

**Midcourse  
Review**



# Respiratory Diseases **24**

**Co-Lead Agencies:**

Centers for Disease Control and Prevention  
National Institutes of Health

**Contents**

Goal . . . . .	24-3
Introduction . . . . .	24-3
Modifications to Objectives and Subobjectives . . . . .	24-3
Progress Toward Healthy People 2010 Targets . . . . .	24-4
Progress Toward Elimination of Health Disparities . . . . .	24-6
Opportunities and Challenges . . . . .	24-8
Emerging Issues . . . . .	24-8
Progress Quotient Chart . . . . .	24-10
Disparities Table . . . . .	24-12
Objectives and Subobjectives . . . . .	24-14
References . . . . .	24-24
Related Objectives From Other Focus Areas . . . . .	24-26



# **Goal: Promote respiratory health through better prevention, detection, treatment, and education efforts.**

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## **Introduction\***

Respiratory diseases and conditions—including asthma, chronic obstructive pulmonary disease (COPD), obstructive sleep apnea, and drowsy driving—constitute significant public health burdens in the United States. Chronic lower respiratory disease, which includes asthma and COPD, is 1 of the 10 leading causes of death. Between 1982 and 1996, asthma was one of the four most common causes of chronic illness in children.<sup>1</sup>

One of the two overarching goals of Healthy People 2010 is to increase quality and years of healthy life. The asthma death rate of persons aged 65 years and older declined from 69.5 deaths per million to 58.1 per million between 1999 and 2002. The rate for COPD deaths of persons aged 45 years and older also declined during this same time period.

The proportion of persons who ever had asthma and who reported activity limitations decreased. The proportion of persons aged 18 years and older who ever had asthma and who also reported formal asthma education increased. An increase also occurred in the proportion of persons who reported receiving assistance in reducing environmental triggers.

The second goal of Healthy People 2010 is to eliminate health disparities. Inequalities in respiratory health continued to persist across racial and ethnic populations and across education and income levels. However, some progress in reducing disparities was made.

## **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.

Four objectives became measurable: school or work days lost due to asthma (24-5), appropriate asthma care (24-7a through f), asthma surveillance systems (24-8), and vehicular crash deaths related to excessive sleepiness (24-12). Asthma surveillance systems (24-8) was revised from “establish in at least 25 States a surveillance system for tracking asthma death, illness, disability, impact of occupational and environmental factors on asthma, access to medical care, and asthma management” to “increase the number of States with an asthma surveillance system for tracking asthma cases, illness, and disability.” Furthermore, asthma surveillance systems (24-8) was revised to reflect the data source used and to provide a more accurate definition for a comprehensive State asthma surveillance system.

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\* 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.

Two subobjectives for obstructive sleep apnea medical evaluation and followup (24-11a and b, respectively) remained developmental. Data to assess both subobjectives are anticipated by the end of the decade.

## 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 chart (see Figure 24-1), which displays the percent of targeted change achieved for objectives and subobjectives with sufficient data to assess progress.

**Objectives that met or exceeded their targets.** No objectives in this focus area met or exceeded their targets at the midcourse review.

**Objectives that moved toward their targets.** Three objectives and two subobjectives demonstrated statistically significant changes from their baseline values in the direction of their targets. Deaths from asthma among adults aged 65 years and older (24-1e) declined from 69.5 per million population in 1999 to 58.1 per million population in 2002, achieving 51 percent of the targeted change. All death rates (that is, asthma and COPD) in this focus area are age adjusted. However, for ease of presentation, the phrase “death rate” will be used instead of “age adjusted death rate.” The proportion of persons who ever had asthma and who also reported activity limitations from asthma (24-4) decreased from 10 percent in 1997 to 8 percent in 2003, achieving 50 percent of the targeted change. The proportion of persons aged 18 years and older who ever had asthma and who also reported ever receiving formal education (24-6) increased significantly from 8.4 percent in 1998 to 12.4 percent in 2003, achieving 19 percent of the targeted change. The proportion of persons who ever had asthma and who also reported receiving assistance in reducing exposure to environmental risk factors (24-7f) increased from 42 percent in 2002 to 49 percent in 2003, moving toward the target of 50 percent and achieving 88 percent of the targeted change. COPD deaths in adults aged 45 years and older (24-10) decreased from 123.9 per 100,000 population in 1999 to 118.9 per 100,000 population in 2002, achieving 8 percent of the targeted change.

Two objectives and six subobjectives moved toward their targets, but the levels of change were not statistically significant. Deaths from asthma among children aged 5 to 14 years (24-1b), adolescents and adults aged 15 to 34 years (24-1c), and adults aged 35 to 64 years (24-1d) declined but did not demonstrate statistically significant differences from the baseline values. Statistically insignificant declines were also seen for hospitalizations for asthma among children and adults aged 5 to 64 years (24-2b), hospital emergency department visits for asthma among children and adults aged 5 to 64 years (24-3b), and the average number of school or work days lost among persons aged 5 to 64 years who ever had asthma and who also reported an asthma attack in the past year (24-5). The proportion of persons who ever had asthma and who reported receiving a written asthma management plan from a health care provider (24-7a) also moved toward the target, but the increase was not statistically significant. Vehicular crash deaths related to excessive sleepiness (24-12) moved toward the target of 1.70 percent of fatal victims of motor vehicle crashes caused by persons with excessive sleepiness; however, the progress was not statistically significant.

The U.S. Department of Health and Human Services (HHS) supports programs to control asthma by improving the quality of life and daily functioning among persons with asthma, prevent severe exacerbations among persons with asthma, and discover ways to prevent the onset or progression of the disease. One program is the National Asthma Education and Prevention Program (NAEPP), which provides the latest clinical practice guidelines for both acute and chronic management of asthma.<sup>2</sup> These guidelines are used to address disparities in asthma care, including care received in emergency departments. Another program was the Asthma Surveillance and Emergency Department-Based Interventions Project, which linked asthma data to the implementation of emergency department-based strategies to improve asthma care, including offering asthma education, facilitating referrals, and providing inhaled corticosteroids.<sup>3,4</sup>

Research efforts to understand asthma triggers help to inform strategies and develop interventions. The results of a clinical trial reported that home-based interventions to reduce exposure to common allergens, such as cockroaches, house dust mites, and tobacco smoke, resulted in 20 percent fewer days with asthma symptoms and 14 percent fewer unscheduled clinic visits throughout the intervention year.<sup>5</sup> A related study reported that the estimated cost-effectiveness of an environmental intervention is similar to that of inhaled corticosteroids.<sup>6</sup>

Initiatives specifically targeting asthma in children have also been developed. The Centers for Children's Environmental Health and Disease Prevention, implemented by the National Institutes of Health (NIH) within HHS, examines the effect of environmental exposures on children's health.<sup>7</sup> Through a multidisciplinary research approach comprising basic, applied, and community-based participatory research, the centers translate and communicate their findings to clinical and public health professionals and policymakers to alleviate the burden of environmentally induced diseases in children. Another initiative is the Inner-City Asthma Consortium (ICAC), which evaluates the safety and efficacy of promising immune-based therapies to reduce asthma severity and prevent disease onset in inner-city children. ICAC investigates the mechanisms of action of the immune-based therapies; develops and validates biomarkers of disease stage, progression, and therapeutic effect; and investigates how asthma develops in relation to the immune system of inner-city children.<sup>8</sup>

In addition, the Childhood Asthma Research and Education (CARE) Network is a research network dedicated to addressing areas of clinical concern in childhood asthma, filling gaps in science identified by national guidelines, and rapidly translating findings into clinical practice. It has established that giving young children at high risk for developing persistent asthma daily inhaled corticosteroids provides significant benefit in increasing episode-free days and decreasing severe exacerbations, but does not alter the underlying course of the disease.<sup>9</sup> The finding demonstrates to clinicians the effectiveness and general safety of treating young children long term to control the disease and underscores the need to develop other, novel therapies that might prevent its progression. Another study by the CARE Network has advanced the development of tools to help physicians efficiently select the most appropriate medication for children by identifying characteristics of a patient's asthma that can predict the patient's response to therapy.<sup>10</sup> Through these and other studies, the CARE Network and the Asthma Clinical Research Network are advancing the emerging field of "pharmaco-genetics" through the examination of genetic and phenotypic information to personalize treatment choices.

**Objectives that demonstrated no change.** The proportion of adults aged 45 years and older who ever had asthma and who experience activity limitations due to chronic lung and breathing problems (24-9) was 2.5 percent in both 1997 and 2003.

**Objectives that moved away from their targets.** While five subobjectives moved away from their targets, none of the changes were statistically significant. The subobjectives are deaths from asthma among children under age 5 years (24-1a), hospitalizations for asthma in children under age 5 years (24-2a), hospitalizations for asthma among adults aged 65 years and older (24-2c), hospital emergency department visits for asthma among children under age 5 years (24-3a), and hospital emergency department visits for asthma among adults aged 65 years and older (24-3c).

**Objectives that could not be assessed.** Seven objectives and subobjectives lacked data to assess progress: receiving proper instructions for inhaler use for persons with asthma (24-7b); education on early signs, symptoms, and responses to episodes (24-7c); receiving medication regimens that prevent the need for more than one canister of rescue medication per month (24-7d); followup care after any hospitalization due to asthma (24-7e); surveillance systems for asthma (24-8); and medical evaluation (24-11a) and followup (24-11b) for sleep apnea. Data for these objectives and subobjectives are anticipated by the end of the decade.

## **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 24-2), which displays information about disparities among select populations for which data were available for assessment.

In a comparison of respiratory disease disparities among racial and ethnic populations, the white non-Hispanic population had the best group rates for asthma deaths of persons aged 15 to 34 years (24-1c), asthma deaths among persons aged 35 to 64 years (24-1d), asthma deaths among persons aged 65 years and older (24-1e), activity limitations among persons with asthma (24-4), patient education among persons with asthma (24-6), appropriate medication regimens for asthma care (24-7d), assistance in reducing environmental risk factors for asthma (24-7f), and activity limitations due to chronic lung disease (24-9). The black non-Hispanic population was most likely to report receiving education about the early signs of asthma (24-7c). The white population had the better rates for hospitalization for asthma among persons aged 5 to 64 years (24-2b) and hospital emergency department visits for asthma among persons aged 5 to 64 years (24-3b). Persons of two or more races were more likely to report having an asthma management plan (24-7a). The Asian or Pacific Islander population had the lowest death rate for COPD (24-10). The black population experienced the lowest rate for vehicular crash deaths related to excessive sleepiness (24-12).

In a comparison of respiratory disease disparities among females and males, females aged 15 to 34 years had a lower asthma mortality rate (24-1c) than males in that age range. They were also more likely to report receiving asthma education (24-6), having written asthma management plans (24-7a), being instructed in the identification of early signs of an asthma attack (24-7c), making appropriate limited use of rescue medication (24-7d), and receiving assistance in reducing environmental risks (24-7f). Females had a better COPD death rate (24-10) than males. Conversely, males aged 35 to 64 years and aged 65 years and older had better asthma death rates (24-1d and e, respectively) than females in those age groups. Males aged 5 to 64 years also had a better asthma hospitalization rate (24-2b) and a better emergency department visit rate (24-3b). Males had a higher rate than females for vehicular crash deaths related to excessive sleepiness (24-12).

Data needed to evaluate the respiratory disease objectives by education level were available only for a limited number of populations. For persons aged 35 to 64 years, those with at least some college had the lowest rate of asthma deaths (24-1d). For persons aged 45 years and older, those with at least some college had the lowest rate of COPD deaths (24-10). For both these objectives, persons with less than a high school education and high school graduates had rates several times the rates for persons with at least some college.

Income level disparities were evident for several asthma objectives. The middle/high-income population was most likely to report having written asthma management plans (24-7a), receiving education in the early signs of an asthma attack (24-7c), appropriate use of rescue medication (24-7d), and assistance in reducing environmental risks (24-7f). The middle/high-income population also had less activity limitation due to chronic lung disease (24-9). Among persons aged 45 years and older, more than twice as many poor and near-poor persons reported activity limitations from chronic lung and breathing problems than did those of middle/high income.

The relative size of the disparity between populations has also changed over time. For example, in 1999, the black non-Hispanic population aged 15 to 34 years had an asthma death rate 4.7 times the rate of the white non-Hispanic population aged 15 to 34 years. By 2002, the asthma death rate for the black non-Hispanic population aged 15 to 34 years was only 3.6 times the rate for the white non-Hispanic population aged 15 to 34 years. Similarly, in 1999, women aged 35 to 64 years had an asthma death rate 1.7 times the rate for men aged 35 to 64 years. By 2002, the asthma death rate for women was 1.5 times that of men. Declines in asthma deaths among persons 65 years and older (24-1e) from 1999 to 2002 were greater among the Asian or Pacific Islander, black non-Hispanic, and Hispanic populations, compared with the white non-Hispanic population, and contributed to significant progress toward eliminating disparities among all racial and ethnic populations.

Progress toward a target for one or more populations does not always cause a decrease in disparity. Despite declines in COPD deaths (24-10) among all racial and ethnic populations except the American Indian or Alaska Native population, there was no change in the observed disparities from 1999 to 2002. A decline in COPD deaths (24-10) among males did reduce the disparity between males and females. Between 1998 and 2003, increases in the proportion of persons aged 18 years and older who received asthma patient education (24-6) occurred in the white non-Hispanic population, in the middle/high-income population, and in both males and females. However, none of these increases affected the observed disparities among the populations. The proportion of females and males who reported receiving assistance in reducing exposure to asthma environmental risk factors (24-7f) increased between 2002 and 2003. However, the disparity between females and males increased because the increase for females was much greater than for males.

In 2002, the black population group aged 5 to 64 years had an asthma hospitalization rate (24-2b) and emergency department visit rate (24-3b) almost three times or greater than the rate for the white population aged 5 to 64 years. No changes in disparities between racial groups were noted for either hospitalizations or emergency department visits since the baseline years. Females aged 5 to 64 years had higher asthma hospitalizations and higher asthma deaths among persons aged 65 years and older (24-1e) than males.

Research initiatives are under way to better understand the causes of persistent asthma disparities among different populations. For example, NIH supports the Centers for Reducing Asthma Disparities to accelerate research aimed at understanding why select racial, ethnic, and socioeconomic populations are more severely affected than others.<sup>11</sup> The centers are examining ways to overcome barriers to quality asthma care that confront minorities and persons living in poverty. For example, pilot studies in the centers are developing tools to promote better communication between patients and their clinicians about their asthma; improving asthma care for inner-city pregnant women with asthma; and promoting the use of best clinical practices among clinicians serving minorities and improving adherence among their asthma patients.

## Opportunities and Challenges

The National Asthma Education and Prevention Program (NAEPP), coordinated by NIH, provides technical assistance and a vital network for exchanging information and advice on implementing asthma treatment guidelines at the community level.<sup>12</sup> Composed of members from local public health departments, local hospitals and medical centers, schools, community recreation centers, concerned parent groups, lung associations, and the media, NAEPP works with coalitions interested in developing public education objectives and implementing a strategic plan to increase public awareness and patient and family asthma management skills. These efforts increase the dissemination of science-based asthma education messages to high-risk communities throughout the country.

The development of comprehensive statewide asthma control plans in nine State health departments<sup>13</sup> and Puerto Rico and the continuing implementation of plans in an additional 24 States and the District of Columbia should contribute to progress toward the asthma targets.<sup>14</sup> Seven cities<sup>15</sup> use innovative and collaborative approaches to improve overall asthma management and to decrease severe asthma illness among urban children up to age 18 years. Some approaches include physician training on appropriate diagnosis and treatment of asthma, community classes in self-care and management for parents of children with asthma, and in-home assessments for environmental asthma triggers in the homes of children with multiple emergency department visits for asthma.

## Emerging Issues

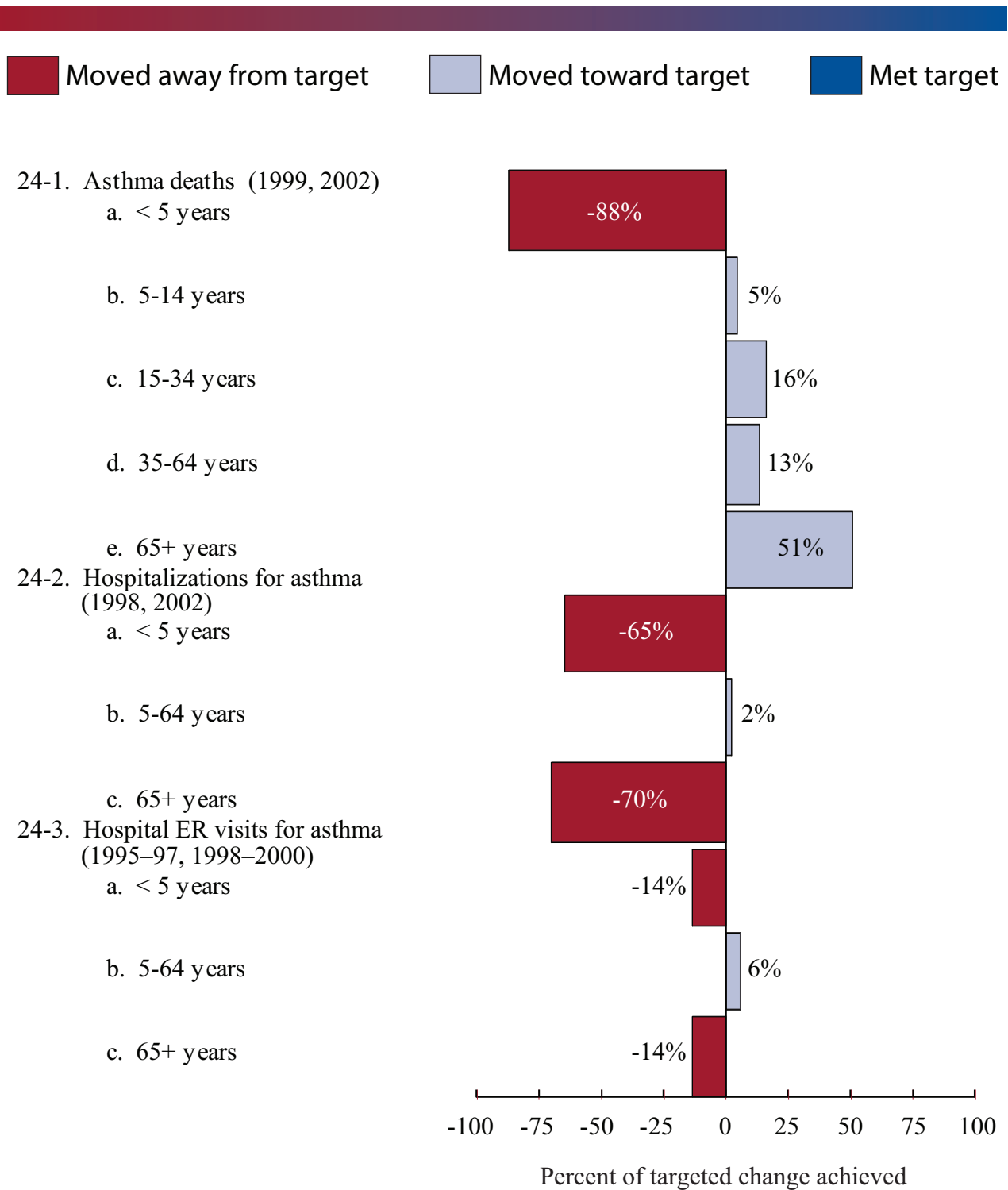
New research has begun to focus on the genetics of asthma. The Environmental Genome Project examines genetic susceptibility to asthma.<sup>16</sup> It attempts to identify environmental disease susceptibility genes in the U.S. population, create a central database for these genes, and foster population-based studies of gene-environment interaction in the development of disease. By identifying the genes that affect individual response to environmental agents, scientists can better predict health risks and assist regulatory agencies in the development of environmental protection policies.

Sleep deprivation is another emerging issue related to respiration. More than 39 percent of adolescents and adults report 7 or fewer hours of sleep per night on a consistent basis.<sup>17, 18</sup> Resulting excessive sleepiness has been shown to contribute to performance impairment, including, but not limited to, traffic crashes and fatalities associated with fatigue.



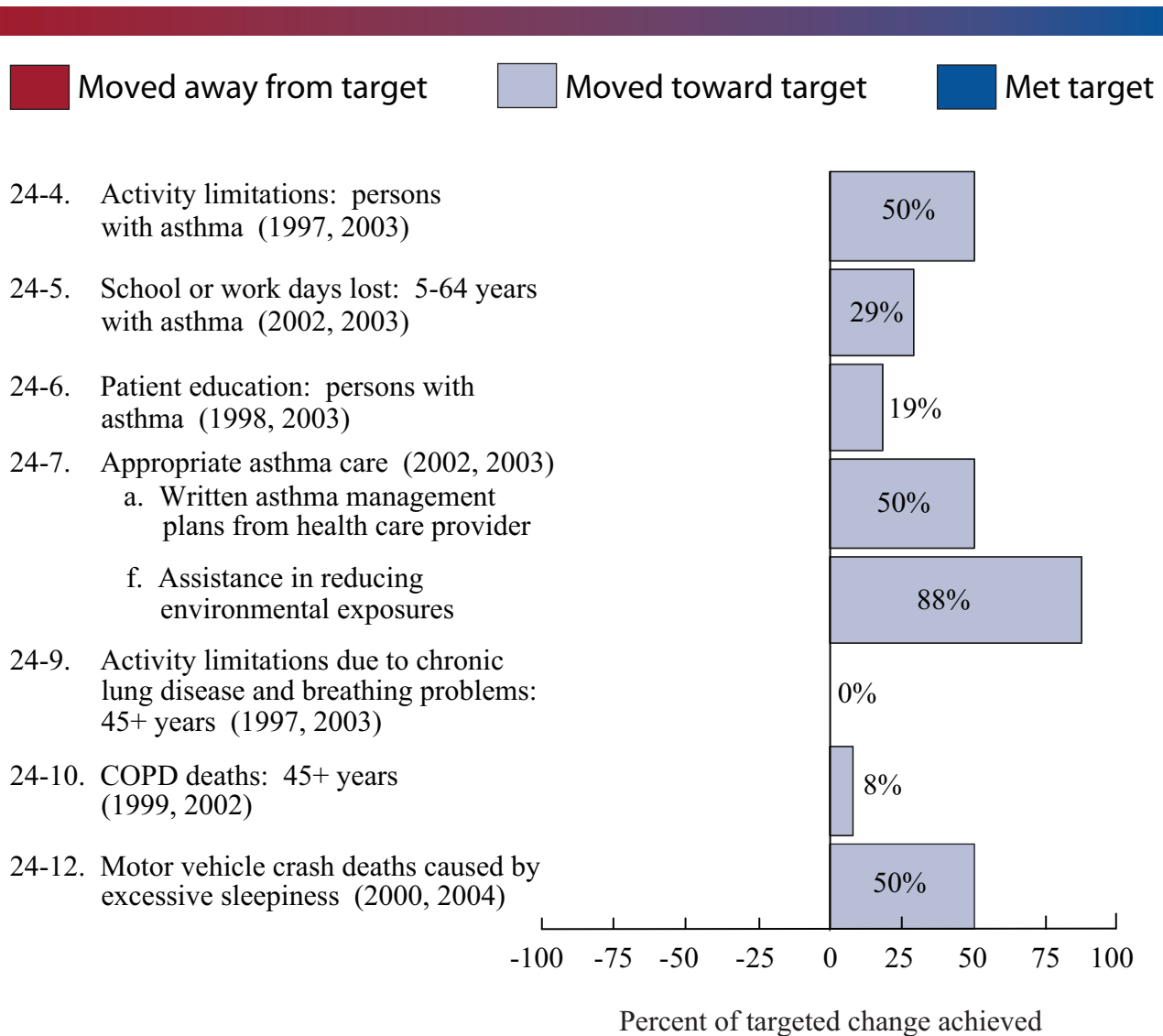
Obstructive sleep apnea, which impairs quality of sleep, affects 5 percent to 10 percent of adolescents and adults and is related to age, body mass index, and other risk factors. Over 50 percent of persons in need of treatment currently are not being diagnosed.<sup>19, 20</sup> Untreated obstructive sleep apnea contributes to major public health burdens, including drowsy driving as well as increased risks for high blood pressure; cardiovascular disease; metabolic syndrome; and impaired learning, memory, mood, and behavior.<sup>21, 22</sup> Emerging science that addresses an association between obstructive sleep apnea and multiple chronic health conditions should be considered as disease prevention and health promotion initiatives develop.

**Figure 24-1. Progress Quotient Chart for Focus Area 24: Respiratory Diseases**



See notes at end of chart. (continued)

**Figure 24-1.** (continued)



**Notes:** Tracking data for objectives 24-7b through e, 24-8, and 24-11a and b 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 24-2. Disparities Table for Focus Area 24: Respiratory Diseases**

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.

Population-based objectives	Characteristics																	
	Race and ethnicity							Gender		Education			Income					
	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
24-1a. Asthma deaths: < 5 years (1999, 2002) *																		
24-1b. Asthma deaths: 5-14 years (1999, 2002) *																		
24-1c. Asthma deaths: 15-34 years (1999, 2002) *					b	↓ ↓	B	B										
24-1d. Asthma deaths: 35-64 years (1999, 2002) *		b <sup>1</sup>				↓ ↓	B	↓	B			B						
24-1e. Asthma deaths: 65+ years (1999, 2002) *		1					B	↓	B									
24-2a. Hospitalizations for asthma: < 5 years (1998, 2002) *																		
24-2b. Hospitalizations for asthma: 5-64 years (1998, 2002) *						2	B <sup>2</sup>		B									
24-2c. Hospitalizations for asthma: 65+ years (1998, 2002) *																		
24-3a. Hospital ER visits for asthma: < 5 years (1995-97, 1998-2000) *																		
24-3b. Hospital ER visits for asthma: 5-64 years (1995-97, 1998-2000) *						2	B <sup>2</sup>		B									
24-3c. Hospital ER visits for asthma: 65+ years (1995-97, 1998-2000) *							2											
24-4. Activity limitations: persons with asthma (1997, 2003) * <sup>3</sup>							B											
24-5. School or work days lost: persons with asthma (2002, 2003) *																		
24-6. Patient education: persons with asthma (1998, 2003) *							B	B							B			
24-7a. Asthma care: written asthma plans (2002, 2003) *				B				B								B		
24-7b. Asthma care: use instructions with inhalers (2003) *																		
24-7c. Asthma care: education in early signs of asthma (2003) *							B	B								B		
24-7d. Asthma care: appropriate medication regimens (2003) *				b			B	B								B		
24-7e. Asthma care: long-term management care (2003) *																		
24-7f. Asthma care: assistance in reducing environmental risks (2002, 2003) *				b			B	B	↑							B		
24-9. Activity limitations due to chronic lung disease: 45+ years (1997, 2003) * <sup>3</sup>					b		B	B	B							B		

(continued)

**Figure 24-2. (continued)**

Population-based objectives	Characteristics																	
	Race and ethnicity							Gender		Education			Income					
	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
24-10. COPD deaths: 45+ years (1999, 2002) *		B <sup>1</sup>				↑	↑	↑	B	↓	↑	↑	B <sup>†</sup>	↑				
24-12. Motor vehicle crash deaths caused by excessive sleepiness (2000, 2004) <sup>†</sup>					↓	B <sup>2</sup>	↓		B									

**Notes:** Data for objectives 24-8 and 24-11a and b 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.

<b>The best group rate at the most recent data point.</b>	The group with the best rate for specified characteristic.	Most favorable group rate for specified characteristic, but reliability criterion not met.	Best group rate reliability criterion not met.	
<b>Percent difference from the best group rate</b>				
<b>Disparity from the best group rate at the most recent data point.</b>	Less than 10 percent or not statistically significant	10-49 percent	50-99 percent	100 percent or more
<b>Increase in disparity (percentage points)</b>				
<b>Changes in disparity</b> 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	
<b>Decrease in disparity (percentage points)</b>				
	↓ 10-49	↓↓ 50-99	↓↓↓ 100 or more	
<b>Availability of data.</b>	Data not available.	Characteristic not selected for this objective.		

\* The variability of best group rates was assessed, and disparities of ≥ 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.

<sup>†</sup> 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.

<sup>1</sup> Data are for Asians or Pacific Islanders.

<sup>2</sup> Data include persons of Hispanic origin.

<sup>3</sup> Baseline data by race and ethnicity are for 1999.

## Objectives and Subobjectives for Focus Area 24: Respiratory Diseases

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**Goal:** Promote respiratory health through better prevention, detection, treatment, and education efforts.

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.<sup>1</sup>

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.

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<sup>1</sup> See Technical Appendix for more information on baseline and target revisions.

## Asthma

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

#### 24-1. Reduce asthma deaths.

##### Target and baseline:

Objective	Age Group	1999 <sup>1</sup> Baseline	2010 Target
		<i>Rate per Million</i>	
<b>24-1a.</b>	Children under age 5 years	1.7 <sup>2</sup>	0.9 <sup>3</sup>
<b>24-1b.</b>	Children aged 5 to 14 years	3.1 <sup>4</sup>	0.9 <sup>5</sup>
<b>24-1c.</b>	Adolescents and adults aged 15 to 34 years	5.6 <sup>6</sup>	1.9 <sup>7</sup>
<b>24-1d.</b>	Adults aged 35 to 64 years	15.5 <sup>8</sup>	8.0 <sup>9</sup>
<b>24-1e.</b>	Adults aged 65 years and older	69.5 <sup>10</sup>	47.0 <sup>11</sup>

**Target setting method:** Better than the best.

**Data source:** National Vital Statistics System—Mortality (NVSS—M),<sup>12</sup> CDC, NCHS.

<sup>1</sup> Baseline year revised from 1998 after November 2000 publication.

<sup>2</sup> Baseline revised from 2.1 after November 2000 publication.

<sup>3</sup> Target revised from 1.0 because of baseline revision after November 2000 publication.

<sup>4</sup> Baseline revised from 3.3 after November 2000 publication.

<sup>5</sup> Target revised from 1.0 because of baseline revision after November 2000 publication.

<sup>6</sup> Baseline revised from 5.0 after November 2000 publication.

<sup>7</sup> Target revised from 2.0 because of baseline revision after November 2000 publication.

<sup>8</sup> Baseline revised from 17.8 after November 2000 publication.

<sup>9</sup> Target revised from 9.0 because of baseline revision after November 2000 publication.

<sup>10</sup> Baseline revised from 86.3 after November 2000 publication.

<sup>11</sup> Target revised from 60.0 because of baseline revision after November 2000 publication.

<sup>12</sup> Name of data source changed from National Vital Statistics System [NVSS] after November 2000 publication.

### NO CHANGE IN OBJECTIVE

#### 24-2. Reduce hospitalizations for asthma.

##### Target and baseline:

Objective	Age Group	1998 Baseline	2010 Target
		<i>Rate per 10,000</i>	
<b>24-2a.</b>	Children under age 5 years	45.6	25.0
<b>24-2b.</b>	Children and adults aged 5 to 64 years*	12.5	7.7
<b>24-2c.</b>	Adults aged 65 years and older*	17.7	11.0

### NO CHANGE IN OBJECTIVE *(continued)*

\* Age adjusted to the year 2000 standard population.

**Target setting method:** Better than the best.

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

### NO CHANGE IN OBJECTIVE

#### 24-3. Reduce hospital emergency department visits for asthma.

**Target and baseline:**

Objective	Age Group	1995–97 Baseline	2010 Target
		<i>Rate per 10,000</i>	
<b>24-3a.</b>	Children under age 5 years	150.0	80.0
<b>24-3b.</b>	Children and adults aged 5 to 64 years	71.1	50.0
<b>24-3c.</b>	Adults aged 65 years and older	29.5	15.0

**Target setting method:** Better than the best.

**Data source:** National Hospital Ambulatory Medical Care Survey (NHAMCS), CDC, NCHS.

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

#### 24-4. Reduce activity limitations among persons with asthma.

**Target:** 6<sup>1</sup> percent.

**Baseline:** 10<sup>2</sup> percent of persons with asthma experienced activity limitations in 1997<sup>2</sup> (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

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

<sup>1</sup> Target revised from 10 because of baseline revision after November 2000 publication.

<sup>2</sup> Baseline and baseline year revised from 20 and 1994–96 after November 2000 publication.



### ORIGINAL OBJECTIVE

**24-5. (Developmental) Reduce the number of school or work days missed by persons with asthma due to asthma.**

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

### OBJECTIVE WITH REVISIONS

**24-5. (Developmental) Reduce the number of school or work days missed by persons with asthma due to asthma.**

**Target:** 2.0 days.

**Baseline:** The number of school or work days missed by persons aged 5 to 64 years with asthma due to asthma was 6.1 days in 2002 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

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

### REVISED OBJECTIVE

**24-5. Reduce the number of school or work days missed by persons with asthma due to asthma.**

**Target:** 2.0 days.

**Baseline:** The number of school or work days missed by persons aged 5 to 64 years with asthma due to asthma was 6.1 days in 2002 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

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

### NO CHANGE IN OBJECTIVE

**24-6. Increase the proportion of persons with asthma who receive formal patient education, including information about community and self-help resources, as an essential part of the management of their condition.**

**Target:** 30.0 percent.

**Baseline:** 8.4 percent of persons aged 18 years and older with asthma received formal patient education in 1998 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

## NO CHANGE IN OBJECTIVE *(continued)*

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

### ORIGINAL OBJECTIVE

**24-7. (Developmental) Increase the proportion of persons with asthma who receive appropriate asthma care according to the NAEPP Guidelines.**

**24-7a.** Persons with asthma who receive written asthma management plans from their health care provider.

**24-7b.** Persons with asthma with prescribed inhalers who receive instruction on how to use them properly.

**24-7c.** Persons with asthma who receive education about recognizing early signs and symptoms of asthma episodes and how to respond appropriately, including instruction on peak flow monitoring for those who use daily therapy.

**24-7d.** Persons with asthma who receive medication regimens that prevent the need for more than one canister of short-acting inhaled beta agonists per month for relief of symptoms.

**24-7e.** Persons with asthma who receive followup medical care for long-term management of asthma after any hospitalization due to asthma.

**24-7f.** Persons with asthma who receive assistance with assessing and reducing exposure to environmental risk factors in their home, school, and work environments.

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

### OBJECTIVE WITH REVISIONS

**24-7. (Developmental) Increase the proportion of persons with asthma who receive appropriate asthma care according to the NAEPP Guidelines.**

**Target and baseline:**

<u>Objective</u>	<u>Persons With Asthma Who Receive Appropriate Care</u>	<u>2002 Baseline</u> (unless noted)	<u>2010 Target</u>
		<i>Percent</i>	
<b>24-7a.</b>	<u>Written asthma management plans from their health care provider</u>	<u>32</u>	<u>38</u>
<b>24-7b.</b>	<u>With prescribed inhalers who receive instruction on how to use them properly</u>	<u>96.0 (2003)</u>	<u>98.8</u>

### OBJECTIVE WITH REVISIONS *(continued)*

<b>24-7c.</b>	Education about recognizing early signs and symptoms of asthma episodes and how to respond appropriately, including instruction on peak flow monitoring for those who use daily therapy	68 (2003)	71
<b>24-7d.</b>	Medication regimens that prevent the need for more than one canister of short-acting inhaled beta agonists per month for relief of symptoms	80 (2003)	92
<b>24-7e.</b>	Followup medical care for long-term management of asthma after any hospitalization due to asthma	76 (2003)	87
<b>24-7f.</b>	Assistance with assessing and reducing exposure to environmental risk factors in their home, school, and work environments	42	50

**Target setting method:** Better than the best.

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

### REVISED OBJECTIVE

**24-7. Increase the proportion of persons with asthma who receive appropriate asthma care according to the NAEPP Guidelines.**

**Target and baseline:**

Objective	Persons With Asthma Who Receive Appropriate Care	2002 Baseline (unless noted)	2010 Target
		<i>Percent</i>	
<b>24-7a.</b>	Written asthma management plans from their health care provider	32	38
<b>24-7b.</b>	With prescribed inhalers who receive instruction on how to use them properly	96.0 (2003)	98.8
<b>24-7c.</b>	Education about recognizing early signs and symptoms of asthma episodes and how to respond appropriately, including instruction on peak flow monitoring for those who use daily therapy	68 (2003)	71
<b>24-7d.</b>	Medication regimens that prevent the need for more than one canister of short-acting inhaled beta agonists per month for relief of symptoms	80 (2003)	92

### REVISED OBJECTIVE (continued)

24-7e.	Followup medical care for long-term management of asthma after any hospitalization due to asthma	76 (2003)	87
24-7f.	Assistance with assessing and reducing exposure to environmental risk factors in their home, school, and work environments	42	50

**Target setting method:** Better than the best.

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

### ORIGINAL OBJECTIVE

**24-8. (Developmental) Establish in at least 25 States a surveillance system for tracking asthma death, illness, disability, impact of occupational and environmental factors on asthma, access to medical care, and asthma management.**

**Potential data sources:** Periodic surveys, Council of State and Territorial Epidemiologists and Public Health Foundation; Association of Schools of Public Health.

### OBJECTIVE WITH REVISIONS

**24-8. Increase the number of (Developmental) Establish in at least 25 States with an asthma surveillance system for tracking asthma deathcases, illness, and disability, impact of occupational and environmental factors on asthma, access to medical care, and asthma management.**

**Target:** 25 States.

**Baseline:** 19 States had a surveillance system for tracking asthma cases, illness, and disability in 2003.

**Target setting method:** 32 percent improvement.

**Potential dData sources:** Periodic surveys, Council of State and Territorial Epidemiologists and Public Health Foundation; Association of Schools of Public Health Behavioral Risk Factor Surveillance System (BRFSS), CDC.

### REVISED OBJECTIVE

**24-8. Increase the number of States with an asthma surveillance system for tracking asthma cases, illness, and disability.**

**Target:** 25 States.

### REVISED OBJECTIVE (*continued*)

**Baseline:** 19 States had a surveillance system for tracking asthma cases, illness, and disability in 2003.

**Target setting method:** 32 percent improvement.

**Data source:** Behavioral Risk Factor Surveillance System (BRFSS), CDC.

### Chronic Obstructive Pulmonary Disease (COPD)

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

**24-9. Reduce the proportion of adults whose activity is limited due to chronic lung and breathing problems.**

**Target:** 1.9<sup>1</sup> percent.

**Baseline:** 2.5<sup>2</sup> percent of adults aged 45 years and older experienced activity limitations due to chronic lung and breathing problems in 1997 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

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

<sup>1</sup> Target revised from 1.5 because of baseline revision after November 2000 publication.

<sup>2</sup> Baseline revised from 2.2 after November 2000 publication.

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

**24-10. Reduce deaths from chronic obstructive pulmonary disease (COPD) among adults.**

**Target:** 62.3<sup>1</sup> deaths per 100,000 adults.

**Baseline:** 123.9<sup>2</sup> deaths from COPD (excluding asthma) per 100,000 persons aged 45 years and older occurred in 1999<sup>2</sup> (age adjusted to the year 2000 standard population).

**Target setting method:** 50 percent improvement.

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

<sup>1</sup> Target revised from 60 because of baseline revision after November 2000 publication.

<sup>2</sup> Baseline and baseline year revised from 119.4 and 1998 after November 2000 publication.

## Obstructive Sleep Apnea (OSA)

### NO CHANGE IN OBJECTIVE

**24-11. (Developmental) Increase the proportion of persons with symptoms of obstructive sleep apnea whose condition is medically managed.**

**24-11a.** Persons with excessive daytime sleepiness, loud snoring, and other signs associated with obstructive sleep apnea who seek medical evaluation.

**24-11b.** Persons with excessive daytime sleepiness, loud snoring, and other signs associated with obstructive sleep apnea who receive followup medical care for long-term management of their condition.

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

### ORIGINAL OBJECTIVE

**24-12. (Developmental) Reduce the proportion of vehicular crashes caused by persons with excessive sleepiness.**

**Potential data sources:** National Health Interview Survey (NHIS), CDC, NCHS; Fatality Analysis Reporting System (FARS), U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA).

### OBJECTIVE WITH REVISIONS

**24-12. (Developmental) Reduce the proportion of vehicular crashes caused by persons with excessive sleepiness.**

**Target:** 1.7 percent.

**Baseline:** 2.9 percent of motor vehicle crash victim deaths for all ages were caused by persons with excessive sleepiness.

**Target setting method:** Better than the best.

**Potential data sources:** National Health Interview Survey (NHIS), CDC, NCHS; Fatality Analysis Reporting System (FARS), U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA).

### REVISED OBJECTIVE

**24-12. Reduce the proportion of vehicular crashes caused by persons with excessive sleepiness.**

**Target:** 1.7 percent.

## REVISED OBJECTIVE *(continued)*

**Baseline:** 2.9 percent of motor vehicle crash victim deaths for all ages were caused by persons with excessive sleepiness.

**Target setting method:** Better than the best.

**Data sources:** National Health Interview Survey (NHIS), CDC, NCHS; Fatality Analysis Reporting System (FARS), U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA).

## References

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- <sup>1</sup> National Center for Health Statistics (NCHS). Current estimates from the National Health Interview Survey (NHIS). *Vital and Health Statistics Series 10*, published annually 1982–1996.
- <sup>2</sup> More information available at [www.nhlbi.nih.gov/about/naepp/](http://www.nhlbi.nih.gov/about/naepp/); accessed October 31, 2006.
- <sup>3</sup> South Carolina: [www.cdc.gov/asthma/contacts/sc.htm](http://www.cdc.gov/asthma/contacts/sc.htm), Michigan: [www.cdc.gov/asthma/contacts/mi.htm](http://www.cdc.gov/asthma/contacts/mi.htm), Northwestern: [www.cdc.gov/asthma/contacts/il.htm](http://www.cdc.gov/asthma/contacts/il.htm); accessed October 31, 2006.
- <sup>4</sup> Rachelefsky, G.S., et al. Introduction: Enhancing the role of the emergency department in the identification and management of childhood asthma. *Pediatrics* 117(Suppl 4):S57–S62, 2006.
- <sup>5</sup> Morgan, W., et al. Results of a home-based environmental intervention in urban children with asthma—The Inner City Asthma Study. *New England Journal of Medicine* 351(11):1068–1080, 2004.
- <sup>6</sup> Kattan, M., et al. Cost-effectiveness of a home-based environmental intervention for inner-city children with asthma. *Journal of Allergy and Clinical Immunology* 116(5):1058–1063, 2005.
- <sup>7</sup> More information available at [www.niehs.nih.gov/translat/children/children.htm](http://www.niehs.nih.gov/translat/children/children.htm); accessed October 31, 2006.
- <sup>8</sup> More information available at [www.niaid.nih.gov/contract/archive2002.htm](http://www.niaid.nih.gov/contract/archive2002.htm); accessed October 31, 2006.
- <sup>9</sup> Guilbert, T.W., et al. Long-term inhaled corticosteroids in preschool children at high risk for asthma. *New England Journal of Medicine* 354(19):1985–1997, 2006.
- <sup>10</sup> Szeffler, S.J., et al. Characterization of within-subject responses to fluticasone and montelukast in childhood asthma. *Journal of Allergy and Clinical Immunology* 115(2):233–242, 2005.
- <sup>11</sup> More information available at [www.nhlbi.nih.gov/new/press/02-10-30a.htm](http://www.nhlbi.nih.gov/new/press/02-10-30a.htm); accessed October 31, 2006.
- <sup>12</sup> More information available at [www.nhlbi.nih.gov/about/naepp/](http://www.nhlbi.nih.gov/about/naepp/); accessed October 31, 2006.
- <sup>13</sup> Hawaii, Indiana, Massachusetts, Mississippi, North Carolina, Ohio, Oklahoma, Pennsylvania, and Washington.
- <sup>14</sup> More information available at [www.cdc.gov/asthma/aag05.htm#control](http://www.cdc.gov/asthma/aag05.htm#control); accessed October 31, 2006.
- <sup>15</sup> Chicago, Minneapolis/St. Paul, New York City, Oakland, Philadelphia, Richmond, and St. Louis.
- <sup>16</sup> More information available at [www.niehs.nih.gov/envgenom/home.htm](http://www.niehs.nih.gov/envgenom/home.htm); accessed October 31, 2006.
- <sup>17</sup> Malik, S.W., and Kaplan, J. Sleep deprivation. *Primary Care: Clinics in Office Practice* 32:475–490, 2005.



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- <sup>18</sup> Gangwisch, J.E., et al. Inadequate sleep as a risk factor for obesity. *Sleep* 28:1289–1296, 2005.
- <sup>19</sup> Kapur, V., et al. Underdiagnosis of sleep apnea syndrome in U.S. communities. *Sleep and Breathing* 6:49–54, 2002.
- <sup>20</sup> Young, T., et al. Epidemiology of obstructive sleep apnea. *American Journal of Respiratory and Critical Care Medicine* 165:1217–1239, 2001.
- <sup>21</sup> Coughlin, S.R., et al. Obstructive sleep apnea is independently associated with an increased prevalence of metabolic syndrome. *European Heart Journal* 25:735–741, 2004.
- <sup>22</sup> Durmer, J.F., and Dinges, D.F. Neurocognitive consequences of sleep deprivation. *Seminars in Neurology* 25:117–129, 2005.

## Related Objectives From Other Focus Areas

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### 1. Access to Quality Health Services

- 1-10. Delay or difficulty in getting emergency care

### 7. Educational and Community-Based Programs

- 7-11. Culturally appropriate and linguistically competent community health promotion programs

### 8. Environmental Health

- 8-1. Harmful air pollutants
- 8-2. Alternative modes of transportation
- 8-3. Cleaner alternative fuels
- 8-4. Airborne toxins
- 8-14. Toxic pollutants
- 8-16. Indoor allergens
- 8-17. Office building air quality
- 8-20. School policies to protect against environmental hazards
- 8-23. Substandard housing
- 8-26. Information systems used for environmental health
- 8-27. Monitoring environmentally related diseases

### 11. Health Communication

- 11-6. Satisfaction with health care providers' communication skills

### 15. Injury and Violence Prevention

- 15-15. Deaths from motor vehicle crashes
- 15-17. Nonfatal motor vehicle injuries

### 20. Occupational Safety and Health

- 20-1. Work-related injury deaths
- 20-2. Work-related injuries
- 20-4. Pneumoconiosis deaths

### 22. Physical Activity and Fitness

- 22-6. Moderate physical activity in adolescents
- 22-7. Vigorous physical activity in adolescents

### 23. Public Health Infrastructure

- 23-2. Public access to information and surveillance data
- 23-4. Data for all population groups
- 23-6. National tracking of Healthy People 2010 objectives
- 23-7. Timely release of data on objectives
- 23-10. Continuing education for public health personnel
- 23-17. Population-based prevention research

## **27. Tobacco Use**

- 27-1. Adult tobacco use
- 27-2. Adolescent tobacco use
- 27-3. Initiation of tobacco use
- 27-4. Age at first tobacco use
- 27-5. Smoking cessation by adults
- 27-6. Smoking cessation during pregnancy
- 27-7. Smoking cessation by adolescents
- 27-8. Insurance coverage of cessation treatment
- 27-9. Exposure to tobacco smoke at home among children
- 27-10. Exposure to environmental tobacco smoke
- 27-11. Smoke-free and tobacco-free schools
- 27-12. Worksite smoking policies
- 27-13. Smoke-free indoor air laws
- 27-14. Enforcement of illegal tobacco sales to minors laws
- 27-15. Retail license suspension for sales to minors
- 27-16. Tobacco advertising and promotion targeting adolescents and young adults
- 27-17. Adolescent disapproval of smoking
- 27-18. Tobacco control programs
- 27-19. Preemptive tobacco control laws
- 27-20. Tobacco product regulation
- 27-21. Tobacco tax

