

## **2. NUTRITION**

<b>Number</b>	<b>Objective</b>
1	Healthy weight
2	Obesity in adults
3	Overweight and obesity in children/adolescents
4	Growth retardation
5	Fat intake
6	Saturated fat intake
7	Vegetable and fruit intake
8	Grain product intake
9	Calcium intake
10	Sodium intake
11	Iron deficiency
12	Anemia in pregnant women
13	Meals and snacks at school
14	Nutrition education, elementary schools
15	Nutrition education, middle/junior high schools
16	Nutrition education, senior high schools
17	Worksite nutrition education and weight management programs
18	Nutrition assessment and planning
19	Nutrition counseling
20	Food security



## **Nutrition**

### **Goal**

Promote health and reduce chronic disease risk, disease progression, debilitation, and premature death associated with dietary factors and nutritional status among all people in the United States.

### **Terminology**

(A listing of all acronyms used in this publication appears on page 28 of the Introduction.)

### **Overview**

Nutrition is essential for sustenance, growth and development, health, and well-being. At the same time, nutritional (or dietary) factors contribute substantially to the burden of preventable illness and premature death in the United States, and to the Nation's economic burden.<sup>1</sup> Indeed, dietary factors are associated with 4 of the 10 leading causes of death: coronary heart disease, some types of cancer, stroke, and Type 2 diabetes mellitus.<sup>2</sup> These health conditions are estimated to cost society over \$200 billion each year in medical charges and lost productivity.<sup>3</sup> Dietary factors are also associated with osteoporosis, which affects more than 25 million people in the United States and is the major underlying cause of bone fractures in postmenopausal females and the elderly.<sup>4</sup> Previous surveys have indicated that the U.S. population experiences more than 1.5 million fractures annually,<sup>5</sup> with an estimated cost of \$13 billion to \$18 billion per year in medical charges and lost productivity from hip fractures alone.<sup>6</sup>

Many dietary components are involved in nutrition and health relationships. Chief among these is the disproportionate consumption of foods high in fat, often at the expense of foods high in complex carbohydrates, fiber, and other substances conducive to good health that are found in vegetables, fruits, and grain products. The *Dietary Guidelines for Americans* recommend that, to stay healthy, one should eat a variety of foods; maintain or improve one's weight by balancing food intake with physical activity; choose a diet that is plentiful in grain products, vegetables, and fruits, moderate in salt, sodium, and sugars, and low in fat, saturated fat, and cholesterol; and, if consuming alcoholic beverages, do so in moderation.<sup>7</sup> The *Dietary Guidelines* also cite the higher need for certain nutrients, in particular, sufficient intake of calcium-rich and iron-rich foods, among growing children, teenage girls, and women.<sup>8</sup> The *Food Guide Pyramid*, introduced in 1992,<sup>9</sup> is an educational tool that is used to convey recommendations about the number of servings from different food groups and other principles of the *Dietary Guidelines*. The new food label, introduced in 1993, is another tool to help people select healthy diets through nutrition labeling on most processed packaged foods, credible health and nutrient content claims, and standardized serving sizes.<sup>10</sup>

The proposed objectives of this focus area derive from and expand on previous objectives for nutrition. Many of these objectives measure in some way our Nation's progress toward implementing the recommendations of the *Dietary Guidelines*, whether by measuring individual behaviors, indicators of health status, services, marketing, or other types of support for their implementation. Other objectives target aspects of undernutrition in our country, including iron deficiency, growth retardation, and food insecurity.

Several cornerstones are recognized as fundamental in achieving all of these: (1) a strong national program for basic and applied nutrition research to provide a sound science base for dietary

1 recommendations and effective interventions; (2) a strong national nutrition monitoring program to  
2 provide accurate, reliable, and comparable data to assess status and progress and to  
3 be responsive to unmet data needs and emerging issues; (3) strengthening State and community data  
4 systems to be responsive to the data uses at these levels; (4) improving accessibility of nutrition  
5 information, nutrition education, other nutrition services, and healthful foods in a variety of settings and  
6 for all subpopulations; (5) sustaining broad-based programs and partnerships, and (6) ensuring  
7 commitment toward these objectives at the national, State, and local levels and between the public and  
8 private sectors.

9  
10 In general, excesses and imbalances of some food components in the diet have replaced once-prevalent  
11 nutrient deficiencies. In particular, the prevalence of overweight has increased at an alarming rate, so  
12 that more than one-third of American adults are now considered overweight (based on the body mass  
13 index [BMI] cut-points of 27.3 and 27.8 for females and males, respectively, that were used in Healthy  
14 People 2000), compared with 26 percent in the late 1970s.<sup>11</sup> Moreover, the *Dietary Guidelines* use a  
15 BMI of 25.0 to define the upper limit of the healthy weight range; over half of the U.S. adult population  
16 is above this range. Overweight is especially prevalent among certain racial and ethnic groups.  
17 Furthermore, the increasing prevalence of overweight is not limited to adults, but is observed in children  
18 above 6 years of age, in both genders and in all subpopulations. Morbidity associated with overweight  
19 and obesity is considerable; for example, 50 percent of people with impaired glucose tolerance are  
20 overweight.<sup>12</sup> These problems often can be reversed through weight loss. Public education about the  
21 long-term health consequences and risks associated with overweight and how to achieve and maintain a  
22 preferred weight is necessary. While many individuals attempt to lose weight, studies show that within  
23 5 years a majority of them regain the weight.<sup>13</sup> To maintain weight loss, good dietary habits must be  
24 coupled with increased physical activity, and these must become permanent lifestyle changes. An area of  
25 concern related to the increased focus on overweight is the potential for an increased prevalence of eating  
26 disorders, such as anorexia nervosa and bulimia. Few national data are available to address this matter.

27  
28 Establishing healthful behaviors for both diet and physical activity needs to start with children and then  
29 be maintained throughout adulthood. The family and other channels, such as schools, worksites, and  
30 institutional food services, can play a key role in this process. Food-related businesses can also be  
31 important vehicles for nutrition information for foods purchased in supermarkets, fast food outlets,  
32 restaurants, and carry-out operations.

33  
34 Whereas strides have been made in this decade in the availability of nutrition information, reduced fat  
35 foods, and other healthful food choices in supermarkets, significant challenges remain on these fronts for  
36 eating away from home. The importance of addressing these challenges is suggested by recent data  
37 indicating that 40 percent of a family's food budget is spent in restaurants and carry-outs.<sup>14</sup> One recent  
38 analysis found that foods eaten away from home are generally higher in fat, saturated fat, cholesterol, and  
39 sodium and lower in fiber and calcium than foods prepared and eaten at home.<sup>15</sup> This study also  
40 suggested that people either eat larger amounts when they eat out, eat higher calorie foods, or both. Last  
41 but not least, policymakers and program planners at the national, State, and community levels can and  
42 should provide important leadership in fostering healthful diets and physical activity patterns among  
43 Americans.

44  
45 Despite the concern in this country about the increase in overweight and certain excesses in American  
46 diets, the U.S. continues to have people who suffer from undernutrition, including those who are isolated  
47 or economically deprived. In recent years, the recognition of this segment of our population and the  
48 consequences of food insecurity have led to the development and implementation of measures of food  
49 security and hunger in national surveys. The present nutrition objectives focus on increasing food

1 security among the general population and reducing the risk of hunger among all people, particularly  
2 children.

3  
4 In addition, there are significant nutrition concerns for which national data are currently unavailable or  
5 limited. These include the nutritional status of individuals in hospitals, nursing homes, convalescent  
6 centers, and institutions for those with disabilities; physically, mentally, and developmentally disabled  
7 individuals in community settings; children in child care facilities; American Indians on reservations;  
8 populations in correctional facilities; and the homeless. Data are also insufficient to target the fastest  
9 growing segment of the population, the old and very old who live independently.

## 11 **Progress Toward Year 2000 Objectives**

12  
13 The 27 Healthy People 2000 nutrition objectives include roughly equal numbers of health status  
14 objectives, risk reduction objectives, and services-related objectives.<sup>16</sup> For about two-thirds of these,  
15 progress toward the Healthy People 2000 targets is suggested or clearly evident, and for several the target  
16 has been met.<sup>17</sup> But for certain other objectives, movement has been in the wrong direction. A brief  
17 summary of progress is given below for the objectives that were primarily assigned to this area.

- 18  
19 • Overweight prevalence (objective 2.3). Prevalence has increased substantially since the 1976-80  
20 baseline.
- 21  
22 • Growth retardation among low-income children (objective 2.4). The target to reduce growth  
23 retardation to less than 10 percent for all low-income children aged 5 years and under has been met,  
24 although the target for African American children under 1 year of age has not.
- 25  
26 • Dietary fat intake among people aged 2 years and over (objective 2.5). The average fat and saturated  
27 fat intake (expressed as a percent of calories) among people aged 2 years and over has decreased, and  
28 the proportion of the population who meets the average daily goals has increased. However, the  
29 majority still did not meet recommendations; 1996 data indicate that only 34-36 percent of the  
30 population met these goals.
- 31  
32 • Average daily intake of vegetables, fruits, and grain products among people aged 2 years and over  
33 (objective 2.6). The average number of servings consumed by the population has increased since the  
34 start of this decade, as has the proportion of the population who meets the minimum average daily  
35 goal. However, the majority still did not meet recommendations for consumption of vegetables and  
36 fruits; 1996 data indicate that only 36 percent of the population met these goals.
- 37  
38 • Sound weight loss practices among overweight people aged 12 years and over (objective 2.7). The  
39 proportion of self-reported overweight adults who report consuming fewer calories, and exercising  
40 more, decreased from 1985 to 1995.
- 41  
42 • Consumption of foods rich in calcium (objective 2.8). Since the start of this decade, the proportion  
43 of the population who met recommendations for consumption of calcium-rich foods decreased or  
44 changed little, with consumption falling short of recommendations for the majority of the population.  
45 In 1996, less than 1 in 10 females aged 11 to 24 years consumed an average of three or more servings  
46 of milk and milk products daily.
- 47

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- 1 • Salt and sodium intake (objective 2.9). There has been little change since the late 1980s in behaviors  
2 to reduce salt and sodium intake, such as purchasing foods with reduced sodium or avoidance of salt  
3 use at the table.  
4
- 5 • Iron deficiency prevalence (objective 2.10). The prevalence of iron deficiency decreased for  
6 low-income children from 1976-80 to 1988-94, but has remained essentially the same for all children  
7 and for females aged 20 to 44 years.  
8
- 9 • Use of food labels (objective 2.13). Progress was made toward reaching the target.  
10
- 11 • Informative nutrition labeling (objective 2.14). The target was met for processed packaged foods.  
12
- 13 • Availability of reduced-fat processed food (objective 2.15). The target was met.  
14
- 15 • Low-fat, low-calorie restaurant food choices (objective 2.16). The objective was measured by  
16 tracking the proportion of large-chain restaurants offering at least one low-fat, low-calorie item.  
17 Progress toward reaching the goal was not clear given the broad operational definition.  
18
- 19 • Nutritious school and child care food services (objective 2.17). There were no new data beyond the  
20 baseline to measure this objective.  
21
- 22 • Receipt of home-delivered meals for people aged 65 years and over (objective 2.18). There has been  
23 little change since the early 1990s in the receipt of home food services.  
24
- 25 • Nutrition education in schools (objective 2.19). The proportion of States that required nutrition  
26 education increased from 60 percent in 1990 to 69 percent in 1994.  
27
- 28 • Worksite nutrition/weight management programs (objective 2.20). The proportion of worksites with  
29 50 or more employees that offer programs for employees increased from 17 percent in 1985 to 31  
30 percent in 1992.  
31
- 32 • Nutrition assessment, counseling, and referral by clinicians (objective 2.21). There were no new data  
33 beyond the baseline to measure this objective.  
34

1 **Draft 2010 Objectives**

2  
3 **Weight Status**

- 4  
5 **1. Increase to at least 60 percent the prevalence of healthy weight (defined as a BMI equal to or**  
6 **greater than 19.0 and less than 25.0) among all people aged 20 and older.** (Baseline: from 1988  
7 to 1994, 41 percent of all people aged 20 years and older were at a healthy weight, 39 percent of  
8 males and 44 percent of females)  
9

<b>Select Populations</b>	<b>1988-94</b>
African American, non-Hispanic male aged 20+	41%
American Indian/Alaska Native male aged 20+	Not available
Asian/Pacific Islander male aged 20+	Not available
Hispanic male aged 20+	Not available
Mexican American male aged 20+	34%
White, non-Hispanic male aged 20+	38%
African American, non-Hispanic female aged 20+	30%
American Indian/Alaska Native female aged 20+	Not available
Asian/Pacific Islander female aged 20+	Not available
Hispanic female aged 20+	Not available
Mexican American female aged 20+	32%
White, non-Hispanic female aged 20+	47%
Male aged 20-39	47%
Male aged 40-59	31%
Male aged 60+	33%
Female aged 20-39	52%
Female aged 40-59	39%
Female aged 60+	36%
0-130% of poverty threshold	39%
>130% of poverty threshold	42%
Male with hypertension aged 20+	24%
Male without hypertension aged 20+	44%
Female with hypertension aged 20+	28%
Female without hypertension aged 20+	49%
Male with diabetes aged 20+	Not available
Male without diabetes aged 20+	Not available
Female with diabetes aged 20+	Not available
Female without diabetes aged 20+	Not available
Male with arthritis aged 20+	Not available
Male without arthritis aged 20+	Not available
Female with arthritis aged 20+	Not available
Female without arthritis aged 20+	Not available

10  
11 **Target Setting Method:** Better than the best.

12  
13 **Data Sources:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS;  
14 Hispanic Health and Nutrition Examination Survey, CDC, NCHS; Indian Health Service.  
15

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- 1 **2. (Former 2.3) Reduce to less than 15 percent the prevalence of BMI at or above 30.0 among**  
2 **people aged 20 and older.** (Baseline: from 1988 to 1994, 22 percent of people aged 20 and older  
3 had BMIs  $\geq 30.0$  [20 percent of males and 25 percent of females])  
4

<b>Select Populations</b>	<b>1988-94</b>
African American, non-Hispanic male aged 20+	21%
American Indian/Alaska Native male aged 20+	Not available
Asian/Pacific Islander male aged 20+	Not available
Hispanic male aged 20+	Not available
Mexican American male aged 20+	21%
White, non-Hispanic male aged 20+	20%
African American, non-Hispanic female aged 20+	37%
American Indian/Alaska Native female aged 20+	Not available
Asian/Pacific Islander female aged 20+	Not available
Hispanic female aged 20+	Not available
Mexican American female aged 20+	33%
White, non-Hispanic female aged 20+	23%
Male aged 20-39	15%
Male aged 40-59	25%
Male aged 60+	21%
Female aged 20-39	21%
Female aged 40-59	30%
Female aged 60+	26%
0-130% of poverty threshold	26%
>130% of poverty threshold	21%
Male with hypertension aged 20+	34%
Male without hypertension aged 20+	15%
Female with hypertension aged 20+	38%
Female without hypertension aged 20+	21%
Male with diabetes aged 20+	Not available
Male without diabetes aged 20+	Not available
Female with diabetes aged 20+	Not available
Female without diabetes aged 20+	Not available
Male with arthritis aged 20+	Not available
Male without arthritis aged 20+	Not available
Female with arthritis aged 20+	Not available
Female without arthritis aged 20+	Not available

5  
6 **Target Setting Method:** Better than the best.

7  
8 **Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.  
9

- 1 **3. (Former 2.3) Reduce to 5 percent or less the prevalence of overweight and obesity (at or above**  
 2 **the sex- and age-specific 95th percentile of BMI from the revised NCHS/CDC growth charts) in**  
 3 **children (aged 6-11) and adolescents (aged 12-19).** (Baseline: in 1988-94, 11 percent of all  
 4 children and 10 percent of all adolescents were overweight or obese)  
 5

<b>Select Populations</b>	<b>1988-94</b>
African American, non-Hispanic male aged 6-11	12%
American Indian/Alaska Native male aged 6-11	Not available
Asian/Pacific Islander male aged 6-11	Not available
Hispanic male aged 6-11	Not available
Mexican American male aged 6-11	17%
White, non-Hispanic male aged 6-11	10%
African American, non-Hispanic male aged 12-19	11%
American Indian/Alaska Native male aged 12-19	Not available
Asian/Pacific Islander male aged 12-19	Not available
Hispanic male aged 12-19	Not available
Mexican American male aged 12-19	14%
White, non-Hispanic male aged 12-19	11%
African American, non-Hispanic female aged 6-11	16%
American Indian/Alaska Native female aged 6-11	Not available
Asian/Pacific Islander female aged 6-11	Not available
Hispanic female aged 6-11	Not available
Mexican American female aged 6-11	14%
White, non-Hispanic female aged 6-11	9%
African American, non-Hispanic female aged 12-19	16%
American Indian/Alaska Native female aged 12-19	Not available
Asian/Pacific Islander female aged 12-19	Not available
Hispanic female aged 12-19	Not available
Mexican American female aged 12-19	13%
White, non-Hispanic female aged 12-19	8%
Male aged 6-11	11%
Male aged 12-19	11%
Female aged 6-11	10%
Female aged 12-19	9%
Children aged 6-11 at 1-130% poverty threshold	10%
Adolescents aged 12-19 at 1-130% poverty threshold	16%
Children aged 6-11 at >130% poverty threshold	11%
Adolescents aged 12-19 at >130% poverty threshold	8%

6  
 7 **Target Setting Method:** Better than the best.  
 8

9 **Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.  
 10

11 Ideal, health-oriented definitions of overweight and obesity would be based on the degree of excess body  
 12 fat at which health risks to individuals begin to increase. No such definition exists. Although several  
 13 measures of body fat are available, each has limitations. Skin-fold thickness measurements reflect the  
 14 amount of body fat, but problems with interobserver reproducibility limit their usefulness. BMI is  
 15 readily calculated from easily and reliably obtained measurements (i.e., by dividing weight in kilograms  
 16 by the square of height in meters). Until a better measure of body fat is developed, BMI will be used as a

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1 proxy for overweight and obesity. In 1997, the International Obesity Task Force convened by the World  
2 Health Organization recommended classification of overweight and obesity in a standard fashion. A  
3 BMI of 25.0-29.9 was defined as overweight, and a BMI equal to or greater than 30.0 was defined as  
4 obesity. Further classification of obesity was made as follows: 30.0-34.9 was defined as Class I obesity,  
5 35.0-39.9 as Class II, and 40.0 or greater as Class III. The Expert Panel on the Identification,  
6 Evaluation, and Treatment of Overweight and Obesity in Adults, convened by the National Institutes of  
7 Health, recently adopted the World Health Organization classification system and it has now been  
8 endorsed by 54 professional medical societies, consumer groups, and government agencies. For this  
9 objective, therefore, a BMI cutoff point of 30.0 was chosen for adults aged 20 years and older.

10  
11 Overweight and obesity are associated with elevated serum cholesterol levels, elevated blood pressure,  
12 and Type 2 diabetes and are independent risk factors for coronary heart disease. Overweight and obesity  
13 also increase the risk for gallbladder disease and some types of cancer and have been implicated in the  
14 development of osteoarthritis of the weight-bearing joints, particularly the knee.

15  
16 Overweight and obesity are multifactorial in origin, reflecting inherited, metabolic, behavioral,  
17 environmental, cultural, and socioeconomic conditions. The prevalence of overweight and obesity  
18 increases with advancing age in both males and females before it declines. It is particularly prevalent in  
19 minority populations, especially among minority females. Poverty is related to overweight in females.  
20 There is an increased prevalence of overweight among hypertensive and diabetic populations.

21  
22 Overweight and obesity acquired during childhood or adolescence may persist into adulthood and  
23 increase the risk for some chronic diseases later in life. Obese children also experience psychological  
24 stress. There has been much concern expressed about the fact that the prevalence of obesity in children  
25 and adolescents is increasing. There is also concern that overemphasis on thinness during adolescence  
26 may contribute to eating disorders such as anorexia nervosa and bulimia. The reduction of BMI should  
27 be achieved through emphasis on physical activity accompanied by properly balanced dietary intake so  
28 that growth is not impaired. For adults who are overweight or obese, achieving this objective will require  
29 a combination of calorie restriction accompanied by increased physical activity.

30  
31 Overweight and obesity affect a large proportion of the U.S. population and the prevalence has not  
32 declined among adults for two decades. Essentially all of the increased prevalence of overweight and  
33 obesity in adults has occurred at a BMI  $\geq$ 30.0. Given the fact that weight management is difficult for  
34 most people, the target set for adults is very ambitious. Nonetheless, the potential benefits from  
35 reduction in the prevalence of overweight and obesity are of considerable public health importance and  
36 deserve particular emphasis and attention. Achieving this objective will require a concerted public effort  
37 to prevent the development of overweight and obesity and to encourage and facilitate weight reduction  
38 among the overweight. All efforts should be culturally relevant to the population target groups.

39  
40 Additional research is needed to define overweight and obesity in children. There is a prepubertal  
41 increase in subcutaneous fat that is lost during adolescence in boys, while in girls fat deposition  
42 continues. Thus, without measures of sexual maturity, measures of body fat and body weight are equally  
43 difficult to interpret in preadolescents and adolescents. When extrapolated to the adult age of 20 years,  
44 the sex- and age-specific 95th percentile of BMI from the revised NCHS/CDC growth curves  
45 approximates a BMI of 30. Therefore, the target for this objective for children and adolescents is set at  
46 no more than 5 percent to reduce the prevalence of overweight and obesity and to reduce the potential for  
47 overemphasis on thinness. Additional research also is needed to define the prevalence and health  
48 consequences of overweight and obesity in adolescents and older adults.

1 **Growth Retardation**

2  
3 **4. (Former 2.4) Reduce growth retardation among low-income children aged 5 and younger to 5**  
4 **percent or less.** (Baseline: in 1997, 8 percent of low-income children were growth retarded)  
5

<b>Select Low-Income Populations</b>	<b>1997</b>
African American, non-Hispanic children aged < 1	15%
American Indian/Alaska Native children aged < 1	9%
Asian/Pacific Islander children aged < 1	9%
Hispanic children aged < 1	7%
White, non-Hispanic children aged < 1	10%
African American, non-Hispanic children aged 1	10%
American Indian/Alaska Native children aged 1	7%
Asian/Pacific Islander children aged 1	11%
Hispanic children aged 1	8%
African American, non-Hispanic children aged 2-4	5%
American Indian/Alaska Native children aged 2-4	9%
Asian/Pacific Islander children aged 2-4	8%
Hispanic children aged 2-4	5%
White, non-Hispanic children aged 2-4	6%

6  
7 **Note:** Growth retardation is defined as height-for-age below the fifth percentile of children in the  
8 NCHS reference population.

9  
10 **Target Setting Method:** Better than the best.

11  
12 **Data Source:** Pediatric Nutrition Surveillance System, CDC, NCCDPHP.

13  
14 Retardation in linear growth in preschool children serves as an indicator of overall health and  
15 development but may especially reflect the adequacy of a child's diet. Full growth potential may not be  
16 reached because of less-than-optimal nutrition, infectious diseases, chronic diseases, or poor health care.  
17 Inadequate maternal weight gain during pregnancy and other prenatal factors that influence birthweight  
18 also affect the prevalence of growth retardation among infants and young children.

19  
20 Growth retardation is not a problem for the vast majority of young children in the United States. Given  
21 the definition of growth retardation used in this objective, 5 percent of healthy children are expected to  
22 be below the fifth percentile of height for age due to normal biologic variation. But a prevalence of more  
23 than 5 percent below the fifth percentile for any population subgroup suggests that full growth potential  
24 is not being reached by children of that subgroup. This prevalence is exceeded by low-income children  
25 in the United States. Among some age and ethnic subgroups of low-income children, up to 15 percent of  
26 individuals aged 5 years and younger are below the fifth percentile. While progress has been made in  
27 reducing the prevalence of growth retardation among low-income Hispanic and Asian/Pacific Islander  
28 children, it remains especially high for African American children in the first year of life.

29  
30 Interventions to improve linear growth in populations include better nutrition; improvements in the  
31 prevention, diagnosis, and treatment of infectious and chronic diseases; and the provision and use of fully  
32 adequate health services. Although the response of a population to interventions for growth retardation  
33 may not be as rapid as for iron deficiency or underweight, it should be possible to achieve the objective

1 by the year 2010 in all ethnic, socioeconomic, and age subgroups. Special attention should be given to  
2 homeless children, children with disabilities, and other children with special needs.

3  
4 ***Tracking Food and Nutrient Intake***

5  
6 Several objectives identified below address either food intake (i.e., vegetables/fruit, grain products) or  
7 nutrient intake (i.e., fat, sodium, calcium) by the U.S. population. These objectives and the year 2010  
8 target measure the proportion of the population that meets a specified level of daily intake of these foods  
9 and nutrients based on the *Dietary Guidelines* or related guidance. This type of measure assesses the  
10 extent to which the U.S. population is following dietary recommendations. For all these objectives, it is  
11 also important to track and report mean intake by population groups. Estimates of mean intakes will  
12 contribute information about usual intake distributions. In addition, mean intake estimates will generally  
13 not be affected by different surveys, used for tracking, that may have varying numbers of days of dietary  
14 data.

15  
16 ***Total Fat and Saturated Fat Intake***

- 17  
18 **5. (Former 2.5) Increase to at least 75 percent the proportion of people aged 2 and older who**  
19 **meet the *Dietary Guidelines*' average daily goal of no more than 30 percent of calories from fat.**  
20 (Baseline: from 1994 to 1996, 33 percent of people aged 2 and older met the goal for fat)

21

<b>Select Populations</b>	<b>1994-96</b>
African American, non-Hispanic	25%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	33%
White, non-Hispanic	34%
Male aged 2-5	33%
Male aged 6-11	30%
Male aged 12-19	30%
Male aged 20-39	29%
Male aged 40-59	28%
Male aged 60+	34%
Female aged 2-5	35%
Female aged 6-11	34%
Female aged 12-19	36%
Female aged 20-39	38%
Female aged 40-59	33%
Female aged 60+	40%
0-130% of poverty threshold	Not available
>130% of poverty threshold	Not available

22  
23 **Target Setting Method:** Better than the best.

24  
25 **Data Source:** Continuing Survey of Food Intakes by Individuals (CSFII), U.S. Department of  
26 Agriculture (2-day average).

- 1 **6. (Former 2.5) Increase to at least 75 percent the proportion of people aged 2 and older who**  
2 **meet the *Dietary Guidelines*' average daily goal of less than 10 percent of calories from**  
3 **saturated fat.** (Baseline: in 1994-96, 35 percent of people aged 2 and older met the goal for  
4 saturated fat)  
5

<b>Select Populations</b>	<b>1994-96</b>
African American, non-Hispanic	29%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	35%
White, non-Hispanic	35%
Male aged 2-5	23%
Male aged 6-11	25%
Male aged 12-19	28%
Male aged 20-39	32%
Male aged 40-59	33%
Male aged 60+	42%
Female aged 2-5	23%
Female aged 6-11	23%
Female aged 12-19	34%
Female aged 20-39	41%
Female aged 40-59	42%
Female aged 60+	47%
0-130% of poverty threshold	Not available
>130% of poverty threshold	Not available

6  
7 **Target Setting Method:** Better than the best.  
8

9 **Data Source:** Continuing Survey of Food Intake by Individuals (CSFII), U.S. Department of  
10 Agriculture (2-day average).  
11

12 Epidemiologic and experimental animal studies suggest that dietary fat can influence the risk of some  
13 cancers, particularly cancers of the breast, colon, and prostate. The amount of fat consumed, rather than  
14 the specific type of fat, appears to be responsible for the risk of some types of cancer. Although it is not  
15 yet possible to quantify the precise contribution of dietary fat to the overall risk of cancer, there is  
16 general consensus that prudent dietary guidelines for fat intake should be encouraged.  
17

18 Dietary fat contributes more than twice as many calories as equal amounts, by weight, of either protein or  
19 carbohydrate, and some studies indicate that diets high in fat are associated with a higher prevalence of  
20 overweight. Weight control may be facilitated by decreasing calorie intake, especially by choosing foods  
21 relatively low in fat and calories.<sup>18</sup>  
22

23 There is strong and consistent evidence for the relationship between saturated fat intake, high blood  
24 cholesterol, and increased risk for coronary heart disease.<sup>19</sup> Clinical, animal, and epidemiologic studies  
25 demonstrate that high intakes of saturated fatty acids increase the levels of serum total and low-density-  
26 lipoprotein (LDL) cholesterol. In turn, high blood cholesterol levels increase the risk of coronary heart  
27 disease. Saturated fat intake is the major dietary determinant of serum total cholesterol and LDL  
28 cholesterol levels in populations. Lowering saturated fat intake can help to reduce total and LDL  
29 cholesterol levels, and thus coronary heart disease (see objectives for Heart Disease and Stroke).

1 Monounsaturated fat (found in olive and canola oils) and polyunsaturated fat (found in vegetable oils  
2 such as corn, soybean, and cottonseed, some nuts, and high-fat fish) reduce blood cholesterol when they  
3 replace saturated fats in the diet. The fats in most fish are low in saturated fatty acids and contain a  
4 certain type of polyunsaturated fatty acid (omega-3) that is under study because of a possible association  
5 with a decreased risk for heart disease in certain people. Partially hydrogenated vegetable oils (such as  
6 those likely to be found in hard margarines, most shortenings, and many baked products) contain a  
7 particular form of unsaturated fat known as trans-fatty acids that may raise blood cholesterol levels,  
8 although not as much as saturated fat.

9  
10 This objective is in line with the recommendations of the National Cholesterol Education Program's  
11 Adult Population Panel that all Americans eat a diet containing 30 percent or less of energy from total fat  
12 and less than 10 percent of energy from saturated fat. However, as food intake varies from day to day,  
13 these recommendations are meant to represent an average of nutrient intake over several days.<sup>20</sup>  
14 Strategies for reaching the target should recognize that this objective applies to the diet for a day or more,  
15 not to a single meal or a single food.

16  
17 This objective does not apply to infants and toddlers under the age of 2 years. After that age, children  
18 should gradually adopt a diet that, by about 5 years of age, contains no more than 30 percent of calories  
19 from fat. As they begin to consume fewer calories from fat, children should replace these calories by  
20 eating more grain products, fruits, vegetables (including legumes), low-fat milk products or other  
21 calcium-rich foods, and lean meat, poultry, or fish.

22  
23 More Americans are now eating less fat and saturated fat than in the recent past.<sup>21</sup> Still, many people  
24 continue to eat high-fat diets, the number of overweight people has increased, and the risk of heart  
25 disease and certain cancers (also linked to fat intake) remains high. In 1994-96, the average total fat and  
26 saturated fat intake in percent of calories by the population aged 2 years and older was 33 and 11 percent,  
27 respectively. It is also important to consider the contribution to fat intake of foods eaten away from  
28 home. The percentage of Americans who ate away from home on any given day was about 57 percent in  
29 1994-96, an increase of about one-third since the late 1970s.<sup>22</sup> These foods were obtained through a  
30 variety of channels—restaurants, fast food outlets, school cafeterias, and vending machines.<sup>23</sup> An  
31 analysis conducted in 1995 found that foods eaten away from home generally had higher total fat,  
32 saturated fat, and cholesterol levels per 1000 calories, and furthermore, that people tended to consume  
33 more calories when eating away from home.<sup>24</sup> In 1995, the average total fat and saturated fat intake from  
34 away from home foods expressed as a percent of calories was 38 percent and 13 percent, respectively.<sup>25</sup>  
35 The 1995 CSFII found that meals and snacks eaten by children at school had the highest saturated fat  
36 density of all food outlets.<sup>26</sup> At school, total fat and saturated fat consumption (measured in grams per  
37 1000 calories) was 37 g and 14 g for children aged 2 to 5 years, 39 g and 16 g for children aged 6 to 11  
38 years, and 41 g and 16 g for children aged 12 to 17 years. Thus, to help assess both the status of this fat  
39 intake objective, and challenges and strategies with regard to achieving the Year 2010 targets, the  
40 additional tracking of fat intake from foods eaten away from home versus at home is desirable.

1 **Fruit, Vegetable, and Grain Product Intake**  
2

3 **7. (Former 2.6) Increase to at least 75 percent the proportion of people aged 2 and older who**  
4 **meet the *Dietary Guidelines*' minimum average daily goal of at least five servings of vegetables**  
5 **and fruits.** (Baseline: from 1994 to 1996, 40 percent of people met the minimum goal)  
6

<b>Select Populations</b>	<b>1994-96</b>
African American, non-Hispanic	34%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	40%
White, non-Hispanic	41%
Male aged 2-5	33%
Male aged 6-11	23%
Male aged 12-19	44%
Male aged 20-39	53%
Male aged 40-59	51%
Male aged 60+	52%
Female aged 2-5	30%
Female aged 6-11	23%
Female aged 12-19	27%
Female aged 20-39	31%
Female aged 40-59	39%
Female aged 60+	39%
0-130% of poverty threshold	Not available
>130% of poverty threshold	Not available

7  
8 **Target Setting Method:** Better than the best.

9  
10 **Data Source:** Continuing Survey of Food Intake by Individuals (CSFII), U.S. Department of  
11 Agriculture (2-day average).  
12

1 **8. (Former 2.6) Increase to at least 80 percent the proportion of people aged 2 and older who**  
 2 **meet the *Dietary Guidelines*' minimum average daily goal of at least six servings of grain**  
 3 **products.** (Baseline: from 1994 to 1996, 52 percent of people aged 2 and older met the minimum  
 4 goal)  
 5

Select Populations	1994-96
African American, non-Hispanic	41%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	48%
White, non-Hispanic	54%
Male aged 2-5	50%
Male aged 6-11	61%
Male aged 12-19	77%
Male aged 20-39	70%
Male aged 40-59	64%
Male aged 60+	54%
Female aged 2-5	40%
Female aged 6-11	46%
Female aged 12-19	49%
Female aged 20-39	40%
Female aged 40-59	38%
Female aged 60+	28%
0-130% of poverty threshold	Not available
>130% of poverty threshold	Not available

6  
 7 **Target Setting Method:** Better than the best.  
 8

9 **Data Source:** Continuing Survey of Food Intake by Individuals (CSFII), U.S. Department of  
 10 Agriculture (2-day average).  
 11

12 Vegetables (including legumes such as beans and peas), fruits, and grains are good sources of complex  
 13 carbohydrates (starch and dietary fiber), vitamins and minerals, and other substances that are important  
 14 for good health. These foods are generally low in fat and can be substitutes for foods high in fat. Some  
 15 evidence from clinical studies suggests that water-soluble fibers from foods such as oat bran, beans, and  
 16 certain fruits are associated with lower blood glucose and blood lipid levels.<sup>27</sup> Dietary patterns with  
 17 higher intakes of vegetables (including legumes), fruits, and grains are associated with a variety of health  
 18 benefits, including a decreased risk for some types of cancer.<sup>28-31</sup>  
 19

20 The National Cancer Institute recommends that the public increase dietary fiber levels to 20 to 30 grams  
 21 daily with an upper limit of 35 grams.<sup>32</sup> Recommendations from the National Cancer Institute, *The*  
 22 *Surgeon General's Report on Nutrition and Health*,<sup>33</sup> *Diet and Health*,<sup>34</sup> and *Dietary Guidelines for*  
 23 *Americans*<sup>35</sup> support increased consumption of vegetables, fruits, and whole-grain breads and cereals.  
 24 An expert committee of the Life Sciences Research Office/Federation of American Societies for  
 25 Experimental Biology recommended the consumption of a wide variety of grain products, fruits, and  
 26 vegetables leading to a dietary fiber intake range of 20 to 35 grams per day (10 to 13 grams per 1,000  
 27 calories) for the healthy adult population. The panel indicated that this range of intakes may not be  
 28 appropriate for children, older adults, or people consuming special diets.<sup>36</sup>  
 29

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1 The 1995 *Dietary Guidelines* recommend that Americans choose a diet with plenty of grain products,  
2 vegetables, and fruits, but also low in fat, saturated fat, and cholesterol, and moderate in salt and  
3 sodium.<sup>37</sup> Many Americans of all ages eat fewer than the recommended number of servings of grain  
4 products, vegetables, and fruits.<sup>38</sup> However, qualitative aspects of consumption of these foods relative to  
5 all of the principles of the *Dietary Guidelines* are important additional considerations to the quantity of  
6 food consumed in assessing progress on these objectives.

7  
8 With regard to grain product consumption, the *Dietary Guidelines* recommend 6 to 11 daily servings  
9 depending on calorie needs, with several of these from whole-grain breads and cereals. Although grain  
10 product consumption has increased since the start of this decade, consumption of whole grain products  
11 remains low. In 1994-96 for the population aged 2 years and older, the mean average daily intake of  
12 grain products was 6.8 servings; only an estimated 14 to 15 percent of grain servings were whole grain.<sup>39</sup>  
13 Thus, the additional tracking of the proportion of grain servings that are whole grain for this objective is  
14 desirable. The guidelines also recommend that grain products be prepared and served with little or no  
15 fats and sugars.

16  
17 With regard to vegetable and fruit consumption, the *Dietary Guidelines* recommend five to nine daily  
18 servings, depending on calorie needs, with three to five from various vegetables and vegetable juices, and  
19 two to four from various fruits and fruit juices. The guidelines further recommend that Americans  
20 choose often dark-green leafy and deep-yellow vegetables and legumes. In 1994-96, the mean average  
21 daily intake of fruits and vegetables was 5.0 servings, but only an estimated 7-10 percent of vegetable  
22 servings were dark green or deep yellow, and only about 5-6 percent of vegetable servings were  
23 legumes.<sup>40</sup> In addition, the guidelines recommend that vegetables be prepared and served with little or  
24 no fats. However, from 1994-96, fried potatoes accounted for about one-third (32 percent) of vegetable  
25 servings for youth aged 2 to 19 years, compared to about one-fifth (17 percent) for adults aged 20 years  
26 and older.<sup>41</sup> For consumption of fruits, the guidelines recommend that Americans regularly choose citrus  
27 fruits or juices, melons, or berries and that fruits be prepared and served with little or no added sugars.  
28

1 **Calcium Intake**

- 2  
3 **9. (Former 2.8) Increase to at least 90 percent the proportion of people aged 2 and older who**  
4 **meet dietary recommendations for calcium.** (Preliminary Baseline: from 1988 to 1994, 45  
5 percent of people aged 2 and older were at or above approximated mean calcium requirements)  
6

Select Populations	1988-94
African American, non-Hispanic	33%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	Not available
Mexican American	50%
White, non-Hispanic	48%
Male aged 2-8	88%
Male aged 9-19	52%
Male aged 20-49	62%
Male aged 50+	33%
Female aged 2-8	79%
Female aged 9-19	18%
Female aged 20-49	38%
Female aged 50+	24%
0-130% of poverty threshold	42%
>130% of poverty threshold	46%

7  
8 **Note:** Approximated mean calcium requirements are defined as 77 percent of the recommendations  
9 by the Institute of Medicine for Adequate Intakes for calcium.<sup>42,43</sup> The prepublication  
10 recommendations for Adequate Intakes of calcium are 500 mg for children aged 1 to 3 years, 800 mg  
11 for children aged 4 to 8 years, 1,300 mg for adolescents aged 9 to 18 years, 1,000 mg for adults aged  
12 19 to 50, and 1,200 mg for adults aged 50 years and older.<sup>44</sup> The baseline estimates above are  
13 preliminary and include consideration of calcium intake from foods and dietary supplements. Final  
14 baseline estimates will also include consideration of calcium intake from antacids. In addition, a  
15 statistical procedure was used in preparing baseline estimates to remove the within-person variation  
16 in daily calcium intakes from food<sup>45</sup> and thus provide better estimates of usual intake of calcium  
17 with the use of a limited number of days of dietary data per individual (i.e., 1 day of dietary data for  
18 all NHANES respondents and 2-day dietary data for a subset).  
19

20 **Target Setting Method:** Better than the best.

21  
22 **Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

23  
24 Calcium is essential for the formation and maintenance of bones and teeth.<sup>46</sup> The level of bone mass  
25 achieved at skeletal maturity (peak bone mass) is a factor modifying the risk for developing osteoporosis.  
26 Peak bone mass appears to be related to intake of calcium during the years of bone mineralization.<sup>47</sup>  
27 Opinion is divided as to the age at which peak bone mass is achieved. Most of the accumulation of bone  
28 mineral occurs in humans by about 20 years of age. However, after the linear growth phase, there is a  
29 period of consolidation of bone density that continues until approximately age 30 to 35 years. A high  
30 peak bone mass is thought to be protective against fractures in later life.  
31

1 Osteoporosis is a multifactorial, complex disorder, but low calcium intake appears to be one important  
2 risk factor in its development. The ideal level of calcium intake for development of peak bone mass is  
3 unknown, and it has not yet been established to what extent increased calcium intake will prevent  
4 osteoporosis. However, females, particularly adolescent and young adult females, should increase food  
5 sources of calcium.<sup>48</sup> In postmenopausal women, the group at highest risk for osteoporosis, estrogen  
6 replacement therapy under medical supervision is the most effective means to reduce the rate of bone loss  
7 and risk of fractures.<sup>49</sup>

8  
9 Dairy products, including fluid milks, yogurt, and hard and soft cheeses, are important sources of calcium  
10 in American diets. Fluid milk, but not yogurt or cheese, is also an excellent source of vitamin D, which  
11 is essential for calcium utilization. Other major food sources of dietary calcium include canned fish  
12 (with soft bones), certain vegetables (e.g., kale, broccoli), legumes (beans and peas), tofu (made with  
13 calcium), calcium-enriched grain products, other calcium-fortified foods and beverages, lime-processed  
14 tortillas, seeds, and nuts. In some locations, water is a source of calcium, but at indeterminate amounts.  
15 With current food selection practices, use of dairy products may constitute the difference between  
16 inadequate and adequate intakes of calcium. People who do not (or cannot) consume and absorb  
17 adequate levels of calcium from dairy food sources may consider use of calcium-fortified foods, and  
18 those with dietary, biochemical, or clinical evidence of inadequate intake should receive professional  
19 advice on the proper type and dosage of calcium supplements.  
20

**Sodium Intake**

**10. (Former 2.9) Increase to at least 65 percent the proportion of people aged 2 and older who meet the Daily Value of 2,400 mg or less of sodium consistent with the *Dietary Guidelines*.**  
 (Baseline: from 1988 to 1994, 21 percent of people aged 2 and older consumed 2,400 mg of sodium or less daily)

<b>Select Populations</b>	<b>1988-94</b>
African American, non-Hispanic	23%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	Not available
Mexican American	23%
White, non-Hispanic	20%
Male aged 2-5	50%
Male aged 6-11	16%
Male aged 12-19	4%
Male aged 20+	5%
Female aged 2-5	64%
Female aged 6-11	26%
Female aged 12-19	29%
Female aged 20+	30%
0-130% of poverty threshold	25%
>130% of poverty threshold	19%
Male with hypertension aged 20+	10%
Male without hypertension aged 20+	3%
Female with hypertension aged 20+	45%
Female without hypertension aged 20+	25%

**Note:** These baseline estimates include consideration of several sources of sodium intake (i.e., foods, dietary supplements, tap water, and salt use at the table). In addition, a statistical procedure was used in preparing baseline estimates to remove the within-person variation in daily sodium intakes from food,<sup>50</sup> and thus provide better estimates of usual intake of sodium with the use of a limited number of days of dietary data per individual (i.e., 1 day of dietary data for all NHANES respondents and 2-day dietary data for a subset).

**Target Setting Method:** Better than the best.

**Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

There is general agreement favoring sodium reduction for people with hypertension.<sup>51</sup> The preponderance of studies in diverse populations have shown that higher levels of sodium intake, in the form of sodium chloride, or table salt, are linked to increasing levels of blood pressure.<sup>52-55</sup> A large body of evidence suggests that populations consuming less salt or sodium have lower chances of developing this condition.<sup>56</sup>

Most Americans consume more sodium than is needed, and reduction of sodium or salt or both to 2,400 mg sodium or 6 g sodium chloride is recommended.<sup>57, 58, 58a</sup> The 1988-91 NHANES reports sodium intakes higher than 2,400 mg for all ages over 3 years.<sup>59</sup> Data from the CSFII showed that on average,

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1 meals and snacks consumed at school exceeded benchmark sodium levels expressed per 1,000 calories.<sup>60</sup>  
2 The average intake at school for children aged 6 to 11 years was 1,588 mg per 1,000 calories, and for  
3 children aged 12 to 17 years was 1,601 mg for males and 1,619 mg for females.

4  
5 Sodium and sodium chloride occur naturally in foods. Some people add salt and salty sauces such as soy  
6 sauces at the table, and sodium or salt may be added to foods during processing or preparation. Most  
7 dietary salt or sodium comes from foods with smaller amounts added at the discretion of the  
8 consumer.<sup>61,62</sup> Thus, in assessing dietary sodium consumption both the sodium content of foods from  
9 food composition tables and estimates of discretionary salt intakes are used. Other contributing sources  
10 of sodium are water, dietary supplements, and medications such as antacids.

11  
12 The *Dietary Guideline*<sup>63</sup> recommendation is to choose a diet moderate in salt and sodium. Implementing  
13 recommendations for dietary salt reduction should include targeting the entire age spectrum, including  
14 children and the elderly. Although prevention naturally starts in childhood, the benefits do extend to the  
15 elderly.<sup>64</sup> While all individuals may not be equally susceptible to the effects of sodium, several  
16 observations suggest that it would be wise for most people to use salt and sodium in moderation.

**Iron Deficiency and Anemia**

**11. (Former 2.10) Reduce iron deficiency to 5 percent or less among children aged 1 and 2, to less than 1 percent among children aged 3 and 4, and to 7 percent or less among females of childbearing age.** (Baseline: from 1988 to 1994, 9 percent of children aged 1 and 2, 4 percent of children aged 3 and 4, and 11 percent of nonpregnant women aged 12-49 years were iron deficient)

Select Populations	1988-94
Children aged 1-2	
African American, non-Hispanic	10%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	Not available
Mexican American	17%
White, non-Hispanic	6%
Children aged 3-4	
African American, non-Hispanic	2%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	Not available
Mexican American	6%
White, non-Hispanic	1%
Female aged 12-49	
African American, non-Hispanic	15%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	Not available
Mexican American	19%
White, non-Hispanic	8%
0-130% of poverty threshold	
Children aged 1-2	12%
Children aged 3-4	5%
Female aged 12-49	16%
>130% of poverty threshold	
Children aged 1-2	7%
Children aged 3-4	3%
Female aged 12-49	10%

**Note:** Iron deficiency is defined as having abnormal results for two or more of the following tests: serum ferritin, free erythrocyte protoporphyrin, and transferrin saturation.<sup>65</sup>

**Target Setting Method:** Better than the best.

**Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

1 **12. (Former 2.10e) Reduce anemia among low-income pregnant women in their third trimester to**  
2 **23 percent.** (Baseline: in 1996, 29 percent percent of low-income pregnant women in their third  
3 trimester were anemic)  
4

Select Populations	1996
African American, non-Hispanic	44%
American Indian/Alaska Native	31%
Asian/Pacific Islander	26%
Hispanic	25%
White, non-Hispanic	24%

5  
6 **Note:** There are no nationally representative data on the prevalence of iron deficiency among  
7 pregnant women. Anemia is used as an index of iron deficiency. For pregnant women in the third  
8 trimester, anemia was defined according to CDC criteria.<sup>66</sup>  
9

10 **Target Setting Method:** Better than the best.  
11

12 **Data Source:** Pregnancy Nutrition Surveillance System, CDC, NCHS.  
13

14 Iron deficiency and anemia among young children declined during the 1970s in association with  
15 increased iron intake.<sup>67</sup> Although the prevalence of iron deficiency among low-income children  
16 continued to decline from 1976-80 to 1988-94, the prevalence of iron deficiency among all young  
17 children and females of childbearing age remained essentially the same.<sup>68</sup> From 1979 to 1993, third  
18 trimester anemia among low-income pregnant women remained prevalent.<sup>69</sup>  
19

20 Iron deficiency anemia may have adverse effects on growth and development in childhood.<sup>70, 71</sup> The  
21 prevalence of iron deficiency is highest among toddlers, minority, and low-income children.<sup>72</sup> A  
22 reduction in the prevalence of iron deficiency among young children can be achieved by increasing the  
23 proportion of new mothers who breastfeed, increasing the use of iron-fortified formulas when formulas  
24 are used, delaying the introduction of whole cow milk feedings until 12 months of age, and using  
25 nutrition education to encourage appropriate consumption of iron-rich solid foods and foods that enhance  
26 iron absorption.<sup>73</sup>  
27

28 Women of childbearing age are at increased risk for iron deficiency because of iron loss in menstruation  
29 and because of the iron requirements of pregnancy.<sup>74</sup> National data indicate that only one fourth of  
30 adolescent girls and women of childbearing age (aged 12-49 years) meet the U.S. recommended dietary  
31 allowance for iron (15 mg) through their diets.<sup>75</sup> Iron deficiency in adolescent girls has been associated  
32 with decreased verbal learning and memory.<sup>76</sup> Maternal iron deficiency during pregnancy increases the  
33 risk of preterm delivery and delivering a low birthweight infant.<sup>77</sup> A reduction in iron deficiency among  
34 women of childbearing age can be achieved by nutrition education to encourage selection of iron-rich  
35 foods and by adequate supplementation with iron during pregnancy.<sup>78</sup>  
36

37 The terms anemia, iron deficiency, and iron deficiency anemia are often used interchangeably. Anemia  
38 (low hemoglobin or hematocrit) is used for monitoring risk of iron deficiency at the State and local level  
39 because of its low cost and feasibility for use in the clinic setting.<sup>79</sup> When the prevalence of iron  
40 deficiency is high, such as during the third trimester of pregnancy, anemia is a good predictor of iron  
41 deficiency. When the prevalence of iron deficiency is low, such as among white, non-Hispanic children

1 aged 3 to 4 years old in the United States, the majority of anemia is due to other causes (e.g., such as  
2 inflammation and infection, technical errors, and hereditary anemias).<sup>80</sup>

3  
4 Iron deficiency anemia is the most severe form of iron deficiency and more strongly associated with  
5 adverse health outcomes (e.g., preterm births, low birthweight, and delays in infant and child  
6 development) than iron deficiency without anemia.<sup>80a, 81, 82</sup> The prevalence of iron deficiency anemia  
7 among children 1 to 2 years of age, 3 to 4 years of age, and females of childbearing age in 1988-94 was 3  
8 percent, less than 1 percent, and 4 percent, respectively.

9  
10 ***School Meals and Snacks***

11  
12 **13. (Developmental) Increase to at least \_\_\_ percent the proportion of children and adolescents 6**  
13 **to 19 years of age whose intake of meals and snacks at school from all sources contributes**  
14 **proportionally to good overall dietary quality.**

15  
16 **Potential Data Source:** Continuing Survey of Food Intake by Individuals (CSFII), U.S. Department  
17 of Agriculture.

18  
19 Improving the quality of students' dietary intake in the school setting is an important health objective  
20 because, for many children, meals and snacks consumed at school make a major contribution to their  
21 total day's intake of food and nutrients. The 1995 CSFII found that meals and snacks eaten by children  
22 at school had the highest saturated fat density of all food outlets and had higher than recommended levels  
23 of sodium.<sup>83</sup> By establishing an eating environment that supports overall good dietary intake, school  
24 nutrition and food services, in conjunction with the children, their families, and other school employees,  
25 can make an important contribution to learning readiness, and short and long-term disease prevention and  
26 health promotion.

27  
28 Students today have increased food options at school. Although they may understand that there is a  
29 connection between good nutrition and good health, students may not reflect that understanding in their  
30 food choices and meal patterns. The USDA has established standards requiring schools to plan menus  
31 that meet the *Dietary Guidelines*, but these standards do not apply to a la carte foods or to foods sold in  
32 snack bars, school stores, or vending machines, and many students bring foods from home. Students'  
33 food choices are influenced by the total eating environment created by schools. This includes the types  
34 of foods available throughout the school as well as the nutrition education provided in the classroom,  
35 point-of-choice nutrition information in the cafeteria and the school environment, and nutrition  
36 promotions that reach families and affect the choice of foods brought to school.

37  
38 The Healthy Eating Index (HEI) was developed by USDA with contracted support and has shown to be  
39 useful as an aggregate measure of overall dietary quality.<sup>84</sup> It encompasses the concepts of moderation,  
40 variety, and proportionality that underlie the USDA Food Guidance System, which is the scientific  
41 underpinning for the Food Guide Pyramid.<sup>85, 86</sup> The overall Healthy Eating Index has a total possible  
42 score ranging from 0 to 100. Each of the following ten dietary components has a score ranging from 0 to  
43 10: grains, vegetables, fruits, milk, meat, percent of calories from total fat, percent of calories from  
44 saturated fat, cholesterol, sodium, and variety. Individuals with an intake at the age-sex specific  
45 recommended level for a particular component receive a maximum score of 10 points for that component.  
46 A component score of 0 is assigned when no foods in a particular food group are eaten, or the dietary  
47 component is significantly above the recommended maximum level. Intermediate scores are calculated  
48 proportionately. A Healthy Eating Index in the range of 80 to 100 points (out of the possible 100) is  
49 considered to be in the "good" range. In 1989-90, only 11 to 12 percent of the U.S. population had HEI

1 scores in the “good” range. The average HEI score for children aged 5 to 14 years was 66 percent.<sup>87</sup> The  
 2 Healthy Eating Index has been found to decline as age increases throughout the school years.<sup>88</sup> Higher  
 3 HEI scores have been found to be associated with greater nutrition knowledge.<sup>89</sup>

4  
 5 The HEI does not address the issue of excess intake of food energy. Overweight among children due to  
 6 long-term imbalance of food energy intake and energy expenditure through physical activity is a major  
 7 public health problem.<sup>90</sup> There is no reduction in HEI scores for intake from a food group above the  
 8 recommended level. As a result, the HEI will afford very high scores to individuals who eat a varied and  
 9 balanced diet even if this diet provides energy considerably in excess of their requirement. However, the  
 10 HEI addresses most of the dietary recommendations in the *Dietary Guidelines* and *The Food Guide*  
 11 *Pyramid*. It serves as a way to provide an aggregate estimate of diet quality.

12  
 13 Since meals consumed at school compose a variable portion of the total day’s intake, the Healthy People  
 14 2010 target will be adjusted by the actual consumption at school and in consideration of their age-sex  
 15 group. For example, if a student consumes a total of 40 percent of their age-sex specific estimated  
 16 energy allowance at school, the targets for 8 of the 10 HEI components will be reduced by 60 percent in  
 17 the calculation. The HEI components for total fat and saturated fat are already expressed as a percent of  
 18 calories and therefore are not further adjusted for energy intake at school.

19  
 20 **EXAMPLE:** A student with an energy allowance of 1,600 calories per day consumes 640 calories at  
 21 school. The Healthy Eating Index targets are adjusted as follows:

HEI Component	Score Range for 1,600 Calorie/Day Child for Full Day (0 point level, 10 point level)	Energy-Adjusted Score Range (for 40% of 1,600 Calorie/Day Child) (0 point level, 10 point level)
Grains (servings)	0, 6	0, 2.4
Vegetables (servings)	0, 3	0, 1.2
Fruits (servings)	0, 2	0, 0.8
Milk (servings)	0, 2	0, 0.8
Meat (servings)	0, 2	0, 0.8
Total fat as percent of calories	45%, 30%	45%, 30%
Saturated fat as percent of calories	15%, 10%	15%, 10%
Cholesterol (mg)	450, 300	180, 120
Sodium (mg)	4,800; 3,000	1,920; 1,200
Variety (different foods)	0, 8	0, 3.2

23  
 24 *Nutrition Education in Public and Private Schools*

25  
 26 **14. (Developmental/Former 2.19) Increase to at least \_\_ percent the proportion of the Nation’s**  
 27 **public and private elementary schools that teach all essential nutrition education topics\* to**  
 28 **their students in at least three different grades.**

29  
 30 **Potential Data Source:** School Health Policies and Programs Study (SHPPS), CDC, NCCDPHP.

31  
 32 \* See Proposed Operational Definition of “Essential Nutrition Education Topics” below.

1 **15. (Developmental/Former 2.19) Increase to at least \_\_ percent the proportion of the Nation’s**  
2 **public and private middle/junior high schools that teach all essential nutrition education**  
3 **topics\* in at least one required course.**

4  
5 **Potential Data Source:** School Health Policies and Programs Study (SHPPS), CDC, NCCDPHP.

6  
7 **16. (Developmental/Former 2.19) Increase to at least \_\_ percent the proportion of the Nation’s**  
8 **public and private senior high schools that teach all essential nutrition education topics\* in at**  
9 **least one required course**

10  
11 \* See Proposed Operational Definition of “Essential Nutrition Education Topics” below.

12  
13 **Potential Data Source:** School Health Policies and Programs Study (SHPPS), CDC, NCCDPHP.

14  
15 Many dietary habits are established during childhood.<sup>91, 92</sup> Educating school-aged children about  
16 nutrition is important to establish healthy eating habits early in life. School-based nutrition education  
17 will reach children during the years when they are beginning to establish dietary patterns and make their  
18 own decisions regarding food choices. A well-designed curriculum that effectively addresses essential  
19 nutrition education topics can increase students’ knowledge about nutrition, help shape appropriate  
20 attitudes, and help develop the behavioral skills students need to plan, prepare, and select healthful meals  
21 and snacks.<sup>93-95</sup> Implementation of curricula that encourage specific, healthy eating behaviors and  
22 provide students with the skills needed to adopt and maintain those behaviors has led to favorable  
23 changes in student dietary behaviors and cardiovascular disease risk factors.<sup>96-98</sup>

24  
25 Optimally, school nutrition education should include educational cafeteria experiences as well as  
26 classroom work. Nutrition education should be taught as a component of comprehensive school health  
27 education, but essential nutrition education topics also can be taught as a component of a variety of  
28 curricula. Integration into science and other curricula can reinforce principles and messages learned in  
29 the health units. In addition, students must have access to healthful food choices to further enhance the  
30 likelihood of adopting healthy dietary practices.

31  
32 To attain this objective, all States and school districts should require nutrition education. In 1994, only  
33 69 percent of States and 80 percent of districts required nutrition education. Achieving this objective  
34 also requires that teachers be knowledgeable about and know how to teach nutrition. Thus, nutrition  
35 coursework should be included in the core curriculum for the professional preparation of teachers of all  
36 grades and emphasized in continuing education activities for teachers.

37  
38 **Proposed Operational Definition of “Essential Nutrition Education Topics”**

39  
40 The following nutrition education topics are considered to be essential at the elementary, middle/junior  
41 high, and senior high school levels:

- 42  
43
- 44 • Food Guide Pyramid
  - 45 • Benefits of healthy eating
  - 46 • Making healthy food choices for meals and snacks
  - 47 • Using food labels
  - 48 • Eating more fruits, vegetables, and grains
  - 49 • Balancing food intake and physical activity
  - Accepting body size differences

- Following food safety practices

In addition, the following topics are considered to be essential at the middle/junior high and senior high school levels:

- *Dietary Guidelines for Americans*
- Eating disorders
- Healthy weight control
- Understanding influences on food choices (e.g., advertising, culture, emotions)
- Setting goals for dietary improvement

**17. (Former 2.20) Increase to at least 50 percent the proportion of worksites with 50 or more employees that offer nutrition education and/or weight management programs for employees.** (Baseline: in 1995, 18 percent of worksites offered nutrition or cholesterol group classes, workshops, or lectures, and 14 percent offered weight management group classes, workshops, or lectures)

<b>Worksites With 50+ Employees That Offer:</b>	<b>1995</b>
Nutrition Education	18%
Weight Management	14%

**Target Setting Method:** Retain year 2000 target.

**Data Source:** Business Response to AIDS Benchmark Survey, CDC, NCHS.

Worksite programs provide a mechanism for reaching large numbers of employees with information, activities, and services that encourage and facilitate the adoption of dietary practices conducive to health. Employer-sponsored programs can be offered onsite or in conjunction with community organizations. Examples of such programs include weight management classes, weight loss competitions, lunchtime seminars, self-help programs, cooking demonstrations and classes, healthy food service and vending machine selections, point-of-choice nutrition information programs, and flexible health benefits that include nutrition-related activities. Smaller worksites may prefer to align themselves with a community organization in order to meet this objective. Worksite nutrition education and weight loss programs should be made available to the family members of employees and company retirees, as well as current employees. Optimally, nutrition education and weight management programs at the worksite should be part of a comprehensive health promotion program.

In 1992, a national telephone survey of nongovernment worksites with 50 or more employees found that 31 percent offered nutrition education activities to their employees and 24 percent offered activities to help employees control their weight.<sup>99, 100</sup> The proportion of worksites that offered nutrition education and/or weight control was 37 percent. Both active (for example, classes) and passive (for example, brochures) methods were counted as worksite health promotion activities.

The 1995 baseline data are from the CDC-sponsored Worksite Benchmark Survey. This survey used a methodology very similar to the 1992 survey but did not include passive methods of health promotion.<sup>101</sup> It is not clear whether these surveys will be replicated.

*Nutrition Services in Primary Care*

**18. (Former 2.21) Increase to at least 75 percent the proportion of primary care providers who provide nutrition assessment when appropriate and to at least 75 percent the proportion that formulate a diet/nutrition plan for patients who need the intervention.** (Baseline: in 1992, 53 percent of pediatricians, 46 percent of nurses, 15 percent of obstetricians/gynecologists, 36 percent of internists, and 19 percent of family physicians inquired about diet/nutrition; 31 percent of pediatricians, 31 percent of nurses, 19 percent of obstetricians/gynecologists, 33 percent of internists, and 24 percent of family physicians formulated a diet/nutrition plan)

<b>Inquiry about Diet/Nutrition by:</b>	<b>1992</b>
Pediatricians	53%
Nurses	46%
Obstetricians/Gynecologists	15%
Internists	36%
Family Physicians	19%

  

<b>Formulation of Diet/Nutrition Plan by:</b>	
Pediatricians	31%
Nurses	31%
Obstetricians/Gynecologists	19%
Internists	33%
Family Physicians	24%

**Note:** The above estimates are for the percentage of clinicians who routinely provide service when appropriate or needed to 81 to 100 percent of patients.

**Target Setting Method:** Retain year 2000 target.

**Data Source:** Primary Care Providers Survey, ODPHP.

**19. Increase the proportion of physician office visits at which counseling and educational services are ordered or provided.**

**19a. Increase to at least 75 percent the proportion of physician office visits with cardiovascular disease diagnoses at which counseling and educational services are ordered or provided for diet, weight reduction, and cholesterol reduction.** (Baseline: in 1996, for cardiovascular disease diagnoses ordered or provided counseling or educational services in diet for 10 percent, weight reduction for 3 percent, and cholesterol reduction for 2 percent of physician office visits)

**Target Setting Method:** National average.

**Data Source:** National Ambulatory Medical Care Survey (NAMCS), CDC, NCHS.

**19b. (Developmental) Increase to \_\_ the proportion of physician visits with diabetes mellitus diagnosis at which counseling and education services are ordered or provided for diet or weight reduction.**

1 Primary care providers are optimally positioned in the health care system to provide preventive services,  
2 including nutrition assessment and counseling. Primary care providers include general practitioners,  
3 family physicians, internists, pediatricians, geriatricians, obstetricians/gynecologists, physician assistants,  
4 nurse practitioners, and nurses. The public views physicians in particular as credible sources of health  
5 information. Nutrition advice from other health professionals (e.g., pharmacists, dentists) reaches even  
6 more people and reinforces important nutrition messages. Nutrition counseling by qualified nutritionists  
7 and dietitians, who are trained to help people make dietary changes, is important for many patients.  
8 Dietary modifications can be achieved through primary care interventions. Dietary assessment, advice,  
9 counseling, and followup by physicians and/or dietitians and nutritionists have been found to be effective  
10 in reducing patient dietary fat intake and serum cholesterol<sup>102</sup> and nutrition counseling by qualified  
11 nutritionists and dietitians has been found to be cost-effective for patients with heart disease and diabetes  
12 mellitus.<sup>103</sup>

13  
14 Although many physicians consider diet modification important for their patients, they often feel ill  
15 prepared to counsel patients about dietary behaviors. When asked about their confidence in dealing with  
16 dietary change, 35 percent of primary care physicians in Massachusetts reported being “very prepared” to  
17 counsel patients and only 7 percent reported feeling “very successful” in this regard.<sup>104</sup> Thus, for many  
18 physicians, referring patients for nutrition assessment and counseling represents appropriate clinical  
19 practice. To ensure high rates of referral, office systems should be established to prompt and facilitate  
20 referral.

## 21 *Food Security*

22  
23  
24 **20. Increase the prevalence of food security among U.S. households to at least 94 percent of all**  
25 **households.** (Baseline: 88 percent of all U.S. households were food secure in 1995.)  
26

<b>Select Populations</b>	<b>1995</b>
African American, non-Hispanic	75%
American Indian/Alaska Native	Not available
Asian/Pacific Islander	Not available
Hispanic	73%
White, non-Hispanic	89%
Household Characteristics	
With children*	82%
With elderly*	93%
0-130% of poverty threshold	
All lower income	68%
With children	59%
With elderly	82%

27  
28 \* The measure focuses explicitly on food insufficiency and hunger, at adult and child levels,  
29 resulting from inadequate household resources. Other sources of food insecurity, such as child  
30 abuse/neglect or loss of function or mobility (particularly relevant to the elderly population) are not  
31 distinguished by the measure.

32 **Target Setting Method:** 50 percent decrease in food insecurity, consistent with the U.S. pledge to  
33 the 1996 World Food Summit.

34 **Data Sources:** Food Security Supplement to the Current Population Survey, U.S. Census Bureau;  
35 U.S. Department of Agriculture, Food and Nutrition Service; CDC, NCHS.  
36

1 As severe undernutrition has become increasingly rare in the United States, the Nation has faced new  
2 nutritional challenges related to dietary excess, imbalances, and marginal nutrient adequacies. However,  
3 poverty-related food insecurity and hunger, as directly experienced by affected families and individuals,  
4 has remained a painful fact of life for far too many Americans. Food insecurity and hunger may coexist  
5 with the modern American forms of malnutrition, but they are not the same thing nor even necessarily  
6 closely associated. However, the complex of directly experienced conditions and responses comprising  
7 food insecurity and its potential consequence in hunger are believed to have deleterious health and  
8 developmental impacts in their own right. These are of particular concern when children, elderly, and  
9 other nutritionally vulnerable groups are at risk.

10  
11 Food Security means that people have access at all times to enough food for an active, healthy life. This  
12 entails the ready availability of nutritionally adequate and safe foods, and the assured ability to acquire  
13 acceptable foods in socially acceptable ways—for example, without need to resort to emergency food  
14 sources, scavenging, stealing, or other severe coping strategies to meet basic food needs. The concept  
15 implies adequate household resources are needed to obtain sufficient food to meet basic needs through  
16 regular marketplace sources. The vast majority of Americans are food secure.

## 17 18 **Related Objectives From Other Focus Areas**

### 19 20 **Physical Activity and Fitness**

- 21 1 Leisure time physical activity
- 22 2 Sustained physical activity
- 23 3 Vigorous physical activity
- 24 6 Vigorous physical activity, grades 9-12
- 25 7 Moderate physical activity, grades 9-12
- 26 8 Daily school physical education
- 27 13 Worksite physical activity and fitness
- 28 14 Clinician counseling about physical activity

### 29 30 **Educational and Community-Based Programs**

- 31 2 School health education
- 32 5 Worksite health promotion programs
- 33 10 Community health promotion initiatives

### 34 35 **Access to Quality Health Services**

- 36 A.3 Routine screening about lifestyle risk factors

### 37 38 **Maternal, Infant, and Child Health**

- 39 9 Preconception counseling
- 40 17 Low birthweight
- 41 19 Weight gain during pregnancy
- 42 21 Alcohol use during pregnancy
- 43 24 Fetal alcohol syndrome
- 44 26 Neural tube defects
- 45 27 Folic acid intake
- 46 29 Breastfeeding

1 **Health Communication**

- 2 1 Public access to health information  
3 6 Quality of health information  
4 7 Health communication/media technology curricula

5  
6 **Arthritis, Osteoporosis, and Chronic Back Conditions**

- 7 12 Prevalence (osteoporosis)  
8 13 Counseling about prevention, 13 and over (osteoporosis)

9  
10 **Cancer**

- 11 1 Cancer deaths  
12 3 Breast cancer deaths  
13 5 Colorectal cancer deaths  
14 9 Provider counseling about preventive measures

15  
16 **Diabetes**

- 17 1 Type 2 diabetes  
18 23 Diabetes education

19  
20 **Heart Disease and Stroke**

- 21 1 Coronary heart disease deaths  
22 6 High blood pressure  
23 7 Controlled high blood pressure  
24 11 Blood cholesterol levels  
25 14 Stroke deaths

26  
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