 liters volume, measured from start of expiration		
			00001 - 00479 - as given	5544	
			Blank	1369	
	231-235	5	Flow (in mls/sec) at 0.2 liters volume		
			00000 - 15422 - as given	5544	
			Blank	1369	
	236-240	5	Volume (in mls) at 1/4 seconds after start of expiration		
			00013 - 03054 - as given	5544	
			Blank	1369	
	241-245	5	Flow (in mls/sec) at 1/4 seconds after start of expiration		
			00000 - 10967 - as given	5544	
			Blank	1369	
	246-250	5	Time (in 1000th of seconds) of peak flow, measured from start of expiration		
			00000 - 05870 - as given	5544	
			Blank	1369	
	251-256	5	Volume (in mls) at peak flow		
			00008 - 04023 - as given	5544	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	256-260	5	Peak flow (in mls/sec)		
			02462 - 16846 - as given	5535	
			99999 - not technically valid	9	
			Blank	1369	
	261-265	5	Time (in 1000th of seconds) of achieving 1.0 liters volume, measured from start of expiration		
			00090 - 05630 - as given	5536	
			99999 - not technically valid	8	
			Blank	1369	
	266-270	5	Flow (in mls/sec) at 1.0 liters volume		
			00000 - 15793 - as given	5520	
			99999 - not technically valid	24	
			Blank	1369	
	271-275	5	Volume (in mls) at 1/2 seconds after start of expiration		
			00214 - 04792 - as given	5544	
			Blank	1369	
	276-280	5	Flow (in mls/sec) at 1/2 seconds after start of expiration		
			00000 - 07118 - as given	5544	
			Blank	1369	
	281-285	5	Volume (in mls) at time of (peak flow plus .10 seconds)		
			00057 - 04501 - as given	5544	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	286-290	5	Flow (in mls/sec) at time of (peak flow plus .10 seconds)		
			00000 - 12258 - as given	5524	
			99999 - not technically valid	20	
			Blank	1369	
	291-295	5	Time (in 1000th of seconds) of achieving 1.2 liters volume, measured from start of expiration		
			00100 - 06697 - as given	5526	
			99999 - not technically valid	18	
			Blank	1369	
	296-300	5	Flow (in mls/sec) at 1.2 liters volume		
			00000 - 15793 - as given	5471	
			99999 - not technically valid	73	
			Blank	1369	
	301-305	5	Volume (in mls) at 3/4 seconds after start of expiration		
			00276 - 05685 - as given	5544	
			Blank	1369	
	306-310	5	Flow (in mls/sec) at 3/4 seconds after start of expiration		
			00000 - 05862 - as given	5544	
			Blank	1369	
	311-315	5	Volume (in mls) at time of (peak flow plus .50 seconds)		
			00214 - 05295 - as given	5544	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	316-320	5	Flow (in mls/sec) at time of (peak flow plus .50 seconds)		
			00000 - 06497 - as given	4806	
			99999 - not technically valid	738	
			Blank	1369	
	321-325	5	Time (in 1000th of seconds) of achieving 2.0 liters volume, measured from start of expiration		
			00170 - 07870 - as given	5327	
			99999 - not technically valid	217	
			Blank	1369	
	326-330	5	Flow (in mls/sec) at 2.0 liters volume		
			00000 - 13477 - as given	4672	
			99999 - not technically valid	872	
			Blank	1369	
	331-335	5	Volume (in mls) at 1.0 seconds after start of expiration		
			00328 - 06158 - as given	5544	
			Blank	1369	
	336-340	5	Flow (in mls/sec) at 1.0 seconds after start of expiration		
			00000 - 04606 - as given	1925	
			99999 - not technically valid	3619	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	341-345	5	Volume (in mls) at time of (peak flow plus 1.0 seconds)		
			00328 - 06306 - as given	5544	
			Blank	1369	
	346-350	5	Flow (in mls/sec) at time of (peak flow plus 1.0 seconds)		
			00000 - 03366 - as given	1461	
			99999 - not technically valid	4083	
			Blank	1369	
	351-355	5	Time (in 1000th of seconds) of achieving 3.0 liters volume, measured from start of expiration		
			00250 - 08560 - as given	4088	
			99999 - not technically valid	1456	
			Blank	1369	
	356-360	5	Flow (in mls/sec) at 3.0 liters volume		
			00000 - 09686 - as given	2003	
			99999 - not technically valid	3541	
			Blank	1369	
	361-365	5	Volume (in mls) at 2.0 seconds after start of expiration		
			00436 - 07074 - as given	5544	
			Blank	1369	
	366-370	5	Flow (in mls/sec) at 2.0 seconds after start of expiration		
			00000 - 03691 - as given	238	
			99999 - not technically valid	5306	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	371-375	5	Volume (in mls) at time of (peak flow plus 2.0 seconds)		
			00436 - 07128 - as given	5544	
			Blank	1369	
	376-380	5	Flow (in mls/sec) at time of (peak flow plus 2.0 seconds)		
			00000 - 04950 - as given	204	
			99999 - not technically valid	5340	
			Blank	1369	
	381-385	5	Time (in 1000th of seconds) of achieving 4.0 liters volume, measured from start of expiration		
			00370 - 08520 - as given	2003	
			99999 - not technically valid	3541	
			Blank	1369	
	386-390	5	Flow (in mls/sec) at 4.0 liters volume		
			00000 - 07160 - as given	473	
			99999 - not technically valid	5071	
			Blank	1369	
	391-395	5	Volume (in mls) at 3.0 seconds after start of expiration		
			00436 - 07586 - as given	5544	
			Blank	1369	
	396-400	5	Flow (in mls/sec) at 3.0 seconds after start of expiration		
			00000 - 02872 - as given	69	
			99999 - not technically valid	5475	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	401-405	5	Volume (in mls) at time of (peak flow plus 3.0 seconds)		
			00436 - 07596 - as given	5544	
			Blank	1369	
	406-410	5	Flow (in mls/sec) at time of (peak flow plus 3.0 seconds)		
			00000 - 03206 - as given	56	
			99999 - not technically valid	5488	
			Blank	1369	
	411-415	5	Time (in 1000th of seconds) of achieving 5.0 liters volume, measured from start of expiration		
			00550 - 08910 - as given	717	
			99999 - not technically valid	4827	
			Blank	1369	
	416-420	5	Flow (in mls/sec) at 5.0 liters volume		
			00818 - 04743 - as given	31	
			99999 - not technically valid	5513	
			Blank	1369	
	421-425	5	Volume (in mls) at 4.0 seconds after start of expiration		
			00436 - 07789 - as given	5544	
			Blank	1369	
	426-430	5	Flow (in mls/sec) at 4.0 seconds after start of expiration		
			00000 - 02085 - as given	24	
			99999 - not technically valid	5520	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	431-435	5	Volume (in mls) at time of (peak flow plus 4.0 seconds)		
			00436 - 07789 - as given	5544	
			Blank	1369	
	436-440	5	Flow (in mls/sec) at time of (peak flow plus 4.0 seconds)		
			00000 - 01444 - as given	20	
			99999 - not technically valid	5524	
			Blank	1369	
	441-445	5	Time (in 1000th of seconds) of achieving 6.0 liters volume, measured from start of expiration		
			00900 - 08470 - as given	144	
			99999 - not technically valid	5400	
			Blank	1369	
	446-450	5	Flow (in mls/sec) at 6.0 liters volume		
			01702 - as given	1	
			99999 - not technically valid	5543	
			Blank	1369	
	451-455	5	Time (in 1000th of seconds) of achieving 25% of Forced Vital Capacity		
			00065 - 00954 - as given	5544	
			Blank	1369	
	456-460	5	Flow (in mls/sec) at 25% of Forced Vital Capacity		
			00000 - 14530 - as given	5544	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	461-465	5	Time (in 1000th of seconds) of achieving 50% of Forced Vital Capacity		
			00170 - 02650 - as given	5544	
			Blank	1369	
	466-470	5	Flow (in mls/sec) at 50% of Forced Vital Capacity		
			00000 - 09075 - as given	5544	
			Blank	1369	
	471-475	5	FVC (Forced Vital Capacity)		
			00436 - 08097 - as given	5544	
			Blank	1369	
	476-480	5	MEFR (Mid-Expiratory Flow Rate) = average flow during the first significant liter of effort = Forced Expiratory Flow (FEF) rate between 200 mls and 1200 mls = $FEF_{200 - 1200}$		
			00159 - 15214 - as given	5526	
			99999 - not technically valid	18	
			Blank	1369	
	481-485	5	MMEF (Maximum Mid-Expiratory Flow) = average Forced Expiratory Flow rate in the middle 50% of volume = $FEF_{25\% - 75\%}$		
			00141 - 07563 - as given	5544	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	486-490	5	Time (in 1000th of seconds) of achieving 75% of Forced Vital Capacity		
			00351 - 07485 - as given	5544	
			Blank	1369	
	491-495	5	Flow (in mls/sec) at 75% of Forced Vital Capacity		
			00000 - 05482 - as given	5544	
			Blank	1369	
	496-500	5	FVC_t = time of FVC, measured in 1000th of seconds from start of expiration		
			01140 - 09020 - as given	5544	
			Blank	1369	
	501-507	7	BTPS factor (decimal is shown on tape)		
			1.05099 - 1.11526 - as given	5544	
			Blank	1369	
	508-514	7	Calibration factor (decimal is shown on tape)		
			0.89000 - 0.97000 - as given	5544	
			Blank	1369	
	515	1	Diagnosis Code		
			1 - Normal	4776	See Detailed Note
			2 - Restrictive	642	
			3 - Obstructive	68	
			4 - Restrictive/Obstructive	58	
			Blank	1369	

Item #	Tape Loc.	No. of Positions	ITEM DESCRIPTION AND CODES	Control Counts	HANES I Data Source
	516	1	Reproducibility Code		
			0 - Not reproducible	862	See Detailed Note
			1 - Reproducible	4682	
			Blank	1369	
	517	1	Best Trial		
			1 - Best trial	5544	See Detailed Note
			Blank	1369	
	518-525	8	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.

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.

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).

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

[1]For 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.

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:

Region	States Included
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 Position
515

Diagnosis Code

One of four possible diagnostic evaluations was generated for each subject: normal, restrictive, obstructive, restrictive/obstructive. These categories were developed as screening tools, and do not purport to be conclusive assessments. Two criteria were involved in the diagnoses:

(1) maximum Forced Vital Capacity (FVC) (actually, the maximum of the two best trials, or the best trial if only one was available) and,

(2) the ratio of the best Forced Expiratory Volume at one second (FEV_1) to the best FVC (FEV_1/FVC).

If the maximum FVC was less than 80 percent of the predicted FVC, a diagnosis of "Restrictive Lung Disease" was recorded. If the ratio between the maximum FEV_1 and the maximum FVC was less than 70 percent of the predicted FEV_1/FVC ratio, the diagnosis of "Obstructive Lung Disease" was recorded. If both the above conditions were obtained, the diagnosis of "Restrictive/Obstructive Lung Disease" was recorded.

The equations for the predicted values may be found in another publication[1]. As noted above, if the reader wishes to test or apply other diagnostic criteria, the larger all-trial tape may be obtained from the National Center for Health Statistics.

1/ Discher, D., et al. "Development of a New Motivational Spirometer-Rationale for Hardware and Software". Journal of Occupational Medicine, V. 14, p. 679, 1972.

Detailed Note

Tape Position
516

Reproducibility

Reproducibility is defined as the ability of a subject to reproduce his best effort, and is the sine qua non of the Forced Expiratory Spirogram. If reproducibility is not established, the analyst cannot be assured that the recorded effort is the best the subject is capable of, even though this may in fact be true. For this data set, reproducibility was determined using the most widely accepted criteria, that of agreement of Forced Vital Capacities (FVC) and Forced Expiratory Volumes at one second (FEV_1) between the best and second-best trials. Agreement is defined as a second-best FVC within 5 percent of the best FVC if the best FVC is over three liters, or 10 percent if the best FVC is under three liters.

Detailed Note

Tape Position
517

Best Trial Selection

This data set contains only the best trial from the total number performed (up to 15) by each subject. In the selection of the best trial, all trials with technical failures (inhalation artifact, premature termination, etc.) are deleted before the selection of the best trial begins. If no acceptable trials remain, the subject is deleted. If only one trial remains, that one trial is retained as best. If two or more trials remain, the one with the maximum sum of Forced Vital Capacity and Forced Expiratory Volume at one second is chosen as best. These are the same two variables used to establish reproducibility (see detailed note, position 516). This selection algorithm is the most widely accepted but other algorithms have been suggested. If the user is interested in testing or applying a different best trial selection algorithm, the All-Trial Data Tape, available from the National Center for Health Statistics, must be used.

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