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Serum Lipids of Adults 20–74 Years: United States, 1976–80

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This report presents descriptive and analytic data for serum total cholesterol, cholesterol lipoproteins, and triglycerides for adults 20–74 years of age by age, sex, and selected subgroups of the population at risk of developing coronary heart disease. This information is from the second National Health and Nutrition Examination Survey, which was conducted during the years 1976–80.

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Serum Lipids of Adults

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Introduction

Serum total cholesterol (TC), the cholesterol lipoproteins, and serum triglyceride are all associated with the development of coronary heart disease (CHD) (1-3). Both TC and low density lipoprotein cholesterol (LDL-C) are directly related to the development of CHD (1,2). High density lipoprotein cholesterol (HDL-C) is inversely associated with CHD development and high levels of HDL cholesterol may be protective (4,5). Serum triglyceride, although directly associated with CHD, has not consistently been shown to be an independent CHD risk factor (6,7).

This report presents basic reference data on serum lipids and lipoproteins for adults 20-74 years of age, including TC, HDL-C, the difference between TC and HDL-C or non-HDL-C, TC:HDL-C ratio, serum triglyceride, calculated LDL-C, LDL-C:HDL-C ratio, and detailed estimates of the percent of persons with high blood cholesterol as defined by the Adult Treatment Panel of the National Cholesterol Education Program (2).

The data were collected by the National Center for Health Statistics (NCHS) through the second National Health and Nutrition Examination Survey (NHANES II), conducted during the years 1976-80 (8). NHANES II included a variety of measures of nutritional status and related health information.

The NHANES is an expansion of the National Health Examination Survey (NHES). The surveys are designed to collect data by direct standardized examination of a sample of the population. Direct examinations, coupled with clinical tests and measurements, are the only source of prevalence data regarding previously undiagnosed and

untreated diseases. They are the best source of standardized clinical, physical, and physiological data on the subject.

The three programs of the NHES (1959-70) (9-11) focused on selected aspects of illness and health, each targeting a particular age group of the population.

In 1971, responsibility for monitoring the nutritional status of the population was added to the National Health Examination Survey, which then became the first National Health and Nutrition Examination Survey (NHANES I). Conducted from April 1971-June 1974, NHANES I was designed to assess overall health status, with particular emphasis on dental health, skin problems, eye conditions, and the nutritional status of the population 1-74 years of age (12).

Adults 25-74 years of age were examined to determine the prevalence of chronic lung disease; disabling arthritis of the hip, knee, or lower spine; cardiovascular disease; and hearing levels. In addition, information was obtained on health care needs and general well-being. This segment of the NHANES I program was followed by a 15-month period (July 1974-October 1975) during which an additional national sample of persons 25-74 years of age was examined in order to augment the size of the original NHANES I sample. This study is referred to as the National Health and Nutrition Examination Survey, Augmentation Cycle (13).

NHANES II, the source of data for this report, provides an opportunity to assess the population's health and nutritional status cross-sectionally and to assess some aspects of change over time (14). Components of nutritional status measurement were included in a physician's examination, a medical history questionnaire, body measurements, laboratory assessments of blood samples, and a dietary interview.

Also included in NHANES II were tests and procedures that provided data on diabetes, kidney and heart disease, hypertension, certain allergies, disc degeneration, pulmonary function, hearing and speech problems, and exposure to certain potentially toxic substances.

Total serum cholesterol has been determined from sera collected in each health examination survey except the second National Health Examination Survey (NHES II) (table A). During NHANES II, the NCHS and the National Heart, Lung and Blood Institute of the National Institutes of Health collected and analytically processed

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Table A: Health examination surveys conducted by the National Center for Health Statistics, by years of survey, age of target population, and lipid determinations: 1960–80

Survey	Years conducted	Age of target population	Lipid determinations
First National Health Examination Survey	1960–62	18–79 years	TC
Second National Health Examination Survey	1963–65	6–11 years	none
Third National Health Examination Survey	1966–70	12–17 years	TC
First National Health and Nutrition Examination Survey	1971–74	1–74 years	TC
Second National Health and Nutrition Examination Survey	1976–80	6 months–74 years	TC HDL-C serum triglyceride

(for the first time) serum specimens for HDL-C and triglycerides in addition to TC.

Lipid analyses for NHANES II were performed at the George Washington University according to protocol used by the Lipid Research Clinic Program (LRC). The blood determinations underwent numerous quality control and editing procedures in both the data collection and data processing phases of the survey. All unusual values were checked and verified by the laboratory.

Data for TC, HDL-C, and serum triglyceride were determined only for adults ages 20–74 years in NHANES II. TC and HDL-C were scheduled to be measured in all adults 20–74 years old who were examined in NHANES II and serum triglyceride was scheduled to be measured only in the randomly selected half of the examined adults 20–74 years old who were to receive the oral glucose tolerance test (OGTT). The “half sample” was also designed to represent the adult population of the United States.

Estimates of the mean, standard error of the mean, and selected percentiles are shown for serum lipid and lipoprotein determinations by race, sex, and age, and for women 20–44 years of age by race, age, and use of oral contraceptives. These include TC, HDL-C, non-HDL-C, and the TC:HDL-C ratio. This latter composite variable, first used in the Framingham Study, is a useful measure of the joint contribution of TC and HDL-C to CHD risk (15).

In addition, estimates are presented for persons 20–74 years old who fasted at least 12 hours prior to venipuncture for serum triglyceride, calculated values of LDL-C (16) and the LDL-C:HDL-C ratio by race, sex, and age.

Cumulative percent distributions for these seven variables are also presented by race, sex, and age. Selected results from these tables are highlighted in other tables showing the percent distributions by selected cutpoints of importance to CHD. These results include:

- The percent with HDL-C less than 35 mg/dl
- The percent with a TC:HDL-C ratio greater than or equal to 4.5 (17)

The percent of persons with serum triglyceride levels between 250 and 500 mg/dl and the percent with serum triglyceride levels of 500 mg/dl or more (6) are not highlighted in a special table. However, these percents can be obtained from the tables showing cumulative percents (18).

In addition, the guidelines proposed by the National Cholesterol Education Program’s (2) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults or Adult Treatment Panel (ATP) are applied to all adults 20–74 years, to women 20–44 years, to hypertensives, and to normotensives in summary tables showing:

- The percent with desirable, borderline-high and high serum TC
- The percent referred for lipoprotein analysis with desirable, borderline-high risk and high risk LDL-C (not presented for women 20–44 years)

The percent of hypertensives and normotensives with desirable, borderline-high, and high TC as well as the percent of hypertensives and normotensives referred for lipoprotein analysis with desirable, borderline-high-risk, and high-risk LDL-C are also presented. Moreover, the percent of hypertensives and normotensives within the desirable, borderline-high-risk, and high-risk TC categories, and the percent referred for lipoprotein analysis within the desirable, borderline-high-risk, and high-risk LDL-C categories are presented. Similar tables are presented for percent with HDL-C less than 35 mg/dl and persons with a ratio of TC to HDL-C greater than or equal to 4.5 in the various categories of the guidelines.

Two additional tables show the percent with desirable, borderline-high-risk, and high-risk LDL-C for adults 20–74 years—one as a percent of the total population and one as a percent of those not needing treatment for high blood cholesterol. Important findings derived from these tables have been published (19), as are other important findings concerning NHANES II lipid data (19–23).

All serum lipid and lipoprotein determinations are shown in milligrams per deciliters (mg/dl). To convert TC, HDL-C, non-HDL-C, and LDL-C to millimoles per liter (mmol/L), multiply the value expressed in milligrams per deciliters by .02586. To convert serum triglyceride to mmol/L, multiply the value expressed in milligrams per deciliters by .01129.

Sample sizes for most subgroups are large enough to meet NCHS requirements for statistically reliable results (see appendix II). In instances where these requirements are not satisfied, an asterisk (*) is shown instead of the estimates.

The lipid data from this survey have been coded, edited, and released on microdata tape (PB. No. PB90–500943). Persons interested in more detailed analyses can purchase this tape from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia (24).

Source of data and analytical issues

Source of data

The second National Health and Nutrition Examination Survey (NHANES) was conducted February 1976–February 1980 by NCHS. The study population for the survey was the civilian noninstitutionalized population 20–74 years of age in the United States. The NHANES II sample consisted of 17,390 persons 20–74 years of age, 88 percent of whom were interviewed. Of these, 11,864 were interviewed and examined, resulting in a response rate of 68 percent. The sample sizes and response rates for adults 20–74 years by race, sex, and age in NHANES II are shown in tables B and C; sample sizes available for each lipid determination are shown in table D. More detail on the sample design and conduct of the survey is shown in appendix I. Other data collection and analytic issues are described in appendixes II–IV.

All interviews, examinations, tests, procedures, and laboratory determinations followed standardized protocol. NHANES II, like previous examination surveys, consisted of two components. The first component consisted of household interviews and the second component consisted of physical examinations and additional interviews in mobile examination centers.

Table B. Number and percent of persons 20–74 years of age who were interviewed and examined by age, sex, and race: Second National Health and Nutrition Examination Survey, 1976–80

Age, sex, and race	Total sample	Interviewed		Examined	
		Number	Percent	Number	Percent
Total	17,390	15,364	88.35	11,864	68.22
Age					
20–24 years	1,894	1,758	92.82	1,414	74.66
25–34 years	3,031	2,773	91.49	2,237	73.80
35–44 years	2,236	2,005	89.67	1,589	71.06
45–54 years	2,149	1,866	86.83	1,453	67.61
55–64 years	3,868	3,330	86.09	2,556	66.08
65–74 years	4,212	3,632	86.23	2,615	62.08
Sex					
Female	9,316	8,286	88.94	6,260	67.20
Male	8,074	7,078	87.66	5,604	69.41
Race					
White	15,103	13,316	88.17	10,301	68.20
Black	1,955	1,764	90.23	1,336	68.34
Other	332	284	85.54	227	68.37

The household interview component involved collecting socioeconomic and demographic information from the family and sample persons within the family and completing a medical history questionnaire for sample persons. Staff from the U.S. Bureau of the Census performed the initial household interviews and assisted in scheduling appointments for examinations.

The examination component was performed in mobile examination centers specially designed for this study. The examination, environment, and equipment were standardized to minimize differences in findings among sample locations. Examination teams were trained to follow the study protocol, which in turn provided for standardization and evaluation of their performance. The examination consisted of:

- A general medical examination and screening by a physician and additional medical history
- Laboratory tests of whole blood, serum and urine specimens, and lipid determinations
- Body measurements
- A dietary interview
- Selected diagnostic tests, such as electrocardiograms and x rays, and tests on speech and hearing, allergies, and pulmonary function

Thus, NHANES II provided the opportunity to assess key aspects of the population's health and nutritional status during a 4-year period, and to assess changes in the U.S. population over time by comparison with other NHANES.

Methods of measurement

NHANES II was staffed by two trained examination teams and equipped with three mobile examination centers which could be moved to a central location in each of the examination sites or primary sampling units. At the mobile examination center, examinees changed from their street clothing to disposable paper examination uniforms and foam rubber slippers designed to facilitate and standardize various elements of the examination.

Serum lipid determinations

Blood samples were obtained by venipuncture from both fasting and nonfasting subjects. The cells were allowed to clot and the samples were then centrifuged. The

serum was recovered, and an aliquot was placed in a plastic screw-capped vial and placed in a freezer within 3 hours of collection. At approximately 2-week intervals, serum specimens collected over the preceding period were placed in a styrofoam shipping container with dry ice. Specimens were shipped to George Washington University Lipid Research Clinic Laboratory for analysis of serum cholesterol, triglyceride, and high density lipoprotein (HDL) cholesterol.

When they arrived at the laboratory, samples were placed in a freezer at -15°C until they were analyzed—usually within 2 weeks of receipt. Specimens were allowed to thaw at room temperature, then mixed thoroughly by vortexing. All measurements were performed according to the protocol described for the Lipid Research Clinics (LRC) program (25).

Total serum cholesterol and serum triglycerides

Analyses were performed on zeolite-treated isopropanol extracts using an Auto-Analyzer II (AAII) (Technicon Instruments, Tarrytown, N.Y.) (a). The AAII uses a Lieberman-Burchard reagent for cholesterol and a fluorimetric measurement of triglycerides. Instrumental process was established at the beginning of each analytical run with cholesterol/triglyceride standards in isopropanol (100/50, 200/100, 300/200, and 400/300 mg/dl) provided by the Clinical Chemistry Standardization Section of the Centers for Disease Control and Prevention (CDC).

A serum calibrator was used to automatically adjust instrumental response to reference Abell-Kendall values (26). Extracts of a high or low serum cholesterol/triglyceride internal pool were positioned in each tray; results from out-of-control analyses were rejected and the analyses repeated. The serum calibrator and internal control pools

Table C. Number and percent of persons 20–74 years of age interviewed and examined in the fasting sample, by age, sex, and race: Second National Health and Nutrition Examination Survey, 1976–80

Age, sex, and race	Total sample	Interviewed		Examined	
		Number	Percent	Number	Percent
Total	8,686	7,691	88.54	5,903	67.96
Age					
20–24 years	914	837	91.58	650	71.12
25–34 years	1,520	1,390	91.45	1,129	74.28
35–44 years	1,135	1,025	90.31	795	70.04
45–54 years	1,075	926	86.14	708	65.86
55–64 years	1,909	1,651	86.49	1,281	67.10
65–74 years	2,133	1,862	87.29	1,340	62.82
Sex					
Female	4,572	4,073	89.09	3,057	66.86
Male	4,114	3,618	87.94	1,016	24.70
Race					
White	7,555	6,673	88.33	5,145	68.10
Black	962	871	90.54	646	67.15
Other	169	147	86.98	112	66.27

Table D. Number of persons ages 20–74 years with known serum lipid determinations by race: Second National Health and Nutrition Examination Survey, 1976–80

Lipid determination	Total	White	Black
Total serum cholesterol (TC)	11,864	10,301	1,336
High density lipoprotein cholesterol (HDL-C)	9,797	8,582	1,043
Ratio of TC/HDL-C	9,797	8,582	1,043
Serum triglyceride	2,753	2,401	299
Low density lipoprotein cholesterol	2,283	1,990	251

with assigned cholesterol/triglyceride target values were provided by the CDC. Serum triglyceride values are for the fasting sample only. There were 5,903 sample persons in the fasting sample (table C).

The fasting time in hours was calculated in the mobile examination center from the Glucose Challenge and Related Diabetes Data questionnaire (24). Only the triglyceride values for those sample persons who fasted 12 hours or more were used for this report ($n=2,753$).

High density lipoprotein cholesterol

HDL cholesterol was determined by the beta quantification procedure, which involves a combination of preparative ultracentrifugation and heparin-manganese precipitation. The determination was made on a supernatant fraction obtained after treatment of the sera with heparin and manganese chloride, to precipitate apo B containing lipoproteins. The precipitate was sedimented by centrifugation for 30 minutes at $1,500 \times g$, and an aliquot of the clear supernatant was extracted with 9.5 volumes of 99 percent isopropanol. The extract was treated with a zeolite-containing mixture to remove interfering substances. The solids were sedimented by centrifuging for 30 minutes at $1,500 \times g$. The cholesterol content of the extract was measured on the AAII as described in the LRC program operations manual.

Non-HDL cholesterol

For each sample person 20–74 years of age for whom TC and HDL cholesterol were determined, the non-HDL cholesterol was determined by subtracting the HDL-C from the TC. The non-HDL cholesterol is an estimate of the sum of LDL-C and very low density lipoprotein cholesterol (VLDL-C).

Ratio of TC to HDL-C

For each sample person 20–74 years of age for whom TC and HDL cholesterol were determined, the ratio was obtained by dividing the TC by the HDL-C.

Low-density lipoprotein cholesterol

For persons fasting 12 hours or more prior to venipuncture, serum LDL was calculated using the Friedewald equation (16) as follows:

$$\text{LDL-C} = \text{TC} - (\text{HDL-C} + \text{serum triglyceride}/5).$$

All values are expressed in mg/dl.

LDL-C was not calculated for individuals with a serum triglyceride value greater than 400 mg/dl because the equation is not accurate beyond this value (16). LDL-C data in this report are based on the values for 2,283 sample persons.

Ratio of LDL-C to HDL-C

The LDL-C to HDL-C ratio for persons fasting 12 hours or more prior to venipuncture with known HDL-C and serum triglyceride not exceeding 400 mg/dl was calculated by dividing the LDL-C value by the HDL-C value.

Analytic issues

Weighting procedures

The estimates are weighted to be national population estimates. Weighting was accomplished by inflating examination findings for each examined person by the reciprocal of selection probabilities adjusted to account for persons who were not examined and poststratifying by race, sex, and age. As a result of poststratification adjustments, the population estimates closely approximate the independent U.S. Bureau of the Census estimates for the civilian noninstitutionalized population of the United States at the midpoint of the survey (March 1, 1978).

Estimates of TC, HDL-C, non-HDL cholesterol and the ratio of TC to HDL-C are based on the examined weights found in tape position 282–287 (24) of all NHANES II data release tapes.

Estimates of serum triglyceride, LDL-C and the ratio of LDL-C to HDL-C are based on the OGTT weights found in tape positions 294–299 of all NHANES II data release tapes. These weights account for the fact that only half the adults examined in NHANES II received the OGTT test.

A more detailed discussion of the calculation of sample weights is in appendix I.

Population estimates

The 1986 U.S. population estimates are presented by age, sex, and race in table VI of appendix I. The prevalence estimates shown in tables 32–48 can be applied to these population estimates to obtain corresponding estimates of the number of U.S. adults affected. For example, 26.8 percent of all persons had a high TC (TC $\geq$ 240 mg/dl) value (2) (table 34); multiplying that figure by the number of persons 20–74 years old (158,639,000) from table VI results in an estimate of 42,515,000 persons with high TC in 1986.

Reliability of estimates

Estimates of percents, means, standard errors of the percents and means, and nine selected percentiles (5th, 10th, 15th, 25th, 50th, 75th, 85th, 90th, and 95th) are presented for each lipid variable. These estimates are stable only if the sample size is sufficiently large. The sample size is sufficiently large for most subgroups; the exceptions are indicated with an asterisk. (See appendix II for further discussion of data presentation and reliability.)

The number of black adults fasting 12 hours or more was too small to present statistically reliable sex- and age-specific estimates of serum triglyceride and LDL-C. Therefore, only unadjusted or crude estimates and age-adjusted estimates of these lipid variables are presented for black men and women. Because the number of women 20–44 years old who fasted 12 hours or more prior to examination was insufficient to further stratify by oral contraceptive use, age, and race, estimates of serum triglyceride and LDL-C are not presented for these subgroups (table D).

The reliability of an estimated mean or percent depends not only on the number of people upon which it is based but also on its relative standard error, defined as the ratio of the standard error of the estimate to the estimate times 100. The larger the relative standard error of the estimate the less reliable is the estimate. In the past, NCHS has recommended that the relative standard error of an estimate not exceed 25 percent.

Percent needing lipoprotein analysis

The National Cholesterol Education Program's Expert Committee on the Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults has recommended a two-step process (2). This committee is also referred to as the Adult Treatment Panel or ATP.

The first step in the ATP guidelines is based on the measurement of total cholesterol and an evaluation of CHD risk factor load. Adults with a high blood TC level of greater than or equal to 240 mg/dl (6.21 mmol/L) are referred for lipoprotein analysis. Those with borderline-high TC values of 200 and 239 mg/dl (5.17–6.20 mmol/L) and two or more CHD risk factors were also referred for lipoprotein analysis. Those in the borderline-high group who did not also have two or more CHD risk factors should be reevaluated yearly. Adults with TC values in the desirable range of less than 200 mg/dl (5.17 mmol/L) should be reevaluated every 5 years. The CHD risk factors, identified by the ATP for evaluating borderline-high TC values, are:

- Male sex;
- Family history of premature CHD;
- Smoking more than 10 cigarettes per day;
- Hypertension;
- Diabetes mellitus;
- History of definite cerebrovascular disease or occlusive peripheral vascular disease; and

- Severe obesity (greater than or equal to 30 percent overweight).

The second step in the ATP guidelines is based on LDL-C and on an evaluation of risk factor load. Adults with high-risk LDL-C levels of greater than or equal to 160 mg/dl (4.14 mmol/L) are candidates for medical advice and intervention using diet as the primary mode of treatment. Additionally, adults with borderline-high-risk LDL-C levels of 130–159 mg/dl (3.36–4.13) and two or more CHD risk factors are also candidates for treatment. Those in the borderline-high-risk group who did not have two or more CHD risk factors should be reevaluated yearly. Adults with LDL-C values in the desirable range of less than 130 mg/dl (3.36 mmol/L) should be reevaluated every 5 years. An additional risk factor used in evaluating borderline-high-risk LDL-C levels is an HDL-C level less than 35 mg/dl (0.91 mmol/L).

The percent of individuals who need treatment for high cholesterol may be determined as follows:

- Let B_1 represent the event that an individual has a TC level of at least 240 mg/dl
 B_2 represent the event that an individual has a TC level of 200–239 mg/dl and CHD or 2 CHD risk factors
 C_1 represent the event that an individual has an LDL-C level of at least 160 mg/dl
- and C_2 represent the event that an individual has an LDL-C level of 130–159 mg/dl and CHD or 2 CHD risk factors.
- Then $B = B_1 \cup B_2$ represents the event that an individual would be referred for lipoprotein analysis
- and $C = C_1 \cup C_2$ represents the event that an individual has an LDL-C level of at least 160 mg/dl or an LDL-C level 130–159 mg/dl and CHD or 2 CHD risk factors.

If T represents the event that an individual needs treatment for high blood cholesterol, then

$$T = B \cap C \text{ and}$$

$$P(T) = P(B \cap C) \text{ (where } P \text{ denotes the probability of an event)} \quad (1)$$

$$= P(B)P(C/B) \quad (2)$$

$$= P(B_1 \cup B_2)P(C_1 \cup C_2 / B_1 \cup B_2) \quad (3)$$

$$= [P(B_1) + P(B_2)] [P(C_1 / B_1 \cup B_2) + P(C_2 / B_1 \cup B_2)] \quad (4)$$

NOTE: $P(B_1 \cup B_2) = P(B_1) + P(B_2)$ because B_1 and B_2 are disjoint events (that is, events that cannot occur simultaneously).

$$\text{that is, } B_1 \cap B_2 = \emptyset$$

$$P(C_1 \cup C_2 / B_1 \cup B_2) = P(C_1 / B_1 \cup B_2) + P(C_2 / B_1 \cup B_2) \\ \text{because } C_1 \text{ and } C_2 \text{ are disjoint events.}$$

Therefore, $P(C/B)$ represents the conditional probability that individuals need treatment for high blood cholesterol given that they are referred for lipoprotein analysis.

The percent of persons in a specified subgroup who need treatment for high blood cholesterol can be obtained by applying (4) to the appropriate percentages in the tables. (The probability of an event may be converted to a percent by multiplying it by 100. Conversely, a percent may be converted to a probability by dividing it by 100.)

For example, to determine the percent of hypertensives who need treatment for high blood cholesterol, consider: the percent of hypertensives 20–74 years of age with a TC level of at least 240 mg/dl is 40.1 (row 1 and column 8 of table 41) and the percent with a TC value 200–239 mg/dl and CHD or two CHD risk factors is 27.2 (row 1 and column 6 of table 41). Therefore, the percent of hypertensives 20–74 years of age who would be referred for lipoprotein analysis is 67.3 ($= 40.1 + 27.2$) and the corresponding probability, .673 ($= 67.3/100$).

The percent of hypertensives 20–74 years of age with an LDL-C level of at least 160 mg/dl, given that they have been referred for lipoprotein analysis, is 56.0 percent (row 1 and column 8 of table 43), and the percent with LDL-C 130–159 mg/dl and CHD or two CHD risk factors, given that they have been referred for lipoprotein analysis, is 33.8 (row 1 and column 6 of table 43). Therefore, the percent of hypertensives who need treatment for high cholesterol, given that they are referred for lipoprotein analysis, is 89.8 ($= 56 + 33.8$) and the corresponding probability is .898 ($= 89.8/100$).

Therefore, the total percent of hypertensives 20–74 years of age who need treatment for high cholesterol is 60.4 ($= .673 \times .898 \times 100$). The percent of adults 20–74 years of age who need treatment for high blood cholesterol can also be determined directly from table 37 by the following method: add the percent for a given race, sex, and age subgroup with high-risk LDL-C to the corresponding percent with borderline-high risk LDL-C and CHD or two CHD risk factors. For example, the percent of white women 20–74 years of age who need treatment for high blood cholesterol is 31.2 ($= 24.3 + 6.9$).

Percent not needing lipoprotein analysis

An individual with a TC level less than 200 mg/dl is defined as one who has desirable serum cholesterol. Such individuals, as well as those with borderline-high TC and CHD and no two CHD risk factors, would not need lipoprotein analysis. The percent of adults with desirable, borderline-high risk, and high-risk LDL-C as a percent of those who do not need lipoprotein analysis is shown in table 38.

Age of examinees

The chronological age at the time of interview was the age criterion for inclusion in the sample. The value used as a label for each age group in the tables is the integer referring to age at last birthday at the time of interview. Hence, “10 years” refers to all children 10.00–10.99 years, with an approximate mean value of 10.50 years.

Hypertension

Hypertension is defined as (1) a systolic blood pressure of 140 mmHg or more, or (2) diastolic blood pressure of 90 mmHg or more, or (3) currently taking medication for high blood pressure. Normotension is defined as not hypertensive, that is, systolic blood pressure is less than 140, diastolic blood pressure is less than 90 mmHg, and the subject is not currently taking medication for high blood pressure.

Oral contraceptive use

Women ages 20–44 years are classified as users, recent discontinuers, and nonusers of oral contraceptives. Women who responded “yes” to the question “Are you now taking

birth control pills?” are classified as oral contraceptive users. Women who responded “yes” to the question “Have you taken birth control pills during the past six months?” and “no” to the question “Are you taking them now?” are classified as recent discontinuers. Women who responded “no” to the question “Have you taken birth control pills during the past six months?” are classified as nonusers of oral contraceptives. Nonpregnant and nonlactating women were excluded from the estimates of TC, HDL-C, and the ratio of TC to HDL-C. Estimates of mean TC and the percent with desirable, borderline-high, and high TC were based on 504 birth control users. Estimates of mean HDL-C and ratio were based on 436 such women.

For a more detailed discussion of the variables, see appendix III.

Selected findings

Some findings concerning serum lipids and lipoproteins analyzed in the second National Health and Nutrition Examination Survey (NHANES II, 1976–80) are summarized below. These include comparisons of estimated means and percents above or below specified cut-points that are important to coronary heart disease (CHD) by demographic (sex, race, and age) variables. Comparisons of lipid levels by oral contraceptive use in women and by hypertensive status are also shown.

Statistically significant differences in these estimates are presented. A nonsignificant result does not necessarily mean a real difference does not exist. For a given difference, the probability of detecting a difference when it exists is directly related to the sample size. Thus, if the sample size is small, one is less likely to detect a difference when it exists. Observed differences (that may be of interest although they are not statistically significant), as well as descriptive statements about the distribution of serum lipids are also presented.

Many of the important findings concerning these NHANES II data have been presented elsewhere (19–23).

Total cholesterol (TC)

Many of the important findings concerning mean total cholesterol (TC) (tables 1 and 29) have been described elsewhere (20, 21).

These findings include:

- The mean TC levels of both men and women generally increase with age.
- The age-adjusted mean TC level of oral contraceptive users is significantly higher than that of nonusers among females 20–44 years of age.

High density lipoprotein (HDL) cholesterol

Many of the important findings concerning mean HDL-C (table 2) have already been presented (22). These findings include:

- Mean HDL-C levels are higher in
 - a. women compared with men
 - b. black adults compared with white adults.
- The age-adjusted mean HDL-C level of adults 20–74 years of age is 45.2 for men and 53.6 for women (table 2).
- Approximately 17.8 million adults 20–74 years of age (11.2 percent)—15.8 million white adults (11.6 per-

cent) and 1.3 million black adults (7.3 percent) have an HDL-C level less than 35 mg/dl (table 33).

- White men have consistently higher percents of HDL-C less than 35 mg/dl than white women of the same age group (table 33) and this relationship persists for those with desirable TC levels (TC < 200 mg/dl) (2) as well as those with high TC levels (table 45).
- The age-adjusted percent of black men with HDL-C levels less than 35 mg/dl is significantly lower than that of white men—a difference of 8.2 percent (table 33). This relationship persists for men with desirable, borderline-high, and high total serum cholesterol (table 45).

Non-high density lipoprotein (non-HDL) cholesterol

- The age-adjusted mean non-HDL cholesterol is 165 mg/dl for men and 160 mg/dl for women. For white adults, the corresponding values are 166 mg/dl for men and 161 mg/dl for women and for black adults, it is 156 mg/dl and 157 mg/dl for men and women respectively (table 3).
- White men have consistently higher non-HDL cholesterol levels than black men of the same age group (table 3).

Ratio of TC to HDL-C

Many findings concerning the ratio of TC to HDL-C have been published (22). These include:

- The age-adjusted mean TC:HDL-C ratio is higher in
 - a. men compared with women
 - b. white adults compared with black adults (table 4).
- These relationships remained after stratification by selected correlates such as body mass index and reported alcohol consumption.
- White adults have consistently higher mean ratios of TC to HDL-C than black adults of the same sex and age group (table 4).
- White oral contraceptive users have higher mean ratios of TC to HDL-C than white nonusers have (table 31). Results are significant for the younger but not the older age group.
- Approximately 72 million persons (45.6 percent)—64 million white adults (47.0 percent) and 5.6 million black adults (31.8 percent) have a ratio of TC to HDL-C of 4.5 (17) or more (table 32).

Serum triglyceride

- The age-adjusted mean serum triglyceride levels of adults 20–74 years of age are 141 mg/dl for men and 121 mg/dl for women. The corresponding values are 144 mg/dl and 122 mg/dl for white men and white women respectively, and 116 and 105 for black men and black women, respectively (table 5).
- Approximately 7 percent of all adults 20–74 years of age have fasting triglyceride levels greater than or equal to 250 mg/dl (men have 9.3 percent and women have 5.6 percent). Approximately 1 percent have values greater than or equal to 500 mg/dl (men have 1.5 percent, women have 0.3 percent) (table 20).

Low density lipoprotein cholesterol (LDL-C)

- The age-adjusted mean LDL-C of adults 20–74 years of age is 137 mg/dl for both men and women. The corresponding level is 138 mg/dl for both white men and women and 128 for black men and 132 for black women (table 6).
- The percent of persons with LDL-C levels of 160 mg/dl or more was highest among black women (34.8 percent), followed by white men (29.8 percent), white women (27.8 percent), and lowest among black men (17 percent) (table 23).

LDL-C:HDL-C ratio

- Men have consistently higher mean LDL-C:HDL-C ratios than their female counterparts.
- The age-adjusted mean LDL-C:HDL-C ratio is higher among white adults than among black adults—a difference of 0.65 among men and 0.3 among women.

The National Cholesterol Education Program Adult Treatment Panel Guidelines

Persons who need treatment for high blood cholesterol:

- An estimated 42.5 million adults 20–74 years of age (26.8 percent)—37.1 million white adults (27.2 percent) and 4.2 million black adults (23.8 percent)—have high serum cholesterol (TC $\geq$ 240 mg/dl) (2). An additional 22 million persons (13.9 percent)—19 million white adults (13.9 percent) and 2.7 million black adults (15.5 percent) have borderline-high TC (TC greater than or equal to 200 but less than 240 mg/dl) (2) and CHD or 2 CHD risk factors. Therefore, an estimated 64.5 million adults 20–74 years of age (= 42.5 million + 22 million), 56.1 million white adults and 6.9 million black adults, would be referred for lipoprotein analysis (table 34).
- Of the 42.5 million persons 20–74 years of age with high TC, 20 million (47.1 percent) are hypertensive and 22.5 million (52.9=(100–47.1) percent) are normotensive. Of the 22 million persons 20–74 years of age with borderline-high TC and CHD or two CHD risk factors, 13.4 million (60.8 percent) are hyperten-

sive and 8.6 million (39.2 percent) are normotensive. Therefore, 33.4 million hypertensive adults and 31.1 million normotensive adults 20–74 years of age would be referred for lipoprotein analysis (table 39).

- Among women 20–44 years of age, the percent of oral contraceptive users, nonusers, and recent discontinuers who would be referred for lipoprotein analysis because of high blood cholesterol is 18.2, 15, and 15, respectively (table 35). Additional findings on TC have been published (20,21).
- Of the 42.5 million adults 20–74 years of age with high TC, an estimated 4.6 million persons (10.9 percent) also have an HDL-C level less than 35 mg/dl. Of the 22 million adults 20–74 years of age with borderline-high TC and CHD or two CHD risk factors, 3.6 million (16.2 percent) also have an HDL-C level <35 mg/dl. Therefore, an estimated 8.2 million persons with HDL-C <35 mg/dl would be referred for lipoprotein analysis (table 45).
- Of the 42.5 million adults 20–74 years of age with high TC, 33.2 million (78.1 percent) have a ratio of TC to HDL-C greater than or equal to 4.5. Of the 22 million adults with borderline-high TC and CHD or two CHD risk factors 14 million (63.5 percent) have a ratio of TC to HDL-C of 4.5 or more. Therefore, 47.2 million adults 20–74 years of age referred for lipoprotein analysis also have a ratio of TC to HDL-C $\geq$ 4. (table 47).
- Of those adults referred for lipoprotein analysis 88.2 percent, 62.7 percent with high-risk LDL-C (LDL-C $\geq$ 160 mg/dl) and 25.5 percent with borderline-high risk LDL-C (LDL-C $\geq$ 130 but <160 mg/dl) and CHD or two CHD risk factors, would need treatment for high blood cholesterol (table 36).
- Approximately 56.9 million adults 20–74 years of age (35.9 percent), 40.4 million (25.5 percent) with high-risk LDL-C and 16.5 (10.4 percent) with borderline-high-risk LDL-C and CHD or two CHD risk factors, need treatment for high blood cholesterol (table 37).
- Of the 33.2 million hypertensives who would be referred for lipoprotein analysis (see above results in TC section), an estimated 29.8 million (89.8 percent of hypertensives referred for lipoprotein analysis) need treatment for high blood cholesterol (table 43).
- Only 8.1 percent (3.5+4.6) of adults 20–74 years who do not need lipoprotein analysis would need treatment for high blood cholesterol levels (table 38).
- The percent of hypertensives who need treatment for high blood cholesterol is 60.4 (tables 41 and 43).
- The percent of normotensives who need treatment for high blood cholesterol is:
$$24.8 = (0.08 + 0.207) \times (0.169 + 0.695) \times 100$$

(tables 42 and 44).
- A higher percent of hypertensive persons than normotensive persons of the same race, sex, and age group have high TC levels (tables 41 and 42).

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		45. Percent of persons in the desirable, borderline-high, and high serum total cholesterol categories with a value for high density lipoprotein (HDL) cholesterol less than 35 milligrams per deciliter (mg/dl), number of	

examined persons, and standard error of the percent, by sex, race, and age: United States, 1976-80	90	4.5, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976-80	93
46. Percent of persons in the desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol categories with a value for high density lipoprotein (HDL) cholesterol less than 35 milligrams per deciliter (mg/dl), number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976-80	92	48. Percent of persons in the desirable, borderline-high-risk, and high-risk serum low density lipoprotein (LDL) cholesterol categories with a value for the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol greater than or equal to 4.5, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976-80	95
47. Percent of persons in the desirable, borderline-high, and high serum total cholesterol categories with a value for the ratio of serum total cholesterol to high density lipoprotein cholesterol greater than or equal to			

Table 1. Serum total cholesterol levels for persons 20–74 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Men												
Serum total cholesterol in milligrams per deciliter (mg/dl) ¹												
All races: ²												
20–74 years	5,604	211	1.2	144	156	165	179	206	239	258	271	291
20–74 years, age adjusted	...	211	1.1	...	...	...	...	...	...	...	...	...
20–24 years	676	130	1.7	129	136	145	155	176	202	215	227	246
25–34 years	1,067	199	1.5	141	152	159	172	194	220	240	254	275
35–44 years	745	217	2.0	153	166	173	187	215	244	262	275	293
45–54 years	690	227	1.8	159	176	182	197	223	255	271	283	303
55–64 years	1,227	229	1.8	164	176	184	198	225	254	277	288	307
65–74 years	1,199	221	1.8	153	167	175	191	217	249	265	279	301
White:												
20–74 years	4,883	211	1.2	145	157	166	179	207	239	258	271	291
20–74 years, age adjusted	...	211	1.1	...	...	...	...	...	...	...	...	...
20–24 years	581	180	1.8	131	138	146	155	176	202	216	229	244
25–34 years	901	199	1.7	144	153	161	172	194	220	239	254	273
35–44 years	653	217	1.8	153	166	173	187	214	244	260	272	291
45–54 years	617	227	1.8	160	177	181	198	222	254	271	283	303
55–64 years	1,086	230	2.0	164	178	185	199	225	255	278	289	307
65–74 years	1,045	222	2.0	153	167	175	191	217	250	266	281	301
Black:												
20–74 years	607	208	2.5	133	146	156	171	200	238	260	273	301
20–74 years, age adjusted	...	208	2.4	...	...	...	...	...	...	...	...	...
20–24 years	79	171	*3.7	*	128	134	149	170	193	210	211	*
25–34 years	139	199	*4.1	129	136	144	163	192	226	248	259	301
35–44 years	70	218	*8.3	*	156	168	176	202	238	275	283	*
45–54 years	62	229	*7.1	*	174	184	195	232	261	268	279	*
55–64 years	129	223	*4.8	157	168	172	183	218	254	271	299	312
65–74 years	128	217	4.2	149	163	173	183	216	244	261	277	299
Women												
All races: ²												
20–74 years	6,260	215	1.2	143	156	166	179	210	245	266	282	305
20–74 years, age adjusted	...	214	1.2	...	...	...	...	...	...	...	...	...
20–24 years	738	184	1.9	132	140	145	157	180	204	216	230	250
25–34 years	1,170	192	1.4	135	145	154	164	188	215	233	243	263
35–44 years	844	207	1.8	147	158	164	177	202	231	248	260	276
45–54 years	763	232	2.2	164	178	188	199	228	257	275	290	306
55–64 years	1,329	249	2.0	180	193	203	215	242	277	299	314	336
65–74 years	1,416	246	1.6	173	189	198	214	241	274	295	309	327
White:												
20–74 years	5,418	216	1.3	143	156	166	179	210	246	267	282	305
20–74 years, age adjusted	...	214	1.2	...	...	...	...	...	...	...	...	...
20–24 years	624	184	2.1	133	140	147	159	181	204	215	230	249
25–34 years	1,000	192	1.5	135	145	153	164	188	215	235	244	261
35–44 years	726	207	1.9	147	157	164	177	203	231	248	259	277
45–54 years	647	232	2.6	166	179	188	199	228	257	274	290	308
55–64 years	1,176	249	1.7	180	193	203	215	244	277	298	312	330
65–74 years	1,245	246	1.7	174	190	199	214	242	275	296	309	328
Black:												
20–74 years	729	212	3.1	140	154	166	176	205	237	263	279	308
20–74 years, age adjusted	...	214	2.7	...	...	...	...	...	...	...	...	...
20–24 years	94	185	*4.9	*	136	144	156	178	204	220	237	*
25–34 years	145	191	*4.1	129	144	156	167	190	212	226	235	267
35–44 years	103	206	*4.5	143	158	170	175	194	233	254	274	279
45–54 years	100	230	*7.2	150	172	181	200	226	263	277	291	306
55–64 years	135	251	*8.0	178	185	198	211	233	280	318	336	345
65–74 years	152	243	4.2	173	189	198	211	237	269	290	308	323

¹To convert to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

Table 2. Serum high density lipoprotein (HDL) cholesterol levels for persons 20–74 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Men												
Serum HDL cholesterol in milligrams per deciliter (mg/dl) ¹												
All races: ²												
20–74 years	4,562	45.2	0.4	29.0	32.0	34.0	37.0	44.0	51.0	57.0	60.1	68.1
20–74 years, age adjusted	...	45.2	0.4	...	...	...	...	...	...	...	...	...
20–24 years	570	46.7	0.6	32.0	34.0	36.0	39.0	45.0	52.0	57.1	61.0	70.1
25–34 years	885	45.0	0.5	29.0	32.0	34.0	37.0	44.0	51.0	56.0	59.0	66.1
35–44 years	611	44.2	0.7	28.0	32.0	34.0	36.0	41.1	50.0	56.0	60.0	65.1
45–54 years	559	44.1	0.7	28.0	32.0	34.0	36.0	41.1	50.0	56.0	59.0	66.0
55–64 years	964	46.0	0.5	28.0	32.0	34.0	36.0	44.1	52.1	58.1	63.0	71.0
65–74 years	973	45.7	0.7	29.0	32.0	33.0	36.0	44.0	52.1	58.0	62.0	71.0
White:												
20–74 years	4,019	44.4	0.4	28.0	32.0	34.0	36.0	43.0	50.1	56.0	59.0	66.0
20–74 years, age adjusted	...	44.5	0.4	...	...	...	...	...	...	...	...	...
20–24 years	494	45.9	0.7	31.0	34.0	36.0	38.0	44.1	51.0	57.0	60.0	69.1
25–34 years	751	44.4	0.5	29.0	32.0	34.0	37.0	43.0	50.0	55.0	58.1	64.1
35–44 years	545	43.4	0.7	28.0	32.0	33.1	36.0	41.0	49.0	53.0	58.0	64.1
45–54 years	506	43.3	0.7	28.0	31.0	33.1	36.0	41.0	49.0	55.0	58.0	65.0
55–64 years	865	45.4	0.6	27.0	31.0	33.1	36.0	44.0	52.0	58.0	62.1	69.0
65–74 years	858	44.8	0.7	29.0	32.0	33.0	36.0	43.1	51.1	57.0	60.0	68.1
Black:												
20–74 years	462	51.8	0.7	33.0	35.1	38.0	40.1	49.0	59.0	64.0	72.1	80.1
20–74 years, age adjusted	...	51.9	0.7	...	...	...	...	...	...	...	...	...
20–24 years	65	53.0	*1.7	*	39.0	40.0	45.0	51.0	58.0	64.0	65.1	*
25–34 years	112	49.9	*1.6	31.0	35.0	37.0	40.0	46.1	58.0	63.0	70.0	73.0
35–44 years	54	50.8	*2.0	*	34.0	37.0	39.0	49.0	60.0	63.1	66.1	*
45–54 years	47	53.3	*3.0	*	*	36.0	41.0	48.1	57.1	74.1	*	*
55–64 years	92	52.9	*1.9	*	36.0	39.0	40.1	49.0	61.0	68.0	71.1	*
65–74 years	92	53.5	*2.1	*	35.0	39.0	43.0	50.0	62.0	72.0	77.0	*
Women												
All races: ²												
20–74 years	5,235	53.7	0.4	33.1	37.0	39.0	44.0	52.0	62.0	68.1	72.1	80.1
20–74 years, age adjusted	...	53.6	0.4	...	...	...	...	...	...	...	...	...
20–24 years	634	53.1	0.7	34.0	37.0	39.0	44.0	51.0	61.0	65.1	71.0	77.0
25–34 years	1,017	52.5	0.5	33.0	36.0	39.0	44.0	51.0	60.0	65.1	70.1	75.1
35–44 years	722	52.7	0.6	34.0	37.0	39.0	43.0	51.0	60.0	66.1	71.1	77.0
45–54 years	641	55.1	0.7	34.0	38.0	40.0	45.0	53.0	63.0	70.1	75.1	84.1
55–64 years	1,086	55.9	0.9	33.0	37.1	39.0	45.0	53.0	66.0	72.1	77.1	86.1
65–74 years	1,135	53.2	0.6	33.1	37.0	39.0	43.0	51.0	61.0	68.0	73.1	81.1
White:												
20–74 years	4,563	53.4	0.4	34.0	37.0	39.0	44.0	51.1	61.1	68.0	72.1	80.0
20–74 years, age adjusted	...	53.4	0.4	...	...	...	...	...	...	...	...	...
20–24 years	542	52.8	0.7	33.1	37.0	39.0	43.1	51.0	61.0	65.1	70.0	77.0
25–34 years	875	52.2	0.5	33.1	37.0	39.0	44.0	51.0	60.0	65.0	69.1	75.0
35–44 years	626	52.4	0.6	34.0	37.0	39.0	43.0	50.0	60.0	66.0	71.1	76.1
45–54 years	546	55.1	0.8	34.0	38.0	40.0	45.0	52.1	63.0	70.1	76.1	85.0
55–64 years	973	55.7	0.8	33.0	37.0	39.0	45.0	53.0	65.1	71.1	77.1	86.0
65–74 years	1,001	52.8	0.6	33.0	36.1	39.0	43.0	51.0	60.0	66.1	72.1	81.0
Black:												
20–74 years	581	56.2	0.9	34.0	38.0	41.0	45.0	53.1	65.0	72.1	76.1	84.1
20–74 years, age adjusted	...	56.3	0.9	...	...	...	...	...	...	...	...	...
20–24 years	77	56.6	*1.8	*	41.0	43.0	48.0	55.0	64.0	70.1	76.0	*
25–34 years	122	55.4	*1.6	32.0	35.0	41.0	45.0	52.1	63.0	70.1	77.1	86.1
35–44 years	84	55.1	*1.9	*	36.0	38.0	44.0	53.0	62.0	69.1	72.1	*
45–54 years	81	56.2	*1.8	*	39.0	41.0	43.0	56.0	65.0	70.1	74.0	*
55–64 years	99	58.3	*2.8	*	38.1	40.0	43.0	55.0	74.0	76.0	80.0	*
65–74 years	118	57.1	*1.8	38.0	40.0	41.0	43.0	56.0	65.1	76.0	80.0	83.1

¹To convert to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

Table 3. Serum non-high density lipoprotein (non-HDL) cholesterol levels for persons 20–74 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Non-HDL cholesterol in milligrams per deciliter (mg/dl) ¹												
All races: ²												
20–74 years	4,562	165	1.4	97	109	118	131	161	195	214	229	245
20–74 years, age adjusted	...	165	1.2	...	...	...	...	...	...	...	...	...
20–24 years	570	132	1.9	81	90	98	107	127	153	169	179	199
25–34 years	885	154	2.0	93	104	111	125	149	176	199	212	232
35–44 years	611	173	2.3	106	120	129	142	170	202	218	234	246
45–54 years	559	182	1.8	116	129	137	152	182	210	228	237	258
55–64 years	964	183	1.8	117	128	138	153	179	210	232	245	265
65–74 years	973	175	2.2	107	119	128	145	172	203	219	234	253
White:												
20–74 years	4,019	167	1.4	99	110	119	133	163	196	214	230	246
20–74 years, age adjusted	...	166	1.3	...	...	...	...	...	...	...	...	...
20–24 years	494	133	2.1	84	91	99	108	128	154	169	179	198
25–34 years	751	155	2.2	95	107	113	126	150	178	200	213	233
35–44 years	545	174	2.3	107	121	129	142	171	202	218	234	246
45–54 years	506	183	2.0	118	130	138	154	182	210	229	237	258
55–64 years	865	185	1.9	119	130	140	155	180	211	232	245	264
65–74 years	858	177	2.3	108	120	128	147	173	205	220	236	254
Black:												
20–74 years	462	154	3.4	82	93	101	117	149	185	205	222	247
20–74 years, age adjusted	...	156	3.2	...	...	...	...	...	...	...	...	...
20–24 years	65	119	*3.7	*	73	85	96	122	135	154	161	*
25–34 years	112	145	*6.1	79	85	97	105	140	168	198	204	240
35–44 years	54	172	*7.2	*	104	119	142	160	205	224	236	*
45–54 years	47	174	*8.5	*	113	128	138	169	195	218	224	*
55–64 years	92	169	*6.4	109	117	117	129	163	204	227	246	270
65–74 years	92	164	*5.8	91	97	114	130	161	192	211	227	250
Women												
All races: ²												
20–74 years	5,235	161	1.5	90	101	110	124	154	193	213	227	250
20–74 years, age adjusted	...	160	1.4	...	...	...	...	...	...	...	...	...
20–24 years	634	130	2.1	77	87	95	105	126	151	166	176	197
25–34 years	1,017	140	1.8	85	94	100	112	135	163	182	200	217
35–44 years	722	154	2.1	91	101	109	121	151	179	197	210	229
45–54 years	641	178	2.7	104	121	129	143	175	208	226	239	257
55–64 years	1,086	191	2.3	118	133	140	156	187	221	240	256	281
65–74 years	1,135	192	2.0	121	134	145	158	189	222	242	255	279
White:												
20–74 years	4,563	162	1.5	91	101	111	124	155	194	214	228	250
20–74 years, age adjusted	...	161	1.4	...	...	...	...	...	...	...	...	...
20–24 years	542	130	2.2	76	88	95	106	126	150	164	173	192
25–34 years	875	141	2.0	85	94	100	112	134	164	184	200	216
35–44 years	626	154	2.3	90	102	109	121	151	181	198	210	227
45–54 years	546	179	3.2	104	121	130	145	175	209	227	240	260
55–64 years	973	191	1.9	119	133	140	156	188	220	240	255	276
65–74 years	1,001	194	1.9	121	136	145	159	190	223	244	258	281
Black:												
20–74 years	581	155	3.4	85	97	108	119	149	180	204	222	249
20–74 years, age adjusted	...	157	3.3	...	...	...	...	...	...	...	...	...
20–24 years	77	131	*5.1	*	84	87	104	124	156	170	190	*
25–34 years	122	137	*4.9	81	89	97	111	139	154	173	177	227
35–44 years	84	152	*4.3	94	98	110	119	148	176	183	201	245
45–54 years	81	171	*7.3	100	121	129	134	165	201	222	229	247
55–64 years	99	192	*11.2	112	123	140	154	172	213	270	292	305
65–74 years	118	185	*4.9	118	131	139	151	186	211	228	249	263

¹Non-HDL cholesterol = total cholesterol – HDL cholesterol. To convert to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

Table 4. Ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol levels for persons 20–74 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Men												
All races: ¹												
20–74 years	4,562	4.98	0.05	2.67	3.08	3.35	3.81	4.73	5.91	6.62	7.21	8.07
20–74 years, age adjusted	...	4.98	0.05	...	...	...	...	...	...	...	...	...
20–24 years	570	4.05	0.07	2.27	2.63	2.85	3.16	3.93	4.71	5.26	5.66	6.51
25–34 years	885	4.69	0.07	2.53	2.94	3.20	3.68	4.46	5.52	6.16	6.59	7.51
35–44 years	611	5.24	0.10	3.13	3.40	3.57	3.98	4.91	6.17	6.92	7.48	8.15
45–54 years	559	5.48	0.09	3.09	3.46	3.79	4.28	5.34	6.41	7.16	7.78	8.79
55–64 years	964	5.38	0.07	3.00	3.40	3.70	4.09	5.07	6.44	7.17	7.76	8.42
65–74 years	973	5.22	0.10	2.82	3.26	3.49	3.93	5.00	6.15	6.77	7.34	8.21
White:												
20–74 years	4,019	5.06	0.06	2.79	3.17	3.43	3.88	4.81	5.98	6.72	7.29	8.13
20–74 years, age adjusted	...	5.05	0.06	...	...	...	...	...	...	...	...	...
20–24 years	494	4.11	0.08	2.39	2.72	2.95	3.25	3.98	4.75	5.31	5.67	6.51
25–34 years	751	4.75	0.08	2.58	3.05	3.32	3.74	4.51	5.53	6.22	6.72	7.57
35–44 years	545	5.31	0.10	3.14	3.41	3.62	4.06	4.97	6.26	6.97	7.79	8.21
45–54 years	506	5.55	0.09	3.14	3.50	3.86	4.35	5.39	6.49	7.24	7.78	8.79
55–64 years	865	5.47	0.08	3.08	3.47	3.80	4.17	5.19	6.51	7.25	7.82	8.54
65–74 years	858	5.30	0.10	2.86	3.32	3.55	4.03	5.11	6.24	6.84	7.39	8.25
Black:												
20–74 years	462	4.28	0.10	2.24	2.59	2.77	3.08	4.00	5.11	5.69	6.22	7.36
20–74 years, age adjusted	...	4.33	0.10	...	...	...	...	...	...	...	...	...
20–24 years	65	3.43	*0.11	*	2.24	2.44	2.64	3.22	4.20	4.41	4.70	*
25–34 years	112	4.16	*0.16	2.37	2.59	2.74	3.06	3.91	5.04	5.64	6.06	7.00
35–44 years	54	4.69	*0.23	*	2.91	3.34	3.53	4.45	5.26	6.07	6.75	*
45–54 years	47	4.75	*0.37	*	*	2.83	3.54	4.17	5.44	6.09	*	*
55–64 years	92	4.50	*0.18	*	2.79	3.00	3.38	4.25	5.47	6.30	6.69	*
65–74 years	92	4.49	*0.28	*	2.67	2.84	3.32	4.13	5.18	5.69	6.64	*
Women												
All races: ¹												
20–74 years	5,235	4.27	0.05	2.40	2.66	2.86	3.16	3.96	5.02	5.77	6.30	7.19
20–74 years, age adjusted	...	4.27	0.04	...	...	...	...	...	...	...	...	...
20–24 years	634	3.64	0.06	2.23	2.43	2.59	2.88	3.42	4.20	4.65	5.05	5.70
25–34 years	1,017	3.89	0.06	2.36	2.57	2.72	2.96	3.60	4.49	5.12	5.65	6.61
35–44 years	722	4.19	0.07	2.43	2.66	2.82	3.16	3.97	4.94	5.54	6.07	6.87
45–54 years	641	4.56	0.08	2.46	2.82	3.02	3.33	4.30	5.45	6.05	6.61	7.50
55–64 years	1,086	4.82	0.09	2.60	2.89	3.11	3.56	4.51	5.72	6.58	7.21	8.28
65–74 years	1,135	4.94	0.07	2.86	3.11	3.33	3.82	4.69	5.80	6.61	7.09	7.97
White:												
20–74 years	4,563	4.30	0.05	2.42	2.68	2.88	3.18	3.98	5.04	5.79	6.30	7.24
20–74 years, age adjusted	...	4.28	0.05	...	...	...	...	...	...	...	...	...
20–24 years	542	3.66	0.06	2.23	2.43	2.59	2.90	3.42	4.20	4.64	5.14	5.72
25–34 years	875	3.90	0.06	2.40	2.58	2.74	2.98	3.63	4.51	5.07	5.58	6.61
35–44 years	626	4.20	0.08	2.45	2.66	2.86	3.19	3.98	4.97	5.56	6.06	6.74
45–54 years	546	4.57	0.10	2.45	2.80	3.00	3.33	4.35	5.47	6.05	6.60	7.60
55–64 years	973	4.81	0.07	2.63	2.91	3.12	3.57	4.52	5.67	6.56	7.18	8.17
65–74 years	1,001	5.00	0.07	2.88	3.16	3.36	3.83	4.75	5.89	6.73	7.16	8.03
Black:												
20–74 years	581	4.06	0.10	2.30	2.51	2.69	2.98	3.70	4.70	5.60	6.26	7.05
20–74 years, age adjusted	...	4.10	0.10	...	...	...	...	...	...	...	...	...
20–24 years	77	3.45	*0.14	*	2.39	2.57	2.67	3.22	4.13	4.68	4.95	*
25–34 years	122	3.76	*0.15	2.22	2.38	2.52	2.84	3.41	4.47	5.45	5.86	6.47
35–44 years	84	4.12	*0.14	*	2.45	2.69	2.96	3.87	4.68	5.39	6.52	*
45–54 years	81	4.35	*0.23	*	3.00	3.07	3.19	3.96	5.16	6.42	6.64	*
55–64 years	99	4.78	*0.37	*	2.60	2.96	3.11	4.21	5.95	7.19	7.64	*
65–74 years	118	4.50	*0.19	2.52	2.97	3.23	3.59	4.32	5.15	5.78	5.81	7.07

¹Includes data for races not shown separately.

Table 5. Serum triglyceride levels for persons 20–74 years of age fasting 12 hours or more, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Men												
Serum triglyceride in milligrams per deciliter (mg/dl) ¹												
All races: ²												
20–74 years	1,269	145	2.9	55	65	72	84	118	168	203	240	312
20–74 years, age adjusted	...	141	2.5	...	...	...	...	...	...	...	...	...
20–24 years	83	100	*6.3	*	51	60	67	85	116	140	168	*
25–34 years	206	124	5.8	48	59	65	79	105	149	182	197	280
35–44 years	150	151	10.0	60	65	72	81	119	178	202	245	310
45–54 years	132	176	12.5	60	74	82	93	136	203	248	299	350
55–64 years	352	160	7.4	65	76	83	91	126	186	240	295	346
65–74 years	346	145	5.7	62	69	79	91	128	167	203	237	285
White:												
20–74 years	1,111	149	3.3	58	66	73	85	120	173	210	250	316
20–74 years, age adjusted	...	144	2.7	...	...	...	...	...	...	...	...	...
20–24 years	66	103	*7.5	*	51	59	69	91	116	160	200	*
25–34 years	174	124	5.7	48	59	64	77	105	149	185	202	284
35–44 years	133	157	10.5	60	69	73	87	129	189	208	245	350
45–54 years	119	184	13.8	60	80	83	95	145	211	255	302	351
55–64 years	312	159	6.6	68	77	83	92	126	188	240	294	346
65–74 years	307	148	5.6	64	74	83	93	131	168	205	239	288
Black: ³												
20–74 years	133	116	*8.8	43	54	64	74	99	132	145	159	203
20–74 years, age adjusted	...	116	*7.2	...	...	...	...	...	...	...	...	...
Women												
All races: ²												
20–74 years	1,484	124	2.3	49	56	64	74	107	149	185	211	263
20–74 years, age adjusted	...	121	2.1	...	...	...	...	...	...	...	...	...
20–24 years	123	104	4.8	46	51	54	66	91	127	153	187	207
25–34 years	230	104	4.7	44	50	55	67	87	123	147	176	215
35–44 years	194	107	4.1	51	54	57	67	92	123	160	188	242
45–54 years	193	129	5.5	59	67	72	81	115	159	181	218	275
55–64 years	332	149	7.5	53	68	74	92	125	178	226	272	336
65–74 years	412	154	5.1	70	83	91	104	134	184	221	243	293
White:												
20–74 years	1,290	126	2.4	49	58	66	75	108	151	187	214	265
20–74 years, age adjusted	...	122	2.2	...	...	...	...	...	...	...	...	...
20–24 years	104	108	5.2	47	55	63	69	94	128	173	187	197
25–34 years	208	102	4.6	44	50	54	66	86	123	146	174	215
35–44 years	161	107	4.3	51	54	56	67	93	127	160	188	211
45–54 years	166	130	6.4	59	64	70	81	117	164	181	207	245
55–64 years	286	155	8.5	53	71	78	99	128	182	237	277	355
65–74 years	365	157	5.3	74	85	91	104	135	185	228	247	298
Black: ³												
20–74 years	166	104	*4.2	47	51	56	66	89	120	163	180	226
20–74 years, age adjusted	...	105	*7.1	...	...	...	...	...	...	...	...	...

¹To convert to millimoles per liter (mmol/L), multiply by 0.01129.

²Includes data for races not shown separately.

³Data not given by age because of small sample size.

Table 6. Calculated serum low density lipoprotein (LDL) cholesterol levels for persons 20–74 years of age fasting 12 hours or more, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Men	Serum LDL cholesterol in milligrams per deciliter (mg/dl) ¹											
All races: ²												
20–74 years	1,037	140	1.6	80	92	100	113	136	164	181	194	208
20–74 years, age adjusted	...	137	1.5	...	...	...	...	...	...	...	...	...
20–24 years	72	109	*5.4	*	70	74	88	104	129	149	154	*
25–34 years	174	128	2.7	76	87	94	108	128	148	161	171	189
35–44 years	130	145	3.0	81	96	105	116	138	176	192	203	206
45–54 years	106	150	2.6	99	103	112	119	146	171	189	195	211
55–64 years	267	148	3.1	84	101	108	118	147	171	191	206	217
65–74 years	288	149	2.8	87	105	109	120	144	174	188	199	217
White:												
20–74 years	906	141	1.6	83	94	103	114	138	166	183	194	208
20–74 years, age adjusted	...	138	1.5	...	...	...	...	...	...	...	...	...
20–24 years	57	109	*6.7	*	57	75	88	102	127	149	169	*
25–34 years	146	130	2.6	76	89	95	111	129	149	162	171	189
35–44 years	115	147	2.9	90	100	110	120	141	178	192	203	205
45–54 years	96	150	2.8	*	105	113	120	148	170	189	202	*
55–64 years	236	149	3.2	84	104	110	121	148	172	191	206	216
65–74 years	256	150	3.0	87	105	110	121	145	175	188	199	216
Black: ³												
20–74 years	114	127	*4.8	70	76	87	98	123	151	172	195	204
20–74 years, age adjusted	...	128	*4.7	...	...	...	...	...	...	...	...	...
Women												
All races: ²												
20–74 years	1,246	141	1.6	81	91	98	110	136	164	186	199	220
20–74 years, age adjusted	...	137	1.4	...	...	...	...	...	...	...	...	...
20–24 years	105	114	3.4	69	74	83	94	106	136	149	155	179
25–34 years	194	121	2.3	72	83	90	98	116	139	154	166	187
35–44 years	166	129	3.2	78	90	97	107	126	150	163	171	191
45–54 years	168	157	2.7	94	104	116	125	156	184	200	213	226
55–64 years	282	159	3.8	101	113	118	129	150	188	205	219	237
65–74 years	331	162	3.1	98	109	122	135	158	186	207	226	245
White:												
20–74 years	1,084	141	1.5	82	91	99	110	135	163	186	201	221
20–74 years, age adjusted	...	138	1.3	...	...	...	...	...	...	...	...	...
20–24 years	89	115	3.4	*	76	84	94	108	136	146	155	*
25–34 years	177	121	2.1	78	85	90	98	116	137	153	163	186
35–44 years	142	129	3.2	78	90	97	107	124	149	163	170	191
45–54 years	143	157	2.8	96	104	117	125	151	183	206	216	226
55–64 years	244	161	4.1	101	113	119	128	151	193	209	221	237
65–74 years	289	162	2.9	95	109	122	134	156	185	207	226	247
Black: ³												
20–74 years	137	139	*4.2	70	75	94	109	140	168	184	194	206
20–74 years, age adjusted	...	132	*4.3	...	...	...	...	...	...	...	...	...

¹To convert to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

³Data not given by age because of small sample size.

NOTES: LDL cholesterol = total cholesterol – HDL cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem: 18 499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded.

Table 7. Ratio of calculated serum low density lipoprotein (LDL) cholesterol to high density lipoprotein (HDL) cholesterol levels for persons 20–74 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Men												
All races: ¹												
20–74 years	1,037	3.31	0.06	1.46	1.82	2.06	2.42	3.22	4.03	4.55	4.94	5.46
20–74 years, age adjusted	...	3.25	0.06	...	...	...	...	...	...	...	...	...
20–24 years	72	2.53	*0.20	*	1.17	1.38	1.63	2.26	3.05	3.85	4.07	*
25–34 years	174	3.14	0.10	1.46	1.72	2.05	2.35	3.10	3.82	4.34	4.71	5.02
35–44 years	130	3.43	0.12	1.75	2.10	2.29	2.58	3.23	4.21	4.79	5.25	5.58
45–54 years	106	3.66	0.13	1.51	2.10	2.44	2.81	3.45	4.28	4.88	5.30	6.22
55–64 years	267	3.32	0.10	1.75	1.99	2.14	2.46	3.27	4.04	4.55	4.85	5.42
65–74 years	288	3.52	0.12	1.74	2.02	2.11	2.37	3.33	4.28	4.86	5.14	5.60
White:												
20–74 years	906	3.39	0.07	1.59	1.96	2.12	2.50	3.31	4.10	4.62	5.02	5.57
20–74 years, age adjusted	...	3.32	0.07	...	...	...	...	...	...	...	...	...
20–24 years	57	2.61	*0.24	*	.90	1.49	1.76	2.39	3.05	3.66	4.23	*
25–34 years	146	3.20	0.10	1.46	1.82	2.06	2.40	3.11	3.85	4.48	4.75	5.09
35–44 years	115	3.52	0.12	1.97	2.12	2.42	2.73	3.33	4.23	4.93	5.34	5.58
45–54 years	96	3.74	0.14	*	2.10	2.49	2.92	3.49	4.43	5.02	5.78	*
55–64 years	236	3.38	0.10	1.76	2.01	2.19	2.56	3.30	4.05	4.56	4.91	5.42
65–74 years	256	3.57	0.12	1.81	2.02	2.13	2.53	3.34	4.33	4.87	5.14	5.60
Black: ²												
20–74 years	114	2.66	*0.14	1.08	1.37	1.50	1.75	2.49	3.60	3.91	4.08	4.64
20–74 years, age adjusted	...	2.67	*0.14	...	...	...	...	...	...	...	...	...
Women												
All races: ¹												
20–74 years	1,246	2.79	0.05	1.22	1.46	1.62	1.94	2.59	3.43	4.01	4.38	5.02
20–74 years, age adjusted	...	2.74	0.04	...	...	...	...	...	...	...	...	...
20–24 years	105	2.35	0.10	1.18	1.26	1.42	1.58	2.08	2.78	3.21	3.78	4.17
25–34 years	194	2.47	0.08	1.20	1.44	1.56	1.79	2.37	2.93	3.41	3.85	4.32
35–44 years	166	2.61	0.09	1.31	1.42	1.57	1.88	2.58	3.20	3.61	3.81	4.25
45–54 years	168	3.02	0.09	1.40	1.54	1.65	2.02	2.81	3.74	4.34	4.86	5.26
55–64 years	282	3.06	0.10	1.15	1.53	1.77	2.06	2.92	4.01	4.36	4.82	5.08
65–74 years	331	3.25	0.10	1.55	1.84	2.03	2.30	3.03	3.96	4.51	5.08	5.75
White:												
20–74 years	1,084	2.82	0.05	1.29	1.50	1.66	1.97	2.59	3.45	4.02	4.41	5.04
20–74 years, age adjusted	...	2.77	0.04	...	...	...	...	...	...	...	...	...
20–24 years	89	2.40	0.11	*	1.29	1.50	1.70	2.14	2.78	3.36	3.79	*
25–34 years	177	2.48	0.07	1.30	1.47	1.57	1.80	2.37	2.93	3.28	3.66	4.32
35–44 years	142	2.63	0.09	1.34	1.42	1.60	1.88	2.59	3.21	3.61	3.80	3.91
45–54 years	143	3.06	0.10	1.40	1.55	1.80	2.07	2.81	3.80	4.42	4.87	5.72
55–64 years	244	3.11	0.10	1.15	1.55	1.82	2.28	2.95	3.96	4.47	4.82	5.08
65–74 years	289	3.27	0.10	1.66	1.86	2.03	2.29	3.03	4.04	4.61	5.09	5.88
Black: ²												
20–74 years	137	2.56	*0.12	.99	1.22	1.42	1.57	2.41	3.28	3.95	4.31	5.19
20–74 years, age adjusted	...	2.47	*0.12	...	...	...	...	...	...	...	...	...

¹Includes data for races not shown separately.

²Data not given by age because of small sample size.

NOTES: LDL cholesterol = total cholesterol – HDL cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502. 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded.

Table 8. Cumulative percent distribution of serum total cholesterol levels for persons 20–74 years of age, and number of examined persons, by race, selected cholesterol level cutoffs, and sex: United States, 1976–80

Race and selected cholesterol level cutoff (mg/dl)	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	11,864	100.0	5,604	100.0	6,260	100.0
Less than 120.	78	0.7	44	0.8	34	0.7
Less than 130.	187	1.8	108	1.9	79	1.7
Less than 140.	391	4.0	206	3.9	185	4.0
Less than 150.	729	7.1	368	6.9	361	7.4
Less than 160.	1,189	11.6	602	11.7	587	11.5
Less than 170.	1,839	17.8	914	17.6	925	17.9
Less than 180.	2,659	25.5	1,337	25.7	1,322	25.3
Less than 190.	3,606	33.9	1,812	34.4	1,794	33.5
Less than 200.	4,623	42.9	2,341	44.0	2,282	42.0
Less than 210.	5,579	51.1	2,815	52.7	2,764	49.7
Less than 220.	6,538	59.1	3,309	61.1	3,229	57.2
Less than 230.	7,451	66.4	3,725	68.3	3,726	64.8
Less than 240.	8,291	73.2	4,119	75.1	4,172	71.5
Less than 250.	9,069	79.3	4,489	81.3	4,580	77.4
Less than 260.	9,692	84.1	4,759	85.7	4,933	82.5
Less than 270.	10,202	87.8	4,988	89.4	5,214	86.4
Less than 280.	10,601	90.8	5,148	92.1	5,453	89.7
Less than 290.	10,914	93.3	5,284	94.8	5,630	91.9
Less than 300.	11,161	94.9	5,369	96.0	5,792	93.9
Less than 325.	11,575	97.9	5,514	98.4	6,061	97.5
Less than 350.	11,730	99.1	5,565	99.3	6,165	98.9
White						
Total	10,301	100.0	4,883	100.0	5,418	100.0
Less than 120.	58	0.6	32	0.6	26	0.7
Less than 130.	147	1.6	88	1.7	59	1.5
Less than 140.	316	3.7	166	3.6	150	3.9
Less than 150.	606	6.9	301	6.5	305	7.3
Less than 160.	1,002	11.3	497	11.2	505	11.5
Less than 170.	1,571	17.6	775	17.2	796	17.9
Less than 180.	2,257	25.1	1,133	25.2	1,124	25.0
Less than 190.	3,078	33.6	1,541	33.9	1,537	33.3
Less than 200.	3,945	42.4	2,005	43.6	1,940	41.4
Less than 210.	4,798	50.8	2,431	52.4	2,367	49.3
Less than 220.	5,639	58.8	2,873	61.0	2,766	56.8
Less than 230.	6,427	66.2	3,243	68.4	3,184	64.1
Less than 240.	7,162	72.8	3,584	75.0	3,578	70.8
Less than 250.	7,849	79.0	3,914	81.3	3,935	76.9
Less than 260.	8,402	83.9	4,154	85.8	4,248	82.3
Less than 270.	8,845	87.7	4,348	89.4	4,497	86.2
Less than 280.	9,197	90.7	4,484	92.0	4,713	89.6
Less than 290.	9,473	93.3	4,606	94.8	4,867	91.9
Less than 300.	9,693	94.9	4,682	96.1	5,011	93.9
Less than 325.	10,049	98.0	4,809	98.5	5,240	97.5
Less than 350.	10,183	99.1	4,851	99.3	5,332	98.8

Table 8. Cumulative percent distribution of serum total cholesterol levels for persons 20–74 years of age, and number of examined persons, by race, selected cholesterol level cutoffs, and sex: United States, 1976–80—Con.

<i>Race and selected cholesterol level cutoff (mg/dl)</i>	<i>Both sexes</i>		<i>Men</i>		<i>Women</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
Black						
Total	1,336	100.0	607	100.0	729	100.0
Less than 120.	18	1.5	11	2.2	7	0.9
Less than 130.	37	3.6	19	4.1	18	3.2
Less than 140.	68	6.1	39	7.7	29	4.8
Less than 150.	111	9.7	62	11.4	49	8.2
Less than 160.	167	14.8	96	18.3	71	11.9
Less than 170.	234	20.4	126	23.0	108	18.2
Less than 180.	351	29.6	181	31.5	170	28.1
Less than 190.	456	37.6	235	40.3	221	35.4
Less than 200.	583	47.8	289	49.5	294	46.4
Less than 210.	671	54.6	328	55.7	343	53.7
Less than 220.	774	62.2	376	63.5	398	61.1
Less than 230.	875	68.8	413	68.7	462	68.8
Less than 240.	963	76.2	454	76.1	509	76.3
Less than 250.	1,043	81.3	485	81.3	558	81.2
Less than 260.	1,096	84.2	506	84.0	590	84.3
Less than 270.	1,152	88.0	535	89.0	617	87.3
Less than 280.	1,196	91.3	557	92.3	639	90.4
Less than 290.	1,226	92.8	569	93.5	657	92.2
Less than 300.	1,250	94.2	576	94.8	674	93.7
Less than 325.	1,300	97.2	591	97.1	709	97.3
Less than 350.	1,320	98.7	600	98.4	720	98.9

¹Includes data for races not shown separately.

NOTES: To convert values of serum total cholesterol to millimoles per liter (mmol/L), multiply by 0.02586. mg/dl is milligrams per deciliter.

Table 9. Cumulative percent distribution of serum total cholesterol levels for men 20–74 years of age, and number of examined persons, by race, selected cholesterol level cutoffs, and age: United States, 1976–80

Race and selected cholesterol level cutoff (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	676	100.0	1,067	100.0	745	100.0
Less than 120.	16	2.1	14	1.2	3	0.3
Less than 130.	43	5.2	30	2.4	11	1.5
Less than 140.	80	11.3	56	4.8	19	2.3
Less than 150.	134	18.8	100	8.8	36	4.4
Less than 160.	207	30.3	173	15.3	55	7.3
Less than 170.	281	41.7	261	23.2	97	12.7
Less than 180.	360	54.6	365	32.7	156	20.9
Less than 190.	426	64.1	494	44.9	208	28.1
Less than 200.	491	73.3	610	56.7	294	39.1
Less than 210.	548	81.7	718	67.0	345	45.6
Less than 220.	584	86.9	795	74.4	407	53.6
Less than 230.	609	90.7	861	80.1	464	61.6
Less than 240.	631	93.8	905	84.7	540	72.1
Less than 250.	649	96.3	950	89.0	589	78.7
Less than 260.	658	97.6	980	91.7	627	83.9
Less than 270.	661	97.9	1,007	94.4	658	88.1
Less than 280.	667	98.7	1,019	95.5	687	91.8
Less than 290.	669	99.0	1,037	97.4	705	94.7
Less than 300.	670	99.1	1,041	97.8	719	96.5
Less than 325.	675	99.9	1,054	98.8	735	98.6
Less than 350.	676	100.0	1,061	99.5	741	99.5
White						
Total	581	100.0	901	100.0	653	100.0
Less than 120.	11	1.7	8	0.9	3	0.4
Less than 130.	35	4.6	21	2.0	10	1.6
Less than 140.	65	10.7	38	3.9	16	2.4
Less than 150.	112	18.4	75	7.9	29	4.1
Less than 160.	171	29.0	138	14.6	44	6.9
Less than 170.	242	41.7	216	22.9	79	12.3
Less than 180.	308	54.6	309	33.0	131	20.2
Less than 190.	363	63.6	416	45.1	173	27.1
Less than 200.	420	73.2	513	56.8	251	38.4
Less than 210.	469	81.8	602	66.8	300	45.4
Less than 220.	500	86.7	667	74.3	360	54.1
Less than 230.	522	90.5	725	80.2	412	62.5
Less than 240.	543	93.9	764	85.0	476	72.1
Less than 250.	559	96.6	803	89.1	521	79.2
Less than 260.	567	97.7	827	91.6	556	84.6
Less than 270.	569	98.0	852	94.4	582	88.8
Less than 280.	575	98.9	863	95.7	604	92.1
Less than 290.	576	99.0	878	97.7	619	95.0
Less than 300.	577	99.2	882	98.1	631	96.7
Less than 325.	580	99.9	892	99.1	646	98.9
Less than 350.	581	100.0	897	99.7	651	99.6
Black						
Total	79	100.0	139	100.0	70	100.0
Less than 120.	5	5.6	5	4.2	—	—
Less than 130.	8	11.2	8	6.0	1	1.0
Less than 140.	15	18.7	17	13.0	3	2.8
Less than 150.	21	25.3	23	18.2	6	6.9
Less than 160.	33	43.2	33	24.8	9	10.5
Less than 170.	36	47.0	41	29.2	16	18.0
Less than 180.	46	60.2	50	33.9	22	28.6
Less than 190.	55	72.0	67	45.8	29	36.5
Less than 200.	61	78.2	83	58.1	36	47.4
Less than 210.	68	84.9	96	66.5	38	52.2
Less than 220.	73	94.1	106	73.0	40	56.6
Less than 230.	75	95.7	112	76.8	44	62.4
Less than 240.	76	97.1	117	80.7	52	75.5
Less than 250.	78	99.2	122	86.9	53	76.4
Less than 260.	78	99.2	127	90.7	53	76.4
Less than 270.	79	100.0	129	92.8	56	79.6
Less than 280.	79	100.0	130	93.3	62	88.0
Less than 290.	79	100.0	133	94.8	64	90.2
Less than 300.	79	100.0	133	94.8	66	93.1
Less than 325.	79	100.0	135	95.6	67	95.2
Less than 350.	79	100.0	137	97.8	68	97.8

¹Includes data for races not shown separately.

NOTES: To convert values of serum total cholesterol to millimoles per liter (mmol/L), multiply by 0.02586. mg/dl is milligrams per deciliter.

Table 9. Cumulative percent distribution of serum total cholesterol levels for men 20–74 years of age, and number of examined persons, by race, selected cholesterol level cutoffs, and age: United States, 1976–80—Con.

Race and selected cholesterol level cutoff (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	690	100.0	1,227	100.0	1,199	100.0
Less than 120.	—	—	6	0.4	5	0.3
Less than 130.	3	0.4	9	0.5	12	1.0
Less than 140.	11	1.8	16	1.0	24	1.9
Less than 150.	14	2.2	34	2.5	50	3.8
Less than 160.	37	5.3	54	4.3	76	6.2
Less than 170.	55	7.2	89	7.2	131	11.1
Less than 180.	98	12.8	154	12.3	204	16.9
Less than 190.	152	20.3	238	18.8	294	24.0
Less than 200.	204	28.0	333	25.9	409	33.5
Less than 210.	255	35.7	432	34.9	517	43.0
Less than 220.	328	46.8	566	45.0	629	52.3
Less than 230.	384	55.3	674	54.7	733	60.8
Less than 240.	442	63.1	785	63.2	816	68.3
Less than 250.	507	71.8	886	72.2	908	75.4
Less than 260.	553	78.9	962	77.5	979	81.1
Less than 270.	584	84.0	1,026	82.4	1,052	87.3
Less than 280.	615	88.2	1,074	86.1	1,086	90.2
Less than 290.	638	92.2	1,120	90.6	1,115	92.9
Less than 300.	652	94.2	1,147	92.6	1,140	94.7
Less than 325.	676	97.6	1,199	97.3	1,175	97.9
Less than 350.	684	98.6	1,218	99.1	1,185	98.7
White						
Total	617	100.0	1,086	100.0	1,045	100.0
Less than 120.	—	—	5	0.3	5	0.4
Less than 130.	2	0.2	8	0.4	12	1.1
Less than 140.	10	1.8	15	1.0	22	2.0
Less than 150.	13	2.2	31	2.5	41	3.8
Less than 160.	31	5.0	49	4.2	64	6.1
Less than 170.	46	6.7	78	6.9	114	11.1
Less than 180.	86	12.7	128	11.2	171	16.4
Less than 190.	135	20.3	206	18.1	248	23.3
Less than 200.	180	27.9	288	25.1	353	33.0
Less than 210.	229	36.3	380	34.4	451	42.8
Less than 220.	297	47.9	497	44.3	552	52.2
Less than 230.	349	56.5	594	54.4	641	60.5
Less than 240.	396	63.5	692	62.7	713	67.6
Less than 250.	453	71.9	784	71.8	794	74.9
Less than 260.	494	79.2	852	77.2	858	80.9
Less than 270.	521	83.6	906	82.0	918	86.9
Less than 280.	548	87.8	948	85.7	946	89.8
Less than 290.	571	92.3	990	90.5	972	92.6
Less than 300.	593	94.1	1,016	92.7	993	94.4
Less than 325.	624	97.6	1,060	97.2	1,027	97.9
Less than 350.	612	98.7	1,078	99.1	1,032	98.6
Black						
Total	62	100.0	129	100.0	128	100.0
Less than 120.	—	—	1	1.2	—	—
Less than 130.	1	2.2	1	1.2	—	—
Less than 140.	1	2.2	1	1.2	2	1.4
Less than 150.	1	2.2	3	2.9	8	5.3
Less than 160.	5	6.6	5	6.1	11	8.5
Less than 170.	7	8.9	11	12.4	15	12.4
Less than 180.	10	12.2	24	23.9	29	23.6
Less than 190.	14	19.3	30	26.9	40	32.0
Less than 200.	20	27.9	42	35.0	47	37.2
Less than 210.	22	31.1	48	40.0	56	46.0
Less than 220.	27	39.7	64	52.3	66	54.4
Less than 230.	30	46.3	73	58.4	79	64.8
Less than 240.	39	59.7	83	64.7	87	72.8
Less than 250.	46	70.4	91	70.8	95	77.5
Less than 260.	49	74.7	99	75.8	100	81.3
Less than 270.	53	87.0	108	83.3	110	88.6
Less than 280.	57	91.8	114	87.7	115	91.6
Less than 290.	57	91.8	118	89.3	118	93.6
Less than 300.	53	94.3	119	90.9	121	95.5
Less than 325.	61	97.5	127	98.6	122	96.3
Less than 350.	61	97.5	128	99.1	127	99.3

Table 10. Cumulative percent distribution of serum total cholesterol levels for women 20–74 years of age, and number of examined persons, by race, selected cholesterol level cutoffs, and age: United States, 1976–80

Race and selected cholesterol level cutoff (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	738	100.0	1,170	100.0	844	100.0
Less than 120.	8	1.3	17	1.5	2	0.3
Less than 130.	24	3.8	37	3.3	8	1.2
Less than 140.	66	9.9	76	7.1	20	2.8
Less than 150.	122	18.2	144	12.4	45	5.6
Less than 160.	183	25.7	227	19.3	93	11.1
Less than 170.	263	37.1	356	31.0	154	17.9
Less than 180.	353	49.3	477	41.9	234	27.1
Less than 190.	440	60.4	607	52.3	335	38.9
Less than 200.	511	69.6	744	64.4	411	47.6
Less than 210.	576	78.8	838	71.5	480	55.8
Less than 220.	629	86.3	911	77.6	561	65.2
Less than 230.	657	89.4	983	83.4	630	73.7
Less than 240.	690	93.4	1,040	88.2	676	79.3
Less than 250.	701	94.9	1,078	91.8	727	85.8
Less than 260.	708	95.9	1,104	94.2	758	89.7
Less than 270.	711	96.2	1,125	96.1	784	92.9
Less than 280.	718	96.8	1,140	97.5	810	96.3
Less than 290.	723	97.6	1,148	98.2	813	96.5
Less than 300.	728	98.2	1,153	98.7	821	97.5
Less than 325.	737	99.8	1,167	99.8	835	98.9
Less than 350.	738	100.0	1,169	100.0	839	99.6
White						
Total	624	100.0	1,000	100.0	726	100.0
Less than 120.	7	1.2	15	1.5	1	0.2
Less than 130.	19	3.1	29	3.1	6	1.1
Less than 140.	53	9.4	64	7.1	15	2.6
Less than 150.	102	18.1	125	12.6	38	5.7
Less than 160.	151	25.2	201	20.0	82	11.5
Less than 170.	220	36.8	309	31.5	138	18.7
Less than 180.	297	48.9	409	42.3	204	27.7
Less than 190.	376	61.1	521	52.6	291	39.1
Less than 200.	432	69.9	633	64.1	351	46.8
Less than 210.	488	79.3	718	71.6	413	55.2
Less than 220.	535	87.0	778	77.5	483	64.9
Less than 230.	556	89.9	833	82.5	546	73.9
Less than 240.	583	93.5	885	87.6	581	78.9
Less than 250.	593	95.1	919	91.4	630	86.2
Less than 260.	598	96.0	945	94.2	657	90.2
Less than 270.	601	96.3	963	96.3	677	93.1
Less than 280.	608	97.1	975	97.6	698	96.3
Less than 290.	612	97.9	982	98.3	699	96.3
Less than 300.	616	98.4	986	98.7	707	97.5
Less than 325.	623	99.7	997	99.7	718	98.8
Less than 350.	624	100.0	999	99.9	722	99.6
Black						
Total	94	100.0	145	100.0	103	100.0
Less than 120.	—	—	2	1.8	1	0.7
Less than 130.	3	5.4	8	5.4	2	2.5
Less than 140.	9	10.6	10	6.2	5	4.8
Less than 150.	16	17.7	16	11.7	7	6.3
Less than 160.	25	26.3	23	16.2	11	10.6
Less than 170.	35	37.1	39	28.1	15	14.7
Less than 180.	48	53.1	56	39.1	28	27.4
Less than 190.	54	58.4	71	48.8	40	39.8
Less than 200.	67	69.5	93	66.3	53	53.2
Less than 210.	74	77.6	101	71.8	60	61.4
Less than 220.	79	83.7	113	80.0	68	67.3
Less than 230.	83	87.0	126	87.8	72	71.1
Less than 240.	88	93.0	131	91.3	83	83.1
Less than 250.	89	94.2	135	94.0	85	84.7
Less than 260.	91	95.8	135	94.0	88	86.7
Less than 270.	91	95.8	138	95.3	92	90.0
Less than 280.	91	95.8	141	97.5	97	95.8
Less than 290.	92	97.2	141	97.5	99	97.3
Less than 300.	93	98.5	142	98.0	99	97.3
Less than 325.	94	100.0	145	100.0	102	99.4
Less than 350.	94	100.0	145	100.0	102	99.4

¹Includes data for races not shown separately.

NOTES: To convert values of serum total cholesterol to millimoles per liter, multiply by 0.02586. mg/dl is milligrams per deciliter.

Table 10. Cumulative percent distribution of serum total cholesterol levels for women 20–74 years of age, and number of examined persons, by race, selected cholesterol level cutoffs, and age: United States, 1976–80—Con.

Race and selected cholesterol level cutoff (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	763	100.0	1,329	100.0	1,416	100.0
Less than 120.	5	0.7	—	—	2	0.1
Less than 130.	6	0.8	—	—	4	0.3
Less than 140.	12	1.7	4	0.3	7	0.5
Less than 150.	20	2.7	15	1.3	15	1.2
Less than 160.	31	4.0	26	1.9	27	1.9
Less than 170.	52	6.9	38	2.6	62	4.1
Less than 180.	85	11.1	70	4.8	103	6.8
Less than 190.	128	16.8	131	8.9	153	10.2
Less than 200.	194	25.3	189	13.0	233	16.0
Less than 210.	260	33.7	291	20.8	319	21.6
Less than 220.	323	41.6	385	28.1	420	29.1
Less than 230.	389	50.8	504	37.4	563	39.3
Less than 240.	456	59.5	627	47.1	683	48.4
Less than 250.	520	67.7	741	55.1	813	57.5
Less than 260.	578	76.1	867	64.4	918	64.7
Less than 270.	625	82.2	950	70.4	1,019	71.6
Less than 280.	656	86.1	1,027	76.3	1,102	77.6
Less than 290.	686	89.8	1,095	81.4	1,165	82.1
Less than 300.	707	92.5	1,151	85.1	1,232	86.8
Less than 325.	739	97.0	1,247	92.9	1,336	94.6
Less than 350.	747	98.0	1,294	97.3	1,378	97.5
White						
Total	647	100.0	1,176	100.0	1,245	100.0
Less than 120.	3	0.6	—	—	—	—
Less than 130.	3	0.6	—	—	2	0.2
Less than 140.	9	1.7	4	0.3	5	0.5
Less than 150.	14	2.5	14	1.4	12	1.2
Less than 160.	24	4.0	24	2.0	23	1.8
Less than 170.	41	6.7	33	2.6	55	4.2
Less than 180.	69	10.7	56	4.6	89	6.7
Less than 190.	107	16.7	111	8.8	131	10.0
Less than 200.	166	25.9	158	12.7	200	15.6
Less than 210.	224	34.6	249	20.4	275	21.2
Less than 220.	275	42.0	334	27.7	361	28.5
Less than 230.	327	50.7	434	36.4	488	39.0
Less than 240.	386	59.4	547	46.3	596	47.9
Less than 250.	439	67.4	646	54.5	708	57.0
Less than 260.	491	76.1	758	64.0	799	64.1
Less than 270.	532	82.2	835	70.5	889	70.9
Less than 280.	559	86.1	907	76.7	966	77.2
Less than 290.	584	89.8	968	81.9	1,022	81.8
Less than 300.	601	92.5	1,019	85.8	1,082	86.6
Less than 325.	627	97.0	1,102	93.4	1,173	94.4
Less than 350.	633	97.8	1,143	97.4	1,211	97.4
Black						
Total	100	100.0	135	100.0	152	100.0
Less than 120.	2	1.5	—	—	2	1.0
Less than 130.	3	2.3	—	—	2	1.0
Less than 140.	3	2.3	—	—	2	1.0
Less than 150.	6	4.7	1	0.8	3	1.7
Less than 160.	7	5.8	2	1.0	3	1.7
Less than 170.	10	8.0	4	2.5	5	2.6
Less than 180.	14	14.2	13	7.4	11	6.2
Less than 190.	19	18.8	19	10.8	18	10.1
Less than 200.	26	24.4	27	15.5	28	16.6
Less than 210.	34	32.5	36	22.9	38	23.6
Less than 220.	44	41.7	44	30.9	50	30.7
Less than 230.	55	52.7	62	44.7	64	39.9
Less than 240.	60	59.3	72	53.5	75	51.6
Less than 250.	70	69.9	87	62.0	92	61.3
Less than 260.	74	75.0	97	67.8	105	70.1
Less than 270.	80	82.0	102	70.3	114	76.6
Less than 280.	84	86.8	106	72.9	120	80.5
Less than 290.	88	89.9	111	76.0	126	84.1
Less than 300.	92	93.4	116	78.4	132	87.1
Less than 325.	96	96.3	128	87.4	144	95.4
Less than 350.	98	98.5	133	96.2	148	97.7

Table 11. Cumulative percent distribution of high density lipoprotein (HDL) cholesterol levels for persons 20–74 years of age, and number of examined persons, by race, selected HDL cholesterol level cutoffs, and sex: United States, 1976–80

<i>Race and selected HDL cholesterol level cutoff (mg/dl)</i>	<i>Both sexes</i>		<i>Men</i>		<i>Women</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races¹						
Total	9,797	100.0	4,562	100.0	5,235	100.0
Less than 30	396	3.8	297	6.3	99	1.7
Less than 35	1,127	11.2	781	16.7	346	6.4
Less than 37	1,642	16.5	1,130	24.6	512	9.4
Less than 40	2,542	25.8	1,686	37.3	856	15.8
Less than 42	3,204	32.5	2,070	45.7	1,134	20.9
Less than 44	3,540	35.9	2,243	49.4	1,297	24.1
Less than 46	4,187	42.5	2,584	57.0	1,603	29.8
Less than 48	4,867	49.6	2,920	64.7	1,947	36.5
Less than 51	5,791	59.1	3,322	73.1	2,469	46.8
Less than 53	6,347	64.8	3,540	78.0	2,807	53.2
Less than 56	6,892	70.7	3,737	82.7	3,155	60.1
Less than 59	7,584	77.4	3,984	87.6	3,600	68.5
Less than 60	7,762	79.3	4,042	88.9	3,720	70.8
Less than 62	8,064	82.4	4,141	91.1	3,923	74.8
Less than 64	8,352	85.2	4,225	92.8	4,127	78.6
Less than 69	8,824	90.1	4,334	95.2	4,490	85.6
Less than 74	9,186	93.8	4,419	97.0	4,767	90.9
Less than 80	9,445	96.3	4,475	98.2	4,970	94.7
Less than 84	9,555	97.5	4,501	98.7	5,054	96.4
Less than 90	9,647	98.4	4,520	99.2	5,127	97.8
Less than 95	9,694	98.9	4,534	99.4	5,160	98.4
Less than 189	9,797	100.0	4,562	100.0	5,235	100.0
White						
Total	8,582	100.0	4,019	100.0	4,563	100.0
Less than 30	372	4.1	283	6.8	89	1.7
Less than 35	1,033	11.6	730	17.5	303	6.3
Less than 37	1,509	17.1	1,058	25.8	451	9.4
Less than 40	2,339	26.9	1,576	39.2	763	16.1
Less than 42	2,925	33.7	1,924	47.8	1,001	21.1
Less than 44	3,213	36.9	2,075	51.4	1,138	24.0
Less than 46	3,803	43.8	2,385	59.2	1,418	30.1
Less than 48	4,419	51.1	2,683	67.0	1,736	37.0
Less than 51	5,224	60.6	3,027	75.3	2,197	47.5
Less than 53	5,723	66.4	3,227	80.3	2,496	54.0
Less than 56	6,194	72.2	3,392	84.7	2,802	61.0
Less than 59	6,776	78.5	3,588	89.1	3,188	69.1
Less than 60	6,926	80.3	3,634	90.3	3,292	71.5
Less than 62	7,173	83.3	3,712	92.3	3,461	75.3
Less than 64	7,414	86.0	3,774	93.8	3,640	79.1
Less than 69	7,820	90.8	3,861	96.0	3,959	86.2
Less than 74	8,122	94.4	3,925	97.7	4,197	91.5
Less than 80	8,317	96.7	3,963	98.6	4,354	94.9
Less than 84	8,400	97.7	3,981	99.0	4,419	96.6
Less than 90	8,470	98.5	3,992	99.3	4,478	97.9
Less than 95	8,504	99.0	4,000	99.5	4,504	98.5
Less than 189	8,582	100.0	4,019	100.0	4,563	100.0

Table 11. Cumulative percent distribution of high density lipoprotein (HDL) cholesterol levels for persons 20–74 years of age, and number of examined persons, by race, selected HDL cholesterol level cutoffs, and sex: United States, 1976–80—Con.

Race and selected HDL cholesterol level cutoff (mg/dl)	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
Black						
Total	1,043	100.0	462	100.0	581	100.0
Less than 30	20	1.7	12	2.0	8	1.5
Less than 35	74	7.3	39	9.0	35	6.0
Less than 37	106	10.3	56	12.7	50	8.5
Less than 40	163	15.9	89	20.4	74	12.4
Less than 42	229	22.3	122	27.5	107	18.4
Less than 44	271	26.9	142	31.9	129	23.1
Less than 46	320	31.7	168	38.2	152	26.9
Less than 48	372	37.1	197	44.3	175	31.8
Less than 51	473	46.5	246	53.9	227	40.9
Less than 53	520	51.2	261	57.3	259	46.7
Less than 56	580	57.0	285	63.4	295	52.2
Less than 59	674	66.7	331	74.1	343	61.1
Less than 60	696	68.7	341	76.1	355	63.2
Less than 62	748	73.6	362	79.9	386	68.9
Less than 64	793	77.7	382	84.4	411	72.7
Less than 69	849	82.9	400	87.8	449	79.2
Less than 74	904	88.2	417	91.0	487	86.2
Less than 80	962	93.2	433	94.3	529	92.4
Less than 84	985	95.0	440	96.2	545	94.1
Less than 90	1,007	97.2	448	97.7	559	96.9
Less than 95	1,019	98.0	454	98.4	565	97.6
Less than 189	1,043	100.0	462	100.0	581	100.0

¹Includes values for races not shown separately.

NOTES: To convert values of high density lipoprotein cholesterol to millimoles per liter (mmol/L), multiply the values by 0.02586. mg/dl is milligrams per deciliter.

Table 12. Cumulative percent distribution of high density lipoprotein (HDL) cholesterol levels for men 20–74 years of age, and number of examined persons, by race, HDL cholesterol level cutoffs, and age: United States, 1976–80

Race and selected HDL cholesterol level cutoff (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	570	100.0	885	100.0	611	100.0
Less than 30	18	3.1	52	5.9	47	7.1
Less than 35	63	10.7	146	16.0	113	18.3
Less than 37	98	17.0	209	22.7	171	27.4
Less than 40	172	30.0	312	34.3	265	43.1
Less than 42	216	38.0	403	45.4	313	50.5
Less than 44	239	42.1	444	50.0	329	52.9
Less than 46	291	52.3	516	58.1	369	60.3
Less than 48	340	60.1	580	65.7	418	68.0
Less than 51	405	70.3	657	74.4	470	76.0
Less than 53	436	75.6	695	78.9	499	80.4
Less than 56	465	80.8	739	84.3	522	84.8
Less than 59	495	86.4	785	88.9	543	88.1
Less than 60	505	88.1	797	90.4	549	89.4
Less than 62	520	90.3	815	92.7	564	92.0
Less than 64	531	92.3	826	94.0	575	94.0
Less than 69	542	94.4	842	95.6	590	96.3
Less than 74	552	96.2	867	98.1	594	97.0
Less than 80	559	97.9	872	98.6	601	98.1
Less than 84	562	98.3	874	98.9	607	99.3
Less than 90	566	99.2	875	99.0	609	99.8
Less than 95	566	99.2	879	99.4	610	99.9
Less than 189	570	100.0	885	100.0	611	100.0
White						
Total	494	100.0	751	100.0	545	100.0
Less than 30	18	3.5	48	6.2	46	7.9
Less than 35	61	11.8	135	16.8	102	18.6
Less than 37	93	18.5	190	23.5	159	28.8
Less than 40	159	31.9	283	35.9	246	44.8
Less than 42	199	40.1	364	47.5	288	52.3
Less than 44	221	44.7	396	51.6	303	54.9
Less than 46	269	55.6	455	59.3	341	62.9
Less than 48	311	63.4	510	67.2	386	70.8
Less than 51	366	73.3	576	75.9	433	78.9
Less than 53	394	78.7	609	80.4	460	83.7
Less than 56	414	82.7	648	86.1	479	87.6
Less than 59	437	87.6	681	90.1	494	90.3
Less than 60	446	89.3	691	91.6	497	90.9
Less than 62	458	91.3	704	93.8	511	93.7
Less than 64	467	93.3	712	94.9	518	94.9
Less than 69	474	94.9	724	95.4	529	96.8
Less than 74	481	96.5	741	98.6	533	97.6
Less than 80	487	98.2	744	99.0	539	98.6
Less than 84	489	98.5	745	99.1	542	99.3
Less than 90	492	99.4	745	99.1	544	99.9
Less than 95	492	99.4	747	99.5	544	99.9
Less than 189	494	100.0	751	100.0	545	100.0
Black						
Total	65	100.0	112	100.0	54	100.0
Less than 30	–	–	3	2.6	1	1.8
Less than 35	1	1.5	9	9.6	7	13.0
Less than 37	3	3.7	15	14.6	8	14.6
Less than 40	10	13.6	24	22.5	14	26.7
Less than 42	14	21.2	32	29.3	20	34.9
Less than 44	15	22.4	40	37.5	21	36.9
Less than 46	19	29.4	50	47.7	22	38.1
Less than 48	24	36.7	56	52.3	26	45.9
Less than 51	32	48.1	64	59.1	31	55.4
Less than 53	35	53.1	69	64.8	32	56.5
Less than 56	42	65.2	73	68.0	34	60.4
Less than 59	48	75.5	85	78.3	40	71.7
Less than 60	49	77.9	87	79.4	42	74.8
Less than 62	52	81.8	92	83.8	43	77.5
Less than 64	54	83.8	95	87.7	46	86.2
Less than 69	58	90.4	98	89.5	49	91.1
Less than 74	60	92.8	105	95.4	49	91.1
Less than 80	61	95.6	107	96.9	50	92.4
Less than 84	62	96.5	107	96.9	53	98.9
Less than 90	63	97.5	108	97.4	53	98.9
Less than 95	63	97.5	110	98.7	54	100.0
Less than 189	65	100.0	112	100.0	54	100.0

¹Includes data for races not shown separately. NOTES: To convert the values in the stub to millimoles per liter (mmol/L), multiply the values by 0.02586. mg/dl is milligrams per deciliter.

Table 12. Cumulative percent distribution of high density lipoprotein (HDL) cholesterol levels for men 20–74 years of age, and number of examined persons, by race, HDL cholesterol level cutoffs, and age: United States, 1976–80—Con.

Race and selected HDL cholesterol level cutoff (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	559	100.0	964	100.0	973	100.0
Less than 30	37	6.6	78	8.1	65	7.2
Less than 35	101	18.5	176	18.4	182	19.4
Less than 37	159	29.2	245	25.9	248	25.9
Less than 40	236	43.5	339	35.6	362	37.3
Less than 42	273	50.1	425	43.6	440	45.3
Less than 44	295	53.8	466	47.1	470	48.2
Less than 46	333	60.6	525	52.5	550	56.0
Less than 48	374	68.7	592	60.3	616	62.5
Less than 51	420	76.0	677	68.7	693	70.2
Less than 53	442	80.0	731	75.6	737	75.3
Less than 56	465	84.3	774	79.9	772	78.7
Less than 59	499	89.7	830	85.1	832	85.4
Less than 60	504	90.7	840	85.8	847	86.9
Less than 62	510	91.7	865	88.5	867	89.1
Less than 64	516	92.7	887	90.7	890	91.6
Less than 69	534	95.9	914	94.2	912	93.9
Less than 74	543	97.4	930	96.3	933	96.0
Less than 80	551	98.7	944	97.7	948	97.7
Less than 84	553	99.0	947	97.9	958	98.6
Less than 90	556	99.4	952	98.6	962	98.9
Less than 95	556	99.4	955	99.2	968	99.4
Less than 189	559	100.0	964	100.0	973	100.0
White						
Total	506	100.0	865	100.0	858	100.0
Less than 30	36	7.1	76	8.8	59	7.5
Less than 35	95	18.9	167	19.4	170	20.5
Less than 37	149	30.0	234	27.5	233	27.3
Less than 40	223	45.3	324	37.7	341	39.5
Less than 42	258	52.3	403	45.5	412	47.6
Less than 44	276	55.7	441	49.3	438	50.5
Less than 46	310	62.4	496	54.8	514	58.7
Less than 48	350	71.2	555	62.2	571	65.0
Less than 51	390	78.2	625	70.2	637	72.4
Less than 53	411	82.4	678	77.3	675	77.6
Less than 56	431	86.3	716	81.6	704	80.9
Less than 59	458	90.9	763	86.7	755	87.4
Less than 60	462	91.8	771	87.3	767	88.9
Less than 62	468	92.9	788	89.4	783	91.0
Less than 64	474	94.0	804	91.3	799	93.0
Less than 69	490	97.1	828	95.0	816	95.2
Less than 74	498	98.6	840	96.8	832	97.0
Less than 80	502	99.4	850	98.0	841	98.1
Less than 84	503	99.5	853	98.2	849	99.0
Less than 90	504	99.6	855	98.6	852	99.3
Less than 95	504	99.6	858	99.3	855	99.6
Less than 189	506	100.0	865	100.0	858	100.0
Black						
Total	47	100.0	92	100.0	92	100.0
Less than 30	1	2.0	2	1.7	5	5.6
Less than 35	4	12.4	9	8.9	9	9.1
Less than 37	8	19.9	11	11.2	11	10.7
Less than 40	10	22.6	15	16.3	16	16.9
Less than 42	12	26.1	22	26.7	22	23.6
Less than 44	16	33.1	25	29.3	25	26.1
Less than 46	19	39.4	29	33.0	29	32.2
Less than 48	20	41.9	36	43.3	35	37.8
Less than 51	25	52.0	49	53.8	45	50.7
Less than 53	26	53.6	49	53.8	50	55.8
Less than 56	29	62.4	54	59.2	53	58.6
Less than 59	36	78.6	62	65.0	60	66.4
Less than 60	37	80.6	64	66.8	62	68.1
Less than 62	37	80.6	72	76.6	66	71.7
Less than 64	37	80.6	78	83.1	72	79.8
Less than 69	33	82.4	81	85.7	76	83.0
Less than 74	33	83.8	85	91.1	79	85.5
Less than 80	43	90.8	87	93.9	85	94.4
Less than 84	44	93.4	87	93.9	87	96.2
Less than 90	46	97.2	90	97.9	88	96.9
Less than 95	46	97.2	90	97.9	91	99.3
Less than 189	47	100.0	92	100.0	92	100.0

Table 13. Cumulative percent distribution of high density lipoprotein (HDL) cholesterol levels for women 20–74 years of age and number of examined persons, by race, HDL cholesterol level cutoffs, and age: United States, 1976–80

Race and selected HDL cholesterol level cutoff (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	634	100.0	1,017	100.0	722	100.0
Less than 30	8	1.4	19	1.6	14	2.1
Less than 35	37	6.0	74	6.7	47	6.3
Less than 37	60	9.0	112	10.4	76	9.9
Less than 40	104	16.3	171	16.3	122	16.9
Less than 42	133	20.6	212	19.8	163	23.1
Less than 44	159	24.9	249	23.2	190	26.3
Less than 46	188	29.1	317	29.8	240	33.2
Less than 48	235	36.1	391	36.8	289	39.6
Less than 51	303	47.6	502	47.9	360	49.9
Less than 53	358	55.9	578	55.2	405	56.2
Less than 56	400	62.3	652	62.8	444	62.2
Less than 59	453	71.0	732	70.7	511	71.0
Less than 60	462	72.3	758	73.6	527	73.1
Less than 62	493	76.7	796	77.6	557	77.1
Less than 64	517	80.2	842	82.0	583	80.6
Less than 69	567	88.3	905	87.9	627	86.6
Less than 74	593	92.5	955	93.5	665	92.2
Less than 80	613	96.3	983	96.5	697	96.4
Less than 84	618	97.1	994	97.6	705	97.7
Less than 90	627	98.2	1,008	99.3	709	98.1
Less than 95	628	98.5	1,011	99.5	713	98.8
Less than 189	634	100.0	1,017	100.0	722	100.0
White						
Total	542	100.0	875	100.0	626	100.0
Less than 30	8	1.6	18	1.8	11	1.7
Less than 35	34	6.3	60	6.1	41	6.3
Less than 37	55	9.6	92	9.9	67	10.0
Less than 40	97	17.4	148	16.5	107	17.0
Less than 42	120	21.4	183	20.1	143	23.2
Less than 44	141	25.6	212	23.1	168	26.7
Less than 46	167	30.0	269	29.9	215	34.2
Less than 48	210	37.3	338	37.1	258	40.6
Less than 51	264	48.2	439	48.8	321	51.3
Less than 53	313	57.0	502	55.9	361	57.8
Less than 56	348	63.8	565	63.5	393	63.6
Less than 59	393	72.0	637	71.8	447	71.5
Less than 60	400	73.0	661	74.9	462	73.7
Less than 62	424	77.1	692	78.4	486	77.3
Less than 64	445	80.8	731	82.8	509	80.9
Less than 69	489	89.0	784	88.5	549	87.0
Less than 74	512	93.3	827	94.2	582	92.6
Less than 80	526	96.4	851	97.2	607	96.6
Less than 84	529	97.0	861	98.4	614	97.9
Less than 90	536	98.0	870	99.5	616	98.1
Less than 95	537	98.4	872	99.7	620	98.9
Less than 189	542	100.0	875	100.0	626	100.0
Black						
Total	77	100.0	122	100.0	84	100.0
Less than 30	–	–	1	0.4	3	5.3
Less than 35	2	2.6	12	10.0	6	7.6
Less than 37	3	3.5	17	13.5	9	10.6
Less than 40	4	6.1	18	13.9	14	17.4
Less than 42	9	11.8	23	16.5	18	22.8
Less than 44	12	16.7	29	21.2	20	24.5
Less than 46	14	18.4	38	27.2	23	27.9
Less than 48	17	23.7	43	33.3	28	33.2
Less than 51	30	40.1	52	41.3	35	40.1
Less than 53	35	45.7	63	50.2	39	44.6
Less than 56	41	50.3	73	57.5	44	51.4
Less than 59	48	62.1	79	61.0	55	66.3
Less than 60	49	64.3	81	63.3	55	66.3
Less than 62	55	70.7	87	69.9	61	74.2
Less than 64	58	74.0	94	75.5	64	77.1
Less than 69	64	83.2	101	81.2	68	82.7
Less than 74	67	87.0	108	87.3	73	90.5
Less than 80	72	94.4	112	90.8	79	95.5
Less than 84	74	97.1	113	91.3	79	95.5
Less than 90	76	99.1	118	97.2	81	97.6
Less than 95	76	99.1	119	97.8	81	97.6
Less than 189	77	100.0	122	100.0	84	100.0

¹Includes data for races not shown separately. NOTES: To convert values of high density lipoprotein cholesterol to millimoles per liter (mmol/L), multiply by 0.02586. mg/dl is milligrams per deciliter.

Table 13. Cumulative percent distribution of high density lipoprotein (HDL) cholesterol levels for women 20–74 years of age and number of examined persons, by race, HDL cholesterol level cutoffs, and age: United States, 1976–80—Con.

Race and selected HDL cholesterol level cutoff (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total.	641	100.0	1,086	100.0	1,135	100.0
Less than 30.	11	1.3	24	2.1	23	1.9
Less than 35.	36	5.4	78	7.2	74	6.5
Less than 37.	55	8.2	98	8.6	111	9.6
Less than 40.	87	13.1	179	15.7	193	16.6
Less than 42.	129	19.4	229	20.2	268	23.6
Less than 44.	146	22.4	250	22.4	303	26.5
Less than 46.	180	27.5	306	26.8	372	32.8
Less than 48.	229	35.2	362	32.3	441	38.6
Less than 51.	292	44.6	469	41.9	543	48.2
Less than 53.	327	49.7	526	47.0	613	54.1
Less than 56.	366	56.9	606	54.3	687	60.7
Less than 59.	419	64.8	689	62.1	796	70.3
Less than 60.	433	67.3	718	64.6	822	72.7
Less than 62.	466	72.2	754	67.8	857	75.8
Less than 64.	491	75.7	793	71.5	901	79.5
Less than 69.	532	83.2	882	80.2	977	86.0
Less than 74.	569	88.3	954	86.5	1,031	90.8
Less than 80.	595	92.0	1,012	91.8	1,070	93.7
Less than 84.	609	94.7	1,031	93.8	1,097	96.4
Less than 90.	618	96.3	1,053	96.0	1,112	98.0
Less than 95.	622	96.8	1,065	97.6	1,121	98.7
Less than 189.	641	100.0	1,086	100.0	1,135	100.0
White						
Total.	546	100.0	973	100.0	1,001	100.0
Less than 30.	8	1.0	22	2.3	22	2.1
Less than 35.	30	5.2	68	7.3	70	6.9
Less than 37.	46	8.0	88	8.9	103	10.0
Less than 40.	75	13.0	159	15.7	177	17.3
Less than 42.	110	19.4	203	19.9	242	23.6
Less than 44.	122	21.8	222	21.8	273	26.5
Less than 46.	154	27.3	275	26.3	338	33.2
Less than 48.	198	35.6	327	32.0	405	39.7
Less than 51.	255	45.5	422	41.1	496	49.5
Less than 53.	281	50.3	477	46.7	562	55.7
Less than 56.	317	57.7	552	54.4	627	62.1
Less than 59.	359	64.6	628	62.4	724	71.8
Less than 60.	371	67.0	655	65.1	743	73.9
Less than 62.	401	72.0	686	68.4	772	76.8
Less than 64.	423	75.7	723	72.4	809	80.5
Less than 69.	458	83.3	805	81.7	874	86.9
Less than 74.	486	88.1	866	87.5	924	91.9
Less than 80.	508	91.7	910	91.9	952	94.4
Less than 84.	520	94.6	925	93.8	970	96.5
Less than 90.	528	96.4	945	96.1	983	98.0
Less than 95.	530	96.8	955	97.7	990	98.7
Less than 189.	546	100.0	973	100.0	1,001	100.0
Black						
Total.	81	100.0	99	100.0	118	100.0
Less than 30.	2	1.9	1	0.4	1	0.5
Less than 35.	4	3.9	8	5.2	3	1.8
Less than 37.	7	8.0	8	5.2	6	3.8
Less than 40.	9	10.3	16	15.0	13	9.9
Less than 42.	16	18.0	20	21.7	21	23.6
Less than 44.	21	27.2	22	26.4	25	26.1
Less than 46.	23	29.7	25	31.3	29	29.2
Less than 48.	28	34.5	29	35.4	30	30.0
Less than 51.	33	39.9	37	46.0	40	37.3
Less than 53.	41	48.0	39	46.9	42	39.6
Less than 56.	42	48.9	44	51.1	51	48.8
Less than 59.	49	60.1	50	55.3	62	58.6
Less than 60.	51	64.2	52	56.6	67	61.6
Less than 62.	53	68.5	57	58.6	73	66.0
Less than 64.	56	71.9	59	60.4	80	71.2
Less than 69.	62	79.9	65	64.3	89	77.8
Less than 74.	71	89.6	75	74.3	93	81.8
Less than 80.	74	92.7	88	89.8	104	89.5
Less than 84.	76	94.4	92	92.1	111	95.3
Less than 90.	77	95.2	94	94.0	113	97.2
Less than 95.	78	96.2	96	96.6	115	98.3
Less than 189.	81	100.0	99	100.0	118	100.0

Table 14. Cumulative percent distribution of serum non-high density lipoprotein (non-HDL) cholesterol for persons 20–74 years of age by race and selected cholesterol level cutoffs, according to sex: United States, 1976–80

Race and selected non-HDL cholesterol cutoff ¹ (mg/dl)	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ²						
Total	9,797	100.0	4,562	100.0	5,235	100.0
Less than 80	160	2.0	60	1.5	100	2.4
Less than 90	329	4.0	133	3.2	196	4.7
Less than 100	627	7.7	246	5.9	381	9.3
Less than 110	1,041	12.5	433	10.3	608	14.4
Less than 120	1,603	19.0	677	16.1	926	21.5
Less than 125	1,929	22.7	823	19.4	1,106	25.5
Less than 130	2,281	26.5	988	23.1	1,293	29.6
Less than 135	2,633	30.5	1,150	27.1	1,483	33.5
Less than 140	2,996	34.4	1,327	31.0	1,669	37.5
Less than 150	3,842	43.2	1,720	39.7	2,122	46.3
Less than 160	4,639	51.3	2,117	48.3	2,522	53.8
Less than 170	5,421	59.0	2,516	56.8	2,905	60.9
Less than 180	6,168	66.5	2,874	64.6	3,294	68.1
Less than 190	6,818	72.5	3,208	71.5	3,610	73.4
Less than 200	7,435	78.5	3,515	78.0	3,920	78.9
Less than 210	7,951	83.2	3,767	83.2	4,184	83.2
Less than 220	8,411	87.5	3,976	87.7	4,435	87.4
Less than 230	8,734	90.4	4,100	90.1	4,634	90.7
Less than 240	9,015	93.3	4,243	93.7	4,772	92.9
Less than 250	9,230	95.2	4,339	95.6	4,891	94.9
Less than 260	9,396	96.5	4,416	96.9	4,980	96.2
White						
Total	8,582	100.0	4,019	100.0	4,563	100.0
Less than 80	125	1.8	45	1.3	80	2.3
Less than 90	253	3.6	97	2.8	156	4.3
Less than 100	504	7.3	186	5.2	318	9.1
Less than 110	858	11.9	343	9.5	515	14.1
Less than 120	1,338	18.3	552	15.1	786	21.2
Less than 125	1,621	22.1	677	18.4	944	25.3
Less than 130	1,926	25.9	818	22.1	1,108	29.3
Less than 135	2,224	29.8	952	25.9	1,272	33.3
Less than 140	2,547	33.8	1,110	29.9	1,437	37.3
Less than 150	3,275	42.5	1,458	38.6	1,817	46.0
Less than 160	3,972	50.4	1,810	47.3	2,162	53.2
Less than 170	4,667	58.2	2,170	55.8	2,497	60.3
Less than 180	5,326	65.7	2,496	63.7	2,830	67.4
Less than 190	5,897	71.7	2,799	70.7	3,098	72.6
Less than 200	6,455	77.8	3,077	77.4	3,378	78.2
Less than 210	6,923	82.8	3,303	82.7	3,620	82.8
Less than 220	7,341	87.3	3,492	87.3	3,849	87.3
Less than 230	7,623	90.2	3,600	89.8	4,023	90.5
Less than 240	7,878	93.2	3,732	93.6	4,146	92.8
Less than 250	8,074	95.2	3,821	95.6	4,253	94.8
Less than 260	8,227	96.6	3,893	97.0	4,334	96.2

Table 14. Cumulative percent distribution of serum non-high density lipoprotein (non-HDL) cholesterol for persons 20–74 years of age by race and selected cholesterol level cutoffs, according to sex: United States, 1976–80—Con.

<i>Race and selected non-HDL cholesterol cutoff¹ (mg/dl)</i>	<i>Both sexes</i>		<i>Men</i>		<i>Women</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
Black						
Total	1,043	100.0	462	100.0	581	100.0
Less than 80	33	3.5	15	4.3	18	2.9
Less than 90	72	7.7	35	8.3	37	7.2
Less than 100.	114	12.2	57	13.4	57	11.3
Less than 110.	164	18.0	84	20.0	80	16.5
Less than 120.	237	26.0	114	27.0	123	25.1
Less than 125.	275	29.5	133	30.7	142	28.6
Less than 130.	319	33.6	155	34.3	164	33.2
Less than 135.	364	38.0	178	39.9	186	36.7
Less than 140.	398	41.1	193	42.8	205	39.9
Less than 150.	498	50.4	229	50.1	269	50.6
Less than 160.	587	60.1	270	60.2	317	60.1
Less than 170.	657	67.0	299	67.5	358	66.6
Less than 180.	730	73.9	325	72.9	405	74.7
Less than 190.	794	79.2	352	79.1	442	79.3
Less than 200.	839	83.0	371	82.1	468	83.7
Less than 210.	882	86.6	393	86.5	489	86.7
Less than 220.	917	89.2	409	89.5	508	89.0
Less than 230.	951	92.1	424	92.5	527	91.7
Less than 240.	972	94.0	432	94.0	540	94.0
Less than 250.	989	95.2	439	95.2	550	95.2
Less than 260.	999	95.9	443	96.0	556	95.7

¹Non-HDL cholesterol = total cholesterol – HDL cholesterol. To convert values of non-HDL cholesterol to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

NOTE: mg/dl is milligrams per deciliter.

Table 15. Cumulative percent distribution of serum non-high density lipoprotein (non-HDL) cholesterol for men 20–74 years of age and number of examined persons by race and selected cholesterol level cutoffs, according to age: United States, 1976–80

Race and selected non-HDL cholesterol cutoff ¹ (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races²						
Total	570	100.0	885	100.0	611	100.0
Less than 80	23	4.3	18	1.9	5	1.0
Less than 90	54	9.8	38	4.0	11	1.7
Less than 100	98	17.1	75	7.9	16	2.4
Less than 110	161	27.8	127	13.5	37	5.8
Less than 120	224	40.1	194	21.2	59	9.3
Less than 125	259	46.8	230	24.7	73	12.0
Less than 130	295	52.4	274	29.8	90	15.2
Less than 135	330	59.6	319	34.7	109	18.3
Less than 140	356	64.1	356	38.6	135	22.9
Less than 150	401	71.5	461	50.3	205	33.9
Less than 160	449	79.4	544	60.1	258	42.3
Less than 170	484	85.3	621	69.2	303	49.1
Less than 180	512	90.6	686	76.9	347	56.3
Less than 190	524	92.4	722	81.3	405	65.2
Less than 200	540	95.0	760	85.3	457	73.8
Less than 210	549	96.5	794	89.5	492	80.1
Less than 220	553	97.2	819	92.4	529	86.0
Less than 230	557	97.9	836	94.4	542	87.9
Less than 240	563	99.0	855	97.0	569	93.0
Less than 250	565	99.2	863	97.7	582	95.5
Less than 260	566	99.4	867	98.1	595	97.3
White						
Total	494	100.0	751	100.0	545	100.0
Less than 80	15	3.2	12	1.6	5	1.1
Less than 90	39	8.4	24	3.2	10	1.9
Less than 100	78	15.9	51	6.8	13	2.3
Less than 110	132	26.5	96	12.4	29	5.4
Less than 120	190	39.6	154	19.9	47	8.8
Less than 125	218	45.9	185	23.7	59	11.5
Less than 130	250	51.7	221	28.6	75	15.1
Less than 135	280	58.5	257	33.2	92	18.4
Less than 140	304	63.4	291	37.4	117	23.0
Less than 150	344	71.0	381	49.4	178	33.8
Less than 160	385	79.0	453	59.7	225	41.8
Less than 170	417	85.2	516	68.1	267	48.6
Less than 180	441	90.2	576	76.5	305	55.0
Less than 190	453	92.2	607	80.9	360	64.4
Less than 200	469	95.3	639	84.8	407	73.2
Less than 210	478	97.0	669	88.8	440	80.0
Less than 220	481	97.6	693	92.0	473	85.9
Less than 230	483	98.0	708	94.1	484	87.7
Less than 240	488	98.9	727	97.2	508	92.9
Less than 250	490	99.2	733	97.8	520	95.5
Less than 260	491	99.5	737	98.2	531	97.2
Black						
Total	65	100.0	112	100.0	54	100.0
Less than 80	8	13.5	6	5.7	—	—
Less than 90	15	22.2	14	12.1	1	1.1
Less than 100	20	29.5	23	19.5	3	4.7
Less than 110	27	41.4	30	26.4	8	11.6
Less than 120	32	49.3	37	34.8	11	15.6
Less than 125	37	57.5	42	37.7	13	18.6
Less than 130	41	62.1	48	42.7	14	19.7
Less than 135	46	74.4	54	48.5	16	21.9
Less than 140	47	75.2	56	50.0	16	21.9
Less than 150	51	80.8	68	58.4	23	34.4
Less than 160	58	89.1	78	66.2	28	46.6
Less than 170	60	91.1	87	75.5	31	56.8
Less than 180	63	97.6	91	78.8	34	63.9
Less than 190	63	97.6	95	82.5	37	70.3
Less than 200	63	97.6	99	85.3	39	73.7
Less than 210	63	97.6	103	92.2	41	76.2
Less than 220	64	99.0	104	93.2	44	81.8
Less than 230	65	100.0	106	94.7	46	85.7
Less than 240	65	100.0	106	94.7	49	91.6
Less than 250	65	100.0	108	96.0	50	93.3
Less than 260	65	100.0	108	96.0	52	97.1

¹Non-HDL cholesterol = total cholesterol – HDL cholesterol. To convert values of non-HDL cholesterol to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately. NOTE: mg/dl is milligrams per deciliter.

Table 15. Cumulative percent distribution of serum non-high density lipoprotein (non-HDL) cholesterol for men 20–74 years of age and number of examined persons by race and selected cholesterol level cutoffs, according to age: United States, 1976–80—Con.

Race and selected non-HDL cholesterol cutoff ¹ (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ²						
Total	559	100.0	964	100.0	973	100.0
Less than 80	2	0.3	4	0.6	8	0.9
Less than 90	4	0.5	8	1.0	18	1.9
Less than 100	9	1.7	16	1.9	32	3.1
Less than 110	20	3.4	32	3.3	56	6.0
Less than 120	40	6.5	60	6.1	100	10.3
Less than 125	51	8.2	85	8.7	125	12.8
Less than 130	65	10.4	104	10.2	160	16.3
Less than 135	81	13.1	131	13.2	180	18.4
Less than 140	103	17.3	158	16.0	214	21.6
Less than 150	143	23.2	223	22.0	287	28.7
Less than 160	183	30.1	301	30.5	382	39.4
Less than 170	236	40.0	406	41.3	466	47.8
Less than 180	280	48.7	498	50.6	551	56.6
Less than 190	337	58.8	590	60.1	630	64.6
Less than 200	384	67.9	658	68.5	716	72.6
Less than 210	425	74.5	722	74.9	785	79.6
Less than 220	458	81.1	781	81.0	836	85.4
Less than 230	483	85.7	815	83.9	867	88.2
Less than 240	511	91.6	851	87.7	894	91.4
Less than 250	524	93.7	889	92.0	916	93.6
Less than 260	533	95.3	915	94.3	940	96.5
White						
Total	506	100.0	865	100.0	858	100.0
Less than 80	2	0.3	3	0.5	8	1.0
Less than 90	4	0.6	7	0.9	13	1.5
Less than 100	8	1.6	14	1.9	22	2.3
Less than 110	15	2.8	28	3.2	43	5.4
Less than 120	32	5.7	48	5.3	81	9.7
Less than 125	43	7.6	67	7.6	105	12.5
Less than 130	56	9.8	82	9.2	134	15.8
Less than 135	72	12.9	105	11.8	146	17.2
Less than 140	93	16.5	129	14.4	176	20.4
Less than 150	127	22.7	186	20.5	242	27.6
Less than 160	161	28.7	258	29.3	328	38.5
Less than 170	211	39.3	354	39.9	405	47.0
Less than 180	254	48.6	438	49.6	482	55.6
Less than 190	303	58.1	524	59.3	552	63.8
Less than 200	346	67.5	587	67.8	629	71.9
Less than 210	383	74.1	643	74.1	690	78.9
Less than 220	412	80.6	696	80.5	737	84.9
Less than 230	434	85.1	727	83.5	764	87.8
Less than 240	461	91.3	761	87.5	787	91.0
Less than 250	474	93.6	796	91.9	808	93.4
Less than 260	483	95.4	822	94.4	829	96.4
Black						
Total	47	100.0	92	100.0	92	100.0
Less than 80	—	—	1	1.8	—	—
Less than 90	—	—	1	1.8	4	4.5
Less than 100	1	3.1	2	2.4	8	10.0
Less than 110	4	7.8	4	5.2	11	12.7
Less than 120	7	13.2	11	16.4	16	16.9
Less than 125	7	13.2	17	23.0	17	17.7
Less than 130	8	15.2	21	25.2	23	24.1
Less than 135	8	15.2	24	29.5	30	33.8
Less than 140	14	25.3	27	34.0	33	36.5
Less than 150	15	29.2	35	40.0	37	40.8
Less than 160	21	47.1	40	46.1	45	49.5
Less than 170	23	50.7	48	57.8	50	56.8
Less than 180	24	53.1	56	64.4	57	67.0
Less than 190	32	72.1	61	69.1	64	72.8
Less than 200	35	77.0	65	72.1	70	78.7
Less than 210	38	81.4	73	80.2	75	83.6
Less than 220	41	86.3	78	83.7	78	87.1
Less than 230	44	93.3	81	86.2	82	90.8
Less than 240	44	93.3	83	87.9	85	93.5
Less than 250	44	93.3	86	91.6	86	94.6
Less than 260	44	93.3	86	91.6	88	96.3

Table 16. Cumulative percent distribution of serum non-high density lipoprotein (non-HDL) cholesterol for women 20–74 years of age and number of examined persons by race and selected cholesterol level cutoffs, according to age: United States, 1976–80

Race and selected non-HDL cholesterol cutoff ¹ (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races²						
Total	634	100.0	1,017	100.0	722	100.0
Less than 80	35	5.8	39	3.7	14	1.9
Less than 90	68	11.8	72	7.1	30	4.2
Less than 100	118	20.0	144	14.6	61	8.9
Less than 110	176	29.7	222	22.2	105	15.0
Less than 120	250	41.7	340	34.3	167	22.7
Less than 125	290	48.5	396	40.3	201	27.4
Less than 130	336	55.7	436	44.6	239	32.2
Less than 135	368	60.7	488	49.6	268	36.2
Less than 140	392	64.1	537	54.0	303	41.3
Less than 150	456	73.4	659	65.7	360	49.1
Less than 160	514	82.1	738	72.7	420	57.2
Less than 170	546	86.7	803	78.8	487	66.7
Less than 180	577	91.6	856	83.9	545	75.0
Less than 190	594	93.7	888	87.2	587	80.4
Less than 200	607	95.6	918	90.0	624	86.6
Less than 210	612	96.4	954	93.4	649	90.0
Less than 220	619	97.6	970	95.1	668	92.7
Less than 230	622	97.9	988	97.2	689	95.3
Less than 240	627	98.7	995	97.9	697	96.6
Less than 250	629	99.1	1,003	98.7	705	97.8
Less than 260	631	99.5	1,007	99.0	708	98.4
White						
Total	542	100.0	875	100.0	626	100.0
Less than 80	29	5.8	31	3.5	11	1.9
Less than 90	53	10.5	57	6.6	26	4.4
Less than 100	97	19.3	122	14.7	52	8.8
Less than 110	146	29.0	189	22.0	92	15.2
Less than 120	208	41.0	292	34.1	143	22.7
Less than 125	245	48.2	342	40.4	175	27.7
Less than 130	287	56.1	376	44.8	208	32.5
Less than 135	315	61.4	423	50.1	232	36.0
Less than 140	339	65.4	465	54.4	262	41.1
Less than 150	393	74.4	566	65.8	311	48.8
Less than 160	443	83.1	629	72.1	365	56.8
Less than 170	470	87.9	688	78.5	423	66.4
Less than 180	497	92.6	731	83.2	471	74.4
Less than 190	509	94.5	759	86.5	504	79.3
Less than 200	520	96.2	789	89.7	540	86.1
Less than 210	524	96.8	823	93.5	563	89.8
Less than 220	529	97.7	839	95.5	581	92.8
Less than 230	532	98.1	850	97.2	600	95.5
Less than 240	536	98.8	855	97.8	607	96.9
Less than 250	537	99.0	863	98.8	613	97.9
Less than 260	539	99.4	867	99.1	616	98.6
Black						
Total	77	100.0	122	100.0	84	100.0
Less than 80	5	5.4	7	4.5	3	2.6
Less than 90	13	18.4	14	10.5	4	3.7
Less than 100	18	23.7	20	15.2	8	10.7
Less than 110	26	34.2	27	22.7	11	15.0
Less than 120	37	47.9	41	35.9	22	25.8
Less than 125	39	51.5	46	39.7	24	28.4
Less than 130	43	55.4	52	44.4	29	33.6
Less than 135	47	59.9	55	46.0	33	40.2
Less than 140	47	59.9	61	51.6	37	44.2
Less than 150	55	70.2	81	67.3	44	52.3
Less than 160	62	78.8	95	78.9	48	59.4
Less than 170	65	82.3	99	83.1	56	68.3
Less than 180	67	85.4	108	90.6	64	78.4
Less than 190	71	89.0	110	92.0	72	87.0
Less than 200	73	93.0	110	92.0	73	89.5
Less than 210	74	94.8	112	93.0	75	91.1
Less than 220	76	98.1	112	93.0	76	92.3
Less than 230	76	98.1	118	96.3	77	93.0
Less than 240	77	100.0	120	98.2	78	93.9
Less than 250	77	100.0	120	98.2	80	96.7
Less than 260	77	100.0	120	98.2	80	96.7

¹Non-HDL cholesterol = total cholesterol – HDL cholesterol. To convert values of non-HDL cholesterol to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately. NOTE: mg/dl is milligrams per deciliter.

Table 16. Cumulative percent distribution of serum non-high density lipoprotein (non-HDL) cholesterol for women 20–74 years of age and number of examined persons by race and selected cholesterol level cutoffs, according to age: United States, 1976–80—Con.

Race and selected non-HDL cholesterol cutoff ¹ (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ²						
Total	641	100.0	1,086	100.0	1,135	100.0
Less than 80	6	1.0	4	0.5	2	0.1
Less than 90	10	1.6	9	0.9	7	0.4
Less than 100	23	4.1	19	2.2	16	1.2
Less than 110	35	5.9	38	3.7	32	2.5
Less than 120	59	9.3	56	5.4	54	4.5
Less than 125	74	11.3	72	6.6	73	6.1
Less than 130	98	15.1	91	8.2	93	7.9
Less than 135	120	18.7	119	11.1	120	10.1
Less than 140	144	22.6	151	14.6	142	12.2
Less than 150	199	31.0	234	21.8	214	18.6
Less than 160	256	39.6	295	27.3	299	25.8
Less than 170	300	46.4	373	34.7	396	34.2
Less than 180	356	55.0	471	44.6	489	42.3
Less than 190	357	61.4	565	52.8	579	50.3
Less than 200	447	69.1	655	60.3	669	59.1
Less than 210	492	76.4	724	65.9	753	65.9
Less than 220	528	82.2	812	74.4	838	73.7
Less than 230	557	86.6	872	79.6	906	80.2
Less than 240	580	90.3	922	83.9	951	84.2
Less than 250	596	93.0	956	87.7	1,002	88.5
Less than 260	609	95.2	992	90.5	1,033	91.1
White						
Total	543	100.0	973	100.0	1,001	100.0
Less than 80	5	1.0	4	0.5	—	—
Less than 90	3	1.6	9	1.0	3	0.2
Less than 100	13	4.2	18	2.3	11	1.1
Less than 110	29	6.1	34	3.8	25	2.4
Less than 120	51	9.8	48	5.3	44	4.2
Less than 125	62	11.5	60	6.4	60	5.7
Less than 130	81	14.7	78	8.0	78	7.5
Less than 135	99	18.4	105	11.2	98	9.5
Less than 140	121	22.7	133	14.8	117	11.6
Less than 150	166	30.9	206	22.0	175	17.6
Less than 160	213	39.3	259	26.7	253	25.1
Less than 170	253	46.4	325	33.8	338	33.6
Less than 180	300	54.6	410	43.6	421	41.9
Less than 190	336	60.9	492	52.0	498	49.7
Less than 200	379	68.6	575	59.6	575	57.8
Less than 210	417	75.8	638	65.5	655	65.0
Less than 220	451	82.3	721	74.6	728	72.6
Less than 230	472	86.1	778	80.1	791	79.3
Less than 240	493	90.0	823	84.3	832	83.5
Less than 250	506	92.7	855	88.6	879	87.9
Less than 260	517	94.8	889	91.3	906	90.6
Black						
Total	81	100.0	99	100.0	118	100.0
Less than 80	1	0.9	—	—	2	1.3
Less than 90	2	1.8	—	—	4	2.7
Less than 100	5	4.7	1	0.8	5	3.3
Less than 110	6	6.0	4	3.4	6	3.8
Less than 120	7	6.9	8	7.3	8	5.6
Less than 125	11	11.5	12	10.4	10	7.6
Less than 130	16	21.0	12	10.4	12	9.3
Less than 135	20	25.1	13	10.8	18	13.2
Less than 140	22	27.3	17	14.3	21	15.1
Less than 150	30	36.4	26	22.4	33	23.7
Less than 160	39	45.7	33	34.6	40	30.0
Less than 170	43	51.8	44	46.1	51	38.2
Less than 180	51	63.6	55	55.9	60	44.4
Less than 190	53	65.8	66	62.9	70	52.9
Less than 200	57	71.0	73	69.9	82	70.0
Less than 210	64	80.7	79	73.2	85	72.1
Less than 220	66	82.2	82	76.0	96	82.7
Less than 230	73	90.7	84	77.0	99	85.2
Less than 240	75	94.2	87	80.3	103	88.6
Less than 250	77	96.1	89	81.3	107	91.8
Less than 260	78	97.0	90	81.8	111	94.8

Table 17. Cumulative percent distribution of the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol for persons 20–74 years of age and number of examined persons by race and selected ratio cutoffs, according to sex: United States, 1976–80

Race and selected ratio cutoff	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	9,797	100.0	4,562	100.0	5,235	100.0
Less than 2	69	0.8	26	0.6	43	0.9
Less than 2.5	425	5.0	142	3.3	283	6.5
Less than 3	1,229	14.2	383	8.7	846	19.0
Less than 3.25	1,818	20.5	552	12.4	1,266	27.6
Less than 3.5	2,479	27.6	799	18.1	1,680	35.9
Less than 4	3,763	41.2	1,339	30.3	2,424	50.8
Less than 4.25	4,434	48.1	1,641	37.0	2,793	57.8
Less than 4.5	5,071	54.4	1,941	43.8	3,130	63.7
Less than 4.75	5,666	60.4	2,231	50.3	3,435	69.3
Less than 5	6,245	66.4	2,537	57.3	3,708	74.5
Less than 5.25	6,736	71.0	2,797	62.6	3,939	78.4
Less than 5.5	7,152	75.1	3,003	67.2	4,149	81.9
Less than 6	7,898	82.1	3,452	76.5	4,446	87.1
Less than 7	8,901	91.6	4,037	88.9	4,864	94.1
Less than 8	9,388	96.1	4,315	94.6	5,073	97.3
Less than 21.0	9,797	100.0	4,562	100.0	5,235	100.0
White						
Total	8,582	100.0	4,019	100.0	4,563	100.0
Less than 2	47	0.7	17	0.5	30	0.8
Less than 2.5	324	4.6	97	2.7	227	6.2
Less than 3	975	13.2	274	7.3	701	18.3
Less than 3.25	1,476	19.4	419	11.0	1,057	26.8
Less than 3.5	2,034	26.2	620	16.4	1,414	35.0
Less than 4	3,140	39.8	1,082	28.3	2,058	50.0
Less than 4.25	3,728	46.6	1,349	35.0	2,379	56.9
Less than 4.5	4,281	53.0	1,611	41.9	2,670	62.8
Less than 4.75	4,805	59.0	1,865	48.3	2,940	68.5
Less than 5	5,333	65.2	2,145	55.4	3,188	74.0
Less than 5.25	5,780	70.0	2,385	60.9	3,395	78.0
Less than 5.5	6,152	74.1	2,567	65.6	3,585	81.7
Less than 6	6,829	81.3	2,980	75.1	3,849	86.8
Less than 7	7,753	91.2	3,527	88.1	4,226	93.9
Less than 8	8,202	95.8	3,786	94.2	4,416	97.3
Less than 21.0	8,582	100.0	4,019	100.0	4,563	100.0
Black						
Total	1,043	100.0	462	100.0	581	100.0
Less than 2	21	1.5	8	1.1	13	1.8
Less than 2.5	94	9.3	41	8.8	53	9.6
Less than 3	233	24.5	100	22.8	133	25.8
Less than 3.25	316	32.6	122	27.3	194	36.6
Less than 3.5	403	41.0	161	35.3	242	45.2
Less than 4	557	55.1	228	49.9	329	59.0
Less than 4.25	624	61.5	258	56.4	366	65.3
Less than 4.5	697	68.2	292	64.0	405	71.4
Less than 4.75	755	73.4	321	69.7	434	76.2
Less than 5	793	76.5	337	73.2	456	79.0
Less than 5.25	833	79.9	355	77.2	478	82.0
Less than 5.5	867	83.3	376	82.1	491	84.1
Less than 6	919	88.1	401	87.1	518	88.8
Less than 7	985	94.6	433	94.4	552	94.7
Less than 8	1,014	97.4	448	97.4	566	97.4
Less than 21.0	1,043	100.0	462	100.0	581	100.0

¹Includes data for races not shown separately.

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Table 18. Cumulative percent distribution of the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol for men 20–74 years of age and number of examined persons, by race, selected ratio cutoffs, and age: United States, 1976–80

<i>Race and selected ratio cutoff</i>	<i>20–24 years</i>		<i>25–34 years</i>		<i>35–44 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races¹						
Total	570	100.0	885	100.0	611	100.0
Less than 2	6	1.3	6	0.5	2	0.2
Less than 2.5	39	7.5	42	4.3	9	1.7
Less than 3	108	20.3	104	11.0	26	4.3
Less than 3.25	153	27.2	144	15.3	45	6.9
Less than 3.5	201	35.7	198	21.5	75	12.1
Less than 4	303	52.5	305	33.8	145	25.2
Less than 4.25	345	60.3	392	43.3	178	30.1
Less than 4.5	392	69.6	457	50.6	222	36.8
Less than 4.75	431	76.5	515	57.0	260	43.1
Less than 5	455	80.3	576	64.4	314	52.2
Less than 5.25	481	84.9	620	69.6	350	57.9
Less than 5.5	498	88.0	660	74.5	372	61.6
Less than 6	531	93.8	737	83.6	429	70.2
Less than 7	557	97.9	818	92.4	529	86.2
Less than 8	565	99.3	854	96.5	571	93.3
Less than 21.0	570	100.0	885	100.0	611	100.0
White						
Total	494	100.0	751	100.0	545	100.0
Less than 2	4	1.2	3	0.4	2	0.2
Less than 2.5	28	6.5	28	3.6	7	1.6
Less than 3	79	17.6	71	9.3	18	3.7
Less than 3.25	119	24.6	103	13.4	36	6.6
Less than 3.5	159	32.8	148	19.4	61	11.6
Less than 4	250	50.4	235	31.7	121	23.7
Less than 4.25	290	58.7	314	42.0	149	28.4
Less than 4.5	329	67.6	369	49.3	190	35.4
Less than 4.75	365	75.1	416	55.3	221	41.0
Less than 5	388	79.3	472	63.0	271	50.6
Less than 5.25	413	84.5	514	68.7	303	56.0
Less than 5.5	428	87.4	551	74.0	322	59.2
Less than 6	459	93.6	614	82.5	375	68.2
Less than 7	484	98.2	689	91.9	469	85.2
Less than 8	489	99.2	722	96.2	507	92.7
Less than 21.0	494	100.0	751	100.0	545	100.0
Black						
Total	65	100.0	112	100.0	54	100.0
Less than 2	2	2.4	3	1.8	—	—
Less than 2.5	10	15.3	13	9.8	2	3.6
Less than 3	28	44.0	29	24.6	8	11.1
Less than 3.25	32	50.2	37	32.4	9	12.2
Less than 3.5	39	61.3	44	39.0	14	20.3
Less than 4	48	73.2	61	51.0	22	40.9
Less than 4.25	49	75.4	69	57.0	25	45.0
Less than 4.5	56	86.9	78	66.3	28	50.9
Less than 4.75	59	91.2	86	74.2	33	57.3
Less than 5	60	92.3	87	74.8	36	64.0
Less than 5.25	61	93.1	89	77.3	39	72.4
Less than 5.5	62	96.3	92	79.5	41	78.9
Less than 6	63	97.6	102	89.9	42	80.8
Less than 7	63	97.6	107	94.6	48	91.7
Less than 8	65	100.0	110	98.1	52	97.1
Less than 21.0	65	100.0	112	100.0	54	100.0

¹Includes data for races not shown separately.

Table 18. Cumulative percent distribution of the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol for men 20–74 years of age and number of examined persons, by race, selected ratio cutoffs, and age: United States, 1976–80 – Con.

<i>Race and selected ratio cutoff</i>	<i>45–54 years</i>		<i>55–64 years</i>		<i>65–74 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races¹						
Total	559	100.0	964	100.0	973	100.0
Less than 2	1	0.2	4	0.5	7	0.8
Less than 2.5	11	1.6	17	1.8	24	2.5
Less than 3	26	4.0	49	4.8	70	7.2
Less than 3.25	41	6.5	73	7.5	96	10.0
Less than 3.5	57	11.0	114	11.8	144	15.1
Less than 4	117	19.7	216	22.6	253	26.3
Less than 4.25	146	24.2	272	28.9	308	32.1
Less than 4.5	133	30.7	323	33.7	364	37.5
Less than 4.75	214	37.0	384	40.3	427	43.9
Less than 5	259	43.5	447	48.2	486	49.9
Less than 5.25	237	48.5	508	53.8	551	56.1
Less than 5.5	319	55.0	560	59.1	594	60.3
Less than 6	378	66.0	675	69.4	702	71.5
Less than 7	471	83.8	809	83.8	853	87.0
Less than 8	513	91.6	888	92.0	924	94.0
Less than 21.0	559	100.0	964	100.0	973	100.0
White						
Total	506	100.0	865	100.0	858	100.0
Less than 2	1	0.2	3	0.5	4	0.6
Less than 2.5	6	0.8	13	1.7	15	1.9
Less than 3	18	2.9	37	4.1	51	6.2
Less than 3.25	33	5.8	55	6.4	73	8.9
Less than 3.5	54	9.8	86	10.4	112	13.4
Less than 4	100	18.3	173	20.5	203	24.1
Less than 4.25	121	21.6	224	27.2	251	29.8
Less than 4.5	157	28.7	268	31.6	298	35.2
Less than 4.75	167	35.3	322	38.3	354	41.5
Less than 5	225	41.4	382	46.0	407	47.8
Less than 5.25	251	46.6	438	51.9	466	54.1
Less than 5.5	281	53.1	481	57.0	504	58.3
Less than 6	336	64.8	591	67.9	605	70.0
Less than 7	422	83.0	716	82.6	747	86.3
Less than 8	462	91.2	793	91.5	813	93.7
Less than 21.0	506	100.0	865	100.0	858	100.0
Black						
Total	47	100.0	92	100.0	92	100.0
Less than 2	–	–	1	0.6	2	1.5
Less than 2.5	5	9.9	3	3.3	8	7.8
Less than 3	9	16.2	11	14.5	16	17.8
Less than 3.25	3	16.2	16	20.2	20	22.5
Less than 3.5	12	22.4	26	29.6	26	29.2
Less than 4	15	34.4	39	45.6	42	48.1
Less than 4.25	24	52.9	44	48.7	47	53.1
Less than 4.5	25	54.5	51	58.1	54	59.1
Less than 4.75	25	54.5	58	66.3	60	66.1
Less than 5	31	65.4	59	66.8	64	69.2
Less than 5.25	33	69.7	64	69.9	69	75.2
Less than 5.5	35	76.4	72	78.0	74	82.0
Less than 6	38	80.8	77	81.7	79	87.1
Less than 7	44	93.3	86	95.7	85	92.5
Less than 8	45	94.5	88	97.1	88	95.4
Less than 21.0	47	100.0	92	100.0	92	100.0

Table 19. Cumulative percent distribution of the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol for women 20–74 years of age and number of examined persons by race and selected ratio cutoffs, according to age: United States, 1976–80

Race and selected ratio cutoff	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	634	100.0	1,017	100.0	722	100.0
Less than 2	6	1.3	13	1.0	9	1.3
Less than 2.5	72	12.5	80	8.0	45	6.1
Less than 3	175	28.9	251	26.3	140	19.0
Less than 3.25	247	40.6	348	35.7	205	27.8
Less than 3.5	318	52.4	444	44.7	266	36.9
Less than 4	425	69.1	630	63.8	367	50.9
Less than 4.25	473	76.5	697	70.0	418	58.2
Less than 4.5	517	82.4	753	75.0	464	64.4
Less than 4.75	544	86.7	799	79.3	509	70.4
Less than 5	566	89.7	842	83.5	552	76.4
Less than 5.25	580	91.7	867	85.9	587	81.2
Less than 5.5	597	94.1	901	88.9	607	84.0
Less than 6	608	96.1	938	92.2	647	89.3
Less than 7	624	98.3	986	97.2	688	95.6
Less than 8	632	99.6	1,005	99.1	706	97.8
Less than 21.0	634	100.0	1,017	100.0	722	100.0
White						
Total	542	100.0	875	100.0	626	100.0
Less than 2	3	1.2	7	0.7	8	1.4
Less than 2.5	60	12.7	63	7.4	35	5.5
Less than 3	144	28.1	209	25.2	114	18.1
Less than 3.25	204	39.5	294	35.0	173	27.4
Less than 3.5	269	52.2	372	43.2	225	36.2
Less than 4	359	68.6	542	63.6	313	50.0
Less than 4.25	402	76.5	600	69.9	358	57.2
Less than 4.5	440	82.1	649	74.9	399	63.6
Less than 4.75	463	86.5	690	79.5	435	69.0
Less than 5	482	89.5	728	83.9	474	75.5
Less than 5.25	493	91.1	750	86.4	506	80.6
Less than 5.5	507	93.6	776	89.3	524	83.4
Less than 6	517	95.6	806	92.4	562	89.3
Less than 7	533	98.3	846	97.0	598	96.0
Less than 8	540	99.5	863	98.9	613	98.2
Less than 21.0	542	100.0	875	100.0	626	100.0
Black						
Total	77	100.0	122	100.0	84	100.0
Less than 2	3	2.9	6	3.6	1	0.9
Less than 2.5	11	13.0	16	12.9	9	10.8
Less than 3	30	39.2	38	34.9	24	28.6
Less than 3.25	40	53.0	50	43.7	30	34.6
Less than 3.5	46	61.4	64	56.4	37	43.1
Less than 4	58	74.9	79	67.7	47	56.5
Less than 4.25	60	77.1	84	72.3	52	64.3
Less than 4.5	65	84.0	90	77.4	56	69.3
Less than 4.75	69	88.7	95	80.1	63	77.1
Less than 5	72	92.7	98	82.2	67	80.6
Less than 5.25	75	97.4	100	83.3	70	84.1
Less than 5.5	76	98.2	107	87.0	72	87.3
Less than 6	76	98.2	113	90.9	74	88.9
Less than 7	76	98.2	120	98.2	78	92.2
Less than 8	77	100.0	122	100.0	81	94.5
Less than 21.0	77	100.0	122	100.0	84	100.0

¹Includes data for races not shown separately.

Table 19. Cumulative percent distribution of the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol for women 20–74 years of age and number of examined persons by race and selected ratio cutoffs, according to age: United States, 1976–80—Con.

Race and selected ratio cutoff	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	641	100.0	1,086	100.0	1,135	100.0
Less than 2	3	0.5	6	0.7	6	0.5
Less than 2.5	32	5.4	33	3.5	21	1.8
Less than 3	86	13.9	118	11.9	76	6.8
Less than 3.25	135	21.7	188	19.0	143	12.4
Less than 3.5	189	29.5	240	23.4	223	19.3
Less than 4	274	42.6	377	35.5	351	30.7
Less than 4.25	316	49.0	457	42.8	432	38.1
Less than 4.5	355	54.6	528	49.4	513	45.0
Less than 4.75	391	60.9	603	56.8	589	51.8
Less than 5	429	67.2	659	62.5	660	57.9
Less than 5.25	458	71.8	717	67.5	730	63.8
Less than 5.5	482	75.8	770	72.0	792	69.3
Less than 6	531	83.4	843	78.3	879	77.5
Less than 7	596	92.8	963	88.0	1,007	88.7
Less than 8	620	96.6	1,034	94.2	1,076	95.1
Less than 21.0	641	100.0	1,086	100.0	1,135	100.0
White						
Total	546	100.0	973	100.0	1,001	100.0
Less than 2	3	0.6	6	0.8	3	0.4
Less than 2.5	27	5.6	27	3.3	15	1.7
Less than 3	75	14.7	99	11.5	60	6.2
Less than 3.25	110	21.7	159	18.2	117	11.7
Less than 3.5	155	29.6	207	22.8	186	18.6
Less than 4	227	42.1	325	34.9	292	29.5
Less than 4.25	261	47.9	397	42.3	361	36.9
Less than 4.5	295	53.8	462	49.0	425	43.0
Less than 4.75	326	59.8	532	56.8	494	50.1
Less than 5	362	66.8	584	62.9	558	56.4
Less than 5.25	398	71.7	639	68.3	619	62.2
Less than 5.5	410	75.8	689	72.8	679	68.1
Less than 6	433	83.4	753	78.6	758	75.9
Less than 7	505	92.6	863	88.5	881	87.9
Less than 8	526	96.2	927	94.4	947	94.9
Less than 21.0	546	100.0	973	100.0	1,001	100.0
Black						
Total	81	100.0	99	100.0	118	100.0
Less than 2	—	—	—	—	3	1.9
Less than 2.5	5	5.0	6	6.2	6	3.8
Less than 3	9	8.9	18	16.9	14	10.2
Less than 3.25	23	25.9	28	29.7	23	17.1
Less than 3.5	31	33.8	31	31.6	33	24.3
Less than 4	43	51.3	49	44.7	53	40.6
Less than 4.25	50	63.3	56	50.8	64	47.8
Less than 4.5	54	67.2	62	57.8	78	60.1
Less than 4.75	57	72.2	66	61.5	84	65.7
Less than 5	58	73.1	70	63.7	91	71.1
Less than 5.25	61	76.4	73	65.0	99	77.5
Less than 5.5	62	77.4	75	67.0	99	77.5
Less than 6	66	82.8	82	77.1	107	91.4
Less than 7	79	96.8	89	83.9	110	94.1
Less than 8	80	99.1	93	90.6	113	96.4
Less than 21.0	81	100.0	99	100.0	118	100.0

¹Includes data for races not shown separately.

Table 20. Cumulative percent distribution of serum triglycerides for persons 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected serum triglyceride cutoffs, according to sex: United States, 1976–80

Race and selected serum triglyceride cutoffs ¹ (mg/dl)	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ²						
Total	2,753	100.0	1,269	100.0	1,484	100.0
Less than 60	207	9.4	71	6.4	136	11.8
Less than 80	600	25.7	237	20.4	363	30.0
Less than 90	805	33.7	352	30.5	453	36.2
Less than 100	1,009	41.2	441	37.7	568	44.1
Less than 110	1,220	48.8	530	44.8	690	52.2
Less than 120	1,429	56.0	608	50.6	821	60.4
Less than 130	1,605	62.8	694	57.3	911	67.3
Less than 140	1,739	67.1	762	62.3	977	70.9
Less than 150	1,861	71.3	816	66.5	1,045	75.2
Less than 160	1,972	74.7	881	71.3	1,091	77.5
Less than 180	2,158	81.2	971	78.3	1,187	83.6
Less than 200	2,317	86.2	1,045	83.7	1,272	88.3
Less than 230	2,461	90.8	1,121	89.0	1,340	92.4
Less than 250	2,524	92.8	1,144	90.7	1,380	94.4
Less than 270	2,562	93.8	1,166	92.0	1,396	95.2
Less than 290	2,598	94.9	1,184	93.1	1,414	96.3
Less than 300	2,633	95.8	1,197	93.9	1,436	97.3
Less than 500	2,731	99.2	1,253	98.5	1,478	99.7
Less than 1,000	2,749	99.9	1,265	99.7	1,484	100.0
Less than 2,900	2,753	100.0	1,269	100.0	1,484	100.0
White						
Total	2,401	100.0	1,111	100.0	1,290	100.0
Less than 60	163	8.8	54	6.0	109	11.2
Less than 80	489	24.8	192	19.4	297	29.2
Less than 90	659	32.3	290	29.3	369	34.9
Less than 100	829	39.6	369	36.4	460	42.3
Less than 110	1,013	47.4	446	43.4	567	50.7
Less than 120	1,197	54.6	513	49.2	684	59.1
Less than 130	1,349	61.3	584	55.6	765	66.1
Less than 140	1,465	65.5	641	60.2	824	69.8
Less than 150	1,576	70.0	688	64.4	888	74.6
Less than 160	1,678	73.6	747	69.4	931	77.0
Less than 180	1,847	80.1	830	76.5	1,017	83.1
Less than 200	1,998	85.5	902	82.4	1,096	88.2
Less than 230	2,128	90.3	973	88.2	1,155	92.1
Less than 250	2,187	92.4	993	90.0	1,194	94.3
Less than 270	2,222	93.4	1,013	91.4	1,209	95.1
Less than 290	2,256	94.6	1,031	92.6	1,225	96.3
Less than 300	2,287	95.4	1,043	93.4	1,244	97.1
Less than 500	2,381	99.1	1,097	98.5	1,284	99.7
Less than 1,000	2,397	99.9	1,107	99.7	1,290	100.0
Less than 2,900	2,401	100.0	1,111	100.0	1,290	100.0

Table 20. Cumulative percent distribution of serum triglycerides for persons 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected serum triglyceride cutoffs, according to sex: United States, 1976–80—Con.

Race and selected serum triglyceride cutoffs ¹ (mg/dl)	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
Black						
Total	299	100.0	133	100.0	166	100.0
Less than 60	41	15.4	16	11.2	25	18.6
Less than 80	101	35.9	41	30.0	60	40.5
Less than 90	132	47.6	55	41.7	77	52.1
Less than 100	162	56.8	64	50.0	98	62.1
Less than 110	186	63.7	74	57.4	112	68.6
Less than 120	209	69.9	85	64.9	124	73.7
Less than 130	225	76.2	95	72.7	130	78.8
Less than 140	242	82.2	105	81.4	137	82.9
Less than 150	251	84.5	111	85.5	140	83.7
Less than 160	258	87.1	116	90.2	142	84.7
Less than 180	271	91.6	121	93.7	150	90.0
Less than 200	277	93.3	123	94.8	154	92.2
Less than 230	286	96.0	126	95.7	160	96.2
Less than 250	289	96.7	128	96.7	161	96.7
Less than 270	290	96.9	129	97.0	161	96.7
Less than 290	292	97.4	129	97.0	163	97.8
Less than 300	294	98.1	130	97.6	164	98.5
Less than 500	297	99.2	131	98.1	166	100.0
Less than 1,000	299	100.0	133	100.0	166	100.0
Less than 2,900	299	100.0	133	100.0	166	100.0

¹To convert values of serum triglycerides to millimoles per liter (mmol/L), multiply by 0.01129.

²Includes data for races not shown separately.

NOTE: mg/dl is milligrams per deciliter.

Table 21. Cumulative percent distribution of serum triglycerides for men 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected serum triglyceride cutoffs, according to age: United States, 1976–80

Race and selected serum triglyceride cutoff (mg/dl)	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races¹						
Total	83	100.0	206	100.0	150	100.0
Less than 60	9	13.3	23	10.3	8	4.5
Less than 80	33	40.8	55	26.3	34	23.0
Less than 90	40	51.6	77	37.4	44	30.5
Less than 100	50	64.8	91	43.7	53	36.6
Less than 110	54	68.8	111	54.3	62	43.4
Less than 120	61	75.4	121	59.0	71	50.1
Less than 130	69	84.4	133	65.1	78	53.5
Less than 140	69	84.4	145	70.3	86	59.8
Less than 150	70	85.3	157	76.4	92	63.4
Less than 160	71	86.9	165	80.8	98	67.6
Less than 180	74	90.7	172	84.7	112	76.2
Less than 200	75	91.4	183	90.2	124	84.7
Less than 230	82	99.1	191	93.9	132	89.2
Less than 250	82	99.1	193	94.4	135	91.2
Less than 270	82	99.1	193	94.4	137	92.0
Less than 290	82	99.1	197	96.2	137	92.0
Less than 300	82	99.1	197	96.2	139	92.9
Less than 500	83	100.0	204	98.9	148	98.6
Less than 1,000	83	100.0	206	100.0	149	99.6
Less than 2,900	83	100.0	206	100.0	150	100.0
White						
Total	66	100.0	174	100.0	133	100.0
Less than 60	8	15.2	19	10.2	6	4.1
Less than 80	26	41.9	49	27.8	28	21.1
Less than 90	29	47.9	67	38.7	37	28.3
Less than 100	37	62.1	80	45.6	45	34.2
Less than 110	41	67.0	96	55.7	52	40.1
Less than 120	48	75.2	103	60.4	60	47.3
Less than 130	53	81.4	113	66.6	65	50.1
Less than 140	53	81.4	120	70.3	72	56.3
Less than 150	54	82.6	129	76.0	77	59.8
Less than 160	55	84.5	136	80.4	83	64.5
Less than 180	58	89.3	141	82.9	96	73.4
Less than 200	58	89.3	152	89.2	108	83.1
Less than 230	65	98.8	160	93.4	116	88.2
Less than 250	65	98.8	162	93.9	119	90.4
Less than 270	65	98.8	162	93.9	121	91.3
Less than 290	65	98.8	166	96.0	121	91.3
Less than 300	65	98.8	166	96.0	122	92.0
Less than 500	66	100.0	173	99.1	131	98.4
Less than 1,000	66	100.0	174	100.0	132	99.6
Less than 2,900	66	100.0	174	100.0	133	100.0

¹Includes data for races not shown separately. Data not given separately for black adults because of small sample size.

NOTES: To convert values of serum triglycerides to millimoles per liter (mmol/L), multiply the values by 0.01129. mg/dl is milligrams per deciliter.

Table 21. Cumulative percent distribution of serum triglycerides for men 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected serum triglyceride cutoffs, according to age: United States, 1976–80—Con.

Race and selected serum triglyceride cutoff (mg/dl)	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	132	100.0	352	100.0	346	100.0
Less than 60	5	4.8	14	3.9	12	3.2
Less than 80	16	11.9	50	12.8	49	15.2
Less than 90	31	24.1	81	23.2	79	23.3
Less than 100	39	30.8	108	30.9	100	29.5
Less than 110	44	34.4	134	38.7	125	36.6
Less than 120	50	38.7	159	46.1	146	42.3
Less than 130	63	48.2	176	51.7	175	50.9
Less than 140	69	52.8	195	56.3	198	58.2
Less than 150	73	55.0	208	61.4	216	62.7
Less than 160	81	61.2	227	66.1	239	69.8
Less than 180	92	71.2	258	74.2	263	77.0
Less than 200	98	75.0	279	79.5	286	83.3
Less than 230	108	83.2	297	83.4	311	89.0
Less than 250	112	85.9	305	86.1	317	91.2
Less than 270	116	88.6	313	87.9	325	93.8
Less than 290	117	89.3	320	89.3	331	95.7
Less than 300	119	90.4	325	91.0	335	96.5
Less than 500	127	96.6	347	98.2	344	99.4
Less than 1,000	130	99.1	351	99.7	346	100.0
Less than 2,900	132	100.0	352	100.0	346	100.0
White						
Total	119	100.0	312	100.0	307	100.0
Less than 60	4	3.9	10	3.4	7	2.4
Less than 80	12	9.8	40	12.1	37	12.9
Less than 90	26	22.8	67	22.6	64	21.5
Less than 100	33	28.5	90	30.1	84	28.1
Less than 110	37	31.9	114	38.3	106	35.1
Less than 120	42	35.6	135	45.0	125	41.1
Less than 130	53	45.2	151	51.0	149	49.0
Less than 140	58	49.1	168	55.6	170	56.4
Less than 150	62	51.6	180	60.9	186	61.0
Less than 160	69	57.4	196	65.4	208	68.8
Less than 180	79	67.9	225	73.9	231	76.3
Less than 200	85	72.2	245	79.4	254	83.3
Less than 230	95	81.3	262	83.5	275	88.8
Less than 250	99	84.4	268	85.9	280	90.6
Less than 270	103	87.4	276	87.9	286	93.1
Less than 290	104	88.1	283	89.5	292	95.1
Less than 300	106	89.3	288	91.3	296	96.1
Less than 500	114	96.2	308	98.6	305	99.3
Less than 1,000	117	99.0	311	99.7	307	100.0
Less than 2,900	119	100.0	312	100.0	307	100.0

Table 22. Cumulative percent distribution of serum triglycerides for women 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected serum triglyceride cutoffs, according to age: United States, 1976–80

<i>Race and selected serum triglyceride cutoff (mg/dl)</i>	<i>20–24 years</i>		<i>25–34 years</i>		<i>35–44 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races¹						
Total	123	100.0	230	100.0	194	100.0
Less than 60	22	19.3	46	19.9	33	17.7
Less than 80	55	45.4	96	44.0	79	38.9
Less than 90	62	49.6	114	52.5	92	45.5
Less than 100.	70	56.2	131	59.2	112	56.7
Less than 110.	80	64.6	144	64.6	127	65.4
Less than 120.	88	71.3	162	72.7	141	72.0
Less than 130.	94	76.6	178	79.5	154	79.0
Less than 140.	98	81.1	182	80.8	157	79.9
Less than 150.	102	84.4	193	85.5	161	81.5
Less than 160.	105	85.9	197	86.8	165	83.8
Less than 180.	109	88.8	206	90.5	172	87.7
Less than 200.	115	94.9	212	92.4	178	91.6
Less than 230.	120	98.5	221	96.3	183	94.4
Less than 250.	120	98.5	222	96.8	188	97.1
Less than 270.	121	98.9	223	97.1	190	98.3
Less than 290.	121	98.9	224	97.5	191	98.8
Less than 300.	121	98.9	227	98.5	193	99.6
Less than 500.	123	100.0	230	100.0	194	100.0
Less than 1,000	123	100.0	230	100.0	194	100.0
Less than 2,900	123	100.0	230	100.0	194	100.0
White						
Total	104	100.0	208	100.0	161	100.0
Less than 60	14	13.7	42	20.6	27	17.5
Less than 80	42	41.8	86	44.5	63	38.3
Less than 90	47	45.6	103	53.6	74	44.9
Less than 100.	55	53.3	118	60.2	90	55.3
Less than 110.	64	62.0	129	65.3	104	65.1
Less than 120.	72	69.9	146	73.2	116	71.2
Less than 130.	77	75.0	159	79.2	128	78.5
Less than 140.	80	79.2	163	80.6	131	79.5
Less than 150.	84	83.1	174	85.8	135	81.5
Less than 160.	87	84.9	178	87.3	138	83.5
Less than 180.	91	88.3	186	90.9	143	87.5
Less than 200.	97	95.3	192	93.1	149	92.0
Less than 230.	101	98.2	200	96.6	153	95.1
Less than 250.	101	98.2	201	97.1	157	97.9
Less than 270.	102	98.7	202	97.4	158	98.5
Less than 290.	102	98.7	203	97.9	159	99.0
Less than 300.	102	98.7	206	99.0	160	99.5
Less than 500.	104	100.0	208	100.0	161	100.0
Less than 1,000	104	100.0	208	100.0	161	100.0
Less than 2,900	104	100.0	208	100.0	161	100.0

¹Includes data for races not shown separately. Data not given separately for black adults because of small sample sizes.

NOTES: To convert values of serum triglycerides to millimoles per liter (mmol/L), multiply the values by 0.01129. mg/dl is milligrams per deciliter.

Table 22. Cumulative percent distribution of serum triglycerides for women 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected serum triglyceride cutoffs, according to age: United States, 1976–80—Con.

<i>Race and selected serum triglyceride cutoff (mg/dl)</i>	<i>45–54 years</i>		<i>55–64 years</i>		<i>65–74 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races¹						
Total	193	100.0	332	100.0	412	100.0
Less than 60	10	5.3	17	6.2	8	1.7
Less than 80	45	22.9	54	19.4	34	8.1
Less than 90	56	29.9	72	23.8	57	13.8
Less than 100	74	38.9	94	29.6	87	21.2
Less than 110	89	48.1	122	36.4	128	31.9
Less than 120	107	57.5	150	44.5	173	42.3
Less than 130	122	65.2	169	52.5	194	48.0
Less than 140	133	70.4	189	58.0	218	53.5
Less than 150	138	73.3	214	67.0	237	57.4
Less than 160	143	75.4	224	69.0	257	62.4
Less than 180	156	83.9	248	75.8	296	73.1
Less than 200	168	88.1	272	81.9	327	80.7
Less than 230	175	92.1	288	86.2	353	86.8
Less than 250	190	94.7	297	88.1	373	91.3
Less than 270	190	94.7	303	89.9	379	92.7
Less than 290	196	97.1	307	91.4	385	94.3
Less than 300	199	98.6	311	92.0	395	96.1
Less than 500	192	99.7	330	99.3	409	99.3
Less than 1,000	193	100.0	332	100.0	412	100.0
Less than 2,900	193	100.0	332	100.0	412	100.0
White						
Total	166	100.0	286	100.0	365	100.0
Less than 60	8	5.4	13	6.0	5	1.2
Less than 80	39	24.0	40	16.6	27	7.5
Less than 90	45	27.3	56	21.4	44	12.6
Less than 100	59	35.3	70	25.9	68	19.9
Less than 110	71	44.8	94	33.2	105	31.1
Less than 120	88	55.3	119	41.4	143	41.3
Less than 130	101	63.2	138	50.6	162	47.0
Less than 140	111	68.7	155	55.9	184	52.7
Less than 150	116	72.2	178	65.9	201	56.6
Less than 160	121	74.6	187	67.6	220	62.1
Less than 180	133	83.8	207	74.1	257	72.2
Less than 200	145	88.8	228	79.8	285	79.6
Less than 230	150	92.1	244	84.7	307	85.4
Less than 250	155	95.2	253	87.0	327	90.5
Less than 270	155	95.2	259	89.1	333	92.1
Less than 290	161	97.9	262	90.3	338	93.6
Less than 300	162	98.3	266	91.0	348	95.6
Less than 500	165	99.6	284	99.2	362	99.3
Less than 1,000	166	100.0	286	100.0	365	100.0
Less than 2,900	166	100.0	286	100.0	365	100.0

Table 23. Cumulative percent distribution of calculated values of low density lipoprotein (LDL) cholesterol for persons 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected LDL cutoffs, according to sex: United States, 1976–80

Race and selected low density lipoprotein cutoff ¹ (mg/dl)	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ²						
Total	2,283	100.0	1037	100.0	1,246	100.0
Less than 60	25	1.3	11	1.5	14	1.2
Less than 70	46	2.3	20	2.3	26	2.4
Less than 80	92	4.6	40	4.6	52	4.7
Less than 90	180	8.8	83	8.8	97	8.7
Less than 100	312	15.1	141	14.5	171	15.5
Less than 110	477	23.4	216	22.0	261	24.6
Less than 120	684	33.4	310	31.4	374	35.0
Less than 125	784	38.4	363	37.3	421	39.2
Less than 130	894	43.1	420	42.7	474	43.4
Less than 140	1,121	53.5	522	53.2	599	53.7
Less than 150	1,339	62.8	615	62.5	724	63.1
Less than 160	1,546	71.3	716	71.7	830	71.0
Less than 170	1,719	78.1	793	78.0	926	78.1
Less than 180	1,847	83.0	860	84.0	987	82.3
Less than 190	1,954	87.4	910	88.4	1,044	86.6
Less than 200	2,040	90.8	948	91.7	1,092	90.2
Less than 400	2,283	100.0	1037	100.0	1,246	100.0
White						
Total	1,990	100.0	906	100.0	1,084	100.0
Less than 60	18	1.2	9	1.5	9	0.9
Less than 70	35	2.1	15	2.0	20	2.1
Less than 80	69	4.0	30	3.9	39	4.0
Less than 90	143	8.1	64	8.0	79	8.3
Less than 100	252	14.3	109	13.3	143	15.2
Less than 110	392	22.6	169	20.1	223	24.6
Less than 120	570	32.6	249	29.3	321	35.3
Less than 125	662	38.0	295	35.3	367	40.1
Less than 130	760	42.7	350	41.0	410	44.0
Less than 140	965	53.1	440	51.4	525	54.6
Less than 150	1,161	62.8	524	61.0	637	64.2
Less than 160	1,343	71.3	615	70.2	728	72.2
Less than 170	1,494	78.0	687	77.1	807	78.7
Less than 180	1,604	82.7	749	83.3	855	82.2
Less than 190	1,702	87.1	796	88.1	906	86.3
Less than 200	1,775	90.5	829	91.4	946	89.7
Less than 400	1,990	100.0	906	100.0	1,084	100.0
Black						
Total	251	100.0	114	100.0	137	100.0
Less than 60	7	3.2	2	2.0	5	4.1
Less than 70	10	4.4	5	4.9	5	4.1
Less than 80	21	10.8	9	11.0	12	10.6
Less than 90	30	13.7	16	16.5	14	11.5
Less than 100	50	21.6	28	25.9	22	18.1
Less than 110	72	31.7	41	38.3	31	26.4
Less than 120	96	40.1	52	48.1	44	33.7
Less than 125	104	42.6	59	53.4	45	33.9
Less than 130	115	47.2	60	54.1	55	41.7
Less than 140	134	57.1	72	67.6	62	48.6
Less than 150	153	64.9	80	74.8	73	57.0
Less than 160	174	73.1	88	83.0	86	65.2
Less than 170	193	79.9	92	84.4	101	76.3
Less than 180	207	85.5	96	87.9	111	83.7
Less than 190	214	89.2	98	89.5	116	89.0
Less than 200	225	92.8	103	93.3	122	92.4
Less than 400	251	100.0	114	100.0	137	100.0

¹LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded.

²Includes data for races not shown separately. NOTES: To convert LDL cholesterol to millimoles per liter (mmol/L), multiply the values by 0.02586. mg/dl is milligrams per deciliter.

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Table 24. Cumulative percent distribution of calculated values of low density lipoprotein (LDL) cholesterol for men 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected LDL cutoffs, according to age: United States, 1976–80

<i>Race and selected low density lipoprotein cutoff¹ (mg/dl)</i>	<i>20–24 years</i>		<i>25–34 years</i>		<i>35–44 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races²						
Total	72	100.0	174	100.0	130	100.0
Less than 60	4	8.9	4	2.0	1	1.3
Less than 70	5	10.0	6	3.1	2	1.7
Less than 80	12	19.1	10	5.9	4	3.5
Less than 90	18	27.0	20	12.2	8	6.5
Less than 100	31	45.6	37	19.4	14	10.8
Less than 110	39	58.9	50	26.8	22	16.7
Less than 120	48	69.2	66	34.0	35	26.8
Less than 125	51	74.0	81	43.2	43	34.0
Less than 130	54	76.8	96	52.8	50	38.3
Less than 140	59	82.6	117	67.4	67	51.0
Less than 150	62	86.3	133	77.4	77	58.2
Less than 160	65	91.2	145	83.8	90	66.1
Less than 170	67	93.6	154	88.6	96	70.3
Less than 180	70	96.5	162	93.3	107	78.5
Less than 190	70	96.5	166	95.3	113	83.6
Less than 200	71	98.6	169	96.5	118	88.5
Less than 400	72	100.0	174	100.0	130	100.0
White						
Total	57	100.0	146	100.0	115	100.0
Less than 60	3	10.0	3	1.7	1	1.5
Less than 70	3	10.0	4	2.5	2	2.0
Less than 80	9	19.2	7	5.2	2	2.0
Less than 90	14	28.3	14	10.8	5	4.7
Less than 100	25	49.4	26	17.4	10	8.8
Less than 110	31	62.0	37	24.0	16	14.5
Less than 120	37	69.6	51	31.3	27	24.4
Less than 125	39	73.9	64	41.0	35	32.5
Less than 130	42	77.5	77	50.3	42	37.4
Less than 140	46	83.3	96	65.6	55	48.6
Less than 150	48	86.3	109	75.6	65	56.8
Less than 160	50	88.8	121	82.9	77	64.2
Less than 170	52	91.8	129	88.2	83	69.0
Less than 180	55	95.6	137	93.6	93	77.1
Less than 190	55	95.6	140	95.2	99	82.9
Less than 200	56	98.2	142	96.3	104	88.4
Less than 400	57	100.0	146	100.0	115	100.0

¹LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded.

²Includes data for races not shown separately. Data not given separately for black adults because of small sample size.

NOTES: To convert values of LDL cholesterol to millimoles per liter (mmol/L), multiply by 0.02586. mg/dl is milligrams per deciliter.

Table 24. Cumulative percent distribution of calculated values of low density lipoprotein (LDL) cholesterol for men 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected LDL cutoffs, according to age: United States, 1976–80—Con.

<i>Race and selected low density lipoprotein cutoff¹ (mg/dl)</i>	<i>45–54 years</i>		<i>55–64 years</i>		<i>65–74 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
<i>All races²</i>						
Total	106	100.0	267	100.0	288	100.0
Less than 60	—	—	1	0.1	1	0.3
Less than 70	—	—	3	1.1	4	0.8
Less than 80	1	1.1	7	2.5	6	1.6
Less than 90	2	1.6	16	6.2	19	6.6
Less than 100.	7	5.6	26	9.2	26	9.1
Less than 110.	15	12.5	45	16.6	45	15.7
Less than 120.	28	25.3	61	25.4	72	24.5
Less than 125.	33	29.2	73	29.9	82	27.4
Less than 130.	35	31.0	85	34.7	100	33.6
Less than 140.	41	38.0	104	41.8	134	45.9
Less than 150.	53	51.1	133	52.3	157	54.2
Less than 160.	65	63.2	167	65.8	184	63.5
Less than 170.	77	73.2	187	73.7	212	71.2
Less than 180.	86	79.9	205	79.1	230	78.0
Less than 190.	91	85.2	221	84.6	249	86.2
Less than 200.	96	90.2	234	87.8	260	90.2
Less than 400.	106	100.0	267	100.0	288	100.0
<i>White</i>						
Total	96	100.0	236	100.0	256	100.0
Less than 60	—	—	1	0.2	1	0.3
Less than 70	—	—	2	0.7	4	0.9
Less than 80	1	1.2	5	2.0	6	1.8
Less than 90	2	1.8	13	5.8	16	6.6
Less than 100.	6	5.4	20	7.8	22	9.1
Less than 110.	13	12.0	34	14.4	38	14.8
Less than 120.	25	24.8	49	23.7	60	22.8
Less than 125.	29	28.5	59	28.2	69	25.8
Less than 130.	31	30.4	71	33.3	87	32.6
Less than 140.	33	36.1	89	41.0	118	45.5
Less than 150.	43	50.7	116	51.5	138	53.1
Less than 160.	59	62.7	146	64.7	162	62.2
Less than 170.	71	73.9	165	73.1	187	69.9
Less than 180.	78	79.9	182	78.9	204	77.2
Less than 190.	83	85.8	196	84.5	223	86.3
Less than 200.	87	89.9	207	87.6	233	90.4
Less than 400.	96	100.0	236	100.0	256	100.0

Table 25. Cumulative percent distribution of calculated values of low density lipoprotein (LDL) cholesterol for men 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected LDL cutoffs, according to sex: United States, 1976–80

<i>Race and selected low density lipoprotein cutoff¹ (mg/dl)</i>	<i>20–24 years</i>		<i>25–34 years</i>		<i>35–44 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races²						
Total	105	100.0	194	100.0	166	100.0
Less than 60	—	—	6	2.5	5	2.9
Less than 70	5	5.7	9	3.8	6	3.5
Less than 80	11	12.9	15	6.6	10	5.2
Less than 90	18	20.4	30	13.8	20	10.0
Less than 100	34	35.4	56	27.0	30	15.5
Less than 110	52	53.2	75	37.2	50	28.6
Less than 120	65	65.4	105	54.6	73	42.5
Less than 125	68	67.6	113	58.6	83	49.8
Less than 130	71	70.8	123	62.9	88	52.8
Less than 140	81	79.2	148	75.4	106	63.9
Less than 150	91	86.5	158	80.1	122	74.4
Less than 160	96	92.0	168	85.1	135	82.4
Less than 170	98	93.7	181	92.1	146	88.3
Less than 180	101	95.8	183	93.4	151	91.6
Less than 190	102	96.5	190	97.9	155	94.1
Less than 200	103	97.6	191	98.3	159	96.2
Less than 400	105	100.0	194	100.0	166	100.0
White						
Total	89	100.0	177	100.0	142	100.0
Less than 60	—	—	3	1.1	4	2.9
Less than 70	4	5.3	6	2.5	5	3.6
Less than 80	8	10.7	11	5.2	8	5.1
Less than 90	15	19.6	24	12.4	16	9.7
Less than 100	26	32.8	50	26.8	25	15.3
Less than 110	43	51.8	67	37.1	43	29.4
Less than 120	54	64.9	97	56.0	62	42.1
Less than 125	57	67.5	105	60.4	72	50.4
Less than 130	59	69.6	113	64.2	76	53.4
Less than 140	68	78.7	136	76.2	92	64.3
Less than 150	78	87.2	146	81.4	106	75.2
Less than 160	83	93.7	155	86.3	117	83.4
Less than 170	84	95.2	167	93.0	125	88.4
Less than 180	86	96.3	169	94.4	129	91.3
Less than 190	87	97.1	173	97.7	133	94.2
Less than 200	87	97.1	174	98.1	137	96.5
Less than 400	89	100.0	177	100.0	142	100.0

¹LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded.

²Includes data for races not shown separately. Data not given separately for black adults because of small sample sizes.

NOTES: To convert values of LDL cholesterol to millimoles per liter (mmol/L), multiply the values by 0.02586. mg/dl is milligrams per deciliter.

Table 25. Cumulative percent distribution of calculated values of low density lipoprotein (LDL) cholesterol for men 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected LDL cutoffs, according to sex: United States, 1976–80—Con.

<i>Race and selected low density lipoprotein cutoff¹ (mg/dl)</i>	<i>45–54 years</i>		<i>55–64 years</i>		<i>65–74 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
<i>All races²</i>						
Total	168	100.0	282	100.0	331	100.0
Less than 60	1	0.5	1	0.1	1	0.2
Less than 70	2	0.9	3	0.6	1	0.2
Less than 80	6	2.3	4	0.8	6	1.7
Less than 90	9	3.6	9	2.7	11	3.5
Less than 100.	15	6.6	15	4.4	21	6.4
Less than 110.	25	13.7	25	8.2	34	10.5
Less than 120.	36	19.1	46	16.1	49	14.2
Less than 125.	42	23.0	57	20.3	58	16.9
Less than 130.	54	29.6	70	25.3	68	19.4
Less than 140.	72	39.7	91	33.1	101	30.2
Less than 150.	84	46.5	126	48.4	143	43.1
Less than 160.	104	58.3	155	56.9	172	51.4
Less than 170.	115	65.6	179	63.9	207	65.2
Less than 180.	125	71.4	199	70.4	228	71.5
Less than 190.	132	76.6	215	76.7	250	77.3
Less than 200.	143	84.4	230	82.4	266	81.2
Less than 400.	168	100.0	282	100.0	331	100.0
<i>White</i>						
Total	143	100.0	244	100.0	289	100.0
Less than 60	1	0.5	1	0.1	—	—
Less than 70	2	1.0	3	0.7	—	—
Less than 80	4	1.8	4	0.9	4	1.5
Less than 90	7	3.4	8	3.0	9	3.5
Less than 100.	12	6.3	12	4.3	18	6.6
Less than 110.	20	13.2	21	8.2	29	10.5
Less than 120.	30	19.2	38	15.7	40	13.8
Less than 125.	36	23.8	49	20.6	48	16.7
Less than 130.	46	30.4	59	25.2	57	19.3
Less than 140.	62	41.3	79	33.3	88	31.0
Less than 150.	73	48.7	108	47.1	126	44.5
Less than 160.	90	60.9	131	54.7	152	53.5
Less than 170.	99	67.5	149	61.2	183	66.0
Less than 180.	106	71.5	166	67.7	199	71.2
Less than 190.	112	76.1	181	74.5	220	77.4
Less than 200.	120	83.0	195	80.9	233	81.1
Less than 400.	143	100.0	244	100.0	289	100.0

Table 26. Cumulative percent distribution of the ratio of calculated values of low density lipoprotein (LDL) cholesterol to high density lipoprotein (HDL) cholesterol for persons 20–74 years of age fasting 12 hours or more and number of examined persons by race and sex: United States, 1976–80

Race and selected ratio cutoff ¹	Both sexes		Men		Women	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ²						
Total	2,283	100.0	1,037	100.0	1,246	100.0
Less than 1.00	35	1.7	11	1.6	24	1.8
Less than 1.50	164	8.5	49	5.5	115	10.8
Less than 1.70	258	13.0	75	7.9	183	17.1
Less than 2.00	441	21.5	126	12.7	315	28.3
Less than 2.50	810	37.9	287	27.8	523	45.8
Less than 2.90	1,119	51.4	412	40.5	707	60.0
Less than 3.00	1,198	54.4	449	43.2	749	63.2
Less than 3.30	1,395	63.2	540	51.8	855	72.1
Less than 3.50	1,525	69.2	603	59.5	922	76.8
Less than 3.80	1,687	75.9	704	68.7	983	81.5
Less than 4.00	1,781	80.0	755	73.7	1,026	84.9
Less than 4.50	1,978	87.9	859	83.6	1,119	91.3
Less than 5.00	2,101	92.9	938	90.5	1,163	94.8
Less than 5.50	2,178	96.1	983	95.1	1,195	96.9
Less than 6.00	2,221	97.6	1,009	97.0	1,212	98.0
White						
Total	1,990	100.0	906	100.0	1,084	100.0
Less than 1.00	22	1.3	6	1.3	16	1.4
Less than 1.50	119	7.3	34	4.4	85	9.6
Less than 1.70	194	11.7	53	6.6	141	15.8
Less than 2.00	343	19.5	91	10.7	252	26.5
Less than 2.50	663	36.1	222	25.0	441	45.0
Less than 2.90	936	50.3	330	37.8	606	60.3
Less than 3.00	1,008	53.3	366	40.9	642	63.2
Less than 3.30	1,185	62.1	450	49.8	735	71.9
Less than 3.50	1,301	68.3	509	58.2	792	76.4
Less than 3.80	1,448	75.2	598	67.3	850	81.5
Less than 4.00	1,533	79.2	644	72.0	889	84.9
Less than 4.50	1,708	87.2	737	82.1	971	91.3
Less than 5.00	1,823	92.4	813	89.4	1,010	94.7
Less than 5.50	1,892	95.7	855	94.6	1,037	96.6
Less than 6.00	1,933	97.3	879	96.7	1,054	97.9
Black						
Total	251	100.0	114	100.0	137	100.0
Less than 1.00	11	4.6	4	4.1	7	5.1
Less than 1.50	39	18.6	12	14.5	27	21.9
Less than 1.70	56	24.8	19	19.8	37	28.7
Less than 2.00	86	38.1	31	30.7	55	44.1
Less than 2.50	127	52.4	57	50.3	70	54.1
Less than 2.90	160	62.2	72	62.3	88	62.1
Less than 3.00	166	65.2	73	62.7	93	67.2
Less than 3.30	183	73.7	80	70.2	103	76.5
Less than 3.50	195	77.4	84	73.2	111	80.8
Less than 3.80	206	80.8	93	79.9	113	81.6
Less than 4.00	214	86.8	97	88.1	117	85.8
Less than 4.50	230	93.3	105	94.2	125	92.7
Less than 5.00	236	96.1	108	97.9	128	94.7
Less than 5.50	244	98.8	111	98.9	133	98.7
Less than 6.00	246	99.2	113	99.7	133	98.7

¹LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded.

²Includes data for races not shown separately.

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Table 27. Cumulative percent distribution of the ratio of calculated values of low density lipoprotein (LDL) cholesterol to high density lipoprotein (HDL) cholesterol for women 20–74 years of age fasting 12 hours or more and number of examined persons by race and LDL cutoffs, according to age: United States, 1976–80

Race and selected ratio cutoff	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	72	100.0	174	100.0	130	100.0
Less than 1.00	5	10.0	1	0.8	2	2.4
Less than 1.50	11	19.3	10	5.7	4	3.8
Less than 1.70	16	27.3	16	8.4	5	4.7
Less than 2.00	22	35.4	28	13.9	11	8.8
Less than 2.50	37	55.9	55	29.5	28	22.5
Less than 2.90	49	71.0	85	46.9	43	34.5
Less than 3.00	51	73.3	87	47.7	48	37.6
Less than 3.30	55	78.5	100	55.0	65	51.4
Less than 3.50	58	81.9	110	61.9	72	57.8
Less than 3.80	61	84.7	132	73.9	86	68.0
Less than 4.00	64	89.9	137	77.8	92	72.0
Less than 4.50	68	94.5	152	87.2	106	81.5
Less than 5.00	69	96.6	165	94.0	114	87.1
Less than 5.50	70	97.4	172	98.8	120	93.4
Less than 6.00	70	97.4	173	99.4	125	96.4
White						
Total	57	100.0	146	100.0	115	100.0
Less than 1.00	3	10.0	1	0.9	1	1.5
Less than 1.50	7	16.2	7	5.2	3	3.1
Less than 1.70	10	23.8	12	7.8	4	4.1
Less than 2.00	15	33.1	21	12.3	6	5.9
Less than 2.50	27	53.7	42	27.3	20	18.6
Less than 2.90	37	70.2	68	45.6	33	31.0
Less than 3.00	39	73.1	70	46.5	38	34.5
Less than 3.30	42	78.0	80	53.3	54	48.8
Less than 3.50	45	82.3	90	61.2	61	56.0
Less than 3.80	48	86.0	107	72.0	74	66.8
Less than 4.00	50	88.8	112	76.4	79	70.1
Less than 4.50	53	93.0	124	85.3	92	80.3
Less than 5.00	54	95.6	137	93.2	99	85.4
Less than 5.50	55	96.7	144	98.6	105	92.6
Less than 6.00	55	96.7	145	99.3	110	95.9

¹Includes data for races not shown separately. Data not given separately for black adults because of small sample size.

NOTES: LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded. mg/dl is milligrams per deciliter.

Table 27. Cumulative percent distribution of the ratio of calculated values of low density lipoprotein (LDL) cholesterol to high density lipoprotein (HDL) cholesterol for women 20–74 years of age fasting 12 hours or more and number of examined persons by race and LDL cutoffs, according to age: United States, 1976–80—Con.

Race and selected ratio cutoff	45–54 years		55–64 years		65–74 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	106	100.0	267	100.0	288	100.0
Less than 1.00	—	0.0	2	0.3	1	0.2
Less than 1.50	5	4.6	8	2.8	11	3.4
Less than 1.70	7	6.4	16	5.0	15	4.9
Less than 2.00	9	8.3	28	10.8	28	9.0
Less than 2.50	20	17.6	69	27.5	78	27.0
Less than 2.90	31	27.2	100	39.4	104	35.1
Less than 3.00	33	28.1	112	44.2	118	40.6
Less than 3.30	41	35.2	137	52.3	142	49.5
Less than 3.50	54	51.0	151	59.5	158	54.0
Less than 3.80	63	58.9	177	68.3	185	62.6
Less than 4.00	68	65.2	192	73.9	202	68.4
Less than 4.50	83	78.0	218	83.3	232	79.9
Less than 5.00	93	86.3	238	91.2	259	88.8
Less than 5.50	96	90.1	251	95.8	274	94.1
Less than 6.00	100	93.1	260	98.1	281	96.8
White						
Total	96	100.0	236	100.0	256	100.0
Less than 1.00	—	0.0	1	0.2	—	0.0
Less than 1.50	3	2.6	6	2.6	8	3.0
Less than 1.70	5	4.7	11	3.7	11	4.3
Less than 2.00	7	6.8	19	8.9	23	8.7
Less than 2.50	16	15.6	53	24.9	64	24.8
Less than 2.90	26	24.9	80	36.6	86	32.8
Less than 3.00	28	25.9	91	41.7	100	38.9
Less than 3.30	36	33.8	115	50.1	123	48.5
Less than 3.50	48	49.9	129	57.9	136	52.8
Less than 3.80	56	57.9	153	67.0	160	61.1
Less than 4.00	60	62.8	166	72.7	177	67.5
Less than 4.50	74	76.4	191	82.8	203	78.6
Less than 5.00	83	84.8	210	90.9	230	88.5
Less than 5.50	86	89.0	222	95.8	243	93.9
Less than 6.00	90	92.3	230	98.0	249	96.4

Table 28. Cumulative percent distribution of the ratio of calculated values of low density lipoprotein (LDL) cholesterol to high density lipoprotein (HDL) cholesterol for women 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected ratio cutoffs, according to age: United States, 1976–80

Race and selected ratio cutoff	20–24 years		25–34 years		35–44 years	
	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent	Number of examined persons	Cumulative percent
All races ¹						
Total	105	100.0	194	100.0	166	100.0
Less than 1.00	1	0.6	5	2.1	9	4.0
Less than 1.50	16	17.7	26	12.1	23	13.1
Less than 1.70	28	29.0	41	20.7	34	18.5
Less than 2.00	46	45.5	65	32.9	54	32.5
Less than 2.50	65	64.7	108	56.5	82	47.7
Less than 2.90	80	77.6	141	72.5	104	61.2
Less than 3.00	85	82.6	149	75.9	112	65.1
Less than 3.30	89	85.2	165	84.7	133	78.0
Less than 3.50	92	88.2	169	86.6	140	82.8
Less than 3.80	96	91.6	174	89.5	149	89.3
Less than 4.00	97	92.3	179	92.1	156	94.8
Less than 4.50	100	95.0	188	96.1	159	96.4
Less than 5.00	102	96.2	193	98.8	162	98.4
Less than 5.50	103	97.3	193	98.8	163	98.8
Less than 6.00	103	97.3	194	100.0	164	99.4
White						
Total	89	100.0	177	100.0	142	100.0
Less than 1.00	1	0.7	2	0.6	6	3.3
Less than 1.50	10	13.7	21	10.6	17	12.4
Less than 1.70	20	24.7	35	19.8	25	17.1
Less than 2.00	35	41.1	57	32.4	43	30.6
Less than 2.50	53	63.0	99	57.0	68	46.7
Less than 2.90	68	78.2	130	73.4	90	61.9
Less than 3.00	71	81.4	138	77.1	95	64.6
Less than 3.30	75	84.4	152	85.5	114	77.9
Less than 3.50	77	87.4	155	87.0	120	82.5
Less than 3.80	81	91.5	160	90.2	128	89.6
Less than 4.00	82	92.3	165	93.0	134	95.4
Less than 4.50	85	95.5	172	96.6	137	97.2
Less than 5.00	87	96.8	176	98.7	139	98.6
Less than 5.50	87	96.8	176	98.7	139	98.6
Less than 6.00	87	96.8	177	100.0	140	99.3

¹Includes data for races not shown separately. Data not given separately for black adults because of small sample size.

NOTES: LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl were excluded. mg/dl is milligrams per deciliter.

Table 28. Cumulative percent distribution of the ratio of calculated values of low density lipoprotein (LDL) cholesterol to high density lipoprotein (HDL) cholesterol for women 20–74 years of age fasting 12 hours or more and number of examined persons by race and selected ratio cutoffs, according to age: United States, 1976–80—Con.

<i>Race and selected ratio cutoff</i>	<i>45–54 years</i>		<i>55–64 years</i>		<i>65–74 years</i>	
	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>	<i>Number of examined persons</i>	<i>Cumulative percent</i>
All races¹						
Total	168	100.0	282	100.0	331	100.0
Less than 1.00	3	1.6	2	0.4	4	1.4
Less than 1.50	17	8.5	19	9.7	14	4.3
Less than 1.70	28	15.9	31	12.6	21	6.3
Less than 2.00	41	23.2	61	23.2	48	14.1
Less than 2.50	73	42.2	99	33.9	96	30.1
Less than 2.90	94	53.2	135	49.7	153	46.6
Less than 3.00	97	54.5	143	52.8	163	49.4
Less than 3.30	110	63.1	168	62.5	190	58.5
Less than 3.50	122	71.5	185	66.2	214	64.4
Less than 3.80	128	76.0	202	71.5	234	70.1
Less than 4.00	133	78.5	215	74.9	246	75.9
Less than 4.50	147	87.5	245	87.3	280	84.8
Less than 5.00	154	92.0	259	93.1	293	89.1
Less than 5.50	159	95.1	270	97.2	307	93.4
Less than 6.00	162	96.7	274	98.2	315	95.4
White						
Total	143	100.0	244	100.0	289	100.0
Less than 1.00	3	1.9	2	0.5	2	1.1
Less than 1.50	12	7.3	15	9.4	10	4.0
Less than 1.70	21	14.9	25	12.4	15	5.7
Less than 2.00	32	22.2	46	19.3	39	14.0
Less than 2.50	60	42.0	80	30.3	81	30.4
Less than 2.90	79	53.8	112	47.6	127	46.3
Less than 3.00	82	55.4	120	51.3	136	49.3
Less than 3.30	92	62.2	143	61.6	159	57.8
Less than 3.50	102	70.0	158	65.5	180	64.0
Less than 3.80	107	74.5	174	71.4	200	70.5
Less than 4.00	112	77.5	186	75.2	210	74.4
Less than 4.50	124	86.4	211	86.4	242	84.0
Less than 5.00	130	91.1	224	92.8	254	88.4
Less than 5.50	134	94.2	234	97.1	267	93.1
Less than 6.00	137	96.1	238	98.3	275	95.4

Table 29. Serum total cholesterol levels for women 20–44 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by race, oral contraceptive use, and age: United States, 1976–80

Race, oral contraceptive use, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Serum total cholesterol in milligrams per deciliter (mg/dl) ¹												
All races ²												
Nonusers:												
20–44 years	1,693	190	1.3	135	144	152	163	186	213	229	240	260
20–44 years, age adjusted	...	189	1.3	...	...	...	...	...	...	...	...	...
20–29 years	746	180	1.5	131	137	143	154	176	200	215	225	239
30–44 years	947	198	1.6	143	154	159	170	192	222	236	249	268
Recently discontinued users:												
20–44 years	160	188	4.6	133	143	152	161	179	208	229	246	260
20–44 years, age adjusted	...	191	5.2	...	...	...	...	...	...	...	...	...
20–29 years	118	184	5.0	114	136	149	161	176	206	218	232	255
30–44 years	42	*197	*9.4	*	*	153	161	185	229	251	*	*
Users:												
20–44 years	504	200	2.4	142	153	161	173	195	223	240	250	266
20–44 years, age adjusted	...	203	2.8	...	...	...	...	...	...	...	...	...
20–29 years	378	197	2.5	143	152	160	172	193	220	237	245	264
30–44 years	126	208	4.7	142	159	166	180	210	235	250	254	268
White												
Nonusers:												
20–44 years	1,441	189	1.4	136	143	151	162	184	212	229	240	258
20–44 years, age adjusted	...	188	1.4	...	...	...	...	...	...	...	...	...
20–29 years	628	179	1.7	131	137	143	153	175	199	212	224	238
30–44 years	813	197	1.7	143	152	158	169	191	221	236	248	268
Recently discontinued users:												
20–44 years	134	188	5.2	134	143	153	161	179	207	229	246	260
20–44 years, age adjusted	...	192	5.9	...	...	...	...	...	...	...	...	...
20–29 years	98	184	5.4	*	137	149	161	176	202	222	235	*
30–44 years	36	*199	*10.4	*	*	160	166	187	227	246	*	*
Users:												
20–44 years	433	201	2.5	146	154	164	175	196	225	242	251	265
20–44 years, age adjusted	...	204	2.7	...	...	...	...	...	...	...	...	...
20–29 years	318	197	2.7	146	153	160	173	193	220	237	245	261
30–44 years	115	211	*4.3	149	164	167	185	211	237	250	264	275
Black												
Nonusers:												
20–44 years	209	196	3.0	135	144	156	170	192	220	234	246	274
20–44 years, age adjusted	...	195	3.2	...	...	...	...	...	...	...	...	...
20–29 years	94	188	4.5	*	140	152	160	187	209	224	235	*
30–44 years	115	202	*4.0	138	156	169	175	194	230	236	259	274
Users:												
20–44 years	64	192	*7.4	*	142	154	168	192	210	225	237	*
20–44 years, age adjusted	...	187	*8.9	...	...	...	...	...	...	...	...	...
20–29 years	55	194	*7.8	*	144	156	166	192	213	225	237	*

¹To convert to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

NOTES: Data are presented neither for black recently discontinued users nor for black oral contraceptive users 30–44 years of age because of small sample sizes. Excludes pregnant, lactating, and menopausal women.

Table 30. Serum high density lipoprotein (HDL) cholesterol for women 20–44 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by race, oral contraceptive use, and age: United States, 1976–80

Race, oral contraceptive use, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Serum HDL cholesterol in milligrams per deciliter (mg/dl) ¹												
All races ²												
Nonusers:												
20–44 years	1,469	52.4	0.5	33.0	36.0	39.0	43.0	51.0	60.0	65.1	70.1	75.1
20–44 years, age adjusted	...	52.4	0.5	...	...	...	...	...	...	...	...	...
20–29 years	656	52.1	0.7	33.0	36.0	39.0	43.1	51.0	60.0	65.0	69.1	75.0
30–44 years	813	52.6	0.6	34.0	37.0	39.0	43.0	51.0	60.0	66.0	71.0	76.1
Recently discontinued users:												
20–44 years	133	53.6	1.5	34.0	35.0	37.0	41.0	51.0	60.0	68.0	75.1	84.0
20–44 years, age adjusted	...	53.4	1.5	...	...	...	...	...	...	...	...	...
20–29 years	98	53.9	2.0	*	35.0	37.0	41.0	51.0	60.0	68.1	77.0	*
30–44 years	35	*52.8	*2.5	*	*	37.0	45.0	51.0	60.1	66.1	*	*
Users:												
20–44 years	436	53.2	0.9	34.0	38.0	40.0	45.0	51.0	60.1	66.1	72.0	77.0
20–44 years, age adjusted	...	53.6	0.9	...	...	...	...	...	...	...	...	...
20–29 years	329	52.9	1.1	34.0	38.0	40.0	44.0	51.0	60.0	66.0	72.1	76.1
30–44 years	107	54.2	1.2	36.0	40.1	41.1	45.0	52.0	61.0	68.1	70.1	77.0
White												
Nonusers:												
20–44 years	1,262	52.0	0.5	33.1	36.1	39.0	43.0	51.0	60.0	65.0	70.0	75.0
20–44 years, age adjusted	...	52.0	0.5	...	...	...	...	...	...	...	...	...
20–29 years	561	51.7	0.8	33.0	36.0	39.0	43.0	50.1	59.1	64.1	68.1	74.1
30–44 years	701	52.3	0.6	34.0	37.0	39.0	43.0	51.0	60.0	65.1	70.1	76.0
Recently discontinued users:												
20–44 years	114	53.6	1.8	34.0	35.0	37.0	41.0	52.0	60.0	68.1	76.0	77.1
20–44 years, age adjusted	...	53.5	1.7	...	...	...	...	...	...	...	...	...
20–29 years	83	53.6	2.4	*	34.1	36.0	40.0	51.0	60.0	68.1	77.0	*
30–44 years	31	*53.5	*2.7	*	*	*	45.1	52.0	63.0	*	*	*
Users:												
20–44 years	375	52.8	1.0	34.0	38.0	40.0	45.0	51.0	60.0	65.1	69.1	76.0
20–44 years, age adjusted	...	53.2	1.0	...	...	...	...	...	...	...	...	...
20–29 years	276	52.5	1.2	33.1	37.1	39.1	44.0	51.0	59.1	65.1	68.1	73.1
30–44 years	99	53.8	1.4	*	40.0	41.0	45.0	50.0	61.0	68.1	70.1	*
Black												
Nonusers:												
20–44 years	172	55.7	1.1	32.0	35.0	41.0	45.0	55.0	64.0	70.0	73.0	84.1
20–44 years, age adjusted	...	55.8	1.1	...	...	...	...	...	...	...	...	...
20–29 years	78	56.0	*2.1	*	35.0	43.0	47.0	55.0	64.1	70.0	74.1	*
30–44 years	94	55.5	*1.7	*	36.0	39.0	45.0	57.0	63.0	70.0	71.1	*
Users:												
20–44 years	55	55.5	*2.2	*	40.0	41.0	47.0	52.0	62.0	74.1	77.1	*
20–44 years, age adjusted	...	56.6	*1.4	...	...	...	...	...	...	...	...	...
20–29 years	48	55.1	*2.6	*	*	40.0	47.0	50.0	70.0	76.1	*	*

¹To convert to millimoles per liter (mmol/L), multiply by 0.02586.

²Includes data for races not shown separately.

NOTES: Data are presented neither for black recently discontinued users nor for black oral contraceptive users 30–44 years of age because of small sample sizes. Excludes pregnant, lactating, and menopausal women.

Table 31. Ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol for women 20–44 years of age, number of examined persons, mean, standard error of the mean, and selected percentiles, by race, oral contraceptive use, and age: United States, 1976–80

Race, oral contraceptive use, and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All races ¹												
Nonusers:												
20–44 years	1,469	3.87	0.05	2.29	2.52	2.67	2.97	3.57	4.46	5.05	5.54	6.52
20–44 years, age adjusted	...	3.85	0.05	...	...	...	...	...	...	...	...	...
20–29 years	656	3.68	0.06	2.26	2.43	2.57	2.83	3.42	4.15	4.69	5.36	6.48
30–44 years	813	4.02	0.06	2.38	2.60	2.79	3.04	3.74	4.73	5.26	5.74	6.77
Recently discontinued users:												
20–44 years	133	3.74	0.09	2.36	2.52	2.68	2.90	3.48	4.37	4.74	5.40	5.62
20–44 years, age adjusted	...	3.77	0.10	...	...	...	...	...	...	...	...	...
20–29 years	98	3.69	0.09	*	2.44	2.59	2.90	3.50	4.30	4.74	5.34	*
30–44 years	35	*3.85	*0.17	*	*	2.72	2.86	3.47	4.56	4.94	*	*
Users:												
20–44 years	436	3.97	0.07	2.30	2.58	2.80	3.11	3.80	4.71	5.12	5.58	6.33
20–44 years, age adjusted	...	4.01	0.08	...	...	...	...	...	...	...	...	...
20–29 years	329	3.93	0.09	2.31	2.59	2.82	3.11	3.75	4.53	5.05	5.51	6.44
30–44 years	107	4.09	0.12	2.21	2.44	2.69	3.10	3.96	5.01	5.29	5.58	6.19
White												
Nonusers:												
20–44 years	1,262	3.87	0.06	2.29	2.53	2.68	2.98	3.57	4.44	5.04	5.54	6.48
20–44 years, age adjusted	...	3.85	0.06	...	...	...	...	...	...	...	...	...
20–29 years	561	3.67	0.07	2.26	2.44	2.58	2.86	3.40	4.15	4.58	5.29	6.21
30–44 years	701	4.02	0.06	2.38	2.60	2.79	3.05	3.72	4.75	5.26	5.72	6.77
Recently discontinued users:												
20–44 years	114	3.76	0.10	2.38	2.52	2.68	2.91	3.50	4.48	4.81	5.38	5.61
20–44 years, age adjusted	...	3.81	0.12	...	...	...	...	...	...	...	...	...
20–29 years	83	3.70	0.10	*	2.50	2.59	2.91	3.51	4.34	4.74	4.90	*
30–44 years	31	*3.90	*0.19	*	*	*	3.00	3.47	4.73	*	*	*
Users:												
20–44 years	375	4.01	0.08	2.32	2.59	2.84	3.12	3.84	4.75	5.14	5.65	6.30
20–44 years, age adjusted	...	4.07	0.08	...	...	...	...	...	...	...	...	...
20–29 years	276	3.95	0.09	2.40	2.62	2.84	3.11	3.79	4.57	5.05	5.60	6.34
30–44 years	99	4.20	0.11	*	2.50	2.93	3.19	4.24	5.08	5.40	5.79	*
Black ²												
Nonusers:												
20–44 years	172	3.80	0.11	2.33	2.45	2.62	2.82	3.45	4.47	5.05	5.71	6.53
20–44 years, age adjusted	...	3.79	0.11	...	...	...	...	...	...	...	...	...
20–29 years	78	3.64	*0.17	*	2.38	2.40	2.66	3.41	4.21	4.89	5.55	*
30–44 years	94	3.93	*0.14	*	2.52	2.79	2.98	3.46	4.57	5.09	5.87	*
Users:												
20–44 years	55	3.71	*0.19	*	2.30	2.58	2.84	3.59	4.35	4.72	5.05	*
20–44 years, age adjusted	...	3.45	*0.20	...	...	...	...	...	...	...	...	...
20–29 years	48	3.79	*0.22	*	*	2.63	3.00	3.63	4.46	5.04	*	*

¹Includes data for races not shown separately.

²Data are presented neither for black recently discontinued users nor for black oral contraceptive users 30–44 years of age because of small sample sizes.

NOTE: Excludes pregnant, lactating, and menopausal women.

Table 32. Percent of persons 20–74 years of age with ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol greater than or equal to 4.5, number of examined persons, and standard error of the percent, by race, age, and sex: United States, 1976–80

Race and age	Both sexes			Men			Women		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
All races ¹									
20–74 years	9,797	45.6	1.2	4,562	56.2	1.4	5,235	36.3	1.2
20–74 years, age adjusted	...	45.5	1.1	...	56.1	1.3	...	36.1	1.1
20–24 years	1,204	23.7	1.7	570	30.4	2.3	634	17.6	1.7
25–34 years	1,902	36.5	1.5	885	49.4	2.2	1,017	25.0	1.4
35–44 years	1,333	48.5	1.6	611	63.2	2.7	722	35.6	1.9
45–54 years	1,200	56.6	2.0	559	69.3	2.2	641	45.4	2.5
55–64 years	2,050	57.9	1.6	964	66.3	1.9	1,086	50.6	2.4
65–74 years	2,108	58.3	1.7	973	62.5	2.2	1,135	55.0	1.8
White									
20–74 years	8,582	47.0	1.2	4,019	58.1	1.5	4,563	37.2	1.2
20–74 years, age adjusted	...	46.7	1.2	...	57.9	1.4	...	36.7	1.2
20–24 years	1,036	24.8	1.9	494	32.4	2.7	542	17.9	1.6
25–34 years	1,626	37.2	1.6	751	50.7	2.3	875	25.1	1.6
35–44 years	1,171	49.7	1.8	545	64.6	2.9	626	36.4	2.2
45–54 years	1,052	58.2	2.3	506	71.3	2.4	546	46.2	2.9
55–64 years	1,838	59.1	1.6	865	68.4	2.1	973	51.0	2.2
65–74 years	1,859	60.4	1.6	858	64.8	2.2	1,001	57.0	1.7
Black									
20–74 years	1,043	31.8	2.0	462	36.0	2.8	581	28.6	2.5
20–74 years, age adjusted	...	32.8	2.0	...	37.3	2.7	...	29.5	2.5
20–24 years	142	14.7	2.8	65	13.1	*4.1	77	16.0	*4.8
25–34 years	234	27.4	2.9	112	33.7	*4.6	122	22.6	*4.3
35–44 years	138	38.4	3.9	54	49.1	*6.5	84	30.7	*4.3
45–54 years	128	38.2	*6.4	47	45.5	*9.2	81	32.8	*7.3
55–64 years	191	42.1	*5.2	92	41.9	*5.0	99	42.2	*8.9
65–74 years	210	40.3	4.7	92	40.9	*5.8	118	39.9	*6.4

¹Includes data for races not shown separately.

Table 33. Percent of persons 20–74 years of age with high density lipoprotein (HDL) cholesterol less than 35 milligrams per deciliter, number of examined persons, and standard error of the percent, by race, age, and sex: United States, 1976–80

Race and age	Both sexes			Men			Women		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
All races ¹									
20–74 years	9,797	11.2	0.7	4,562	16.7	1.0	5,235	6.4	0.6
20–74 years, age adjusted	...	11.2	0.7	...	16.7	0.9	...	6.4	0.6
20–24 years	1,204	8.2	1.1	570	10.7	1.6	634	6.0	1.1
25–34 years	1,902	11.1	0.9	885	16.0	1.4	1,017	6.7	0.8
35–44 years	1,333	11.9	1.3	611	18.3	2.3	722	6.3	0.7
45–54 years	1,200	11.5	1.0	559	18.5	1.8	641	5.4	0.8
55–64 years	2,050	12.4	0.9	964	18.4	1.5	1,086	7.2	1.0
65–74 years	2,108	12.1	1.1	973	19.4	2.1	1,135	6.5	0.6
White									
20–74 years	8,582	11.6	0.7	4,019	17.5	1.1	4,563	6.3	0.6
20–74 years, age adjusted	...	11.6	0.7	...	17.5	1.1	...	6.3	0.6
20–24 years	1,036	9.0	1.3	494	11.8	1.8	542	6.3	1.3
25–34 years	1,626	11.2	1.0	751	16.8	1.6	875	6.1	0.9
35–44 years	1,171	12.1	1.4	545	18.6	2.5	626	6.3	0.9
45–54 years	1,052	11.8	1.0	506	18.9	1.8	546	5.2	1.0
55–64 years	1,838	13.0	1.0	865	19.4	1.6	973	7.3	1.0
65–74 years	1,859	12.8	1.2	858	20.5	2.2	1,001	6.9	0.7
Black									
20–74 years	1,043	7.3	1.2	462	9.0	1.8	581	6.0	1.2
20–74 years, age adjusted	...	7.3	1.3	...	9.3	1.8	...	5.9	1.2
20–24 years	142	2.1	1.1	65	1.5	*1.4	77	2.6	*1.8
25–34 years	234	9.8	2.0	112	9.6	*2.6	122	10.0	*2.7
35–44 years	138	9.9	1.6	54	13.0	*3.5	84	7.6	*1.4
45–54 years	128	7.5	*2.7	47	12.4	*5.5	81	3.9	*1.8
55–64 years	191	6.7	*2.3	92	8.9	*3.8	99	5.2	*2.2
65–74 years	210	4.8	1.6	92	9.1	*3.5	118	1.8	*1.1

¹Includes data for races not shown separately.

NOTE: 35 milligrams per deciliter (mg/dl) = 0.9051 millimoles per liter (mmol/L).

Table 34. Percent of persons 20–74 years of age with desirable, borderline-high and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (< 200 mg/dl) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High (≥ 240 mg/dl) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁴									
20–74 years	11,864	42.9	1.0	16.4	0.5	13.9	0.4	26.8	0.8
20–74 years, age adjusted	...	43.5	0.9	16.4	0.5	13.8	0.4	26.3	0.8
20–24 years	1,414	71.4	1.5	16.5	1.1	5.7	0.7	6.4	0.8
25–34 years	2,237	60.6	1.4	16.2	0.8	9.7	0.7	13.5	0.9
35–44 years	1,589	43.5	1.5	18.7	1.4	13.7	1.0	24.1	1.3
45–54 years	1,453	26.6	1.7	17.2	1.3	17.5	0.9	38.7	1.6
55–64 years	2,556	19.1	1.0	15.6	0.7	19.9	0.9	45.3	1.5
65–74 years	2,615	23.6	1.1	12.6	0.8	20.9	0.9	43.0	1.5
White:									
20–74 years	10,301	42.4	1.0	16.5	0.4	13.9	0.5	27.2	0.9
20–74 years, age adjusted	...	43.3	0.9	16.5	0.4	13.7	0.4	26.5	0.8
20–24 years	1,205	71.6	1.6	16.1	1.1	6.1	0.8	6.3	0.9
25–34 years	1,901	60.5	1.5	16.0	0.8	9.8	0.8	13.6	1.0
35–44 years	1,379	42.8	1.6	19.4	1.5	13.5	1.0	24.4	1.4
45–54 years	1,264	26.9	2.1	17.3	1.3	17.2	1.0	38.6	1.8
55–64 years	2,262	18.6	1.1	16.1	0.6	19.4	1.1	45.9	1.6
65–74 years	2,290	23.2	1.2	13.0	0.8	20.3	0.9	43.6	1.5
Black:									
20–74 years	1,336	47.8	2.5	12.9	1.4	15.5	0.9	23.8	2.1
20–74 years, age adjusted	...	46.5	2.3	12.7	1.4	16.0	0.8	24.7	1.9
20–24 years	173	73.3	5.1	17.4	4.1	4.1	2.3	5.2	1.2
25–34 years	284	62.7	3.8	15.0	2.7	9.0	1.3	13.4	2.2
35–44 years	173	50.7	3.7	12.6	3.5	16.5	3.5	20.3	4.4
45–54 years	162	26.0	4.1	10.6	3.0	22.8	3.6	40.5	5.5
55–64 years	264	24.4	3.9	10.1	3.3	24.1	2.6	41.4	3.3
65–74 years	280	25.4	2.2	8.0	1.5	27.3	3.4	39.3	2.9
Men									
All races: ⁴									
20–74 years	5,604	44.0	1.2	10.8	0.6	20.3	0.6	24.9	0.9
20–74 years, age adjusted	...	44.3	1.1	10.8	0.6	20.3	0.6	24.6	0.9
20–24 years	676	73.3	1.7	10.3	1.3	10.2	1.2	6.2	1.2
25–34 years	1,067	56.7	2.0	12.0	1.2	16.0	1.4	15.3	1.3
35–44 years	745	39.1	2.2	13.3	1.8	19.7	1.5	27.9	1.9
45–54 years	690	28.0	2.2	10.3	1.4	24.9	1.5	36.9	1.9
55–64 years	1,227	25.9	1.6	10.0	1.0	27.3	1.4	36.8	1.8
65–74 years	1,199	33.5	1.6	6.0	0.7	28.7	1.3	31.7	1.8
White:									
20–74 years	4,883	43.6	1.2	10.8	0.7	20.7	0.7	25.0	0.9
20–74 years, age adjusted	...	44.0	1.1	10.8	0.7	20.6	0.7	24.6	0.9
20–24 years	581	73.2	1.9	9.3	1.4	11.4	1.5	6.1	1.3
25–34 years	901	56.8	2.1	11.9	1.3	16.3	1.6	15.0	1.5
35–44 years	653	38.4	2.2	13.7	1.7	20.0	1.6	27.9	1.8
45–54 years	617	27.9	2.4	10.3	1.5	25.2	1.5	36.5	1.9
55–64 years	1,086	25.1	1.8	10.5	1.1	27.1	1.6	37.3	2.0
65–74 years	1,045	33.0	1.6	6.2	0.9	28.5	1.4	32.4	1.9

Table 34. Percent of persons 20–74 years of age with desirable, borderline-high and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (<i>< 200 mg/dl</i>) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High (<i>≥ 240 mg/dl</i>) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Men—Con.									
Black:									
20–74 years	607	49.5	2.5	8.1	1.2	18.6	1.5	23.9	2.2
20–74 years, age adjusted.	...	48.7	2.4	7.7	1.2	19.2	1.6	24.4	2.2
20–24 years	79	78.2	*5.1	15.8	*3.5	3.1	*2.3	2.9	*1.6
25–34 years	139	58.1	*4.4	8.0	*2.4	14.5	*2.3	19.3	*3.6
35–44 years	70	47.4	*6.7	8.0	*3.8	20.1	*8.0	24.5	*7.5
45–54 years	62	27.9	*6.3	7.6	*3.2	24.2	*4.3	40.3	*9.0
55–64 years	129	35.0	*4.3	2.0	*1.1	27.7	*3.8	35.3	*4.8
65–74 years	128	37.2	4.6	3.8	2.1	31.9	3.8	27.2	3.9
Women									
All races: ⁴									
20–74 years	6,260	42.0	1.1	21.5	0.7	8.1	0.5	28.5	1.0
20–74 years, age adjusted.	...	43.0	1.0	21.5	0.7	7.9	0.5	27.6	0.9
20–24 years	738	69.6	2.2	22.3	1.7	1.5	0.5	6.6	1.0
25–34 years	1,170	64.4	1.6	20.2	1.0	3.7	0.6	11.8	1.0
35–44 years	844	47.6	2.1	23.7	1.6	8.1	1.0	20.7	1.8
45–54 years	763	25.3	2.3	23.7	1.9	10.5	1.1	40.5	2.3
55–64 years	1,329	13.0	1.0	20.6	1.4	13.4	1.2	52.9	2.0
65–74 years	1,416	16.0	1.2	17.6	1.3	14.9	1.2	51.6	1.8
White:									
20–74 years	5,418	41.4	1.2	21.8	0.7	7.6	0.5	29.2	1.0
20–74 years, age adjusted.	...	42.8	1.0	21.8	0.7	7.3	0.5	28.0	0.9
20–24 years	624	69.9	2.2	22.6	1.9	1.0	0.4	6.5	1.2
25–34 years	1,000	64.1	1.7	20.0	1.2	3.6	0.6	12.4	1.1
35–44 years	726	46.8	2.4	24.6	2.0	7.5	1.0	21.1	1.9
45–54 years	647	25.9	2.7	24.0	2.0	9.6	1.1	40.6	2.7
55–64 years	1,176	12.7	1.1	21.2	1.5	12.5	1.3	53.7	1.9
65–74 years	1,245	15.6	1.3	18.1	1.3	14.1	1.0	52.1	2.0
Black:									
20–74 years	729	46.4	3.3	16.8	2.1	13.0	1.6	23.7	2.7
20–74 years, age adjusted.	...	44.8	2.9	16.7	2.1	13.5	1.4	25.0	2.5
20–24 years	94	69.5	*6.4	18.6	*6.1	4.9	*2.8	7.0	*2.3
25–34 years	145	66.3	*4.5	20.5	*4.0	4.6	*1.7	8.7	*3.1
35–44 years	103	53.2	*4.6	16.2	*5.6	13.7	*4.6	16.9	*5.5
45–54 years	100	24.4	*5.5	13.2	*3.7	21.7	*5.2	40.7	*7.3
55–64 years	135	15.5	*5.0	16.9	*6.0	21.2	*3.7	46.5	*6.2
65–74 years	152	16.6	3.6	11.2	2.8	23.8	6.0	48.4	4.9

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³Greater than or equal to 6.21 mmol/L.

⁴Includes data for races not shown separately.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk variables. CHD is coronary heart disease; mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. Excludes pregnant, lactating, and menopausal females.

Table 35. Percent of women 20–44 years of age with desirable, borderline-high and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by race, oral contraceptive use, and age: United States, 1976–80

Race, oral contraceptive use, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (<i><200 mg/dl</i>) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High (<i>≥ 240 mg/dl</i>) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
All races ⁴									
Nonusers:									
20–44 years	1,693	64.7	1.3	20.2	1.0	4.8	0.5	10.2	0.8
20–44 years, age adjusted.	...	65.6	1.2	20.1	0.9	4.6	0.5	9.7	0.8
20–29 years	746	74.2	1.4	18.4	1.4	2.6	0.6	4.8	0.9
30–44 years	947	57.5	2.0	21.6	1.4	6.6	0.9	14.3	1.3
Recently discontinued users:									
20–44 years	160	66.4	4.5	18.6	3.5	3.8	1.6	11.2	3.1
20–44 years, age adjusted.	...	64.6	4.6	16.7	3.1	4.5	2.3	14.2	4.2
20–29 years	118	68.6	5.9	21.1	4.6	3.0	1.3	7.3	2.7
30–44 years	42	*60.8	*7.9	*12.5	*4.2	*5.9	*4.3	*20.7	*7.7
Users:									
20–44 years	504	54.5	2.6	27.3	2.3	3.1	0.8	15.1	1.8
20–44 years, age adjusted.	...	50.5	3.2	27.3	2.9	4.5	1.3	17.6	3.0
20–29 years	378	58.0	2.7	27.3	2.4	1.8	0.7	12.8	1.4
30–44 years	126	43.4	5.4	27.4	4.7	7.1	2.1	22.2	5.7
White									
Nonusers:									
20–44 years	1,441	65.3	1.4	20.1	1.1	4.4	0.6	10.1	0.9
20–44 years, age adjusted.	...	66.4	1.4	19.9	1.1	4.2	0.5	9.5	0.8
20–29 years	628	75.4	1.7	17.8	1.7	2.2	0.7	4.6	0.9
30–44 years	813	57.9	2.1	21.9	1.6	6.0	0.9	14.2	1.4
Recently discontinued users:									
20–44 years	134	66.6	5.1	18.3	3.7	4.0	1.7	11.2	3.6
20–44 years, age adjusted.	...	64.5	5.4	17.1	3.4	4.9	2.6	13.5	4.7
20–29 years	98	69.3	6.3	19.9	4.8	2.8	1.4	8.0	3.3
30–44 years	36	*60.0	*9.1	*14.4	*4.6	*6.8	*5.0	*18.7	*8.7
Users:									
20–44 years	433	52.8	2.7	28.1	2.4	3.0	0.8	16.0	2.1
20–44 years, age adjusted.	...	48.2	3.0	28.3	2.9	4.7	1.3	18.8	3.2
20–29 years	318	57.3	3.0	28.0	2.7	1.4	0.6	13.3	1.7
30–44 years	115	39.6	*4.9	28.5	*5.0	7.9	*2.3	24.1	*6.0
Black ⁵									
Nonusers:									
20–44 years	209	61.8	3.6	17.7	3.3	9.0	2.6	11.5	2.6
20–44 years, age adjusted.	...	62.3	3.9	17.7	3.3	8.8	2.6	11.2	2.7
20–29 years	94	68.4	4.8	17.7	3.9	6.0	2.7	7.8	2.7
30–44 years	115	56.5	*4.5	17.8	*3.9	11.3	*3.7	14.4	*4.5
Users:									
20–44 years	64	64.8	9.4	23.1	7.6	4.1	3.0	8.0	3.7
20–44 years, age adjusted.	...	66.9	11.6	23.3	10.7	2.3	1.7	7.5	4.6
20–29 years	55	64.1	*9.4	23.1	*7.4	4.7	*3.4	8.1	*3.8

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³Greater than or equal to 6.21 mmol/L.

⁴Includes data for races not shown separately.

⁵Data not given separately for black recently discontinued users nor for black oral contraceptive users 30–44 years of age because of small sample size.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.; 148(1):36–69, 1988. See appendix IV for definition of risk variables. CHD is coronary heart disease; mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. Excludes pregnant, lactating, and menopausal females.

Table 36. Percent of persons 20–74 years of age with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol values as a percent of the total number needing lipoprotein analysis, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Borderline-high risk (130–159 mg/dl) ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High-risk (≥ 160 mg/dl) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁴									
20–74 years	1,084	6.1	0.9	5.7	0.8	25.5	1.5	62.7	1.9
20–74 years, age adjusted	...	6.2	1.3	6.3	1.3	24.8	1.9	62.6	2.3
20–24 years	17	*	*	*	*	*	*	*	*
25–34 years	83	4.6	2.0	3.4	1.9	34.5	5.2	57.6	5.0
35–44 years	105	5.2	2.4	7.7	3.2	25.1	4.1	61.9	5.9
45–54 years	146	5.4	2.2	6.8	2.3	22.2	2.9	65.6	3.8
55–64 years	339	8.4	2.3	6.2	2.0	24.5	3.0	61.0	4.0
65–74 years	394	5.2	1.4	3.1	0.9	27.4	3.0	64.4	3.1
White:									
20–74 years	953	5.8	0.8	5.9	0.9	25.8	1.7	62.4	2.0
20–74 years, age adjusted	...	6.2	1.3	6.8	1.4	25.2	2.1	61.9	2.4
20–24 years	16	*	*	*	*	*	*	*	*
25–34 years	73	5.0	*2.2	3.7	*2.1	35.1	*6.0	56.2	*5.7
35–44 years	94	4.4	2.2	8.5	3.5	24.9	3.8	62.2	5.8
45–54 years	126	4.2	1.7	7.4	2.9	23.7	3.6	64.7	4.4
55–64 years	297	8.3	2.5	5.9	1.9	23.6	3.2	62.2	4.2
65–74 years	347	5.6	1.5	3.0	0.9	28.2	3.1	63.2	3.1
Black: ⁵									
20–74 years	115	9.6	*6.2	2.9	*1.4	24.9	*3.8	62.6	*5.7
20–74 years, age adjusted	...	7.2	*4.8	1.6	*0.8	25.1	*5.8	66.1	*7.4
Men									
All races: ⁴									
20–74 years	526	7.0	1.5	2.0	0.6	33.0	2.4	58.1	2.3
20–74 years, age adjusted	...	7.7	2.1	2.6	0.9	31.5	3.0	58.2	3.4
20–24 years	11	*	*	*	*	*	*	*	*
25–34 years	50	4.1	*2.3	1.2	*1.1	39.6	*8.2	55.0	*7.3
35–44 years	63	5.1	3.0	3.0	2.1	27.6	4.4	64.3	5.7
45–54 years	61	5.6	3.0	0.0	0.0	35.3	6.4	59.1	5.9
55–64 years	167	10.3	3.8	4.0	2.2	31.3	4.4	54.4	4.4
65–74 years	174	6.9	1.8	0.6	0.6	35.0	4.0	57.5	4.2
White:									
20–74 years	476	6.5	1.4	1.9	0.7	32.9	2.6	58.7	2.5
20–74 years, age adjusted	...	7.3	2.0	2.5	0.9	31.6	3.2	58.6	3.5
20–24 years	11	*	*	*	*	*	*	*	*
25–34 years	44	*4.5	*2.4	*1.3	*1.2	*40.0	*9.2	*54.3	*8.3
35–44 years	59	3.4	2.5	3.2	2.2	27.3	4.4	66.1	5.7
45–54 years	55	3.8	2.2	0.0	0.0	36.8	7.0	59.4	6.4
55–64 years	150	10.6	4.1	3.1	2.2	30.9	4.9	55.4	4.8
65–74 years	157	7.5	1.9	0.6	0.6	34.0	4.2	57.9	4.5
Black: ⁵									
20–74 years	44	*14.1	*10.7	*4.1	*3.2	*33.1	*9.0	*48.7	*10.0
20–74 years, age adjusted	...	*12.2	*8.2	*2.9	*2.0	*33.8	*9.7	*51.1	*11.3

Table 36. Percent of persons 20–74 years of age with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol values as a percent of the total number needing lipoprotein analysis, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Number of examined persons	Borderline-high risk (130–159 mg/dl) ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High-risk (≥ 160 mg/dl) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Women									
All races: ⁴									
20–74 years	558	5.2	1.1	9.2	1.4	18.5	1.8	67.1	2.3
20–74 years, age adjusted	...	4.6	1.2	10.7	2.8	17.8	2.2	67.0	3.5
20–24 years	6	*	*	*	*	*	*	*	*
25–34 years	33	*5.2	*3.7	*6.7	*4.6	*26.7	*8.0	*61.4	*10.6
35–44 years	42	*5.4	*4.0	*15.0	*6.5	*21.4	*6.8	*58.3	*8.6
45–54 years	85	5.2	2.4	11.8	4.0	12.7	3.0	70.4	4.7
55–64 years	172	6.8	2.3	8.0	3.0	18.7	4.4	66.5	5.5
65–74 years	220	3.8	1.6	4.9	1.6	21.8	3.6	69.4	3.6
White:									
20–74 years	477	5.2	1.1	10.1	1.7	18.7	2.1	66.1	2.6
20–74 years, age adjusted	...	4.7	1.4	12.1	3.2	17.9	2.5	65.2	3.9
20–24 years	5	*	*	*	*	*	*	*	*
25–34 years	29	*5.9	*4.1	*7.5	*5.2	*27.2	*8.3	*59.4	*11.5
35–44 years	35	*6.1	*4.4	*16.9	*7.5	*21.1	*7.0	*55.9	*8.5
45–54 years	71	4.6	2.5	13.3	5.3	13.1	3.3	69.0	5.6
55–64 years	147	6.2	2.5	8.4	3.1	17.1	4.7	68.3	5.9
65–74 years	190	4.1	1.7	4.9	1.6	23.5	3.9	67.5	3.5
Black: ⁵									
20–74 years	71	7.2	*3.9	2.2	*1.3	20.3	*4.2	70.3	*5.4
20–74 years, age adjusted	...	4.0	*2.2	1.0	*0.6	24.2	*7.5	70.8	*8.5

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³Greater than or equal to 4.14 mmol/L.

⁴Includes data for races not shown separately.

⁵Data not given separately for black adults by age because of small sample size.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk variables. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin. Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded. Excludes pregnant, lactating, and menopausal females.

Table 37. Percent of persons 20–74 years of age with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol levels as a percent of the total U.S. population and number of examined persons, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Desirable (< 130 mg/dl) ¹	Borderline-high-risk (130–159 mg/dl) ²		High risk (≥ 160 mg/dl) ³
			No CHD and no 2 CHD risk factors	CHD or 2 CHD risk factors	
Both sexes					
All races: ⁴					
20–74 years	1,084	2.5	2.3	10.4	25.5
20–74 years, age adjusted	...	2.5	2.3	10.2	25.1
20–24 years	17	*	*	*	*
25–34 years	83	1.1	0.8	8.0	13.3
35–44 years	105	2.0	2.9	9.5	23.4
45–54 years	146	3.0	3.8	12.5	36.9
55–64 years	339	5.5	4.0	16.0	39.8
65–74 years	394	3.3	2.0	17.5	41.1
White:					
20–74 years	953	2.4	2.4	10.6	25.6
20–74 years, age adjusted	...	2.4	2.5	10.3	25.0
20–24 years	16	*	*	*	*
25–34 years	73	1.2	0.9	8.2	13.2
35–44 years	94	1.7	3.2	9.4	23.6
45–54 years	126	2.4	4.1	13.2	36.1
55–64 years	297	5.4	3.8	15.4	40.6
65–74 years	347	3.6	1.9	18.0	40.4
Black: ³					
20–74 years	115	3.8	1.1	9.8	24.6
20–74 years, age adjusted	...	4.0	1.0	10.5	25.0
Men					
All races: ³					
20–74 years	526	3.2	0.9	14.9	26.2
20–74 years, age adjusted	...	3.2	0.9	14.7	26.1
20–24 years	11	*	*	*	*
25–34 years	50	1.3	0.4	12.4	17.2
35–44 years	63	2.4	1.4	13.1	30.6
45–54 years	61	3.5	0.0	21.8	36.5
55–64 years	167	6.6	2.5	20.0	34.9
65–74 years	174	4.2	0.3	21.2	34.8
White:					
20–74 years	476	3.0	0.9	15.0	26.8
20–74 years, age adjusted	...	3.0	0.9	14.8	26.5
20–24 years	11	*	*	*	*
25–34 years	44	*1.4	*0.4	*12.5	*17.0
35–44 years	59	1.6	1.6	13.1	31.6
45–54 years	55	2.3	0.0	22.7	36.7
55–64 years	150	6.8	2.0	19.9	35.7
65–74 years	157	4.6	0.4	20.7	35.2
Black: ⁴					
20–74 years	44	*6.0	*1.7	*14.0	*20.7
20–74 years, age adjusted	...	*6.0	*1.5	*14.4	*21.2

Table 37. Percent of persons 20–74 years of age with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol levels as a percent of the total U.S. population and number of examined persons, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Number of examined persons	Desirable (< 130 mg/dl) ¹	Borderline-high-risk (130–159 mg/dl) ²		High risk (≥ 160 mg/dl) ³
			No CHD and no 2 CHD risk factors	CHD or 2 CHD risk factors	
Women					
All races: ⁴					
20–74 years	558	1.9	3.4	6.7	24.5
20–74 years, age adjusted	...	1.8	3.3	6.6	23.7
20–24 years	6	*	*	*	*
25–34 years	33	*0.8	*1.0	*4.1	*9.5
35–44 years	42	*1.5	*4.3	*6.1	*16.7
45–54 years	85	2.6	6.0	6.5	35.9
55–64 years	172	4.5	5.3	12.4	44.1
65–74 years	220	2.6	3.3	14.5	46.2
White:					
20–74 years	477	1.9	3.7	6.9	24.3
20–74 years, age adjusted	...	1.8	3.7	6.6	23.2
20–24 years	5	*	*	*	*
25–34 years	29	*0.9	*1.2	*4.3	*9.5
35–44 years	35	*1.7	*4.8	*6.0	*16.0
45–54 years	71	2.3	6.7	6.6	34.6
55–64 years	147	4.1	5.6	11.3	45.1
65–74 years	190	2.7	3.3	15.5	44.7
Black: ⁵					
20–74 years	71	2.6	0.8	7.4	25.8
20–74 years, age adjusted	...	2.6	0.7	8.5	26.6

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³Greater than or equal to 4.14 mmol/L.

⁴Includes data for races not shown separately.

⁵Data not given separately for black adults by age because of small sample size.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk variables. CHD is coronary heart disease; mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded.

Table 38. Percent of persons 20–74 years of age who did not need lipoprotein analysis with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol levels, and number of examined persons, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Number of examined persons	Borderline-high-risk (130–159 mg/dl) ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High-risk (≥ 160 mg/dl) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁴									
20–74 years	1,199	69.2	1.7	22.7	1.4	3.5	0.6	4.6	0.7
20–74 years, age adjusted	...	68.3	1.6	23.2	1.4	3.6	0.6	4.8	0.7
20–24 years	160	78.7	3.5	16.0	3.2	2.6	1.0	2.7	1.3
25–34 years	285	73.2	2.7	20.3	2.5	2.9	1.1	3.5	0.8
35–44 years	191	68.5	4.0	23.2	2.8	3.5	1.3	4.9	1.9
45–54 years	128	61.6	4.5	29.8	4.3	1.7	1.7	6.9	2.5
55–64 years	210	61.9	4.0	27.8	4.4	4.7	2.1	5.6	1.8
65–74 years	225	61.1	3.3	24.4	3.2	7.8	2.4	6.8	1.8
White:									
20–74 years	1,037	69.2	1.8	23.3	1.4	3.1	0.6	4.4	0.7
20–74 years, age adjusted	...	68.4	1.7	23.7	1.4	3.2	0.7	4.6	0.7
20–24 years	130	78.7	3.7	16.2	3.3	3.2	1.2	1.9	1.2
25–34 years	250	72.9	2.8	20.9	2.6	2.8	1.1	3.4	0.9
35–44 years	163	70.1	4.0	24.0	3.1	1.8	1.3	4.0	1.5
45–54 years	113	62.3	4.8	31.4	4.5	0.0	0.0	6.3	2.4
55–64 years	183	61.8	4.2	26.8	4.1	5.0	2.3	6.4	2.1
65–74 years	198	58.8	3.5	24.9	3.3	8.7	2.7	7.6	1.9
Black: ⁵									
20–74 years	136	70.8	*6.9	17.1	*4.1	7.6	*3.6	4.6	*2.1
20–74 years, age adjusted	...	70.7	*7.0	17.1	*4.4	8.7	*3.9	3.5	*1.6
Men									
All races: ⁴									
20–74 years	511	72.6	2.2	17.6	2.0	6.5	1.3	3.4	1.0
20–74 years, age adjusted	...	72.5	1.9	17.4	1.9	6.5	1.2	3.6	1.1
20–24 years	61	85.8	4.6	9.0	4.2	4.1	2.4	1.1	1.2
25–34 years	124	71.4	4.4	21.7	4.2	5.6	2.3	1.3	1.0
35–44 years	67	68.4	6.4	17.5	4.4	7.7	3.6	6.4	4.1
45–54 years	45	65.7	*6.1	23.5	*5.6	4.5	*4.3	6.4	*3.6
55–64 years	100	71.7	5.9	18.2	4.5	6.7	3.5	3.5	1.4
65–74 years	114	75.2	4.4	8.3	3.0	12.9	3.9	3.6	1.6
White:									
20–74 years	430	72.4	2.7	18.3	2.3	5.8	1.4	3.5	1.0
20–74 years, age adjusted	...	72.9	2.5	17.6	2.1	5.8	1.3	3.7	1.0
20–24 years	46	89.6	*3.8	3.4	*2.4	5.5	*3.2	1.5	*1.6
25–34 years	102	69.3	4.5	23.7	4.6	5.4	2.4	1.6	1.2
35–44 years	56	71.6	6.9	17.9	4.6	5.2	3.6	5.2	2.9
45–54 years	41	*66.9	*6.1	*26.1	*6.0	*0.0	*0.0	*7.1	*3.9
55–64 years	86	69.0	6.3	20.2	4.8	7.0	3.9	3.8	1.5
65–74 years	99	74.8	4.8	6.1	2.6	14.9	4.5	4.2	1.9
Black: ⁵									
20–74 years	70	72.1	*8.7	13.1	*4.6	12.0	*6.5	2.8	*2.8
20–74 years, age adjusted	...	72.3	*7.6	10.7	*3.6	14.3	*5.6	2.6	*2.4

Table 38. Percent of persons 20–74 years of age who did not need lipoprotein analysis with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol levels, and number of examined persons, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Number of examined persons	Borderline-high-risk (130–159 mg/dl) ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors		CHD or 2 CHD risk factors		High-risk (≥ 160 mg/dl) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Women									
All races: ⁴									
20–74 years	688	66.9	1.8	26.2	1.7	1.4	0.5	5.5	1.1
20–74 years, age adjusted	...	65.2	1.7	27.5	1.8	1.5	0.5	5.9	1.1
20–24 years	99	75.1	4.2	19.5	4.2	1.9	1.3	3.5	1.9
25–34 years	161	74.7	2.8	19.2	2.9	0.8	0.8	5.3	1.4
35–44 years	124	68.5	4.1	26.4	3.5	1.1	1.1	4.0	1.8
45–54 years	83	58.9	5.7	33.8	5.4	0.0	0.0	7.3	3.3
55–64 years	110	53.6	6.3	36.0	6.7	3.1	2.0	7.3	3.0
65–74 years	111	48.7	4.9	38.5	4.4	3.3	2.0	9.5	3.6
White:									
20–74 years	607	67.2	1.8	26.6	1.8	1.2	0.5	5.0	1.1
20–74 years, age adjusted	...	65.3	1.8	27.8	1.9	1.4	0.5	5.5	1.4
20–24 years	84	73.7	5.0	22.0	4.9	2.2	1.6	2.1	1.6
25–34 years	148	75.6	3.2	18.8	2.9	0.8	0.8	4.8	1.2
35–44 years	107	69.3	4.2	27.3	3.8	0.0	0.0	3.4	1.7
45–54 years	72	59.3	6.1	34.9	5.9	0.0	0.0	5.8	3.0
55–64 years	97	55.3	6.5	32.9	6.2	3.1	2.3	8.7	3.5
65–74 years	99	45.6	5.2	40.4	4.6	3.6	2.2	10.4	3.8
Black: ⁵									
20–74 years	66	69.4	*9.5	21.1	*6.4	3.2	*2.4	6.3	*3.0
20–74 years, age adjusted	...	70.7	*7.0	20.8	*5.3	2.8	*1.6	4.3	*1.9

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³Greater than or equal to 4.14 mmol/L.

⁴Includes data for races not shown separately.

⁵Data not given separately for blacks by age because of small sample size.

NOTES: Groups based on National Cholesterol Education Program guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk variables. CHD is coronary heart disease. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded.

Table 39. Percent of persons 20–74 years of age in the desirable, borderline-high and high serum total cholesterol categories with hypertension, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Desirable (<i><200 mg/dl</i>) ¹			Borderline-high 200–239 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high 200–239 mg/dl CHD or 2 CHD risk factors ²			High (<i>≥ 240 mg/dl</i>) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Both sexes												
All races: ⁴												
20–74 years	4,496	20.4	1.1	1,741	9.3	1.0	1,821	60.8	1.8	3,487	47.1	1.3
20–74 years, age adjusted	...	27.6	1.1	...	9.7	0.9	...	55.0	2.2	...	38.8	1.9
20–24 years	969	8.7	1.2	222	1.1	0.6	76	37.9	5.6	84	24.8	6.7
25–34 years	1,316	10.6	1.0	351	0.7	0.4	219	42.1	4.7	268	25.0	3.1
35–44 years	688	20.1	1.9	272	5.3	1.5	222	49.1	3.4	364	30.9	2.6
45–54 years	385	39.4	3.1	239	13.2	2.6	252	59.4	3.7	548	46.6	2.1
55–64 years	511	49.0	2.5	363	17.6	2.6	507	76.0	2.3	1,125	56.3	2.3
65–74 years	627	58.9	2.3	294	34.1	3.3	545	82.6	1.8	1,098	67.5	1.9
White:												
20–74 years	3,838	19.0	1.2	1,553	9.1	1.1	1,578	59.4	1.9	3,066	46.1	1.5
20–74 years, age adjusted	...	25.6	1.2	...	9.2	0.9	...	53.4	2.3	...	37.8	2.0
20–24 years	828	8.5	1.4	186	0.8	0.6	71	34.5	5.2	70	25.9	7.0
25–34 years	1,114	10.0	1.0	299	0.4	0.3	187	41.9	5.2	229	24.4	2.5
35–44 years	586	16.5	1.9	245	5.2	1.6	195	47.5	3.7	314	28.4	2.7
45–54 years	334	36.8	3.3	213	12.0	2.4	219	57.6	4.1	477	45.3	2.1
55–64 years	435	44.7	2.7	340	16.6	2.6	435	74.6	2.5	1,007	55.4	2.5
65–74 years	541	58.1	2.5	270	34.2	3.5	471	81.9	1.9	969	66.1	2.0
Black:												
20–74 years	565	30.1	2.6	141	13.1	*2.5	221	69.0	4.8	362	59.3	2.3
20–74 years, age adjusted	...	39.7	2.6	...	17.5	*3.2	...	64.4	5.7	...	51.3	3.3
20–44 years	379	20.6	2.8	88	4.5	*2.1	58	54.6	*9.0	81	37.3	*6.3
45–64 years	114	65.7	*5.4	35	*33.9	*9.5	97	75.6	*4.5	167	66.9	4.6
65–74 years	72	68.1	*5.7	18	*	*	66	84.6	*5.9	114	82.6	3.6
Men												
All races: ⁴												
20–74 years	2,304	25.5	1.4	521	–	–	1,218	54.1	2.0	1,464	48.4	2.2
20–74 years, age adjusted	...	30.4	1.3	...	–	–	...	50.6	2.2	...	44.7	2.9
20–24 years	484	14.1	2.1	71	–	–	66	34.6	*5.5	45	40.7	*8.5
25–34 years	606	16.1	1.9	116	–	–	171	41.2	5.3	159	33.5	5.0
35–44 years	289	25.5	2.9	90	–	–	152	46.0	4.6	201	33.8	3.8
45–54 years	198	37.5	4.0	67	–	–	168	52.4	4.3	245	54.5	3.5
55–64 years	327	51.8	3.2	108	–	–	331	67.6	3.0	435	57.2	3.6
65–74 years	400	54.5	2.9	69	–	–	330	76.2	3.0	379	63.0	3.0
White:												
20–74 years	1,972	24.3	1.6	465	–	–	1,084	53.8	2.0	1,285	48.4	2.3
20–74 years, age adjusted	...	28.7	1.6	...	–	–	...	50.6	2.3	...	45.1	3.1
20–24 years	415	15.0	2.4	57	–	–	64	34.1	*5.7	38	*44.6	*9.5
25–34 years	509	15.9	1.9	98	–	–	148	42.0	5.7	134	34.5	5.8
35–44 years	246	21.0	3.0	82	–	–	139	46.7	4.7	174	32.3	4.0
45–54 years	174	35.6	4.5	61	–	–	154	51.5	4.5	218	53.9	2.9
55–64 years	282	48.1	3.4	103	–	–	290	66.5	3.2	390	57.9	3.8
65–74 years	346	53.2	3.2	64	–	–	289	76.3	3.0	331	61.3	3.2
Black:												
20–74 years	285	34.4	3.6	39	–	–	118	52.8	6.1	148	55.4	4.7
20–74 years, age adjusted	...	39.9	3.3	...	–	–	...	47.6	5.8	...	51.2	4.1
20–44 years	178	25.5	4.8	29	–	–	33	*34.9	*8.6	42	*38.9	*7.7
45–64 years	62	58.8	*7.5	7	–	–	49	63.9	*8.5	66	63.7	*9.3
65–74 years	45	63.3	*7.4	3	–	–	36	*69.3	*10.2	40	*82.0	*4.1

Table 39. Percent of persons 20–74 years of age in the desirable, borderline-high and high serum total cholesterol categories with hypertension, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Desirable (<i>< 200 mg/dl</i>) ¹			Borderline-high 200–239 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high 200–239 mg/dl CHD or 2 CHD risk factors ²			High (<i>≥ 240 mg/dl</i>) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Women												
All races: ⁴												
20–74 years	2,192	15.5	1.2	1,220	13.7	1.4	603	76.1	2.4	2,023	46.1	1.2
20–74 years, age adjusted	...	25.2	1.4	...	13.3	1.2	...	65.4	4.0	...	31.6	1.3
20–24 years	485	3.3	0.9	151	1.6	0.9	10	*	*	39	*8.2	*5.8
25–34 years	710	5.9	1.0	235	1.1	0.6	48	46.4	*8.5	109	12.9	2.8
35–44 years	399	15.9	2.1	182	8.1	2.3	70	56.2	6.6	163	27.4	3.2
45–54 years	187	41.5	4.3	172	18.6	3.4	84	74.8	5.1	303	39.9	2.4
55–64 years	184	44.1	3.5	255	25.3	3.4	176	91.3	2.6	690	55.8	2.6
65–74 years	227	66.0	3.4	225	43.2	4.3	215	91.9	2.0	719	69.7	2.0
White:												
20–74 years	1,866	13.8	1.1	1,088	13.3	1.4	494	73.5	2.9	1,781	44.3	1.4
20–74 years, age adjusted	...	22.8	1.2	...	12.7	1.2	...	60.3	4.5	...	29.2	1.4
20–24 years	413	1.8	0.7	129	1.2	0.8	7	*	*	32	*5.4	*3.8
25–34 years	605	4.9	1.0	201	0.6	0.4	39	*41.5	*9.4	95	10.6	3.2
35–44 years	340	13.1	2.1	163	8.0	2.4	56	49.4	*6.6	140	23.6	3.1
45–54 years	160	38.0	4.0	152	17.0	3.1	65	72.9	5.7	259	38.0	2.9
55–64 years	153	38.7	3.7	237	24.0	3.4	145	90.6	3.0	617	53.8	2.9
65–74 years	195	66.1	3.8	206	43.1	4.6	182	90.4	2.3	638	68.4	2.0
Black:												
20–74 years	280	26.3	3.1	102	18.5	*3.3	103	86.8	*4.1	214	62.4	4.2
20–74 years, age adjusted	...	41.0	2.6	...	22.7	*3.8	...	84.3	*6.1	...	51.0	4.4
20–44 years	201	16.7	3.0	59	6.6	3.2	25	*79.9	*10.3	39	*35.3	*6.8
45–64 years	52	74.8	*5.7	28	*42.9	*12.5	48	87.0	*5.6	101	69.4	5.1
65–74 years	27	*76.1	*6.7	15	*	*	30	*100.0	*0.0	74	82.8	4.5

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³Greater than or equal to 6.21 mmol/L.

⁴Includes data for races not shown separately.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk variables. A person with hypertension is defined by either having elevated blood pressure (systolic pressure of at least 140 mmHg or diastolic pressure of at least 90 mmHg) or taking antihypertensive medication. Percents are based on the average of three blood pressure readings. Persons missing any blood pressure readings or information on medication usage were excluded from this analysis (n=222). Pregnant women (not missing any blood pressure readings or information on medication usage) were also excluded (n=97).

Table 40. Percent of persons 20–74 years of age in the desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol categories with hypertension, as a percentage of the total number needing lipoprotein analysis, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Borderline-high-risk 130–159 mg/dl ²											
	Desirable (< 130 mg/dl) ¹			No CHD and no 2 CHD risk factors			CHD or 2 CHD risk factors			High-risk (≥ 160 mg/dl) ³		
	Examined persons	Percent	Standard error of the percent	Examined persons	Percent	Standard error of the percent	Examined persons	Percent	Standard error of the percent	Examined persons	Percent	Standard error of the percent
Total												
20–74 years	66	62.0	*9.8	51	25.4	7.9	285	67.8	3.1	669	45.8	2.1
20–74 years, age adjusted	...	49.5	*8.9	...	20.7	6.3	...	61.7	4.6	...	38.1	2.6
Male												
20–74 years	36	*60.9	*12.2	9	*	*	176	57.0	4.4	300	46.0	3.3
20–74 years, age adjusted	...	*57.5	*3.9	...	*	*	...	52.4	5.1	...	42.1	3.8
Female												
20–74 years	30	*63.4	*13.0	42	*30.6	*8.9	109	85.9	4.6	369	45.6	2.9
20–74 years, age adjusted	...	*33.9	*3.9	...	*24.4	*7.6	...	79.4	8.0	...	32.2	3.6
White												
20–74 years	59	68.8	*8.2	44	*25.2	*8.7	252	67.4	3.2	587	44.3	2.2
20–74 years, age adjusted	...	55.3	*7.0	...	*21.1	*7.3	...	61.2	4.6	...	38.1	2.8
Black												
20–74 years	7	*	*	5	*	*	30	*69.7	*10.2	71	64.1	9.9
20–74 years, age adjusted	...	*	*	...	*	*	...	*61.2	*4.6	...	40.0	7.4
All races												
Both sexes:												
20–44 years	12	*	*	12	*	*	62	53.0	7.7	117	28.0	4.1
45–64 years	30	*69.7	*11.6	27	*26.2	*12.2	116	69.4	5.5	307	47.5	2.8
65–74 years	24	*	*	12	*	*	107	86.3	3.4	245	65.4	4.5

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³Greater than or equal to 4.14 mmol/L.

NOTES: Groups based on National Cholesterol Education Program guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk variables. CHD is coronary heart disease. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded.

Table 41. Percent of hypertensive persons 20–74 years of age with desirable, borderline-high, and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (< 200 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors		High (≥ 240 mg/dl) ⁴	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁵									
20–74 years	4,447	27.9	1.2	4.8	0.5	27.2	0.8	40.1	1.4
20–74 years, age adjusted.	...	36.6	1.3	3.5	0.4	27.0	1.1	32.8	1.4
20–24 years	141	61.9	4.2	1.7	1.0	21.5	2.8	14.9	3.6
25–34 years	313	46.6	3.0	0.8	0.5	29.5	3.3	23.1	3.0
35–44 years	388	36.6	2.4	4.0	1.2	28.4	2.2	31.1	2.6
45–54 years	593	25.1	2.3	5.5	1.1	25.4	1.6	44.0	2.6
55–64 years	1,346	17.7	1.0	5.2	0.8	28.6	1.3	48.6	1.9
65–74 years	1,666	21.4	1.4	6.7	0.8	26.7	1.1	45.2	1.7
White:									
20–74 years	3,736	26.5	1.4	4.9	0.5	27.4	0.9	41.2	1.6
20–74 years, age adjusted.	...	35.3	1.4	3.5	0.4	27.6	1.3	33.6	1.6
20–24 years	119	61.8	4.5	1.3	0.9	21.6	3.3	15.4	4.4
25–34 years	255	45.3	3.3	0.5	0.3	31.0	3.7	23.2	3.2
35–44 years	304	33.0	2.7	4.6	1.4	30.2	2.4	32.2	3.0
45–54 years	491	24.7	2.7	5.3	1.1	25.3	1.7	44.7	3.1
55–64 years	1,141	16.2	1.1	5.2	0.8	28.3	1.5	50.2	2.0
65–74 years	1,426	21.1	1.5	7.0	0.8	26.1	1.1	45.8	1.8
Black:									
20–74 years	637	35.2	3.4	3.9	0.9	26.2	2.1	34.6	2.7
20–74 years, age adjusted.	...	42.3	4.2	3.6	1.1	25.0	2.8	28.7	2.2
20–24 years	20	*	*	*	*	*	*	*	*
25–34 years	55	50.3	*7.7	2.6	*2.5	22.7	*5.6	24.5	*5.5
35–44 years	73	53.7	*6.1	2.4	*1.7	21.8	*5.3	22.1	*5.6
45–54 years	95	24.8	*4.8	4.4	*1.7	26.7	*4.8	44.2	*7.4
55–64 years	183	27.2	*5.1	5.1	*2.3	28.1	*3.5	39.7	*3.7
65–74 years	211	22.7	2.6	4.3	1.3	30.6	4.3	42.4	3.5
Men									
All races: ⁵									
20–74 years	2,202	32.8	1.5	—	—	32.1	1.2	35.2	1.6
20–74 years, age adjusted.	...	37.7	1.6	—	—	30.9	1.5	31.4	1.7
20–24 years	113	62.9	4.2	—	—	21.5	3.5	15.7	4.0
25–34 years	221	44.1	3.8	—	—	31.5	4.1	24.4	3.5
35–44 years	220	35.1	3.7	—	—	32.0	3.0	32.9	3.6
45–54 years	289	23.8	3.1	—	—	30.0	2.1	46.1	2.9
55–64 years	643	25.2	1.8	—	—	34.6	2.0	40.1	2.4
65–74 years	716	30.1	2.0	—	—	36.2	1.9	33.6	2.3
White:									
20–74 years	1,890	31.3	1.6	—	—	33.0	1.3	35.8	1.6
20–74 years, age adjusted.	...	36.0	1.7	—	—	32.0	1.6	31.9	1.8
20–24 years	103	62.2	4.7	—	—	22.2	3.7	15.6	4.3
25–34 years	190	43.0	3.8	—	—	32.8	4.5	24.3	3.7
35–44 years	181	30.5	3.6	—	—	35.5	3.2	34.0	4.0
45–54 years	254	23.1	3.5	—	—	30.7	2.2	46.2	3.0
55–64 years	552	23.2	1.8	—	—	34.6	2.3	42.1	2.6
65–74 years	610	29.5	2.1	—	—	36.4	2.2	34.0	2.3

Table 41. Percent of hypertensive persons 20–74 years of age with desirable, borderline-high, and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80 – Con.

Sex, race, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (< 200 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors		High (≥ 240 mg/dl) ⁴	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Men – Con.									
Black:									
20–74 years	274	43.2	4.8	–	–	23.8	2.8	33.0	4.4
20–74 years, age adjusted	...	48.2	4.6	–	–	21.9	3.9	29.9	3.9
20–24 years	10	*	*	–	–	*	*	*	*
25–34 years	30	*48.1	*10.0	–	–	*23.9	*9.1	*28.0	*7.9
35–44 years	32	*65.5	*7.0	–	–	*12.1	*6.0	*22.4	*7.4
45–54 years	31	*23.0	*7.9	–	–	*24.6	*8.3	*52.4	*13.1
55–64 years	82	40.8	5.6	–	–	29.9	5.7	29.3	4.5
65–74 years	89	34.4	4.2	–	–	32.8	3.5	32.8	4.7
Women ⁶									
All races: ⁵									
20–74 years	2,245	22.6	1.5	10.1	1.0	21.8	1.1	45.6	1.9
20–74 years, age adjusted	...	37.1	2.5	8.1	1.2	22.3	1.8	32.5	2.0
20–24 years	28	*57.8	*9.1	*8.4	*4.8	*21.8	*8.1	*12.0	*7.1
25–34 years	92	54.2	5.1	3.0	1.8	23.7	4.2	19.1	4.7
35–44 years	168	38.5	3.6	9.4	2.6	23.4	3.7	28.7	4.2
45–54 years	304	26.4	2.8	11.2	2.1	20.5	1.9	41.8	3.6
55–64 years	703	10.9	1.2	9.8	1.5	23.2	1.7	56.2	2.6
65–74 years	950	15.4	1.4	11.2	1.3	20.2	1.5	53.1	2.1
White:									
20–74 years	1,846	21.0	1.5	10.6	1.1	20.8	1.2	47.6	2.2
20–74 years, age adjusted	...	36.3	2.2	8.8	1.4	21.3	1.9	33.6	2.9
20–24 years	16	*	*	*	*	*	*	*	*
25–34 years	65	53.8	6.8	2.2	1.5	24.6	5.3	19.4	6.1
35–44 years	123	36.6	4.0	11.4	3.3	22.4	3.7	29.6	4.4
45–54 years	237	26.4	3.2	11.3	2.1	19.4	2.1	43.0	4.3
55–64 years	589	9.7	1.2	10.1	1.6	22.5	2.0	57.7	2.7
65–74 years	816	15.4	1.5	11.8	1.4	19.1	1.3	53.7	2.2
Black:									
20–74 years	363	29.0	4.0	7.0	1.5	28.1	2.8	35.8	2.9
20–74 years, age adjusted	...	38.9	5.8	6.6	1.9	27.2	4.2	27.3	2.5
20–24 years	10	*	*	*	*	*	*	*	*
25–34 years	25	*52.9	*10.8	*5.8	*5.1	*21.2	*8.3	*20.1	*7.9
35–44 years	41	*43.0	*10.2	*4.6	*3.2	*30.6	*10.6	*21.8	*8.7
45–54 years	64	26.0	*7.0	7.5	*3.1	28.1	*4.9	38.3	*7.2
55–64 years	101	17.3	*6.0	8.7	*3.8	26.7	*4.7	47.2	*5.9
65–74 years	122	15.4	3.9	6.9	2.3	29.2	7.0	48.4	6.1

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³CHD is coronary heart disease.

⁴Greater than or equal to 6.21 mmol/L.

⁵Includes data for races not shown separately.

⁶Excludes 95 pregnant women.

NOTES: A person with hypertension is defined by either having elevated blood pressure (systolic pressure of at least 140 mmHg or diastolic pressure of at least 90 mmHg) or taking antihypertensive medication. Percents are based on the average of three blood pressure readings. Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.; 148(1):36–69, 1988. See appendix IV for definition of risk factor variables. Women missing blood pressure readings or information on medication usage were excluded from this analysis (n = 125).

Table 42. Percent of normotensive persons 20–74 years of age with desirable, borderline-high, and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (< 200 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors ³		High (≥ 240 mg/dl) ⁴	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁵									
20–74 years	7,098	49.9	1.0	21.4	0.6	8.0	0.3	20.7	0.8
20–74 years, age adjusted	...	45.4	1.0	22.1	0.6	8.4	0.4	24.0	0.8
20–24 years	1,210	73.5	1.6	17.3	1.2	4.0	0.6	5.2	0.9
25–34 years	1,841	63.6	1.5	18.6	0.8	6.6	0.7	11.2	0.9
35–44 years	1,158	46.0	1.6	22.7	1.5	9.3	0.7	22.0	1.4
45–54 years	831	27.1	2.1	25.3	2.0	12.2	1.4	35.5	1.7
55–64 years	1,160	20.6	1.7	27.2	1.4	10.1	1.0	42.2	2.1
65–74 years	898	27.1	1.5	23.3	1.6	10.2	1.1	39.4	2.3
White:									
20–74 years	6,299	49.4	1.0	21.3	0.6	8.2	0.4	21.1	0.9
20–74 years, age adjusted	...	45.3	1.0	22.1	0.6	8.5	0.4	24.1	0.9
20–24 years	1,036	73.7	1.7	16.8	1.3	4.5	0.7	4.9	0.9
25–34 years	1,574	63.6	1.6	18.5	0.9	6.7	0.7	11.2	1.0
35–44 years	1,036	45.7	1.7	22.8	1.6	9.2	0.7	22.3	1.5
45–54 years	752	27.5	2.4	25.3	2.1	12.1	1.4	35.1	1.7
55–64 years	1,076	20.8	1.8	27.2	1.3	10.0	1.2	42.0	2.2
65–74 years	825	26.2	1.5	23.3	1.6	10.0	1.0	40.5	2.3
Black:									
20–74 years	652	57.1	2.5	18.2	1.9	8.2	1.3	16.6	2.1
20–74 years, age adjusted	...	48.1	2.4	18.5	1.6	10.9	1.5	22.5	2.3
20–24 years	141	75.3	4.6	18.3	4.1	1.0	0.7	5.4	1.4
25–34 years	221	65.7	3.7	18.3	3.0	5.1	1.4	10.9	2.4
35–44 years	96	49.7	*5.5	18.2	*4.7	13.7	*5.1	18.5	*4.3
45–54 years	59	30.3	*8.0	14.4	*4.9	18.5	*5.6	36.8	*7.5
55–64 years	76	18.8	*4.4	22.5	*9.1	14.3	*3.5	44.4	*6.8
65–74 years	59	33.9	7.2	19.8	4.4	17.8	5.9	28.5	5.4
Men									
All races: ⁴									
20–74 years	3,305	50.0	1.5	16.3	0.9	14.2	0.6	19.6	1.0
20–74 years, age adjusted	...	46.9	1.3	16.6	0.8	14.9	0.6	21.5	1.0
20–24 years	553	75.4	1.7	12.1	1.5	8.0	1.2	4.5	1.1
25–34 years	831	60.5	2.4	14.9	1.4	11.9	1.4	12.8	1.5
35–44 years	512	41.0	2.5	18.3	2.1	15.0	1.4	25.7	1.9
45–54 years	389	30.8	2.7	18.2	2.4	21.1	2.4	29.9	2.4
55–64 years	558	26.4	2.7	21.3	1.8	18.6	1.9	33.7	2.7
65–74 years	462	37.9	2.1	15.3	1.9	17.0	2.2	29.8	2.5
White:									
20–74 years	2,916	49.8	1.5	16.2	0.9	14.5	0.6	19.5	1.1
20–74 years, age adjusted	...	47.2	1.4	16.5	0.9	15.0	0.7	21.3	1.1
20–24 years	471	75.6	2.0	11.0	1.6	9.2	1.4	4.1	1.2
25–34 years	699	60.7	2.4	15.0	1.6	12.0	1.5	12.3	1.7
35–44 years	460	41.4	2.7	18.3	2.0	14.6	1.6	25.7	1.8
45–54 years	353	31.0	3.1	18.2	2.6	21.5	2.5	29.3	2.3
55–64 years	513	26.8	3.0	21.7	1.9	18.7	2.2	32.8	3.2
65–74 years	420	37.5	2.3	15.1	2.1	16.3	2.0	31.1	2.7

Table 42. Percent of normotensive persons 20–74 years of age with desirable, borderline-high, and high serum total cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80 – Con.

Sex, race, and age	Number of examined persons	Borderline-high 200–239 mg/dl ²							
		Desirable (< 200 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors ³		High (≥ 240 mg/dl) ⁴	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Men – Con.									
Black:									
20–74 years	316	54.9	2.5	13.3	2.2	14.2	2.2	17.7	2.2
20–74 years, age adjusted	...	48.2	2.5	12.3	2.2	17.8	2.7	21.7	2.3
20–24 years	66	79.1	*4.8	18.4	*3.9	1.1	*1.1	1.4	*1.4
25–34 years	107	62.5	*5.1	10.6	*3.0	9.7	*3.0	17.1	*3.8
35–44 years	37	*34.8	*7.3	*14.7	*6.8	*27.3	*11.0	*23.3	*7.6
45–54 years	29	*35.9	*9.4	*12.7	*6.2	*22.6	*6.4	*28.8	*10.8
55–64 years	42	*26.6	*5.9	*6.0	*3.1	*22.7	*4.9	*44.6	*8.9
65–74 years	35	*42.0	*11.7	*12.2	*6.7	*30.6	*11.3	*15.1	*4.7
Women ⁶									
All races: ⁵									
20–74 years	3,793	49.9	1.2	25.7	0.8	2.8	0.3	21.6	0.9
20–74 years, age adjusted	...	43.9	1.1	26.9	0.8	2.9	0.3	26.3	1.0
20–24 years	657	71.9	2.3	21.8	1.7	0.6	0.3	5.7	1.2
25–34 years	1,010	66.3	1.6	21.8	1.1	2.1	0.5	9.8	1.1
35–44 years	646	50.3	2.3	26.4	1.9	4.5	0.8	18.8	1.9
45–54 years	442	23.8	2.8	31.5	2.6	4.4	1.1	40.3	2.2
55–64 years	602	15.4	1.5	32.4	2.3	2.5	0.8	49.7	2.4
65–74 years	436	16.7	2.0	31.0	3.0	3.7	0.9	48.6	2.9
White:									
20–74 years	3,383	49.1	1.3	25.8	0.9	2.8	0.3	22.4	1.0
20–74 years, age adjusted	...	43.6	1.1	26.8	0.9	2.9	0.3	26.6	0.9
20–24 years	565	72.2	2.3	21.8	1.8	0.6	0.3	5.5	1.2
25–34 years	875	66.0	1.8	21.5	1.3	2.2	0.6	10.3	1.2
35–44 years	576	49.3	2.5	26.6	2.3	4.7	0.8	19.4	2.1
45–54 years	399	24.6	3.0	31.3	2.7	4.1	1.0	40.0	2.4
55–64 years	563	15.6	1.7	32.1	2.1	2.4	0.8	50.0	2.2
65–74 years	405	15.7	2.1	30.9	3.2	4.0	0.9	49.4	3.0
Black:									
20–74 years	336	58.9	3.6	22.4	2.9	3.1	1.0	15.6	3.3
20–74 years, age adjusted	...	46.6	2.8	24.5	3.1	4.1	1.5	24.8	3.9
20–24 years	75	72.0	*6.2	18.2	*5.9	1.0	*0.9	8.9	*2.6
25–34 years	114	68.1	*4.5	23.8	*4.1	1.8	*1.2	6.4	*2.8
35–44 years	59	60.6	*6.7	20.7	*7.6	3.8	*2.7	14.9	*5.9
45–54 years	30	*23.2	*7.9	*16.6	*6.3	*13.3	*8.7	*46.9	*11.1
55–64 years	34	*10.3	*5.3	*40.4	*16.6	*5.1	*4.1	*44.3	*15.3
65–74 years	24	*	*	*	*	*	*	*	*

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³CHD is coronary heart disease.

⁴Greater than or equal to 6.21 mmol/L.

⁵Includes data for races not shown separately.

⁶Excludes 95 pregnant women.

NOTES: A person who is normotensive does not have elevated blood pressure (systolic pressure less than 140 mmHg and diastolic less than 90 mmHg) and is not taking antihypertensive medication. Percents are based on the average of three blood pressure readings. Persons with missing information on blood pressure reading or medication usage as well as pregnant women were excluded from the numerator and the denominator of the percents (n=222). Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.:

148(1):36–69, 1988. See appendix IV for definition of risk factor variables. Women missing any blood pressure readings or information on medication usage were excluded from this analysis (n=125).

Table 43. Percent of hypertensive persons 20–74 years of age with desirable, borderline-high-risk, and high risk low density lipoprotein (LDL) cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Borderline-high-risk 130–159 mg/dl ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors ³		High-risk (≥ 160 mg/dl) ⁴	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁵									
20–74 years	611	7.3	1.4	2.9	1.0	33.8	2.0	56.0	2.4
20–74 years, age adjusted	...	6.4	1.4	2.3	1.1	33.4	3.2	52.9	3.3
20–44 years	70	5.2	2.1	1.6	1.6	43.4	5.4	49.8	5.1
45–64 years	263	9.0	2.3	3.2	1.7	30.8	3.1	56.9	3.8
65–74 years	278	5.3	1.9	3.0	1.1	32.7	3.5	58.5	3.3
White:									
20–74 years	526	7.9	1.5	3.0	1.2	34.5	2.0	54.6	2.6
20–74 years, age adjusted	...	6.9	1.5	2.4	1.0	37.9	3.4	52.8	3.3
20–44 years	64	5.5	2.3	1.7	1.7	41.9	5.6	50.9	5.1
45–64 years	224	9.7	2.4	3.4	1.9	31.6	3.6	55.3	4.3
65–74 years	238	6.4	2.0	3.2	1.3	34.3	3.5	56.1	3.3
Black: ⁵									
20–74 years	76	3.6	*2.1	1.5	*1.1	29.0	*4.9	65.9	*5.8
20–74 years, age adjusted	...	1.3	*1.2	0.6	*0.5	51.2	*11.5	46.3	*12.0
Male									
All races: ⁵									
20–74 years	285	8.4	2.1	0.0	0.0	37.7	3.4	53.9	3.2
20–74 years, age adjusted	...	8.2	2.2	0.0	0.0	37.5	4.1	54.3	3.6
20–44 years	46	7.7	*3.2	0.0	0.0	37.6	*7.0	54.7	*5.9
45–64 years	125	9.7	3.5	0.0	0.0	35.6	5.3	54.8	4.9
65–74 years	114	6.7	2.2	0.0	0.0	42.2	4.7	51.1	5.3
White:									
20–74 years	256	8.7	2.2	0.0	0.0	37.9	3.5	53.3	3.4
20–74 years, age adjusted	...	8.4	2.3	0.0	0.0	37.3	4.1	54.3	3.6
20–44 years	45	7.3	*3.3	0.0	0.0	36.6	*7.0	55.5	*5.9
45–64 years	112	9.9	3.7	0.0	0.0	36.9	5.9	53.3	5.5
65–74 years	99	7.5	2.4	0.0	0.0	41.9	5.2	50.6	5.9
Black: ⁶									
20–74 years	24	*	*	*	*	*	*	*	*
20–74 years, age adjusted	...	*	*	*	*	*	*	*	*
Female									
All races: ⁵									
20–74 years	326	6.4	1.8	5.4	2.0	30.4	2.6	57.9	3.4
20–74 years, age adjusted	...	3.2	0.9	5.2	2.9	43.5	5.7	48.1	7.1
20–44 years	24	*	*	*	*	*	*	*	*
45–64 years	138	8.5	3.0	5.8	2.9	27.1	5.0	58.6	5.7
65–74 years	164	5.1	2.2	4.9	1.7	26.8	4.4	63.2	4.4
White:									
20–74 years	270	7.1	1.9	6.0	2.4	31.0	3.3	55.9	3.7
20–74 years, age adjusted	...	3.6	1.0	5.9	3.3	43.0	6.4	47.5	7.4
20–44 years	19	*	*	*	*	*	*	*	*
45–64 years	112	9.6	3.1	6.4	3.5	26.8	5.8	57.2	6.3
65–74 years	139	5.6	2.3	5.4	2.0	29.2	4.6	59.8	4.1

Table 43. Percent of hypertensive persons 20–74 years of age with desirable, borderline-high-risk, and high risk low density lipoprotein (LDL) cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Number of examined persons	Borderline-high-risk 130–159 mg/dl ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors ³		High-risk (≥ 160 mg/dl) ⁴	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Female—Con.									
Black: ⁶									
20–74 years	52	3.3	*2.3	1.9	*1.4	28.4	*6.0	66.3	*7.1
20–74 years, age adjusted	...	1.6	*1.3	0.8	*0.6	47.7	*12.9	49.9	*13.5

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³CHD is coronary heart disease.

⁴Greater than or equal to 4.14 mmol/L.

⁵Includes data for races not shown separately.

⁶Data not given by age because of small sample sizes.

NOTES: A person with hypertension is defined by either having elevated blood pressure (systolic pressure of at least 140 mmHg or diastolic pressure of at least 90 mmHg) or taking antihypertensive medication. Percents are based on the average of three blood pressure readings. Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk factors. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem 18:499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded.

Table 44. Percent of normotensive persons 20–74 years of age with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Number of examined persons	Borderline-high-risk 130–159 mg/dl ²							
		Desirable (<i>< 130 mg/dl</i>) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors ³		High-risk (<i>≥ 160 mg/dl</i>) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Both sexes									
All races: ⁴									
20–74 years	458	4.7	1.5	8.8	1.4	16.9	1.8	69.5	2.1
20–74 years, age adjusted	...	4.9	1.6	8.6	1.4	17.7	2.0	68.8	2.6
20–44 years	131	5.4	2.0	8.8	2.7	20.1	3.3	65.6	4.3
45–64 years	217	4.4	2.0	10.2	3.1	15.2	3.0	70.3	2.8
65–74 years	110	4.0	1.9	3.5	1.7	13.3	3.0	79.3	4.4
White:									
20–74 years	414	3.7	1.0	9.1	1.6	17.2	1.9	70.0	2.2
20–74 years, age adjusted	...	4.1	1.3	9.1	1.6	18.1	2.0	68.7	2.6
20–44 years	115	5.0	2.0	9.9	3.1	20.8	3.4	64.3	4.3
45–64 years	194	2.5	1.0	10.1	3.7	15.3	3.2	72.1	3.2
65–74 years	105	4.2	2.0	2.8	1.6	13.0	3.3	80.1	4.5
Black: ⁶									
20–74 years	37	*19.1	*14.4	*5.1	*3.5	*19.3	*8.6	*56.5	*14.0
20–74 years, age adjusted	...	*15.7	*11.5	*4.2	*2.9	*18.7	*7.9	*61.4	*12.0
Male									
All races: ⁴									
20–74 years	236	5.4	2.1	4.0	1.3	28.1	3.3	62.5	3.1
20–74 years, age adjusted	...	5.1	2.1	4.0	1.3	28.0	3.2	62.9	3.2
20–44 years	77	4.3	2.4	4.2	1.9	28.4	4.6	63.2	4.8
45–64 years	101	5.9	3.1	4.5	2.5	30.6	5.8	59.0	4.7
65–74 years	58	7.6	*3.4	1.7	*1.7	18.6	*5.3	72.1	*7.8
White:									
20–74 years	215	4.1	1.5	3.8	1.4	27.7	3.4	64.4	3.2
20–74 years, age adjusted	...	3.8	1.5	4.0	1.4	27.8	3.4	64.4	3.4
20–44 years	68	2.9	2.0	4.6	2.1	28.5	4.8	64.0	5.1
45–64 years	91	4.1	2.5	3.6	2.5	30.1	6.2	62.2	4.8
65–74 years	56	7.8	*3.5	1.7	*1.8	17.2	*5.8	73.2	*8.2
Black: ⁶									
20–74 years	20	*	*	*	*	*	*	*	*
20–74 years, age adjusted	...	*	*	*	*	*	*	*	*
Female									
All races: ⁵									
20–74 years	222	4.1	1.6	13.7	2.2	5.6	1.9	76.6	2.7
20–74 years, age adjusted	...	4.9	2.1	13.6	2.8	6.9	2.6	74.5	3.7
20–44 years	54	7.0	*3.4	15.1	*5.1	9.1	*4.0	68.8	*6.5
45–64 years	116	3.2	1.8	14.6	4.0	3.0	1.8	79.2	3.7
65–74 years	52	0.0	*0.0	5.4	*3.0	7.5	*3.7	87.1	*4.3
White:									
20–74 years	199	3.3	1.5	14.6	2.6	6.3	2.2	75.8	3.0
20–74 years, age adjusted	...	4.8	2.3	14.8	3.0	7.8	2.9	72.6	4.0
20–44 years	47	7.9	*3.8	17.1	*5.7	10.3	*4.5	64.7	*7.0
45–64 years	103	1.2	0.9	15.4	5.0	3.4	2.0	80.0	4.6
65–74 years	49	0.0	*0.0	3.9	*2.8	8.1	*3.9	88.0	*4.3

Table 44. Percent of normotensive persons 20–74 years of age with desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol levels, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80 – Con.

		Borderline-high-risk 130–159 mg/dl ²							
		Desirable (< 130 mg/dl) ¹		No CHD and no 2 CHD risk factors ³		CHD or 2 CHD risk factors ³		High-risk (≥ 160 mg/dl) ³	
		Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent	Percent	Standard error of the percent
Sex, race, and age									
Female – Con.									
Black: ⁶									
20–74 years	17	*	*	*	*	*	*	*	*
20–74 years, age adjusted.	...	*	*	*	*	*	*	*	*

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³CHD is coronary heart disease.

⁴Greater than or equal to 4.14 mmol/L.

⁵Includes data for races not shown separately.

⁶Data not given by age because of small sample sizes.

NOTES: A person who is normotensive does not have elevated blood pressure (systolic pressure less than 140 mmHg and diastolic pressure less than 90 mmHg) and is not taking antihypertensive medication. Percents are based on the average of three blood pressure readings. Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk factors. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem 18:499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded.

Table 45. Percent of persons in the desirable, borderline-high and high serum total cholesterol categories with a value for high density lipoprotein (HDL) cholesterol less than 35 milligrams per deciliter (mg/dl), number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Desirable (<i>< 200 mg/dl</i>) ¹			Borderline-high 200–239 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high 200–239 mg/dl CHD or 2 CHD risk factors ²			High (<i>≥ 240 mg/dl</i>) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Both sexes												
All races: ⁴												
20–74 years	3,854	11.0	0.7	1,531	7.9	0.8	1,502	16.2	1.4	2,910	10.9	1.1
20–74 years, age adjusted.	...	12.5	0.8	...	7.9	0.7	...	15.9	1.6	...	11.1	1.3
20–24 years	871	8.5	1.4	197	7.5	2.1	57	6.4	*3.3	79	8.4	3.7
25–34 years	1,151	10.2	1.1	315	6.9	1.3	183	21.4	3.0	253	12.7	2.6
35–44 years	588	10.7	1.4	252	9.1	2.3	187	18.9	4.0	306	12.6	2.1
45–54 years	322	11.8	1.7	209	8.8	2.2	208	12.7	2.1	461	12.1	1.8
55–64 years	415	19.1	2.0	310	7.2	2.1	409	15.3	2.6	916	10.1	1.4
65–74 years	507	17.8	2.3	248	8.5	1.5	458	16.3	2.2	895	8.1	1.2
White:												
20–74 years	3,322	11.1	0.8	1,368	8.3	0.8	1,307	17.4	1.6	2,585	11.5	1.2
20–74 years, age adjusted.	...	12.5	0.9	...	8.1	0.8	...	17.3	1.8	...	11.4	1.5
20–24 years	751	9.5	1.6	165	8.2	2.3	53	7.0	*3.7	67	6.0	3.1
25–34 years	976	9.9	1.2	274	5.9	1.3	155	23.9	3.3	221	14.2	3.0
35–44 years	511	10.0	1.4	226	10.1	2.6	163	20.3	4.4	271	13.1	2.2
45–54 years	284	10.8	1.8	184	9.4	2.4	180	13.4	2.2	404	12.8	1.9
55–64 years	363	20.5	2.3	290	7.4	2.2	356	16.4	2.9	829	10.5	1.5
65–74 years	437	18.8	2.5	229	9.2	1.6	400	17.4	2.4	793	8.6	1.3
Black:												
20–74 years	459	8.7	1.7	126	4.1	2.6	178	6.9	1.4	280	6.4	2.2
20–74 years, age adjusted.	...	9.5	1.8	...	3.5	2.2	...	7.5	1.7	...	6.4	2.1
20–44 years	320	8.1	1.8	76	5.9	*3.8	50	9.0	*3.3	68	6.6	*3.1
45–64 years	82	12.3	*4.3	36	*0.0	*0.0	77	5.0	*2.4	124	7.8	*3.9
65–74 years	57	8.8	*3.6	14	*	*	51	7.0	*4.1	88	1.7	*1.2
Men												
All races: ⁴												
20–74 years	1,927	16.9	1.0	444	12.6	2.1	1,007	18.6	1.9	1,184	16.7	1.6
20–74 years, age adjusted.	...	18.6	1.2	...	12.5	1.8	...	18.1	2.0	...	16.2	1.9
20–24 years	426	11.7	1.6	59	5.6	*3.6	47	6.0	3.6	38	*13.4	*6.3
25–34 years	512	15.1	1.9	100	9.3	3.0	141	22.9	3.4	132	17.0	3.7
35–44 years	243	19.2	2.7	78	14.3	5.7	124	23.9	6.1	166	15.0	3.0
45–54 years	160	20.3	3.1	60	17.8	*5.8	141	15.1	2.6	198	19.8	3.7
55–64 years	260	25.8	3.2	90	15.8	5.8	268	16.4	3.4	346	15.4	2.4
65–74 years	326	22.9	3.0	57	14.5	*4.9	286	20.3	2.5	304	15.8	3.2
White:												
20–74 years	1,664	17.3	1.2	399	14.1	2.3	903	20.0	2.1	1,053	17.4	1.8
20–74 years, age adjusted.	...	18.9	1.3	...	13.8	1.9	...	19.6	2.2	...	16.3	2.0
20–24 years	367	13.5	2.0	48	7.3	*4.7	46	6.1	*3.7	33	*7.2	*3.8
25–34 years	430	15.0	2.3	85	10.5	3.4	122	25.0	3.8	114	19.1	4.1
35–44 years	213	17.0	2.9	72	15.8	6.3	112	27.6	6.6	148	16.2	3.4
45–54 years	144	19.8	3.2	56	19.0	*6.0	128	15.6	2.6	178	20.5	4.0
55–64 years	226	28.0	3.4	86	16.3	6.1	242	17.5	3.8	311	16.0	2.5
65–74 years	284	24.7	3.2	52	16.7	*5.3	253	20.9	2.7	269	16.4	3.5
Black:												
20–74 years	227	11.7	2.8	33	*0.0	*0.0	91	5.0	1.8	111	9.8	4.0
20–74 years, age adjusted.	...	12.6	3.2	...	*0.0	*0.0	...	6.2	2.3	...	8.5	3.7
20–44 years	147	10.6	3.2	23	*	*	27	*4.7	*3.4	34	*7.2	*3.8
45–64 years	46	17.4	*8.8	7	*	*	36	*2.0	*1.4	50	13.9	7.5
65–74 years	34	*9.6	*4.0	3	*	*	28	*14.1	*7.7	27	*3.6	*3.3

Table 45. Percent of persons in the desirable, borderline-high and high serum total cholesterol categories with a value for high density lipoprotein (HDL) cholesterol less than 35 milligrams per deciliter (mg/dl), number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Desirable (< 200 mg/dl) ¹			Borderline-high 200–239 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high 200–239 mg/dl CHD or 2 CHD risk factors ²			High (≥ 240 mg/dl) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Women												
All races: ⁴												
20–74 years	1,927	5.7	0.8	1,087	5.9	0.6	495	10.5	1.5	1,726	6.6	1.0
20–74 years, age adjusted	...	6.1	0.8	...	5.9	0.6	...	10.9	2.3	...	6.9	1.3
20–24 years	445	5.5	1.6	138	8.2	2.3	10	*	*	41	*3.9	*3.8
25–34 years	639	6.3	0.9	215	5.6	1.3	42	*15.2	*5.4	121	8.3	3.2
35–44 years	345	4.4	1.2	174	6.5	2.0	63	9.0	3.1	140	9.5	2.8
45–54 years	162	3.7	1.5	149	5.1	1.5	67	6.9	2.8	263	6.1	1.4
55–64 years	155	8.2	1.9	220	3.7	1.4	141	13.4	3.4	570	6.8	1.4
65–74 years	181	9.4	2.4	191	7.0	2.1	172	9.8	2.9	591	4.4	0.9
White:												
20–74 years	1,658	5.4	0.8	969	5.7	1.1	404	10.9	1.9	1,532	7.0	1.0
20–74 years, age adjusted	...	5.7	0.8	...	5.6	0.7	...	12.6	3.3	...	7.4	1.4
20–24 years	384	5.6	1.7	117	8.5	2.5	7	*	*	34	*4.9	*4.8
25–34 years	546	5.7	0.8	189	3.6	1.3	33	*18.8	*6.6	107	9.2	3.6
35–44 years	298	4.8	1.4	154	7.3	2.4	51	4.8	2.9	123	9.2	2.9
45–54 years	140	2.2	1.3	128	5.1	1.6	52	7.6	3.3	226	6.7	1.6
55–64 years	137	8.6	2.1	204	3.5	1.5	114	14.0	4.0	518	7.0	1.5
65–74 years	153	8.8	2.3	177	7.6	2.2	147	11.6	3.3	524	4.8	1.0
Black:												
20–74 years	232	6.3	1.8	93	5.6	3.6	87	8.9	1.7	169	3.9	1.9
20–74 years, age adjusted	...	6.3	1.9	...	4.9	3.1	...	10.6	2.5	...	4.8	3.5
20–44 years	173	6.2	2.1	53	8.3	5.3	23	*	*	34	*6.0	*5.9
45–64 years	36	*6.0	*4.6	29	*0.0	*0.0	41	*7.6	*4.5	74	3.9	2.0
65–74 years	23	*	*	11	*	*	23	*	*	61	1.1	1.2

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³Greater than or equal to 6.21 mmol/L.

⁴Includes data for races not shown separately.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk factors. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. 35 mg/dl = 0.91 mmol/L. CHD is coronary heart disease.

Table 46. Percent of persons in the desirable, borderline-high-risk, and high-risk low density lipoprotein (LDL) cholesterol categories with a value for high density lipoprotein (HDL) cholesterol less than 35 milligrams per deciliter (mg/dl), number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Desirable (< 130 mg/dl) ¹			Borderline-high-risk 130–159 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high-risk 130–159 mg/dl CHD or 2 CHD risk factors ²			High-risk (≥ 160 mg/dl) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Both sexes ⁴												
20–74 years	68	13.2	*5.8	51	6.7	*6.2	287	14.5	2.8	678	11.1	2.0
20–74 years, age adjusted	...	12.8	*6.2	...	3.6	*3.3	...	18.5	4.1	...	12.6	3.4
20–44 years	12	*	*	12	*	*	62	24.5	6.9	119	14.5	3.6
45–64 years	32	*16.7	*9.1	27	*11.7	*10.5	116	11.3	3.9	310	10.2	3.1
65–74 years	24	*	*	12	*	*	109	7.1	3.1	249	8.7	1.8
Male												
20–74 years	38	*23.8	*9.6	9	*	*	178	19.8	4.1	301	16.1	2.7
20–74 years, age adjusted	...	*22.0	*10.0	...	*	*	...	24.8	5.4	...	15.9	2.8
Female												
20–74 years	30	*0.0	*0.0	42	*8.0	*7.4	109	5.7	2.9	377	7.0	1.9
20–74 years, age adjusted	...	*0.0	*0.0	...	*4.2	*3.7	...	5.3	3.0	...	9.9	3.6
White												
20–74 years	61	15.5	*6.6	44	*7.2	*6.8	254	15.3	3.0	594	12.2	2.2
20–74 years, age adjusted	...	14.9	*7.0	...	*4.0	*3.7	...	19.5	4.2	...	13.8	2.6
Black												
20–74 years	7	*	*	5	*	*	30	*7.8	*4.2	73	3.2	*1.8
20–74 years, age adjusted	...	*	*	...	*	*	...	*10.4	*7.3	...	2.0	*1.2

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³Greater than or equal to 4.14 mmol/L.

⁴Includes data for races not shown separately.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk factors. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem 18:499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. 35 mg/dl = 0.91 mmol/L. CHD is coronary heart disease.

Table 47. Percent of persons in the desirable, borderline-high, and high serum total cholesterol categories with a value for the ratio of serum total cholesterol to high density lipoprotein cholesterol greater than or equal to 4.5, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Desirable (< 200 mg/dl) ¹			Borderline-high 200–239 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high 200–239 mg/dl CHD or 2 CHD risk factors ²			High (≥ 240 mg/dl) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Both sexes												
All races: ⁴												
20–74 years	3,854	21.5	1.0	1,531	42.2	1.4	1,502	63.5	1.6	2,910	78.1	1.0
20–74 years, age adjusted	...	24.3	1.1	...	41.8	1.4	...	63.9	1.7	...	78.5	1.1
20–24 years	871	14.5	1.5	197	37.4	3.9	57	54.3	*8.0	79	71.7	4.9
25–34 years	1,151	18.9	1.5	315	40.7	3.0	183	72.6	3.0	253	84.1	1.9
35–44 years	588	25.2	1.9	252	47.6	3.6	187	68.0	6.0	306	80.7	2.3
45–54 years	322	27.7	3.0	209	45.0	3.2	208	62.6	4.5	461	78.2	1.9
55–64 years	415	33.8	2.3	310	39.5	4.6	409	58.1	3.3	916	74.5	2.1
65–74 years	507	31.5	2.4	248	39.8	2.9	458	59.9	2.4	895	77.4	1.9
White:												
20–74 years	3,322	22.3	1.2	1,368	42.5	1.5	1,307	67.1	1.6	2,585	79.2	1.0
20–74 years, age adjusted	...	25.2	1.2	...	42.0	1.5	...	67.7	1.8	...	80.1	1.1
20–24 years	751	15.8	1.6	165	35.8	4.4	53	58.3	*8.5	67	77.5	5.4
25–34 years	976	19.3	1.7	274	40.0	2.7	155	75.6	2.7	221	84.5	1.7
35–44 years	511	24.8	1.8	226	48.7	3.7	163	74.2	5.2	271	81.3	2.4
45–54 years	284	29.2	3.4	184	45.8	4.0	180	67.8	4.1	404	78.9	2.3
55–64 years	363	35.4	2.5	290	40.3	4.7	356	60.9	3.6	829	74.9	2.2
65–74 years	437	32.9	2.6	229	40.9	3.0	400	60.7	2.7	793	80.5	1.8
Black:												
20–74 years	459	13.5	1.5	126	33.6	4.3	178	36.6	3.6	280	66.6	2.9
20–74 years, age adjusted	...	14.2	1.9	...	31.8	4.4	...	37.3	3.6	...	68.3	2.3
20–44 years	320	13.0	1.6	76	37.1	5.6	50	39.0	*5.2	68	71.9	*6.6
45–64 years	82	14.5	*5.0	36	*27.5	*9.4	77	29.4	*5.4	124	67.6	*5.0
65–74 years	57	19.6	*5.3	14	*	*	51	50.9	*9.6	88	51.2	*6.6
Men												
All races: ⁴												
20–74 years	1,927	31.9	1.5	444	58.8	2.7	1,007	71.1	1.9	1,184	86.8	0.9
20–74 years, age adjusted	...	35.1	1.7	...	58.7	2.5	...	70.5	1.9	...	88.8	1.0
20–24 years	426	19.2	2.0	59	50.4	*5.7	47	56.8	*8.7	38	*98.4	*1.5
25–34 years	512	30.1	2.4	100	51.0	5.5	141	78.0	3.2	132	90.8	3.0
35–44 years	243	40.8	3.6	78	62.0	6.3	124	74.8	5.3	166	87.0	2.6
45–54 years	160	40.9	4.9	60	72.4	7.5	141	74.0	4.4	198	85.8	2.0
55–64 years	260	44.2	3.2	90	57.9	7.0	268	66.0	4.1	346	84.0	2.7
65–74 years	326	38.0	3.5	57	63.9	7.4	286	66.0	3.9	304	84.5	2.1
White:												
20–74 years	1,664	33.5	1.8	399	59.9	2.6	903	74.1	2.0	1,053	87.6	1.0
20–74 years, age adjusted	...	36.7	1.9	...	59.8	2.4	...	73.4	2.0	...	89.6	1.2
20–24 years	367	21.4	2.3	48	54.2	*7.2	46	56.1	*8.9	33	98.2	*1.8
25–34 years	430	31.4	2.7	85	51.1	5.6	122	79.7	3.0	114	91.6	3.0
35–44 years	213	39.6	3.7	72	62.8	6.2	112	83.0	4.2	148	87.4	2.8
45–54 years	144	43.4	5.2	56	72.1	8.1	128	77.5	4.1	178	87.1	2.2
55–64 years	226	47.5	3.7	86	58.8	7.0	242	68.3	4.4	311	85.0	2.9
65–74 years	284	40.6	3.7	52	66.8	7.8	253	67.7	3.1	269	86.1	2.2
Black:												
20–74 years	227	15.8	2.4	33	*43.4	*9.4	91	41.6	5.2	111	75.9	3.8
20–74 years, age adjusted	...	16.5	2.7	...	*47.9	*8.6	...	42.2	5.0	...	77.9	3.9
20–44 years	147	15.1	2.4	23	*	*	27	*44.3	*7.6	34	*84.8	*6.8
45–64 years	46	20.0	*6.6	7	*	*	36	*35.9	*10.4	50	67.7	7.9
65–74 years	34	*13.5	*5.1	3	*	*	28	*48.7	*11.0	27	*70.2	*9.8

Table 47. Percent of persons in the desirable, borderline-high, and high serum total cholesterol categories with a value for the ratio of serum total cholesterol to high density lipoprotein cholesterol greater than or equal to 4.5, number of examined persons, and standard error of the percent, by sex, race, and age: United States, 1976–80—Con.

Sex, race, and age	Desirable (< 200 mg/dl) ¹			Borderline-high 200–239 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high 200–239 mg/dl CHD or 2 CHD risk factors ²			High (≥ 240 mg/dl) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Women												
All races: ⁴												
20–74 years	1,927	12.0	0.9	1,087	35.0	1.6	495	46.0	2.9	1,726	71.5	1.4
20–74 years, age adjusted	...	13.6	1.1	...	34.9	1.6	...	46.2	3.9	...	69.6	2.0
20–24 years	445	9.8	1.5	138	32.2	4.1	10	*	*	41	*47.7	*8.0
25–34 years	639	9.9	1.2	215	35.4	3.4	42	*49.5	*8.6	121	77.0	3.9
35–44 years	345	13.8	1.9	174	40.5	4.2	63	54.5	7.7	140	73.0	5.0
45–54 years	162	15.3	3.5	149	33.5	4.2	67	35.5	6.3	263	72.3	2.8
55–64 years	155	16.5	3.2	220	32.0	4.9	141	43.6	5.1	570	68.7	2.8
65–74 years	181	20.9	2.0	191	34.1	3.3	172	50.1	4.3	591	74.1	2.3
White:												
20–74 years	1,658	11.9	1.0	969	34.8	1.6	404	49.4	3.2	1,532	72.7	1.6
20–74 years, age adjusted	...	13.5	1.1	...	34.6	1.6	...	54.9	3.6	...	71.7	2.2
20–24 years	384	10.4	1.6	117	29.1	4.5	7	*	*	34	*57.6	*9.0
25–34 years	546	9.5	1.3	189	34.3	3.1	33	*56.4	*8.7	107	77.2	3.9
35–44 years	298	13.7	2.1	154	41.6	4.2	51	55.6	8.7	123	73.8	5.0
45–54 years	140	15.7	3.9	128	33.9	4.6	52	41.5	7.3	226	72.4	3.2
55–64 years	137	16.2	2.8	204	32.3	4.9	114	45.9	6.3	518	68.7	2.9
65–74 years	153	19.8	2.6	177	35.2	3.6	147	48.9	4.1	524	77.8	2.3
Black:												
20–74 years	232	11.6	2.2	93	30.0	4.4	87	31.6	5.8	169	59.9	4.1
20–74 years, age adjusted	...	12.2	2.6	...	27.6	4.4	...	32.1	5.7	...	59.2	5.0
20–44 years	173	11.5	2.4	53	37.5	6.4	23	*	*	34	*57.5	*9.2
45–64 years	36	*7.8	*6.2	29	*16.3	*7.7	41	*23.8	*5.9	74	67.6	*5.8
65–74 years	23	*	*	11	*	*	23	*	*	61	44.7	*7.3

¹Less than 5.17 mmol/L.

²5.17–6.20 mmol/L.

³Greater than or equal to 6.21 mmol/L.

⁴Includes data for races not shown separately.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk factors. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. CHD is coronary heart disease.

Table 48. Percent of persons in the desirable, borderline-high-risk, and high-risk low density lipoprotein cholesterol categories with a value for the ratio of serum total cholesterol to high density lipoprotein (HDL) cholesterol greater than or equal to 4.5, number of examined persons, standard error of the percent, by sex, race, and age: United States, 1976–80

Sex, race, and age	Desirable (< 130 mg/dl) ¹			Borderline-high-risk 130–159 mg/dl no CHD and no 2 CHD risk factors ²			Borderline-high-risk 130–159 mg/dl CHD or 2 CHD risk factors ²			High-risk (≥ 160 mg/dl) ³		
	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent	Number of examined persons	Percent	Standard error of the percent
Both sexes ⁴												
20–74 years	68	34.5	*7.5	51	46.1	*8.6	287	59.5	2.8	678	81.6	1.6
20–74 years, age adjusted	...	39.9	*9.2	...	54.0	*10.1	...	60.1	3.7	...	81.5	2.0
20–44 years	12	*	*	12	*	*	62	65.5	6.8	119	81.6	3.2
45–64 years	32	*32.0	*11.3	27	*36.5	*11.3	116	60.1	5.3	310	81.7	2.6
65–74 years	24	*	*	12	*	*	109	49.6	5.5	249	81.1	3.0
Male												
20–74 years	38	*48.0	*10.9	9	*	*	178	68.9	3.6	301	87.8	1.9
20–74 years, age adjusted	...	*58.7	*12.0	...	*	*	...	70.0	4.0	...	81.8	2.5
Female												
All races:												
20–74 years	30	*17.7	*8.1	42	*38.0	*9.6	109	43.7	5.2	377	76.5	2.8
20–74 years, age adjusted	...	*9.4	*4.1	...	*45.2	*11.3	...	47.7	7.7	...	74.7	3.7
White:												
20–74 years	61	40.4	*9.0	44	*49.9	*8.7	254	63.5	2.5	594	82.7	1.7
20–74 years, age adjusted	...	45.8	*7.8	...	*56.0	*7.7	...	65.7	3.5	...	82.9	2.0
Black:												
20–74 years	7	*	*	5	*	*	30	*19.2	*7.9	73	66.1	*4.7
20–74 years, age adjusted	...	*	*	...	*	*	...	*27.4	*12.3	...	62.6	*8.0

¹Less than 3.36 mmol/L.

²3.36–4.13 mmol/L.

³Greater than or equal to 4.14 mmol/L.

⁴Includes data for races not shown separately.

NOTES: Groups based on National Cholesterol Education Program Guidelines published in Arch. Int. Med.: 148(1):36–69, 1988. See appendix IV for definition of risk factors. LDL cholesterol = serum total cholesterol – high density lipoprotein cholesterol – triglyceride/5. Equation from Friedewald, WT, et al. Clin Chem (18):499–502, 1972. Persons with a serum triglyceride value greater than 400 mg/dl (4.52 mmol/L) were excluded. mg/dl is milligrams per deciliter; mmol/L is millimoles per liter. CHD is coronary heart disease.

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Appendix I

Statistical notes

Survey design

The second National Health and Nutrition Examination Survey (NHANES II) used a stratified, multistage design that permits selection of samples at each stage with known probability. In hierarchical order the stages of selection were: primary sampling units (PSU's), which are counties or small groups of contiguous counties; census enumeration districts; segments (clusters of households); households; and sample persons (figure I).

NHANES II is based on a subset of the sample PSU's in the National Health Interview Survey (NHIS) (27) (figure II). The self-representing PSU's in NHIS were first split along county boundaries. Within each region, each county was classified as either a self-representing or a non-self-representing PSU. The PSU's that were non-self-representing were further combined into homogeneous classes or strata equal in size to the NHIS strata containing non-self-representing PSU's.

Subdividing the 156 self-representing PSU's in NHIS and redefining the PSU's by using county boundaries resulted in a total of 397 PSU's, of which 198 were defined as self-representing and 199 were defined as non-self-representing. The latter were used to form 43 non-self-representing strata, which were combined with the other 220 non-self-representing PSU's in NHIS. The average population of a self-presenting PSU was reduced from 838,000 to 584,000. The average area of the PSU's was reduced more than 60 percent, from 2,185 square miles to 855 square miles.

The 461 first-state units (redefined from NHIS strata) were further stratified into a total of 64 superstrata, and

one PSU was selected from each of the superstrata using a modified Goodman-Kish controlled-selection technique (28,29). These 64 PSU's were the geographic locations visited by the mobile examination centers during the survey period.

The U.S Bureau of the Census had the major responsibility for selecting households and sample persons within each PSU. Three sampling frames of housing units were used to select the sample within each PSU. The list frame consisted of all housing units located in the 1970 Census of the Population (27).

In the second stage, enumeration districts (ED's) within each stratum were selected proportional to their measures of size. An ED is a geographical area that contains approximately 300 housing units. In order to oversample persons with low incomes, the ED's within each PSU were stratified into a poverty stratum and a nonpoverty stratum. The poverty strata contained ED's with 13 percent or more of persons below the poverty level, and the nonpoverty strata contained ED's with less than 13 percent of persons below the poverty level, as determined by the 1970 census.

The third stage of the design consisted of a selection of clusters of households (segments) within ED's. To ensure sampling reliability, clusters of 16 listed addresses were drawn from the sampling frames and then systematically subsampled at a rate of 1 out of 2 to produce a final segment of 8 household address listings.

At the fourth stage of sampling, a list was made of all eligible sample persons within each selected segment. For each sample person selected who agreed to participate in

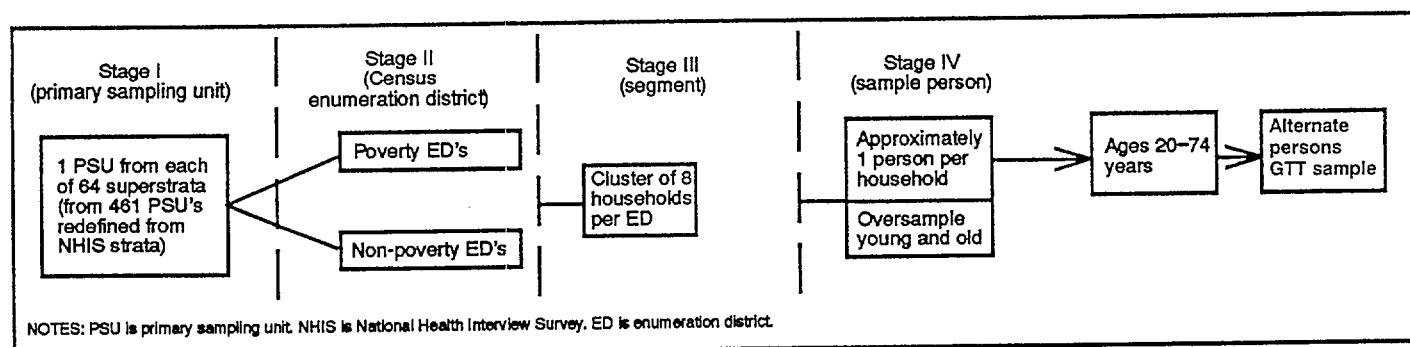


Figure I. Stages of selection for sample in the Second National Health and Nutrition Examination Survey, 1976-80

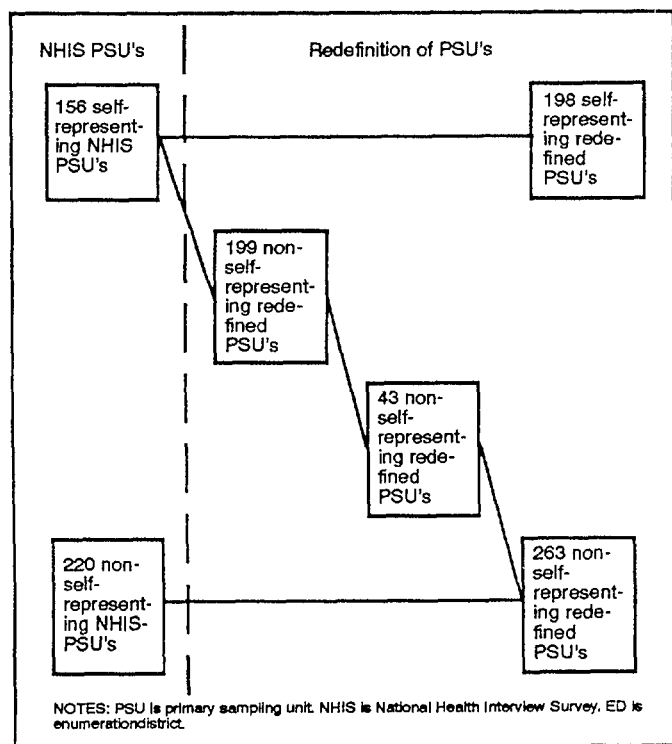


Figure II. Definition of primary sampling units for the second National Health and Nutrition Examination Survey, 1976-80

NHANES II, the interviewer conducted a medical history interview and notified the field office to schedule an examination. The field office staff assigned alternate persons ages 20-74 years to an oral glucose tolerance test (OGTT) subsample. The sample of persons to be examined was selected so that the younger and older age groups were oversampled and approximately one person per sample household was selected. The sampling rates by age are shown in table I.

Of the 17,390 persons, 20-74 years of age included in the NHANES II sample, 15,364 (88 percent) were interviewed and 11,864 (68 percent) were interviewed and examined.

Of the 8,686 persons 20-74 years of age in the fasting sample, 7,691 (87 percent) were interviewed and 5,903 (68 percent) were interviewed and examined. The NHANES II sample size and response rates by age, sex, and race are shown in table II for the total sample and in table III for the fasting sample. The number of examined persons and population estimates for the total sample and the fasting sample are shown in tables IV and V. The 1986 census population estimates are shown in table VI. A more complete description of the sample survey design is included in *Vital and Health Statistics*, Series 1, No. 15 (8).

Estimation procedures

Because the design of the National Health and Nutrition Examination Survey (NHANES) is a complex multistage probability sample, national estimates are derived through a multistage estimation procedure. The procedure

Table I. Sampling rates by age: Second National Health and Nutrition Examination Survey, 1976-80

Age	Rate
6 months-5 years	3/4
6-59 years	1/4
60-74 years	3/4

Table II. Sample sizes and response rates for interviewed and examined persons 20-74 years of age by age, sex, and race: Second National Health and Nutrition Examination Survey, 1976-80

Age, sex, and race	Total sample	Interviewed		Examined	
		Number	Percent	Number	Percent
Total	17,390	15,364	88.4	11,864	68.2
Age					
20-24 years	1,894	1,758	92.8	1,414	74.7
25-34 years	3,031	2,773	91.5	2,237	73.8
35-44 years	2,236	2,005	89.7	1,589	71.1
45-54 years	2,149	1,866	86.8	1,453	67.6
55-64 years	3,868	3,330	86.1	2,556	66.1
65-74 years	4,212	3,632	86.2	2,615	62.1
Sex					
Female	9,316	8,286	88.9	6,260	67.2
Male	8,074	7,078	87.7	5,604	69.4
Race					
White	15,103	13,316	88.2	10,301	68.2
Black	1,955	1,764	90.2	1,336	68.3
Other	332	284	85.5	227	68.4

has three basic components for both the total sample and the fasting sample: (a) Inflation by the reciprocal of the probability of selection, (b) adjustment for nonresponse, and (c) poststratification by age, sex, and race. A brief description of each component follows:

- *Inflation by the reciprocal of the probability of selection.* The probability of selection in the total sample is the product of the probabilities of selection from each stage of selection in the design—PSU, segment, household and sample person. The probability of selection in the OGTT subsample is determined by doubling the probability of selection of each person in that subsample. This probability is zero for sample persons not selected for that subsample.
- *Adjustment for nonresponse.* The estimates are inflated by a multiplication factor that brings estimates based on examined persons up to the level that would have been achieved if all sample persons had been examined. To calculate the nonresponse adjustment factor for the total sample, the sum of the reciprocals of the probability of selection for all selected sample persons within each of five income groups (less than \$6,000, \$6,000-\$9,999, \$10,000-\$14,999, \$15,000-\$24,999, and \$25,000 or more), three age groups (6 months-5 years, 6-59 years, and 60-74 years), four geographic regions,

Table III. Sample sizes and response rates for persons 20–74 years of age in the fasting sample, by age, sex, and race: Second National Health and Nutrition Examination Survey, 1976–80

Age, sex, and race	Total sample	Interviewed		Examined	
		Number	Percent	Number	Percent
Total	8,686	7,691	88.5	5,903	68.0
Age					
20–24 years	914	837	91.6	650	71.1
25–34 years	1,520	1,390	91.5	1,129	74.3
35–44 years	1,135	1,025	90.3	795	70.0
45–54 years	1,075	926	86.1	708	65.9
55–64 years	1,909	1,651	86.5	1,281	67.1
65–74 years	2,133	1,862	87.3	1,340	62.8
Sex					
Female	4,572	4,073	89.1	3,057	66.9
Male	4,114	3,618	87.9	2,846	69.2
Race					
White	7,555	6,673	88.3	5,145	68.1
Black	962	871	90.5	646	67.2
Other	169	147	87.0	112	66.3

and within or outside a standard metropolitan statistical area (SMSA) was obtained. This sum was then divided by the sum of the reciprocals of the probability of selection for examined sample persons in the same income, age, region, and SMSA groups. The percent distribution of the nonresponse adjustment factors is shown in table VII. The same method was used to calculate the nonresponse adjustment factor for persons in the fasting subsample. The calculation was restricted to persons in the fasting subsample. Two age groups—20–59 years and 60–74—years were used in defining subgroups, rather than the three age groups for the total sample. The percent distribution of the nonresponse adjustment factors is shown in table VIII.

- *Poststratification by age, sex, and race.* The estimates of the number of examined persons were ratio adjusted within each of 75 age-sex-race cells and estimates of the number of examined adults 20–74 years in the fasting sample were ratio adjusted with 24 age-sex-race cells to independent estimates, provided by the U.S. Bureau of the Census, of the population as of March 1, 1978, approximate midpoint of the survey. The ratio adjustment used a multiplication factor in which the numerator was the U.S. population and the denominator was the sum of the weights adjusted for nonresponse for the specified population subgroup. This ratio estimation process brings the population estimates into close agreement with the U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States. In general, it reduces sampling errors of NHANES II estimates.

Nonresponse bias

In health examination surveys such as NHANES, there exists the potential for three levels of nonresponse:

Table IV. Number of examined persons 20–74 years of age, by race, sex, and age of examinee: United States, 1976–80

Sex and age	Number of examined persons	White	Black
		Number of examined persons	Number of examined persons
Both sexes			
20-74 years	11,864	10,301	1,336
18-24 years	2,054	1,738	268
20-24 years	1,414	1,205	173
25-34 years	2,237	1,901	284
35-44 years	1,589	1,379	173
45-54 years	1,453	1,264	162
55-64 years	2,556	2,262	264
65-74 years	2,615	2,290	280
Male			
20-74 years	5,604	4,883	607
18-24 years	988	846	121
20-24 years	676	581	79
25-34 years	1,067	901	139
35-44 years	745	653	70
45-54 years	690	617	62
55-64 years	1,227	1,086	129
65-74 years	1,199	1,045	128
Female			
20-74 years	6,260	5,418	729
18-24 years	1,066	892	147
20-24 years	738	624	94
25-34 years	1,170	1,000	145
35-44 years	844	726	103
45-54 years	763	647	100
55-64 years	1,329	1,176	135
65-74 years	1,416	1,245	152

household interview nonresponse, examination nonresponse, and item nonresponse. Household interview nonresponse occurs when the household medical history questionnaire is not completed. Examination nonresponse occurs when sample persons who respond to the household questions do not come to the examination center for an examination. Item nonresponse results when sample persons, interviewers, or examiners do not complete some portion of either the household interview questionnaires or the examination protocol. Intense efforts were undertaken during NHANES II to develop and implement procedures and inducements that would reduce all types of nonresponse and thereby reduce the potential for bias in the survey estimates. These procedures are discussed in *Vital and Health Statistics*, Series 1, No. 15 (8).

In NHANES II, the medical history interview nonresponse was 12 percent, and, despite intense efforts to reduce the number of examination nonrespondents, an additional 20 percent of the 17,390 persons 20–74 years of age selected for NHANES II were not examined (table II). However, a comparison of the 1976 National Health Interview Survey and NHANES II (30) suggests that the nonresponse bias for some health-related variables was not large because selected interview items in NHANES II data agree so closely with comparable items in the 1976

Table V. Number of examined persons 20–74 years of age in the fasting sample and estimated population, by sex, race, and age: United States, 1976–80

Race and age	Both sexes		Male		Female	
	Number of examined persons	Estimated population in thousands	Number of examined persons	Estimated population in thousands	Number of examined persons	Estimated population in thousands
<i>All races</i>						
20–74 years	5,903	133,605	2,846	63,611	3,057	69,994
20–24 years	650	19,325	323	9,331	327	9,994
25–34 years	1,129	32,752	546	15,895	583	16,856
35–44 years	795	23,651	376	11,367	419	12,284
45–54 years	708	23,032	329	11,114	379	11,918
55–64 years	1,281	20,350	656	9,607	625	10,743
65–74 years	1,340	14,496	616	6,297	724	8,198
<i>White</i>						
20–74 years	5,145	116,698	2,486	56,002	2,659	60,696
20–24 years	553	16,568	277	8,059	276	8,510
25–34 years	967	28,254	462	13,812	505	14,442
35–44 years	684	20,270	330	9,831	354	10,438
45–54 years	624	20,335	297	10,011	327	10,324
55–64 years	1,131	18,323	579	8,681	552	9,642
65–74 years	1,186	12,948	541	5,608	645	7,340
<i>Black</i>						
20–74 years	646	13,681	305	6,102	341	7,579
20–24 years	84	2,347	38	1,043	46	1,304
25–34 years	132	3,499	69	1,546	63	1,953
35–44 years	91	2,527	36	1,112	55	1,415
45–54 years	71	2,259	29	1,044	42	1,215
55–64 years	135	1,760	70	801	65	959
65–74 years	133	1,288	63	555	70	733

NHIS data. The 1976 NHIS was used for comparison because it included data on diabetes, which was also of interest in NHANES II, and because the nonresponse rate was 4 percent. It was assumed that the 4-percent nonresponse was randomly distributed.

Data from earlier studies also suggest that no substantial nonresponse bias exists. An analysis of data on examined and nonexamined (but interviewed) persons was done using the first 35 stands of the first National Health and Nutrition Examination Survey (NHANES I) (30). The two groups were found to be quite similar with respect to the health characteristics that were compared. In another study of examined and nonexamined persons selected for participation in NHANES I, no differences were found between the two groups with respect to health-related variables (31). In another study (32), factors relating to response in Cycle I of the National Health Examination Survey of 1960–62 were investigated. It was found that 36 percent of the nonexamined persons in that survey viewed themselves as being in excellent health, compared with 31 percent of examined persons. A self-appraisal of poor health was made by 5 percent of nonexamined persons and by 6 percent of those who were examined.

In a different study of Cycle I (33), comparisons between two extreme groups—those who participated in the survey with no persuasive effort and those who participated only after a great deal of persuasive effort—indi-

cated that differences between the two groups generally had little effect on estimates based on numerous selected examination and questionnaire items. These findings were interpreted as evidence that no large bias exists between the two groups for the items investigated, and they were offered as further support for the belief that little bias is introduced into the findings because of differences in health characteristics between examined and nonexamined persons. As shown in table II, response rates differ by age; however, the number of interviewed and examined sample persons was poststratified to agree with U.S. Bureau of the Census population estimates to account for such differences.

For the fasting subsample, 11 percent were not interviewed and 32 percent were not examined. The response rates to the interview and the examination for adults 20–74 years of age in the total sample and in the fasting sample are similar (tables II and III, respectively). In addition to interview and examination nonresponse, there was substantial (23 percent) item nonresponse to the fasting sample (34). This suggests a potential bias in the estimates for the OGTT sample. However, comparison of the OGTT subsample for which the OGTT was completed with the total examined OGTT subsample, the total interviewed sample, and the 1978 National Health Interview (with respect to selected demographic and health related character-

Table VI. Estimated population 20–74 years of age by race, sex, and age: United States, 1986

<i>Sex and age</i>	<i>All races</i>	<i>White</i>	<i>Black</i>
Both sexes			
Number in thousands			
20–74 years	158,639	136,335	17,633
20–24 years	20,411	16,944	2,813
25–34 years	42,779	36,045	5,285
35–44 years	33,070	28,469	3,499
45–54 years	22,815	19,703	2,439
55–64 years	22,232	19,640	2,106
65–74 years	17,332	15,534	1,491
Male			
20–74 years	77,085	66,726	8,115
20–24 years	10,228	8,532	1,358
25–34 years	21,390	18,193	2,488
35–44 years	16,287	14,172	1,593
45–54 years	11,077	9,663	1,092
55–64 years	10,456	9,290	951
65–74 years	7,647	6,876	633
Female			
20–74 years	81,554	69,609	9,517
20–24 years	10,183	8,413	1,454
25–34 years	21,389	17,852	2,797
35–44 years	16,783	14,297	1,906
45–54 years	11,738	10,039	1,347
55–64 years	11,776	10,351	1,155
65–74 years	9,685	8,657	858

istics) yielded similar results for most variables considered. This suggests that no substantial bias was introduced due to item nonresponse. A more detailed analysis of nonresponse for the OGTT sample is presented elsewhere (34).

There are several published reports related to issues of nonresponse bias in National Health Examination Surveys (35–37).

Missing data and imputation process

In examination surveys, information is lost 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. Age, sex, and race were known for every examined person.

The extent of missing data for serum lipids and lipoprotein in show in table IX. The 272 missing serum cholesterol values were imputed using a “hot deck” procedure. An explanation of this procedure is presented in another publication (20).

The missing HDL-C and serum triglyceride values were not imputed. Therefore, the missing ratio of serum cholesterol to HDL-C and missing calculated values of LDL-C were not imputed. Comparison of examined persons 20–74 years of age with and without HDL-C determinations with respect to related variables such as body mass index, alcohol consumption, smoking, and physical activity revealed no substantial differences between the two groups.

Table VII. Percent distribution of nonresponse adjustment factors for persons 20–74 years of age by size of factor: Second National Health and Nutrition Examination Survey, 1976–80

<i>Size of factor</i>	<i>Percent distribution</i>
Total	100.0
1.00–1.24	26.8
1.25–1.49	54.8
1.50–1.74	10.9
1.75–1.99	4.4
2.00–2.49	2.2
2.50–2.99	0.9

Table VIII. Percent distribution of nonresponse adjustment factors for persons 20–74 years in the fasting sample by size of factor: Second National Health and Nutrition Examination Survey, 1976–80

<i>Size of factor</i>	<i>Percent distribution</i>
Total	100.0
1.10–1.29	17.6
1.30–1.44	44.5
1.45–1.64	22.8
1.65–1.99	9.2
2.00–2.49	4.4
2.50–2.99	1.5

Table IX. Number of persons ages 20–74 years of age with missing lipid determinations: United States, 1976–80

<i>Lipid determination</i>	<i>Number</i>
Serum total cholesterol (TC)	272
High density lipoprotein cholesterol (HDL-C)	2,067
Ratio of TC to HDL-C	2,067
Serum triglyceride	55
Low density lipoprotein cholesterol	74

Figure III is a flow chart showing the progressive loss of data for serum triglyceride and LDL-C. Because half the examined adults 20–74 years were in the fasting sample and only half of these sample persons fasted 12 hours or more, a potential source of bias is introduced. However, the estimates of serum triglyceride and LDL-C are based on the OGTT weights, which accounts for only half the examined adults being in the fasting sample.

A comparison of those in the fasting sample with those who were not with respect to selected health-related characteristics revealed no substantial differences, other than what would be expected by chance. A similar analysis of those fasting 12 hours or more with those in the fasting sample who did not fast 12 hours or more yielded similar results. At each stage of this analysis, the age-adjusted means for TC, HDL-C and non-HDL cholesterol yielded similar values for fasting versus nonfasting and for fasting 12 hours or more versus fasting less than 12 hours.

Measures of variability

Standard error of estimates

The standard error of an estimated mean or percent is primarily a measure of the extent to which estimates

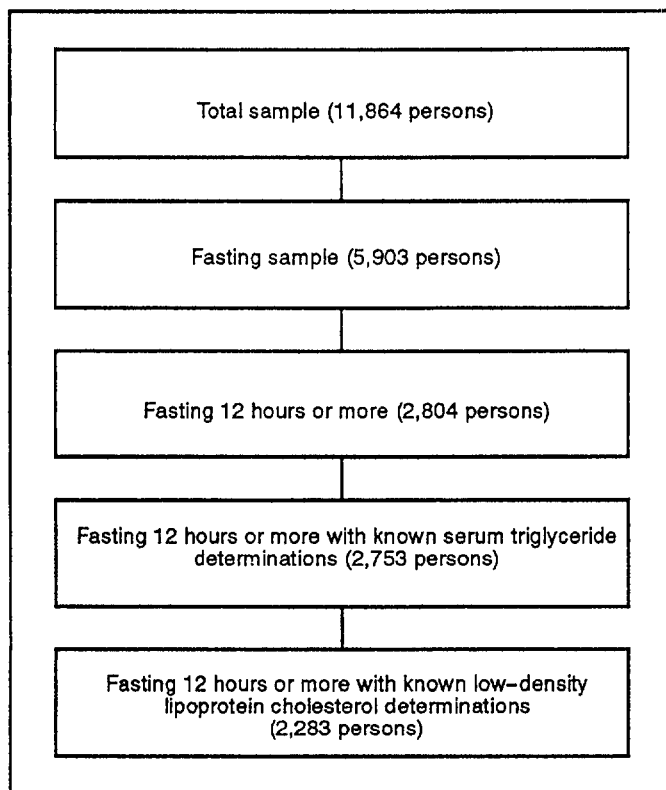


Figure III. Number of examined persons 20–74 years of age in fasting sample by fasting category: Second National Health and Nutrition Examination Survey, 1976–80

derived from the many different samples that a sampling design might produce, would vary from sample to sample. As estimated in this report, the standard error also reflects part of the variation that arises in the measurement process. The possible bias of estimates is not included.

The complex sample design of NHANES II must be incorporated in estimating standard errors of means or percents. Methods accounting for the complex sample design yield estimates different from and generally larger than those estimated under the assumption of simple random sampling. The standard errors of the means and percents were estimated by the method of linearization (40)—a method that accounts for the sample design by using the computer program SESUDAAN (41).

Variance

The variance is the square of the standard error of the mean or percent.

Covariance

The covariance is a measure of the extent to which two random variables, X_1 and X_2 vary together and is a function of the unit of measurement. If X_2 increases as X_1 increases, the covariance is positive. If X_2 decreases as X_1 increases, the covariance is negative. If the value of X_2 is independent of X_1 , the covariance is zero.

The covariance of two random variables from a complex sample design, such as NHANES II, is seldom equal to zero.

Variance covariance matrix

The variance covariance matrix, Σ of a random vector

$$\underline{y} = (y_1, y_2, \dots, y_n)$$

is an $n \times n$ matrix of the form

$$\Sigma = \begin{pmatrix} \sigma_{11} & \sigma_{12} & \dots & \sigma_{1n} \\ \sigma_{21} & \sigma_{22} & \dots & \sigma_{2n} \\ \sigma_{n1} & \sigma_{n2} & \dots & \sigma_{nn} \end{pmatrix}$$

where σ_{ii} is the variance of y_{ii} and σ_{ij} ($i \neq j$) is the covariance of y_i and y_j .

The elements of Σ were estimated by using linearization through the computer program SURREGR (42).

Testing statistical hypotheses

To test statistical hypotheses of the form

$$H_0: \theta_1 = \theta_2 \text{ against the alternative}$$

$$H_1: \theta_1 \neq \theta_2$$

where θ_1 represents a mean or percent of a given subdomain and θ_2 represents a mean or percent of a different subdomain, the statistic

$$Z = [\theta_1 - \theta_2] / \text{var} [\theta_1 - \theta_2] \quad (1)$$

is used.

$\text{Var}[\theta_1 - \theta_2]$ is estimated by the formula

$$\text{Var}[\theta_1 - \theta_2] = \text{Var}(\theta_1) + \text{Var}(\theta_2) - 2\text{cov}(\theta_1, \theta_2)$$

Because θ_1 and θ_2 are estimated from a complex sample, $\text{cov}[\theta_1, \theta_2] \neq 0$

The statistic given in equation (1) is assumed to be normally distributed and its square to have χ^2 distribution with 1 degree of freedom. The numerator and denominator of equation (1) may be obtained from the SURREGR (40) and the test statistic computed through GENCAT (41) (see example below).

Statistical hypotheses were tested using an α level of 0.05. Where multiple comparisons were made, this overall α level was adjusted using the Bonferroni method by dividing 0.05 by the number of implied comparisons, n .

If the probability of rejecting the null hypothesis when it is true for a given comparison, $P(A_i)$, $i = 1, \dots, n$, is less than $0.05/n$, the Bonferroni inequality

$$P(UA_i) \leq \Sigma P(A_i) \quad (2)$$

guarantees that the overall level for the null hypothesis concerning all n comparisons is less than .05.

Many statistical tests conducted for this report involve tests of the equality of age-adjusted means and percents. These estimates may be obtained through GENCAT.

For example, assume the objective were to test the hypothesis that age-adjusted mean LDL-C is the same for white adults as for black adults.

1) Using SURREGR, estimate the 24×1 vector of mean LDL-C levels for the age (20–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years and 65–74 years), sex, and race subdomains:

$$\underline{x} = (x_1, x_2, \dots, x_{24}) \quad (3)$$

where x_i $i = 1, 2, 3, 4, 5, 6$ represent the 6 age specific mean LDL-C levels of white men,

x_{i+6} $i = 1, 2, 3, 4, 5, 6$ represent the 6 age specific mean LDL-C levels of white women,

x_{i+12} $i = 1, 2, 3, 4, 5, 6$ represent the 6 age specific mean LDL-C levels of black men,

x_{i+18} $i = 1, 2, 3, 4, 5, 6$ represent the 6 age specific mean LDL-C levels of black women.

The variance-covariance matrix V can also be estimated.

2) $\underline{x}$ and its estimated variance-covariance matrix V , are then read into GENCAT.

The variance-covariance matrix $W_{4 \times 4}$, of $(\theta_1, \theta_2, \theta_3, \theta_4)$ is also obtained as a result of this linear transformation.

3) To test the equality of age-adjusted mean LDL-C levels of black men versus white men (or black women versus white women), that is, to test the hypothesis

$$C_1 \theta = 0$$

where $C_1 = (1, 0, -1, 0)$

or $C_2 \theta = 0$

where $C_2 = (0, 1, 0, -1)$, the Wald statistic

$$Q_c = \underline{x}' C_i' [C_i \{D' W^{-1} D\}^{-1} C_i] C_i \underline{x} \quad (4)$$

is employed. D , the design matrix, is set equal to the 4×4 identity matrix and, therefore, equation (2) is equivalent to the square of equation (1).

Age adjustment

The age-adjusted means and percents were calculated by the direct method and were adjusted to the age distribution of the 1980 U.S. Bureau of the Census population. These adjusted or standardized values are meaningful only when comparing subgroups of the population to control for confounding by $\underline{x}$ age.

Appendix II

Data presentation and reliability

The estimates numerically describe the distribution of serum lipids and lipoproteins in certain population groups. Among the descriptive measures are means, percentiles, percents, percent distributions, and standard errors of the means or percents.

The mean value for a population group is the sum of each value times its weight in the group divided by the sum of the weights for that group. It is a measure of central tendency; that is, it indicates where the center of the distribution of observations for a given subgroup is located. The prevalence rate for a population is the proportion of persons believed to be at risk for a particular condition or disease in the population or who exhibit the condition, disease, or risk characteristic at a given time. It is estimated using the percent of persons in the sample with that characteristic. Age-adjusted means and percents assume that each group has the same age distribution, thus adjusting for the effect of age and allowing comparison of combined mean values among population groups.

A percentile is a value that indicates the percent of people in a population with a value less than or equal to the percentile value. Of particular interest is the 50th percentile or median, which has the property that half of the observations are less than or equal to it and half are greater than it. This measure is used instead of the mean as a measure of central tendency in instances where the distribution of observations is highly skewed.

The standard error of the mean or percent is a statistic used in constructing confidence intervals and in testing statistical hypotheses. The accuracy of the estimate is directly related to its standard error. The estimates with smaller standard errors are generally more accurate than those with larger standard errors. Standard errors estimated from complex sample designs have a χ distribution, with degrees of freedom equal to the number of strata with observations in both paired PSU's. For further discussion of these measures, see appendix I.

The statistical guidelines used for reporting means, standard errors, and percentiles are as follows.

Means and percents:

- If the sample size in the cell was less than 25, the estimated sample mean or percent is not reported.
- If the sample size was 25–44, the sample mean or

percent is reported with an asterisk (*) before it to indicate that the statistic does not meet the reliability standard.

- If the sample size was 45 or more, the sample mean or percent is presented without caveat.

Standard error of the mean or percent:

- a. If the sample size in the cell was less than 25, no estimated values for the standard error are presented.
- b. If the sample size was 25 or more and the observations were distributed among the primary sampling units (PSU's) so that fewer than 12 pseudostrata had observations in both of the paired PSU's, then the values are presented with an asterisk to indicate that the estimate may be unreliable.
- c. If the sample size was 25 or more and the observations were distributed among the PSU's so that 12 or more pseudostrata had observations in both of the paired PSU's, the standard error of the mean are presented without caveat.

Percentiles:

- The following minimum sample sizes were required for the presentation of percentile estimates given in this report:

Sample size	Percentile
10	50th
20	25th and 75th
35	15th and 85th
50	10th and 90th
100	5th and 95th

- If these minimum sample sizes were not met, there is an asterisk in the cell.

Cumulative percent distributions

If the sample size is less than 25, the cumulative percent distribution is not presented. Even though cumulative percent distributions are presented when the sample size is between 25 and 44, percents less than specified cutpoints are unstable and therefore should be applied with caution. If the sample size is less than 50 or between 50 and 100, percents of less than specified cutpoints at the tails of the distribution are unstable.

Appendix III

Definitions of demographic and socioeconomic terms

Age—Recorded twice for each examinee: age at last birthday at the time of examination and age at the time of the U.S. Bureau of the Census interview. The age criterion for inclusion in the sample used in this survey was defined as age at the time of U.S. Bureau of the Census interview. The adjustment and weighting procedures used to produce national estimates were based on age at the interview. Data in the detailed tables and text of the report are also shown by age at time of interview.

Race—Observed and recorded as “white,” “black,” or “other.” Other includes Japanese, Chinese, American Indian, Korean, Eskimo, and all races other than white and black. Persons of Mexican descent were included with “white” unless definitely known to be American Indian or of another race. Blacks and persons of mixed black and other parentage were recorded as black. When a person of mixed racial background was uncertain about his or her race, the race of the father was recorded.

Sex—Recorded as observed by the interviewers.

Birth control pill—The birth control question was worded as follows:

- (a) Have you taken birth control pills during the past 6 months?

Only if the answer to this question was yes, was the sample person asked:

- (b) Are you taking them now?

Women 20–44 years of age were classified by oral contraceptive use as follows:

- 1) nonusers—those who answered “no” to the first question,
- 2) recent discontinuers—those who answered “yes” to the first question but “no” to the second question,
- 3) users—those who answered “yes” to questions 1 and 2.

Nonpregnant and nonlactating women were excluded from the estimates of TC, HDL-C and the ratio of TC to HDL-C. Estimates of mean TC and the percent with desirable, borderline-high and high TC were based on 504 birth control users. Estimates of the mean HDL-C and of the ratio were based on 436 such women.

Appendix IV

Definitions of risk factor variables

Coronary heart disease (CHD) and the risk factors for coronary heart disease, as defined by the Adult Treatment Panel of the National Cholesterol Education Program, were applied to data collected during NHANES II. These data have been coded, edited, and released on data tapes. Definitions of these risk factors are described below. Sources of the health-related variables used in these definitions are provided in table X.

Coronary heart disease (CHD)

Sample persons were defined as having CHD if they had been told by a physician that they had a heart attack or if they had angina defined as a positive response to the Rose Questioner (42).

Sex

Being a male was defined as a risk factor for CHD.

Hypertension

Although not expressly stated in the Adult Treatment Panel Guidelines, hypertension was defined as a systolic blood pressure of at least 140 mmHg, a diastolic blood pressure of at least 90 mmHg, or when an individual is currently taking medication for high blood pressure.

Systolic blood pressure was defined as the mean of three systolic blood pressure readings and diastolic blood pressure was defined as the mean of three diastolic blood pressure readings. Both of these means were defined only if all three readings had been determined (43,44).

Overweight

Sample persons were classified as overweight if their actual weight (45) was 30 percent or more above desirable weight. The 1959 Metropolitan Life Standards (46) were used to define desirable weight (table XI).

For examined persons whose height was outside the specified ranges shown in table XI, desirable weight was calculated by using a sex-specific regression equation of weight-on-height fitted through the height-weight points given in table XI. The regression coefficients for these equations are also shown in table XI.

All values for weight and height were either known or had been imputed.

Smoking

If sampled persons smoked more than half a pack a day, defined as 10 cigarettes, they were defined to be at risk of CHD (44).

Table X. Variables used in defining coronary heart disease and coronary heart disease risk factors, by sources of data

<i>Variable</i>	<i>Tape number</i>	<i>Tape positions</i>
Coronary heart disease (CHD)		
Ever told by a doctor had a heart attack	5020	495-496
Rose Questionnaire (used to define angina)	5020	415, 427-436
Male sex	Any NHANES II data release tape	55
Hypertension		
Systolic blood pressure:		
First reading	5305	791-793
Second reading	5305	797-799
Third reading	5305	803-805
Diastolic blood pressure		
First reading	5305	794-796
Second reading	5305	800-802
Third reading	5305	806-808
Now taking medication for high blood pressure	5020	1069
Overweight		
Height in inches	5301	422-424
Weight in pounds	5301	407-411
Smoking		
Ever smoked at least 100 cigarettes	5020	529
Smoke now	5020	530
Number of cigarettes smoked per day	5020	531-532
Stroke		
Told by a doctor had a stroke	5020	523
Diabetes		
Told by a doctor had diabetes	5020	534

Stroke

If sampled persons had been told by a doctor that they had had a stroke, they were defined to be at risk of CHD (44).

Diabetes

If sampled persons had been told by a doctor that they had diabetes, they were defined to be at risk of CHD (44).

Low HDL-C value

A low HDL-C value (that is, HDL-C < 35 mg/dl) was used as a risk factor for adults referred for lipoprotein analysis. This included adults 20–74 years of age with high TC (TC ≤ 240 mg/dl) or borderline-high TC (TC: 200–239 mg/dl) and CHD or 2 CHD risk factors (excluding HDL-C < 35 mg/dl) and who had known LDL-C determinations (a total of 1,084 adults).

Table XI. Values for desirable weight used in defining overweight as a risk factor for coronary heart disease

Men		Women	
Height ¹	Weight ²	Height ¹	Weight ²
5' 1" (61")	121.5	4' 8" (56")	99.5
5' 2" (62")	125.0	4' 9" (57")	102.0
5' 3" (63")	128.0	4' 10" (58")	105.0
5' 4" (64")	131.0	4' 11" (59")	108.0
5' 5" (65")	134.5	5' 0" (60")	111.0
5' 6" (66")	138.5	5' 1" (61")	114.0
5' 7" (67")	143.0	5' 2" (62")	117.5
5' 8" (68")	147.0	5' 3" (63")	121.0
5' 9" (69")	151.0	5' 4" (64")	125.5
5' 10" (70")	155.5	5' 5" (65")	129.5
5' 11" (71")	160.0	5' 6" (66")	133.5
6' 0" (72")	164.5	5' 7" (67")	137.5
6' 1" (73")	169.0	5' 8" (68")	141.5
6' 2" (74")	174.0	5' 9" (69")	145.5
6' 3" (75")	179.0	5' 10" (70")	149.5

¹Height minus 1 inch for men and minus 2 inches for women to correct for shoe heels.

²Subtract 2 pounds for clothing for both men and women

NOTES: Desirable weight is defined as midrange of medium frame in Metropolitan Life Insurance Company Actuarial Tables, 1959. For men and women whose heights were outside the specified ranges (5'1"–6'3" for men; 4'8"–5'10" for women), desirable weight was imputed using linear regression of weight-on-height using the above sex-specific values. The following parameters were obtained:

	Intercept	Slope
Men	-132.2	4.1
Women	-106.4	3.6

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