

**Midcourse
Review**



**Heart Disease
and Stroke** **12**

Co-Lead Agencies:

Centers for Disease Control and Prevention
National Institutes of Health

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Goal: Improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.

Introduction*

Progress was made during the first half of the decade in improving cardiovascular health. The death rate from coronary heart disease (CHD) declined by 11 percent from 1999 to 2002. The rate for stroke deaths decreased by 10 percent from 1999 to 2002. Hospitalizations due to heart failure among persons aged 65 to 74 years and persons aged 85 years and older declined between 1997 and 1999. In addition, the proportion of adults with high blood pressure (BP) under control rose 28 percent from 1988–94 to 1999–2002. Mean total cholesterol levels achieved 43 percent of the targeted change, and the target for reducing the proportion of persons with high blood cholesterol levels was met in 1999–2002.

The two overarching goals of Healthy People 2010 are to increase the quality and length of healthy life for the U.S. population and to eliminate health disparities. Multiple cardiovascular initiatives are advancing the Nation's overall health and quality of life. Currently, 32 States and the District of Columbia support programs that promote heart-healthy and stroke-free communities; prevent and control heart disease, stroke, and their risk factors; and eliminate disparities among populations.¹ These programs emphasize education, policies, environmental strategies, and system changes to ensure quality of care and to address heart disease and stroke in various settings. Three stroke networks function to increase awareness and enhance stroke prevention and quality of care.¹

Other programs target cardiovascular health disparities that continue to affect select racial and ethnic populations. For example, 12 cardiovascular disease (CVD) Enhanced Dissemination and Utilization Centers serve as community-based education projects designed to prevent and control CVD risk factors and promote heart-healthy behavior in high-risk communities.² The projects are geared to address the heart disease and stroke objectives of Healthy People 2010 with strategies focusing on health care professionals, patients, and the public. REACH 2010 (Racial and Ethnic Approaches to Community Health 2010) programs in 40 communities support local coalitions in designing, implementing, and evaluating community-driven strategies to eliminate health disparities.³ REACH 2010 coalitions use local data to develop a community action plan that addresses CVD or other health priority areas and targets one or more racial or ethnic groups. Community coalitions, in turn, carry out activities outlined in their community action plans and evaluate program activities.

* Unless otherwise noted, data referenced in this focus area come from Healthy People 2010 and can be located at <http://wonder.cdc.gov/data2010>. See the section on DATA2010 in the Technical Appendix for more information.

Modifications to Objectives and Subobjectives

The following discussion highlights the modifications, including changes, additions, and deletions, to this focus area's objectives and subobjectives as a result of the midcourse review. In addition, to maintain consistency, several objectives and subobjectives were revised based on recommendations from the National Cholesterol Education Program (NCEP) or the latest research findings. All death rates in this focus area are age adjusted. However, for presentation, the phrase "death rate" is used instead of "age adjusted death rate."

Four objectives became measurable at the midcourse review. Objective 12-3, receipt of timely artery-opening therapy, was reworded and divided into two subobjectives: receipt of fibrinolytics within an hour of symptom onset (12-3a) and use of percutaneous coronary intervention within 90 minutes of symptom onset (12-3b). Bystander response to cardiac arrest (12-4) was reworded to reflect the proportion of the population trained in cardiopulmonary resuscitation (CPR) within the previous year, rather than those who call 9-1-1 and administer CPR for an out-of-hospital cardiac arrest. Although out-of-hospital emergency care (12-5) was not measurable at the midcourse, a potential data source was identified for the objective.

Knowledge of the early warning signs of stroke (12-8) was reworded to include "calling 9-1-1." The change made the objective more consistent with the latest research that shows the benefits of transporting stroke patients to the hospital quickly for rapid treatment.⁴ Low-density lipoprotein (LDL) cholesterol level in CHD patients (12-16) remained developmental and was reworded based on recommendations from NCEP⁵ to state the target for LDL as "less than 100 mg/dL" instead of "less than or equal to 100 mg/dL."

Progress Toward Healthy People 2010 Targets

The following discussion highlights objectives that met or exceeded their 2010 targets; moved toward the targets, demonstrated no change, or moved away from the targets; and those that lacked data to assess progress. Progress is illustrated in the Progress Quotient bar chart (see Figure 12-1), which displays the percent of targeted change achieved for objectives and subobjectives with sufficient data to assess progress.

Seven objectives and two subobjectives moved toward or met their targets, and one objective showed no change from its baseline. One objective and one subobjective moved away from their targets. Six objectives lacked data to assess progress.

Objectives that met or exceeded their targets. High blood cholesterol levels (12-14) met its target of 17 percent. In 1999–2002, 17 percent of persons 20 years of age and older had high total blood cholesterol levels (greater than or equal to 240 mg/dL), down from 21 percent in 1988–94. Persons with substantially elevated cholesterol levels are candidates for clinical care, as recommended in the Adult Treatment Panel III (ATP III) guidelines for cholesterol management, and increased use of cholesterol-lowering medication is likely to have had a large role in attaining this objective. In addition, populationwide dietary changes have contributed to meeting the target.^{5,6,7}

Objectives that moved toward their targets. Of the 16 objectives in the Heart Disease and Stroke focus area, 6 moved toward or met their targets: CHD death rate (12-1), stroke death rate (12-7), high blood pressure (BP) control (12-10), action to help control BP (12-11), mean total blood cholesterol levels (12-13), and blood cholesterol screening (12-15). Two subobjectives moved toward their targets: heart failure hospitalization among persons aged 65 to 74 years (12-6a) and among persons aged 85 years and older (12-6c).

Between 1999 and 2002, the CHD death rate (12-1) dropped from 203 deaths per 100,000 population to 180 per 100,000 population, moving toward the target of 162 per 100,000 population. Improvements in modifiable risk factors among adults, including decreases in cigarette smoking, increases in BP control rates, decreases in high blood cholesterol levels and in mean total cholesterol levels, and increases in leisure-time physical activity have contributed to this progress. Several of these factors can also help to reduce heart failure hospitalizations for persons aged 65 to 74 years (12-6a), which achieved 13 percent of the targeted change, and for persons aged 85 years and older (12-6c), which achieved 9 percent of the targeted change.

Fifty percent of the targeted change in the stroke death rate (12-7) was achieved. The observed reduction in the stroke death rate could be explained by improved management of high BP and better use of anticoagulation therapies in individuals with atrial fibrillation.^{8, 9, 10, 11, 12} These conditions contribute significantly to increased risk of stroke.^{13, 14, 15, 16, 17}

Sixteen percent of the targeted change was achieved for controlled BP (12-10). Sixty-four percent of the targeted change was achieved for taking action to control BP (12-11). More Americans are now taking antihypertensive medications to control their BP, and lifestyle approaches have been encouraged through the application of Dietary Approaches to Stop Hypertension (DASH).¹⁸ These changes have resulted in significantly increased high BP control rates in both white non-Hispanic and black non-Hispanic populations.^{19, 20}

Many initiatives foster movement of these objectives toward their targets. For example, Prevent and Control High Blood Pressure: Mission Possible²¹ provides up-to-date facts about the impact of high BP on the Nation, as well as materials that can be used by community organizations, corporate wellness programs, health care providers, schools, civic and faith-based organizations, insurance companies, managed care organizations, and grocery store chains to combat high BP nationwide.

In addition, *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII)*²² guidelines summarize the latest scientific findings that allow health practitioners to better prevent, diagnose, and treat elevated BP. *JNC VII* also has established the new category of prehypertension—to identify people at elevated risk for high blood pressure, but who are not yet hypertensive—in order to encourage them to change their lifestyles before vascular disease occurs.²²

Forty-three percent of the targeted change for mean total blood cholesterol level in persons aged 20 years and older (12-13) was achieved. This progress occurred in the face of an increased rate of obesity, which would tend to raise blood cholesterol levels.^{23, 24} Several major influences have contributed to the decline in the mean total cholesterol level of the population. Increased use of cholesterol-lowering medication has likely played a major role, and populationwide dietary changes have also contributed to the decline in the mean total cholesterol level of the population.^{5, 20}

Forty-six percent of the targeted change for blood cholesterol screening within the past 5 years (12-15) was achieved. Several factors have played a role in increasing public awareness of the need to have cholesterol levels checked. For instance, participating organizations of NCEP⁵ educate health professionals and the public about the importance of cholesterol testing to help determine an individual's risk for CHD. Public awareness has further been increased through publicizing the results of cholesterol-lowering clinical trials, which have shown the benefits of lowering an elevated cholesterol level, and media attention to cholesterol issues.^{5, 25, 26, 27}

Objectives that demonstrated no change. One objective remained static. Between 1998 and 2003, BP monitoring in persons aged 18 years and older with high BP (12-12) remained constant at 90 percent.

Objectives that moved away from their targets. Heart failure hospitalizations for persons aged 75 to 84 years (12-6b) and the proportion of persons aged 20 years and older with high BP (12-9) moved away from their targets. Possible reasons for the increase in high BP include an increase in obesity.^{5, 24}

Objectives that could not be assessed. Baseline data became available to measure knowledge of heart attack symptoms and the importance of calling 9-1-1 (12-2), receipt of artery-opening therapy (12-3a), use of percutaneous intervention within 90 minutes (12-3b), CPR training (12-4), and knowledge of the early warning signs of stroke (12-8). These objectives were developmental at the beginning of the decade. Followup data to assess progress toward the targets are anticipated before the end of the decade. Two objectives remain developmental: out-of-hospital care for cardiac arrest (12-5) and LDL cholesterol levels in CHD patients (12-16).

Progress Toward Elimination of Health Disparities

The following discussion highlights progress toward the elimination of health disparities. The disparities are illustrated in the Disparities Table (see Figure 12-2), which displays information about disparities among select populations for which data were available for assessment.

Nine objectives had significant racial and ethnic disparities. The Asian or Pacific Islander population had the lowest CHD death rate (12-1), which was half the rate of the black non-Hispanic population. Although rates declined for both groups, the disparity between black non-Hispanic and Asian or Pacific Islander populations increased by 10 to 49 percentage points from 1999–2002.

The white non-Hispanic population had the best rate for congestive heart failure hospitalizations among persons aged 65 to 74 years (12-6a). Notably, the data for objective 12-6—data on heart failure hospitalizations from the National Hospital Discharge Survey—are subject to large variation due to small sample sizes and race and ethnicity classification error due to the increasing absence of reporting of race and ethnicity for many of the sampled hospitals, especially in recent years. The hospitalization rate of the black non-Hispanic population was more than twice the rate of the white non-Hispanic population in this age group. The American Indian or Alaska Native population had the best stroke death rate (12-7), which was half the rate of the black non-Hispanic population. Compared with the American Indian or Alaska Native population, the disparities for stroke death rates increased by 10 to 49 percentage points for the Asian or Pacific Islander, black non-Hispanic, and white non-Hispanic populations.

The white non-Hispanic group had the best group rate for three objectives with significant racial and ethnic disparities: knowledge of heart attack and stroke symptoms in persons aged 20 years and older (12-2 and 12-8) and controlled high BP in persons aged 20 years and older with high BP (12-10). Knowledge of stroke signs and symptoms (12-8) showed disparities of at least 100 percent between the Asian population and Hispanic population in comparison with the white non-Hispanic population (best).

The Mexican American population had the lowest percentage of high BP in persons aged 20 years and older (12-9)—27 percent in 1999–2002, compared with 43 percent in the black non-Hispanic population. The black non-Hispanic group had the best rate for BP monitoring among persons aged 18 years and older and with high BP (12-12). The Asian population and the population identifying themselves with two or more races had the best cholesterol screening rates (12-15).

Efforts to reduce the disparities in cardiovascular health among ethnic and racial populations are under way. One such effort is *Salud para su Corazon (SPSC)*, a comprehensive education and outreach initiative committed to increasing knowledge and practice of heart-healthy behaviors in Latino communities through the use of *promotores de salud*, or lay health workers.^{28, 29} Messages and supporting materials incorporate culture, lifestyle, language, and community-based values and are distributed through various community channels. In 2001, a partnership was established to take SPSC to the U.S.-Mexico border region.³⁰

Honoring the Gift of Heart Health serves as a health educator's guide for implementing culturally and linguistically appropriate heart-healthy training in Tribal communities, thereby increasing awareness and stimulating action about the adverse impact of CVD among the American Indian population.^{31, 32}

Your Heart, Your Life (Su Corazon, Su Vida) is a manual used to train lay health workers who teach and promote healthy lifestyle behaviors within their specific communities.³³ Regional training workshops have been, or are being, conducted that cover Indian Health Service and Tribal service areas in Alaska, Arizona, Colorado, North Dakota, Oklahoma, Oregon, and Tennessee.

Significant disparities from the best group rate continued to exist for select racial and ethnic populations regarding knowing the warning signs of stroke (12-8). To address this gap, a new grassroots education program called *Know Stroke in the Community* has been launched.³⁴ The program focuses on educating populations at high risk for stroke, including older adults and black non-Hispanic and Hispanic populations, in communities that have extensive health care systems in place to treat stroke. In less than 6 months, the program identified 63 stroke champions, who conducted more than 350 education events, and delivered stroke education messages and materials to more than 100,000 people.

Women had better rates than men for all eight objectives and subobjectives with significant gender disparities, including CHD death rate (12-1), persons aged 20 years and older knowing the signs and symptoms of heart attack and stroke (12-2 and 12-8), heart failure hospitalizations among persons aged 65 to 84 years (12-6a and b), controlled BP among persons aged 20 years and older with high BP (12-10), BP monitoring by persons aged 18 years and older with high BP (12-12), and blood cholesterol screening within the past 5 years among persons aged 18 years and older (12-15). While the rate of women trained in CPR (12-4) and the rate for stroke deaths (12-7) among women were better than the rates of men, the differences were not statistically significant.

Multiple initiatives seek to promote women's cardiovascular health and reduce disparities in treatment. A program called Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) helps women with little or no health insurance gain access to screening and lifestyle interventions that can reduce their risk for heart disease and other chronic diseases.³⁵ The WISEWOMAN program includes 15 projects in 14 States and addresses high BP and cholesterol, nutrition and weight management, physical inactivity, and tobacco use. Launched in 2002, the national "Heart Truth" campaign aims to raise awareness of the danger of heart disease.³⁶ The campaign's goal is to heighten women's awareness about their risk of heart disease, encourage them to talk with their doctor, and take appropriate action.

Persons with at least some college had the best rates for all seven objectives with significant education disparities. In 2002, the rates for CHD deaths and stroke deaths (12-1 and 12-7, respectively) among persons with less than a high school education were about three times the rates of persons with at least some college, while the rates of high school graduates were twice the rates of persons with at least some college. The disparities between high school graduates and the best group on these two objectives increased between 1999 and 2002. The proportion of persons with less than a high school education who do not know the early warning signs of stroke (12-8) was more than double the rate of persons with at least some college. The proportion of persons with high blood pressure and less than a high school education who do not monitor their blood pressure (12-12) was almost three times the proportion of persons with at least some college who do no monitoring. Between 1998 and 2003, this disparity increased by 10 to 49 percentage points. Finally, the disparity in rates for blood cholesterol screening in the past 5 years among persons aged 18 years and older (12-15) with less than a high school education and persons with at least some college who do no monitoring exceeded 100 percent. The disparity between high school graduates and persons with some college increased between 1998 and 2003.

Only one of the three objectives with disparity data by income level showed significant income disparities. The middle/high-income group had the best rate for high BP among persons aged 20 years and older (12-9). Between 1988–94 and 1999–2002, the disparity between the poor and middle/high-income populations decreased by 10 to 49 percentage points. All income groups moved away from the target. The decrease in disparity occurred because the middle/high-income population moved away from the target at a faster rate than did the poor population. In 1988–94, 24 percent of the middle/high-income population had high blood pressure; by 1999–2002, this rate had increased to 29 percent. Comparable rates of the poor population were 31 percent and 32 percent, respectively. The poor population group had the best mean total cholesterol level (12-13).

Persons without disabilities had better rates than persons with disabilities for three objectives: knowledge of stroke symptoms (12-8), high BP (12-9), and high blood cholesterol levels (12-14). Persons with disabilities had better rates than did persons with disabilities for controlled BP (12-10) and BP monitoring (12-12).

One objective, 12-15, had a significant geographic disparity. Persons living in urban or metropolitan areas had higher rates for blood cholesterol screening within the past 5 years among those aged 18 years and older than did persons living in rural or nonmetropolitan areas.

Opportunities and Challenges

*A Public Health Action Plan to Prevent Heart Disease and Stroke*³⁷ highlights the urgent need for action regarding heart disease and stroke prevention and provides targeted recommendations and specific steps toward achievement of this goal. The plan incorporates Healthy People 2010 objectives and addresses seven action areas: establishing effective communication; providing strategic leadership, partnership, and organization; taking action; strengthening capacity; evaluating impact; advancing knowledge through prevention research; and engaging in regional and global partnerships.

One of the emerging areas of opportunity for the stroke care community is the implementation of guidelines for both primary and comprehensive stroke centers developed by the Brain Attack Coalition.^{38, 39, 40} Many institutions are beginning to adopt these recommendations, but data on their success in improving the delivery of thrombolytic agents and patient outcomes are still limited. In particular, additional studies are needed to demonstrate the impact of implementing these recommendations on long-term disability ranging from 3 months after onset to death.

Get With The Guidelines (GWTG) is a hospital-based quality improvement program for the American Heart Association and the American Stroke Association.⁴¹ The *GWTG* program provides tools to help health care provider teams to consistently treat patients by following the most updated treatment guidelines. Currently, *GWTG* targets coronary artery disease, stroke, and heart failure. The program seeks to leverage the teachable moment—when patients are most likely to listen to and follow their health care provider’s guidance: immediately after a patient has had an acute event. *GWTG* incorporates a multidisciplinary approach to risk-factor management and encourages collaboration among cardiologists, neurologists, primary care physicians, nurses, pharmacists, and patients. It provides resources to build consensus and optimize treatment protocols.

Successful Business Strategies to Prevent Heart Disease and Stroke is a toolkit for the State Heart Disease and Stroke Prevention Programs to build partnerships and collaborations with employer groups.⁴² The package helps to educate employers about how evidence-based health benefits, health care systems, and workplace interventions can affect heart disease and stroke prevention among employees.

“Act in Time to Heart Attack Signs” is an education campaign that raises awareness about the importance of early recognition and response to heart attack symptoms, with the goal of limiting heart damage and promoting survival through timely evaluation and treatment.⁴³ Key campaign messages emphasize knowing the common heart attack symptoms, calling 9-1-1 within 5 minutes of when symptoms begin, and working with a physician to create a heart attack survival plan.⁴³

To date, States have lacked data based on actual measurements to monitor high BP or cholesterol objectives. In 2005, a few States launched demonstration models of a State cardiovascular health examination survey.⁴⁴ The purpose is to develop the capacity of a State program to collect BP, blood cholesterol, and other relevant information; compare data between priority populations and the public; and provide guidance to other States to develop, implement, and evaluate health promotion and risk-factor control strategies. In addition, States are establishing statewide Paul Coverdell National Acute Stroke Registries to monitor and improve stroke care quality in acute care hospitals.⁴⁵

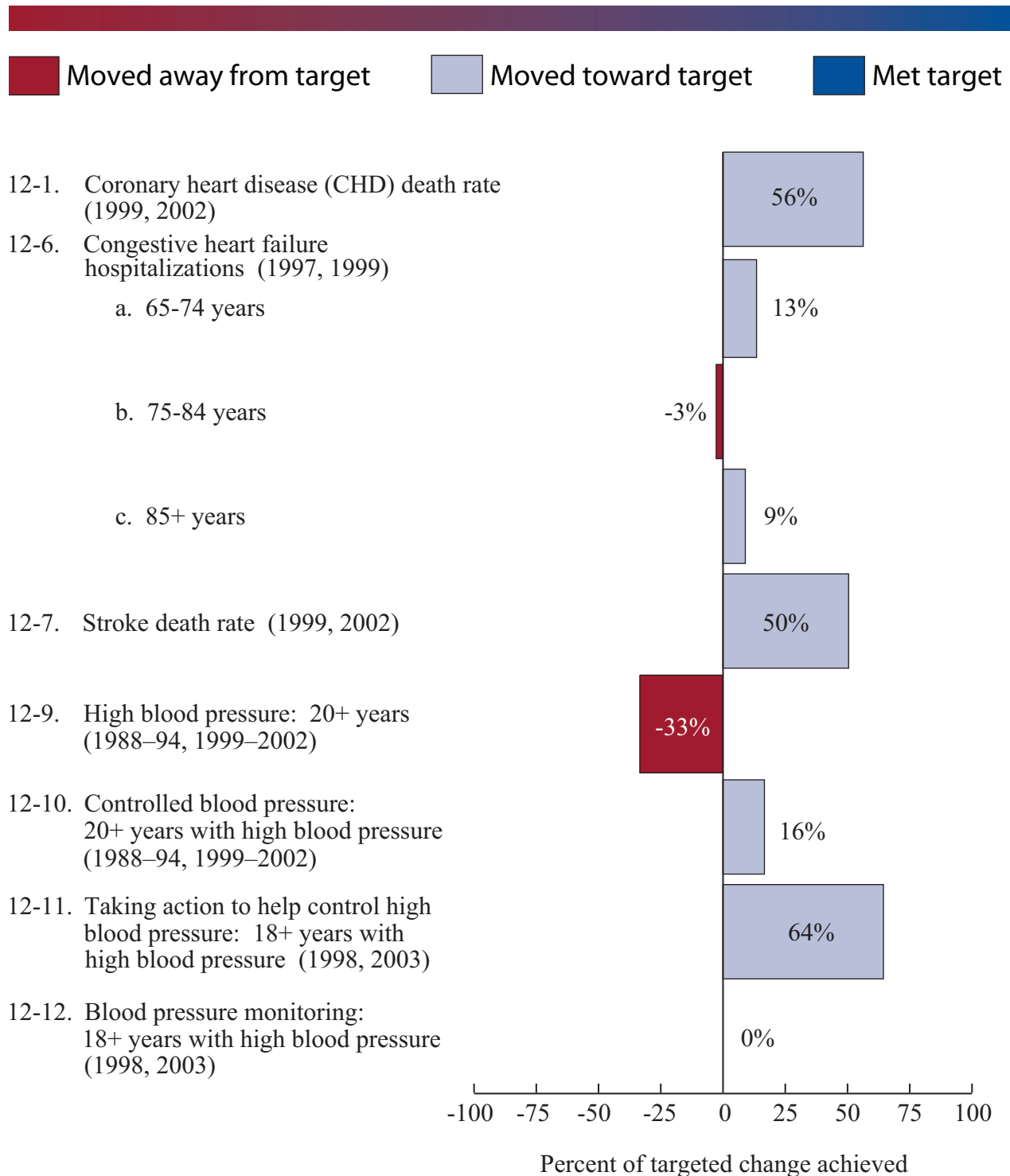
Emerging Issues

Metabolic syndrome represents a cluster of cardiovascular risk factors associated with overweight and obesity, especially abdominal obesity and insulin resistance. As obesity has increased, the prevalence of metabolic syndrome has risen, and currently about one-fourth of U.S. adults are estimated to have this syndrome.^{46, 47} The syndrome is diagnosed by the presence of three or more of the following five risk factors, as defined in the ATP III guidelines and refined in the joint American Heart Association/National Heart, Lung, and Blood Institute *Scientific Statement on Diagnosis and Management of the Metabolic Syndrome*: abdominal obesity (waist circumference equal to or more than 40 inches in men and equal to or more than 35 inches in women), a high triglyceride level equal to or more than 150 mg/dL, high-density lipoprotein (HDL) cholesterol less than 40 mg/dL in men and less than 50 mg/dL in women, BP equal to or more than 130/85 (either systolic *or* diastolic elevation), and a fasting blood glucose level equal to or more than 100 mg/dL. First-line therapy for metabolic syndrome is lifestyle therapy, including weight management and physical activity, which improves the cardiovascular risk factors. Attention to metabolic syndrome can help to increase health professional and public awareness of the need for lifestyle changes to reduce CVD risk.⁴⁸

An emerging trend of concern is the appearance among children of chronic diseases formerly characterized as adult onset. With the continued increase in overweight and obesity now affecting the pediatric population in larger proportions, chronic diseases like type 2 diabetes, high BP, and coronary artery disease have followed suit. Fortunately, programs are under way to combat this issue. Ways to Enhance Children's Activity and Nutrition (We Can!)⁴⁹ is a national public education program designed to address the dramatic increase in overweight and obesity in children. It is a collaboration among the U.S. Department of Health and Human Services' National Heart, Lung, and Blood Institute; National Institute of Diabetes and Digestive and Kidney Diseases; National Institute of Child Health and Human Development; and National Cancer Institute. We Can! provides a resource for parents and caregivers interested in practical tools to help children aged 8 to 13 years achieve and maintain a healthy weight. To date, more than 120 communities across the Nation have committed to the We Can! program.

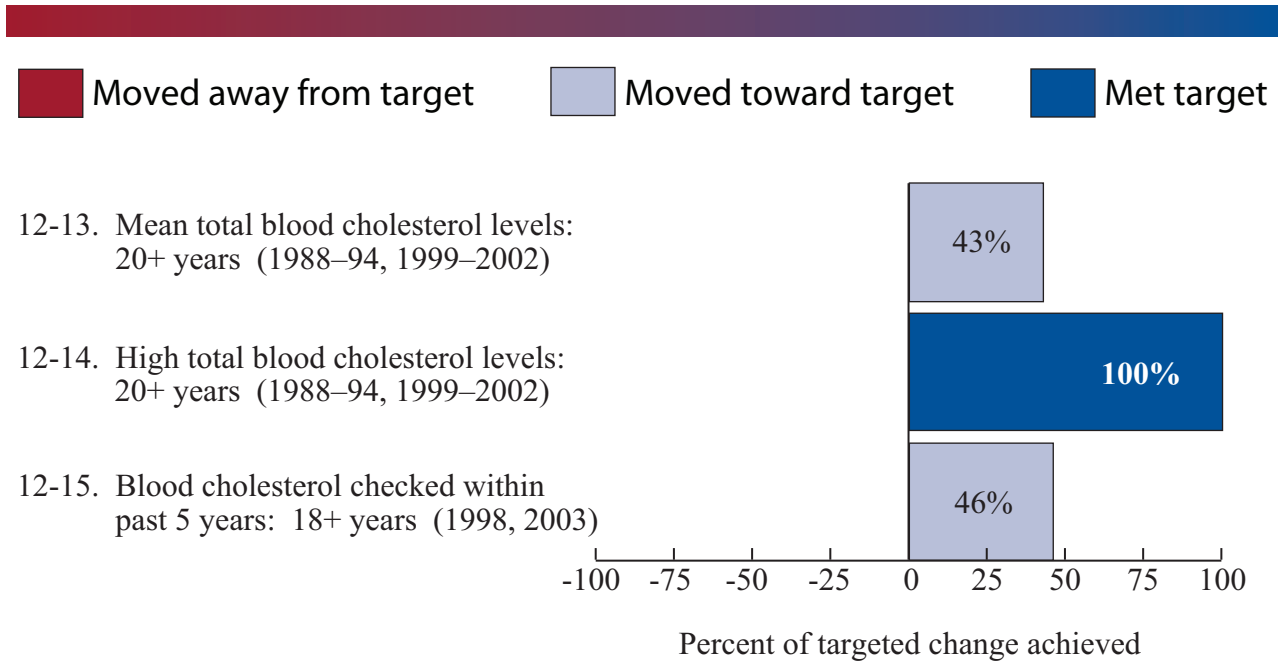
Given the strong association of high BP with obesity and the increase in childhood obesity, both prehypertension and high BP are emerging health issues among young persons.^{50, 51} The National High Blood Pressure Education Program recently released *The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents*.⁵¹ The report updates clinical recommendations for pediatric high BP, provides new BP tables for children, evaluates the evidence of early damage to organs primarily affected by high BP, and recommends the use of antihypertensive agents based on recent studies.^{52, 53} In addition, the report also describes how to identify hypertensive children, who need additional evaluation for sleep disorders that may be associated with BP elevation.

Figure 12-1. Progress Quotient Chart for Focus Area 12: Heart Disease and Stroke



See notes at end of chart. (continued)

Figure 12-1. (continued)



Notes: Tracking data for objectives 12-2, 12-3a and b, 12-4, 12-5, 12-8, and 12-16 are unavailable.

Years in parentheses represent the baseline data year and the most recent data year used to compute the percent of the Healthy People 2010 target achieved.

$$\text{Percent of targeted change achieved} = \left(\frac{\text{Most recent value} - \text{baseline value}}{\text{Year 2010 target} - \text{baseline value}} \right) \times 100$$

Figure 12-2. Disparities Table for Focus Area 12: Heart Disease and Stroke

Disparities from the best group rate for each characteristic at the most recent data point and changes in disparity from the baseline to the most recent data point.

		Characteristics																					
		Race and ethnicity						Gender		Education			Income			Location		Disability					
		American Indian or Alaska Native	Asian	Native Hawaiian or other Pacific Islander	Two or more races	Hispanic or Latino	Black non-Hispanic	White non-Hispanic	Summary index	Female	Male	Less than high school	High school graduate	At least some college	Summary index	Poor	Near poor	Middle/high income	Summary index	Urban or metropolitan	Rural or nonmetropolitan	Persons with disabilities	Persons without disabilities
Population-based objectives																							
12-1.	Coronary heart disease (CHD) death rate (1999, 2002) *		B ¹				↑		B			↑	B	↑									
12-2.	Knowledge of heart attack symptoms: 20+ years (2001) *							B	B				B									B	
12-3a.	Receipt of artery-opening therapy within 1 hour of heart attack symptoms (2000-04) †	B	1				2	2															
12-3b.	Receipt of percutaneous intervention within 90 minutes of heart attack symptoms (2000-04) †		1				2	B ²															
12-4.	Cardiopulmonary resuscitation (CPR) training (2001) *				B				B				B										B
12-6a.	Congestive heart failure hospitalizations: 65-74 years (1997, 1999) *							B ²	B														
12-6b.	Congestive heart failure hospitalizations: 75-84 years (1997, 1999) *						2	B ²	B														
12-6c.	Congestive heart failure hospitalizations: 85+ years (1997, 1999) *						2	B ²	B														
12-7.	Stroke death rate (1999, 2002) *	B	↑ ¹				↑	↑	B			↑	B	↑									
12-8.	Knowledge of stroke symptoms: 20+ years (2001) *							B	B				B										B
12-9.	High blood pressure: 20+ years (1988-94, 1999-2002) *					B ³			B						↓		B						B
12-10.	Controlled blood pressure: 20+ years with high blood pressure (1988-94, 1999-2002) *					3		B	B								B					B	
12-11.	Taking action to help control high blood pressure: 18+ years with high blood pressure (1998, 2003) * ⁴																		B				B
12-12.	Blood pressure monitoring: 18+ years with high blood pressure (1998, 2003) *						B		B		↑		B									B	
12-13.	Mean total blood cholesterol levels: 20+ years (1988-94, 1999-2002) *					3	B		B						B								B
12-14.	High blood cholesterol levels: 20+ years (1988-94, 1999-2002) *					3	B		B				B										B
12-15.	Blood cholesterol screening within past 5 years: 18+ years (1988, 2003) * ⁴		B		b				B			↑	B						B			B	

Notes: Data for objectives 12-5 and 12-16 are unavailable or not applicable.

Years in parentheses represent the baseline data year and the most recent data year (if available).

Disparity from the best group rate is defined as the percent difference between the best group rate and each of the other group rates for a characteristic (for example, race and ethnicity). The summary index is the average of these percent differences for a characteristic. Change in disparity is estimated by subtracting the disparity at baseline from the disparity at the most recent data point. Change in the summary index is estimated by subtracting the summary index at baseline from the summary index at the most recent data point. See Technical Appendix for more information.

(continued)

Figure 12-2. (continued)

The best group rate at the most recent data point.	<input type="checkbox"/> B	The group with the best rate for specified characteristic.	<input type="checkbox"/> b	Most favorable group rate for specified characteristic, but reliability criterion not met.	<input type="checkbox"/>	Best group rate reliability criterion not met.		
Percent difference from the best group rate								
Disparity from the best group rate at the most recent data point.	<input type="checkbox"/>	Less than 10 percent or not statistically significant	<input type="checkbox"/>	10-49 percent	<input type="checkbox"/>	50-99 percent	<input type="checkbox"/>	100 percent or more
	Increase in disparity (percentage points)							
Changes in disparity over time are shown when the change is greater than or equal to 10 percentage points and statistically significant, or when the change is greater than or equal to 10 percentage points and estimates of variability were not available.	↑ 10-49		↑↑ 50-99		↑ 100 or more		↑↑	
	Decrease in disparity (percentage points)							
Availability of data.	↓ 10-49		↓↓ 50-99		↓↓ 100 or more		↓	
	<input type="checkbox"/>	Data not available.	<input type="checkbox"/>	Characteristic not selected for this objective.				

* The variability of best group rates was assessed, and disparities of $\geq 10\%$ are statistically significant at the 0.05 level. Changes in disparity over time, noted with arrows, are statistically significant at the 0.05 level. See Technical Appendix.

† Measures of variability were not available. Thus, the variability of best group rates was not assessed, and the statistical significance of disparities and changes in disparity over time could not be tested. See Technical Appendix.

¹ Data are for Asians or Pacific Islanders.

² Data include persons of Hispanic origin.

³ Data are for Mexican Americans.

⁴ Baseline data by race and ethnicity are for 2003.

Objectives and Subobjectives for Focus Area 12: Heart Disease and Stroke

Goal: Improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.

As a result of the Healthy People 2010 Midcourse Review, changes were made to the Healthy People 2010 objectives and subobjectives. These changes are specific to the following situations:

- Changes in the wording of an objective to more accurately describe what is being measured.
- Changes to reflect a different data source or new science.
- Changes resulting from the establishment of a baseline and a target (that is, when a formerly developmental objective or subobjective became measurable).
- Deletion of an objective or subobjective that lacked a data source.
- Correction of errors and omissions in *Healthy People 2010*.

Revised baselines and targets for measurable objectives and subobjectives do not fall into any of the above categories and, thus, are not considered a midcourse review change.¹

When changes were made to an objective, three sections are displayed:

1. In the Original Objective section, the objective as published in *Healthy People 2010* in 2000 is shown.
2. In the Objective With Revisions section, strikethrough indicates text deleted, and underlining is used to show new text.
3. In the Revised Objective section, the objective appears as revised as a result of the midcourse review.

Details of the objectives and subobjectives in this focus area, including any changes made at the midcourse, appear on the following pages.

¹ See Technical Appendix for more information on baseline and target revisions.

Heart Disease

NO CHANGE IN OBJECTIVE (Data updated and footnoted)

12-1. Reduce coronary heart disease deaths.

Target: 162¹ deaths per 100,000 population.

Baseline: 203² coronary heart disease deaths per 100,000 population in 1999² (age adjusted to the year 2000 standard population).

Target setting method: 20 percent improvement.

Data source: National Vital Statistics System—Mortality (NVSS—M), CDC, NCHS.

¹ Target revised from 166 because of baseline revision after November 2000 publication.

² Baseline and baseline year revised from 208 and 1998 after November 2000 publication.

ORIGINAL OBJECTIVE

12-2. (Developmental) Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911.

Potential data source: National Health Interview Survey (NHIS), CDC, NCHS.

OBJECTIVE WITH REVISIONS

12-2. ~~(Developmental)~~ Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911.

Target: 50 percent.

Baseline: 46 percent of adults aged 20 years and older were aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911 in 2001.

Target setting method: Better than the best.

Potential dData source: National Health Interview Survey (NHIS), CDC, NCHS.

REVISED OBJECTIVE

12-2. Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911.

Target: 50 percent.

REVISED OBJECTIVE *(continued)*

Baseline: 46 percent of adults aged 20 years and older were aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911 in 2001.

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

ORIGINAL OBJECTIVE

12-3. (Developmental) Increase the proportion of eligible patients with heart attacks who receive artery-opening therapy within an hour of symptom onset.

Potential data source: National Registry of Myocardial Infarction, National Acute Myocardial Infarction Project, HCFA.

OBJECTIVE WITH REVISIONS

12-3. (Developmental) Increase the proportion of eligible patients with heart attacks who receive timely artery-opening therapy within an hour of from symptom onset.

Target and baseline:

Objective	Increase in the Proportion of Eligible Patients With Heart Attacks Who Receive Timely Artery-Opening Therapy From Symptom Onset	2000-04 Baseline	2010 Target
		<i>Percent</i>	
12-3a.	<u>Fibrinolytics within an hour of symptom onset</u>	<u>4</u>	<u>6</u>
12-3b.	<u>Percutaneous intervention (PCI) within 90 minutes of symptom onset</u>	<u>0.64</u>	<u>0.67</u>

Target setting method: Better than the best.

Potential data source: National Registry of Myocardial Infarction (NRMI-4), National Acute Myocardial Infarction Project, HCFA Centers for Medicare & Medicaid Services (CMS).

REVISED OBJECTIVE

12-3. Increase the proportion of eligible patients with heart attacks who receive timely artery-opening therapy from symptom onset.

REVISED OBJECTIVE *(continued)*

Target and baseline:

Objective	Increase in the Proportion of Eligible Patients With Heart Attacks Who Receive Timely Artery-Opening Therapy From Symptom Onset	2000-04 Baseline	2010 Target
		<i>Percent</i>	
12-3a.	Fibrinolytics within an hour of symptom onset	4	6
12-3b.	Percutaneous intervention (PCI) within 90 minutes of symptom onset	0.64	0.67

Target setting method: Better than the best.

Data source: National Registry of Myocardial Infarction (NRMI-4), National Acute Myocardial Infarction Project, Centers for Medicare & Medicaid Services (CMS).

ORIGINAL OBJECTIVE

12-4. (Developmental) Increase the proportion of adults aged 20 years and older who call 911 and administer cardiopulmonary resuscitation (CPR) when they witness an out-of-hospital cardiac arrest.

Potential data source: National Health Interview Survey (NHIS), CDC, NCHS.

OBJECTIVE WITH REVISIONS

12-4. ~~(Developmental)~~ Increase the proportion of adults aged 20 years and older who call 911 and administer persons trained in cardiopulmonary resuscitation (CPR) when they witness an out-of-hospital cardiac arrest in the past year.

Target: 12 percent.

Baseline: 8 percent of persons aged 20 years and older were trained in cardiopulmonary resuscitation (CPR) in the past year in 2001.

Target setting method: Better than the best.

Potential dData source: National Health Interview Survey (NHIS), CDC, NCHS.

REVISED OBJECTIVE

12-4. Increase the proportion of persons trained in cardiopulmonary resuscitation (CPR) in the past year.

Target: 12 percent.

REVISED OBJECTIVE *(continued)*

Baseline: 8 percent of persons aged 20 years and older were trained in cardiopulmonary resuscitation (CPR) in the past year in 2001.

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

ORIGINAL OBJECTIVE

12-5. (Developmental) Increase the proportion of eligible persons with witnessed out-of-hospital cardiac arrest who receive their first therapeutic electrical shock within 6 minutes after collapse recognition.

Potential data source: Medical Expenditure Panel Survey (MEPS), AHRQ.

OBJECTIVE WITH REVISIONS

12-5. (Developmental) Increase the proportion of eligible persons with witnessed out-of-hospital cardiac arrest who receive their first therapeutic electrical shock within 6 minutes after collapse recognition.

Potential data source: ~~Medical Expenditure Panel Survey (MEPS), AHRQ~~ National EMS Information System (NEMIS), National Association of State EMS Directors (NASEMSD), in coordination with U.S. Department of Transportation, NHTSA, and HRSA, Trauma/EMS Systems.

REVISED OBJECTIVE

12-5. (Developmental) Increase the proportion of eligible persons with witnessed out-of-hospital cardiac arrest who receive their first therapeutic electrical shock within 6 minutes after collapse recognition.

Potential data source: National EMS Information System (NEMIS), National Association of State EMS Directors (NASEMSD), in coordination with U.S. Department of Transportation, NHTSA, and HRSA, Trauma/EMS Systems.

NO CHANGE IN OBJECTIVE

12-6. Reduce hospitalizations of older adults with congestive heart failure as the principal diagnosis.

Target and baseline:

Objective	Reduction in Hospitalizations of Older Adults With Congestive Heart Failure as the Principal Diagnosis	1997 Baseline	2010 Target
		<i>Per 1,000 Population</i>	
12-6a.	Adults aged 65 to 74 years	13.2	6.5

NO CHANGE IN OBJECTIVE *(continued)*

12-6b.	Adults aged 75 to 84 years	26.7	13.5
12-6c.	Adults aged 85 years and older	52.7	26.5

Target setting method: Better than the best.

Data source: National Hospital Discharge Survey (NHDS), CDC, NCHS.

Stroke

NO CHANGE IN OBJECTIVE (Data updated and footnoted)

12-7. Reduce stroke deaths.

Target: 50¹ deaths per 100,000 population.

Baseline: 62² deaths from stroke per 100,000 population occurred in 1999² (age adjusted to the year 2000 standard population).

Target setting method: 20 percent improvement.

Data source: National Vital Statistics System—Mortality (NVSS—M), CDC, NCHS.

¹ Target revised from 48 because of baseline revision after November 2000 publication.

² Baseline and baseline year revised from 60 and 1998 after November 2000 publication.

ORIGINAL OBJECTIVE

12-8. (Developmental) Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke.

Potential data source: National Health Interview Survey (NHIS), CDC, NCHS.

OBJECTIVE WITH REVISIONS

12-8. (Developmental) Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke and the importance of accessing rapid emergency care by calling 911.

Target: 83 percent.

Baseline: 78 percent of adults aged 20 years and older were aware of the early warning symptoms and signs of a stroke in 2001. (Current baseline data do not include the importance of accessing 911; the baseline will be updated with data regarding the importance of 911 when the data have been analyzed.)

OBJECTIVE WITH REVISIONS *(continued)*

Target setting method: Better than the best.

Potential Data source: National Health Interview Survey (NHIS), CDC, NCHS.

REVISED OBJECTIVE

12-8. Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke and the importance of accessing rapid emergency care by calling 911.

Target: 83 percent.

Baseline: 78 percent of adults aged 20 years and older were aware of the early warning symptoms and signs of a stroke in 2001. (Current baseline data do not include the importance of accessing 911; the baseline will be updated with data regarding the importance of 911 when the data have been analyzed.)

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

Blood Pressure

NO CHANGE IN OBJECTIVE (Data updated and footnoted)

12-9. Reduce the proportion of adults with high blood pressure.

Target: 14¹ percent.

Baseline: 26² percent of adults aged 20 years and older had high blood pressure in 1988–94 (age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

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

¹ Target revised from 16 percent because of baseline revision after November 2000 publication.

² Baseline revised from 28 percent after November 2000 publication.

**NO CHANGE IN OBJECTIVE
(Data updated and footnoted)**

12-10. Increase the proportion of adults with high blood pressure whose blood pressure is under control.

Target: 68¹ percent.

Baseline: 25² percent of adults aged 18 years and older with high blood pressure had it under control in 1988–94 (age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

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

¹ Target revised from 50 percent because of baseline revision after November 2000 publication.

² Baseline revised from 18 percent after November 2000 publication.

**NO CHANGE IN OBJECTIVE
(Data updated and footnoted)**

12-11. Increase the proportion of adults with high blood pressure who are taking action (for example, losing weight, increasing physical activity, or reducing sodium intake) to help control their blood pressure.

Target: 98¹ percent.

Baseline: 84² percent of adults aged 18 years and older with high blood pressure were taking action to control it in 1998 (age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

¹ Target revised from 95 because of baseline revision after November 2000 publication.

² Baseline revised from 82 after November 2000 publication.

NO CHANGE IN OBJECTIVE

12-12. Increase the proportion of adults who have had their blood pressure measured within the preceding 2 years and can state whether their blood pressure was normal or high.

Target: 95 percent.

Baseline: 90 percent of adults aged 18 years and older had their blood pressure measured in the past 2 years and could state whether it was normal or high in 1998 (age adjusted to the year 2000 standard population).

NO CHANGE IN OBJECTIVE *(continued)*

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

Cholesterol

NO CHANGE IN OBJECTIVE

12-13. Reduce the mean total blood cholesterol levels among adults.

Target: 199 mg/dL (mean).

Baseline: 206 mg/dL was the mean total blood cholesterol level for adults aged 20 years and older in 1988–94 (age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

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

NO CHANGE IN OBJECTIVE

12-14. Reduce the proportion of adults with high total blood cholesterol levels.

Target: 17 percent.

Baseline: 21 percent of adults aged 20 years and older had total blood cholesterol levels of 240 mg/dL or greater in 1988–94 (age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

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

NO CHANGE IN OBJECTIVE

12-15. Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years.

Target: 80 percent.

Baseline: 67 percent of adults aged 18 years and older had their blood cholesterol checked within the preceding 5 years in 1998 (age adjusted to the year 2000 standard population).

NO CHANGE IN OBJECTIVE *(continued)*

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

ORIGINAL OBJECTIVE

12-16. (Developmental) Increase the proportion of persons with coronary heart disease who have their LDL-cholesterol level treated to a goal of less than or equal to 100 mg/dL.

Potential data source: National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

OBJECTIVE WITH REVISIONS

12-16. (Developmental) Increase the proportion of persons with coronary heart disease who have their LDL-cholesterol level treated to a goal of less than ~~or equal to~~ 100 mg/dL.

Potential data source: National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

REVISED OBJECTIVE

12-16. (Developmental) Increase the proportion of persons with coronary heart disease who have their LDL-cholesterol level treated to a goal of less than 100 mg/dL.

Potential data source: National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

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Related Objectives From Other Focus Areas

1. Access to Quality Health Services

- 1-3. Counseling about health behaviors
- 1-7. Core competencies in health profession training
- 1-10. Delay or difficulty in getting emergency care
- 1-11. Rapid prehospital emergency care

4. Chronic Kidney Disease

- 4-2. Cardiovascular disease deaths in persons with chronic kidney failure

7. Educational and Community-Based Programs

- 7-2. School health education
- 7-5. Worksite health promotion programs
- 7-8. Satisfaction with patient education
- 7-10. Community health promotion programs
- 7-11. Culturally appropriate and linguistically competent community health promotion programs
- 7-12. Older adult participation in community health promotion activities

11. Health Communication

- 11-1. Households with Internet access
- 11-2. Health literacy
- 11-4. Quality of Internet health information sources
- 11-6. Satisfaction with health care providers' communication skills

19. Nutrition and Overweight

- 19-1. Healthy weight in adults
- 19-2. Obesity in adults
- 19-3. Overweight or obesity in children and adolescents
- 19-5. Fruit intake
- 19-6. Vegetable intake
- 19-8. Saturated fat intake
- 19-9. Total fat intake
- 19-11. Calcium intake
- 19-16. Worksite promotion of nutrition education and weight management

22. Physical Activity and Fitness

- 22-1. No leisure-time physical activity
- 22-2. Moderate physical activity
- 22-3. Vigorous physical activity
- 22-6. Moderate physical activity in adolescents
- 22-7. Vigorous physical activity in adolescents
- 22-11. Television viewing
- 22-13. Worksite physical activity and fitness
- 22-14. Community walking
- 22-15. Community bicycling

23. Public Health Infrastructure

- 23-3. Use of geocoding in health data systems
- 23-10. Continuing education for public health personnel

27. Tobacco Use

- 27-1. Adult tobacco use
- 27-2. Adolescent tobacco use
- 27-3. Initiation of tobacco use
- 27-4. Age at first use of tobacco
- 27-5. Smoking cessation by adults
- 27-10. Exposure to environmental tobacco smoke
- 27-16. Tobacco advertising and promotion targeting adolescents and young adults
- 27-17. Adolescent disapproval of smoking