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Blood Folate and Vitamin B_{12}: United States, 1988–94

December 1998

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

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Vital and Health Statistics

Blood Folate and Vitamin B_{12}: United States, 1988–94

Series 11:
Data From the National Health Examination Survey, the National Health and Nutrition Examination Surveys, and the Hispanic Health and Nutrition Examination Survey
No. 243

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

Hyattsville, Maryland
December 1998
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Objectives

This report presents national estimates of serum and red blood cell (RBC) folate and serum vitamin B_{12} distributions for persons 4 years and over, by sociodemographic variables.

Methods

The third National Health and Nutrition Examination Survey (NHANES III) (1988–94), provides information on the health and nutritional status of the civilian noninstitutionalized U.S. population. The analytic sample included 23,378 participants with serum folate data, 23,082 with RBC folate data, and 11,851 with serum vitamin B_{12} data.

Results

The mean serum and RBC folate concentrations are 7.2 and 196 nanograms per milliliter (ng/mL), respectively, and the mean serum vitamin B_{12} concentration is 518 picograms per milliliter (pg/mL). Non-Hispanic white people have higher mean serum and RBC folate concentrations than non-Hispanic black or Mexican American people. Serum vitamin B_{12} concentrations are lowest for older adults, and non-Hispanic black people have higher serum B_{12} concentrations than non-Hispanic white individuals. Only approximately 3 percent of the population has a serum B_{12} concentration less than 200 pg/mL.

Conclusions

Inadequate folate status may be more prevalent among non-Hispanic black and Mexican American people. Data also suggest a modest prevalence of low serum B_{12} concentrations. Future assessments of folate and vitamin B_{12} status will be important to evaluate the impact of a recently enacted fortification policy.

Keywords: *folate • vitamin B_{12} • NHANES III • nutritional status • biochemistries • red blood cell • serum*

Blood Folate and Vitamin B_{12}: United States, 1988–94

by Jacqueline D. Wright, M.P.H.; Karil Bialostosky, M.S.; Elaine W. Gunter, MT (ASCP); Margaret D. Carroll, M.S.P.H.; Matthew F. Najjar; Barbara A. Bowman, Ph.D.; Clifford L. Johnson, M.S.P.H.

Introduction

The water-soluble B vitamins folate and vitamin B_{12} are essential to human health, particularly during growth and development. These vitamins were identified through research on the nature and treatment of macrocytic and megaloblastic anemias (1,2). Folate exists in the form of multiple compounds with a pteroylglutamic structure in common. The main form of folate in the blood is methyltetrahydrofolate. Methyltetrahydrofolate acts as a one-carbon donor and acceptor in the synthesis of building blocks of DNA, thymidylate and purines, as well as certain neurotransmitters, phospholipids, and hormones (1). Methyltetrahydrofolate also provides a methyl group in the production of methionine from homocysteine. Homocysteine is a sulfur amino acid present in blood, which has been associated with increased risk for thrombo-occlusive heart disease. Vitamin B_{12} is commonly referred to as cyanocobalamin and is a required coenzyme in the metabolism of folate (2). Because of their involvement in DNA synthesis, deficiencies in folate or vitamin B_{12} cause abnormalities in this process. Due to the rapid turnover of blood cells, clinical signs of folate or B_{12} deficiency first appear in the hematopoietic system with neutrophil hypersegmentation and morphologic changes in the megaloblasts and macrocytosis of the red blood cells (3). These changes indicate the onset of megaloblastic anemia.

Although the biologic mechanism is unknown, folate intake appears to play a role in the pathogenesis of neural tube birth defects (NTD's). Recent clinical trials have shown that folic acid supplementation decreases the risk of neural tube defects (4,5). In 1992, the U.S. Public Health Service issued a recommendation that all women of childbearing age in the United States who are capable of becoming pregnant should consume 0.4 mg of folic acid per day to reduce the risk of pregnancies affected by neural tube defects (6). Research has also indicated that these vitamins may play a role in the development of chronic diseases such as cardiovascular disease and certain cancers (7–15). The meta-analysis conducted by Boushey and coauthors (16) found an increased risk of coronary artery disease associated with increases in total homocysteine. In the Framingham Heart Study, plasma homocysteine concentrations were associated with low concentrations of folate and vitamin B_{12} and with an increased risk of carotid artery stenosis (9). The role of folate status has been investigated in the development of cancer of the stomach, colon, and cervix because of folate's role in DNA synthesis and repair (1). Early studies suggested an association between folate deficiency leading to megaloblastic morphologic changes and the appearance of precancerous cells. In addition, folate and vitamin B_{12} have been associated with psychiatric disorders and cognitive difficulties (17,18). Riggs and coauthors (17) found associations between folate, vitamin B_{12}, and homocysteine and poor results on cognitive tests. Because of the rapid rate of turnover of red blood cells (RBC),

RBC folate concentrations are an indicator of more long-term vitamin status, while serum folate and serum vitamin B_{12} are indicators of current status. Using these indicators, this report describes the concentrations of these vitamins in the blood and presents reference data for the U.S. population, 4 years of age and over. The source for these data is the third National Health and Nutrition Examination Survey (NHANES III), conducted from 1988–94 by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC).

The National Health and Nutrition Examination Surveys (NHANES) are designed to provide periodic information on the health and nutritional status of the civilian noninstitutionalized population of the United States. The survey program was begun in 1960 with three surveys of health status, the National Health Examination Surveys (NHES) (19–21). In 1970, an expanded nutrition component was added to provide data with which to assess nutritional status and dietary practices. At that time, the name was changed to the National Health and Nutrition Examination Survey (22,23). The NHANES III is the seventh and most recent NHANES.

Measures of folate status have been included in previous NHANES. The NHANES II data indicated that prevalence of low folate values was greatest in females, 20–44 years old, although the differences from those for other sex or age groups were not statistically significant (24). The Hispanic Health and Nutrition Examination Survey (HHANES), conducted from 1982–84, sampled three Hispanic subgroups: Cuban Americans, Mexican Americans, and Puerto Ricans (25). Laboratory analyses of serum and red blood cell folate were performed on women 18–44 years old from HHANES. Analysis of these data indicates that serum and red cell folate levels are similar among the three Hispanic subgroups (26). The investigators also concluded that while education and poverty level does not affect folate status, the use of vitamin supplements does. That is, mean serum and red cell folate concentrations are higher for those reporting use of dietary supplements than for those not reporting use of supplements. These differences are statistically significant for Mexican American and Puerto Rican people.

One of the goals of NHANES III is to estimate national population reference distributions of selected health parameters, including nutritional status indicators. This report provides national reference data on indicators of folate and vitamin B_{12} status. These are the first nationally representative data on serum vitamin B_{12} concentrations. As a cornerstone of the National Nutrition Monitoring and Related Research Program, the NHANES III provides data for public policy decisions and program planning, including the regulation of food fortification (27). In January 1998, a regulation issued by the Food and Drug Administration (FDA) went into effect requiring that folic acid be added to all enriched cereal grain products (28). These NHANES III results provide a baseline for future population assessments of blood folate concentrations, including evaluation of the impact of folic acid fortification on the folate status of the population.

Methods

Survey Design

The NHANES III used a stratified, multistage design to provide a representative probability sample of the civilian noninstitutionalized population of the United States, ages 2 months and over. The survey was conducted from October 1988 through October 1994, and was designed as two 3-year phases, each constituting a national probability sample. The 6-year sample, also a national probability sample, provides more statistically reliable estimates due to its larger size. Subgroups of the population were oversampled to allow increased precision in estimates for these groups. This includes black and Mexican-American people, all children 2 months through 5 years of age, and all persons 60 years and over. A detailed description of sample design specifications is included in the *Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988–94* (29).

The survey included an interview conducted in the household and an examination at a mobile examination center (MEC). Information obtained during the interview included individual characteristics such as sex, age, self-reported race and ethnicity, years of education completed, and household income information. The interviewer also asked questions on selected health conditions and behaviors, including information on smoking and use of vitamin or mineral supplements.

The examination consisted of a variety of physical measurements and a phlebotomy. The MEC examination also included an additional interview in a more private setting than the household to allow more personal or sensitive questions to be asked. Questions on reproductive health were asked in the MEC interview and detailed information on use of oral contraceptives and hormone replacement therapy was obtained.

To increase response rates, a home examination was offered to frail older people and others unable to travel to the MEC. The home examination was more limited than the MEC examination, but did include phlebotomy and an interview. A detailed description of the data collection methods for the survey has been published elsewhere (29).

In this report, age is defined as age in years at the time of the household interview. Age in years was defined as the age at last birthday. For example, all children 10.00–10.99 would be defined as 10 years old.

Information on self-reported race and ethnicity was used to classify persons as non-Hispanic white, non-Hispanic black, Mexican American, or other race-ethnicity. Separate estimates are presented for persons classified as non-Hispanic white, non-Hispanic black, and Mexican Americans only. Other race-ethnicities were reported in insufficient numbers to allow reliable estimates. Participants of other race-ethnicities are included in the total or ''all race-ethnicities'' category.

The categories of age and race-ethnicity used for the tables in this report are based on the sample design subdomains and are those recommended for improved precision of estimates in the *NHANES III Analytic Guidelines* in the section titled ''Key Variables for Analysis'' (29, p.4).

Pregnancy status was determined by self-report for females 10 years and over, with additional information from the results of urine testing for females 20 years and over. Pregnant women were excluded from these analyses.

Education was defined as the highest grade completed. It was categorized as less than 12 years of education and 12 years of education (or Graduate Equivalency Degree) or more.

Poverty status was defined using the poverty income ratio (PIR), and categorized as below poverty level (PIR less than 1.00) and at or above poverty level (PIR of 1.00 or more). Poverty income ratio is a calculated variable based on income and family size using tables published each year by the Bureau of the Census (30). This variable has been adjusted to account for inflation and other factors; however, the manner in which it is calculated has changed slightly over time.

Before the examinee underwent phlebotomy, a questionnaire was administered to determine eligibility for all phlebotomy procedures. This included questions to determine risks that would prohibit venipuncture, such as the examinee being a diagnosed hemophiliac or currently taking blood-thinning medication. Questions were also asked to document and determine fasting compliance and to aid in interpreting the results of the laboratory tests performed. At the time of the phlebotomy, the time of the day of the venipuncture was recorded. Examinees ages 12 years and over were instructed to fast for 10–16 hours prior to the morning examination, or for 6 hours before the afternoon or evening examination.

Laboratory Methods

Serum and red blood cell (RBC) folate were measured on all persons 4 years and over during all 6 years of NHANES III. In the second phase of NHANES III, 1991–94, serum vitamin B_{12} was also measured for persons 4 years and over. Detailed specimen collection and processing instructions are described in the *Laboratory Procedures Manual* (29).

From the start of data collection in October 1988 through November 1993, serum and RBC folate were analyzed using a commercially available radioassay (RA) kit (Quanta Phase I Folate Radioassay Kit, manufactured by Bio-Rad Laboratories, Hercules, CA). Beginning in December 1993 through the end of the survey, the Quanta Phase II Kit was used, which contained corrected pteroylglutamic acid (PGA) calibrators; this kit also simultaneously measured serum vitamin B_{12}. Quality control monitoring by the NHANES Laboratory of CDC and independent investigations by other researchers had previously determined that results obtained from the Quanta Phase I Kit were about 30 percent too high. This difference was due to the values assigned in 1975 to the original kit PGA calibrators. Radioassay kits were developed in the mid-1970's to permit these assays to be performed in hospitals. Kit manufacturers adjusted the concentration of the PGA calibrator solutions so that values generated by the kit agreed with those generated by the *Lactobacillus casei* microbiologic assay. In 1993, Bio-Rad Laboratories corrected the concentration of the calibrator solutions in the Quanta Phase II Kits. Based on comparative studies conducted by the NHANES Laboratory of CDC, an equation was calculated to adjust for the discrepancy in values obtained from the Quanta Phase I Kits:

Adjusted value = –0.1411
+ 0.6849(unadjusted value).

After applying the adjustment, values are approximately 32 percent lower. This adjustment was applied to the NHANES III serum and RBC folate values produced with the Quanta-Phase I Kit. These investigations and the recommendations of an expert panel convened by the Life Sciences Research Office (LSRO) of the Federation of American Societies for Experimental Biology are described in a report prepared by the LSRO for the Food and Drug Administration (31).

Response Rates

Survey response rates and sample sizes for all 6 years of NHANES III and for Phase 2 (1991–94) are summarized in table A. For these analyses, 354 pregnant women were excluded. Of the 33,027 nonpregnant persons 4 years and over who were selected over the 6 years of the survey, 27,658 (84 percent) were interviewed in their homes. All interviewed persons were invited to the MEC for a medical examination. Seventy-seven percent (25,314) of the selected persons 4 years and over were examined in the MEC or home. Of those examined, 23,378 had valid serum folate data and 23,082 had valid RBC folate data. For serum vitamin B_{12} in Phase 2 (1991–94), 16,279 nonpregnant persons 4 years and over were selected, and 13,560 (83 percent) were interviewed in their homes. Seventy-seven percent (12,578) of the nonpregnant selected persons 4 years and over were examined in the MEC or home. Of those examined, 11,851 had valid serum vitamin B_{12} data. Serum and RBC folate and serum B_{12} data could be missing for a variety of reasons including refusal, incomplete venipuncture, or incomplete laboratory analysis. The proportion of records with missing data was not different between race-ethnic groups or between sexes for all three biomarkers, although the youngest and oldest age groups had slightly more missing data than other age groups.

Statistical Methods

This report presents population means, standard errors of the means, and selected percentiles for serum and RBC folate and serum vitamin B_{12}. Data are weighted to account for survey design and nonresponse. Appropriate sample weights are needed to estimate means, medians, and other statistics. Several aspects of the NHANES III design must be taken into account in data analysis. Sample weights are used to produce accurate population estimates because each sample person does not have the same probability of selection. The sample weights incorporate the differential probabilities of selection and

Table A. Response rates for persons 4 years and over: third National Health and Nutrition Examination Survey, 1988–94

Response category	1988–94		Phase 2, 1991–94	
	Sample size	Response rate (percent)	Sample size	Response rate (percent)
Sampled, 4 years and over, nonpregnant	33,027	100	16,279	100
Interviewed	27,658	84	13,560	83
Examined (in MEC or home)[1]	25,314	77	12,578	77
Valid data:				
Serum folate	23,378	71	. . .	. . .
RBC folate	23,082	70	. . .	. . .
Serum vitamin B_{12}	. . .	. . .	11,851	73

. . . Category not applicable.
[1]MEC is mobile examination center.
[2]RBC is red blood cell.

include adjustments for oversampling of certain populations, noncoverage and nonresponse. Sample weights for the 6-year sample are used to produce estimates for serum and RBC folate, while sample weights for Phase 2 (1991–94) are used to produce estimates for serum B_{12}.

Standard errors of the means were estimated using two computer software programs—SAS and SUDAAN. SUDAAN is a program that takes into account the sampling weights and the complex sample design for calculating variance estimates (32,33). In addition, adjustments were made to the standard errors of the mean (SE) to account for the average design effect using the following equations:

$$SE = \sqrt{\overline{DE}} \cdot \frac{SD}{\sqrt{n}}$$

where

DE = the design effect, which is the ratio of the complex sampling design variance derived from SUDAAN (31) to the simple random sample variance calculated by SAS (30),

$\overline{DE}$ = the design effect averaged over the age categories, and

SD = the standard deviation calculated by SAS assuming a simple random sample (34).

These adjustments were made to the standard error of the mean because for serum vitamin B_{12}, data are available from only one phase of the two-phase sampling design. NHANES III was designed with two Primary Sampling Units (PSU's) selected per stratum with each assigned randomly to Phase 1 or Phase 2 (29). When computing variance estimates for only one phase, strata must be collapsed, or paired, to achieve an implied two-PSU's-per-stratum design. While standard errors from one phase can be estimated using SUDAAN, they are slightly overestimated. Kish discusses modeling standard errors to improve the precision of the standard error estimates using the design effect (35). This discussion provides the basis for the algorithm used. Because the design effect is different for different subgroups, an average design effect is used to model, or smooth, the standard error estimates.

The average design effect was also used to determine the minimum sample size needed to reliably estimate means and percentiles. Reliability of an estimated mean or percent also depends on the coefficient of variation or relative standard error (RSE), defined as the ratio of the standard error of the estimate to the estimate times 100. The larger the RSE of the estimate, the less reliable the estimate. In this report, estimates with a RSE greater than 25 percent are deemed unreliable. An asterisk on certain estimates denotes data that are not presented because criteria for reliability or precision for reporting were not met. The use of these criteria follow recommendations described in the *NHANES III Analytic Guidelines* in the appendix titled "The Joint Policy on Variance Estimation and Statistical Reporting Standards on NHANES III and CSF II Reports: HNIS/NCHS Analytic Working Group Recommendations" (29, p.39).

When comparing estimates, only statistically significant differences are reported. Tests of differences and 95 percent confidence limits were computed using SUDAAN (33). Differences were tested for statistical significance using an α level of 0.05. Where multiple comparisons were made, the α level was adjusted using the Bonferroni method by dividing 0.05 by the number of implied comparisons (36). In instances where results are not statistically significant, this may indicate that the statistical power is too low to detect a difference. That is, one should not conclude that a real difference does not necessarily exist because it is possible that the sample size is too small to correctly detect a difference. To make appropriate comparisons between race-ethnic groups, means were age adjusted by the direct method. Following the recommendation in the *NHANES III Analytic Guidelines*, the 1980 Census population proportions were used for these adjustments (29).

Results

Estimates for the Three Vitamin Biomarkers

The following tables provide various estimates for serum folate, red blood cell (RBC) folate, and vitamin B_{12}. Tables 1–9 present means, standard errors of the means, age-adjusted means, and selected percentiles for serum folate, red blood cell folate, and serum vitamin B_{12} by sex, race-ethnicity, and age. Tables 10–18 present estimates for these vitamin biomarkers by sex, race-ethnicity, age, and poverty level. Tables 19–27 present estimates by sex, race-ethnicity, age, and years of education. Tables 28–36 show cumulative distributions for the three biomarkers by sex, race-ethnicity, and age categories. The cumulative percent distributions can be used to identify the percent of the population below or above a selected concentration.

Tables II–X in appendix II give the sample sizes corresponding to the cumulative percents in tables 28–36.

Serum and RBC folate estimates are presented in nanograms per milliliter (ng/mL). To convert these estimates to nanomols per liter (nmol/L), the Systeme Internationale (SI) units, multiply by 2.266. Serum vitamin B_{12} estimates are presented in picograms per milliliter (pg/mL). To convert pg/mL to the SI units, picomols per liter (pmol/L), multiply by 0.7378. Prior to these descriptive analyses, the effect of fasting status on blood concentrations of these vitamins was examined and determined to have no significant effect. See the section titled ''Factors Affecting Folate and Vitamin B_{12} Blood Concentrations'' for a detailed description of these analyses.

Serum Folate

The average serum folate concentration for all persons 4 years and older in the United States, excluding pregnant females, is 7.2 ng/mL. Non-Hispanic white people had higher mean serum folate than non-Hispanic black people ($p < 0.01$), 7.5 ng/mL compared with 5.8 ng/mL for non-Hispanic white and non-Hispanic black people, respectively. Non-Hispanic white people also had higher mean serum folate than Mexican Americans ($p < 0.01$), 7.5 ng/mL compared with 6.1 ng/mL for non-Hispanic white and Mexican-American people, respectively. As shown in figure 1, this difference persisted after stratifying by sex ($p < 0.01$). The average serum folate for all males was lower than for all females ($p < 0.01$), 6.8 ng/mL compared with 7.5 ng/mL for males and females, respectively. As shown in figure 2, differences between males and females were also observed within adult age groups. Mean serum folate for males 20–29 years old was 4.9 ng/mL compared with 5.7 ng/mL among females of the same age ($p < 0.01$), mean serum folate for males 30–39 years old was 5.4 ng/mL compared with 6.2 ng/mL among their female counterparts ($p < 0.01$), mean serum folate for males 40–49 years old was 6.0 ng/mL compared with 6.7 ng/mL among females the same age ($p = 0.03$), mean serum folate for males 50–59 years old was 6.8 ng/mL compared with 8.2 ng/mL among females of the same age ($p < 0.01$), mean serum folate for males 60–69 years old was 7.9 ng/mL compared with 9.3 ng/mL among their female counterparts ($p < 0.01$), and mean serum folate for males 70 years and over was 9.0 ng/mL compared with 10.6 ng/mL among females of the same age ($p < 0.01$). Also, mean serum folate tends to increase with age in adults for both sexes.

When comparing across poverty level, none of the slight differences is statistically significant, although among non-Hispanic white and Mexican-American people those below the poverty level tend to have lower mean serum folate than those at or above poverty level. Although there are differences in serum folate concentrations across education levels for non-Hispanic white people, none of these is statistically significant. The differences for non-Hispanic black and Mexican-American people are also not significant and not as consistent as for non-Hispanic white people.

The cumulative percent distributions for serum folate should be interpreted with caution because of methodologic variability and lack of consensus on which indicators and cutpoints are appropriate for defining folate deficiency. An expert panel was convened by the Life Sciences Research Office (LSRO) to examine the NHANES II folate data. This panel defined low serum folate as below 3 ng/mL (37). Gibson notes that this is the most commonly used cutpoint for defining low serum folate (3). Because of the PGA calibrator problems associated with the Quanta Phase kits described in the ''Laboratory Methods'' section, it may be appropriate to apply the adjustment equation developed for the NHANES III folate data to the 3 ng/mL cutpoint. This

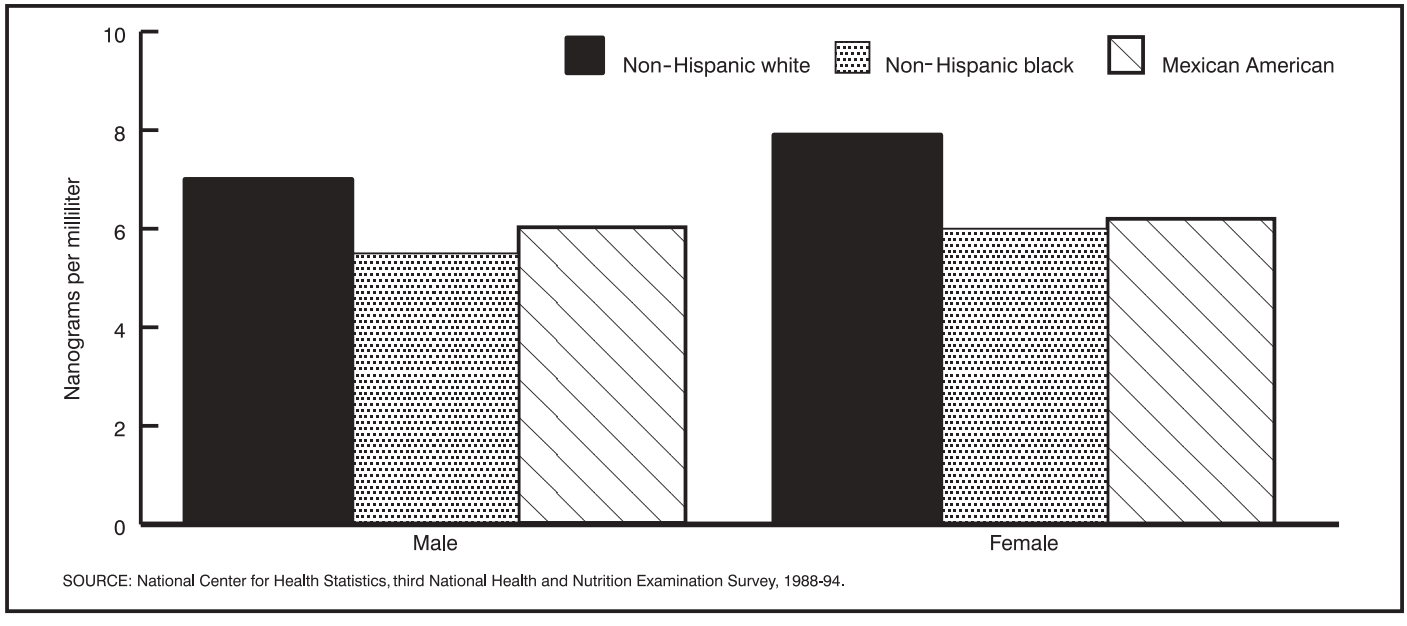

Figure 1. Age-adjusted mean serum folate concentrations for persons 4 years and over, by sex and race-ethnicity: United States, 1988–94

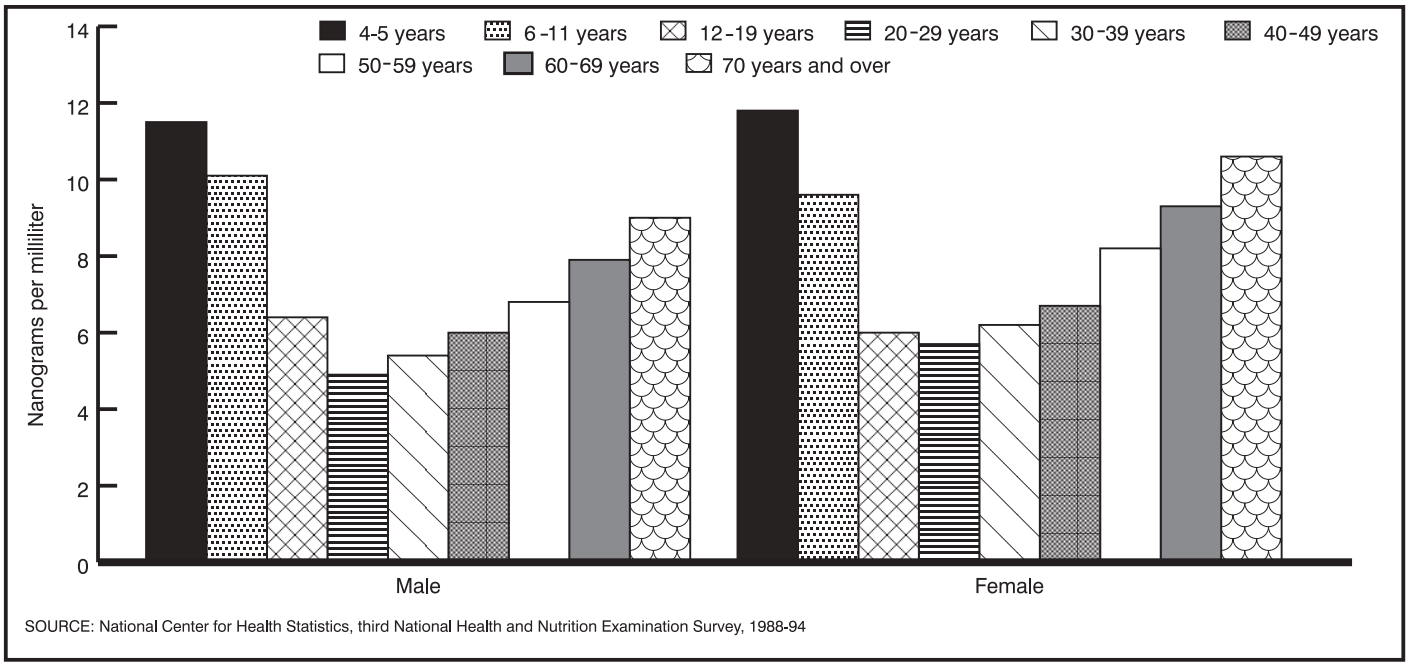

Figure 2. Mean serum folate concentrations for persons 4 years and over, by sex and age: United States, 1988–94

produces an adjusted cutpoint of 2 ng/mL. The proportion below 2 ng/mL is between 2 percent for those who are 60–69 years old and those 70 years and over and 6 percent for those 20–29 years old and 30–39 years old. Because of the risk of birth defects, there is concern over inadequate folate status among women of childbearing age. Among females, serum folate concentrations were below 2 ng/mL in 4 percent of those 12–19 years old, 6 percent of those 20–29 years old, 6 percent of those 30–39 years old, and 4 percent of those 40–49 years old. Many of the studies of folate and neural tube defects (NTD's) measured blood folate concentrations in women who had an affected pregnancy (4, 38–41). Smithells and coauthors measured serum and RBC folate in a case-control study of NTD's, calculating a mean serum folate of 4.9 ng/mL among five cases and a mean RBC folate of 141 ng/mL among six cases (41). The mean RBC folate of cases was significantly different from that of controls. It is important to note that serum and RBC folate were measured by the *L. casei* microbiologic method and this limits comparisons to the NHANES III. Rush reviewed clinical trials and observational studies of folate and NTD's (40). In the studies he reviewed, serum folate concentrations among cases ranged from 141–178 ng/mL. Because these were measurements in women having NTD-affected pregnancies, they may be defined as inadequate concentrations, although they are not below cutpoints generally defined as deficient. The methods used in these studies and that by Smithells and coauthors may not be comparable to the radioassay used in NHANES III. However, looking at blood concentrations slightly higher than the 2 ng/mL cutpoint may give some indication of inadequate concentrations. In NHANES III, serum folate concentrations among females were less than 3 ng/mL for 19 percent of those 12–19 years old, 22 percent of those 20–29 years old, 19 percent of those 30–39 years old, and 19 percent of those 40–49 years old.

Red Blood Cell Folate

The mean RBC folate concentration for all persons 4 years and older in the United States, excluding pregnant females, is 196 ng/mL. RBC folate concentrations have patterns similar to serum folate. That is, non-Hispanic white people have higher mean RBC folate than Mexican-American and non-Hispanic black people, with an age-adjusted mean of 204 ng/mL for non-Hispanic white people, while the mean concentration for Mexican Americans is 180 ng/mL ($p < 0.01$), and 150 ng/mL ($p < 0.01$) for non-Hispanic black people. As shown in figure 3, this race-ethnic difference is still present when looking at males and females separately ($p < 0.01$ in males and females). Overall, females have higher mean RBC folate concentrations than males (211 ng/mL for females compared with 201 ng/mL for males, $p = 0.05$). Within each sex, differences across age groups were similar to those seen in serum folate, as shown in figure 4. Among males, mean RBC folate was higher in children and older adults than in young adults; males aged 20–29 years have lower mean RBC folate than boys 4–5 years and 6–11 years, and males 70 years and older ($p < 0.01$). Among females, mean RBC folate was loweer in adolescents 12–19 years and young adults 20–29 years than in younger age groups (4–5 year-olds and 6–11 year-olds) and older age groups (70 years and older) ($p < 0.01$). As with serum folate, none of the differences in mean RBC folate across years of education or poverty level are statistically significant.

Gibson notes that a cutpoint of 160 ng/mL for RBC folate has been used to define depleted folate stores, and 120

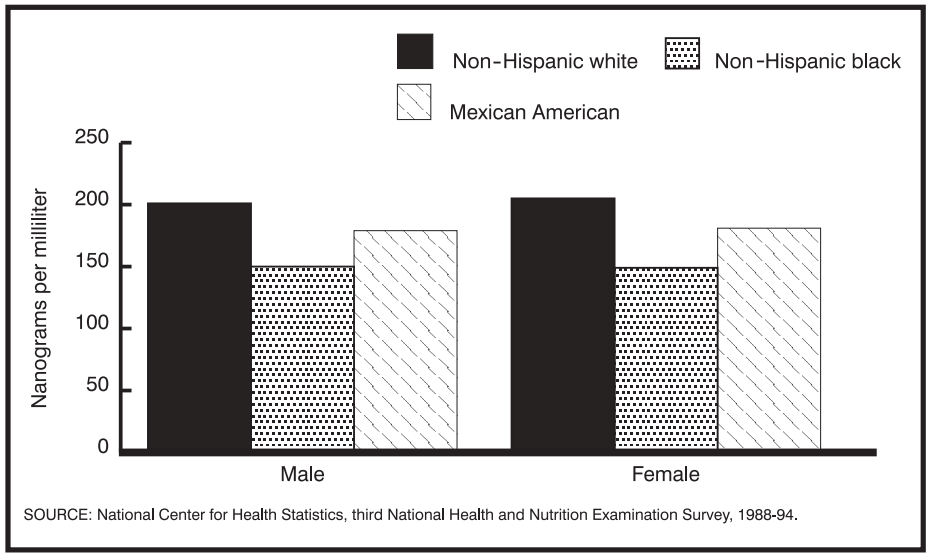

Figure 3. Age-adjusted mean red blood cell folate concentrations for persons 4 years and over, by sex and race-ethnicity: United States, 1988–94

ng/mL to indicate the concentration at which biochemical function is impaired (3). When reviewing the NHANES II data, the LSRO panel defined low RBC folate concentrations as one below 140 ng/mL (24). Applying the adjustment equation to this cutpoint, which falls at the midpoint of the cutpoints suggested by Gibson, produces an adjusted cutpoint of about 95 ng/mL. From tables 31–33, the proportion below 95 ng/mL decreases with age from 12–19 years (12 percent) to those 70 years and older (4 percent). There is concern about inadequate folate status among women of childbearing age because of the risk of birth defects. Because RBC folate is a better marker of long-term folate status, it is useful to look at the percent of women of childbearing age with low RBC folate concentrations. Among females of reproductive age, 14 percent of 12–19 year-olds, 13 percent of 20–29 year-olds, 8 percent of 30–39 year-olds, and 10 percent of 40–49 year-olds have RBC folate less than 95 ng/mL.

Serum Vitamin B_{12}

The mean serum B_{12} concentration for all persons 4 years and older in the United States, excluding pregnant females, is 518 pg/mL. Whereas the distribution of serum and RBC folate are slightly skewed (skewness = 6.18 for serum folate, and skewness = 2.55 for RBC folate), the distribution of serum vitamin B_{12} concentrations is highly skewed (skewness = 42.19). This is especially true among Mexican Americans because the very high values are more influential in this subgroup due to the smaller cell sizes. The median is less affected by the outliers and thus is a better measure of central tendency for Mexican Americans. Therefore, for serum B_{12}, median values with 95 percent confidence limits are used to compare groups. The race-ethnic differences among serum B_{12} concentrations are the converse of those seen for serum and RBC folate. Non-Hispanic white people have the lowest concentrations, with a median of 446 pg/mL (95 percent limits, 436–456 pg/mL), while Mexican Americans have a median of 499 pg/mL (95 percent limits, 473–530 pg/mL) and non-Hispanic black people have the highest median concentration, 568 pg/mL (95 percent limits, 553–582 pg/mL). These differences persist after

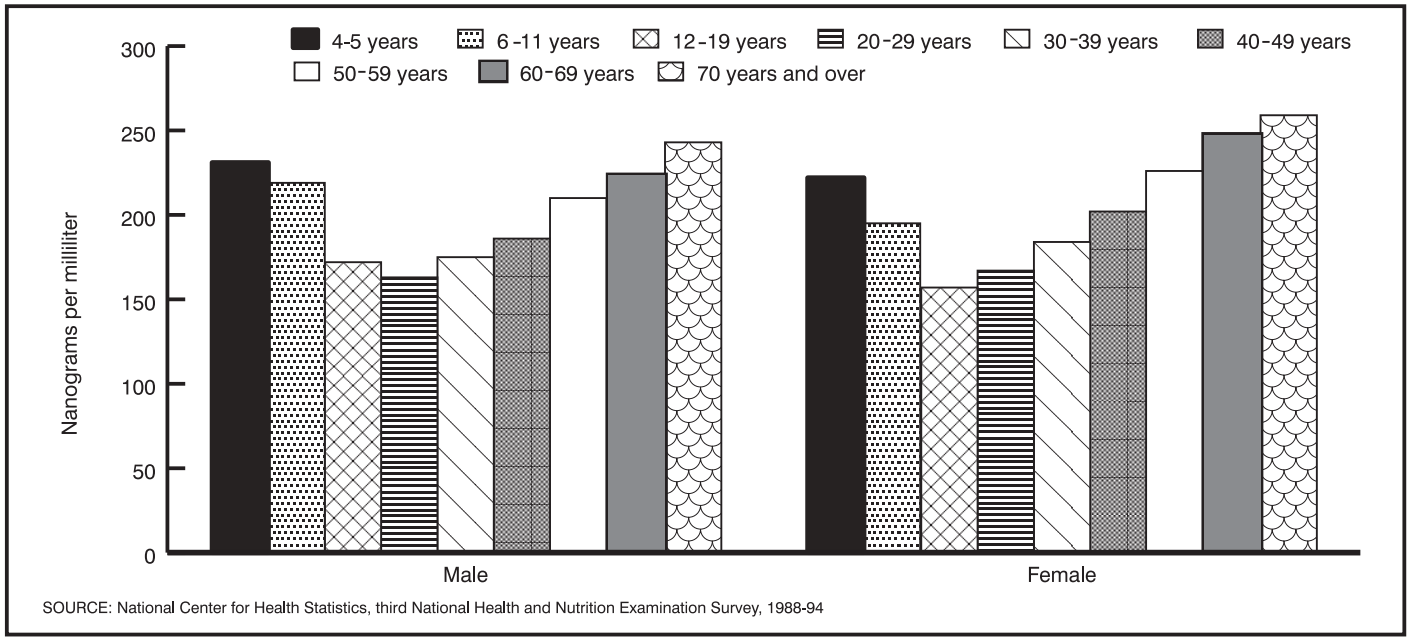

Figure 4. Mean red blood cell folate concentrations for persons 4 years and over, by sex and age: United States, 1988–94

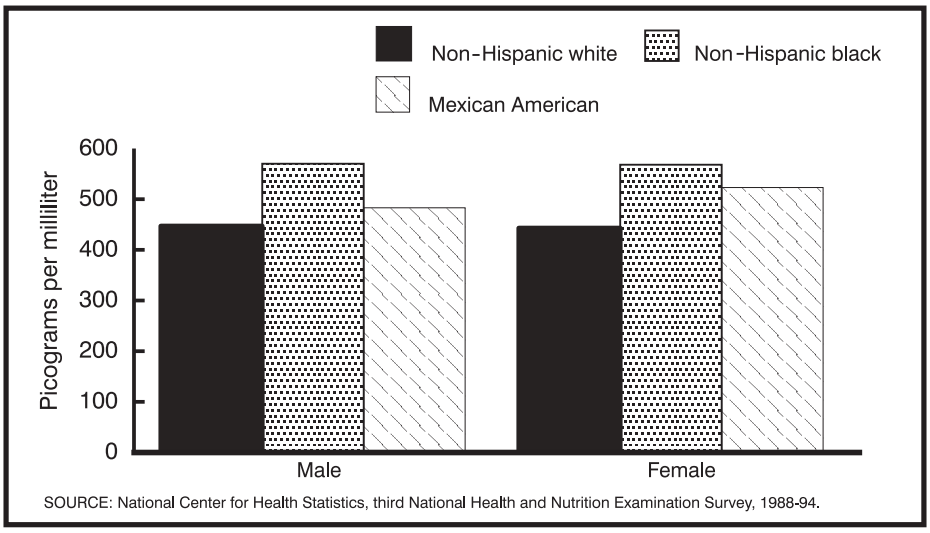

Figure 5. Median serum vitamin B_{12} concentrations for persons 4 years and over, by sex and race-ethnicity: United States, 1991–94

stratifying by sex, as shown in figure 5. Serum vitamin B_{12} concentrations are higher for the youngest age group than for the oldest age group in each sex as shown in figure 6. Among males, median serum B_{12} is 734 pg/mL (95 percent limits, 684–781 pg/mL) for 4–5 year-olds compared with 387 pg/mL (95 percent limits, 363–412 pg/mL) for males 70 years and older. Among females, median serum B_{12} is 784 pg/mL (95 percent limits, 691–840 pg/mL) in 4–5 year-olds compared with 436 pg/mL (95 percent limits, 413–458 pg/mL) in females 70 years and older. Median serum vitamin B_{12} for women of childbearing age ranges from 481 pg/mL for 12–19 year-olds to 426 pg/mL for 20–29 year-olds. As with the folate biomarkers, no significant differences were seen in serum B_{12} when stratifying by years of education or by poverty level.

As with serum and RBC folate, there are some limitations with using the cumulative percent distributions of serum B_{12} concentrations as an indicator of vitamin B_{12} deficiency. The 1998 Institute of Medicine report on B vitamins noted that the lower limit of B_{12} concentration in serum varies with the method used and the laboratory conducting the analysis (42). In addition, tissue concentrations of vitamin B_{12} may become depleted before serum concentrations (42) . Therefore, persons with higher serum B_{12} concentrations may still have inadequate B_{12} status overall (42). However, most persons with inadequate B_{12} status have low serum B_{12} concentrations (43). As Gibson summarizes, values between 150 and 200 pg/mL for serum B_{12} are considered to be moderately low values for the vitamin and do not necessarily indicate vitamin B_{12} deficiency. Vitamin B_{12} depletion is indicated when serum B_{12} concentrations drop to between 150 and 100 pg/mL, although biochemical function is normal (3). When serum B_{12} concentrations fall to a level below 100 to 80 pg/mL, Gibson indicates that this is almost always suggestive of vitamin B_{12} deficiency (3).

Less than 1 percent of the total population 4 years and older have serum vitamin B_{12} less than 100 pg/mL. Only 1 percent of older age groups (50–59 years, 60–69 years, and 70 years and older) have serum B_{12} less than 100 pg/mL. The proportion of the population

Figure 6. Median serum vitamin B_{12} concentrations for persons 4 years and over, by sex and age: United States, 1991–94

with serum B_{12} below 200 pg/mL increases with age from 2 percent among 30–39 year-olds to 6 percent of persons 70 years and older. Using a cutpoint of 250 pg/mL, 8 percent of 40–49 year-olds, 9 percent of 50–59 year-olds, 12 percent of 60–69 year-olds, and 13 percent of persons 70 years and older have low serum B_{12}.

To address the skewness in the distribution, a log transformation was applied. This made the distribution more symmetric. Geometric means calculated from log-transformed data are included in appendix I along with 95 percent confidence limits. These estimates can be used to compare means within subgroups. When comparing estimates from other surveys or studies to these estimates, it is important to remember to compare geometric means to geometric means.

When comparing the geometric means for serum vitamin B_{12}, the same racial-ethnic differences are seen as with the medians. The upper bound of the 95 percent confidence interval for non-Hispanic white people does not overlap the lower bound for non-Hispanic black people for any sex-age group. The geometric means for Mexican Americans are lower than those for non-Hispanic black people, but there is some overlap in the confidence limits.

Factors Affecting Folate and Vitamin B_{12} Blood Concentrations

Previous studies have identified behaviors or characteristics that affect folate and vitamin B_{12} concentrations in blood. A number of studies have identified the use of vitamin supplements as having a significant effect on blood folate concentrations (26, 44–46). The effect of smoking on folate and vitamin B_{12} status has also been examined with results indicating that smokers may have lower blood concentrations of folate and vitamin B_{12} (47–49). Researchers have also investigated the effect of oral contraceptives and hormone replacement therapy on blood folate concentrations (50–54). The findings from these studies are inconsistent, but indicate that oral contraceptive users may have lower blood folate and B_{12} concentrations. The one study that examined the effect of hormone replacement use found no effect on serum B_{12} concentrations (51) Using information collected during the MEC interview, the relationship of these behaviors to folate and vitamin B_{12} concentrations in the blood was examined in NHANES III. The results of these analyses are summarized in table B.

Fasting Status and Supplement Use

As noted in the ‘‘Methods’’ section, respondents were asked to fast either 10–16 hours or 6 hours, depending on whether their mobile examination center (MEC) appointment was in the morning session or in the afternoon or evening session. Prior to the phlebotomy, respondents were asked when they last ate or drank, and the number of hours fasted was calculated. Respondents were not asked to include taking a vitamin supplement when answering this question. Fasting status was categorized as fasting 9 hours or more, or fasting less than 9 hours (this included those who reported having just eaten). Respondents were asked separately about use of vitamin or mineral supplements in the past 24 hours. Therefore, when analyzing fasting status, use of supplements in the past 24 hours was controlled for by selecting only those people who reported not taking a supplement. Although those who fasted 9 hours or more had lower serum folate concentrations than those who fasted less than 9 hours, the differences were not statistically significant. As expected, fasting status had no effect on RBC folate because RBC folate is an indicator of more long-term status. No effect of fasting was seen for serum vitamin B_{12}. Because blood concentrations of folate and B_{12} may be affected shortly after eating and the effect may vary from

Table B. Summary of analyses for confounders

Possible confounders	Serum folate	RBC folate	Serum vitamin B_{12}
Fasting	Lower levels for fasting than for nonfasting, but not statistically significant	No consistent trend and no statistically significant differences	No consistent trend and no statistically significant differences
Supplement use in past 24 hours	Recent supplement users had higher concentrations than nonusers, statistically significant for all groups except 12–19 year-olds (both sexes)	Recent supplement users had higher concentrations than nonusers, statistically significant for all groups except 12–19 year-old males	Recent supplement users had higher concentrations than nonusers, statistically significant for all groups except 12–19 year-old females
Smoking	Lower concentrations among current smokers than nonsmokers or former smokers, but not statistically significant or consistent	Lower concentrations among current smokers than nonsmokers or former smokers, but not statistically significant or consistent	No consistent significant differences among categories of smoking
OCA use/HRT	Higher concentrations among ‘‘never users’’ than categories of users, but not significant or consistent after stratifying by age; associations of serum folate with OCA use and HRT are confounded by education level and supplement use in the past month	Users of OCA’s and those on HRT tend to have higher levels than nonusers, but not statistically significant differences; associations of RBC folate with OCA use and HRT are confounded by education level and supplement use in the past month	No consistent significant differences among categories of OCA or HRT use

NOTE: RBC is red blood cell, OCA is oral contraceptive agent, and HRT is hormone replacement therapy.

person to person, a multiple linear regression procedure in SUDAAN was used to test for the effect of number of hours fasted as a continuous variable and the effect of time of venipuncture on serum folate and serum vitamin B_{12} (33). Age, sex, and race-ethnicity (categorized as ''non-Hispanic black'' and ''all others'') were controlled for in the regression. Time of venipuncture or blood draw was included to determine whether there was any diurnal variation. No significant effect was seen for number of hours fasted or for time of venipuncture.

In the analysis of supplement use in the past 24 hours, only those who fasted 9 hours or more were included. Those who reported using a vitamin or mineral supplement in the past 24 hours had higher concentrations for all three analytes than those who did not. These differences were statistically significant for almost all sex and age subgroups.

Smoking Status

Studies by Piyathilake and others have found significantly lower concentrations of plasma and RBC folate and serum vitamin B_{12} among smokers than nonsmokers (47–49). To examine the effect of smoking, those who reported smoking at least 100 cigarettes in their life and who currently smoke were defined as current smokers; those who had smoked at least 100 cigarettes but who were not currently smoking, were defined as former smokers; and those who had not smoked at least 100 cigarettes in their life were defined as nonsmokers. Current smokers had significantly lower concentrations of serum and RBC folate than either nonsmokers or former smokers. This trend was seen for RBC folate in all sex-age groups and for serum folate in all sex-age groups except females 80 years and older. Differences in serum B_{12} concentrations were neither significant nor consistent among categories of smoking.

Oral Contraceptives and Hormone Replacement Therapy

Oral contraceptive agents (OCA's), known as birth control pills, and medications used in hormone replacement therapy (HRT) by postmenopausal women contain animal or synthetic estrogen or estrogen-like compounds. These compounds may lower folate and B_{12} concentrations in the blood (50–54). In NHANES III, questions on use of OCA's and HRT included length of time using the product; how recent the use was; and for OCA's, the brand name of the product. Definitions constructed by Russell-Briefel and coauthors were used for OCA and HRT variables (55). These included ''never used OCA's and/or HRT,'' '' used OCA's and/or HRT more than 6 months ago,'' and ''used OCA's and/or HRT in the past 6 months.'' Serum and RBC folate concentrations were significantly higher among those who never used OCA's than either category of OCA user. This difference was not present after stratifying by age. Differences in serum and RBC folate concentrations among categories of HRT were generally not significant or consistent across age categories. However, among women 60 years and older, those who had never been on HRT had significantly lower RBC folate than either category of those on HRT. No consistent or statistically significant differences were seen when comparing serum B_{12} concentrations among the categories of OCA or HRT users. Preliminary analyses indicate that there is confounding of OCA and HRT categories by age, supplement use, and education. The NHANES III data will allow for the estimation of intake of folic acid from supplements. Further analyses are underway using these more detailed data and multivariate techniques to further investigate the relationship of OCA's and HRT to folate status.

Other Factors

Other characteristics and behaviors could affect blood concentrations of folate or vitamin B_{12}. These include alcohol consumption; donating blood in the past month; being treated for anemia in the past 3 months; having colds, flu, diarrhea, vomiting, pneumonia, or ear infections in the past 4 weeks; and use of prescription medications in the past 24 hours. However, the sample sizes in these analyses were too small to allow reliable estimates and comparisons.

Discussion

This report provides reference data on serum and red blood count (RBC) folate and serum vitamin B_{12} concentrations for the U.S. population. These data indicate differences in status between subgroups of the population. The results of these analyses indicate that serum and RBC folate concentrations were lower in males than in females, and folate concentrations were higher among all non-Hispanic white people compared with non-Hispanic black people and Mexican Americans. Mean serum and RBC folate tend to increase with age in adults, in both males and females. These analyses show that non-Hispanic white people have lower serum vitamin B_{12} concentrations than do non-Hispanic black people or Mexican Americans. Median serum vitamin B_{12} is highest in the youngest age groups and decreases across older age groups. Recent use of supplements has a significant effect on blood concentrations of these vitamins. Those who reported using a vitamin and/or mineral supplement in the 24 hours prior to the blood draw had higher blood concentrations of folate and B_{12} than those who did not.

Definitions for deficient, normal, and abnormal ranges for serum and red cell folate concentrations vary widely (3,24,31,56). A CDC-sponsored round robin interlaboratory study of methods for measuring serum and red blood cell folate concentrations found a substantial discrepancy between various measurement methods, with the greatest variation occurring at low folate concentrations (57). Greater variation was seen for RBC folate than for serum folate. Within-laboratory precision also varied significantly within and across methods. The authors recommend that to evaluate a study or clinical data, method-specific normal ranges should be used and not ''generally published'' normal ranges. The normal range for the U.S. population 4 years and older can be defined as the 5th percentile to the

95th percentile from the NHANES III data. For serum folate the range is 2.1–17.1 ng/mL, for RBC folate the range is 87–378 ng/mL, and for serum vitamin B_{12} the range is 233–928 ng/mL. The results of Gunter and coauthors' (57) study draws into question the validity of applying cutpoints for deficiency defined using one method to data collected using another method. In addition, evaluation of a single indicator may not be appropriate for assessment of folate status (37). Generally speaking, the use of a single indicator for assessment of status is not optimal for any nutrient.

While there are difficulties in establishing a definition of deficiency for folate and for vitamin B_{12}, comparisons of the distributions of biomarker concentrations between groups permit identification of subgroups of the population for whom concern for inadequate vitamin status is greater. Young adults (20–29 years) have a higher prevalence of low serum and RBC folate than older adults. Prevalence of low serum B_{12} concentrations increases with age in adults.

These measurements are indicators of the status of these vitamins, but a more comprehensive assessment of status includes other information as well. Dietary intake data provides more information, and preliminary analyses have identified other behaviors that may affect folate and vitamin B_{12} status. Recent vitamin supplement use affects blood concentrations, particularly serum concentrations. Fasting status is frequently queried when measuring blood concentrations of folate and B_{12}, but its effect is not statistically significant.

Some methodologic aspects of the blood folate data limit the comparisons that can be made. Laboratory methods for serum and red cell folate concentrations differed between NHANES III and previous NHANES. The expert panel that evaluated the NHANES III folate methods concluded that it would be inappropriate to apply the correction equation developed from the NHANES III data to the NHANES II folate data to investigate trends over time (31). In addition, comparing these data to data from other studies would require an evaluation of the methods used. Caution should be used in making any comparisons.

Recommendations for future measurement of blood concentrations of folate and B_{12} can be made from these results. When measuring blood concentrations of these analytes, assessment of fasting status is not as important as determining recent vitamin supplement use, which is more important in assessing serum folate and serum vitamin B_{12}. The effect of recent supplement use on RBC folate may simply be a proxy for long-term use of supplements. Additionally, information on cigarette smoking and use of oral contraceptives and HRT medication should be considered when interpreting blood concentrations of folate and vitamin B_{12}.

Research in the last decade has linked folate intake with reduced risk of NTD's and indicated an association of folate, B_{12}, and other B vitamins with the risk for cardiovascular disease and certain cancers. As research in these areas continues, it will be important to have current estimates for biomarkers for these vitamins for the U.S. population. It will also be important to have these estimates for use in evaluating the impact of the recently enacted folate fortification of certain foods on the target group of women of childbearing age, as well as other subgroups of the population.

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Table 1. Serum folate in nanograms per milliliter for persons 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	23,378	7.2	0.1	2.1	2.5	2.9	3.6	5.5	8.9	11.4	13.4	17.1
4 years and over, age adjusted	...	7.2	...	...	...	...	...	...	...	...	...	...
4-5 years	1,742	11.7	0.4	4.6	5.5	6.1	7.5	10.2	13.7	16.4	18.1	22.1
6-11 years	2,885	9.8	0.3	3.8	4.4	5.1	6.0	8.4	11.4	13.7	16.0	19.2
12-19 years	2,896	6.2	0.2	2.1	2.6	2.9	3.5	5.2	7.8	9.4	11.0	13.1
20-29 years	3,135	5.3	0.1	1.8	2.2	2.5	2.9	4.3	6.5	8.0	9.2	12.4
30-39 years	3,077	5.8	0.1	1.9	2.3	2.7	3.2	4.7	7.0	9.4	11.0	13.7
40-49 years	2,473	6.4	0.2	2.0	2.4	2.6	3.3	4.9	7.8	9.9	11.8	15.7
50-59 years	1,795	7.5	0.3	2.2	2.7	3.0	3.7	5.6	9.3	12.4	14.6	19.1
60-69 years	2,254	8.7	0.4	2.5	3.0	3.4	4.2	6.6	11.2	14.2	16.3	20.2
70 years and over	3,121	10.0	0.3	2.7	3.3	3.8	4.9	7.5	12.7	16.6	19.5	24.8
Non-Hispanic white												
4 years and over	8,717	7.5	0.2	2.1	2.6	2.9	3.7	5.8	9.4	12.0	14.2	18.0
4 years and over, age adjusted	...	7.5	...	...	...	...	...	...	...	...	...	...
4-5 years	445	12.5	0.6	4.9	5.8	6.6	8.0	10.7	14.2	16.8	19.3	25.7
6-11 years	761	10.3	0.4	3.9	4.6	5.3	6.2	8.8	12.1	14.6	17.0	22.1
12-19 years	751	6.4	0.2	2.3	2.7	2.9	3.6	5.5	8.2	9.7	11.6	14.3
20-29 years	818	5.5	0.2	1.8	2.2	2.5	2.9	4.4	6.8	8.3	10.0	12.8
30-39 years	990	6.1	0.2	1.9	2.3	2.7	3.3	4.9	7.7	10.0	11.4	14.2
40-49 years	885	6.7	0.3	2.0	2.4	2.7	3.3	5.2	8.4	10.6	12.4	16.8
50-59 years	876	7.8	0.3	2.2	2.7	3.0	3.7	5.8	9.7	13.0	15.0	19.4
60-69 years	980	9.0	0.4	2.5	3.0	3.4	4.4	6.9	11.5	14.6	16.6	20.2
70 years and over	2,211	10.3	0.3	2.8	3.5	4.0	5.0	7.8	13.5	17.2	20.0	25.5
Non-Hispanic black												
4 years and over	6,746	5.8	0.1	1.9	2.3	2.6	3.1	4.6	7.0	8.8	10.3	12.9
4 years and over, age adjusted	...	5.8	...	...	...	...	...	...	...	...	...	...
4-5 years	556	9.6	0.3	*4.1	4.8	5.3	6.2	8.3	11.4	13.6	15.4	*18.0
6-11 years	952	8.6	0.4	3.5	3.9	4.4	5.3	7.5	10.0	11.6	13.4	15.7
12-19 years	1,011	5.2	0.2	2.0	2.3	2.5	3.2	4.2	6.2	7.5	8.3	10.3
20-29 years	980	4.5	0.1	1.7	2.1	2.3	2.7	3.8	5.4	6.8	7.9	9.2
30-39 years	1,031	4.8	0.1	1.7	2.0	2.3	2.7	3.9	5.5	6.9	8.3	11.4
40-49 years	755	5.0	0.2	1.9	2.2	2.5	2.8	4.0	5.7	7.3	8.6	11.6
50-59 years	462	5.7	0.3	*1.9	2.3	2.6	3.3	4.4	7.0	9.1	10.8	*13.7
60-69 years	540	6.5	0.3	*2.1	2.5	2.9	3.4	4.9	7.4	9.7	11.8	*15.4
70 years and over	459	7.3	0.4	*2.2	2.7	3.0	3.7	5.9	9.0	11.4	12.8	*16.7
Mexican American												
4 years and over	6,919	6.2	0.2	2.1	2.5	2.8	3.4	5.0	7.6	9.5	10.9	13.7
4 years and over, age adjusted	...	6.1	...	...	...	...	...	...	...	...	...	...
4-5 years	649	10.6	0.6	4.4	5.5	6.1	7.1	9.5	12.7	14.4	16.6	19.2
6-11 years	1,045	9.4	0.4	3.8	4.4	5.1	6.0	8.0	10.8	12.9	14.9	19.1
12-19 years	985	5.6	0.2	2.0	2.5	2.8	3.4	4.8	6.9	8.5	9.7	11.9
20-29 years	1,200	4.9	0.2	1.8	2.3	2.6	3.0	4.1	5.7	7.1	8.4	10.7
30-39 years	925	5.2	0.2	1.8	2.3	2.5	3.1	4.4	6.3	8.1	9.3	11.4
40-49 years	723	5.0	0.2	2.0	2.3	2.6	3.1	4.2	6.1	7.3	8.6	11.1
50-59 years	363	5.8	0.3	2.1	2.6	2.9	3.2	4.9	7.6	8.7	10.2	11.8
60-69 years	657	6.4	0.3	2.3	2.8	3.1	3.7	5.1	7.5	9.7	11.0	14.9
70 years and over	372	7.4	0.6	2.4	2.7	2.9	3.6	5.7	8.6	12.5	14.0	19.6

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 2. Serum folate in nanograms per milliliter for males 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	11,269	6.7	0.2	2.1	2.5	2.9	3.5	5.3	8.4	10.7	12.5	15.9
4 years and over, age adjusted	...	6.8	...	...	...	...	...	...	...	...	...	...
4-5 years	863	11.5	0.5	4.7	5.5	6.0	7.0	10.0	14.0	16.4	17.3	22.0
6-11 years	1,469	10.1	0.3	3.8	4.8	5.4	6.4	8.8	11.8	14.2	16.0	18.7
12-19 years	1,383	6.4	0.3	2.3	2.7	3.1	3.7	5.4	7.9	9.5	11.2	13.4
20-29 years	1,555	4.9	0.1	1.8	2.2	2.5	2.9	4.0	6.0	7.5	8.4	11.1
30-39 years	1,397	5.4	0.2	1.9	2.3	2.6	3.1	4.5	6.6	8.6	10.2	11.9
40-49 years	1,170	6.0	0.3	1.9	2.3	2.6	3.2	4.7	7.6	9.4	10.5	13.8
50-59 years	832	6.8	0.3	2.2	2.6	2.9	3.6	5.1	8.4	10.9	13.3	18.0
60-69 years	1,137	7.9	0.3	2.4	2.9	3.2	4.0	6.1	10.7	13.1	14.9	17.6
70 years and over	1,463	9.0	0.3	2.3	3.1	3.6	4.5	7.0	11.0	15.3	17.9	21.7
Non-Hispanic white												
4 years and over	4,118	6.9	0.2	2.1	2.5	2.9	3.6	5.5	8.7	11.1	13.0	16.4
4 years and over, age adjusted	...	7.0	...	...	...	...	...	...	...	...	...	...
4-5 years	217	12.2	0.8	*4.9	5.7	6.2	7.5	10.3	14.2	16.8	18.6	*22.5
6-11 years	391	10.5	0.4	4.0	5.1	5.7	6.6	9.2	12.4	14.8	16.6	20.1
12-19 years	341	6.5	0.3	2.3	2.7	3.2	3.8	5.6	8.1	9.7	12.0	15.0
20-29 years	380	5.0	0.2	1.8	2.2	2.5	2.9	4.0	6.3	7.9	9.0	11.8
30-39 years	439	5.5	0.2	1.9	2.3	2.7	3.2	4.7	6.9	8.9	10.7	11.9
40-49 years	422	6.3	0.3	2.0	2.3	2.6	3.3	5.0	7.8	9.8	11.0	15.5
50-59 years	411	6.8	0.3	2.2	2.6	2.9	3.6	5.1	8.6	11.5	13.3	18.0
60-69 years	499	8.2	0.4	2.4	2.9	3.2	4.2	6.3	11.2	13.7	15.5	17.8
70 years and over	1,018	9.3	0.3	2.6	3.3	3.8	4.7	7.2	11.4	15.7	18.4	21.9
Non-Hispanic black												
4 years and over	3,185	5.6	0.1	1.9	2.3	2.6	3.1	4.5	6.9	8.6	10.0	12.3
4 years and over, age adjusted	...	5.5	...	...	...	...	...	...	...	...	...	...
4-5 years	281	9.5	0.5	4.3	4.9	5.4	6.2	7.9	10.9	13.7	15.5	18.0
6-11 years	487	8.3	0.2	3.5	4.0	4.5	5.4	7.7	10.1	11.6	13.1	15.7
12-19 years	481	5.3	0.2	2.0	2.5	2.9	3.4	4.5	6.7	7.9	9.2	10.7
20-29 years	461	4.4	0.1	1.8	2.1	2.4	2.8	3.7	5.3	6.6	7.6	8.4
30-39 years	454	4.7	0.2	1.8	2.1	2.3	2.8	3.8	5.4	6.8	8.1	11.1
40-49 years	333	4.7	0.2	1.9	2.2	2.4	2.7	4.0	5.7	6.9	7.7	10.3
50-59 years	205	5.4	0.3	*1.9	2.2	2.6	3.2	4.2	6.4	7.9	10.2	*11.8
60-69 years	268	5.9	0.4	2.1	2.3	2.6	3.1	4.4	7.1	9.2	10.8	13.9
70 years and over	215	6.3	0.3	*2.1	2.4	2.7	3.4	5.0	8.3	9.8	11.2	*14.4
Mexican American												
4 years and over	3,511	6.1	0.3	2.0	2.5	2.8	3.4	4.9	7.5	9.1	10.6	13.5
4 years and over, age adjusted	...	6.0	...	...	...	...	...	...	...	...	...	...
4-5 years	319	11.0	1.0	*4.6	5.5	6.0	7.1	9.6	13.2	15.5	16.9	*19.2
6-11 years	518	10.0	0.6	3.8	4.7	5.3	6.2	8.1	11.1	13.3	15.1	20.0
12-19 years	497	5.5	0.2	2.0	2.5	2.7	3.4	4.7	7.0	8.7	9.7	11.5
20-29 years	644	4.6	0.2	1.9	2.3	2.6	3.0	4.0	5.5	6.6	7.5	9.0
30-39 years	449	5.3	0.3	*1.8	2.3	2.6	3.1	4.5	6.4	8.3	9.2	*10.9
40-49 years	370	4.9	0.2	*2.0	2.3	2.6	3.1	4.1	6.0	7.2	8.5	*11.0
50-59 years	177	5.5	0.4	*2.1	*2.6	2.9	3.1	4.6	7.1	8.4	*9.9	*11.2
60-69 years	337	6.2	0.4	*2.3	2.7	3.0	3.7	5.0	7.5	9.6	10.4	*13.6
70 years and over	200	6.5	0.6	*2.2	*2.7	2.9	3.1	5.0	7.8	9.2	*12.3	*14.0

... Category not applicable.
* Figure does not meet standard of reliability or precision.
[1] Includes all other racial-ethnic groups not listed separately.

Table 3. Serum folate in nanograms per milliliter for females 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	12,109	7.6	0.2	2.1	2.6	3.0	3.8	5.8	9.3	12.1	14.3	18.6
4 years and over, age adjusted	...	7.5	...	...	...	...	...	...	...	...	...	...
4-5 years	879	11.8	0.5	4.5	5.4	6.4	7.8	10.5	13.6	16.2	18.7	22.4
6-11 years	1,416	9.6	0.3	3.8	4.2	4.8	5.7	7.9	11.3	13.5	16.0	19.2
12-19 years	1,513	6.0	0.2	2.1	2.5	2.8	3.4	5.1	7.7	9.2	10.7	12.7
20-29 years	1,580	5.7	0.2	1.8	2.2	2.5	3.1	4.6	7.0	8.7	10.1	13.1
30-39 years	1,680	6.2	0.2	1.8	2.3	2.7	3.2	4.9	8.1	10.1	11.4	14.9
40-49 years	1,303	6.7	0.3	2.0	2.5	2.7	3.4	5.0	8.2	10.7	12.7	16.8
50-59 years	963	8.2	0.4	2.3	2.7	3.1	3.8	6.1	10.9	13.5	15.6	21.8
60-69 years	1,117	9.3	0.5	2.5	3.1	3.5	4.4	6.9	11.6	15.1	17.4	21.7
70 years and over	1,658	10.6	0.4	2.9	3.5	4.0	5.1	7.9	13.8	17.5	20.5	26.2
Non-Hispanic white												
4 years and over	4,599	8.0	0.2	2.1	2.6	3.1	3.8	6.1	10.1	12.9	15.3	20.1
4 years and over, age adjusted	...	7.9	...	...	...	...	...	...	...	...	...	...
4-5 years	228	12.8	0.8	*5.0	6.0	6.8	8.3	10.9	14.2	17.4	20.1	*27.8
6-11 years	370	10.0	0.5	3.8	4.2	4.8	5.8	8.3	11.4	13.7	17.2	25.8
12-19 years	410	6.3	0.3	2.1	2.6	2.9	3.4	5.3	8.2	9.8	11.3	13.1
20-29 years	438	5.9	0.3	1.8	2.2	2.5	3.1	4.7	7.2	9.0	10.8	13.3
30-39 years	551	6.7	0.3	1.9	2.3	2.7	3.4	5.2	8.9	11.0	12.7	16.2
40-49 years	463	7.2	0.4	2.1	2.5	2.7	3.4	5.3	8.6	11.6	13.5	18.1
50-59 years	465	8.6	0.5	2.3	2.7	3.1	4.0	6.4	11.4	14.4	16.3	22.6
60-69 years	481	9.6	0.6	2.6	3.1	3.6	4.7	7.2	12.1	15.5	17.7	21.5
70 years and over	1,193	11.0	0.3	3.0	3.6	4.1	5.1	8.3	14.5	18.1	21.1	26.8
Non-Hispanic black												
4 years and over	3,561	5.9	0.2	1.9	2.3	2.5	3.1	4.6	7.1	9.0	10.8	13.6
4 years and over, age adjusted	...	6.0	...	...	...	...	...	...	...	...	...	...
4-5 years	275	9.6	0.4	3.6	4.8	5.3	6.2	8.5	11.8	13.5	15.4	17.9
6-11 years	465	8.8	0.6	3.4	3.9	4.3	5.3	7.2	9.8	11.7	13.4	16.3
12-19 years	530	5.1	0.3	2.0	2.2	2.5	2.9	4.2	5.7	7.1	7.9	9.9
20-29 years	519	4.6	0.2	1.6	2.0	2.3	2.7	3.9	5.6	6.9	8.4	9.8
30-39 years	577	4.8	0.2	1.7	2.0	2.3	2.7	4.0	5.7	7.1	8.5	11.6
40-49 years	422	5.3	0.3	1.8	2.3	2.5	2.9	4.0	5.9	8.0	9.2	12.0
50-59 years	257	6.0	0.4	1.9	2.3	2.6	3.4	4.6	7.3	9.7	12.0	14.9
60-69 years	272	6.9	0.4	2.3	2.8	3.1	3.6	4.9	7.8	9.9	12.5	16.5
70 years and over	244	7.9	0.5	2.5	2.9	3.1	3.9	6.4	10.1	12.2	14.2	17.3
Mexican American												
4 years and over	3,408	6.2	0.3	2.1	2.5	2.9	3.5	5.1	7.8	10.0	11.3	13.9
4 years and over, age adjusted	...	6.2	...	...	...	...	...	...	...	...	...	...
4-5 years	330	10.2	0.4	4.4	5.4	6.2	7.2	9.4	12.2	13.5	16.5	18.9
6-11 years	527	8.8	0.3	3.6	4.2	4.8	5.8	7.8	10.4	12.3	14.7	18.5
12-19 years	488	5.7	0.3	2.1	2.6	2.9	3.6	4.9	6.8	8.3	9.9	12.3
20-29 years	556	5.3	0.2	1.8	2.3	2.6	3.0	4.3	6.1	8.2	10.3	12.2
30-39 years	476	5.1	0.2	1.9	2.3	2.5	3.1	4.2	6.2	8.0	9.5	11.6
40-49 years	353	5.1	0.2	2.0	2.4	2.5	3.1	4.4	6.1	7.4	9.0	11.3
50-59 years	186	6.1	0.3	*2.3	2.6	2.9	3.4	5.1	8.1	10.1	10.8	*12.3
60-69 years	320	6.6	0.4	2.6	2.9	3.2	3.6	5.3	7.5	10.0	12.4	16.5
70 years and over	172	8.4	0.7	*2.5	2.7	3.1	3.9	6.2	10.8	14.0	15.7	*24.7

... Category not applicable.
* Figure does not meet standard of reliability or precision.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 4. Red blood cell folate in nanograms per milliliter for persons 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	23,082	196	2.2	87	101	113	129	174	237	281	317	378
4 years and over, age adjusted	...	195	...	...	...	...	...	...	...	...	...	...
4-5 years	1,780	226	4.3	125	140	153	171	214	259	295	320	359
6-11 years	2,880	207	2.8	111	125	139	156	195	249	278	300	335
12-19 years	2,895	165	2.8	83	91	101	116	151	197	232	257	296
20-29 years	3,132	165	2.6	80	92	103	118	149	196	232	258	306
30-39 years	3,072	180	2.9	86	100	110	123	163	217	255	282	332
40-49 years	2,466	194	4.2	82	95	108	127	173	235	282	325	392
50-59 years	1,788	218	5.6	93	107	120	138	185	273	326	367	436
60-69 years	2,221	235	5.8	96	113	128	149	205	286	345	386	461
70 years and over	2,848	253	5.5	96	116	132	157	221	314	382	426	498
Non-Hispanic white												
4 years and over	8,497	206	2.5	91	107	118	135	183	251	299	334	393
4 years and over, age adjusted	...	204	...	...	...	...	...	...	...	...	...	...
4-5 years	451	240	6.0	134	150	160	179	227	278	305	339	375
6-11 years	761	218	3.8	116	134	147	165	208	260	288	308	351
12-19 years	761	173	3.8	84	95	107	122	156	208	238	269	319
20-29 years	823	172	3.6	84	95	108	122	156	207	240	274	314
30-39 years	990	187	3.6	94	106	113	127	173	229	266	295	335
40-49 years	880	203	5.0	85	98	114	134	181	245	293	339	403
50-59 years	875	227	5.7	95	111	125	144	196	291	344	385	447
60-69 years	964	245	6.3	101	119	130	155	216	297	352	399	483
70 years and over	1,992	261	4.6	104	122	136	164	231	325	389	432	505
Non-Hispanic black												
4 years and over	6,763	148	1.3	68	81	90	104	136	178	207	229	267
4 years and over, age adjusted	...	150	...	...	...	...	...	...	...	...	...	...
4-5 years	566	180	4.1	102	113	123	138	173	210	229	247	275
6-11 years	965	164	2.1	88	101	110	125	158	195	212	231	262
12-19 years	1,014	129	2.0	62	75	84	96	121	151	172	188	223
20-29 years	981	129	2.0	64	75	83	94	121	153	180	196	227
30-39 years	1,039	143	2.6	66	80	89	101	129	170	199	220	257
40-49 years	759	145	2.8	64	77	86	101	132	177	204	230	258
50-59 years	459	164	4.9	*75	87	93	111	141	201	232	271	*316
60-69 years	540	172	4.7	73	87	97	119	152	203	241	271	331
70 years and over	440	184	5.4	*68	90	101	121	162	227	272	308	*366
Mexican American												
4 years and over	6,827	178	3.3	88	101	111	127	163	213	246	274	321
4 years and over, age adjusted	...	180	...	...	...	...	...	...	...	...	...	...
4-5 years	666	225	4.8	137	151	161	177	214	262	291	309	343
6-11 years	1,028	206	3.7	116	130	141	162	196	242	273	292	322
12-19 years	970	163	3.9	84	93	103	116	151	191	222	251	303
20-29 years	1,190	161	3.6	84	95	102	121	147	186	215	238	287
30-39 years	913	172	4.2	88	99	107	123	155	206	238	261	322
40-49 years	716	175	5.1	83	101	109	123	160	211	240	269	310
50-59 years	359	188	7.8	95	110	114	129	166	230	262	292	341
60-69 years	641	194	6.6	90	105	115	134	167	229	286	330	380
70 years and over	344	205	12.5	84	93	109	128	173	235	306	345	451

... Category not applicable.
* Figure does not meet standard of reliability or precision.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 5. Red blood cell folate in nanograms per milliliter for males 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	11,145	192	2.9	89	103	114	131	172	233	272	307	360
4 years and over, age adjusted	...	193	...	...	...	...	...	...	...	...	...	...
4-5 years	872	231	4.8	127	143	158	178	219	263	296	321	368
6-11 years	1,470	219	3.5	115	135	147	167	208	262	293	308	360
12-19 years	1,383	172	3.5	85	95	106	122	156	207	240	274	328
20-29 years	1,554	163	2.9	84	95	106	119	149	191	221	244	299
30-39 years	1,394	175	3.4	89	104	112	125	161	209	245	266	312
40-49 years	1,164	186	4.5	79	99	110	128	171	222	265	292	373
50-59 years	826	210	6.5	92	105	116	135	179	256	317	354	415
60-69 years	1,130	222	5.7	96	111	124	147	197	275	321	353	427
70 years and over	1,352	243	6.6	95	114	127	151	210	306	360	417	471
Non-Hispanic white												
4 years and over	4,027	201	3.3	94	109	119	135	181	243	286	321	378
4 years and over, age adjusted	...	201	...	...	...	...	...	...	...	...	...	...
4-5 years	219	243	7.4	*131	153	163	184	230	282	303	337	*375
6-11 years	392	231	5.0	122	143	158	177	220	272	302	321	378
12-19 years	348	182	5.4	91	101	111	126	163	221	257	287	340
20-29 years	383	171	4.4	85	103	112	123	158	200	234	265	308
30-39 years	438	181	4.5	97	109	114	129	171	213	253	268	317
40-49 years	419	194	5.5	84	101	116	134	177	233	277	312	386
50-59 years	408	217	6.9	94	106	119	137	184	270	334	361	425
60-69 years	495	229	6.3	101	116	129	153	205	286	336	366	448
70 years and over	925	250	5.9	106	120	132	155	223	308	369	426	473
Non-Hispanic black												
4 years and over	3,205	149	1.8	73	85	93	107	137	177	205	227	261
4 years and over, age adjusted	...	150	...	...	...	...	...	...	...	...	...	...
4-5 years	285	186	3.7	110	123	133	150	179	218	238	250	277
6-11 years	494	172	2.7	99	109	121	135	166	204	216	238	274
12-19 years	481	135	2.7	70	84	90	100	124	156	177	200	246
20-29 years	460	131	2.4	71	80	85	98	125	156	179	197	213
30-39 years	459	144	3.5	73	86	93	106	131	166	199	219	249
40-49 years	335	136	3.3	66	78	86	101	126	166	186	202	234
50-59 years	204	160	6.3	*75	88	97	111	140	187	229	255	*292
60-69 years	273	172	6.7	69	82	94	110	147	203	260	291	344
70 years and over	214	174	6.1	71	86	99	117	159	224	258	283	326
Mexican American												
4 years and over	3,458	177	4.6	88	101	111	127	161	212	244	272	317
4 years and over, age adjusted	...	179	...	...	...	...	...	...	...	...	...	...
4-5 years	322	231	6.5	*139	157	166	183	221	269	297	315	*354
6-11 years	512	219	5.4	123	139	151	170	206	260	295	314	359
12-19 years	489	162	5.3	84	90	103	114	151	189	220	249	297
20-29 years	640	154	4.0	86	97	103	121	145	179	204	221	258
30-39 years	443	169	5.5	*88	101	109	124	153	203	231	246	*313
40-49 years	364	175	6.8	*83	99	108	121	158	212	247	282	*303
50-59 years	174	192	11.4	*93	*110	113	129	171	234	265	*298	*341
60-69 years	329	195	9.3	*87	99	114	133	164	224	288	357	*380
70 years and over	185	193	12.5	*84	*92	103	124	170	223	282	*340	*367

... Category not applicable.
* Figure does not meet standard of reliability or precision.
[1] Includes all other racial-ethnic groups not listed separately.

Table 6. Red blood cell folate in nanograms per milliliter for females 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	11,937	200	3.3	86	99	111	129	176	242	290	332	392
4 years and over, age adjusted	...	197	...	...	...	...	...	...	...	...	...	...
4-5 years	908	222	5.8	123	135	149	166	209	258	292	318	356
6-11 years	1,410	195	3.4	107	118	130	149	185	230	258	281	327
12-19 years	1,512	157	3.3	79	88	97	114	143	190	221	238	273
20-29 years	1,578	167	3.6	77	88	98	116	149	205	240	269	310
30-39 years	1,678	184	3.9	82	97	106	121	168	229	273	306	341
40-49 years	1,302	202	5.8	84	94	106	127	177	249	300	348	412
50-59 years	962	226	7.4	93	108	123	145	192	290	336	388	450
60-69 years	1,091	246	8.5	97	115	129	150	213	295	366	405	496
70 years and over	1,496	259	7.1	97	119	135	161	227	325	391	429	511
Non-Hispanic white												
4 years and over	4,470	211	3.8	89	105	116	136	186	258	310	350	412
4 years and over, age adjusted	...	205	...	...	...	...	...	...	...	...	...	...
4-5 years	232	237	8.3	*135	149	158	172	225	275	305	345	*373
6-11 years	369	204	4.7	113	128	137	155	193	242	267	290	344
12-19 years	413	163	4.3	84	90	99	116	148	200	231	246	275
20-29 years	440	173	5.0	79	90	103	121	152	214	253	281	320
30-39 years	552	192	4.9	90	105	111	125	175	240	284	317	346
40-49 years	461	213	7.2	89	97	112	134	188	264	317	362	416
50-59 years	467	237	7.7	95	117	130	151	207	300	356	411	457
60-69 years	469	258	9.6	100	121	132	160	229	313	381	427	565
70 years and over	1,067	268	6.1	102	124	139	169	234	338	401	437	534
Non-Hispanic black												
4 years and over	3,558	148	1.9	66	78	87	101	134	179	208	231	273
4 years and over, age adjusted	...	149	...	...	...	...	...	...	...	...	...	...
4-5 years	281	173	6.7	97	108	118	129	160	198	222	235	270
6-11 years	471	156	2.7	81	93	103	119	151	186	208	219	253
12-19 years	533	123	2.5	59	69	79	90	118	145	164	179	206
20-29 years	521	128	2.7	61	72	81	93	119	152	180	195	238
30-39 years	580	142	3.2	61	74	83	97	127	174	199	225	278
40-49 years	424	152	3.9	64	77	86	103	139	186	219	245	270
50-59 years	255	167	6.4	72	86	92	108	144	208	240	282	350
60-69 years	267	172	5.7	77	88	101	126	158	203	230	261	319
70 years and over	226	191	7.7	68	90	104	125	166	227	279	322	444
Mexican American												
4 years and over	3,369	179	4.9	90	101	111	127	164	215	249	275	325
4 years and over, age adjusted	...	181	...	...	...	...	...	...	...	...	...	...
4-5 years	344	218	5.7	*132	145	158	173	206	252	287	303	*340
6-11 years	516	192	3.8	110	125	130	151	185	224	252	271	292
12-19 years	481	164	4.7	84	95	103	117	149	192	227	256	312
20-29 years	550	170	5.2	82	95	101	121	151	200	237	264	334
30-39 years	470	175	5.3	88	97	105	122	157	216	247	271	332
40-49 years	352	175	6.1	*86	103	111	125	163	206	235	259	*310
50-59 years	185	185	8.8	*97	*110	118	128	164	219	258	*292	*327
60-69 years	312	194	7.7	*90	106	116	134	170	233	286	321	*360
70 years and over	159	217	18.3	*80	*97	116	129	175	249	321	*352	*467

... Category not applicable.
* Figure does not meet standard of reliability or precision.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 7. Serum vitamin B_{12} in picograms per milliliter for persons 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age : United States, 1991-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	11,851	518	7.3	233	275	304	352	467	617	710	791	928
4 years and over, age adjusted	...	521	...	...	...	...	...	...	...	...	...	...
4-5 years	877	783	12.6	398	456	517	575	746	929	1,043	1,154	1,342
6-11 years	1,327	708	12.0	380	441	486	529	647	816	928	1,016	1,153
12-19 years	1,562	528	7.2	289	326	344	388	484	620	720	790	880
20-29 years	1,623	472	27.0	222	254	284	335	447	559	647	695	782
30-39 years	1,650	498	37.7	247	283	305	346	441	586	652	699	827
40-49 years	1,267	474	21.7	220	266	290	332	429	553	635	711	815
50-59 years	879	487	11.8	224	260	285	347	445	589	662	730	893
60-69 years	1,131	476	22.7	215	242	274	318	423	564	658	752	900
70 years and over	1,535	501	36.5	187	227	256	308	412	571	694	772	951
Non-Hispanic white												
4 years and over	4,070	487	5.3	232	270	297	343	446	582	663	733	862
4 years and over, age adjusted	...	494	...	...	...	...	...	...	...	...	...	...
4-5 years	214	742	22.7	*391	431	458	540	715	898	989	1,114	*1,338
6-11 years	305	680	24.9	379	412	458	513	621	759	875	969	1,103
12-19 years	326	511	12.9	277	316	340	381	473	589	689	764	862
20-29 years	405	443	8.9	224	254	278	324	434	528	605	658	716
30-39 years	467	461	9.7	247	281	303	342	421	562	633	665	769
40-49 years	418	444	10.6	222	262	287	323	417	528	600	650	764
50-59 years	403	471	11.6	236	267	286	345	429	569	646	697	827
60-69 years	476	450	11.9	215	241	266	307	405	539	627	676	819
70 years and over	1,056	477	29.7	187	220	254	304	405	556	675	735	902
Non-Hispanic black												
4 years and over	3,865	615	5.6	283	331	365	425	568	750	849	934	1,101
4 years and over, age adjusted	...	607	...	...	...	...	...	...	...	...	...	...
4-5 years	300	881	19.9	439	542	582	662	828	1,040	1,191	1,335	1,479
6-11 years	575	809	12.5	446	501	542	610	768	938	1,058	1,171	1,402
12-19 years	653	618	11.8	307	360	392	443	574	734	827	891	1,019
20-29 years	540	555	10.2	288	320	351	395	525	669	770	814	925
30-39 years	627	547	9.3	267	305	341	393	516	672	752	817	932
40-49 years	434	582	16.6	266	323	364	418	523	678	775	846	1,004
50-59 years	241	569	15.8	*258	310	338	403	539	698	787	849	*940
60-69 years	272	606	18.5	275	310	346	402	572	735	878	949	1,150
70 years and over	223	559	20.8	*236	277	306	371	493	683	808	933	*1,144
Mexican American												
4 years and over	3,313	679	60.8	257	300	333	378	499	678	785	881	1,074
4 years and over, age adjusted	...	701	...	...	...	...	...	...	...	...	...	...
4-5 years	308	797	19.1	457	508	550	608	772	932	1,051	1,130	1,299
6-11 years	376	760	15.0	443	476	540	608	744	893	1,002	1,079	1,161
12-19 years	491	531	14.9	276	314	340	378	488	635	726	784	904
20-29 years	595	558	142.3	240	274	300	336	441	570	653	724	840
30-39 years	475	836	278.7	253	308	329	369	478	588	700	778	947
40-49 years	364	665	162.4	260	299	333	374	453	598	685	765	989
50-59 years	173	612	79.8	256	288	328	358	457	610	712	850	1,245
60-69 years	328	*655	*207.5	221	261	291	326	449	585	745	843	1,020
70 years and over	203	1,239	524.3	158	197	242	294	428	646	895	1,231	4,206

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of small sample sizes along with influential observations in some subgroups, it is recommended that the median or geometric mean be used as a measure of central tendency. See appendix I for geometric means and investigation of sample persons with elevated B_{12} concentrations. Pregnant women are excluded.

Table 8. Serum vitamin B_{12} in picograms per milliliter for males 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age : United States, 1991-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	5,431	506	4.6	237	280	310	356	465	600	692	772	917
4 years and over, age adjusted	...	508	...	...	...	...	...	...	...	...	...	...
4-5 years	441	766	20.9	392	431	459	570	734	904	1,043	1,148	1,336
6-11 years	687	720	16.0	415	468	504	554	670	840	930	1,013	1,123
12-19 years	734	520	11.1	289	335	350	396	485	603	680	765	866
20-29 years	747	470	9.8	251	276	307	353	460	549	638	682	765
30-39 years	686	486	11.5	247	294	316	350	450	574	647	697	849
40-49 years	557	456	13.3	233	277	297	330	429	533	599	650	791
50-59 years	354	474	20.5	186	259	281	334	428	564	644	708	884
60-69 years	573	445	49.6	201	241	258	291	391	523	623	667	853
70 years and over	652	451	21.3	189	218	242	301	387	506	628	722	936
Non-Hispanic white												
4 years and over	1,746	480	5.2	239	276	305	349	447	566	647	711	849
4 years and over, age adjusted	...	488	...	...	...	...	...	...	...	...	...	...
4-5 years	100	721	33.8	*370	*398	432	521	707	857	978	*1,090	*1,255
6-11 years	159	699	26.8	*415	458	491	526	634	795	905	970	*1,103
12-19 years	145	507	16.2	*283	340	351	398	475	576	655	710	*861
20-29 years	176	457	12.3	*253	280	310	351	452	527	587	655	*748
30-39 years	170	462	15.6	*247	294	312	349	431	549	609	648	*720
40-49 years	179	439	13.2	*233	277	296	325	420	522	576	607	*751
50-59 years	152	452	16.3	*236	273	282	334	420	541	632	660	*720
60-69 years	245	411	13.3	190	242	249	287	373	493	587	627	687
70 years and over	420	428	18.2	187	218	236	292	376	485	577	688	821
Non-Hispanic black												
4 years and over	1,754	613	8.4	288	331	364	421	570	746	840	928	1,067
4 years and over, age adjusted	...	599	...	...	...	...	...	...	...	...	...	...
4-5 years	157	854	26.5	*436	524	558	661	813	1,026	1,150	1,311	*1,450
6-11 years	288	800	16.3	398	507	546	633	769	931	1,029	1,104	1,256
12-19 years	307	597	18.4	298	345	376	433	553	698	780	855	970
20-29 years	227	566	16.2	267	322	357	411	532	682	778	833	981
30-39 years	258	565	13.7	291	322	356	403	548	693	758	835	913
40-49 years	169	572	29.2	*238	296	331	400	496	690	780	851	*1,017
50-59 years	102	548	22.7	*272	310	325	386	511	672	765	825	*966
60-69 years	137	567	23.8	*269	301	323	371	511	687	833	918	*1,050
70 years and over	109	539	28.3	*262	298	338	385	457	618	709	842	*1,113
Mexican American												
4 years and over	1,677	567	28.1	259	298	328	375	483	663	774	854	999
4 years and over, age adjusted	...	583	...	...	...	...	...	...	...	...	...	...
4-5 years	158	766	21.7	*446	492	553	628	736	904	999	1,049	*1,126
6-11 years	199	782	19.4	*443	507	560	632	763	896	1,033	1,086	*1,161
12-19 years	244	509	15.7	*267	297	329	367	478	621	715	787	*901
20-29 years	306	479	18.6	258	290	309	338	439	570	644	710	774
30-39 years	228	501	21.4	*265	309	331	376	461	561	649	745	*813
40-49 years	190	505	36.8	*238	270	299	351	431	549	652	682	*855
50-59 years	81	637	101.4	*256	*297	*358	403	466	570	*711	*850	*1,921
60-69 years	168	*726	*419.1	*236	258	280	320	413	563	718	944	*1,105
70 years and over	103	682	137.2	*143	*175	242	281	410	590	686	*876	*4,200

... Category not applicable.
* Figure does not meet standard of reliability or precision.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Because of small sample sizes along with influential observations in some subgroups, it is recommended that the median or geometric mean be used as a measure of central tendency. See appendix I for geometric means and investigation of sample persons with elevated B_{12} concentrations.

Table 9. Serum vitamin B_{12} in picograms per milliliter for females 4 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age : United States, 1991-94

Race-ethnicity and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All racial-ethnic groups[1]												
4 years and over	6,420	530	13.2	225	270	300	349	469	631	726	799	932
4 years and over, age adjusted	...	532	...	...	...	...	...	...	...	...	...	...
4-5 years	436	802	16.6	444	496	531	593	784	955	1,068	1,154	1,348
6-11 years	640	695	18.7	366	406	452	517	641	790	898	1,024	1,169
12-19 years	828	537	10.1	284	307	340	385	481	646	743	801	950
20-29 years	876	474	49.7	208	244	266	319	426	578	667	709	804
30-39 years	964	510	66.4	247	273	301	333	431	591	658	714	815
40-49 years	710	492	37.3	207	253	284	334	428	591	676	759	840
50-59 years	525	500	15.0	225	260	290	350	462	607	689	760	918
60-69 years	558	503	16.3	219	248	291	333	460	598	704	786	933
70 years and over	883	535	57.6	187	241	265	316	436	621	717	795	953
Non-Hispanic white												
4 years and over	2,324	493	8.8	224	261	291	336	443	601	677	752	872
4 years and over, age adjusted	...	499	...	...	...	...	...	...	...	...	...	...
4-5 years	114	766	27.9	*411	473	501	557	738	908	1,023	1,114	*1,339
6-11 years	146	661	40.7	*352	383	412	488	600	703	852	914	*1,094
12-19 years	181	514	18.9	*276	300	321	370	460	628	712	781	*907
20-29 years	229	427	12.1	205	237	251	305	412	528	616	667	694
30-39 years	297	461	11.7	247	273	299	321	411	586	644	702	793
40-49 years	239	450	15.4	207	248	270	321	403	541	624	708	806
50-59 years	251	488	15.5	239	260	292	350	453	596	655	748	918
60-69 years	231	484	18.3	218	234	287	327	433	575	658	753	875
70 years and over	636	509	45.9	187	236	261	313	431	610	710	768	913
Non-Hispanic black												
4 years and over	2,111	617	7.5	280	332	365	427	568	753	856	950	1,123
4 years and over, age adjusted	...	614	...	...	...	...	...	...	...	...	...	...
4-5 years	143	913	28.6	*461	556	589	675	878	1,067	1,211	1,396	*1,552
6-11 years	287	819	18.2	456	498	541	604	764	975	1,118	1,246	1,446
12-19 years	346	639	14.2	323	370	404	463	588	775	853	925	1,105
20-29 years	313	545	12.5	288	319	339	380	519	668	736	804	919
30-39 years	369	531	12.0	244	295	330	375	493	639	742	805	1,026
40-49 years	265	590	18.6	309	348	395	440	550	678	772	831	1,004
50-59 years	139	587	20.9	*225	317	343	423	569	739	801	860	*939
60-69 years	135	634	26.3	*280	328	352	418	595	765	899	1,019	*1,197
70 years and over	114	572	28.6	*210	263	283	354	519	735	890	990	*1,185
Mexican American												
4 years and over	1,636	801	121.7	255	305	338	383	523	700	795	928	1,132
4 years and over, age adjusted	...	835	...	...	...	...	...	...	...	...	...	...
4-5 years	150	829	26.9	*479	520	550	573	779	976	1,152	1,268	*1,391
6-11 years	177	737	19.6	*444	472	522	581	712	842	977	1,076	*1,192
12-19 years	247	552	21.5	287	335	352	386	497	640	731	780	988
20-29 years	289	663	268.1	223	255	288	336	442	573	668	746	870
30-39 years	247	1,247	495.2	253	294	324	362	498	608	739	886	1,577
40-49 years	174	838	288.9	*298	331	352	395	487	646	759	833	*1,024
50-59 years	92	589	103.8	*249	*283	312	350	443	630	735	*863	*1,188
60-69 years	160	*600	*88.3	*188	261	302	335	466	619	764	824	*947
70 years and over	100	1,751	881.1	*197	198	236	324	543	847	1,038	1,518	*4,503

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of small sample sizes along with influential observations in some subgroups, it is recommended that the median or geometric mean be used as a measure of central tendency. See appendix I for geometric means and investigation of sample persons with elevated B_{12} concentrations. Pregnant women are excluded.

Table 10. Serum folate in nanograms per milliliter for persons 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1988-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	15,855	6.8	0.2	3.4	5.1	8.3	3,287	5.9	0.3	3.1	4.5	6.9	11,040	7.0	0.2	3.5	5.2	8.6
20 years and over, age adjusted	...	6.8	...	...	...	...	..	6.1	...	...	...	...	...	7.0	...	...	...	..
20-39 years	6,212	5.6	0.2	3.1	4.5	6.8	1,568	4.9	0.3	2.9	4.2	6.0	4,136	5.7	0.2	3.1	4.6	7.0
40-59 years	4,268	6.8	0.3	3.4	5.1	8.4	725	6.1	0.7	3.1	4.7	7.4	3,176	6.9	0.4	3.5	5.2	8.5
60 years and over	5,375	9.3	0.4	4.5	7.0	11.7	994	8.6	0.8	3.9	6.3	10.9	3,728	9.5	0.5	4.6	7.2	12.0
Non-Hispanic white																		
20 years and over	6,760	7.2	0.2	3.5	5.4	9.0	600	6.4	0.6	3.0	4.8	7.5	5,636	7.3	0.2	3.6	5.5	9.0
20 years and over, age adjusted	...	7.1	...	...	...	...	..	6.5	...	...	...	...	...	7.2	...	...	...	..
20-39 years	1,808	5.8	0.1	3.1	4.7	7.1	184	4.8	0.3	2.7	4.0	6.2	1,553	5.9	0.2	3.1	4.8	7.2
40-59 years	1,761	7.1	0.2	3.5	5.3	8.8	107	6.7	0.8	3.0	5.5	7.9	1,557	7.2	0.2	3.6	5.4	8.9
60 years and over	3,191	9.7	0.2	4.7	7.3	12.2	309	9.5	0.7	4.1	7.1	11.4	2,526	9.7	0.3	4.8	7.5	12.4
Non-Hispanic black																		
20 years and over	4,227	5.2	0.1	2.9	4.1	6.2	1,171	5.2	0.2	2.9	4.2	6.2	2,637	5.2	0.1	2.9	4.1	6.2
20 years and over, age adjusted	...	5.3	...	...	...	...	..	5.3	...	...	...	...	...	5.4	...	...	...	..
20-39 years	2,011	4.6	0.1	2.7	3.8	5.5	604	4.5	0.2	2.7	3.8	5.4	1,233	4.7	0.1	2.8	3.9	5.5
40-59 years	1,217	5.3	0.2	2.9	4.1	6.2	267	5.7	0.5	2.9	4.4	6.4	837	5.2	0.2	2.9	4.1	6.0
60 years and over	999	6.8	0.2	3.5	5.1	8.1	300	6.6	0.4	3.6	5.1	7.6	567	7.0	0.3	3.5	5.2	8.5
Mexican American																		
20 years and over	4,240	5.3	0.2	3.1	4.3	6.4	1,372	4.9	0.3	3.0	4.1	5.9	2,349	5.5	0.3	3.2	4.5	6.6
20 years and over, age adjusted	...	5.5	...	...	...	...	..	5.1	...	...	...	...	...	5.8	...	...	...	..
20-39 years	2,125	5.0	0.1	3.1	4.2	6.0	715	4.8	0.2	2.9	4.1	5.6	1,175	5.2	0.2	3.1	4.3	6.2
40-59 years	1,086	5.3	0.2	3.1	4.4	6.5	308	5.0	0.3	3.2	4.3	6.4	642	5.4	0.2	3.1	4.5	6.8
60 years and over	1,029	6.8	0.3	3.6	5.3	7.9	349	5.7	0.4	3.4	4.6	6.8	532	7.4	0.4	4.0	5.7	8.8

... Category not applicable.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 11. Serum folate in nanograms per milliliter for males 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1988-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over, crude	7,554	6.2	0.2	3.2	4.9	7.6	1,389	5.4	0.4	3.1	4.3	6.4	5,489	6.3	0.2	3.3	4.9	7.8
20 years and over, age adjusted	...	6.3	...	...	...	...	..	5.6	...	...	...	...	...	6.4	...	...	...	...
20-39 years	2,952	5.2	0.1	3.0	4.3	6.3	661	4.8	0.2	2.9	4.1	6.0	2,045	5.2	0.1	3.0	4.3	6.4
40-59 years	2,002	6.3	0.2	3.3	4.9	7.7	308	5.7	0.4	3.1	4.5	7.3	1,535	6.4	0.2	3.4	5.0	7.8
60 years and over	2,600	8.4	0.2	4.2	6.5	10.9	420	6.9	0.6	3.2	5.2	8.6	1,909	8.7	0.3	4.4	6.8	11.2
Non-Hispanic white																		
20 years and over, crude	3,169	6.5	0.2	3.3	5.1	8.0	227	5.8	0.7	3.1	4.6	6.8	2,730	6.5	0.2	3.3	5.1	8.1
20 years and over, age adjusted	...	6.5	...	...	...	...	..	6.0	...	...	...	...	...	6.5	...	...	...	...
20-39 years	819	5.3	0.1	3.1	4.4	6.5	73	5.0	0.4	2.9	4.5	6.2	713	5.3	0.2	3.1	4.4	6.7
40-59 years	833	6.5	0.2	3.4	5.1	8.2	42	6.3	0.8	*3.2	*5.6	*8.8	751	6.6	0.2	3.5	5.1	8.2
60 years and over	1,517	8.7	0.2	4.4	6.8	11.2	112	7.6	0.9	3.4	5.3	9.8	1,266	8.8	0.2	4.5	6.9	11.4
Non-Hispanic black																		
20 years and over, crude	1,936	4.9	0.1	2.8	4.0	5.8	452	4.8	0.3	2.8	4.1	5.8	1,315	4.9	0.2	2.9	4.0	5.7
20 years and over, age adjusted	...	5.0	...	...	...	...	..	4.9	...	...	...	...	...	5.1	...	...	...	...
20-39 years	915	4.5	0.1	2.8	3.8	5.3	219	4.4	0.2	2.8	3.8	5.4	623	4.6	0.1	2.8	3.8	5.4
40-59 years	538	5.0	0.2	2.8	4.0	6.0	110	5.3	0.5	3.0	4.4	6.2	385	4.9	0.2	2.8	4.0	5.8
60 years and over	483	6.1	0.3	3.1	4.6	7.6	123	5.4	0.5	2.7	4.4	6.1	307	6.4	0.3	3.4	4.7	8.1
Mexican American																		
20 years and over, crude	2,177	5.1	0.2	3.1	4.2	6.2	656	4.8	0.4	2.9	4.0	5.8	1,253	5.3	0.3	3.2	4.4	6.4
20 years and over, age adjusted	...	5.3	...	...	...	...	..	4.9	...	...	...	...	...	5.6	...	...	...	...
20-39 years	1,093	4.9	0.1	3.1	4.1	5.9	343	4.6	0.2	2.9	4.0	5.6	620	5.1	0.2	3.2	4.3	6.2
40-59 years	547	5.1	0.2	3.1	4.2	6.3	140	4.8	0.4	2.9	3.8	5.9	342	5.3	0.3	3.3	4.3	6.5
60 years and over	537	6.3	0.3	3.6	5.0	7.6	173	5.7	0.6	3.4	4.5	6.4	291	6.8	0.5	3.7	5.4	8.1

... Category not applicable.
* Figure does not meet standard standard of reliability or precision.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

Table 12. Serum folate in nanograms per milliliter for females 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1988-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over, crude	8,301	7.4	0.3	3.6	5.5	9.0	1,898	6.3	0.5	3.0	4.7	7.4	5,551	7.6	0.3	3.7	5.7	9.3
20 years and over, age adjusted	...	7.3	...	...	...	...	..	6.4	...	...	...	...	...	7.5	...	...	...	...
20-39 years	3,260	6.0	0.1	3.1	4.7	7.4	907	4.9	0.2	2.7	4.2	6.1	2,091	6.3	0.2	3.3	5.0	7.9
40-59 years	2,266	7.3	0.2	3.5	5.3	8.9	417	6.5	0.5	3.0	4.9	7.6	1,641	7.5	0.3	3.6	5.5	9.2
60 years and over	2,775	10.0	0.3	4.7	7.4	12.6	574	9.4	0.6	4.3	7.1	11.5	1,819	10.2	0.4	4.8	7.6	13.1
Non-Hispanic white																		
20 years and over, crude	3,591	7.9	0.3	3.8	5.9	9.8	373	6.9	0.8	2.9	5.0	7.9	2,906	8.0	0.3	3.8	5.9	10.0
20 years and over, age adjusted	...	7.7	...	...	...	...	..	6.7	...	...	...	...	...	7.9	...	...	...	...
20-39 years	989	6.3	0.2	3.3	5.1	8.1	111	4.7	0.4	2.5	3.9	6.2	840	6.6	0.2	3.5	5.2	8.4
40-59 years	928	7.8	0.3	3.6	5.8	9.7	65	7.0	1.1	2.9	5.3	7.8	806	7.9	0.3	3.8	5.8	9.9
60 years and over	1,674	10.4	0.3	4.9	7.9	13.3	197	10.3	0.9	5.1	8.3	12.4	1,260	10.5	0.4	4.9	7.9	13.5
Non-Hispanic black																		
20 years and over, crude	2,291	5.5	0.2	2.9	4.2	6.4	719	5.4	0.3	2.9	4.2	6.3	1,322	5.5	0.2	3.0	4.2	6.6
20 years and over, age adjusted	...	5.6	...	...	...	...	..	5.6	...	...	...	...	...	5.7	...	...	...	...
20-39 years	1,096	4.7	0.1	2.7	4.0	5.6	385	4.5	0.2	2.7	3.8	5.4	610	4.9	0.1	2.8	4.1	5.9
40-59 years	679	5.6	0.2	3.0	4.2	6.3	157	6.1	0.6	2.9	4.5	7.1	452	5.4	0.2	3.0	4.2	6.0
60 years and over	516	7.4	0.3	3.8	5.5	8.5	177	7.3	0.5	3.8	5.7	8.4	260	7.6	0.5	3.6	5.7	8.9
Mexican American																		
20 years and over, crude	2,063	5.5	0.3	3.1	4.5	6.6	716	5.1	0.4	3.0	4.2	6.1	1,096	5.7	0.4	3.2	4.6	6.8
20 years and over, age adjusted	...	5.7	...	...	...	...	..	5.2	...	...	...	...	...	6.0	...	...	...	...
20-39 years	1,032	5.2	0.1	3.1	4.3	6.1	372	4.9	0.2	2.9	4.1	5.7	555	5.4	0.2	3.1	4.4	6.5
40-59 years	539	5.4	0.2	3.2	4.7	6.6	168	5.2	0.3	3.4	4.6	6.5	300	5.5	0.3	3.1	4.7	6.9
60 years and over	492	7.2	0.3	3.8	5.5	8.1	176	5.8	0.4	3.5	4.7	6.9	241	8.1	0.6	4.0	6.0	9.5

... Category not applicable.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 13. Red blood cell folate in nanograms per milliliter for persons 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1988-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	15,527	198	2.8	129	173	240	3,210	177	5.7	119	153	215	10,839	202	3.4	131	176	245
20 years and over, age adjusted	...	198	...	...	...	...	..	182	..	...	...	...	...	202	...	...	...	...
20-39 years	6,204	173	3.2	120	156	208	1,560	159	6.0	113	144	188	4,133	175	3.9	122	158	210
40-59 years	4,254	204	5.4	132	177	247	716	189	12.6	125	162	226	3,170	207	6.4	134	180	249
60 years and over	5,069	243	6.4	153	212	300	934	219	14.6	133	190	265	3,536	249	7.8	155	219	308
Non-Hispanic white																		
20 years and over	6,524	208	3.0	134	182	253	550	194	10.4	123	165	238	5,492	210	3.3	135	184	254
20 years and over, age adjusted	...	207	...	...	...	...	..	197	..	...	...	...	...	208	...	...	...	...
20-39 years	1,813	180	2.6	124	162	219	182	168	8.1	115	147	220	1,559	181	2.8	125	164	218
40-59 years	1,755	213	3.7	138	184	261	104	210	15.6	127	186	260	1,553	214	4.0	140	186	261
60 years and over	2,956	253	3.7	159	223	311	264	238	13.0	141	209	279	2,380	256	4.2	160	228	316
Non-Hispanic black																		
20 years and over	4,218	148	1.7	102	133	177	1,165	146	3.7	99	131	173	2,639	149	2.1	103	133	179
20 years and over, age adjusted	...	150	...	...	...	...	..	149	..	...	...	...	...	152	...	...	...	...
20-39 years	2,020	136	1.6	97	125	164	609	132	3.3	95	120	157	1,239	138	2.0	98	127	166
40-59 years	1,218	152	2.6	103	136	182	262	156	6.5	105	138	183	844	151	2.9	104	136	181
60 years and over	980	177	3.6	119	158	212	294	174	7.0	114	155	204	556	180	4.5	121	160	219
Mexican American																		
20 years and over	4,163	173	4.4	123	154	204	1,351	166	7.2	119	149	195	2,297	177	6.2	125	158	210
20 years and over, age adjusted	...	177	...	...	...	...	..	168	..	...	...	...	...	183	...	...	...	...
20-39 years	2,103	165	2.7	121	149	195	704	162	4.5	121	148	188	1,160	168	3.9	122	151	200
40-59 years	1,075	180	4.3	125	163	216	306	169	7.6	118	151	205	633	184	5.8	129	165	219
60 years and over	985	198	6.1	131	169	231	341	180	9.7	116	153	205	504	211	9.0	139	179	260

... Category not applicable.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 14. Red blood cell folate in nanograms per milliliter for males 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1988-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	7,420	190	3.6	128	169	228	1,355	170	7.5	119	149	202	5,397	193	4.3	129	171	232
20 years and over, age adjusted	...	191	...	...	...	...	..	174	...	...	...	...	...	194	...	...	...	..
20-39 years	2,948	169	4.3	121	156	201	655	158	8.8	118	145	185	2,044	171	5.1	122	157	203
40-59 years	1,990	196	7.1	131	173	237	302	183	17.1	123	153	220	1,528	198	8.2	132	175	237
60 years and over	2,482	231	8.2	149	203	287	398	195	19.0	120	166	241	1,825	236	9.6	151	206	296
Non-Hispanic white																		
20 years and over	3,068	199	3.9	132	177	240	208	188	14.0	127	164	229	2,658	200	4.2	132	177	240
20 years and over, age adjusted	...	199	...	...	...	...	..	193	...	...	...	...	...	200	...	...	...	..
20-39 years	821	177	3.2	126	162	209	73	172	10.7	123	153	210	715	177	3.4	126	162	209
40-59 years	827	203	4.3	135	179	243	41	212	19.2	*132	*186	*264	746	203	4.6	136	180	242
60 years and over	1,420	239	4.2	154	210	297	94	213	16.1	127	188	242	1,197	241	4.6	154	211	303
Non-Hispanic black																		
20 years and over	1,945	145	2.4	103	132	173	447	144	6.2	102	131	166	1,327	145	2.7	104	131	174
20 years and over, age adjusted	...	148	...	...	...	...	..	146	...	...	...	...	...	149	...	...	...	..
20-39 years	919	138	2.2	102	128	162	218	137	5.9	101	126	156	628	137	2.3	101	127	165
40-59 years	539	145	3.2	103	133	174	106	148	8.5	102	136	178	390	144	3.5	105	132	171
60 years and over	487	173	4.6	113	151	208	123	161	10.8	105	142	180	309	178	5.6	119	157	227
Mexican American																		
20 years and over	2,135	169	5.7	122	152	200	645	158	8.9	117	145	188	1,223	175	8.1	125	156	204
20 years and over, age adjusted	...	174	...	...	...	...	..	162	...	...	...	...	...	182	...	...	...	..
20-39 years	1,083	160	3.3	122	149	188	338	154	4.9	119	143	181	612	166	4.8	124	151	193
40-59 years	538	181	5.9	122	163	221	138	167	11.1	111	147	208	335	186	7.7	129	168	223
60 years and over	514	194	7.5	128	164	224	169	171	11.7	113	156	205	276	208	10.8	138	177	259

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

Table 15. Red blood cell folate in nanograms per milliliter for females 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1988-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	8,107	206	4.3	129	179	253	1,855	183	8.2	119	157	223	5,442	211	5.3	134	184	258
20 years and over, age adjusted	...	204	...	...	...	...	..	186	...	...	...	...	...	209	...	...	...	...
20-39 years	3,256	176	4.7	120	157	217	905	159	8.2	110	142	192	2,089	180	6.0	122	160	223
40-59 years	2,264	212	8.1	134	182	260	414	194	18.0	125	163	232	1,642	215	9.6	138	187	267
60 years and over	2,587	253	9.6	156	221	311	536	230	20.4	139	197	279	1,711	260	12.2	161	229	319
Non-Hispanic white																		
20 years and over	3,456	218	4.6	136	190	269	342	198	14.6	123	165	240	2,834	220	5.1	138	192	271
20 years and over, age adjusted	...	214	...	...	...	...	..	198	...	...	...	...	...	216	...	...	...	...
20-39 years	992	184	3.5	123	163	230	109	166	10.4	113	138	220	844	186	3.8	125	166	232
40-59 years	928	223	5.3	141	195	283	63	208	20.5	125	183	249	807	225	5.7	145	199	283
60 years and over	1,536	263	5.2	164	231	322	170	249	16.1	145	215	283	1,183	268	6.0	168	235	332
Non-Hispanic black																		
20 years and over	2,273	150	2.4	99	134	182	718	147	4.5	97	130	177	1,312	152	3.2	101	136	184
20 years and over, age adjusted	...	152	...	...	...	...	..	151	...	...	...	...	...	154	...	...	...	...
20-39 years	1,101	135	2.1	94	123	164	391	129	3.4	93	116	158	611	139	3.0	95	124	168
40-59 years	679	157	3.4	105	140	191	156	161	8.4	110	141	188	454	157	4.0	103	141	195
60 years and over	493	181	4.7	125	162	214	171	180	8.2	121	158	208	247	181	6.4	125	164	218
Mexican American																		
20 years and over	2,028	178	6.7	124	158	212	706	173	11.2	122	155	200	1,074	180	9.5	125	160	216
20 years and over, age adjusted	...	181	...	...	...	...	..	175	...	...	...	...	...	185	...	...	...	...
20-39 years	1,020	172	3.7	121	153	208	366	172	6.3	122	155	195	548	172	5.1	117	150	212
40-59 years	537	179	5.0	127	163	212	168	171	8.6	123	154	204	298	182	7.0	130	164	215
60 years and over	471	201	7.9	134	172	236	172	186	12.5	121	153	203	228	213	12.3	140	182	262

... Category not applicable.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 16. Serum vitamin B_{12} in picograms per milliliter for persons 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1991-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
				Percentile						Percentile						Percentile		
	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	8,085	484	9.9	334	434	571	1,822	536	35.2	344	456	599	5,585	474	9.9	332	429	564
20 years and over, age adjusted	...	484	...	...	...	...	...	543	...	...	...	...	...	474	...	...	...	...
20-39 years	3,273	486	18.7	343	443	572	885	512	49.7	351	450	580	2,153	478	21.5	342	439	566
40-59 years	2,146	479	11.0	338	433	571	389	571	84.3	358	471	614	1,600	468	5.7	332	428	560
60 years and over	2,666	489	17.8	314	417	567	548	570	58.8	313	451	666	1,832	477	15.2	314	415	558
Non-Hispanic white																		
20 years and over	3,225	456	6.0	324	421	546	293	451	11.6	310	414	553	2,706	456	6.8	325	422	547
20 years and over, age adjusted	...	456	...	...	...	...	...	454	...	...	...	...	...	456	...	...	...	...
20-39 years	872	453	6.7	334	426	550	97	435	18.4	319	411	528	743	456	7.3	336	426	552
40-59 years	821	455	7.8	330	420	539	44	461	33.3	*345	419	*534	735	453	8.2	328	420	536
60 years and over	1,532	464	18.6	305	405	548	152	485	28.0	290	405	589	1,228	463	22.1	306	406	543
Non-Hispanic black																		
20 years and over	2,337	565	6.6	400	523	683	716	536	10.0	386	502	651	1,422	576	8.9	405	536	690
20 years and over, age adjusted	...	567	...	...	...	...	...	537	...	...	...	...	...	579	...	...	...	...
20-39 years	1,167	551	6.9	393	520	669	367	531	11.1	390	499	628	708	556	8.9	391	533	683
40-59 years	675	578	12.1	411	529	687	171	531	17.3	385	501	661	449	593	16.4	420	532	689
60 years and over	495	585	13.8	389	533	715	178	555	21.4	353	511	694	265	608	19.8	405	549	730
Mexican American																		
20 years and over	2,138	689	93.5	351	457	586	707	785	183.2	351	454	585	1,223	633	113.3	351	452	580
20 years and over, age adjusted	...	711	...	...	...	...	...	879	...	...	...	...	...	611	...	...	...	...
20-39 years	1,070	678	146.0	349	459	578	372	656	*235.4	348	440	574	605	*711	*211.6	352	468	585
40-59 years	537	648	113.2	371	454	606	146	*1,007	*442.4	395	484	629	344	524	26.3	365	439	570
60 years and over	531	*860	*233.4	320	445	607	189	*1,167	*437.3	333	459	638	274	521	36.9	311	429	590

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of the small sample sizes along with influential observations in some subgroups, it is recommended that the median be used as a measure of central tendency. See appendix I for investigation of sample persons with elevated B_{12} concentrations. Pregnant women are excluded.

Table 17. Serum vitamin B_{12} in picograms per milliliter for males 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1991-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
				Percentile						Percentile						Percentile		
	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	3,569	467	5.8	338	432	549	3,285	465	6.1	337	431	549	2,580	460	4.3	334	429	543
20 years and over, age adjusted	...	467	...	...	...	...	...	465	...	...	...	...	...	459	...	...	...	...
20-39 years	1,433	478	5.2	351	456	562	1,329	476	5.2	350	455	561	994	472	6.0	349	452	556
40-59 years	911	463	7.9	334	428	541	848	459	7.8	330	427	541	701	457	8.1	331	426	536
60 years and over	1,225	447	18.6	294	388	516	1,108	449	20.2	294	391	519	885	435	9.6	292	388	507
Non-Hispanic white																		
20 years and over	1,342	445	5.2	329	420	527	1,247	447	5.4	329	422	532	1,163	445	5.6	328	420	528
20 years and over, age adjusted	...	445	...	...	...	...	...	446	...	...	...	...	...	445	...	...	...	...
20-39 years	346	460	10.0	349	437	539	330	462	10.3	350	437	542	300	460	10.9	349	437	540
40-59 years	331	444	10.3	328	420	523	311	444	10.7	324	419	528	304	444	10.7	325	420	529
60 years and over	665	419	11.7	289	374	492	606	419	12.3	288	376	493	559	414	12.6	287	375	491
Non-Hispanic black																		
20 years and over	1,002	564	10.1	399	517	683	930	563	10.6	399	518	683	673	585	13.3	408	546	701
20 years and over, age adjusted	...	563	...	...	...	...	...	562	...	...	...	...	...	584	...	...	...	...
20-39 years	485	566	10.5	411	545	692	452	566	10.9	411	546	693	336	584	13.1	412	567	705
40-59 years	271	564	20.3	398	501	677	255	563	21.4	386	497	673	188	587	27.0	405	510	690
60 years and over	246	555	18.2	376	476	670	223	554	19.2	377	476	667	149	581	25.4	398	507	680
Mexican American																		
20 years and over	1,076	523	42.4	351	445	561	975	517	45.8	352	446	560	648	493	15.1	352	447	560
20 years and over, age adjusted	...	556	...	...	...	...	...	556	...	...	...	...	...	493	...	...	...	...
20-39 years	534	488	14.1	352	449	565	485	*479	*12.2	352	448	560	313	*489	*16.3	355	461	576
40-59 years	271	545	40.2	367	441	550	250	*534	*38.6	369	446	550	186	501	34.1	366	437	549
60 years and over	271	*709	*266.1	299	412	564	240	*742	*298.4	299	412	584	149	494	49.0	284	393	584

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of the small sample sizes along with influential observations in some subgroups, it is recommended that the median be used as a measure of central tendency. See appendix I for investigation of sample persons with elevated B_{12} concentrations.

Table 18. Serum vitamin B_{12} in picograms per milliliter for females 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and poverty level: United States, 1991-94

Race-ethnicity and age	All income levels[1]						Below poverty						At or above poverty					
				Percentile						Percentile						Percentile		
	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	4,516	501	17.7	331	437	592	4,107	499	18.3	330	434	591	3,005	489	18.6	331	430	586
20 years and over, age adjusted	...	500	...	...	...	...	...	498	...	...	...	...	...	489	...	...	...	...
20-39 years	1,840	493	35.4	327	430	585	1,706	492	37.7	326	426	584	1,159	485	42.4	327	426	584
40-59 years	1,235	495	19.2	341	445	597	1,135	493	20.6	340	439	594	899	478	8.1	336	434	587
60 years and over	1,441	520	28.3	324	447	611	1,266	518	23.4	327	447	615	947	511	27.3	328	445	597
Non-Hispanic white																		
20 years and over	1,883	467	10.1	321	422	573	1,738	466	10.7	320	421	572	1,543	468	11.8	322	422	576
20 years and over, age adjusted	...	463	...	...	...	...	...	464	...	...	...	...	...	466	...	...	...	...
20-39 years	526	446	8.5	313	412	567	507	446	8.7	313	411	568	443	450	9.4	317	416	579
40-59 years	490	465	10.9	330	423	569	462	463	11.2	330	422	564	431	462	11.6	330	420	564
60 years and over	867	498	30.2	318	431	588	769	501	33.6	320	431	588	669	502	37.5	321	436	586
Non-Hispanic black																		
20 years and over	1,335	566	8.6	401	527	682	1,207	564	9.1	401	526	678	749	567	12.0	401	525	673
20 years and over, age adjusted	...	569	...	...	...	...	...	568	...	...	...	...	...	571	...	...	...	...
20-39 years	682	538	8.7	378	504	646	623	532	8.7	375	499	640	372	524	11.3	369	496	639
40-59 years	404	589	14.2	436	554	688	365	590	15.4	438	553	687	261	597	19.4	444	550	687
60 years and over	249	606	19.5	398	557	754	219	613	20.9	408	560	755	116	632	29.3	413	558	763
Mexican American																		
20 years and over	1,062	879	188.8	351	473	610	955	876	197.5	350	468	607	575	808	247.1	350	465	602
20 years and over, age adjusted	...	886	...	...	...	...	...	851	...	...	...	...	...	771	...	...	...	...
20-39 years	536	922	268.1	345	472	588	492	962	*291.3	346	471	591	292	*1,024	*406.3	343	472	588
40-59 years	266	754	193.9	378	478	642	240	764	*215.0	368	466	631	158	549	34.6	355	447	629
60 years and over	260	*984	*322.9	334	473	653	223	738	*125.0	326	461	630	125	545	47.4	326	453	620

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown poverty.
2 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of the small sample sizes along with influential observations in some subgroups, it is recommended that the median be used as a measure of central tendency. See appendix I for investigation of sample persons with elevated B_{12} concentrations. Pregnant women are excluded.

Table 19. Serum folate in nanograms per milliliter for persons 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1988-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	15,855	6.8	0.2	3.4	5.1	8.3	6,518	6.5	0.2	3.2	4.8	7.7	9,229	6.9	0.2	3.5	5.3	8.6
20 years and over, age adjusted	...	6.8	...	...	...	...	...	5.9	...	...	...	...	...	7.1	...	...	...	...
20-39 years	6,212	5.6	0.2	3.1	4.5	6.8	1,930	4.8	0.2	2.7	4.0	5.9	4,245	5.8	0.2	3.1	4.7	7.0
40-59 years	4,268	6.8	0.3	3.4	5.1	8.4	1,543	5.8	0.4	3.1	4.4	6.8	2,697	7.1	0.4	3.5	5.4	8.8
60 years and over	5,375	9.3	0.4	4.5	7.0	11.7	3,045	8.5	0.5	4.0	6.2	10.5	2,287	9.9	0.6	4.9	7.5	12.7
Non-Hispanic white																		
20 years and over	6,760	7.2	0.2	3.5	5.4	9.0	2,013	7.0	0.3	3.2	5.0	8.4	4,713	7.3	0.2	3.6	5.5	9.1
20 years and over, age adjusted	...	7.1	...	...	...	...	...	6.0	...	...	...	...	...	7.3	...	...	...	...
20-39 years	1,808	5.8	0.1	3.1	4.7	7.1	260	4.6	0.3	2.7	3.8	5.6	1,544	6.0	0.2	3.2	4.9	7.5
40-59 years	1,761	7.1	0.2	3.5	5.3	8.8	334	6.0	0.4	3.1	4.2	6.9	1,417	7.4	0.2	3.6	5.7	9.3
60 years and over	3,191	9.7	0.2	4.7	7.3	12.2	1,419	9.0	0.3	4.2	6.6	11.2	1,752	10.0	0.3	5.1	7.7	13.1
Non-Hispanic black																		
20 years and over	4,227	5.2	0.1	2.9	4.1	6.2	1,570	5.3	0.2	2.9	4.2	6.3	2,625	5.2	0.1	2.9	4.1	6.0
20 years and over, age adjusted	...	5.3	...	...	...	...	...	5.1	...	...	...	...	...	5.6	...	...	...	...
20-39 years	2,011	4.6	0.1	2.7	3.8	5.5	456	4.3	0.2	2.6	3.7	5.2	1,543	4.7	0.1	2.8	3.9	5.5
40-59 years	1,217	5.3	0.2	2.9	4.1	6.2	443	5.4	0.3	3.0	4.4	6.2	766	5.3	0.2	2.9	4.1	6.1
60 years and over	999	6.8	0.2	3.5	5.1	8.1	671	6.2	0.2	3.3	5.0	7.6	316	7.9	0.6	3.9	5.5	9.3
Mexican American																		
20 years and over	4,240	5.3	0.2	3.1	4.3	6.4	2,670	5.2	0.2	3.1	4.3	6.3	1,536	5.3	0.3	3.1	4.4	6.5
20 years and over, age adjusted	...	5.5	...	...	...	...	...	5.4	...	...	...	...	...	6.1	...	...	...	...
20-39 years	2,125	5.0	0.1	3.1	4.2	6.0	1,125	4.9	0.2	3.1	4.2	5.8	982	5.2	0.2	3.1	4.3	6.2
40-59 years	1,086	5.3	0.2	3.1	4.4	6.5	680	5.3	0.2	3.2	4.4	6.5	398	5.2	0.3	3.1	4.3	6.5
60 years and over	1,029	6.8	0.3	3.6	5.3	7.9	865	6.3	0.3	3.5	5.0	7.5	156	9.0	0.9	4.7	7.3	10.9

... Category not applicable.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 20. Serum folate in nanograms per milliliter for males 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1988-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over, crude	7,554	6.2	0.2	3.2	4.9	7.6	3,261	5.9	0.3	3.1	4.4	6.9	4,233	6.3	0.2	3.3	5.0	7.7
20 years and over, age adjusted	...	6.3	...	...	...	...	...	5.6	...	...	...	...	...	6.5	...	...	...	...
20-39 years	2,952	5.2	0.1	3.0	4.3	6.3	991	4.5	0.1	2.7	3.8	5.6	1,939	5.3	0.1	3.1	4.5	6.5
40-59 years	2,002	6.3	0.2	3.3	4.9	7.7	746	5.5	0.3	3.1	4.2	6.2	1,239	6.5	0.3	3.4	5.1	8.1
60 years and over	2,600	8.4	0.2	4.2	6.5	10.9	1,524	7.8	0.3	3.7	5.7	9.2	1,055	9.0	0.3	4.7	7.3	11.6
Non-Hispanic white																		
20 years and over, crude	3,169	6.5	0.2	3.3	5.1	8.0	997	6.3	0.4	3.1	4.5	7.7	2,158	6.5	0.2	3.4	5.1	8.1
20 years and over, age adjusted	...	6.5	...	...	...	...	...	5.6	...	...	...	...	...	6.7	...	...	...	...
20-39 years	819	5.3	0.1	3.1	4.4	6.5	122	4.2	0.3	2.6	3.6	5.2	696	5.5	0.2	3.1	4.6	6.8
40-59 years	833	6.5	0.2	3.4	5.1	8.2	165	5.7	0.4	3.1	4.2	6.7	664	6.7	0.3	3.5	5.3	8.4
60 years and over	1,517	8.7	0.2	4.4	6.8	11.2	710	8.2	0.4	3.8	6.0	9.7	798	9.1	0.3	4.9	7.3	11.8
Non-Hispanic black																		
20 years and over, crude	1,936	4.9	0.1	2.8	4.0	5.8	766	5.0	0.2	2.8	4.1	6.0	1,150	4.8	0.2	2.9	4.0	5.6
20 years and over, age adjusted	...	5.0	...	...	...	...	...	4.9	...	...	...	...	...	5.2	...	...	...	...
20-39 years	915	4.5	0.1	2.8	3.8	5.3	215	4.4	0.2	2.7	3.7	5.5	693	4.6	0.1	2.8	3.8	5.3
40-59 years	538	5.0	0.2	2.8	4.0	6.0	213	5.0	0.3	2.8	4.2	6.0	318	5.0	0.2	2.8	4.0	6.1
60 years and over	483	6.1	0.3	3.1	4.6	7.6	338	5.8	0.3	2.9	4.5	7.0	139	6.8	0.6	3.7	5.0	8.5
Mexican American																		
20 years and over, crude	2,177	5.1	0.2	3.1	4.2	6.2	1,392	5.0	0.3	3.1	4.2	6.0	761	5.2	0.4	3.1	4.3	6.4
20 years and over, age adjusted	...	5.3	...	...	...	...	...	5.2	...	...	...	...	...	5.5	...	...	...	...
20-39 years	1,093	4.9	0.1	3.1	4.1	5.9	615	4.8	0.2	3.1	4.1	5.7	465	5.1	0.2	3.1	4.3	6.3
40-59 years	547	5.1	0.2	3.1	4.2	6.3	333	5.2	0.3	3.1	4.2	6.2	209	5.0	0.3	3.1	4.2	6.4
60 years and over	537	6.3	0.3	3.6	5.0	7.6	444	6.1	0.4	3.4	4.8	7.3	87	7.1	0.7	*4.4	*6.0	*8.6

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

Table 21. Serum folate in nanograms per milliliter for females 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1988-94

Race-ethnicity and age	*All education levels*[1]						*Less than high school*						*High school or more*					
	Number of examined persons	*Mean*	*Standard error of the mean*	*Percentile*			*Number of examined persons*	*Mean*	*Standard error of the mean*	*Percentile*			*Number of examined persons*	*Mean*	*Standard error of the mean*	*Percentile*		
				25th	*50th*	*75th*				*25th*	*50th*	*75th*				*25th*	*50th*	*75th*
All racial-ethnic groups[2]																		
20 years and over, crude	8,301	7.4	0.3	3.6	5.5	9.0	3,257	7.0	0.4	3.4	5.2	8.3	4,996	7.6	0.3	3.6	5.6	9.3
20 years and over, age adjusted	...	7.3	...	...	...	...	...	6.3	...	...	...	...	...	7.6	...	...	...	...
20-39 years	3,260	6.0	0.1	3.1	4.7	7.4	939	5.1	0.2	2.9	4.2	6.1	2,306	6.2	0.2	3.3	4.9	7.8
40-59 years	2,266	7.3	0.2	3.5	5.3	8.9	797	6.0	0.3	3.1	4.5	7.1	1,458	7.7	0.3	3.6	5.8	9.5
60 years and over	2,775	10.0	0.3	4.7	7.4	12.6	1,521	9.1	0.3	4.4	6.8	11.3	1,232	10.6	0.5	5.0	7.9	13.6
Non-Hispanic white																		
20 years and over, crude	3,591	7.9	0.3	3.8	5.9	9.8	1,016	7.7	0.5	3.5	5.4	9.2	2,555	8.0	0.3	3.8	6.0	9.9
20 years and over, age adjusted	...	7.7	...	...	...	...	...	6.5	...	...	...	...	...	8.0	...	...	...	...
20-39 years	989	6.3	0.2	3.3	5.1	8.1	138	5.0	0.4	2.8	4.0	6.1	848	6.5	0.2	3.4	5.1	8.3
40-59 years	928	7.8	0.3	3.6	5.8	9.7	169	6.4	0.6	2.9	4.4	7.2	753	8.0	0.3	3.8	6.0	10.4
60 years and over	1,674	10.4	0.3	4.9	7.9	13.3	709	9.7	0.4	4.6	7.5	12.2	954	10.7	0.4	5.1	8.1	14.0
Non-Hispanic black																		
20 years and over, crude	2,291	5.5	0.2	2.9	4.2	6.4	804	5.6	0.2	3.1	4.4	6.6	1,475	5.4	0.2	2.9	4.2	6.4
20 years and over, age adjusted	...	5.6	...	...	...	...	...	5.2	...	...	...	...	...	5.9	...	...	...	...
20-39 years	1,096	4.7	0.1	2.7	4.0	5.6	241	4.2	0.2	2.5	3.6	4.9	850	4.8	0.1	2.8	4.0	5.9
40-59 years	679	5.6	0.2	3.0	4.2	6.3	230	5.7	0.3	3.3	4.5	6.4	448	5.5	0.3	2.9	4.1	6.3
60 years and over	516	7.4	0.3	3.8	5.5	8.5	333	6.6	0.3	3.6	5.4	7.9	177	8.6	0.7	4.1	6.0	9.8
Mexican American																		
20 years and over, crude	2,063	5.5	0.3	3.1	4.5	6.6	1,278	5.5	0.4	3.2	4.5	6.6	775	5.5	0.5	3.1	4.5	6.6
20 years and over, age adjusted	...	5.7	...	...	...	...	...	5.6	...	...	...	...	...	6.6	...	...	...	...
20-39 years	1,032	5.2	0.1	3.1	4.3	6.1	510	5.2	0.2	3.0	4.3	6.1	517	5.2	0.2	3.0	4.2	6.2
40-59 years	539	5.4	0.2	3.2	4.7	6.6	347	5.5	0.2	3.2	4.7	6.8	189	5.3	0.3	3.1	4.6	6.6
60 years and over	492	7.2	0.3	3.8	5.5	8.1	421	6.5	0.3	3.5	5.3	7.5	69	10.9	1.2	5.0	8.4	14.2

... Category not applicable.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 22. Red blood cell folate in nanograms per milliliter for persons 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1988-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	15,527	198	2.8	129	173	240	6,294	191	4.6	124	162	226	9,134	201	3.6	131	177	245
20 years and over, age adjusted	...	198	...	...	...	...	..	182	..	...	...	...	...	204	...	...	...	...
20-39 years	6,204	173	3.2	120	156	208	1,923	159	5.3	114	143	186	4,245	176	3.9	122	158	212
40-59 years	4,254	204	5.4	132	177	247	1,536	186	8.6	123	156	217	2,690	209	6.9	136	182	254
60 years and over	5,069	243	6.4	153	212	300	2,835	225	8.3	141	194	275	2,199	256	9.9	162	229	314
Non-Hispanic white																		
20 years and over	6,524	208	3.0	134	182	253	1,859	205	6.2	128	173	243	4,636	209	3.5	136	184	254
20 years and over, age adjusted	...	207	...	...	...	...	..	190	..	...	...	...	...	211	...	...	...	...
20-39 years	1,813	180	2.6	124	162	219	261	163	6.5	116	146	196	1,548	183	2.8	126	166	223
40-59 years	1,755	213	3.7	138	184	261	332	194	8.5	125	162	221	1,413	216	4.2	142	190	269
60 years and over	2,956	253	3.7	159	223	311	1,266	238	5.6	149	204	289	1,675	261	4.9	168	233	317
Non-Hispanic black																		
20 years and over	4,218	148	1.7	102	133	177	1,551	151	3.2	101	133	180	2,636	147	2.0	102	133	177
20 years and over, age adjusted	...	150	...	...	...	...	..	146	..	...	...	...	...	153	...	...	...	...
20-39 years	2,020	136	1.6	97	125	164	454	129	3.8	95	121	151	1,554	138	1.8	98	127	167
40-59 years	1,218	152	2.6	103	136	182	440	152	4.4	99	133	186	770	152	3.2	106	138	180
60 years and over	980	177	3.6	119	158	212	657	173	4.4	114	152	204	312	186	6.1	127	170	224
Mexican American																		
20 years and over	4,163	173	4.4	123	154	204	2,623	171	5.3	124	153	202	1,508	175	7.5	122	157	208
20 years and over, age adjusted	...	177	...	...	...	...	..	173	..	...	...	...	...	191	...	...	...	...
20-39 years	2,103	165	2.7	121	149	195	1,119	163	3.5	122	148	192	967	168	4.3	120	151	197
40-59 years	1,075	180	4.3	125	163	216	676	178	5.2	125	161	213	391	183	7.4	123	164	218
60 years and over	985	198	6.1	131	169	231	828	188	6.4	127	161	216	150	248	16.6	158	221	323

... Category not applicable.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 23. Red blood cell folate in nanograms per milliliter for males 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1988-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	7,420	190	3.6	128	169	228	3,175	181	5.5	123	158	211	4,189	193	4.8	131	173	234
20 years and over, age adjusted	...	191	...	...	...	...	..	176	..	...	...	...	...	198	...	...	...	...
20-39 years	2,948	169	4.3	121	156	201	990	155	6.5	116	146	180	1,937	173	5.4	123	158	207
40-59 years	1,990	196	7.1	131	173	237	737	180	11.7	121	150	208	1,236	200	9.0	134	179	242
60 years and over	2,482	231	8.2	149	203	287	1,448	211	9.7	134	183	262	1,016	246	13.4	160	219	305
Non-Hispanic white																		
20 years and over	3,068	199	3.9	132	177	240	937	194	7.4	127	166	230	2,120	200	4.6	135	180	240
20 years and over, age adjusted	...	199	...	...	...	...	..	184	..	...	...	...	...	203	...	...	...	...
20-39 years	821	177	3.2	126	162	209	123	162	7.3	122	151	190	697	179	3.5	129	164	212
40-59 years	827	203	4.3	135	179	243	163	189	10.6	123	151	213	660	206	4.7	140	183	247
60 years and over	1,420	239	4.2	154	210	297	651	221	5.7	139	191	280	763	250	6.0	164	223	308
Non-Hispanic black																		
20 years and over	1,945	145	2.4	103	132	173	764	150	4.7	103	134	177	1,161	143	2.7	104	132	170
20 years and over, age adjusted	...	148	...	...	...	...	..	147	..	...	...	...	...	150	...	...	...	...
20-39 years	919	138	2.2	102	128	162	214	137	5.7	105	128	156	698	138	2.3	101	128	164
40-59 years	539	145	3.2	103	133	174	209	148	5.6	98	134	184	323	145	3.9	108	133	169
60 years and over	487	173	4.6	113	151	208	341	169	5.9	106	145	199	140	181	7.3	121	171	232
Mexican American																		
20 years and over	2,135	169	5.7	122	152	200	1,368	164	6.4	121	149	195	744	175	10.8	124	156	205
20 years and over, age adjusted	...	174	...	...	...	...	..	168	..	...	...	...	...	190	...	...	...	...
20-39 years	1,083	160	3.3	122	149	188	615	155	3.6	121	145	185	456	167	5.9	123	153	194
40-59 years	538	181	5.9	122	163	221	328	176	6.9	121	160	212	205	189	10.8	122	163	233
60 years and over	514	194	7.5	128	164	224	425	185	7.7	123	160	213	83	240	21.0	*156	*211	*323

... Category not applicable.
* Figure does not meet standard standard of reliability or precision.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

Table 24. Red blood cell folate in nanograms per milliliter for females 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1988-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
	Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile			Number of examined persons	Mean	Standard error of the mean	Percentile		
				25th	50th	75th				25th	50th	75th				25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	8,107	206	4.3	129	179	253	3,119	200	7.3	125	169	239	4,945	208	5.4	131	182	255
20 years and over, age adjusted	...	204	...	...	...	...	..	188	...	...	...	...	...	210	...	...	...	...
20-39 years	3,256	176	4.7	120	157	217	933	163	8.6	112	142	199	2,308	179	5.6	121	160	221
40-59 years	2,264	212	8.1	134	182	260	799	191	12.5	123	162	225	1,454	217	10.2	138	188	273
60 years and over	2,587	253	9.6	156	221	311	1,387	237	13.3	146	203	280	1,183	263	14.1	163	233	322
Non-Hispanic white																		
20 years and over	3,456	218	4.6	136	190	269	922	215	9.9	129	186	260	2,516	218	5.2	137	190	271
20 years and over, age adjusted	...	214	...	...	...	...	..	195	...	...	...	...	...	218	...	...	...	...
20-39 years	992	184	3.5	123	163	230	138	165	9.5	113	138	210	851	186	3.8	125	168	232
40-59 years	928	223	5.3	141	195	283	169	199	11.4	126	174	232	753	227	5.9	145	200	290
60 years and over	1,536	263	5.2	164	231	322	615	252	8.5	156	217	301	912	269	6.6	169	242	332
Non-Hispanic black																		
20 years and over	2,273	150	2.4	99	134	182	787	152	4.4	99	132	183	1,475	150	3.0	99	136	182
20 years and over, age adjusted	...	152	...	...	...	...	..	144	...	...	...	...	...	156	...	...	...	...
20-39 years	1,101	135	2.1	94	123	164	240	120	4.0	88	111	139	856	139	2.5	95	126	169
40-59 years	679	157	3.4	105	140	191	231	156	5.9	103	132	188	447	158	4.2	105	142	195
60 years and over	493	181	4.7	125	162	214	316	176	5.8	121	157	207	172	188	8.1	128	170	223
Mexican American																		
20 years and over	2,028	178	6.7	124	158	212	1,255	179	8.7	126	160	213	764	175	10.6	121	157	210
20 years and over, age adjusted	...	181	...	...	...	...	..	180	...	...	...	...	...	191	...	...	...	...
20-39 years	1,020	172	3.7	121	153	208	504	175	5.4	125	156	208	511	169	5.2	116	148	206
40-59 years	537	179	5.0	127	163	212	348	180	6.4	127	162	215	186	176	8.1	125	164	203
60 years and over	471	201	7.9	134	172	236	403	190	8.3	128	163	223	67	256	21.4	*169	*233	*321

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table 25. Serum vitamin B_{12} in picograms per milliliter for persons 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1991-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
				Percentile						Percentile						Percentile		
	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	8,085	484	9.9	334	434	571	3,201	503	18.9	334	456	586	4,831	478	11.8	334	430	565
20 years and over, age adjusted	...	484	...	...	...	...	...	502	...	...	...	...	...	479	...	...	...	...
20-39 years	3,273	486	18.7	343	443	572	993	491	23.7	340	460	580	2,265	484	23.8	343	439	570
40-59 years	2,146	479	11.0	338	433	571	724	518	33.2	354	475	600	1,405	470	9.9	334	427	552
60 years and over	2,666	489	17.8	314	417	567	1,484	506	36.3	307	424	568	1,161	479	9.3	316	413	566
Non-Hispanic white																		
20 years and over	3,225	456	6.0	324	421	546	886	457	22.2	321	428	549	2,327	456	4.2	325	421	544
20 years and over, age adjusted	...	456	...	...	...	...	...	456	...	...	...	...	...	456	...	...	...	...
20-39 years	872	453	6.7	334	426	550	117	452	16.3	338	450	547	755	453	7.3	333	425	551
40-59 years	821	455	7.8	330	420	539	130	460	17.0	341	456	581	688	454	8.7	328	417	533
60 years and over	1,532	464	18.6	305	405	548	639	460	44.7	289	400	546	884	468	11.3	314	406	551
Non-Hispanic black																		
20 years and over	2,337	565	6.6	400	523	683	838	562	10.1	393	528	684	1,479	567	8.5	402	523	684
20 years and over, age adjusted	...	567	...	...	...	...	...	561	...	...	...	...	...	579	...	...	...	...
20-39 years	1,167	551	6.9	393	520	669	263	548	14.2	393	524	672	898	552	7.9	393	519	673
40-59 years	675	578	12.1	411	529	687	239	583	16.0	423	555	692	428	576	16.6	405	522	687
60 years and over	495	585	13.8	389	533	715	336	559	15.4	371	509	695	153	639	28.0	411	573	766
Mexican American																		
20 years and over	2,138	689	93.5	351	457	586	1,300	667	87.5	346	460	604	822	717	191.9	357	451	561
20 years and over, age adjusted	...	711	...	...	...	...	...	697	...	...	...	...	...	691	...	...	...	...
20-39 years	1,070	678	146.0	349	459	578	551	*586	*86.0	343	456	597	511	*790	*296.4	362	460	564
40-59 years	537	648	113.2	371	454	606	303	*703	*168.5	385	466	651	230	576	146.1	355	441	553
60 years and over	531	*860	*233.4	320	445	607	446	*916	*281.8	325	446	614	81	637	168.4	302	440	573

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of the small sample sizes along with influential observations in some subgroups, it is recommended that the median be used as a measure of central tendency. See appendix I for investigation of sample persons with elevated B_{12} concentrations. Pregnant women are excluded.

Table 26. Serum vitamin B_{12} in picograms per milliliter for males 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1991-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
				Percentile						Percentile						Percentile		
	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	3,569	467	5.8	338	432	549	1,509	479	14.8	339	458	572	2,028	463	5.1	337	427	540
20 years and over, age adjusted	...	467	...	...	...	...	...	483	...	...	...	...	...	461	...	...	...	...
20-39 years	1,433	478	5.2	351	456	562	479	475	7.9	370	470	565	944	479	6.7	350	451	561
40-59 years	911	463	7.9	334	428	541	313	516	14.7	377	492	606	587	450	9.3	325	414	523
60 years and over	1,225	447	18.6	294	388	516	717	457	35.5	286	393	531	497	441	13.5	304	383	506
Non-Hispanic white																		
20 years and over	1,342	445	5.2	329	420	527	398	447	8.9	328	436	546	940	445	6.3	329	419	523
20 years and over, age adjusted	...	445	...	...	...	...	...	460	...	...	...	...	...	444	...	...	...	...
20-39 years	346	460	10.0	349	437	539	51	467	20.1	376	469	546	295	458	11.2	346	436	538
40-59 years	331	444	10.3	328	420	523	49	490	24.7	377	475	600	281	437	11.2	322	411	510
60 years and over	665	419	11.7	289	374	492	298	406	14.2	267	366	492	364	427	17.3	299	376	492
Non-Hispanic black																		
20 years and over	1,002	564	10.1	399	517	683	387	552	14.8	395	509	669	600	571	13.7	401	529	693
20 years and over, age adjusted	...	563	...	...	...	...	...	553	...	...	...	...	...	575	...	...	...	...
20-39 years	485	566	10.5	411	545	692	113	557	18.7	423	545	672	368	569	12.6	399	544	696
40-59 years	271	564	20.3	398	501	677	103	558	25.7	385	508	669	161	571	29.4	398	496	691
60 years and over	246	555	18.2	376	476	670	171	539	22.1	364	460	660	71	592	32.8	411	571	676
Mexican American																		
20 years and over	1,076	523	42.4	351	445	561	657	532	70.1	339	430	575	407	507	23.8	368	460	549
20 years and over, age adjusted	...	556	...	...	...	...	...	570	...	...	...	...	...	492	...	...	...	...
20-39 years	534	488	14.1	352	449	565	288	*466	*13.8	332	427	560	240	*518	*26.6	385	469	570
40-59 years	271	545	40.2	367	441	550	144	*578	*51.6	377	446	594	125	492	54.1	350	436	513
60 years and over	271	*709	*266.1	299	412	564	225	*772	*324.9	304	416	584	42	441	36.7	*281	*404	*484

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of the small sample sizes along with influential observations in some subgroups, it is recommended that the median be used as a measure of central tendency. See appendix I for investigation of sample persons with elevated B_{12} concentrations.

Table 27. Serum vitamin B_{12} in picograms per milliliter for females 20 years and over, number of examined persons, mean, standard error of the mean, and selected percentiles, by race-ethnicity, age, and education level: United States, 1991-94

Race-ethnicity and age	All education levels[1]						Less than high school						High school or more					
				Percentile						Percentile						Percentile		
	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th	Number of examined persons	Mean	Standard error of the mean	25th	50th	75th
All racial-ethnic groups[2]																		
20 years and over	4,516	501	17.7	331	437	592	1,692	527	34.0	329	452	597	2,803	493	21.1	332	434	591
20 years and over, age adjusted	...	500	...	...	...	...	...	521	...	...	...	...	...	493	...	...	...	...
20-39 years	1,840	493	35.4	327	430	585	514	510	48.8	314	436	597	1,321	490	43.9	330	428	582
40-59 years	1,235	495	19.2	341	445	597	411	521	61.2	350	462	581	818	489	16.3	340	439	604
60 years and over	1,441	520	28.3	324	447	611	767	544	60.2	332	452	612	664	507	12.5	321	447	612
Non-Hispanic white																		
20 years and over	1,883	467	10.1	321	422	573	488	468	41.4	308	424	558	1,387	467	5.7	321	422	579
20 years and over, age adjusted	...	463	...	...	...	...	...	447	...	...	...	...	...	466	...	...	...	...
20-39 years	526	446	8.5	313	412	567	66	433	24.2	308	412	558	460	447	9.1	314	413	569
40-59 years	490	465	10.9	330	423	569	81	427	21.5	304	414	526	407	471	12.3	331	424	583
60 years and over	867	498	30.2	318	431	588	341	502	78.3	313	431	581	520	497	13.8	320	433	591
Non-Hispanic black																		
20 years and over	1,335	566	8.6	401	527	682	451	572	13.9	390	549	703	879	564	10.9	404	522	674
20 years and over, age adjusted	...	569	...	...	...	...	...	567	...	...	...	...	...	580	...	...	...	...
20-39 years	682	538	8.7	378	504	646	150	539	20.2	360	490	665	530	537	9.6	385	505	646
40-59 years	404	589	14.2	436	554	688	136	609	18.7	475	581	719	267	581	18.9	423	540	678
60 years and over	249	606	19.5	398	557	754	165	572	20.6	376	550	734	82	669	40.4	413	596	887
Mexican American																		
20 years and over	1,062	879	188.8	351	473	610	643	823	165.6	354	497	653	415	954	392.5	350	442	573
20 years and over, age adjusted	...	886	...	...	...	...	...	837	...	...	...	...	...	899	...	...	...	...
20-39 years	536	922	268.1	345	472	588	263	755	*165.6	346	499	640	271	*1,098	*511.0	341	438	558
40-59 years	266	754	193.9	378	478	642	159	814	*273.1	399	495	675	105	677	269.7	355	451	621
60 years and over	260	*984	*322.9	334	473	653	221	*1,034	*386.8	339	463	682	39	782	271.4	320	482	620

... Category not applicable.
* Figure does not meet standard of reliability or precision.
1 Includes unknown education.
2 Includes all other racial-ethnic groups not listed separately.

NOTES: Because of the small sample sizes along with influential observations in some subgroups, it is recommended that the median be used as a measure of central tendency. See appendix I for investigation of sample persons with elevated B_{12} concentrations. Pregnant women are excluded.

Table 28. Cumulative percent distribution of serum folate in nanograms per milliliter for persons 4 years and over, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	1	1	1	--	--
Less than 1.6	1	--	--	1	2	1	2	1	--	1
Less than 1.8	2	--	--	2	4	4	3	2	1	1
Less than 2	4	--	--	3	6	6	5	3	2	2
Less than 2.2	6	--	--	5	9	9	7	5	3	3
Less than 2.4	8	--	--	7	12	11	10	7	4	4
Less than 2.6	10	--	1	9	16	14	14	9	6	4
Less than 2.8	13	--	1	13	20	17	17	12	8	6
Less than 3	16	--	1	16	25	20	20	15	10	7
Less than 3.2	19	1	2	19	30	25	23	17	13	8
Less than 3.4	21	1	2	21	33	28	27	20	15	10
Less than 3.6	24	1	3	25	37	31	29	23	18	12
Less than 3.8	27	2	5	28	40	35	33	26	20	14
Less than 4	30	2	7	32	44	38	37	29	22	16
Less than 4.5	37	4	10	40	52	46	45	36	27	22
Less than 5	43	7	14	46	58	54	51	43	33	26
Less than 5.5	49	10	18	53	65	60	57	48	38	33
Less than 6	54	13	24	58	70	66	62	54	44	38
Less than 8	70	30	46	76	85	78	75	68	60	53
Less than 10	80	48	62	88	91	87	85	78	71	65
Less than 12	87	64	77	92	95	93	90	83	79	72
Less than 14	91	76	86	96	97	96	94	89	84	78
Less than 16	94	84	90	97	98	97	95	92	89	84
Less than 18	96	90	94	99	99	98	97	94	93	87
Less than 20	97	93	95	99	99	99	98	96	95	91
Less than 25	99	96	97	100	100	100	99	98	98	95
Less than 200	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	1	1	1	--	--
Less than 1.6	1	--	--	1	2	1	2	1	--	1
Less than 1.8	2	--	--	2	4	4	3	2	1	1
Less than 2	4	--	--	3	7	6	4	3	2	2
Less than 2.2	5	--	--	5	10	8	6	4	3	2
Less than 2.4	7	--	--	6	13	10	10	7	4	3
Less than 2.6	10	--	--	8	17	14	13	9	5	4
Less than 2.8	12	--	1	12	21	16	16	12	7	5
Less than 3	15	--	1	16	25	19	19	14	9	6
Less than 3.2	18	1	1	19	29	23	21	17	12	7
Less than 3.4	20	1	2	21	33	26	25	19	14	9
Less than 3.6	23	1	3	24	36	29	28	23	17	10
Less than 3.8	26	1	4	27	39	33	32	25	19	12
Less than 4	29	2	6	31	43	36	35	28	21	14
Less than 4.5	35	4	9	39	51	44	43	35	25	20
Less than 5	41	5	12	44	56	51	48	42	30	25
Less than 5.5	47	8	17	49	63	58	53	47	35	31
Less than 6	51	11	22	53	68	63	58	52	41	36
Less than 8	67	25	43	73	83	76	72	66	58	51
Less than 10	78	43	58	86	90	85	83	75	69	63
Less than 12	85	60	74	91	93	92	89	81	78	71
Less than 14	90	72	84	95	97	95	92	87	83	76
Less than 16	93	82	88	97	98	97	94	91	89	82
Less than 18	95	87	92	99	99	98	96	93	92	87
Less than 20	96	90	94	99	99	99	98	95	95	90
Less than 25	98	95	96	100	100	100	99	98	98	95
Less than 200	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 28. Cumulative percent distribution of serum folate in nanograms per milliliter for persons 4 years and over, by race-ethnicity and age: United States, 1988-94-Con.

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	2	1	1	--	1
Less than 1.6	2	--	--	2	3	3	3	2	--	1
Less than 1.8	3	--	--	3	5	5	4	3	1	2
Less than 2	5	--	--	5	8	8	6	5	3	3
Less than 2.2	8	--	--	7	12	12	8	8	5	5
Less than 2.4	11	--	1	11	15	16	12	10	8	6
Less than 2.6	15	--	1	16	20	21	19	14	10	8
Less than 2.8	18	--	2	18	25	25	24	18	13	11
Less than 3	22	1	3	22	31	31	29	21	17	15
Less than 3.2	26	1	4	25	36	35	33	23	21	18
Less than 3.4	29	2	4	31	40	39	37	27	25	20
Less than 3.6	32	4	6	35	43	43	40	31	28	22
Less than 3.8	37	5	7	39	49	47	46	36	32	25
Less than 4	40	5	10	42	52	51	49	41	35	28
Less than 4.5	49	7	15	53	61	61	59	51	43	36
Less than 5	56	12	20	61	69	69	66	58	52	41
Less than 5.5	62	17	27	68	75	74	72	63	60	45
Less than 6	67	23	34	73	80	78	76	68	65	51
Less than 8	81	46	56	88	91	89	88	82	79	68
Less than 10	89	65	75	94	97	93	92	88	86	79
Less than 12	94	78	87	97	98	96	96	92	90	87
Less than 14	96	87	93	99	99	97	97	95	94	92
Less than 16	97	92	95	99	99	98	98	98	95	94
Less than 18	98	95	97	99	100	99	98	99	97	96
Less than 20	99	97	98	99	100	99	98	99	97	97
Less than 25	99	99	99	100	100	100	99	99	98	98
Less than 200	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	--	--	--	--	1	--	--	--	--	--
Less than 1.6	1	--	--	1	2	2	1	--	1	1
Less than 1.8	2	--	--	1	4	3	2	2	1	2
Less than 2	4	--	--	3	6	6	4	4	2	2
Less than 2.2	6	--	--	7	8	8	7	5	3	3
Less than 2.4	8	--	1	8	11	11	10	7	5	5
Less than 2.6	11	--	1	11	15	15	15	9	7	7
Less than 2.8	14	1	1	14	19	19	19	12	9	11
Less than 3	17	1	2	17	23	23	23	17	12	15
Less than 3.2	21	1	2	20	29	27	27	24	15	21
Less than 3.4	24	1	4	23	32	31	30	27	20	22
Less than 3.6	27	2	4	27	37	34	34	31	23	25
Less than 3.8	30	2	5	31	42	36	40	33	26	27
Less than 4	34	3	6	35	46	41	43	39	28	31
Less than 4.5	43	5	11	45	57	51	55	43	39	39
Less than 5	50	7	14	52	66	59	61	51	48	42
Less than 5.5	56	10	18	59	72	66	68	56	54	47
Less than 6	61	14	25	65	77	71	74	62	62	52
Less than 8	77	35	49	83	88	84	87	77	78	70
Less than 10	87	54	70	91	94	92	92	88	85	79
Less than 12	92	69	82	95	97	96	96	95	92	84
Less than 14	95	83	87	98	98	98	99	97	95	88
Less than 16	97	88	92	99	98	99	99	98	96	93
Less than 18	98	93	94	99	99	99	100	100	97	94
Less than 20	99	96	96	100	100	100	100	100	98	95
Less than 25	100	99	98	100	100	100	100	100	99	98
Less than 200	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Pregnant women are excluded. The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table II for corresponding sample sizes.

Table 29. Cumulative percent distribution of serum folate in nanograms per milliliter for males 4 years and over, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	1	1	--	--	1
Less than 1.6	1	--	--	1	2	2	2	1	1	1
Less than 1.8	3	--	--	2	4	4	3	2	2	2
Less than 2	4	--	--	3	6	6	5	3	3	3
Less than 2.2	6	--	--	4	9	8	7	5	4	4
Less than 2.4	8	--	--	6	12	11	11	7	5	5
Less than 2.6	11	--	1	8	17	15	15	10	6	6
Less than 2.8	13	--	1	11	22	17	18	12	9	8
Less than 3	17	--	1	14	28	21	21	16	12	9
Less than 3.2	20	1	2	16	33	26	24	18	15	11
Less than 3.4	23	1	2	18	37	30	28	20	17	12
Less than 3.6	26	1	3	23	41	33	31	24	20	15
Less than 3.8	29	2	4	25	45	37	36	28	23	16
Less than 4	32	2	5	29	49	40	39	32	25	18
Less than 4.5	40	4	8	39	57	49	48	40	30	25
Less than 5	46	7	11	44	63	57	53	47	36	30
Less than 5.5	51	10	16	51	69	64	59	51	41	37
Less than 6	57	14	21	56	74	68	64	59	48	42
Less than 8	72	32	42	75	88	82	79	73	63	57
Less than 10	82	50	60	87	93	89	88	82	73	70
Less than 12	89	65	76	91	96	95	92	87	83	77
Less than 14	93	75	84	95	98	98	95	91	87	81
Less than 16	95	84	90	97	99	99	96	94	92	86
Less than 18	97	91	94	99	99	100	98	95	96	90
Less than 20	98	93	95	99	100	100	99	97	97	93
Less than 25	99	97	97	100	100	100	99	100	99	97
Less than 200	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	--	1	--	--	1
Less than 1.6	1	--	--	1	3	2	2	1	--	1
Less than 1.8	3	--	1	2	4	4	3	2	2	2
Less than 2	4	--	1	3	7	6	5	2	2	3
Less than 2.2	6	--	1	4	10	9	7	5	3	3
Less than 2.4	8	--	1	6	12	11	11	7	4	4
Less than 2.6	11	--	1	7	18	15	14	10	6	5
Less than 2.8	13	--	1	10	23	16	16	13	9	6
Less than 3	16	--	1	13	28	21	20	16	11	7
Less than 3.2	19	1	2	15	33	25	22	18	14	9
Less than 3.4	22	1	2	18	38	29	26	20	16	11
Less than 3.6	25	1	3	22	41	32	29	24	19	13
Less than 3.8	28	1	4	23	45	36	34	28	22	14
Less than 4	31	1	4	28	48	39	37	31	24	17
Less than 4.5	38	3	6	37	55	47	45	39	28	23
Less than 5	43	6	8	42	60	56	49	47	33	28
Less than 5.5	49	8	13	48	67	63	55	51	39	35
Less than 6	55	12	17	53	72	67	60	57	45	40
Less than 8	71	28	38	74	86	81	76	72	61	56
Less than 10	81	45	55	87	92	88	87	81	71	69
Less than 12	87	62	73	90	95	95	91	86	81	76
Less than 14	92	73	82	94	98	98	94	91	86	80
Less than 16	94	82	88	96	99	99	95	94	91	85
Less than 18	97	88	93	99	99	100	97	95	95	89
Less than 20	98	91	95	100	99	100	99	98	96	92
Less than 25	99	96	97	100	100	100	99	100	99	97
Less than 200	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 29. Cumulative percent distribution of serum folate in nanograms per milliliter for males 4 years and over, by race-ethnicity and age: United States, 1988-94-Con.

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	--	1	2	1	1	--	1
Less than 1.6	2	--	--	2	3	2	3	2	1	2
Less than 1.8	3	--	--	3	4	4	4	3	2	2
Less than 2	5	--	--	5	7	7	7	5	4	4
Less than 2.2	8	--	--	6	11	11	10	9	7	7
Less than 2.4	10	--	--	8	14	15	13	10	11	10
Less than 2.6	14	--	2	11	18	21	22	14	14	12
Less than 2.8	18	--	2	13	25	25	26	18	17	16
Less than 3	22	--	3	15	32	31	31	21	23	18
Less than 3.2	26	1	3	19	37	36	36	25	28	21
Less than 3.4	29	2	4	24	41	40	38	30	31	23
Less than 3.6	33	4	5	31	44	43	41	34	35	27
Less than 3.8	37	4	7	35	50	48	47	41	39	30
Less than 4	41	5	9	39	53	53	50	44	41	33
Less than 4.5	50	6	14	50	63	63	60	54	51	44
Less than 5	56	11	18	57	70	70	68	58	56	50
Less than 5.5	62	16	25	63	77	76	72	64	64	55
Less than 6	67	23	32	67	81	80	78	68	68	62
Less than 8	82	51	53	85	93	90	91	85	81	73
Less than 10	90	67	74	93	97	94	94	89	88	86
Less than 12	95	81	87	97	99	96	97	95	92	92
Less than 14	97	86	93	100	99	97	98	97	96	94
Less than 16	98	93	95	100	99	97	99	98	97	96
Less than 18	99	95	98	100	100	99	99	99	98	98
Less than 20	99	97	99	100	100	99	99	99	98	99
Less than 25	100	98	100	100	100	100	99	99	98	99
Less than 200	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	--	--	--	1	--	1	--	--	1	--
Less than 1.6	1	--	--	1	1	2	1	--	1	1
Less than 1.8	2	--	--	1	3	3	2	3	1	3
Less than 2	4	--	--	2	5	6	5	5	2	3
Less than 2.2	6	--	--	8	8	8	9	6	4	5
Less than 2.4	8	--	1	9	11	11	11	8	8	7
Less than 2.6	11	--	1	12	15	15	15	10	9	8
Less than 2.8	14	1	2	16	19	18	18	12	10	12
Less than 3	17	1	2	19	23	22	22	17	14	18
Less than 3.2	22	1	2	22	28	26	26	27	16	26
Less than 3.4	24	2	4	24	33	29	30	31	20	27
Less than 3.6	27	2	4	29	36	31	34	34	22	29
Less than 3.8	31	2	4	33	43	33	42	38	25	33
Less than 4	35	3	5	38	48	38	45	44	28	36
Less than 4.5	45	5	9	48	60	49	58	50	38	44
Less than 5	51	6	12	54	69	57	63	53	49	47
Less than 5.5	57	10	16	60	74	63	70	58	56	53
Less than 6	62	14	23	66	80	69	74	64	64	59
Less than 8	78	34	46	81	91	84	89	81	78	77
Less than 10	88	54	68	92	97	93	93	90	87	85
Less than 12	93	66	79	95	98	96	96	96	94	90
Less than 14	95	79	86	98	99	98	98	97	96	93
Less than 16	97	86	92	99	99	99	100	97	96	96
Less than 18	98	93	93	99	99	99	100	100	97	97
Less than 20	99	97	95	100	100	99	100	100	99	98
Less than 25	99	98	97	100	100	100	100	100	99	98
Less than 200	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table III for corresponding sample sizes.

Table 30. Cumulative percent distribution of serum folate in nanograms per milliliter for females 4 years and over, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	1	1	1	--	--
Less than 1.6	1	--	--	1	2	1	1	1	--	1
Less than 1.8	2	--	--	2	4	4	3	2	1	1
Less than 2	4	--	--	4	6	6	4	3	1	1
Less than 2.2	5	--	--	6	9	9	6	4	2	2
Less than 2.4	7	--	--	7	12	11	9	6	4	3
Less than 2.6	10	--	1	11	16	14	13	8	5	3
Less than 2.8	12	--	1	15	18	17	16	11	6	4
Less than 3	15	--	1	19	22	19	19	13	8	5
Less than 3.2	17	1	2	22	26	24	22	16	11	7
Less than 3.4	20	1	3	25	29	27	25	19	13	9
Less than 3.6	22	1	3	27	32	29	28	22	16	10
Less than 3.8	25	2	5	31	35	33	31	23	18	12
Less than 4	28	2	8	34	39	36	35	26	20	14
Less than 4.5	35	5	12	41	48	44	43	33	25	19
Less than 5	41	7	16	49	54	51	50	39	31	24
Less than 5.5	47	10	22	56	61	57	55	45	36	30
Less than 6	52	13	28	60	66	63	60	49	40	35
Less than 8	67	27	51	77	81	74	72	64	58	50
Less than 10	78	46	65	89	89	84	82	74	69	61
Less than 12	85	63	78	93	93	91	88	80	76	69
Less than 14	89	77	87	97	96	93	92	86	82	75
Less than 16	93	85	90	98	98	96	94	91	87	82
Less than 18	94	89	93	99	98	97	96	93	91	86
Less than 20	96	92	95	99	99	98	97	94	93	89
Less than 25	98	96	96	99	100	99	99	97	97	94
Less than 200	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	1	1	1	--	--
Less than 1.6	1	--	--	1	2	1	1	1	--	1
Less than 1.8	2	--	--	2	4	3	2	2	1	1
Less than 2	3	--	--	4	7	6	4	3	1	1
Less than 2.2	5	--	--	5	10	8	6	4	2	2
Less than 2.4	7	--	--	7	13	10	9	6	3	2
Less than 2.6	9	--	--	10	16	13	13	8	5	3
Less than 2.8	11	--	1	14	19	16	16	11	6	4
Less than 3	14	--	1	19	22	18	18	13	7	5
Less than 3.2	16	1	1	23	26	21	20	16	10	6
Less than 3.4	18	1	2	25	28	24	24	18	12	8
Less than 3.6	21	1	2	27	31	26	26	21	15	9
Less than 3.8	23	1	4	31	33	30	29	23	17	11
Less than 4	26	2	8	34	37	33	34	25	18	13
Less than 4.5	33	4	12	42	47	40	41	31	23	18
Less than 5	38	5	16	46	52	46	46	37	28	23
Less than 5.5	44	8	21	51	58	52	52	43	32	29
Less than 6	48	10	27	55	64	58	57	47	36	33
Less than 8	63	21	48	72	80	70	68	61	55	48
Less than 10	75	40	61	86	88	81	80	70	67	59
Less than 12	82	58	76	92	92	89	86	77	75	67
Less than 14	87	72	85	96	95	92	90	84	81	73
Less than 16	91	82	88	97	97	95	93	89	87	80
Less than 18	93	86	92	98	98	96	95	92	90	85
Less than 20	95	90	94	98	98	97	96	93	93	88
Less than 25	97	94	95	99	100	99	99	97	97	93
Less than 200	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 30. Cumulative percent distribution of serum folate in nanograms per milliliter for females 4 years and over, by race-ethnicity and age: United States, 1988-94-Con.

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	1	1	2	1	1	--	1
Less than 1.6	2	--	--	2	3	3	3	2	--	1
Less than 1.8	4	--	--	3	6	7	4	2	1	1
Less than 2	5	--	--	5	9	8	6	5	2	3
Less than 2.2	8	--	--	9	13	12	7	8	4	3
Less than 2.4	11	--	1	13	16	17	11	10	6	4
Less than 2.6	15	--	1	20	22	21	16	15	8	6
Less than 2.8	19	1	2	23	26	26	22	18	10	9
Less than 3	23	1	3	28	30	31	27	21	13	12
Less than 3.2	26	2	4	31	36	34	31	22	15	15
Less than 3.4	29	3	5	37	39	39	36	24	20	18
Less than 3.6	32	4	6	39	43	42	40	29	23	19
Less than 3.8	36	5	8	42	47	46	44	32	27	22
Less than 4	39	5	11	45	50	49	49	38	30	26
Less than 4.5	48	8	16	57	59	59	58	48	38	31
Less than 5	56	13	21	64	67	67	65	58	50	34
Less than 5.5	62	17	29	73	74	72	72	63	57	39
Less than 6	67	23	36	78	78	77	75	68	63	44
Less than 8	80	41	59	91	89	88	85	79	77	65
Less than 10	88	62	76	95	96	92	91	87	85	75
Less than 12	93	75	86	97	98	96	95	90	89	83
Less than 14	96	88	93	98	99	98	96	94	92	90
Less than 16	97	92	95	98	99	99	97	97	94	93
Less than 18	98	95	97	99	99	99	97	98	96	95
Less than 20	98	97	98	99	100	100	98	99	96	96
Less than 25	99	99	98	99	100	100	99	100	97	98
Less than 200	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 1.4	1	--	--	--	2	--	1	--	--	--
Less than 1.6	1	--	--	--	3	1	2	--	1	--
Less than 1.8	2	--	--	1	5	4	3	1	1	--
Less than 2	4	--	--	3	7	6	4	3	2	1
Less than 2.2	5	--	1	5	8	8	6	5	2	1
Less than 2.4	7	--	1	7	11	11	9	7	3	3
Less than 2.6	10	--	1	10	14	16	15	7	5	6
Less than 2.8	13	--	1	12	18	20	20	11	7	10
Less than 3	16	--	2	15	24	24	24	17	11	13
Less than 3.2	20	--	2	18	29	27	27	21	15	15
Less than 3.4	23	--	4	22	32	34	30	24	20	17
Less than 3.6	26	1	5	25	37	36	33	27	23	20
Less than 3.8	29	1	5	28	41	39	38	29	26	22
Less than 4	32	3	7	31	44	45	40	33	29	26
Less than 4.5	41	6	13	43	52	53	52	37	40	33
Less than 5	48	7	16	51	61	62	59	48	47	36
Less than 5.5	54	10	21	58	68	69	67	54	52	41
Less than 6	60	14	27	64	74	73	73	60	60	46
Less than 8	76	37	52	84	84	85	86	73	78	63
Less than 10	85	55	71	90	90	92	91	85	84	74
Less than 12	92	73	84	95	95	96	96	94	89	78
Less than 14	95	86	88	98	96	98	99	97	94	83
Less than 16	97	89	92	99	97	99	99	99	95	90
Less than 18	98	92	94	99	99	99	100	99	97	91
Less than 20	99	96	98	100	99	100	100	100	97	92
Less than 25	100	99	99	100	100	100	100	100	98	98
Less than 200	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Pregnant women are excluded. The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table IV for corresponding sample sizes.

Table 31. Cumulative percent distribution of red blood cell folate in nanograms per milliliter for persons 4 years and over, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	1	--	--	1	1	1	1	1	1	1
Less than 70	2	--	--	2	2	2	2	1	1	1
Less than 80	3	--	1	4	5	3	5	2	2	2
Less than 85	4	--	1	6	7	4	5	3	2	3
Less than 90	6	--	1	9	9	6	7	4	3	3
Less than 95	7	--	2	12	11	7	9	6	5	4
Less than 100	9	1	3	14	14	10	12	7	6	6
Less than 110	13	1	5	20	19	15	16	11	9	8
Less than 120	19	3	8	27	26	22	20	15	12	11
Less than 130	25	6	11	35	35	30	27	20	16	14
Less than 140	31	10	15	43	43	35	31	26	21	18
Less than 150	37	14	21	49	50	42	37	31	25	22
Less than 160	42	19	27	56	57	48	42	36	30	26
Less than 180	53	30	39	67	67	59	54	47	39	34
Less than 220	70	54	63	81	82	76	71	61	55	49
Less than 260	81	75	79	90	90	86	81	73	68	62
Less than 300	88	86	90	95	94	92	88	80	78	72
Less than 340	92	92	95	97	97	96	92	87	85	79
Less than 380	95	96	97	98	99	98	94	91	89	85
Less than 420	97	98	99	99	100	99	97	94	93	89
Less than 460	98	98	99	100	100	100	98	96	95	93
Less than 1,760	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	--	--	--	--	1	--	1	1	--	--
Less than 70	1	--	--	1	2	1	2	1	--	1
Less than 80	2	--	--	3	4	3	4	2	1	1
Less than 85	3	--	1	5	6	3	5	3	1	2
Less than 90	5	--	1	7	8	4	6	4	2	3
Less than 95	6	--	1	10	10	5	8	5	4	3
Less than 100	8	--	1	12	12	7	11	6	5	5
Less than 110	11	--	3	17	16	12	14	10	8	6
Less than 120	16	2	6	23	23	20	17	13	10	9
Less than 130	22	4	9	31	31	27	24	17	14	12
Less than 140	27	7	12	39	39	33	28	22	19	16
Less than 150	33	10	17	45	46	39	33	28	23	20
Less than 160	38	15	22	52	53	44	38	33	26	24
Less than 180	48	25	34	63	63	54	49	44	36	31
Less than 220	65	46	57	78	79	72	67	58	52	46
Less than 260	77	70	75	88	88	84	78	69	64	60
Less than 300	85	83	87	94	93	90	86	77	75	70
Less than 340	91	90	94	96	97	96	90	85	83	77
Less than 380	94	95	97	98	98	98	93	90	88	83
Less than 420	96	97	98	99	99	99	97	93	92	88
Less than 460	98	97	99	100	100	100	98	96	94	93
Less than 1,760	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 31. Cumulative percent distribution of red blood cell folate in nanograms per milliliter for persons 4 years and over, by race-ethnicity and age: United States, 1988-94-Con.

Race-ethnicity and selected red blood cell folate cutoff	4 years and over	4-5 years	6-11 years	12-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	3	--	--	4	3	3	3	2	2	3
Less than 70	5	--	2	8	7	6	7	4	4	5
Less than 80	9	1	3	13	12	10	12	7	7	7
Less than 85	12	1	4	15	17	13	14	9	9	8
Less than 90	15	2	6	19	20	16	18	12	12	10
Less than 95	18	3	7	24	25	20	21	16	14	12
Less than 100	22	4	10	28	30	24	24	19	16	14
Less than 110	29	7	15	39	40	32	31	25	21	19
Less than 120	37	12	20	48	48	43	40	31	26	24
Less than 130	46	18	27	58	59	51	48	41	32	32
Less than 140	53	25	34	67	64	57	54	48	40	36
Less than 150	60	32	43	74	71	63	62	56	47	40
Less than 160	66	40	51	79	78	70	66	61	54	49
Less than 180	76	56	65	88	85	79	77	69	64	58
Less than 220	88	80	88	95	94	90	88	79	80	73
Less than 260	94	93	95	97	98	95	95	89	87	83
Less than 300	97	96	98	99	99	97	97	94	93	89
Less than 340	98	99	100	100	100	98	99	96	95	93
Less than 380	99	99	100	100	100	99	99	97	97	95
Less than 420	99	100	100	100	100	100	100	98	98	97
Less than 460	100	100	100	100	100	100	100	99	99	98
Less than 1,760	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	1	--	--	1	1	--	1	1	1	2
Less than 70	1	--	--	1	2	1	2	1	2	3
Less than 80	3	--	--	4	4	3	4	2	2	4
Less than 85	4	--	1	5	5	4	5	2	4	6
Less than 90	5	--	1	8	7	5	6	2	5	8
Less than 95	7	--	2	11	9	7	7	4	7	10
Less than 100	10	--	3	13	13	11	9	6	9	12
Less than 110	14	--	4	19	18	16	15	9	13	15
Less than 120	20	2	7	27	25	23	22	19	17	20
Less than 130	27	3	10	36	34	30	30	26	24	26
Less than 140	34	6	15	43	43	39	35	29	31	32
Less than 150	41	10	19	50	53	47	43	37	38	37
Less than 160	48	14	24	57	61	53	50	45	46	42
Less than 180	60	26	39	70	72	64	62	57	57	53
Less than 220	77	55	64	84	86	79	79	72	71	71
Less than 260	88	75	81	92	93	90	89	84	80	78
Less than 300	93	88	92	94	96	93	94	91	87	85
Less than 340	96	94	97	98	98	96	97	95	90	88
Less than 380	98	98	98	99	99	99	98	98	95	94
Less than 420	99	99	99	100	99	99	99	98	98	95
Less than 460	99	99	100	100	100	100	99	99	98	95
Less than 1,760	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Pregnant women are excluded. The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table V for corresponding sample sizes.

Table 32. Cumulative percent distribution of red blood cell folate in nanograms per milliliter for males 4 years and over, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	1	--	--	1	1	--	1	1	1	1
Less than 70	1	--	--	2	1	1	2	1	1	2
Less than 80	3	--	--	3	3	2	5	2	2	3
Less than 85	4	--	1	5	6	3	6	3	2	3
Less than 90	5	--	1	7	7	5	7	5	3	4
Less than 95	7	--	1	9	9	6	9	6	5	5
Less than 100	8	1	2	12	12	8	11	7	6	6
Less than 110	12	1	3	17	18	12	15	12	10	8
Less than 120	18	3	6	24	26	21	19	17	13	12
Less than 130	25	5	8	31	33	29	27	22	17	16
Less than 140	31	8	11	39	42	36	32	29	22	21
Less than 150	37	12	16	45	50	42	37	35	26	25
Less than 160	43	15	21	52	58	49	44	38	31	29
Less than 180	54	26	33	63	69	61	56	50	42	36
Less than 220	71	50	56	78	85	79	74	64	60	52
Less than 260	82	74	73	89	92	89	84	75	71	65
Less than 300	89	86	86	93	95	94	90	82	80	74
Less than 340	94	92	94	96	98	98	94	88	87	81
Less than 380	96	96	97	98	99	99	96	93	92	87
Less than 420	98	97	98	99	100	100	98	95	95	90
Less than 460	99	97	99	100	100	100	99	97	96	94
Less than 1,760	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	--	--	--	--	--	--	1	1	--	--
Less than 70	1	--	--	1	1	1	2	1	--	1
Less than 80	2	--	--	2	3	1	5	2	1	2
Less than 85	3	--	1	4	5	3	5	2	1	2
Less than 90	4	--	1	5	6	4	6	4	2	3
Less than 95	5	--	1	7	8	4	8	5	4	3
Less than 100	7	--	1	10	10	6	10	6	5	4
Less than 110	10	--	2	14	14	10	13	11	8	6
Less than 120	16	2	4	21	22	19	16	15	11	10
Less than 130	22	5	6	27	29	27	23	20	15	14
Less than 140	27	7	8	35	38	34	28	26	20	18
Less than 150	33	10	12	40	44	39	33	32	24	22
Less than 160	38	13	15	48	52	45	39	35	28	26
Less than 180	50	21	27	59	64	57	51	48	39	34
Less than 220	68	44	50	74	81	77	71	62	57	49
Less than 260	79	70	68	86	90	88	81	73	68	63
Less than 300	87	83	83	91	94	93	89	79	78	72
Less than 340	92	91	93	95	97	97	93	86	86	80
Less than 380	95	95	96	97	98	99	95	91	91	86
Less than 420	97	96	97	99	100	100	98	94	94	90
Less than 460	98	97	98	100	100	100	99	96	96	93
Less than 1,760	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 32. Cumulative percent distribution of red blood cell folate in nanograms per milliliter for males 4 years and over, by race-ethnicity and age: United States, 1988-94-Con.

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	2	--	--	3	2	2	3	4	2	4
Less than 70	4	--	1	5	5	4	6	4	5	5
Less than 80	8	1	2	9	9	7	12	7	9	8
Less than 85	10	1	3	10	15	9	14	8	11	9
Less than 90	13	1	3	15	18	13	18	11	14	11
Less than 95	16	2	3	19	21	16	21	14	16	13
Less than 100	19	3	5	24	26	20	24	17	18	16
Less than 110	27	4	10	34	37	27	34	22	25	21
Less than 120	36	8	15	44	46	40	43	32	29	27
Less than 130	44	11	22	55	55	50	52	40	37	34
Less than 140	51	19	28	62	62	57	59	48	46	40
Less than 150	59	25	37	70	71	63	66	57	52	45
Less than 160	66	33	46	76	77	70	72	62	58	51
Less than 180	76	50	60	86	85	80	82	71	66	62
Less than 220	89	76	85	94	96	90	92	82	78	74
Less than 260	95	91	93	96	99	97	98	91	85	86
Less than 300	97	95	98	99	100	98	98	95	91	92
Less than 340	99	99	99	100	100	99	100	97	95	96
Less than 380	99	99	100	100	100	100	100	98	97	98
Less than 420	100	100	100	100	100	100	100	98	98	100
Less than 460	100	100	100	100	100	100	100	99	98	100
Less than 1,760	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	--	--	--	--	1	--	--	1	--	--
Less than 70	1	--	--	1	1	1	2	1	2	1
Less than 80	3	--	--	4	3	2	4	2	2	4
Less than 85	4	--	1	5	5	3	6	2	4	6
Less than 90	5	--	1	9	6	5	6	3	6	8
Less than 95	7	--	1	12	9	7	7	5	8	11
Less than 100	10	--	2	14	13	10	10	6	10	13
Less than 110	14	--	3	20	17	15	17	10	14	17
Less than 120	20	1	4	28	25	22	24	22	17	23
Less than 130	27	2	6	37	34	29	31	26	24	27
Less than 140	34	5	10	43	43	38	37	28	30	36
Less than 150	42	7	15	50	55	47	45	35	34	39
Less than 160	49	11	19	55	65	54	51	43	46	45
Less than 180	61	22	32	70	75	65	61	55	59	55
Less than 220	78	49	56	85	90	82	77	68	73	74
Less than 260	88	72	75	93	95	92	87	82	81	80
Less than 300	93	86	86	95	99	94	94	90	86	87
Less than 340	97	94	95	98	99	96	97	94	90	90
Less than 380	98	98	96	100	100	99	98	97	93	96
Less than 420	99	98	98	100	100	99	99	97	97	96
Less than 460	100	99	100	100	100	100	99	99	98	97
Less than 1,760	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table VI for corresponding sample sizes.

Table 33. Cumulative percent distribution of red blood cell folate in nanograms per milliliter for females 4 years and over, by race-ethnicity and age: United States, 1988-94

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	1	--	--	1	1	1	1	1	1	1
Less than 70	2	--	--	3	3	2	2	1	1	1
Less than 80	4	--	1	5	6	5	4	2	2	2
Less than 85	5	--	2	8	8	6	5	3	2	3
Less than 90	6	--	2	11	11	7	7	4	4	3
Less than 95	8	1	3	14	13	8	10	6	5	4
Less than 100	10	1	4	17	15	11	12	7	6	6
Less than 110	14	2	6	22	20	17	16	10	9	8
Less than 120	19	4	11	30	26	24	20	13	11	11
Less than 130	26	8	15	39	36	30	27	18	15	13
Less than 140	31	12	20	47	43	35	31	23	20	17
Less than 150	37	16	26	54	50	42	36	28	25	20
Less than 160	42	22	33	60	56	47	41	34	28	24
Less than 180	52	35	46	71	66	56	52	45	37	32
Less than 220	68	57	70	85	79	72	67	59	52	48
Less than 260	79	76	85	92	88	83	78	70	64	61
Less than 300	86	86	93	97	93	89	85	77	76	71
Less than 340	91	92	96	98	97	95	89	86	82	77
Less than 380	94	97	98	99	99	98	93	89	87	83
Less than 420	96	98	100	99	99	99	96	92	91	88
Less than 460	98	99	100	100	100	100	97	96	94	92
Less than 1,760	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	1	--	--	1	1	1	1	--	--	--
Less than 70	1	--	--	1	2	1	1	1	--	1
Less than 80	3	--	1	4	5	4	4	2	1	1
Less than 85	4	--	1	7	6	4	4	3	1	2
Less than 90	5	--	1	9	10	5	6	3	3	2
Less than 95	7	--	1	13	12	6	9	4	3	3
Less than 100	9	--	1	15	14	8	12	6	5	5
Less than 110	12	--	3	19	17	14	15	8	7	7
Less than 120	16	1	8	26	24	20	18	11	9	9
Less than 130	22	3	12	35	33	27	24	15	14	12
Less than 140	27	7	16	43	41	32	27	20	18	15
Less than 150	33	10	23	51	49	40	33	24	21	18
Less than 160	38	17	29	57	53	44	38	30	25	22
Less than 180	47	30	40	67	63	52	47	41	32	29
Less than 220	63	47	64	82	77	68	62	54	47	44
Less than 260	75	69	82	91	87	80	74	67	61	58
Less than 300	83	83	91	97	92	87	82	75	73	68
Less than 340	89	90	95	98	96	94	88	84	80	76
Less than 380	93	95	98	99	98	98	92	88	85	81
Less than 420	95	98	100	99	99	99	95	92	90	88
Less than 460	97	98	100	100	100	100	97	96	92	92
Less than 1,760	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 33. Cumulative percent distribution of red blood cell folate in nanograms per milliliter for females 4 years and over, by race-ethnicity and age: United States, 1988-94-Con.

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	3	--	--	5	4	5	3	1	2	2
Less than 70	7	1	2	10	9	7	7	4	4	5
Less than 80	11	1	5	16	15	13	11	7	6	7
Less than 85	13	2	6	20	19	16	13	9	8	8
Less than 90	17	3	8	24	23	18	17	14	10	9
Less than 95	20	4	10	28	28	22	21	17	12	11
Less than 100	24	6	14	32	35	28	23	21	14	13
Less than 110	32	11	19	43	43	37	29	26	18	18
Less than 120	39	17	26	53	50	45	37	30	23	23
Less than 130	47	25	32	62	62	51	45	41	28	31
Less than 140	54	33	41	73	67	56	50	48	36	33
Less than 150	60	41	49	77	72	64	58	54	45	37
Less than 160	66	49	56	82	79	69	61	60	52	47
Less than 180	75	63	70	90	85	78	72	67	64	55
Less than 220	88	85	90	96	93	89	85	77	82	72
Less than 260	94	95	96	98	97	94	93	88	89	82
Less than 300	97	97	99	99	99	96	96	93	94	87
Less than 340	98	99	100	100	100	98	98	95	95	92
Less than 380	99	99	100	100	100	99	99	97	98	93
Less than 420	99	100	100	100	100	100	100	99	99	95
Less than 460	100	100	100	100	100	100	100	100	99	96
Less than 1,760	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 60	1	--	--	1	1	--	1	--	1	3
Less than 70	1	--	--	1	2	1	2	1	2	4
Less than 80	3	--	--	4	4	3	4	1	2	5
Less than 85	4	--	1	5	6	5	5	2	3	6
Less than 90	5	--	1	6	8	5	6	2	4	8
Less than 95	7	--	3	10	10	8	7	4	6	9
Less than 100	9	--	4	13	14	12	8	6	8	10
Less than 110	14	1	5	19	20	17	14	9	12	13
Less than 120	20	2	9	27	24	23	21	16	16	18
Less than 130	28	5	14	35	35	31	29	26	23	25
Less than 140	34	7	19	42	42	41	32	30	32	29
Less than 150	41	12	23	50	49	47	42	38	40	35
Less than 160	47	17	29	58	55	51	48	46	45	39
Less than 180	60	31	45	71	68	63	63	59	55	51
Less than 220	77	60	72	84	81	77	80	75	70	68
Less than 260	87	78	87	91	89	87	90	86	79	76
Less than 300	93	89	97	94	93	92	94	91	87	82
Less than 340	96	95	99	97	95	95	97	96	91	86
Less than 380	98	98	99	99	98	99	99	98	96	92
Less than 420	99	99	100	100	98	99	99	98	98	93
Less than 460	99	99	100	100	99	100	99	98	99	93
Less than 1,760	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Pregnant women are excluded. The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table VII for corresponding sample sizes.

Table 34. Cumulative percent distribution of serum vitamin B_{12} in picograms per milliliter for persons 4 years and over, by race-ethnicity, and age: United States, 1991-94

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	--	1
Less than 100	--	--	--	--	--	--	--	1	1	1
Less than 150	1	--	--	--	1	1	1	2	1	3
Less than 200	3	--	--	1	3	2	4	4	4	6
Less than 250	7	1	--	3	8	6	8	9	12	13
Less than 300	14	1	1	7	17	13	17	17	22	23
Less than 350	24	2	3	16	28	27	29	26	33	35
Less than 400	36	5	7	28	38	41	42	39	45	47
Less than 450	46	9	11	41	50	51	54	51	55	56
Less than 500	57	14	18	53	63	61	67	60	65	66
Less than 600	73	28	39	72	80	78	81	77	79	78
Less than 650	79	36	50	79	85	85	86	83	84	82
Less than 700	84	42	60	84	90	90	89	88	88	85
Less than 750	88	50	66	87	93	93	92	91	90	89
Less than 800	91	57	73	91	96	95	94	93	93	91
Less than 850	93	66	79	93	97	96	96	94	94	93
Less than 900	94	71	83	95	98	97	97	95	95	94
Less than 950	96	76	87	97	99	97	98	97	96	95
Less than 1,000	97	82	89	97	99	98	98	97	97	96
Less than 1,500	99	99	99	100	100	100	99	99	99	99
Less than 2,000	100	100	99	100	100	100	100	100	100	99
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	--	1
Less than 100	--	--	--	--	--	--	--	--	1	1
Less than 150	1	--	--	--	--	--	1	1	1	3
Less than 200	2	--	--	1	3	1	3	3	4	6
Less than 250	7	2	--	3	8	6	8	8	13	14
Less than 300	15	2	--	7	18	13	19	17	24	24
Less than 350	27	3	3	17	30	29	32	26	36	37
Less than 400	39	8	8	31	40	45	46	41	49	49
Less than 450	51	12	13	45	53	56	59	54	59	58
Less than 500	61	20	21	56	67	65	72	63	69	68
Less than 600	77	34	45	76	84	81	85	78	82	80
Less than 650	83	39	59	81	89	88	90	85	88	83
Less than 700	88	47	68	86	95	92	92	90	91	87
Less than 750	91	57	73	89	96	94	94	93	92	91
Less than 800	93	64	79	92	98	96	96	95	95	92
Less than 850	95	70	83	94	99	97	97	95	95	94
Less than 900	96	76	86	97	100	98	98	96	96	95
Less than 950	97	80	90	97	100	99	98	97	97	96
Less than 1,000	98	86	92	98	100	99	99	98	98	97
Less than 1,500	100	99	99	100	100	100	100	100	100	99
Less than 2,000	100	100	99	100	100	100	100	100	100	100
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 34. Cumulative percent distribution of serum vitamin B_{12} in picograms per milliliter for persons 4 years and over, by race-ethnicity, and age: United States, 1991-94-Con.

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	--	--
Less than 100	--	--	--	--	--	--	--	--	--	--
Less than 150	--	--	--	--	--	--	--	--	--	1
Less than 200	1	--	--	--	1	1	2	1	1	2
Less than 250	3	--	--	1	3	4	4	4	3	7
Less than 300	6	1	--	4	7	9	7	8	9	14
Less than 350	13	1	1	9	15	17	13	16	17	22
Less than 400	20	3	4	16	26	27	20	25	24	30
Less than 450	30	6	5	25	36	39	32	34	36	43
Less than 500	38	7	10	34	45	46	44	41	42	51
Less than 600	56	18	22	55	65	66	63	61	56	67
Less than 650	63	24	31	64	74	72	70	68	63	72
Less than 700	70	30	36	71	78	80	78	75	70	77
Less than 750	75	34	46	77	83	85	82	79	76	81
Less than 800	81	42	55	82	89	89	87	85	81	84
Less than 850	85	56	63	87	92	92	91	90	84	86
Less than 900	88	62	69	91	94	93	92	93	87	89
Less than 950	91	67	76	92	96	95	94	95	91	90
Less than 1,000	92	72	80	94	97	96	95	96	91	93
Less than 1,500	99	95	97	99	99	100	99	99	99	98
Less than 2,000	100	99	100	100	100	100	100	100	100	100
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	1	1	--
Less than 100	--	--	--	--	--	--	--	1	2	1
Less than 150	--	--	--	--	--	1	--	1	3	5
Less than 200	2	--	1	1	1	2	2	1	4	11
Less than 250	4	--	1	3	6	5	5	5	8	15
Less than 300	10	1	2	8	15	9	10	13	17	26
Less than 350	19	1	2	18	29	20	19	18	30	35
Less than 400	29	2	3	31	42	30	33	30	41	42
Less than 450	40	5	6	42	52	44	48	47	50	52
Less than 500	50	9	11	54	63	57	60	62	61	57
Less than 600	66	24	24	69	79	77	75	74	77	69
Less than 650	72	33	31	76	84	82	80	79	80	75
Less than 700	77	41	41	83	88	85	86	84	82	77
Less than 750	82	47	52	88	92	88	89	87	85	80
Less than 800	86	56	66	91	94	91	92	89	88	81
Less than 850	89	65	71	94	95	93	93	90	90	82
Less than 900	91	70	77	94	96	95	94	91	92	86
Less than 950	92	77	80	96	96	95	95	92	94	86
Less than 1,000	94	81	85	97	98	95	95	92	95	87
Less than 1,500	98	98	100	100	99	97	97	96	98	90
Less than 2,000	99	100	100	100	100	98	99	98	98	93
Less than 4,000	99	100	100	100	100	99	99	99	99	95
Less than 100,000	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Pregnant women are excluded. The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table VIII for corresponding sample sizes.

Table 35. Cumulative percent distribution of serum vitamin B_{12} in picograms per milliliter for males 4 years and over, by race-ethnicity, and age: United States, 1991-94

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	1	1
Less than 100	1	--	--	--	1	--	--	2	1	1
Less than 150	1	--	--	--	1	1	--	3	2	3
Less than 200	3	--	--	1	3	2	2	5	5	6
Less than 250	7	2	--	3	5	5	7	10	15	16
Less than 300	13	2	--	6	14	11	16	19	27	24
Less than 350	23	2	1	15	24	24	28	28	38	41
Less than 400	35	7	5	27	35	37	41	40	51	53
Less than 450	46	12	8	40	47	49	56	55	63	64
Less than 500	57	17	14	52	62	59	70	63	71	74
Less than 600	75	30	36	74	82	78	86	80	83	84
Less than 650	81	37	46	81	87	86	90	86	89	86
Less than 700	86	42	56	86	91	91	92	90	92	88
Less than 750	89	53	62	89	93	94	94	93	93	91
Less than 800	91	62	70	92	97	94	96	94	93	92
Less than 850	93	70	78	94	98	95	96	94	95	94
Less than 900	94	74	81	97	98	96	97	96	96	95
Less than 950	96	78	87	98	99	97	98	97	97	95
Less than 1,000	97	84	89	98	99	98	99	97	98	97
Less than 1,500	100	98	99	100	100	100	100	99	100	99
Less than 2,000	100	100	99	100	100	100	100	100	100	100
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	1	--	--	--	--	1	1
Less than 100	--	--	--	1	--	--	--	--	1	1
Less than 150	1	--	--	1	--	--	--	1	2	3
Less than 200	2	--	--	1	1	1	2	4	5	7
Less than 250	7	3	--	3	3	5	7	8	16	18
Less than 300	14	3	--	6	13	11	16	19	30	26
Less than 350	25	3	1	13	25	26	30	28	41	44
Less than 400	38	11	4	27	35	41	44	42	56	56
Less than 450	51	16	8	42	48	54	59	59	68	66
Less than 500	62	24	16	54	65	65	73	66	77	77
Less than 600	80	38	40	77	86	83	89	81	87	87
Less than 650	85	44	52	83	89	90	92	88	94	88
Less than 700	89	48	62	88	94	94	94	92	95	90
Less than 750	92	63	68	90	95	97	95	96	95	93
Less than 800	94	71	75	94	98	97	96	96	96	94
Less than 850	95	74	82	95	99	97	97	97	97	96
Less than 900	96	77	83	98	99	97	98	98	98	96
Less than 950	97	81	89	98	100	98	99	98	98	96
Less than 1,000	98	87	92	98	100	99	99	98	99	98
Less than 1,500	100	98	99	100	100	99	100	100	100	100
Less than 2,000	100	100	99	100	100	100	100	100	100	100
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 35. Cumulative percent distribution of serum vitamin B_{12} in picograms per milliliter for males 4 years and over, by race-ethnicity, and age: United States, 1991-94-Con.

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	1	--	--	--	--	--	--	--	--
Less than 100	--	1	--	--	--	--	--	--	--	--
Less than 150	--	1	--	--	--	--	1	--	--	--
Less than 200	1	1	--	--	1	--	2	1	1	1
Less than 250	3	1	--	2	3	2	7	2	5	3
Less than 300	6	1	1	5	7	6	10	7	10	11
Less than 350	12	2	2	11	13	13	17	18	21	19
Less than 400	21	4	5	19	23	24	25	27	31	28
Less than 450	30	7	6	28	35	35	38	38	40	45
Less than 500	38	9	9	38	43	40	51	47	49	58
Less than 600	55	16	20	59	64	61	63	66	61	73
Less than 650	62	24	28	67	72	68	69	72	66	78
Less than 700	70	33	34	76	76	78	77	80	76	84
Less than 750	75	36	44	82	80	84	82	82	81	87
Less than 800	81	45	55	86	87	89	87	86	84	88
Less than 850	86	64	64	90	91	91	90	91	86	90
Less than 900	88	68	70	93	93	92	92	93	90	93
Less than 950	91	72	79	94	95	96	94	94	93	93
Less than 1,000	93	74	82	96	96	96	95	96	94	94
Less than 1,500	99	97	98	99	99	100	98	100	98	98
Less than 2,000	100	100	100	99	100	100	100	100	100	100
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	1	--	--
Less than 100	--	--	--	--	--	--	--	1	--	1
Less than 150	1	--	--	--	--	1	1	1	--	7
Less than 200	2	--	--	1	1	2	4	1	2	11
Less than 250	5	--	--	5	5	5	6	4	7	15
Less than 300	10	1	--	10	13	8	15	11	22	30
Less than 350	20	1	1	21	27	20	24	15	34	42
Less than 400	30	2	2	33	41	28	39	25	47	48
Less than 450	42	6	6	45	53	46	58	42	57	59
Less than 500	53	11	10	57	63	62	68	64	67	66
Less than 600	68	22	19	72	79	80	83	77	81	77
Less than 650	73	31	27	78	85	85	85	81	82	84
Less than 700	78	42	37	84	88	87	91	85	85	85
Less than 750	83	51	44	88	94	90	93	88	87	87
Less than 800	87	56	60	91	95	94	94	90	87	89
Less than 850	90	70	67	95	96	97	94	90	88	89
Less than 900	92	73	76	95	97	98	95	91	90	91
Less than 950	93	79	79	97	97	98	96	92	92	91
Less than 1,000	95	85	84	99	99	98	96	92	92	93
Less than 1,500	99	99	99	100	100	99	97	93	98	94
Less than 2,000	99	100	100	100	100	100	99	96	98	95
Less than 4,000	100	100	100	100	100	100	100	98	99	95
Less than 100,000	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table IX for corresponding sample sizes.

Table 36. Cumulative percent distribution of serum vitamin B_{12} in picograms per milliliter for females 4 years and over, by race-ethnicity, and age: United States, 1991-94

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	--	--
Less than 100	--	--	--	--	--	--	--	--	1	1
Less than 150	1	--	--	--	1	1	2	1	1	3
Less than 200	3	--	--	--	3	2	5	2	3	6
Less than 250	7	--	--	2	11	6	9	8	10	11
Less than 300	15	--	1	8	21	14	19	16	17	22
Less than 350	25	2	4	17	32	30	29	24	29	32
Less than 400	37	3	9	29	42	45	42	38	40	43
Less than 450	46	6	14	42	54	53	53	47	49	52
Less than 500	56	11	22	54	64	62	64	58	60	61
Less than 600	71	27	42	70	78	77	76	74	75	74
Less than 650	78	34	55	76	84	84	82	81	80	79
Less than 700	83	42	65	81	89	89	86	86	84	83
Less than 750	87	47	71	86	93	92	90	90	88	88
Less than 800	90	53	76	89	95	95	92	93	92	90
Less than 850	92	61	80	92	97	96	96	94	93	92
Less than 900	94	69	85	94	98	98	96	95	94	93
Less than 950	95	74	87	95	99	98	97	97	95	95
Less than 1,000	96	80	89	96	99	98	97	98	96	96
Less than 1,500	99	99	98	100	100	100	99	99	99	99
Less than 2,000	100	100	99	100	100	100	100	100	100	99
Less than 4,000	100	100	99	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100
Non-Hispanic white										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	--	--
Less than 100	--	--	--	--	--	--	--	--	1	1
Less than 150	1	--	--	--	1	--	2	1	1	3
Less than 200	3	--	--	--	4	1	4	2	3	6
Less than 250	8	--	--	3	14	6	10	8	11	12
Less than 300	16	--	1	9	23	15	22	16	18	22
Less than 350	28	4	4	22	36	32	34	24	31	33
Less than 400	41	5	12	35	45	49	48	41	43	44
Less than 450	51	8	18	48	59	57	59	49	51	53
Less than 500	60	15	27	58	69	64	71	61	63	62
Less than 600	75	31	50	74	82	79	81	76	78	75
Less than 650	82	34	67	79	88	86	87	83	83	80
Less than 700	87	46	75	84	95	90	90	88	88	84
Less than 750	90	51	79	88	97	92	94	91	90	89
Less than 800	93	56	83	91	99	96	95	93	94	91
Less than 850	94	66	85	93	99	97	97	94	94	93
Less than 900	96	75	90	94	100	99	97	95	95	94
Less than 950	97	79	90	96	100	99	97	97	96	96
Less than 1,000	97	84	92	97	100	99	98	98	97	97
Less than 1,500	99	100	98	100	100	100	99	100	99	99
Less than 2,000	100	100	99	100	100	100	100	100	100	99
Less than 4,000	100	100	99	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100

See footnotes at end of table.

Table 36. Cumulative percent distribution of serum vitamin B_{12} in picograms per milliliter for females 4 years and over, by race-ethnicity, and age: United States, 1991-94-Con.

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	--	--
Less than 100	--	--	--	--	--	--	--	--	--	--
Less than 150	--	--	--	--	1	1	--	--	1	2
Less than 200	1	--	--	--	1	2	1	1	2	3
Less than 250	3	--	--	1	2	6	1	5	3	9
Less than 300	6	--	--	3	6	11	5	9	9	16
Less than 350	13	1	1	6	17	20	10	15	14	24
Less than 400	20	2	3	13	28	29	16	23	20	32
Less than 450	29	4	5	23	37	41	27	29	33	41
Less than 500	37	6	10	31	46	52	39	36	37	48
Less than 600	56	19	24	51	65	71	62	57	53	64
Less than 650	64	24	34	61	75	76	71	64	61	67
Less than 700	69	26	39	66	80	82	78	71	66	72
Less than 750	75	31	47	72	85	86	82	77	73	78
Less than 800	80	37	54	78	90	88	87	85	78	82
Less than 850	85	46	62	84	93	92	91	90	82	83
Less than 900	88	54	69	88	95	93	93	92	85	86
Less than 950	90	62	74	90	97	95	94	96	89	89
Less than 1,000	91	69	78	92	97	95	94	97	89	92
Less than 1,500	99	94	96	99	100	100	99	99	99	99
Less than 2,000	100	98	100	100	100	100	100	100	99	100
Less than 4,000	100	100	100	100	100	100	100	100	100	100
Less than 100,000	100	100	100	100	100	100	100	100	100	100
Mexican American										
Total	100	100	100	100	100	100	100	100	100	100
Less than 80	--	--	--	--	--	--	--	--	2	1
Less than 100	--	--	--	--	--	--	--	--	3	1
Less than 150	--	--	--	--	--	--	--	--	5	2
Less than 200	2	--	2	1	2	2	1	2	5	10
Less than 250	4	--	2	1	7	5	2	5	9	16
Less than 300	10	--	3	7	17	10	5	14	14	22
Less than 350	18	--	4	15	30	22	15	20	27	28
Less than 400	28	2	5	29	43	32	27	36	35	38
Less than 450	36	3	5	39	51	41	38	51	45	45
Less than 500	47	7	13	51	62	52	52	59	57	49
Less than 600	64	27	30	67	80	74	67	70	73	63
Less than 650	70	34	34	75	83	79	76	77	78	68
Less than 700	75	40	46	82	87	82	80	82	80	70
Less than 750	81	42	60	87	90	86	84	87	84	73
Less than 800	85	56	73	92	92	88	89	89	88	74
Less than 850	88	60	75	94	94	89	91	90	92	76
Less than 900	90	67	78	94	95	91	93	91	93	81
Less than 950	91	75	82	95	95	92	94	92	96	81
Less than 1,000	92	77	86	96	96	92	94	92	96	82
Less than 1,500	98	97	100	100	99	95	97	98	98	87
Less than 2,000	99	99	100	100	99	96	98	99	99	92
Less than 4,000	99	100	100	100	100	97	99	99	99	94
Less than 100,000	100	100	100	100	100	100	100	100	100	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTES: Pregnant women are excluded. The percents are rounded to the nearest whole number, so a particular age group (column) may achieve 100 percent before the corresponding sample size reaches the total. See table X for corresponding sample sizes.

Appendix I

Serum Vitamin B_{12} Geometric Means and Confidence Intervals

Table I. Geometric means and 95 percent confidence intervals for serum vitamin B_{12} for persons 4 years and over by sex, age, and race-ethnicity: United States, 1991–94

Sex and age	All race-ethnicities				Non-Hispanic white			
			Confidence level				Confidence level	
	Sample Size	Transformed Mean	Lower 95 percent	Upper 95 percent	Sample Size	Transformed Mean	Lower 95 percent	Upper 95 percent
4–5 years	877	734	701	767	214	693	649	740
6–11 years	1,327	661	638	684	305	631	600	664
12–19 years	1,562	493	476	510	326	478	454	503
20–29 years	1,622	432	417	447	405	417	398	436
30–39 years	1,649	447	431	462	467	433	415	451
40–49 years	1,267	430	412	448	418	413	393	433
50–59 years	879	441	418	466	403	435	414	458
60–69 years	1,130	424	404	446	476	408	387	429
70 years and over	1,534	418	398	438	1,056	406	390	423
Male								
4–5 years	441	712	669	758	100	666	607	731
6–11 years	687	681	653	709	159	659	622	699
12–19 years	734	488	467	510	145	479	447	513
20–29 years	747	440	421	461	176	435	412	460
30–39 years	686	452	431	474	170	435	409	462
40–49 years	557	425	404	448	179	415	391	439
50–59 years	354	426	392	463	152	422	393	453
60–69 yrs	572	396	371	421	245	376	353	400
70 years and over	652	390	364	417	420	374	354	396
Female								
4–5 years	436	757	717	799	114	724	669	784
6–11 years	640	641	610	673	146	604	559	652
12–19 years	828	498	477	520	181	477	445	511
20–29 years	875	423	403	443	229	398	373	424
30–39 years	963	441	422	460	297	431	409	454
40–49 years	710	434	411	460	239	411	383	440
50–59 years	525	456	428	485	251	449	421	479
60–69 years	558	451	422	481	231	437	407	470
70 years and over	882	437	412	464	636	428	407	451

See footnotes at end of table.

Table I. Geometric means and 95 percent confidence intervals for serum vitamin B_{12} for persons 4 years and over by sex, age, and race-ethnicity: United States, 1991–94—Con.

Sex and age	Non-Hispanic black				Mexican American			
			Confidence level				Confidence level	
	Sample size	Transformed Mean	Lower 95 percent	Upper 95 percent	Sample Size	Transformed Mean	Lower 95 percent	Upper 95 percent
4–5 years	300	823	785	864	308	757	719	797
6–11 years	575	763	739	787	376	724	690	759
12–19 years	653	572	555	591	491	492	468	516
20–29 years	540	516	498	534	594	443	423	464
30–39 years	627	508	491	525	474	488	457	521
40–49 years	434	531	509	554	364	483	448	520
50–59 years	241	526	497	556	173	491	437	552
60–69 years	272	548	517	581	327	451	410	495
70 years and over	223	498	465	533	202	497	417	592
Male								
4–5 years	157	794	739	854	158	735	692	780
6–11 years	288	756	722	791	199	751	713	791
12–19 years	307	551	526	578	244	475	446	505
20–29 years	227	525	497	555	306	443	419	468
30–39 years	258	530	504	556	228	463	434	494
40–49 years	169	510	472	551	190	443	408	482
50–59 years	102	510	469	553	81	502	424	593
60–69 yrs	137	513	473	557	167	445	401	494
70 years and over	109	490	450	534	103	432	356	526
Female								
4–5 years	143	858	809	910	150	781	727	840
6–11 years	287	770	739	802	177	696	650	746
12–19 years	346	595	571	619	247	509	478	542
20–29 years	313	508	486	530	288	443	415	472
30–39 years	369	489	469	511	246	521	469	578
40–49 years	265	547	523	573	174	529	476	589
50–59 years	139	540	503	580	92	481	420	551
60–69 years	135	573	531	619	160	455	399	520
70 years and over	114	503	457	554	99	565	442	723

NOTE: The skewness in the distribution for Mexican Americans was investigated in detail. The Quanta Phase II kit (Bio Rad Laboratories, Hercules, CA) identifies the upper bound of the normal range for serum B_{12} as 1,600 picograms per milliliter (pg/mL). The authors arbitrarily defined a cutpoint of 2,500 picograms per milliter to select cases for detailed investigation. There were 52 persons whose serum B_{12} concentration fell above this cutpoint. The maximum value measured was greater than 100,000 pg/mL. Approximately 80 percent of these persons were Mexican Americans. Addittional data were examined for these persons, including information on use of dietary supplements containing any amount of vitamin B_{12}, specific reports of vitamin injections, and hematologic data that might indicate a condition for which someone may have been given a vitamin B_{12} injection or a dietary supplement containing vitamin B_{12}. All of these data combined did not explain the elevated serum B_{12} cases. Approximately 70 percent of the participants with elevated serum B_{12} resided in locations close to the Mexican border. There is some anecdotal evidence that some of these people might have been receiving injections of vitamin B_{12}.

Appendix II

Sample Sizes for Tables 28–36

Table II. Sample sizes for persons 4 years and over by race-ethnicity, selected serum folate cutoffs, and age: United States, 1988-94

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	23,378	1,742	2,885	2,896	3,135	3,077	2,473	1,795	2,254	3,121
Less than 1.4	127	--	1	14	31	24	21	11	9	16
Less than 1.6	267	--	1	32	75	54	43	21	14	27
Less than 1.8	507	--	3	58	132	119	76	44	35	40
Less than 2	818	--	5	98	205	189	128	68	57	68
Less than 2.2	1,217	1	10	170	292	272	191	99	88	94
Less than 2.4	1,684	3	17	236	389	372	267	138	126	136
Less than 2.6	2,291	3	29	330	508	507	394	180	163	177
Less than 2.8	2,899	8	39	416	646	618	489	234	214	235
Less than 3	3,587	9	65	511	798	738	594	293	284	295
Less than 3.2	4,302	19	86	599	959	885	685	351	356	362
Less than 3.4	4,956	30	116	704	1,080	1,006	785	400	424	411
Less than 3.6	5,574	40	144	811	1,199	1,103	863	460	487	467
Less than 3.8	6,305	51	190	909	1,348	1,217	984	511	555	540
Less than 4	7,033	65	247	1,022	1,474	1,331	1,082	586	616	610
Less than 4.5	8,800	109	370	1,312	1,756	1,622	1,320	730	782	799
Less than 5	10,251	159	501	1,510	1,999	1,860	1,488	856	931	947
Less than 5.5	11,641	226	682	1,711	2,186	2,049	1,640	945	1,069	1,133
Less than 6	12,904	315	868	1,865	2,351	2,195	1,759	1,051	1,203	1,297
Less than 8	16,628	669	1,533	2,373	2,750	2,565	2,071	1,319	1,560	1,788
Less than 10	19,029	1,009	2,060	2,641	2,933	2,777	2,224	1,481	1,760	2,144
Less than 12	20,539	1,254	2,418	2,756	3,019	2,911	2,320	1,584	1,907	2,370
Less than 14	21,489	1,447	2,619	2,827	3,064	2,970	2,378	1,657	1,999	2,528
Less than 16	22,087	1,548	2,721	2,854	3,085	3,013	2,405	1,711	2,074	2,676
Less than 18	22,482	1,619	2,784	2,870	3,106	3,033	2,423	1,732	2,134	2,781
Less than 20	22,728	1,665	2,817	2,876	3,115	3,048	2,439	1,748	2,163	2,857
Less than 25	23,051	1,700	2,847	2,888	3,128	3,070	2,455	1,776	2,208	2,979
Less than 200	23,378	1,742	2,885	2,896	3,135	3,077	2,473	1,795	2,254	3,121
Non-Hispanic white										
Total	8,717	445	761	751	818	990	885	876	980	2,211
Less than 1.4	49	--	1	6	8	7	10	5	3	9
Less than 1.6	92	--	1	9	21	15	17	9	5	15
Less than 1.8	183	--	2	17	36	40	27	22	14	25
Less than 2	281	--	2	27	55	65	46	28	18	40
Less than 2.2	395	--	3	39	77	86	67	39	29	55
Less than 2.4	535	1	3	54	101	108	93	60	38	77
Less than 2.6	704	1	3	68	136	142	131	78	51	94
Less than 2.8	885	1	6	98	168	165	157	103	71	116
Less than 3	1,085	1	10	126	204	195	189	124	92	144
Less than 3.2	1,305	4	15	149	240	238	213	152	116	178
Less than 3.4	1,498	5	22	170	268	267	251	173	133	209
Less than 3.6	1,697	5	26	198	295	293	276	205	158	241
Less than 3.8	1,917	7	42	216	320	327	310	225	182	288
Less than 4	2,132	10	57	242	353	352	341	252	201	324
Less than 4.5	2,666	19	80	305	412	438	409	315	245	443
Less than 5	3,134	26	110	345	461	513	461	376	294	548
Less than 5.5	3,625	42	148	388	511	578	509	417	346	686
Less than 6	4,061	57	192	422	553	624	553	464	401	795
Less than 8	5,453	123	363	566	678	758	669	592	566	1,138
Less than 10	6,442	211	482	663	738	842	756	672	673	1,405
Less than 12	7,099	283	591	699	765	906	795	727	754	1,579
Less than 14	7,558	335	666	723	792	932	825	777	807	1,701
Less than 16	7,899	372	696	734	801	954	839	814	862	1,827
Less than 18	8,119	391	721	742	806	966	851	825	902	1,915
Less than 20	8,272	408	732	745	808	974	862	837	924	1,982
Less than 25	8,489	421	743	749	815	986	875	861	953	2,086
Less than 200	8,717	445	761	751	818	990	885	876	980	2,211

See footnotes at end of table.

Table II. Sample sizes for persons 4 years and over by race-ethnicity, selected serum folate cutoffs, and age: United States, 1988-94-Con.

Race-ethnicity and selected serum folate cutoff	4 years and over	4-5 years	6-11 years	12-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Non-Hispanic black										
Total	6,746	556	952	1,011	980	1,031	755	462	540	459
Less than 1.4	48	--	--	4	12	14	8	5	1	4
Less than 1.6	107	--	--	16	32	24	17	9	2	7
Less than 1.8	186	--	--	25	57	47	26	14	9	8
Less than 2	297	--	--	41	81	71	43	24	19	18
Less than 2.2	446	--	1	64	122	108	61	34	32	24
Less than 2.4	616	1	6	96	151	155	83	44	47	33
Less than 2.6	850	1	14	141	195	205	132	59	60	43
Less than 2.8	1,062	3	16	167	244	252	169	76	75	60
Less than 3	1,301	4	26	201	294	306	207	88	101	74
Less than 3.2	1,519	9	33	230	343	352	239	100	124	89
Less than 3.4	1,732	15	38	281	379	395	269	115	142	98
Less than 3.6	1,939	22	50	324	418	431	295	132	159	108
Less than 3.8	2,201	26	68	361	480	478	336	152	178	122
Less than 4	2,419	28	88	401	510	517	369	175	193	138
Less than 4.5	2,981	42	137	510	598	622	439	222	237	174
Less than 5	3,436	67	181	589	669	701	498	255	278	198
Less than 5.5	3,850	91	249	657	727	762	545	279	319	221
Less than 6	4,215	127	312	712	776	805	580	305	349	249
Less than 8	5,244	257	524	873	888	914	664	371	428	325
Less than 10	5,852	371	708	940	943	955	694	404	465	372
Less than 12	6,227	439	821	977	961	990	721	427	487	404
Less than 14	6,438	492	881	995	966	1,005	731	440	506	422
Less than 16	6,542	519	905	999	969	1,014	738	450	516	432
Less than 18	6,616	532	927	1,002	974	1,020	741	455	523	442
Less than 20	6,655	541	937	1,003	976	1,024	744	457	525	448
Less than 25	6,694	549	943	1,008	978	1,029	747	459	529	452
Less than 200	6,746	556	952	1,011	980	1,031	755	462	540	459
Mexican American										
Total	6,919	649	1,045	985	1,200	925	723	363	657	372
Less than 1.4	27	--	--	3	11	3	3	1	4	2
Less than 1.6	64	--	--	6	22	15	9	2	6	4
Less than 1.8	128	--	1	15	39	29	21	6	11	6
Less than 2	225	--	3	29	67	49	36	14	18	9
Less than 2.2	352	1	6	64	90	72	60	21	25	13
Less than 2.4	496	1	8	83	130	101	83	29	38	23
Less than 2.6	681	1	12	115	168	150	116	36	49	34
Less than 2.8	873	4	15	141	220	187	146	46	64	50
Less than 3	1,102	4	27	172	280	222	177	68	86	66
Less than 3.2	1,346	5	36	205	350	267	207	84	109	83
Less than 3.4	1,566	9	53	233	400	313	235	95	139	89
Less than 3.6	1,756	12	61	267	447	343	260	106	159	101
Less than 3.8	1,976	17	73	303	504	367	302	116	182	112
Less than 4	2,234	25	92	347	559	412	328	139	203	129
Less than 4.5	2,841	44	140	456	683	504	418	164	274	158
Less than 5	3,294	56	191	519	796	576	464	189	330	173
Less than 5.5	3,714	80	260	590	866	630	516	208	370	194
Less than 6	4,112	113	333	642	933	678	550	234	414	215
Less than 8	5,234	256	582	817	1,066	788	645	288	519	273
Less than 10	5,920	375	783	903	1,130	861	674	321	566	307
Less than 12	6,336	470	902	941	1,164	890	699	344	603	323
Less than 14	6,570	547	957	964	1,175	905	714	352	619	337
Less than 16	6,701	580	999	974	1,181	916	719	356	628	348
Less than 18	6,782	610	1,011	979	1,192	917	722	361	637	353
Less than 20	6,829	628	1,022	981	1,196	920	723	362	642	355
Less than 25	6,881	639	1,035	983	1,199	924	723	363	651	364
Less than 200	6,919	649	1,045	985	1,200	925	723	363	657	372

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table III. Sample sizes for males 4 years and over by race-ethnicity, selected serum folate cutoffs, and age: United States, 1988-94

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	11,269	863	1,469	1,383	1,555	1,397	1,170	832	1,137	1,463
Less than 1.4	61	--	--	7	11	10	12	4	8	9
Less than 1.6	130	--	--	14	34	24	20	10	10	18
Less than 1.8	237	--	2	27	53	47	35	24	24	25
Less than 2	399	--	3	46	93	80	64	33	36	44
Less than 2.2	607	--	4	74	137	123	102	49	55	63
Less than 2.4	832	1	8	103	184	164	141	66	79	86
Less than 2.6	1,138	1	15	142	248	230	205	92	99	106
Less than 2.8	1,435	3	21	181	322	276	245	116	130	141
Less than 3	1,791	3	33	220	409	336	300	145	171	174
Less than 3.2	2,152	9	41	260	491	405	351	179	206	210
Less than 3.4	2,472	14	51	308	562	458	400	204	239	236
Less than 3.6	2,786	18	65	373	621	501	437	233	271	267
Less than 3.8	3,181	25	87	420	711	560	507	265	305	301
Less than 4	3,540	33	109	480	775	618	552	303	336	334
Less than 4.5	4,404	46	162	610	924	769	669	373	416	435
Less than 5	5,087	71	220	699	1,048	882	741	425	492	509
Less than 5.5	5,748	105	306	789	1,144	974	804	462	572	592
Less than 6	6,379	152	405	862	1,221	1,034	865	517	643	680
Less than 8	8,193	339	735	1,107	1,415	1,202	1,019	647	813	916
Less than 10	9,372	510	1,027	1,251	1,491	1,294	1,084	720	910	1,085
Less than 12	10,085	624	1,220	1,311	1,518	1,342	1,118	768	993	1,191
Less than 14	10,502	710	1,323	1,349	1,536	1,366	1,141	790	1,033	1,254
Less than 16	10,776	767	1,383	1,364	1,542	1,377	1,151	805	1,068	1,319
Less than 18	10,959	805	1,418	1,375	1,549	1,386	1,157	814	1,095	1,360
Less than 20	11,065	827	1,435	1,378	1,553	1,389	1,163	822	1,108	1,390
Less than 25	11,174	841	1,454	1,381	1,555	1,395	1,166	829	1,123	1,430
Less than 200	11,269	863	1,469	1,383	1,555	1,397	1,170	832	1,137	1,463
Non-Hispanic white										
Total	4,118	217	391	341	380	439	422	411	499	1,018
Less than 1.4	24	--	--	3	3	2	7	2	2	5
Less than 1.6	50	--	--	4	10	8	10	5	3	10
Less than 1.8	96	--	1	7	17	20	16	12	9	14
Less than 2	144	--	1	11	25	30	26	12	13	26
Less than 2.2	199	--	1	13	33	42	38	19	18	35
Less than 2.4	269	1	1	21	44	50	53	30	22	47
Less than 2.6	359	1	1	27	66	70	70	40	29	55
Less than 2.8	451	1	3	39	85	77	82	52	42	70
Less than 3	556	1	4	50	105	92	99	63	56	86
Less than 3.2	661	2	7	56	124	112	111	77	67	105
Less than 3.4	767	2	9	66	144	128	133	87	76	122
Less than 3.6	874	2	12	83	157	139	145	106	89	141
Less than 3.8	988	4	19	88	172	158	164	119	103	161
Less than 4	1,090	5	21	101	186	171	178	136	112	180
Less than 4.5	1,347	7	27	132	210	213	213	168	134	243
Less than 5	1,582	12	41	151	233	256	234	201	161	293
Less than 5.5	1,817	19	61	173	258	289	258	215	191	353
Less than 6	2,048	29	83	190	276	307	278	243	227	415
Less than 8	2,730	65	172	261	331	364	339	304	309	585
Less than 10	3,184	108	241	302	352	393	376	342	360	710
Less than 12	3,490	142	301	314	362	419	391	366	403	792
Less than 14	3,678	164	338	325	373	428	403	383	425	839
Less than 16	3,831	181	358	332	377	434	407	395	450	897
Less than 18	3,925	191	371	338	377	438	411	398	471	930
Less than 20	3,990	199	378	340	378	438	417	406	479	955
Less than 25	4,063	206	385	341	380	439	420	411	491	990
Less than 200	4,118	217	391	341	380	439	422	411	499	1,018

See footnotes at end of table.

Table III. Sample sizes for males 4 years and over by race-ethnicity, selected serum folate cutoffs, and age: United States, 1988-94-Con.

Race-ethnicity and selected serum folate cutoff	4 years and over	4-5 years	6-11 years	12-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Non-Hispanic black										
Total	3,185	281	487	481	461	454	333	205	268	215
Less than 1.4	22	--	--	1	7	5	4	2	1	2
Less than 1.6	47	--	--	6	15	8	7	5	2	4
Less than 1.8	79	--	--	13	21	16	10	8	6	5
Less than 2	139	--	--	22	36	28	19	13	11	10
Less than 2.2	210	--	--	27	55	47	29	17	20	15
Less than 2.4	287	--	2	38	68	67	40	20	31	21
Less than 2.6	405	--	7	56	87	90	71	29	38	27
Less than 2.8	499	--	7	64	113	110	85	37	48	35
Less than 3	620	--	12	77	143	137	104	43	64	40
Less than 3.2	729	3	14	89	165	161	121	50	79	47
Less than 3.4	822	6	15	112	183	179	130	59	87	51
Less than 3.6	921	8	21	139	199	194	139	66	97	58
Less than 3.8	1,062	10	32	159	235	216	161	79	106	64
Less than 4	1,160	12	41	179	249	238	172	86	112	71
Less than 4.5	1,425	17	64	229	293	288	204	106	134	90
Less than 5	1,621	29	84	265	324	320	231	115	148	105
Less than 5.5	1,814	43	117	292	353	349	245	127	171	117
Less than 6	1,982	63	149	316	373	364	265	138	183	131
Less than 8	2,492	141	254	400	428	411	306	174	218	160
Less than 10	2,783	193	356	439	448	429	317	183	233	185
Less than 12	2,966	230	417	462	455	439	325	196	244	198
Less than 14	3,058	249	448	477	456	443	328	199	255	203
Less than 16	3,101	264	461	478	457	444	330	201	260	206
Less than 18	3,138	269	475	479	461	448	331	203	261	211
Less than 20	3,156	275	480	479	461	450	331	203	263	214
Less than 25	3,167	277	484	480	461	453	331	203	264	214
Less than 200	3,185	281	487	481	461	454	333	205	268	215
Mexican American										
Total	3,511	319	518	497	644	449	370	177	337	200
Less than 1.4	13	--	--	3	1	3	1	--	4	1
Less than 1.6	31	--	--	4	9	8	3	--	4	3
Less than 1.8	58	--	1	7	15	10	9	3	8	5
Less than 2	109	--	2	13	30	21	18	7	11	7
Less than 2.2	185	--	3	32	46	33	34	10	16	11
Less than 2.4	254	--	5	42	65	44	45	13	25	15
Less than 2.6	342	--	7	57	87	65	58	18	31	19
Less than 2.8	439	2	10	74	112	82	71	22	38	28
Less than 3	557	2	16	87	146	99	87	31	49	40
Less than 3.2	688	3	19	106	184	120	105	43	58	50
Less than 3.4	795	5	25	119	213	137	121	49	72	54
Less than 3.6	892	7	28	139	239	153	135	52	80	59
Less than 3.8	1,017	10	32	159	274	163	163	58	91	67
Less than 4	1,155	14	40	184	308	183	178	71	103	74
Less than 4.5	1,465	20	62	229	384	237	223	85	136	89
Less than 5	1,691	26	84	260	448	272	243	92	169	97
Less than 5.5	1,900	37	114	296	486	298	266	101	195	107
Less than 6	2,101	51	155	320	521	323	284	112	216	119
Less than 8	2,660	119	276	400	592	381	333	141	265	153
Less than 10	3,034	181	381	455	627	420	348	160	293	169
Less than 12	3,224	219	442	476	634	431	358	170	317	177
Less than 14	3,342	261	471	485	638	440	366	172	323	186
Less than 16	3,408	283	495	491	638	444	369	172	327	189
Less than 18	3,450	300	501	495	641	445	370	176	330	192
Less than 20	3,471	308	505	496	644	446	370	176	333	193
Less than 25	3,492	312	513	497	644	448	370	177	335	196
Less than 200	3,511	319	518	497	644	449	370	177	337	200

-- Quantity less than one.
1 Includes all other racial-ethnic groups not listed separately.

Table IV. Sample sizes for females 4 years and over by race-ethnicity, selected serum folate cutoffs, and age: United States, 1988-94

Race-ethnicity and selected serum folate cutoff	4 years and over	4-5 years	6-11 years	12-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
All racial-ethnic groups[1]										
Total	12,109	879	1,416	1,513	1,580	1,680	1,303	963	1,117	1,658
Less than 1.4	66	--	1	7	20	14	9	7	1	7
Less than 1.6	137	--	1	18	41	30	23	11	4	9
Less than 1.8	270	--	1	31	79	72	41	20	11	15
Less than 2	419	--	2	52	112	109	64	35	21	24
Less than 2.2	610	1	6	96	155	149	89	50	33	31
Less than 2.4	852	2	9	133	205	208	126	72	47	50
Less than 2.6	1,153	2	14	188	260	277	189	88	64	71
Less than 2.8	1,464	5	18	235	324	342	244	118	84	94
Less than 3	1,796	6	32	291	389	402	294	148	113	121
Less than 3.2	2,150	10	45	339	468	480	334	172	150	152
Less than 3.4	2,484	16	65	396	518	548	385	196	185	175
Less than 3.6	2,788	22	79	438	578	602	426	227	216	200
Less than 3.8	3,124	26	103	489	637	657	477	246	250	239
Less than 4	3,493	32	138	542	699	713	530	283	280	276
Less than 4.5	4,396	63	208	702	832	853	651	357	366	364
Less than 5	5,164	88	281	811	951	978	747	431	439	438
Less than 5.5	5,893	121	376	922	1,042	1,075	836	483	497	541
Less than 6	6,525	163	463	1,003	1,130	1,161	894	534	560	617
Less than 8	8,435	330	798	1,266	1,335	1,363	1,052	672	747	872
Less than 10	9,657	499	1,033	1,390	1,442	1,483	1,140	761	850	1,059
Less than 12	10,454	630	1,198	1,445	1,501	1,569	1,202	816	914	1,179
Less than 14	10,987	737	1,296	1,478	1,528	1,604	1,237	867	966	1,274
Less than 16	11,311	781	1,338	1,490	1,543	1,636	1,254	906	1,006	1,357
Less than 18	11,523	814	1,366	1,495	1,557	1,647	1,266	918	1,039	1,421
Less than 20	11,663	838	1,382	1,498	1,562	1,659	1,276	926	1,055	1,467
Less than 25	11,877	859	1,393	1,507	1,573	1,675	1,289	947	1,085	1,549
Less than 200	12,109	879	1,416	1,513	1,580	1,680	1,303	963	1,117	1,658
Non-Hispanic white										
Total	4,599	228	370	410	438	551	463	465	481	1,193
Less than 1.4	25	--	1	3	5	5	3	3	1	4
Less than 1.6	42	--	1	5	11	7	7	4	2	5
Less than 1.8	87	--	1	10	19	20	11	10	5	11
Less than 2	137	--	1	16	30	35	20	16	5	14
Less than 2.2	196	--	2	26	44	44	29	20	11	20
Less than 2.4	266	--	2	33	57	58	40	30	16	30
Less than 2.6	345	--	2	41	70	72	61	38	22	39
Less than 2.8	434	--	3	59	83	88	75	51	29	46
Less than 3	529	--	6	76	99	103	90	61	36	58
Less than 3.2	644	2	8	93	116	126	102	75	49	73
Less than 3.4	731	3	13	104	124	139	118	86	57	87
Less than 3.6	823	3	14	115	138	154	131	99	69	100
Less than 3.8	929	3	23	128	148	169	146	106	79	127
Less than 4	1,042	5	36	141	167	181	163	116	89	144
Less than 4.5	1,319	12	53	173	202	225	196	147	111	200
Less than 5	1,552	14	69	194	228	257	227	175	133	255
Less than 5.5	1,808	23	87	215	253	289	251	202	155	333
Less than 6	2,013	28	109	232	277	317	275	221	174	380
Less than 8	2,723	58	191	305	347	394	330	288	257	553
Less than 10	3,258	103	241	361	386	449	380	330	313	695
Less than 12	3,609	141	290	385	403	487	404	361	351	787
Less than 14	3,880	171	328	398	419	504	422	394	382	862
Less than 16	4,068	191	338	402	424	520	432	419	412	930
Less than 18	4,194	200	350	404	429	528	440	427	431	985
Less than 20	4,282	209	354	405	430	536	445	431	445	1,027
Less than 25	4,426	215	358	408	435	547	455	450	462	1,096
Less than 200	4,599	228	370	410	438	551	463	465	481	1,193

See footnotes at end of table.

Table IV. Sample sizes for females 4 years and over by race-ethnicity, selected serum folate cutoffs, and age: United States, 1988-94-Con.

Race-ethnicity and selected serum folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	3,561	275	465	530	519	577	422	257	272	244
Less than 1.4	26	--	--	3	5	9	4	3	--	2
Less than 1.6	60	--	--	10	17	16	10	4	--	3
Less than 1.8	107	--	--	12	36	31	16	6	3	3
Less than 2	158	--	--	19	45	43	24	11	8	8
Less than 2.2	236	--	1	37	67	61	32	17	12	9
Less than 2.4	329	1	4	58	83	88	43	24	16	12
Less than 2.6	445	1	7	85	108	115	61	30	22	16
Less than 2.8	563	3	9	103	131	142	84	39	27	25
Less than 3	681	4	14	124	151	169	103	45	37	34
Less than 3.2	790	6	19	141	178	191	118	50	45	42
Less than 3.4	910	9	23	169	196	216	139	56	55	47
Less than 3.6	1,018	14	29	185	219	237	156	66	62	50
Less than 3.8	1,139	16	36	202	245	262	175	73	72	58
Less than 4	1,259	16	47	222	261	279	197	89	81	67
Less than 4.5	1,556	25	73	281	305	334	235	116	103	84
Less than 5	1,815	38	97	324	345	381	267	140	130	93
Less than 5.5	2,036	48	132	365	374	413	300	152	148	104
Less than 6	2,233	64	163	396	403	441	315	167	166	118
Less than 8	2,752	116	270	473	460	503	358	197	210	165
Less than 10	3,069	178	352	501	495	526	377	221	232	187
Less than 12	3,261	209	404	515	506	551	396	231	243	206
Less than 14	3,380	243	433	518	510	562	403	241	251	219
Less than 16	3,441	255	444	521	512	570	408	249	256	226
Less than 18	3,478	263	452	523	513	572	410	252	262	231
Less than 20	3,499	266	457	524	515	574	413	254	262	234
Less than 25	3,527	272	459	528	517	576	416	256	265	238
Less than 200	3,561	275	465	530	519	577	422	257	272	244
Mexican American										
Total	3,408	330	527	488	556	476	353	186	320	172
Less than 1.4	14	--	--	--	10	--	2	1	--	1
Less than 1.6	33	--	--	2	13	7	6	2	2	1
Less than 1.8	70	--	--	8	24	19	12	3	3	1
Less than 2	116	--	1	16	37	28	18	7	7	2
Less than 2.2	167	1	3	32	44	39	26	11	9	2
Less than 2.4	242	1	3	41	65	57	38	16	13	8
Less than 2.6	339	1	5	58	81	85	58	18	18	15
Less than 2.8	434	2	5	67	108	105	75	24	26	22
Less than 3	545	2	11	85	134	123	90	37	37	26
Less than 3.2	658	2	17	99	166	147	102	41	51	33
Less than 3.4	771	4	28	114	187	176	114	46	67	35
Less than 3.6	864	5	33	128	208	190	125	54	79	42
Less than 3.8	959	7	41	144	230	204	139	58	91	45
Less than 4	1,079	11	52	163	251	229	150	68	100	55
Less than 4.5	1,376	24	78	227	299	267	195	79	138	69
Less than 5	1,603	30	107	259	348	304	221	97	161	76
Less than 5.5	1,814	43	146	294	380	332	250	107	175	87
Less than 6	2,011	62	178	322	412	355	266	122	198	96
Less than 8	2,574	137	306	417	474	407	312	147	254	120
Less than 10	2,886	194	402	448	503	441	326	161	273	138
Less than 12	3,112	251	460	465	530	459	341	174	286	146
Less than 14	3,228	286	486	479	537	465	348	180	296	151
Less than 16	3,293	297	504	483	543	472	350	184	301	159
Less than 18	3,332	310	510	484	551	472	352	185	307	161
Less than 20	3,358	320	517	485	552	474	353	186	309	162
Less than 25	3,389	327	522	486	555	476	353	186	316	168
Less than 200	3,408	330	527	488	556	476	353	186	320	172

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table V. Sample sizes for persons 4 years and over by race-ethnicity, selected red blood cell folate cutoffs, and age: United States, 1988-94

Race-ethnicity and selected red blood cell folate cutoff	4 years and over	4-5 years	6-11 years	12-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
All racial-ethnic groups[1]										
Total	23,082	1,780	2,880	2,895	3,132	3,072	2,466	1,788	2,221	2,848
Less than 60	259	--	5	52	54	46	36	17	22	27
Less than 70	550	2	20	105	116	94	81	33	44	55
Less than 80	1,030	6	44	203	222	175	158	56	71	95
Less than 85	1,350	9	58	269	305	226	191	75	101	116
Less than 90	1,729	12	74	359	383	283	241	100	133	144
Less than 95	2,181	19	96	457	480	353	299	129	169	179
Less than 100	2,741	30	136	554	599	464	359	168	211	220
Less than 110	3,818	55	221	760	809	656	492	238	289	298
Less than 120	5,155	104	333	998	1,044	910	651	332	374	409
Less than 130	6,690	171	471	1,245	1,330	1,140	853	444	499	537
Less than 140	8,087	253	626	1,474	1,574	1,352	994	543	620	651
Less than 150	9,570	340	823	1,683	1,815	1,571	1,167	667	738	766
Less than 160	10,912	442	1,015	1,865	2,022	1,735	1,314	765	861	893
Less than 180	13,439	691	1,424	2,176	2,339	2,057	1,586	962	1,088	1,116
Less than 220	17,140	1,133	2,094	2,522	2,730	2,494	1,953	1,219	1,440	1,555
Less than 260	19,452	1,442	2,487	2,709	2,922	2,752	2,169	1,414	1,665	1,892
Less than 300	20,806	1,600	2,703	2,795	3,016	2,885	2,278	1,533	1,844	2,152
Less than 340	21,635	1,690	2,797	2,846	3,068	2,967	2,345	1,626	1,964	2,332
Less than 380	22,181	1,736	2,831	2,873	3,100	3,030	2,396	1,681	2,048	2,486
Less than 420	22,493	1,755	2,850	2,880	3,113	3,050	2,427	1,716	2,112	2,590
Less than 460	22,698	1,761	2,866	2,887	3,126	3,062	2,438	1,749	2,144	2,665
Less than 1,760	23,082	1,780	2,880	2,895	3,132	3,072	2,466	1,788	2,221	2,848
Non-Hispanic white										
Total	8,497	451	761	761	823	990	880	875	964	1,992
Less than 60	39	--	--	3	7	4	7	5	5	8
Less than 70	93	--	1	11	19	11	17	9	5	20
Less than 80	196	--	3	24	40	26	37	17	8	41
Less than 85	267	--	5	40	54	35	45	24	13	51
Less than 90	354	--	5	58	73	46	56	32	22	62
Less than 95	464	--	7	79	89	59	75	42	34	79
Less than 100	592	--	10	102	103	85	94	53	45	100
Less than 110	849	2	21	139	144	131	125	82	69	136
Less than 120	1,214	7	45	189	202	200	162	113	97	199
Less than 130	1,651	18	66	249	266	271	228	151	136	266
Less than 140	2,066	29	95	305	329	333	270	193	176	336
Less than 150	2,508	46	137	360	383	396	318	249	213	406
Less than 160	2,935	71	179	410	435	443	371	290	250	486
Less than 180	3,770	122	269	491	521	551	464	390	340	622
Less than 220	5,201	215	447	607	652	723	613	521	492	931
Less than 260	6,277	316	590	684	729	829	701	622	612	1,194
Less than 300	7,014	380	675	723	768	893	766	689	717	1,403
Less than 340	7,502	412	716	738	794	937	802	758	795	1,550
Less than 380	7,833	431	734	748	807	968	831	796	844	1,674
Less than 420	8,064	441	744	753	815	981	856	824	882	1,768
Less than 460	8,213	443	754	758	821	985	863	849	904	1,836
Less than 1,760	8,497	451	761	761	823	990	880	875	964	1,992

See footnotes at end of table.

Table V. Sample sizes for persons 4 years and over by race-ethnicity, selected red blood cell folate cutoffs, and age: United States, 1988-94-Con.

Race-ethnicity and selected red blood cell folate cutoff	4 years and over	4-5 years	6-11 years	12-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Non-Hispanic black										
Total	6,763	566	965	1,014	981	1,039	759	459	540	440
Less than 60	181	--	5	43	38	37	23	10	12	13
Less than 70	364	2	18	78	76	70	53	19	25	23
Less than 80	624	6	34	136	135	117	92	30	41	33
Less than 85	776	9	42	165	177	145	107	39	54	38
Less than 90	970	12	55	208	214	176	137	53	68	47
Less than 95	1,167	18	67	251	262	209	161	66	78	55
Less than 100	1,421	28	94	301	311	258	184	86	92	67
Less than 110	1,903	47	145	402	406	345	236	110	121	91
Less than 120	2,423	77	199	499	494	453	299	139	148	115
Less than 130	2,978	115	270	587	589	530	368	184	185	150
Less than 140	3,434	154	341	673	647	592	415	220	221	171
Less than 150	3,919	195	429	744	712	664	471	252	260	192
Less than 160	4,344	239	507	803	772	727	506	275	296	219
Less than 180	5,025	330	638	885	845	820	583	313	350	261
Less than 220	5,923	465	847	957	925	933	676	366	427	327
Less than 260	6,353	531	913	985	961	986	726	410	469	372
Less than 300	6,552	547	949	1,001	973	1,011	739	434	501	397
Less than 340	6,649	559	961	1,010	979	1,024	748	440	513	415
Less than 380	6,701	562	963	1,012	981	1,033	755	447	524	424
Less than 420	6,726	564	964	1,012	981	1,036	757	451	530	431
Less than 460	6,740	564	964	1,013	981	1,038	758	455	534	433
Less than 1,760	6,763	566	965	1,014	981	1,039	759	459	540	440
Mexican American										
Total	6,827	666	1,028	970	1,190	913	716	359	641	344
Less than 60	35	--	--	6	9	4	6	2	4	4
Less than 70	84	--	1	14	21	12	11	4	13	8
Less than 80	190	--	6	40	46	29	27	8	18	16
Less than 85	270	--	9	55	70	42	36	9	29	20
Less than 90	354	--	12	77	89	56	43	11	38	28
Less than 95	481	--	20	108	120	77	53	16	51	36
Less than 100	640	1	29	131	171	108	70	22	66	42
Less than 110	942	5	50	193	234	163	114	36	89	58
Less than 120	1,349	17	82	275	313	233	166	66	119	78
Less than 130	1,836	31	124	365	429	305	224	90	167	101
Less than 140	2,296	59	177	440	537	384	264	104	209	122
Less than 150	2,779	86	235	514	647	453	325	131	244	144
Less than 160	3,201	116	295	575	732	499	376	159	290	159
Less than 180	4,079	206	462	705	873	604	461	206	365	197
Less than 220	5,260	393	710	833	1,036	731	574	263	471	249
Less than 260	5,975	515	879	902	1,108	822	645	304	527	273
Less than 300	6,335	585	963	926	1,144	858	673	327	564	295
Less than 340	6,549	627	1,000	951	1,162	880	693	341	588	307
Less than 380	6,684	648	1,012	965	1,175	901	704	350	608	321
Less than 420	6,733	654	1,019	967	1,180	905	708	352	624	324
Less than 460	6,767	658	1,024	968	1,186	910	709	355	630	327
Less than 1,760	6,827	666	1,028	970	1,190	913	716	359	641	344

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table VI. Sample sizes for males 4 years and over by race-ethnicity, selected red blood cell folate cutoffs, and age: United States, 1988-94

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	11,145	872	1,470	1,383	1,554	1,394	1,164	826	1,130	1,352
Less than 60	96	--	2	18	17	10	15	11	12	11
Less than 70	213	--	6	37	34	32	36	16	26	26
Less than 80	430	3	13	78	81	54	78	27	43	53
Less than 85	580	4	18	103	124	77	95	34	61	64
Less than 90	762	4	20	149	154	108	118	48	80	81
Less than 95	954	7	23	192	198	133	142	61	100	98
Less than 100	1,219	11	42	238	259	177	173	77	123	119
Less than 110	1,748	17	84	335	367	260	243	113	168	161
Less than 120	2,430	35	126	453	503	395	322	165	212	219
Less than 130	3,144	55	189	569	634	505	417	211	278	286
Less than 140	3,850	93	260	667	774	615	494	260	338	349
Less than 150	4,575	127	362	760	915	718	569	324	391	409
Less than 160	5,251	170	450	846	1,030	814	653	363	458	467
Less than 180	6,514	292	643	1,009	1,189	976	780	464	579	582
Less than 220	8,354	517	999	1,181	1,396	1,175	960	581	762	783
Less than 260	9,484	690	1,219	1,286	1,477	1,288	1,050	667	866	941
Less than 300	10,149	774	1,347	1,330	1,517	1,338	1,098	725	953	1,067
Less than 340	10,553	825	1,413	1,357	1,537	1,365	1,123	762	1,016	1,155
Less than 380	10,784	848	1,435	1,373	1,544	1,381	1,140	786	1,056	1,221
Less than 420	10,917	856	1,447	1,377	1,550	1,387	1,155	800	1,084	1,261
Less than 460	11,002	859	1,459	1,381	1,553	1,391	1,158	812	1,098	1,291
Less than 1,760	11,145	872	1,470	1,383	1,554	1,394	1,164	826	1,130	1,352
Non-Hispanic white										
Total	4,027	219	392	348	383	438	419	408	495	925
Less than 60	14	--	--	1	2	--	3	3	3	2
Less than 70	42	--	--	5	6	3	10	4	3	11
Less than 80	83	--	--	8	13	6	20	7	5	24
Less than 85	116	--	1	15	20	11	24	10	7	28
Less than 90	151	--	1	20	24	16	29	16	10	35
Less than 95	198	--	2	28	31	19	36	21	19	42
Less than 100	258	--	3	39	38	32	43	26	25	52
Less than 110	384	1	6	55	60	49	59	44	39	71
Less than 120	569	4	13	77	93	83	77	62	55	105
Less than 130	781	9	23	102	118	118	112	81	74	144
Less than 140	986	14	35	124	150	155	136	101	93	178
Less than 150	1,197	21	55	144	175	180	159	134	114	215
Less than 160	1,403	31	71	168	205	205	188	148	135	252
Less than 180	1,831	52	117	208	247	259	239	199	188	322
Less than 220	2,542	100	201	263	314	342	316	262	276	468
Less than 260	3,047	154	281	303	346	385	355	304	330	589
Less than 300	3,395	183	333	321	362	411	382	335	382	686
Less than 340	3,636	199	364	333	374	426	395	362	425	758
Less than 380	3,775	208	372	340	377	433	403	382	449	811
Less than 420	3,869	212	377	344	382	437	414	393	465	845
Less than 460	3,926	213	385	347	383	437	416	399	474	872
Less than 1,760	4,027	219	392	348	383	438	419	408	495	925

See footnotes at end of table.

Table VI. Sample sizes for males 4 years and over by race-ethnicity, selected red blood cell folate cutoffs, and age: United States, 1988-94-Con.

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	3,205	285	494	481	460	459	335	204	273	214
Less than 60	66	--	2	15	11	8	10	7	6	7
Less than 70	127	--	5	24	22	22	21	9	14	10
Less than 80	243	3	10	48	48	35	42	14	26	17
Less than 85	314	4	12	57	71	48	50	18	34	20
Less than 90	400	4	13	78	86	63	65	23	43	25
Less than 95	477	6	15	98	103	75	75	29	47	29
Less than 100	589	9	27	123	122	94	87	36	55	36
Less than 110	828	14	55	169	176	127	117	48	73	49
Less than 120	1,092	25	78	218	222	190	146	66	87	60
Less than 130	1,351	36	116	264	263	231	177	82	107	75
Less than 140	1,567	53	147	297	293	259	200	101	127	90
Less than 150	1,808	72	196	336	330	290	223	118	143	100
Less than 160	2,021	94	236	365	356	326	247	127	159	111
Less than 180	2,355	146	297	408	396	371	277	146	181	133
Less than 220	2,800	223	419	447	439	417	312	169	213	161
Less than 260	3,018	264	459	464	456	444	329	186	232	184
Less than 300	3,115	273	483	475	459	453	331	195	249	197
Less than 340	3,160	281	491	479	459	456	334	198	258	204
Less than 380	3,179	283	492	480	460	457	335	199	264	209
Less than 420	3,191	284	493	480	460	458	335	200	267	214
Less than 460	3,196	284	493	481	460	458	335	202	269	214
Less than 1,760	3,205	285	494	481	460	459	335	204	273	214
Mexican American										
Total	3,458	322	512	489	640	443	364	174	329	185
Less than 60	13	--	--	2	4	1	2	1	3	--
Less than 70	37	--	1	6	6	6	5	2	9	2
Less than 80	92	--	3	19	20	11	15	5	11	8
Less than 85	131	--	5	26	30	16	20	5	18	11
Less than 90	184	--	6	41	40	26	23	7	25	16
Less than 95	244	--	6	55	58	36	28	9	31	21
Less than 100	329	1	11	65	89	47	39	12	40	25
Less than 110	479	1	21	98	116	78	61	17	53	34
Less than 120	688	4	32	141	165	113	90	31	67	45
Less than 130	905	8	44	184	224	143	114	39	93	56
Less than 140	1,155	22	71	222	292	183	138	44	113	70
Less than 150	1,393	29	99	253	364	221	164	56	126	81
Less than 160	1,618	39	127	280	418	251	189	70	154	90
Less than 180	2,058	79	203	354	487	305	231	94	194	111
Less than 220	2,662	167	332	419	578	368	293	121	249	135
Less than 260	3,024	236	421	458	609	409	324	144	276	147
Less than 300	3,217	276	465	470	629	422	342	158	293	162
Less than 340	3,321	302	490	480	635	429	351	165	301	168
Less than 380	3,384	312	501	488	636	437	357	168	310	175
Less than 420	3,409	315	506	488	637	438	361	169	319	176
Less than 460	3,431	317	510	488	639	442	362	172	322	179
Less than 1,760	3,458	322	512	489	640	443	364	174	329	185

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

Table VII. Sample sizes for females 4 years and over by race-ethnicity, selected red blood cell folate cutoffs, and age: United States, 1988-94

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	11,937	908	1,410	1,512	1,578	1,678	1,302	962	1,091	1,496
Less than 60	163	--	3	34	37	36	21	6	10	16
Less than 70	337	2	14	68	82	62	45	17	18	29
Less than 80	600	3	31	125	141	121	80	29	28	42
Less than 85	770	5	40	166	181	149	96	41	40	52
Less than 90	967	8	54	210	229	175	123	52	53	63
Less than 95	1,227	12	73	265	282	220	157	68	69	81
Less than 100	1,522	19	94	316	340	287	186	91	88	101
Less than 110	2,070	38	137	425	442	396	249	125	121	137
Less than 120	2,725	69	207	545	541	515	329	167	162	190
Less than 130	3,546	116	282	676	696	635	436	233	221	251
Less than 140	4,237	160	366	807	800	737	500	283	282	302
Less than 150	4,995	213	461	923	900	853	598	343	347	357
Less than 160	5,661	272	565	1,019	992	921	661	402	403	426
Less than 180	6,925	399	781	1,167	1,150	1,081	806	498	509	534
Less than 220	8,786	616	1,095	1,341	1,334	1,319	993	638	678	772
Less than 260	9,968	752	1,268	1,423	1,445	1,464	1,119	747	799	951
Less than 300	10,657	826	1,356	1,465	1,499	1,547	1,180	808	891	1,085
Less than 340	11,082	865	1,384	1,489	1,531	1,602	1,222	864	948	1,177
Less than 380	11,397	888	1,396	1,500	1,556	1,649	1,256	895	992	1,265
Less than 420	11,576	899	1,403	1,503	1,563	1,663	1,272	916	1,028	1,329
Less than 460	11,696	902	1,407	1,506	1,573	1,671	1,280	937	1,046	1,374
Less than 1,760	11,937	908	1,410	1,512	1,578	1,678	1,302	962	1,091	1,496
Non-Hispanic white										
Total	4,470	232	369	413	440	552	461	467	469	1,067
Less than 60	25	--	--	2	5	4	4	2	2	6
Less than 70	51	--	1	6	13	8	7	5	2	9
Less than 80	113	--	3	16	27	20	17	10	3	17
Less than 85	151	--	4	25	34	24	21	14	6	23
Less than 90	203	--	4	38	49	30	27	16	12	27
Less than 95	266	--	5	51	58	40	39	21	15	37
Less than 100	334	--	7	63	65	53	51	27	20	48
Less than 110	465	1	15	84	84	82	66	38	30	65
Less than 120	645	3	32	112	109	117	85	51	42	94
Less than 130	870	9	43	147	148	153	116	70	62	122
Less than 140	1,080	15	60	181	179	178	134	92	83	158
Less than 150	1,311	25	82	216	208	216	159	115	99	191
Less than 160	1,532	40	108	242	230	238	183	142	115	234
Less than 180	1,939	70	152	283	274	292	225	191	152	300
Less than 220	2,659	115	246	344	338	381	297	259	216	463
Less than 260	3,230	162	309	381	383	444	346	318	282	605
Less than 300	3,619	197	342	402	406	482	384	354	335	717
Less than 340	3,866	213	352	405	420	511	407	396	370	792
Less than 380	4,058	223	362	408	430	535	428	414	395	863
Less than 420	4,195	229	367	409	433	544	442	431	417	923
Less than 460	4,287	230	369	411	438	548	447	450	430	964
Less than 1,760	4,470	232	369	413	440	552	461	467	469	1,067

See footnotes at end of table.

Table VII. Sample sizes for females 4 years and over by race-ethnicity, selected red blood cell folate cutoffs, and age: United States, 1988-94-Con.

Race-ethnicity and selected red blood cell folate cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	3,558	281	471	533	521	580	424	255	267	226
Less than 60	115	--	3	28	27	29	13	3	6	6
Less than 70	237	2	13	54	54	48	32	10	11	13
Less than 80	381	3	24	88	87	82	50	16	15	16
Less than 85	462	5	30	108	106	97	57	21	20	18
Less than 90	570	8	42	130	128	113	72	30	25	22
Less than 95	690	12	52	153	159	134	86	37	31	26
Less than 100	832	19	67	178	189	164	97	50	37	31
Less than 110	1,075	33	90	233	230	218	119	62	48	42
Less than 120	1,331	52	121	281	272	263	153	73	61	55
Less than 130	1,627	79	154	323	326	299	191	102	78	75
Less than 140	1,867	101	194	376	354	333	215	119	94	81
Less than 150	2,111	123	233	408	382	374	248	134	117	92
Less than 160	2,323	145	271	438	416	401	259	148	137	108
Less than 180	2,670	184	341	477	449	449	306	167	169	128
Less than 220	3,123	242	428	510	486	516	364	197	214	166
Less than 260	3,335	267	454	521	505	542	397	224	237	188
Less than 300	3,437	274	466	526	514	558	408	239	252	200
Less than 340	3,489	278	470	531	520	568	414	242	255	211
Less than 380	3,522	279	471	532	521	576	420	248	260	215
Less than 420	3,535	280	471	532	521	578	422	251	263	217
Less than 460	3,544	280	471	532	521	580	423	253	265	219
Less than 1,760	3,558	281	471	533	521	580	424	255	267	226
Mexican American										
Total	3,369	344	516	481	550	470	352	185	312	159
Less than 60	22	--	--	4	5	3	4	1	1	4
Less than 70	47	--	--	8	15	6	6	2	4	6
Less than 80	98	--	3	21	26	18	12	3	7	8
Less than 85	139	--	4	29	40	26	16	4	11	9
Less than 90	170	--	6	36	49	30	20	4	13	12
Less than 95	237	--	14	53	62	41	25	7	20	15
Less than 100	311	--	18	66	82	61	31	10	26	17
Less than 110	463	4	29	95	118	85	53	19	36	24
Less than 120	661	13	50	134	148	120	76	35	52	33
Less than 130	931	23	80	181	205	162	110	51	74	45
Less than 140	1,141	37	106	218	245	201	126	60	96	52
Less than 150	1,386	57	136	261	283	232	161	75	118	63
Less than 160	1,583	77	168	295	314	248	187	89	136	69
Less than 180	2,021	127	259	351	386	299	230	112	171	86
Less than 220	2,598	226	378	414	458	363	281	142	222	114
Less than 260	2,951	279	458	444	499	413	321	160	251	126
Less than 300	3,118	309	498	456	515	436	331	169	271	133
Less than 340	3,228	325	510	471	527	451	342	176	287	139
Less than 380	3,300	336	511	477	539	464	347	182	298	146
Less than 420	3,324	339	513	479	543	467	347	183	305	148
Less than 460	3,336	341	514	480	547	468	347	183	308	148
Less than 1,760	3,369	344	516	481	550	470	352	185	312	159

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table VIII. Sample sizes for persons 4 years and over by race-ethnicity, selected serum vitamin B_{12} cutoffs, and age: United States 1991-94

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	11,851	877	1,327	1,562	1,623	1,650	1,267	879	1,131	1,535
Less than 80	16	1	1	1	--	--	1	1	3	8
Less than 100	28	1	1	1	1	2	1	3	5	13
Less than 150	95	1	1	3	7	9	9	6	14	45
Less than 200	258	1	3	14	36	26	31	18	36	93
Less than 250	677	3	4	44	97	82	79	55	110	203
Less than 300	1,358	5	13	115	216	176	164	115	202	352
Less than 350	2,370	13	34	231	399	358	282	184	329	540
Less than 400	3,468	33	70	403	582	552	425	280	448	675
Less than 450	4,621	62	112	566	765	750	585	390	563	828
Less than 500	5,724	99	186	728	943	915	733	484	673	963
Less than 600	7,615	218	406	1,014	1,217	1,220	928	624	830	1,158
Less than 650	8,373	281	531	1,131	1,315	1,324	1,002	680	892	1,217
Less than 700	9,006	338	644	1,219	1,381	1,412	1,063	731	941	1,277
Less than 750	9,561	393	760	1,305	1,445	1,474	1,108	764	976	1,336
Less than 800	10,037	461	865	1,370	1,498	1,517	1,150	793	1,010	1,373
Less than 850	10,419	544	950	1,422	1,534	1,548	1,181	809	1,030	1,401
Less than 900	10,693	596	1,024	1,453	1,556	1,573	1,198	822	1,048	1,423
Less than 950	10,914	648	1,085	1,477	1,568	1,587	1,211	835	1,066	1,437
Less than 1,000	11,089	688	1,135	1,494	1,583	1,594	1,219	843	1,074	1,459
Less than 1,500	11,694	849	1,308	1,552	1,613	1,632	1,248	868	1,116	1,508
Less than 2,000	11,792	873	1,325	1,560	1,620	1,640	1,258	875	1,123	1,518
Less than 4,000	11,815	877	1,326	1,561	1,621	1,642	1,261	876	1,126	1,525
Less than 100,000	11,851	877	1,327	1,562	1,623	1,650	1,267	879	1,131	1,535
Non-Hispanic white										
Total	4,070	214	305	326	405	467	418	403	476	1,056
Less than 80	8	--	--	1	--	--	--	--	1	6
Less than 100	13	--	--	1	--	--	--	--	2	10
Less than 150	50	--	--	1	2	--	3	2	7	35
Less than 200	133	--	--	3	15	7	11	8	19	70
Less than 250	367	2	--	12	43	28	36	29	63	154
Less than 300	708	2	1	30	82	62	84	65	111	271
Less than 350	1,161	7	8	60	132	135	139	104	170	406
Less than 400	1,614	16	21	104	173	216	193	160	232	499
Less than 450	2,046	27	38	148	232	266	245	214	278	598
Less than 500	2,459	41	59	185	285	307	297	258	329	698
Less than 600	3,053	74	131	244	341	376	348	317	389	833
Less than 650	3,275	83	172	261	360	403	369	342	419	866
Less than 700	3,455	100	198	276	381	423	379	361	433	904
Less than 750	3,596	121	212	288	386	439	391	373	441	945
Less than 800	3,705	135	230	297	397	448	398	382	451	967
Less than 850	3,782	149	246	304	401	453	403	384	456	986
Less than 900	3,850	164	259	312	404	461	407	388	459	996
Less than 950	3,894	174	270	315	405	462	409	391	461	1,007
Less than 1,000	3,940	186	278	317	405	463	412	394	465	1,020
Less than 1,500	4,050	212	301	325	405	466	417	402	474	1,048
Less than 2,000	4,063	214	303	326	405	467	418	403	476	1,051
Less than 4,000	4,067	214	304	326	405	467	418	403	476	1,054
Less than 100,000	4,070	214	305	326	405	467	418	403	476	1,056

See footnotes at end of table.

Table VIII. Sample sizes for persons 4 years and over by race-ethnicity, selected serum vitamin B_{12} cutoffs, and age: United States 1991-94-Con.

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	3,865	300	575	653	540	627	434	241	272	223
Less than 80	2	1	1	--	--	--	--	--	--	--
Less than 100	2	1	1	--	--	--	--	--	--	--
Less than 150	13	1	1	1	2	3	2	--	1	2
Less than 200	39	1	1	1	7	8	8	4	4	5
Less than 250	105	1	1	10	13	29	15	9	11	16
Less than 300	237	2	3	35	34	58	29	19	25	32
Less than 350	472	4	8	71	85	112	55	37	48	52
Less than 400	742	10	20	118	143	171	86	55	69	70
Less than 450	1,068	18	30	172	193	248	137	75	98	97
Less than 500	1,375	25	58	230	245	302	188	93	117	117
Less than 600	2,028	55	130	359	348	425	269	140	154	148
Less than 650	2,323	74	183	411	394	467	302	158	175	159
Less than 700	2,566	89	219	454	417	510	332	177	196	172
Less than 750	2,797	103	278	499	445	540	351	189	210	182
Less than 800	3,005	125	324	532	473	561	375	202	223	190
Less than 850	3,192	165	363	563	493	577	392	214	230	195
Less than 900	3,318	184	398	585	504	586	401	220	239	201
Less than 950	3,431	201	435	597	514	597	409	227	247	204
Less than 1,000	3,498	212	460	608	519	600	412	231	248	208
Less than 1,500	3,805	283	561	645	535	625	429	239	268	220
Less than 2,000	3,859	298	575	652	540	627	432	241	271	223
Less than 4,000	3,863	300	575	653	540	627	432	241	272	223
Less than 100,000	3,865	300	575	653	540	627	434	241	272	223
Mexican American										
Total	3,313	308	376	491	595	475	364	173	328	203
Less than 80	4	--	--	--	--	--	--	1	2	1
Less than 100	6	--	--	--	--	--	--	1	3	2
Less than 150	17	--	--	--	2	3	1	1	4	6
Less than 200	58	--	1	6	10	8	7	2	9	15
Less than 250	147	--	2	15	33	19	17	7	27	27
Less than 300	323	1	5	39	83	42	37	18	55	43
Less than 350	604	2	10	79	163	90	73	28	92	67
Less than 400	933	7	20	152	233	141	128	45	125	82
Less than 450	1,271	15	31	206	298	205	179	74	159	104
Less than 500	1,607	30	53	264	363	269	221	97	194	116
Less than 600	2,146	78	118	341	464	366	275	120	244	140
Less than 650	2,350	105	146	380	495	390	292	133	255	154
Less than 700	2,527	129	191	408	515	404	309	143	267	161
Less than 750	2,685	146	230	434	542	419	323	148	277	166
Less than 800	2,823	175	266	455	554	431	332	152	286	172
Less than 850	2,920	200	289	468	564	440	337	153	294	175
Less than 900	2,984	216	308	468	570	448	341	156	298	179
Less than 950	3,035	236	320	475	570	450	343	158	304	179
Less than 1,000	3,086	250	335	478	578	452	345	159	307	182
Less than 1,500	3,239	300	375	490	590	460	351	166	319	188
Less than 2,000	3,268	306	376	490	592	465	357	169	321	192
Less than 4,000	3,282	308	376	490	593	467	360	170	323	195
Less than 100,000	3,313	308	376	491	595	475	364	173	328	203

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

Table IX. Sample sizes for males 4 years and over by race-ethnicity, selected serum vitamin B_{12} cutoffs, and age: United States 1991-94

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	5,431	441	687	734	747	686	557	354	573	652
Less than 80	10	1	1	1	--	--	--	1	1	5
Less than 100	16	1	1	1	1	1	--	3	1	7
Less than 150	44	1	1	1	2	4	3	4	7	21
Less than 200	115	1	2	5	15	8	13	8	21	42
Less than 250	311	3	3	24	31	26	39	21	66	98
Less than 300	615	5	5	56	86	57	79	45	126	156
Less than 350	1,077	6	13	115	164	127	135	76	189	252
Less than 400	1,588	18	32	197	250	209	202	117	255	308
Less than 450	2,154	37	54	271	336	301	283	173	315	384
Less than 500	2,675	55	86	359	422	372	355	211	373	442
Less than 600	3,529	104	201	499	559	503	437	268	443	515
Less than 650	3,862	139	260	554	605	548	460	287	471	538
Less than 700	4,165	171	323	598	637	588	487	304	498	559
Less than 750	4,414	204	384	636	665	617	502	315	513	578
Less than 800	4,628	235	442	663	695	636	517	323	522	595
Less than 850	4,811	289	494	682	711	649	523	328	531	604
Less than 900	4,929	308	531	697	720	658	530	333	539	613
Less than 950	5,033	331	571	707	724	665	537	337	546	615
Less than 1,000	5,115	351	594	715	732	670	540	339	549	625
Less than 1,500	5,370	429	679	731	743	683	548	349	567	641
Less than 2,000	5,410	441	686	733	746	685	554	351	569	645
Less than 4,000	5,419	441	687	734	746	686	555	352	571	647
Less than 100,000	5,431	441	687	734	747	686	557	354	573	652
Non-Hispanic white										
Total	1,746	100	159	145	176	170	179	152	245	420
Less than 80	6	--	--	1	--	--	--	--	1	4
Less than 100	7	--	--	1	--	--	--	--	1	5
Less than 150	24	--	--	1	--	--	--	1	6	16
Less than 200	60	--	--	2	4	1	3	4	14	32
Less than 250	161	2	--	5	7	8	13	11	38	77
Less than 300	296	2	--	10	23	17	31	25	71	117
Less than 350	486	2	2	20	43	43	55	39	97	185
Less than 400	678	9	7	38	62	72	77	61	132	220
Less than 450	881	16	14	58	83	94	102	90	160	264
Less than 500	1,075	22	24	79	115	115	130	102	186	302
Less than 600	1,337	35	64	111	148	141	155	122	211	350
Less than 650	1,425	39	84	120	155	149	161	131	227	359
Less than 700	1,492	43	100	127	164	155	165	137	232	369
Less than 750	1,549	57	106	130	166	163	167	144	234	382
Less than 800	1,596	66	117	135	172	163	171	146	235	391
Less than 850	1,629	71	128	137	174	164	172	147	239	397
Less than 900	1,654	76	132	142	175	166	174	149	240	400
Less than 950	1,674	81	140	142	176	167	176	149	241	402
Less than 1,000	1,693	86	145	142	176	168	177	149	242	408
Less than 1,500	1,738	98	157	145	176	169	179	152	245	417
Less than 2,000	1,743	100	158	145	176	170	179	152	245	418
Less than 4,000	1,745	100	159	145	176	170	179	152	245	419
Less than 100,000	1,746	100	159	145	176	170	179	152	245	420

See footnotes at end of table.

Table IX. Sample sizes for males 4 years and over by race-ethnicity, selected serum vitamin B_{12} cutoffs, and age: United States 1991-94-Con.

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	1,754	157	288	307	227	258	169	102	137	109
Less than 80	2	1	1	--	--	--	--	--	--	--
Less than 100	2	1	1	--	--	--	--	--	--	--
Less than 150	3	1	1	--	--	--	1	--	--	--
Less than 200	12	1	1	--	3	1	3	1	1	1
Less than 250	42	1	1	5	5	6	10	3	7	4
Less than 300	104	2	2	19	14	17	16	8	13	13
Less than 350	207	3	4	39	26	37	28	18	29	23
Less than 400	337	6	12	63	48	66	42	25	42	33
Less than 450	488	10	15	88	74	96	63	37	55	50
Less than 500	627	15	26	120	94	109	87	45	68	63
Less than 600	909	28	61	183	139	166	107	65	83	77
Less than 650	1,037	40	84	204	159	185	118	72	91	84
Less than 700	1,166	53	104	227	170	207	130	80	105	90
Less than 750	1,274	59	139	249	179	222	138	82	112	94
Less than 800	1,375	72	163	262	197	233	148	87	117	96
Less than 850	1,463	100	182	273	207	239	152	91	120	99
Less than 900	1,517	106	200	283	212	242	156	93	124	101
Less than 950	1,570	112	224	287	215	248	160	95	128	101
Less than 1,000	1,601	115	236	293	218	250	161	97	129	102
Less than 1,500	1,729	150	283	304	224	258	166	102	135	107
Less than 2,000	1,752	157	288	306	227	258	168	102	137	109
Less than 4,000	1,753	157	288	307	227	258	168	102	137	109
Less than 100,000	1,754	157	288	307	227	258	169	102	137	109
Mexican American										
Total	1,677	158	199	244	306	228	190	81	168	103
Less than 80	1	--	--	--	--	--	--	1	--	--
Less than 100	2	--	--	--	--	--	--	1	--	1
Less than 150	9	--	--	--	1	2	1	1	--	4
Less than 200	28	--	--	2	5	4	5	1	3	8
Less than 250	79	--	1	11	13	9	12	4	15	14
Less than 300	176	1	2	22	39	18	26	9	36	23
Less than 350	325	1	5	45	83	41	45	14	54	37
Less than 400	497	3	10	80	122	65	76	24	72	45
Less than 450	692	10	19	108	159	102	109	38	89	58
Less than 500	860	17	28	140	188	137	128	52	106	64
Less than 600	1,123	37	60	178	239	179	159	65	131	75
Less than 650	1,222	53	75	197	257	192	163	68	135	82
Less than 700	1,315	68	100	210	267	198	173	71	142	86
Less than 750	1,394	81	118	221	284	204	178	73	148	87
Less than 800	1,453	89	138	230	289	212	179	74	150	92
Less than 850	1,505	107	154	235	293	218	180	74	152	92
Less than 900	1,534	113	165	235	295	222	181	75	154	94
Less than 950	1,558	122	172	240	295	222	182	76	155	94
Less than 1,000	1,587	133	178	242	300	223	183	76	156	96
Less than 1,500	1,651	156	198	244	305	226	184	77	164	97
Less than 2,000	1,661	158	199	244	305	227	188	78	164	98
Less than 4,000	1,667	158	199	244	305	228	189	79	166	99
Less than 100,000	1,677	158	199	244	306	228	190	81	168	103

-- Quantity less than one.
1 Includes all other racial-ethnic groups not listed separately.

Table X. Sample sizes for females 4 years and over by race-ethnicity, selected serum vitamin B_{12} cutoffs, and age: United States 1991-94

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
All racial-ethnic groups[1]										
Total	6,420	436	640	828	876	964	710	525	558	883
Less than 80	6	--	--	--	--	--	1	--	2	3
Less than 100	12	--	--	--	--	1	1	--	4	6
Less than 150	51	--	--	2	5	5	6	2	7	24
Less than 200	143	--	1	9	21	18	18	10	15	51
Less than 250	366	--	1	20	66	56	40	34	44	105
Less than 300	743	--	8	59	130	119	85	70	76	196
Less than 350	1,293	7	21	116	235	231	147	108	140	288
Less than 400	1,880	15	38	206	332	343	223	163	193	367
Less than 450	2,467	25	58	295	429	449	302	217	248	444
Less than 500	3,049	44	100	369	521	543	378	273	300	521
Less than 600	4,086	114	205	515	658	717	491	356	387	643
Less than 650	4,511	142	271	577	710	776	542	393	421	679
Less than 700	4,841	167	321	621	744	824	576	427	443	718
Less than 750	5,147	189	376	669	780	857	606	449	463	758
Less than 800	5,409	226	423	707	803	881	633	470	488	778
Less than 850	5,608	255	456	740	823	899	658	481	499	797
Less than 900	5,764	288	493	756	836	915	668	489	509	810
Less than 950	5,881	317	514	770	844	922	674	498	520	822
Less than 1,000	5,974	337	541	779	851	924	679	504	525	834
Less than 1,500	6,324	420	629	821	870	949	700	519	549	867
Less than 2,000	6,382	432	639	827	874	955	704	524	554	873
Less than 4,000	6,396	436	639	827	875	956	706	524	555	878
Less than 100,000	6,420	436	640	828	876	964	710	525	558	883
Non-Hispanic white										
Total	2,324	114	146	181	229	297	239	251	231	636
Less than 80	2	--	--	--	--	--	--	--	--	2
Less than 100	6	--	--	--	--	--	--	--	1	5
Less than 150	26	--	--	--	2	--	3	1	1	19
Less than 200	73	--	--	1	11	6	8	4	5	38
Less than 250	206	--	--	7	36	20	23	18	25	77
Less than 300	412	--	1	20	59	45	53	40	40	154
Less than 350	675	5	6	40	89	92	84	65	73	221
Less than 400	936	7	14	66	111	144	116	99	100	279
Less than 450	1,165	11	24	90	149	172	143	124	118	334
Less than 500	1,384	19	35	106	170	192	167	156	143	396
Less than 600	1,716	39	67	133	193	235	193	195	178	483
Less than 650	1,850	44	88	141	205	254	208	211	192	507
Less than 700	1,963	57	98	149	217	268	214	224	201	535
Less than 750	2,047	64	106	158	220	276	224	229	207	563
Less than 800	2,109	69	113	162	225	285	227	236	216	576
Less than 850	2,153	78	118	167	227	289	231	237	217	589
Less than 900	2,196	88	127	170	229	295	233	239	219	596
Less than 950	2,220	93	130	173	229	295	233	242	220	605
Less than 1,000	2,247	100	133	175	229	295	235	245	223	612
Less than 1,500	2,312	114	144	180	229	297	238	250	229	631
Less than 2,000	2,320	114	145	181	229	297	239	251	231	633
Less than 4,000	2,322	114	145	181	229	297	239	251	231	635
Less than 100,000	2,324	114	146	181	229	297	239	251	231	636

See footnotes at end of table.

Table X. Sample sizes for females 4 years and over by race-ethnicity, selected serum vitamin B_{12} cutoffs, and age: United States 1991-94-Con.

Race-ethnicity and selected serum vitamin B_{12} cutoff	*4 years and over*	*4-5 years*	*6-11 years*	*12-19 years*	*20-29 years*	*30-39 years*	*40-49 years*	*50-59 years*	*60-69 years*	*70 years and over*
Non-Hispanic black										
Total	2,111	143	287	346	313	369	265	139	135	114
Less than 80	--	--	--	--	--	--	--	--	--	--
Less than 100	--	--	--	--	--	--	--	--	--	--
Less than 150	10	--	--	1	2	3	1	--	1	2
Less than 200	27	--	--	1	4	7	5	3	3	4
Less than 250	63	--	--	5	8	23	5	6	4	12
Less than 300	133	--	1	16	20	41	13	11	12	19
Less than 350	265	1	4	32	59	75	27	19	19	29
Less than 400	405	4	8	55	95	105	44	30	27	37
Less than 450	580	8	15	84	119	152	74	38	43	47
Less than 500	748	10	32	110	151	193	101	48	49	54
Less than 600	1,119	27	69	176	209	259	162	75	71	71
Less than 650	1,286	34	99	207	235	282	184	86	84	75
Less than 700	1,400	36	115	227	247	303	202	97	91	82
Less than 750	1,523	44	139	250	266	318	213	107	98	88
Less than 800	1,630	53	161	270	276	328	227	115	106	94
Less than 850	1,729	65	181	290	286	338	240	123	110	96
Less than 900	1,801	78	198	302	292	344	245	127	115	100
Less than 950	1,861	89	211	310	299	349	249	132	119	103
Less than 1,000	1,897	97	224	315	301	350	251	134	119	106
Less than 1,500	2,076	133	278	341	311	367	263	137	133	113
Less than 2,000	2,107	141	287	346	313	369	264	139	134	114
Less than 4,000	2,110	143	287	346	313	369	264	139	135	114
Less than 100,000	2,111	143	287	346	313	369	265	139	135	114
Mexican American										
Total	1,636	150	177	247	289	247	174	92	160	100
Less than 80	3	--	--	--	--	--	--	--	2	1
Less than 100	4	--	--	--	--	--	--	--	3	1
Less than 150	8	--	--	--	1	1	--	--	4	2
Less than 200	30	--	1	4	5	4	2	1	6	7
Less than 250	68	--	1	4	20	10	5	3	12	13
Less than 300	147	--	3	17	44	24	11	9	19	20
Less than 350	279	1	5	34	80	49	28	14	38	30
Less than 400	436	4	10	72	111	76	52	21	53	37
Less than 450	579	5	12	98	139	103	70	36	70	46
Less than 500	747	13	25	124	175	132	93	45	88	52
Less than 600	1,023	41	58	163	225	187	116	55	113	65
Less than 650	1,128	52	71	183	238	198	129	65	120	72
Less than 700	1,212	61	91	198	248	206	136	72	125	75
Less than 750	1,291	65	112	213	258	215	145	75	129	79
Less than 800	1,370	86	128	225	265	219	153	78	136	80
Less than 850	1,415	93	135	233	271	222	157	79	142	83
Less than 900	1,450	103	143	233	275	226	160	81	144	85
Less than 950	1,477	114	148	235	275	228	161	82	149	85
Less than 1,000	1,499	117	157	236	278	229	162	83	151	86
Less than 1,500	1,588	144	177	246	285	234	167	89	155	91
Less than 2,000	1,607	148	177	246	287	238	169	91	157	94
Less than 4,000	1,615	150	177	246	288	239	171	91	157	96
Less than 100,000	1,636	150	177	247	289	247	174	92	160	100

-- Quantity less than one.
[1] Includes all other racial-ethnic groups not listed separately.

NOTE: Pregnant women are excluded.

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Data Dissemination Branch
National Center for Health Statistics
Centers for Disease Control and Prevention
6525 Belcrest Road, Room 1064
Hyattsville, MD 20782-2003

(301) 436–8500
E-mail: nchsquery@cdc.gov
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DEPARTMENT OF
HEALTH & HUMAN SERVICES

Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782-2003

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