Sleeping, Breathing, and Quality of Life: A Healthy People 2020 Progress Review

December 5, 2013

Healthy People 2020

U.S. Department of Health & Human Services

Office of Disease Prevention and Health Promotion

Howard K. Koh, MD, MPH

Assistant Secretary for Health
U.S. Department of Health and Human Services

Healthy People 2020

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA

OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION

Overview and Presenters

Chair

- Howard K. Koh, MD, MPH, Assistant Secretary for Health
  U.S. Department of Health and Human Services

Data Presentation

- Irma Arispe, PhD, Associate Director
  National Center for Health Statistics
  Centers for Disease Control and Prevention

Research and Program presentation

- Gary Gibbons, MD, Director
  National Heart, Lung and Blood Institute, NIH
- Vikas Kapil, DO, MPH, FACOEM, Acting Deputy Director
  Chief Medical Officer, National Center for Environmental Health
  Agency for Toxic Substances and Disease Registry, CDC

Community Highlight

- Karen Meyerson, FNP-C, AE-C
  Manager, Asthma Network of West Michigan

Healthy People 2020

Healthy People 2020 Evolves

1979

1990

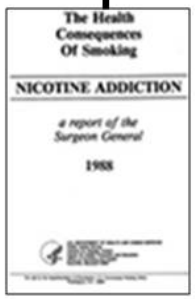
2000

2010

1979 Smallpox Eradicated

1970 Clean Air Act

1982 AIDS is Infectious



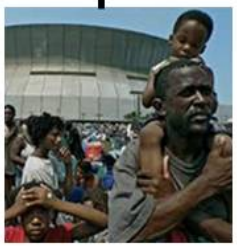
1988 SG Declares Nicotine Addictive

1990 Human Genome Project Begins

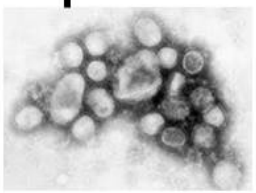
1990s Drinking Water Fluoridation

2000s Obesity and Chronic Disease

September 11, 2001



2005 Hurricane Katrina



2009 H1N1 Flu

Overview: Respiratory Diseases

- **Chronic Lower Respiratory Disease (CLRD) is the third leading cause of death**
  - Asthma - $53.42 billion (2011)
    - ❖ Prevalence: 25.6 million people or 8.3% (2012)
      - 6.8 million children (9.3%)
      - 18.7 million adults (8.0%)
  - Chronic Obstructive Pulmonary Disease (COPD) - $49.9 billion (2010)
    - ❖ Prevalence: 11.3 million adults or 4.8 % (2012)
      - Includes emphysema and chronic bronchitis, older adults

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

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Overview: Respiratory Diseases

- **Asthma was responsible for (2010):**
  - 14.2 million physician office visits
  - 1.8 million emergency department visits
  - 439,000 hospitalizations
  - 3,404 deaths

- **COPD was responsible for (2010):**
  - 1.2 million physician office visits
  - 1.8 million emergency department visits
  - 700,480 hospitalizations
  - 133,660 deaths

SOURCES: National Vital Statistics System—Mortality (NVSS-M), National Hospital Discharge Survey (NHDS), National Hospital Ambulatory Medical Care Survey (NHAMCS), National Ambulatory Medical Care Survey (NAMCS)

Overview: Sleep Health

- **Sleep Deficiency and Causes:**
  - Lifestyle factors
  - Occupational factors
  - Sleep disorders
- **Insufficient sleep and sleep disorders are associated with:**
  - Risk, management, and outcome of chronic disease
    - Cardiovascular disease
    - Diabetes
    - Obesity
    - Depression
  - Motor vehicle crashes and machinery-related errors

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Irma Arispe, PhD

Associate Director, National Center for Health Statistics
Centers for Disease Control and Prevention

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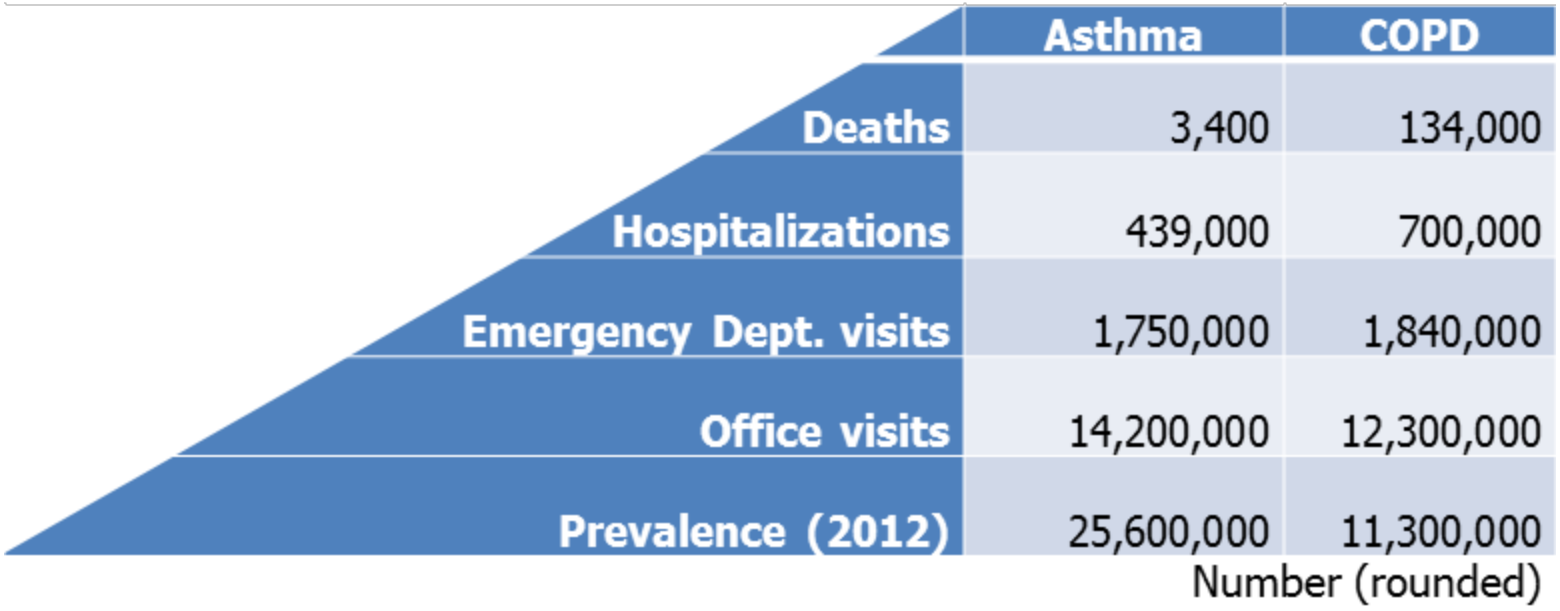
Presentation Outline

- Respiratory Diseases
  - Asthma
  - Chronic Obstructive Pulmonary Disease (COPD)
- Sleep Health

Healthy People 2020

Burden of Respiratory Diseases, 2010



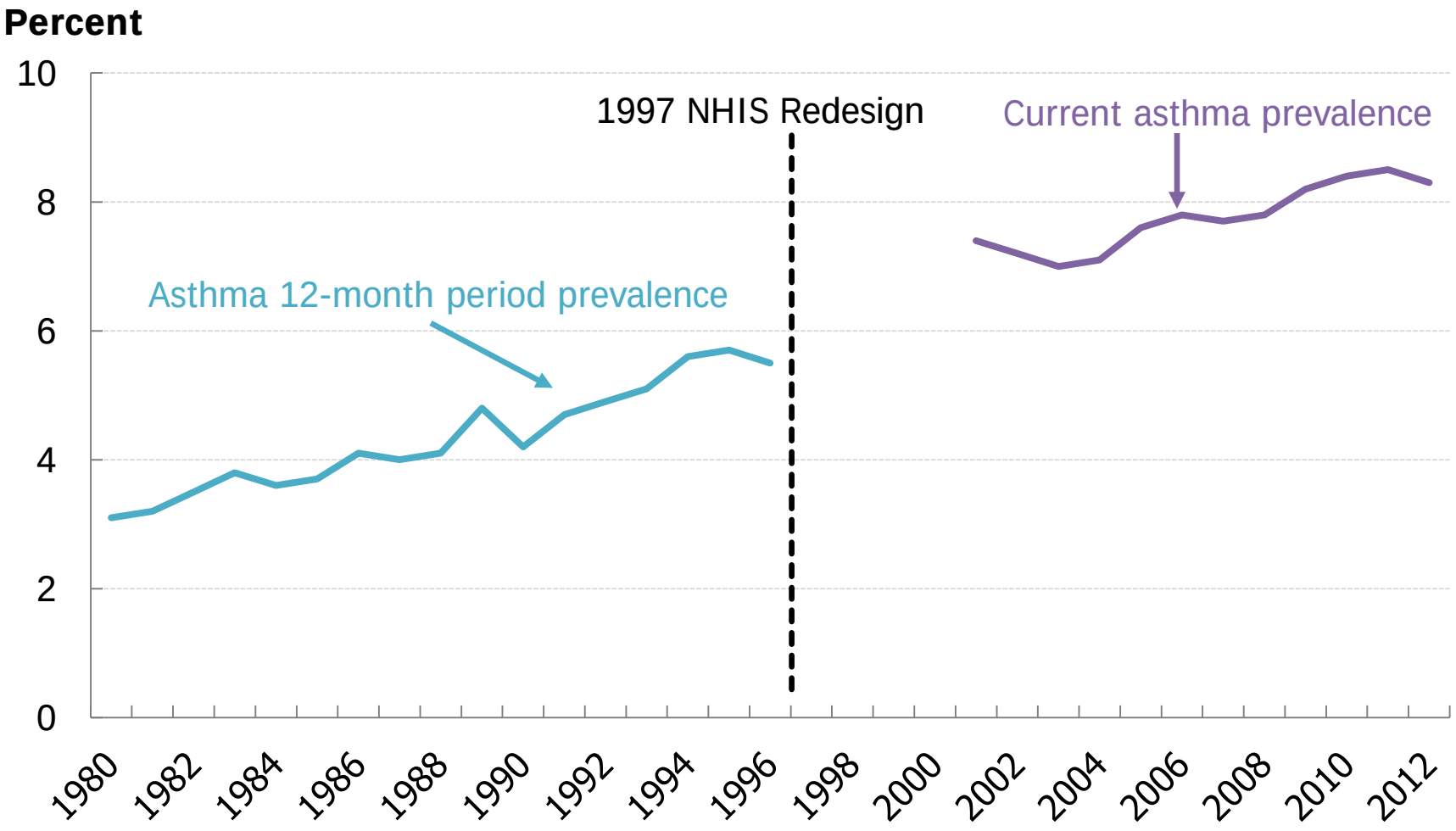
	Asthma	COPD
Deaths	3,400	134,000
Hospitalizations	439,000	700,000
Emergency Dept. visits	1,750,000	1,840,000
Office visits	14,200,000	12,300,000
Prevalence (2012)	25,600,000	11,300,000

Number (rounded)

NOTES: Data are for all ages except for COPD prevalence which is among adults aged 18 years and over. Deaths are based on an underlying cause of asthma (ICD-10 codes J45–J46) or COPD (ICD-10 codes J40–J44). Hospital discharges, emergency department visits, and office visits are based on a principal diagnosis of asthma (ICD-9-CM code 493) or COPD (ICD-9-CM code 490-492, 496). Asthma prevalence is defined as the proportion of persons with current asthma. COPD prevalence is defined as proportion of adults who have ever been diagnosed with emphysema or who were diagnosed with chronic bronchitis in the last 12 months.

SOURCES: National Vital Statistics System—Mortality (NVSS-M), National Hospital Discharge Survey (NHDS), National Hospital Ambulatory Medical Care Survey (NHAMCS), National Ambulatory Medical Care Survey (NAMCS), and National Health Interview Survey (NHIS), CDC/NCHS.

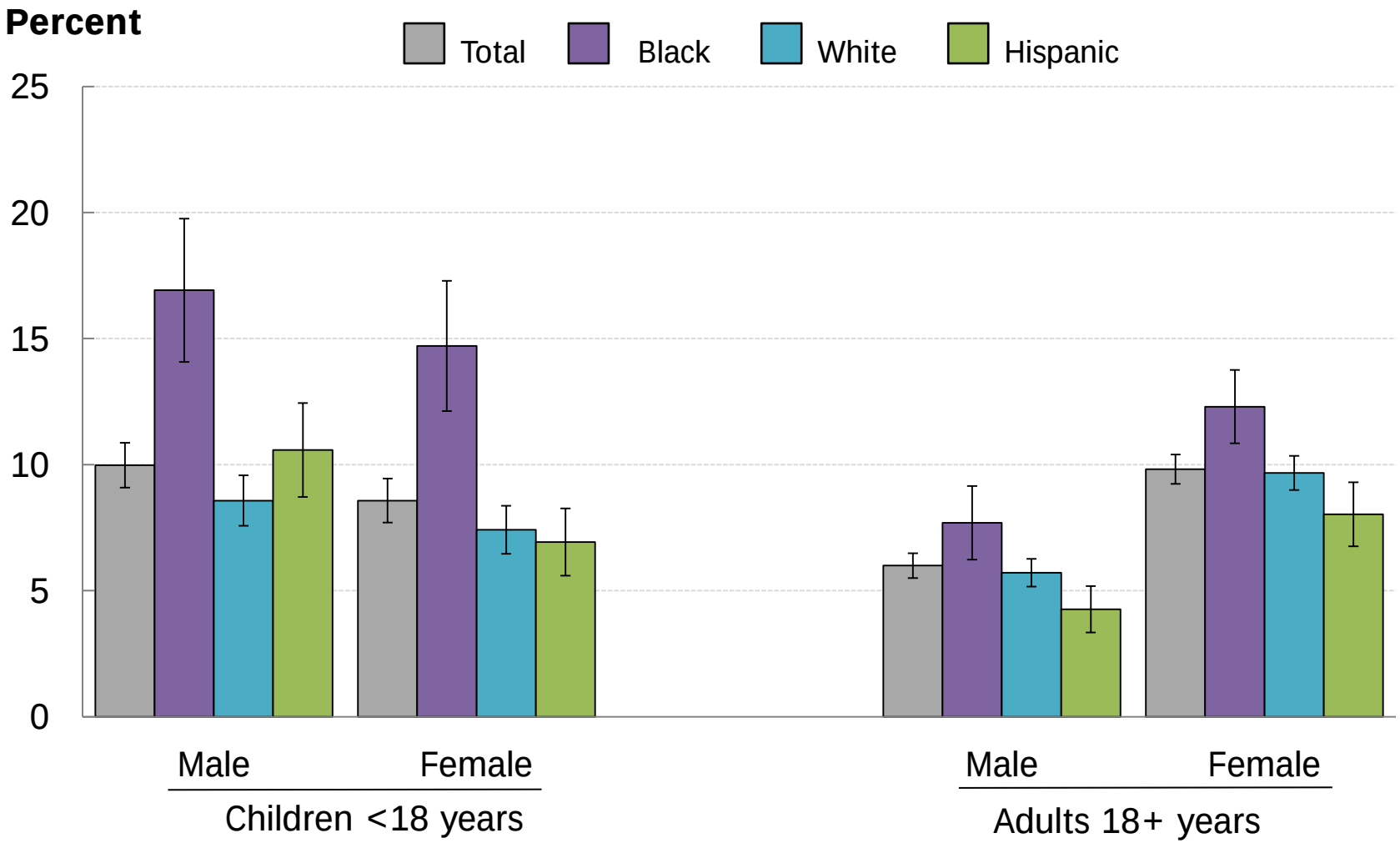
Asthma Prevalence, 1980–2012



NOTES: Asthma period prevalence is the proportion of persons with asthma in the previous 12 months; current asthma prevalence is the proportion of persons with asthma at the time of interview. After the redesign, a medical diagnosis of asthma was required and proxy reporting for adults was eliminated.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

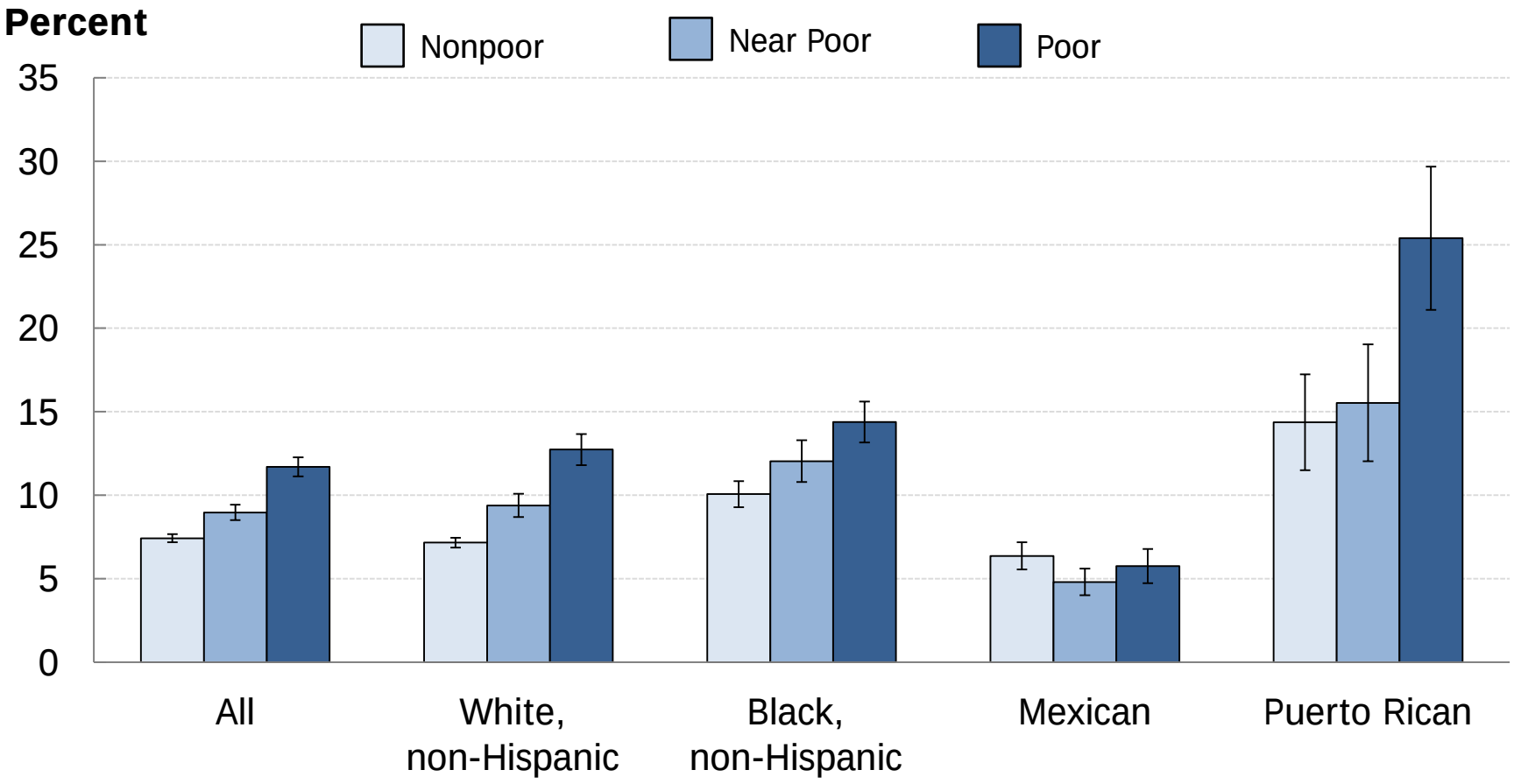
Current Asthma Prevalence, 2012



NOTES: I = 95% confidence interval. Respondents were asked to select one or more races. The race categories black and white are for persons who reported only one racial group and exclude persons of Hispanic origin. Persons identified as Hispanic can be of any race.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

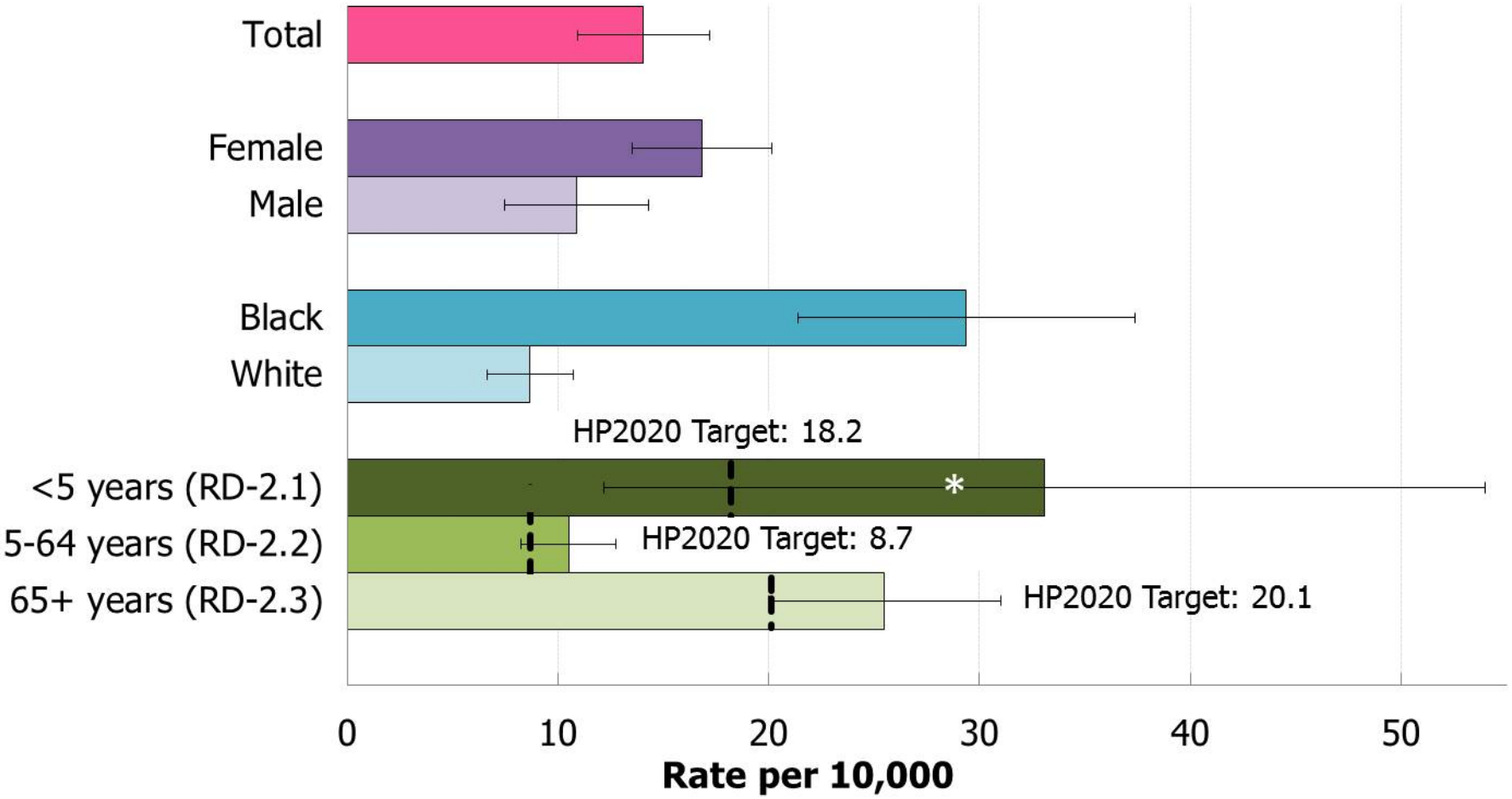
Current Asthma Prevalence, 2010–2012



NOTES: I = 95% confidence interval. Data are age adjusted to the 2000 standard population. Income groups are defined based on the ratio of family income to poverty threshold: nonpoor 200%+, near poor 100-199%, poor <100%. Respondents were asked to select one or more races. The categories black and white are for persons who reported only one racial group and exclude persons of Hispanic origin. Persons identified as Mexican or Puerto Rican may be of any race.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Asthma Hospitalizations, 2010

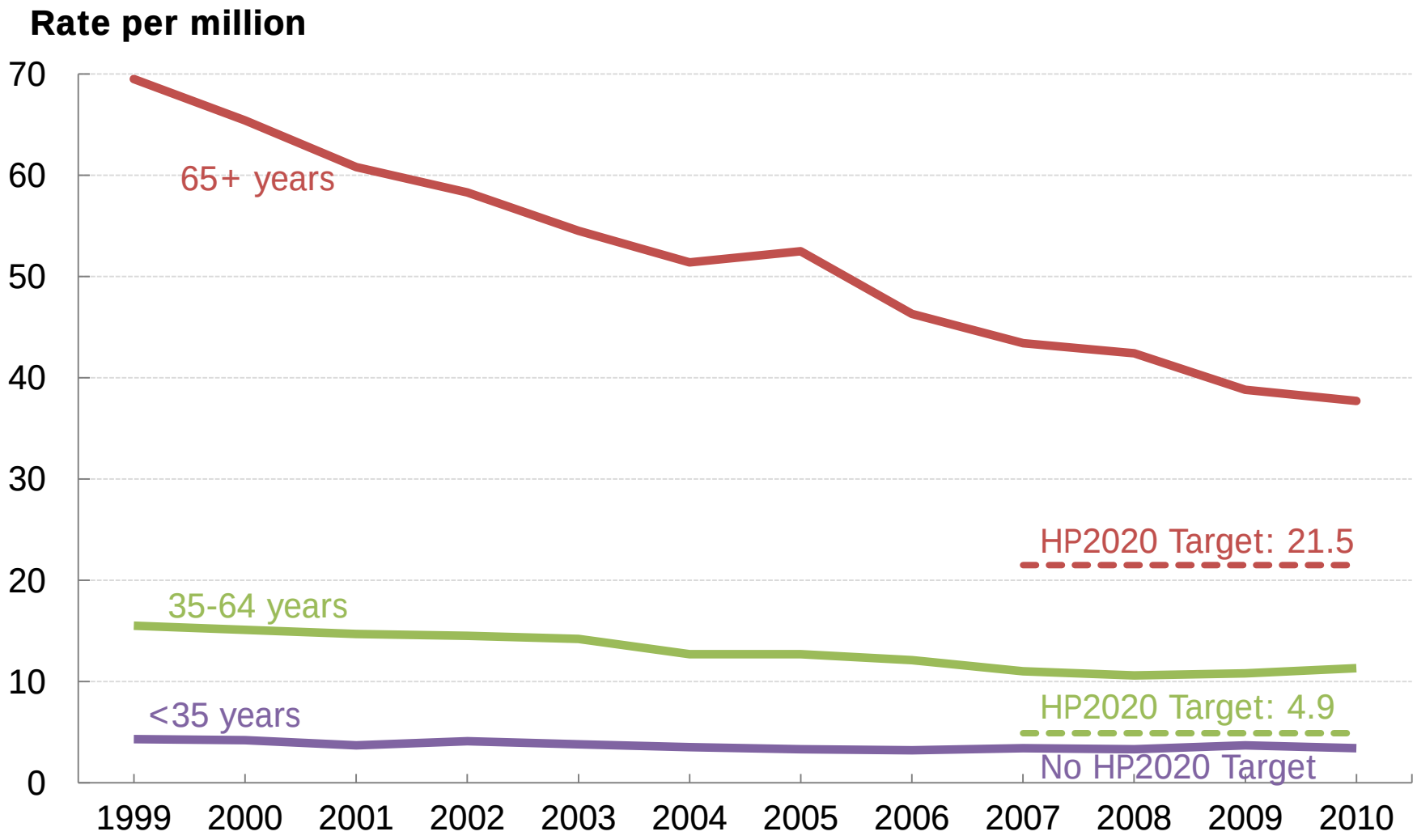


NOTES: I = 95% confidence interval. Data are for hospital discharges with a principal diagnosis of asthma (ICD-9-CM code 493). Data, except those for children under age 5 years, are age adjusted to the 2000 standard population. Healthy People 2020 objectives RD-2.1, 2.2, and 2.3 track asthma hospitalizations separately for ages <5, 5-64, and 65+, respectively, while the data displayed here by sex and race are for all ages. The race categories black and white include persons of Hispanic or non-Hispanic origin for whom only one racial group was recorded. * Data are unreliable.

SOURCE: National Hospital Discharge Survey (NHDS), CDC/NCHS.

Objs. RD-2.1, 2.2, 2.3
Decrease desired

Asthma Deaths, 1999–2010

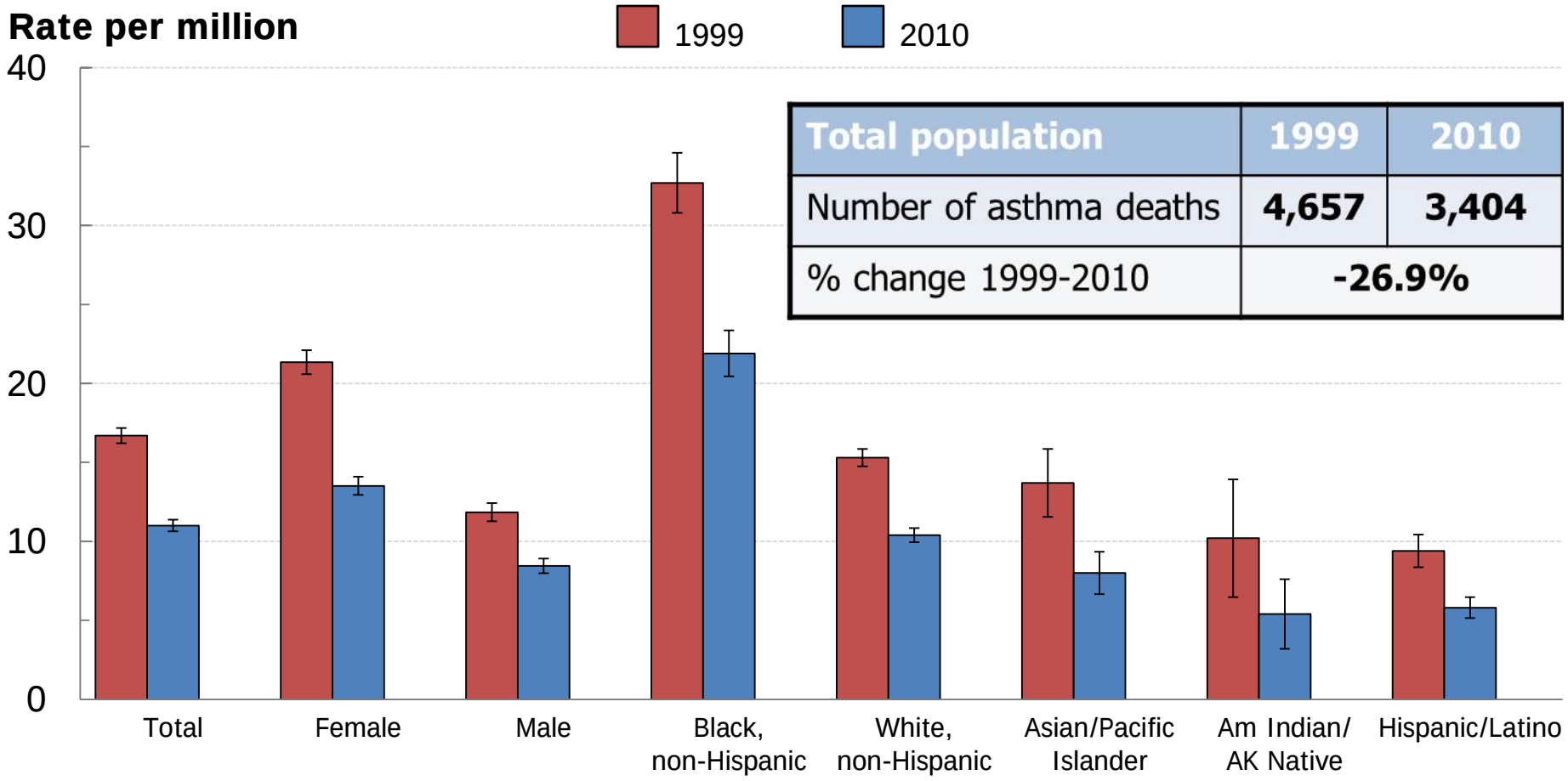


NOTES: Data are for deaths with an underlying cause of asthma (ICD-10 codes J45–J46).

SOURCE: National Vital Statistics System—Mortality (NVSS-M), CDC/NCHS.

Obj. RD-1.1, 1.2, 1.3
Decrease desired

Asthma Deaths

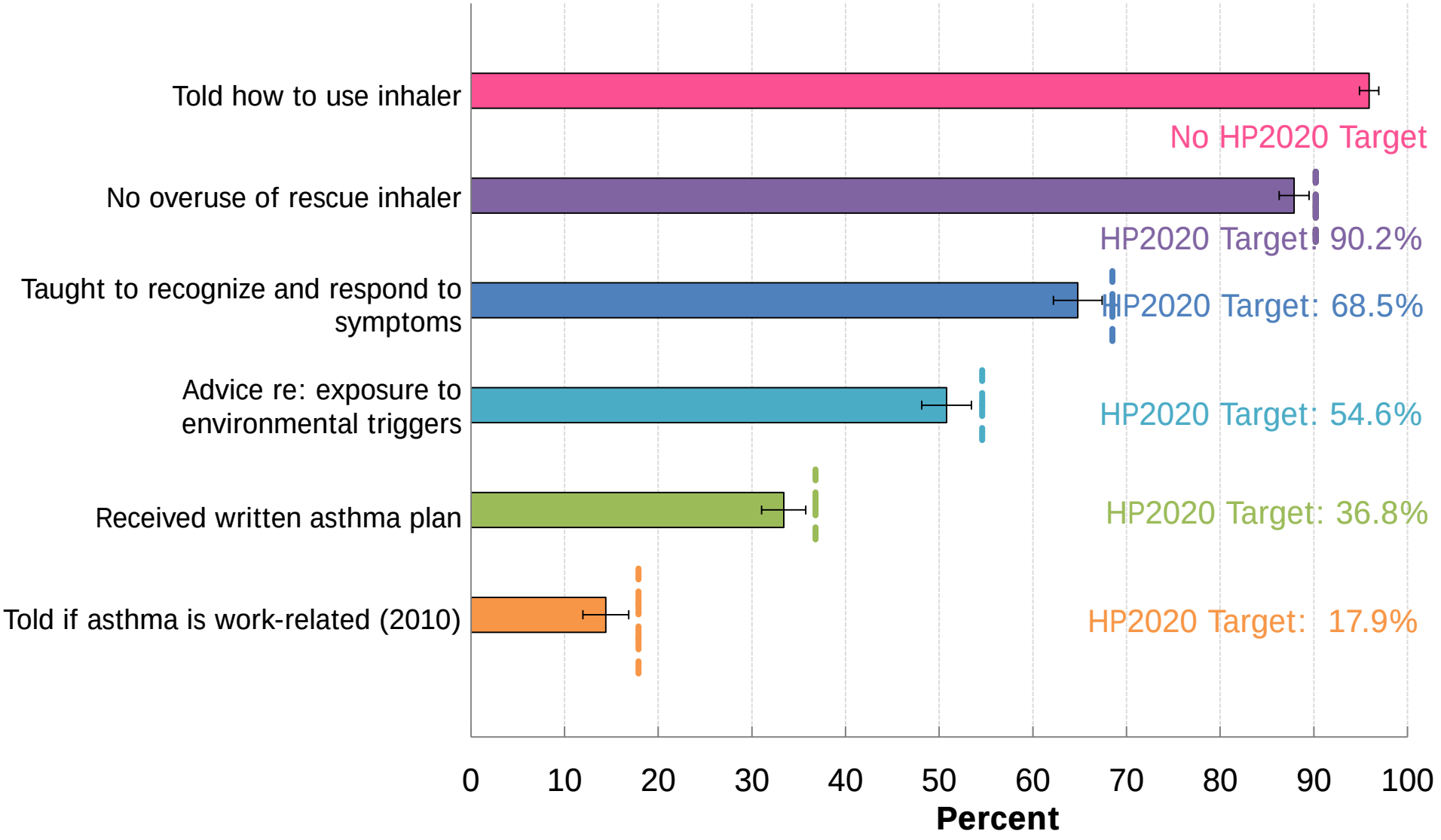


Total population	1999	2010
Number of asthma deaths	4,657	3,404
% change 1999-2010	-26.9%	

NOTES: I = 95% confidence interval. Data are for deaths with an underlying cause of asthma (ICD-10 codes J45–J46). HP2020 objectives RD-1.1, 1.2, and 1.3 track asthma deaths separately for ages <35, 35-64, and 65+, respectively, while the data displayed here for the total and by sex and race are for all ages. Prior to 2003, only one race could be recorded; recording more than one race was not an option. Beginning in 2003 multiple-race data were reported by some states; multiple-race data were bridged to the single-race categories for comparability. Persons of Hispanic origin may be of any race.

SOURCE: National Vital Statistics System—Mortality (NVSS-M), CDC/NCHS.

Appropriate Asthma Care, 2008

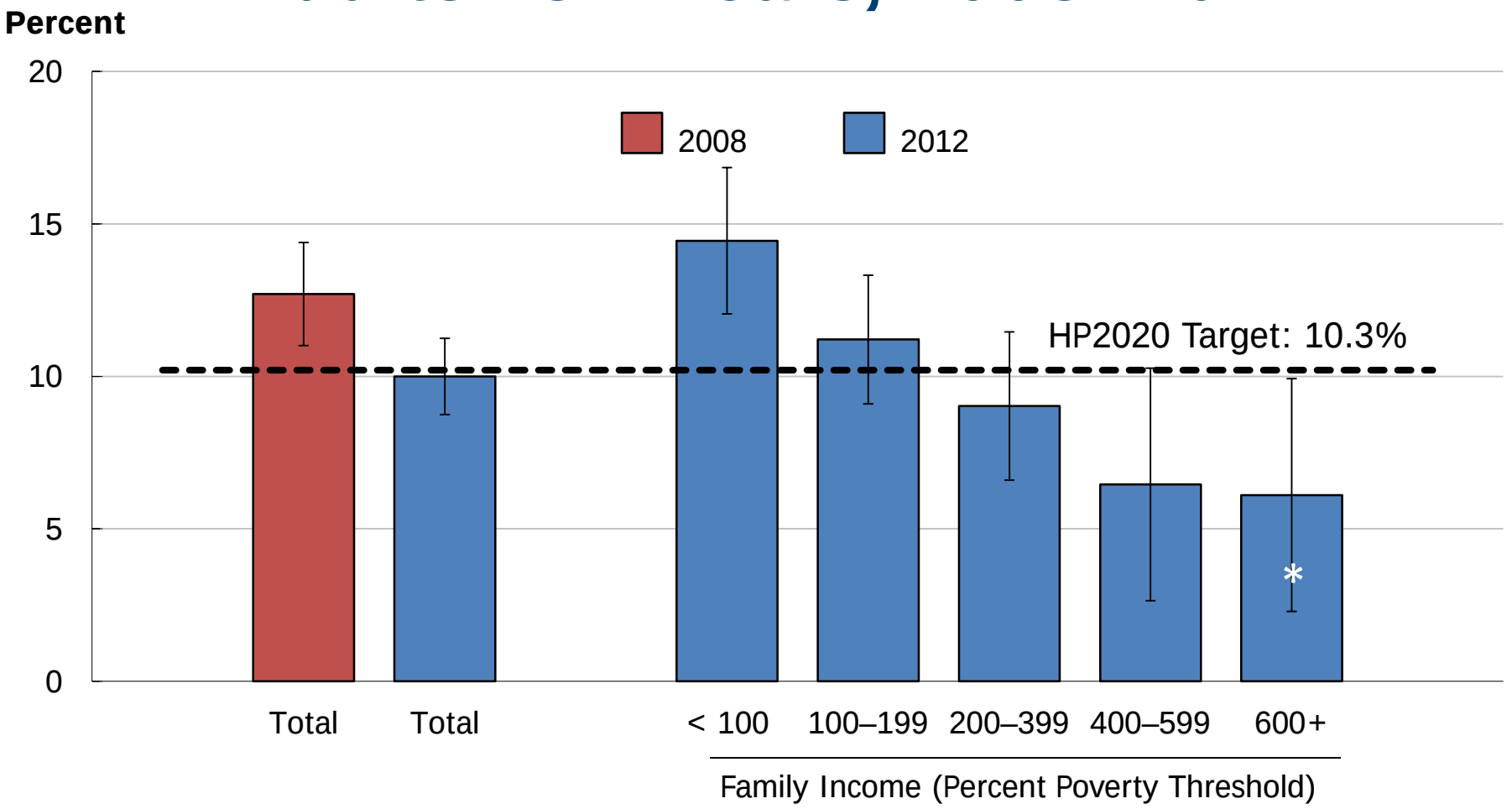


NOTES: I = 95% confidence interval. Data are for persons with current asthma who received the specified care from a health care provider, and are age adjusted to the 2000 standard population.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Objs. RD-7.1 through 7.5, 7.8
Increase desired

Activity Limitations due to Asthma Adults 18+ Years, 2008–2012

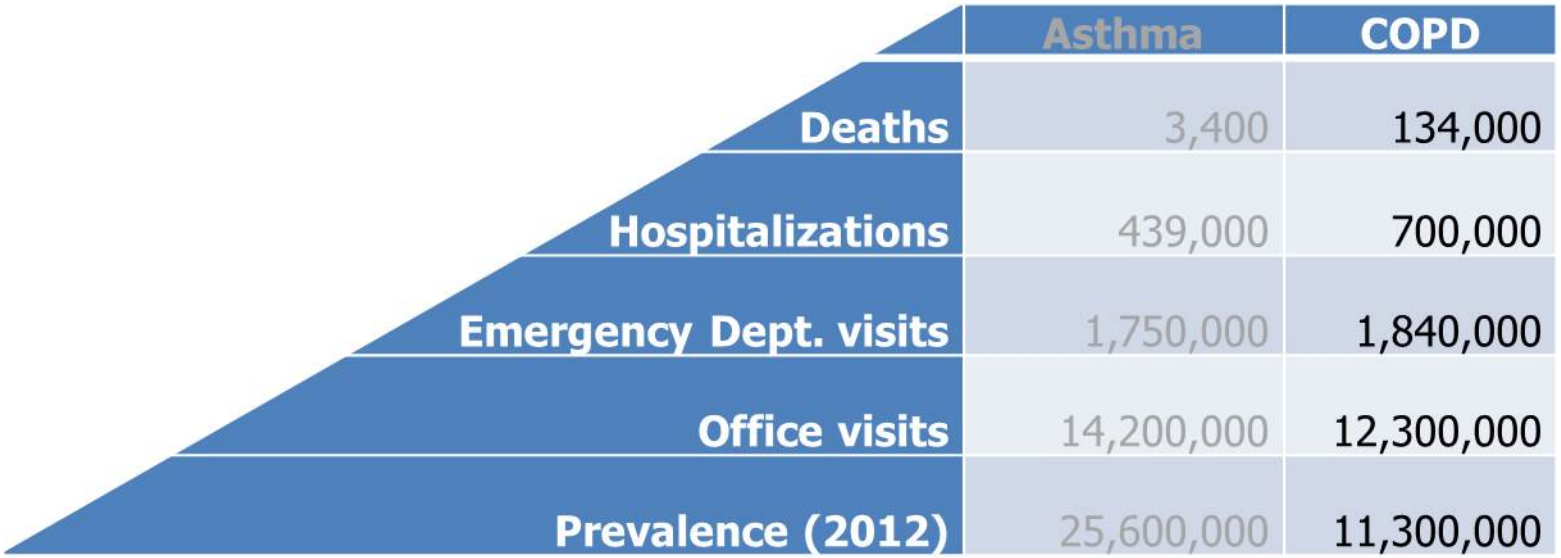


NOTES: I = 95% confidence interval. Data are for adults aged 18 years and over with current asthma who experienced activity limitations due to lung or breathing problems, and are age adjusted to the 2000 standard population. * Data are unreliable.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS

Obj. RD-4
Decrease desired

Burden of Respiratory Diseases, 2010



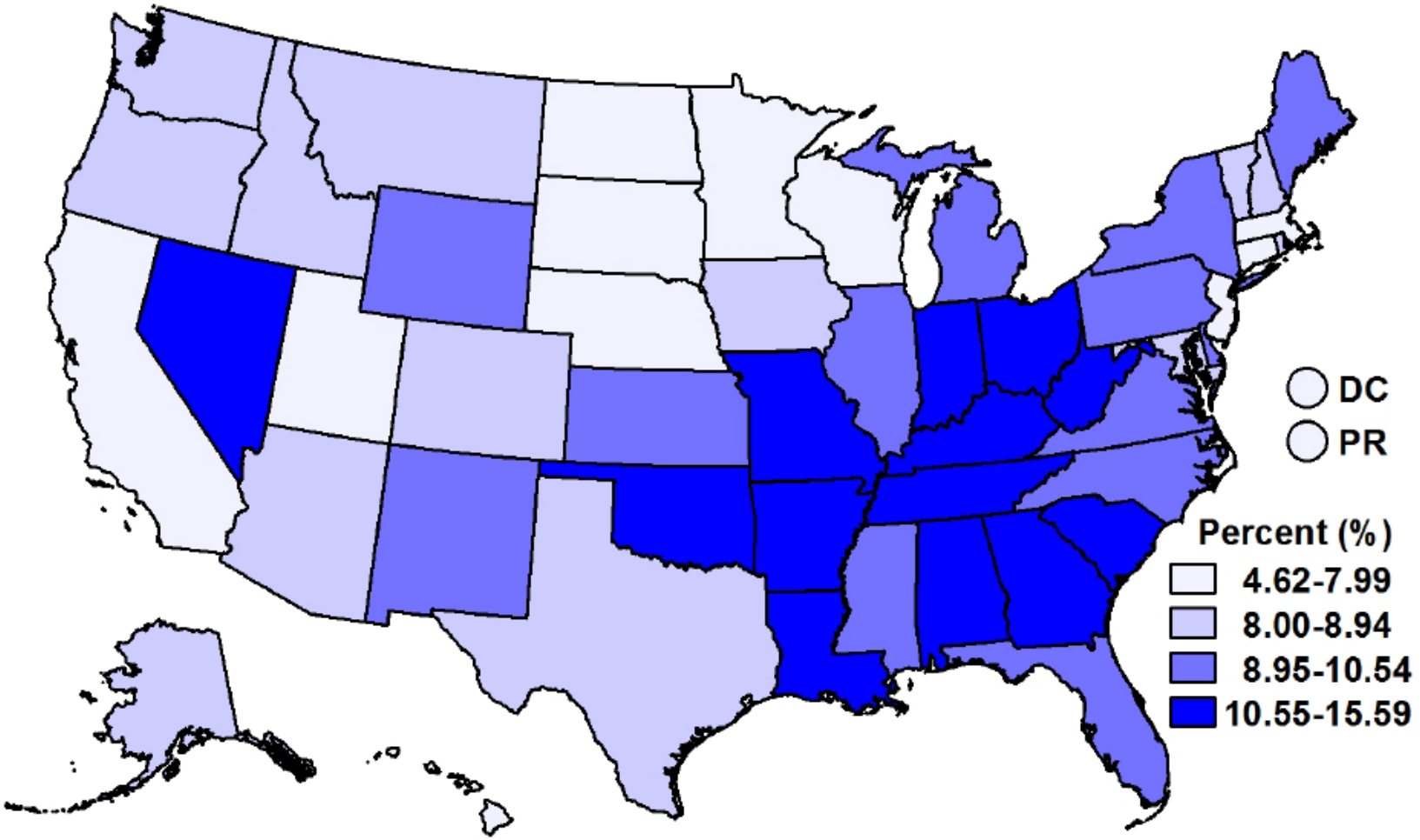
	Asthma	COPD
Deaths	3,400	134,000
Hospitalizations	439,000	700,000
Emergency Dept. visits	1,750,000	1,840,000
Office visits	14,200,000	12,300,000
Prevalence (2012)	25,600,000	11,300,000

Number (rounded)

NOTES: Data are for all ages except for COPD prevalence which is among adults aged 18 and over. Deaths are based on an underlying cause of asthma (ICD-10 codes J45–J46) or COPD (ICD-10 codes J40–J44). Hospital discharges, emergency department visits, and office visits are based on a principal diagnosis of asthma (ICD-9-CM code 493) or COPD (ICD-9-CM code 490-492, 496). Asthma prevalence is defined as the proportion of persons with current asthma. COPD prevalence is defined as proportion of adults who have ever been diagnosed with emphysema or who were diagnosed with chronic bronchitis in the last 12 months.

SOURCES: National Vital Statistics System—Mortality (NVSS-M), National Hospital Discharge Survey (NHDS), National Hospital Ambulatory Medical Care Survey (NHAMCS), National Ambulatory Medical Care Survey (NAMCS), and National Health Interview Survey (NHIS), CDC/NCHS.

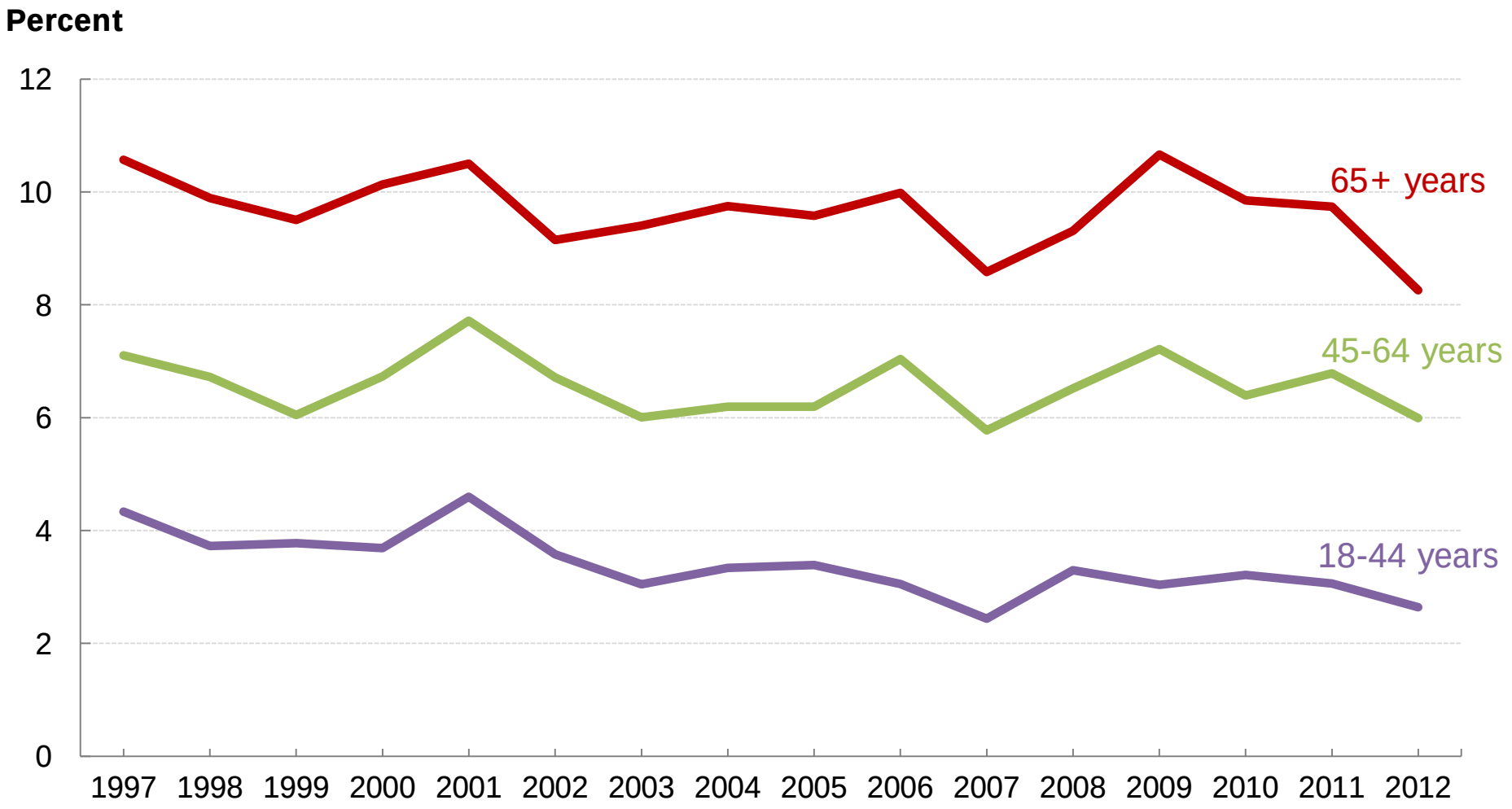
COPD Prevalence, Adults 45+ Years, 2012



NOTES: Data are for adults aged 45 years and over who have ever been diagnosed with COPD, emphysema, or chronic bronchitis, and are age adjusted to the 2000 standard population. State data from the BRFSS may not be comparable to the national data from the NHIS.

SOURCE: Behavioral Risk Factor Surveillance System (BRFSS), CDC/PHSPO.

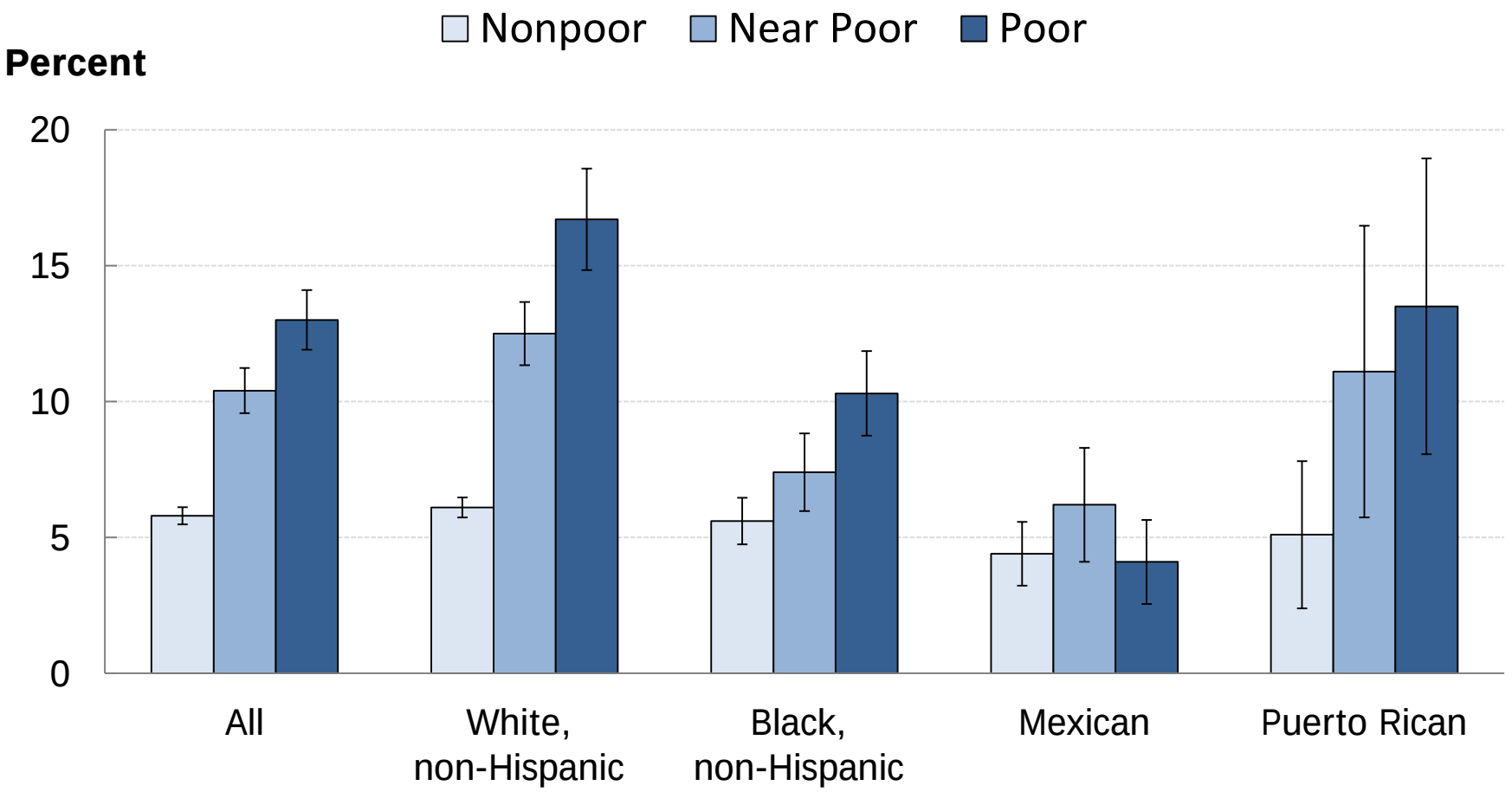
COPD Prevalence, 1997–2012



NOTES: Data are for adults who have ever been diagnosed with emphysema or who were diagnosed with chronic bronchitis in the last 12 months.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

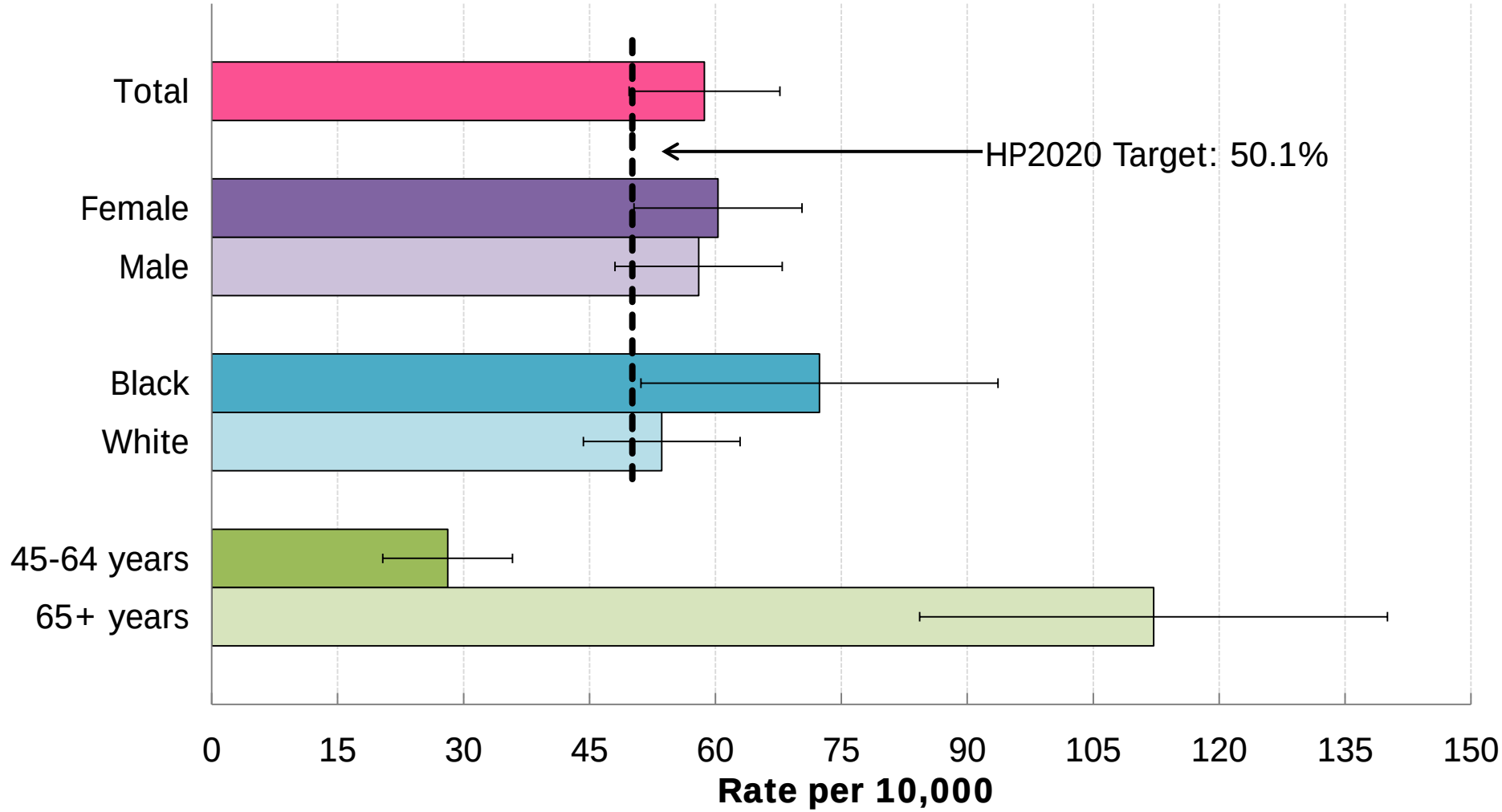
COPD Prevalence, Adults 45+ Years, 2010–2012



NOTES: I = 95% confidence interval. Data are for adults aged 45 years and over who have ever been diagnosed with emphysema or who were diagnosed with chronic bronchitis in the last 12 months, and are age adjusted to the 2000 standard population. Income groups are defined based on the ratio of family income to poverty threshold: nonpoor 200%+, near poor 100-199%, poor <100%. Respondents were asked to select one or more races. The categories black and white are for persons who reported only one racial group and exclude persons of Hispanic origin. Persons identified as Mexican or Puerto Rican may be of any race.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

COPD Hospitalizations, Adults 45+ Years, 2010

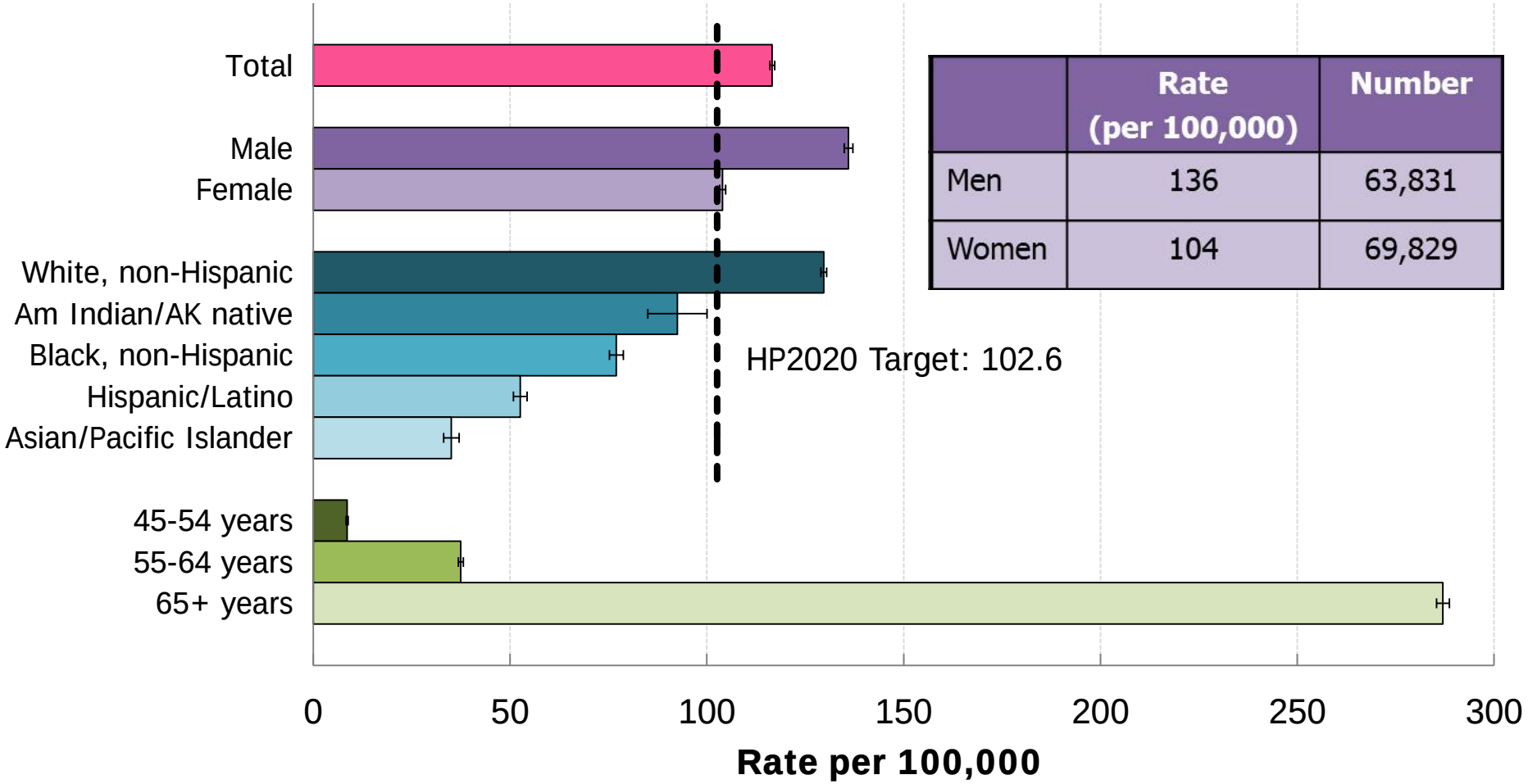


NOTES: I = 95% confidence interval. Data are for hospital discharges with a principal diagnosis of COPD (ICD-9-CM code 490-492, 496) among adults aged 45 years and over. Data, except those by age, are age adjusted to the 2000 standard population. The race categories black and white include persons of Hispanic or non-Hispanic origin for whom only one racial group was recorded.

SOURCE: National Hospital Discharge Survey (NHDS), CDC/NCHS.

Obj. RD-11
Decrease desired

COPD Deaths, Adults 45+ Years, 2010



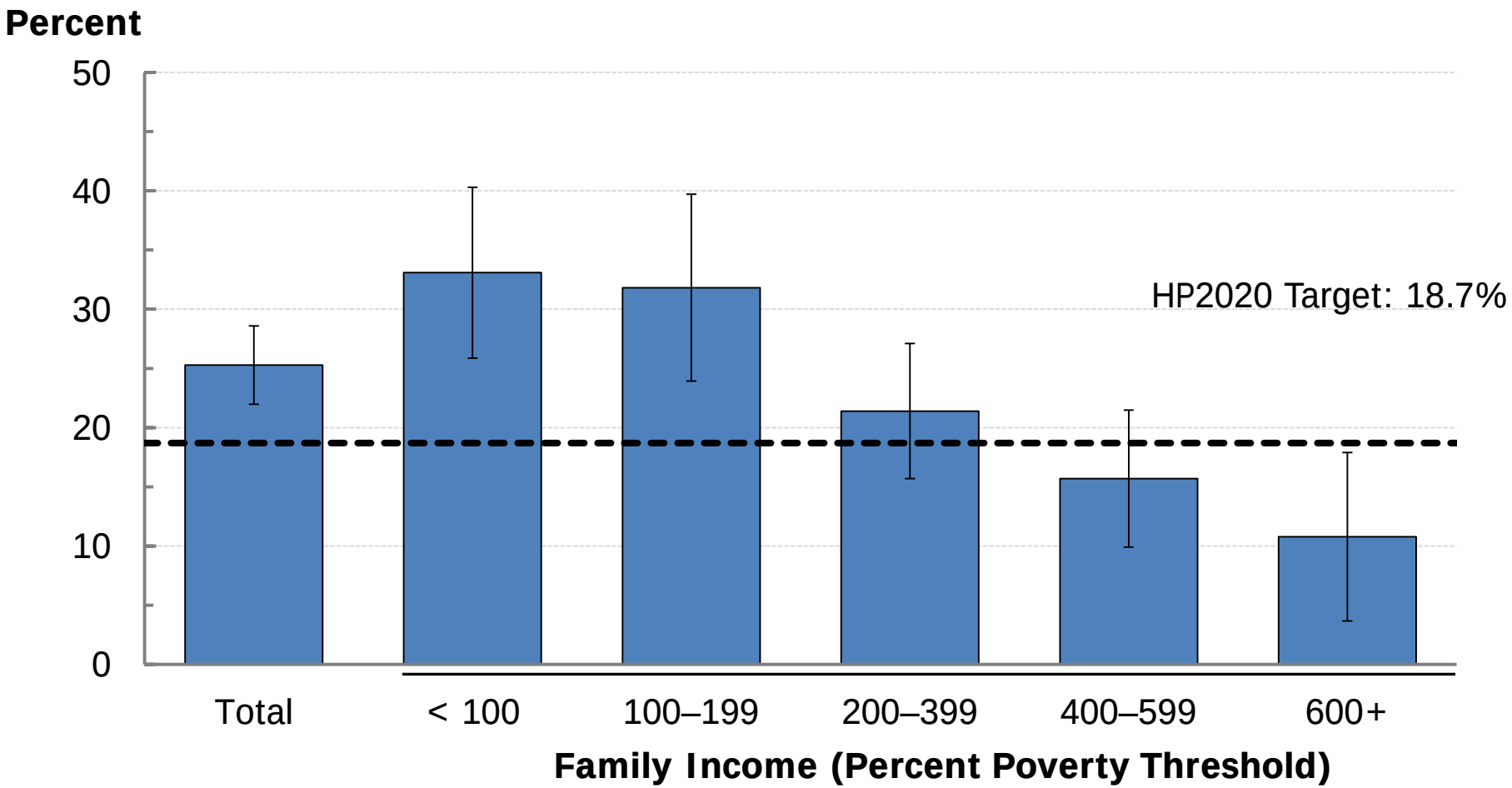
	Rate (per 100,000)	Number
Men	136	63,831
Women	104	69,829

NOTES: I = 95% confidence interval. Data are for deaths with an underlying cause of COPD (ICD-10 codes J40–J44) among adults aged 45 years and over and are age adjusted to the 2000 standard population. Data by age are not age adjusted, and, therefore, the target does not apply to data by age. Multiple-race data were reported by some states; multiple-race data were bridged to the single-race categories for comparability. Persons of Hispanic origin may be of any race.

SOURCE: National Vital Statistics System—Mortality (NVSS-M), CDC/NCHS.

Obj. RD-10
Decrease desired

Activity Limitations due to COPD Adults 45+ Years, 2012



NOTES: I = 95% confidence interval. Data are for adults aged 45 years and over with COPD who experienced activity limitations due to lung or breathing problems, and are age adjusted to the 2000 standard population. * Data are unreliable.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. RD-9
Decrease desired

Presentation Outline

- Respiratory Diseases
  - Asthma
  - Chronic Obstructive Pulmonary Disease (COPD)

- Sleep Health

Healthy People 2020

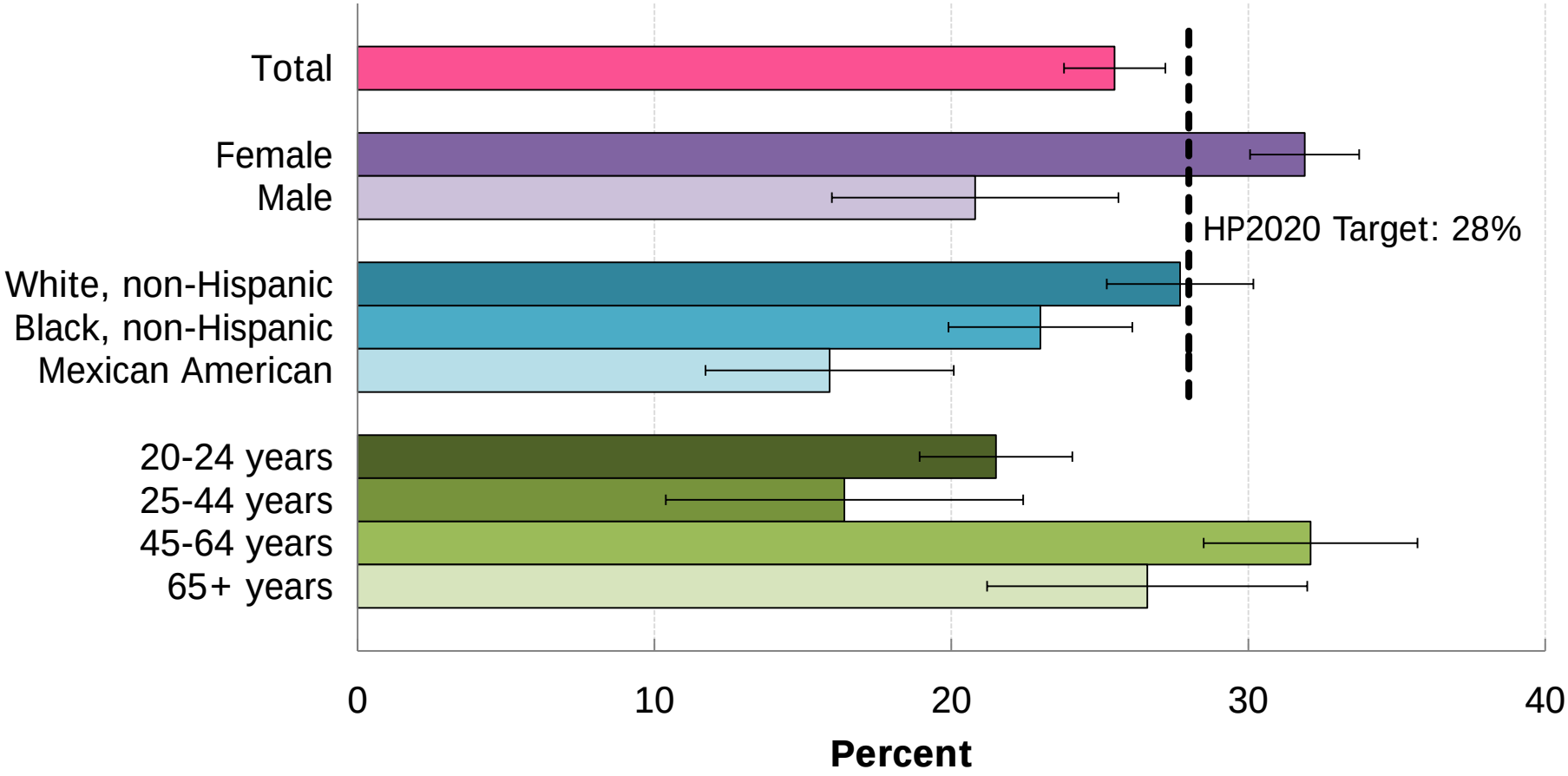
Sleep Health: Public Health Impact

- 50–70 million people experience chronic sleep and wakefulness disorders.
- Sleep disorders account for approximately $16 billion dollars in annual medical costs, in addition to costs for lost productivity.
- Physician office visits (2010):
  - Sleep apnea* – 2.7 million
  - Insomnia – 5.8 million

NOTES: * Sleep apnea is a disorder with one or more pauses in breathing or shallow breaths during sleep.
SOURCES: Institute of Medicine. Sleep disorders and sleep deprivation: an unmet public health problem. Washington, DC: The National Academies Press; 2006. National Ambulatory Medical Care Survey (NAMCS), CDC/NCHS.

Healthy People 2020

Persons With Sleep Apnea Symptoms who Seek Medical Care, Adults 20+, 2005–2008

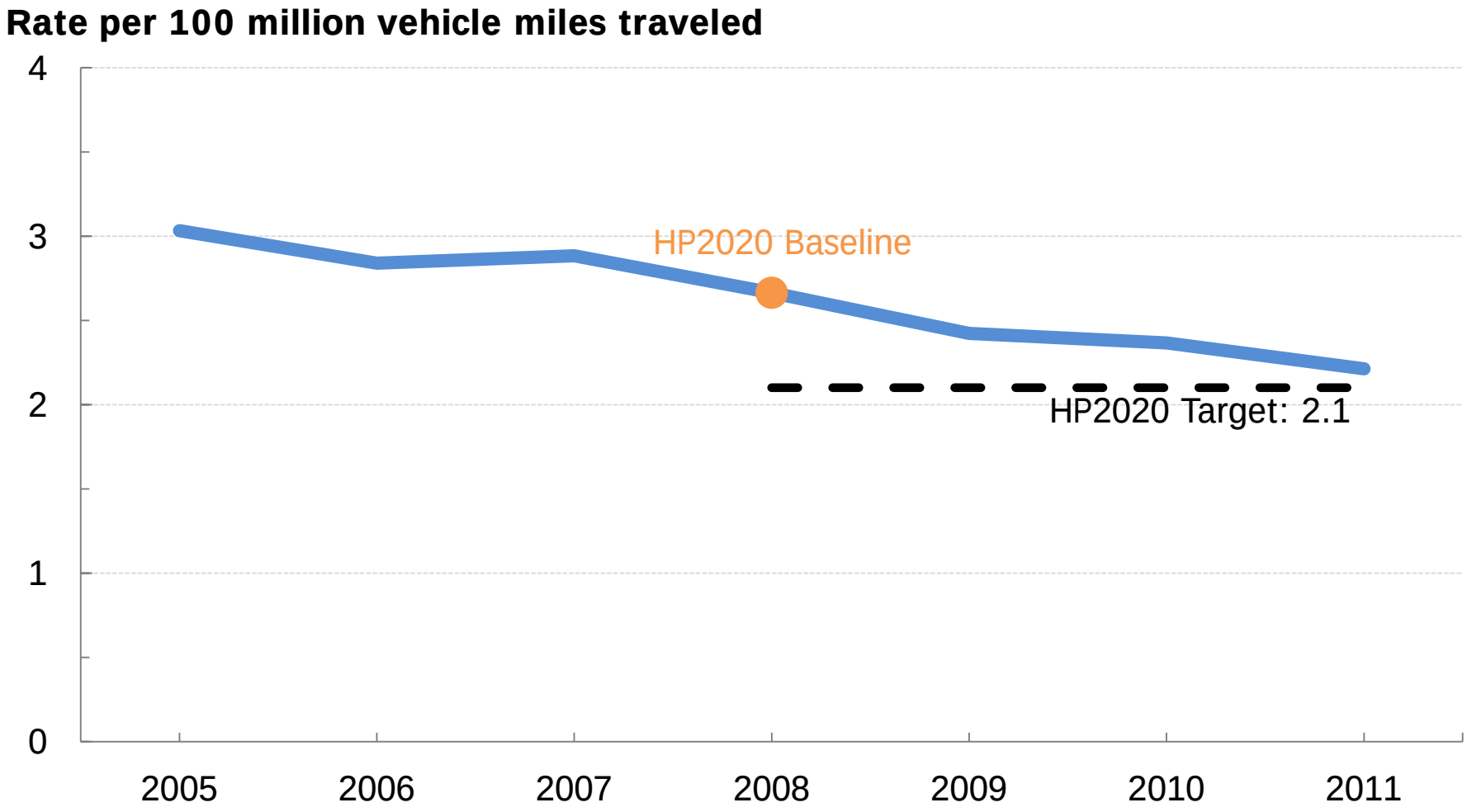


NOTES: I = 95% confidence interval. Data are for adults aged 20 years and over who (snore 5 or more nights per week) OR (snort, gasp, or stop breathing 5 or more nights per week) OR (feel excessively sleepy during the day 16-30 times per month AND usually sleep 7 or more hours per night) who have told a health professional that they have trouble sleeping. Data are age adjusted to the 2000 standard population. Data by age are not age adjusted, and, therefore, the target does not apply to data by age. Respondents were asked to select one or more race categories. The categories black and white are for persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Mexican origin may be any race.

SOURCE: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.

Obj. SH-1
Increase desired

Crashes Involving Drowsy Drivers, 2005–2011

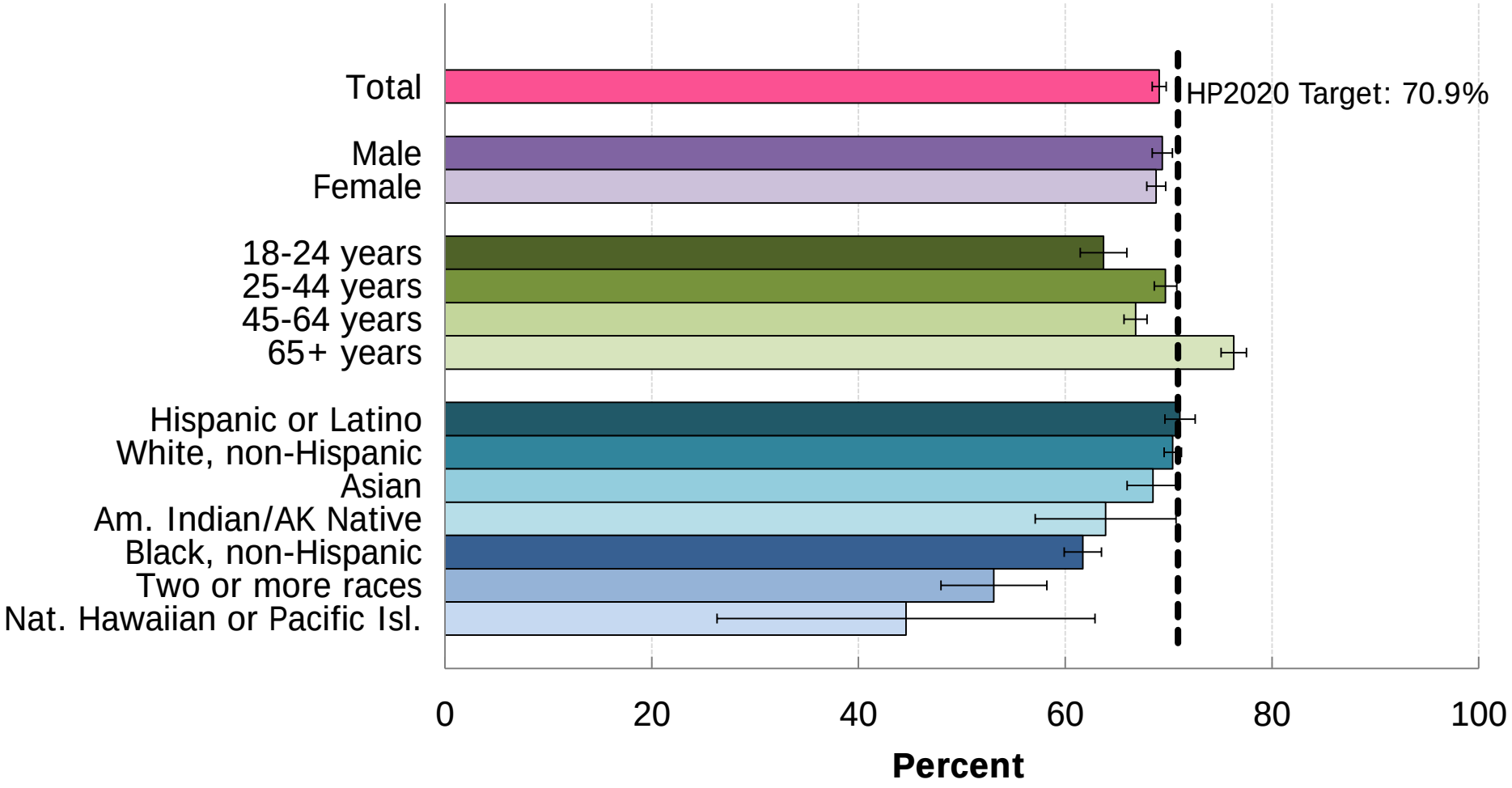


NOTES: Data are for vehicular crashes per 100 million miles traveled due to drowsy driving. General Estimates System data are from a nationally representative sample of police-reported motor vehicle crashes. To be included, the crash must involve a motor vehicle traveling on a traffic way and result in property damage, injury, or death.

SOURCE: General Estimates System (GES), DOT/NHTSA.

Obj. SH-2
Decrease desired

Sufficient Sleep, Adults, 2012

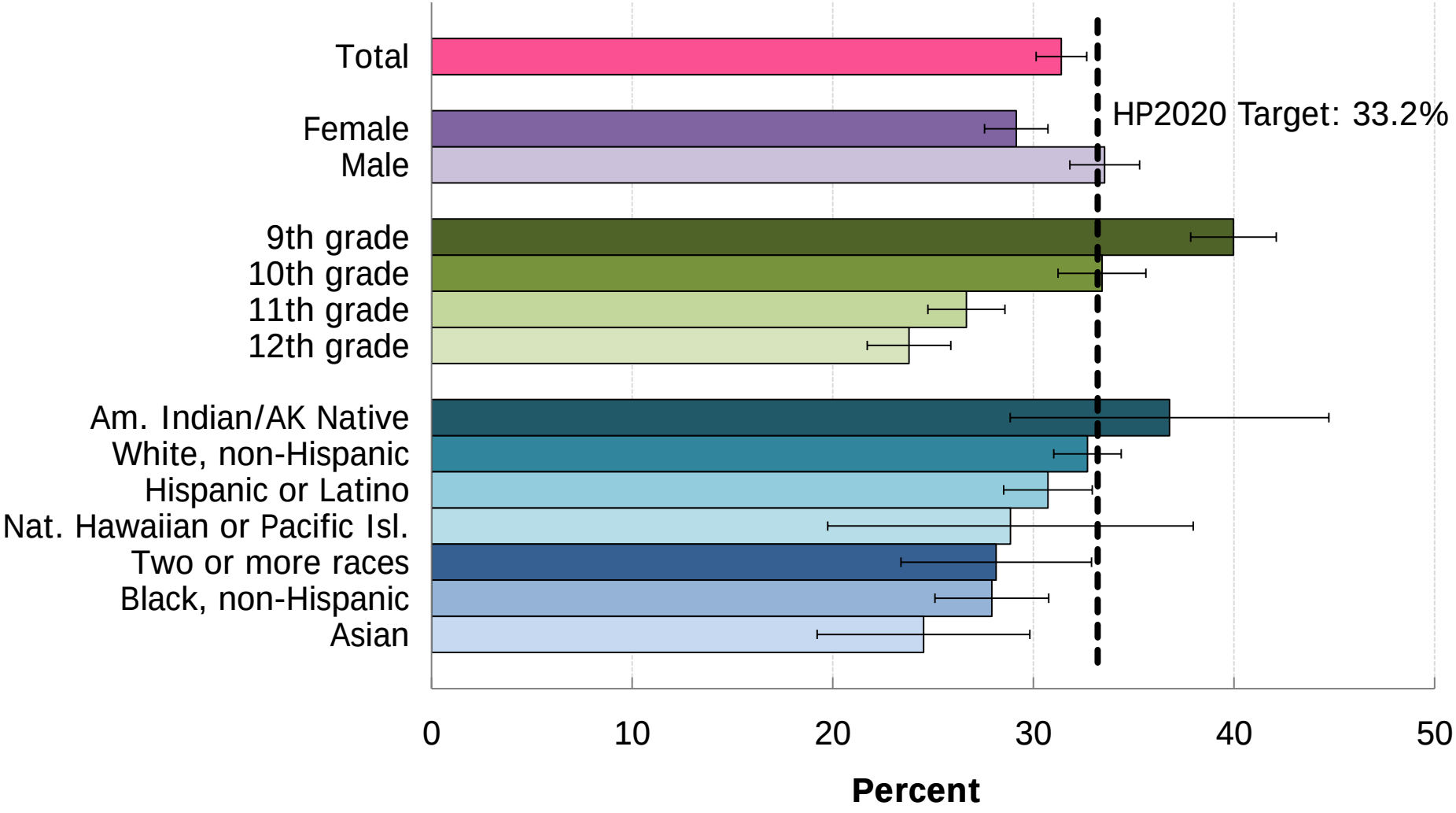


NOTES: I = 95% confidence interval. Data are for adults aged 18 years and over who get sufficient sleep (defined as ≥ 8 hours for those aged 18 to 21 years and ≥ 7 hours for those aged 22 years and over) on average during a 24-hour period. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group. Persons of Hispanic origin may be any race.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. SH-4
Increase desired

Sufficient Sleep, High School Students, 2011



NOTES: I = 95% confidence interval. Data are for students in grades 9–12 who report getting 8 or more hours of sleep on an average school night. Respondents were asked to select one or more races. The single race categories listed include persons who reported only one racial group. Persons of Hispanic origin may be of any race.

SOURCE: Youth Risk Behavior Surveillance System (YRBSS), CDC/NCHHSTP.

Obj. SH-3
Increase desired

Key Takeaways

- **Asthma**
  - Despite increasing prevalence, **deaths have declined** while ED visits and hospitalizations have remained stable.
  - Age, sex, race and income **disparities persist.**
- **COPD**
  - Prevalence is higher for **older age** groups and **lower income** groups.
  - Disparities persist in hospitalizations and deaths by **age and race.**
  - Death rates are highest among the non-Hispanic **white** population.
- **Sleep Health**
  - Disparities exist by sex, race, and age.
  - Most students in **grades 11 and 12** do not get sufficient sleep.

Healthy People 2020

APPENDIX

Note: The information contained within these slides provides additional details to supplement the webinar material.

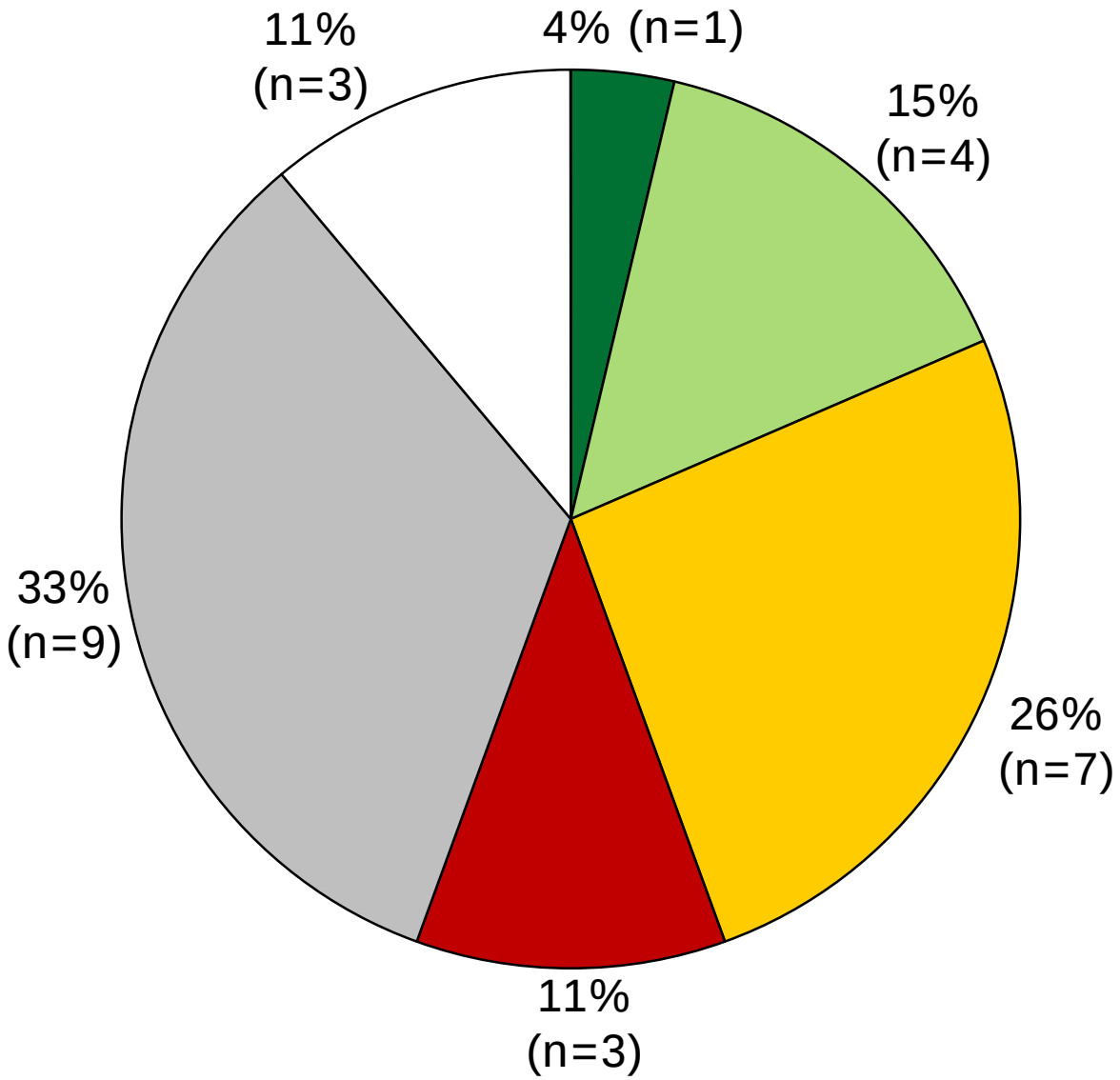
Healthy People 2020

Objective Status: Respiratory Diseases

Target met | Improving | Little/No change | Getting worse | Baseline only | Developmental

- RD-1.1 Asthma deaths: <35 years
- RD-1.2 Asthma deaths: 35–64 years
- RD-1.3 Asthma deaths: 65+ years
- RD–2.1 Asthma hospitalizations: <5 years
- RD-2.2 Asthma hospitalizations: 5-64 years
- RD-2.3 Asthma hospitalizations: 65+ years
- RD-3.1 Asthma emergency department visits: <5 years
- RD-3.2 Asthma emergency department visits: 5-64 years
- RD-3.3 Asthma emergency department visits: 65+ years
- RD-4 Activity limitations among persons with asthma
- RD-5.1 Children with asthma who miss school days
- RD-5.2 Adults with asthma who miss work days
- RD-6 Patient education among persons with asthma
- RD-7.1 Persons with asthma receiving written asthma plans from health care providers
- RD-7.2 Persons with asthma receiving proper use instructions with prescribed inhalers
- RD-7.3 Persons with asthma receiving education on early signs, symptoms, and responses to asthma episodes
- RD-7.4 Persons with asthma who do not use more than 1 beta agonist inhalation canister per month
- RD-7.5 Persons with asthma receiving advice from health professionals in reducing exposure to environmental risk factors
- RD-7.6 Persons with asthma who have had at least one routine follow-up visit in the past year
- RD-7.7 Persons with asthma whose doctor assessed their asthma control in the past year
- RD-7.8 Persons with asthma whose doctor assessed whether their asthma was work related
- RD-8 State comprehensive asthma surveillance systems
- RD-9 Activity limitations among persons with COPD
- RD-10 COPD deaths
- RD-11 COPD hospitalizations
- RD-12 COPD emergency department visits
- RD-13 COPD diagnosis among adults with underlying obstructive lung disease

Current HP2020 Objective Status: Respiratory Diseases



Total number of objectives: 27

- Target met
- Improving
- Little/No change
- Getting worse
- Baseline only
- Developmental

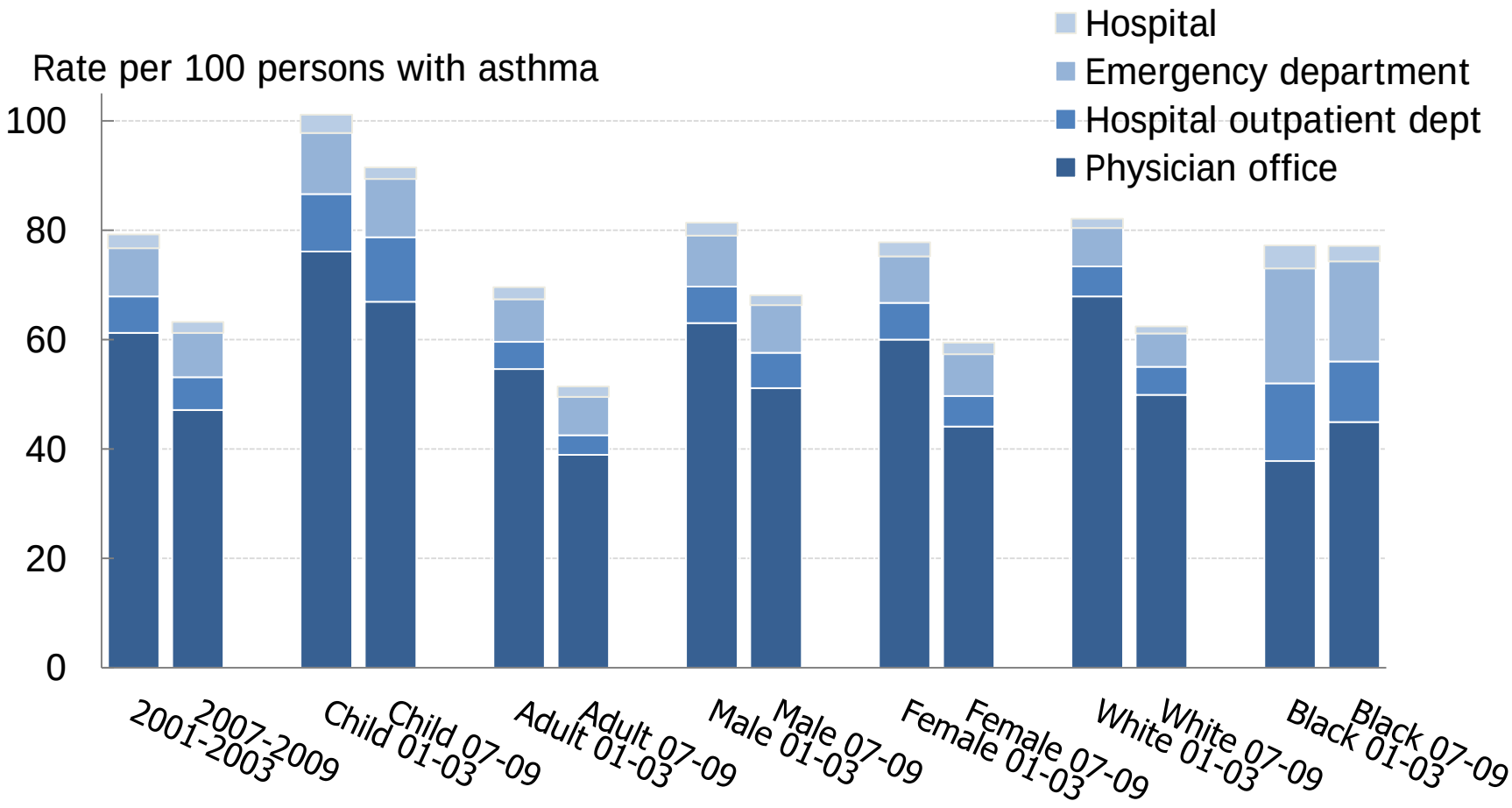
Healthy People 2020

Objective Status: Sleep Health

- SH-1 Adults with symptoms of obstructive sleep apnea
- SH-2 Motor vehicle crashes involving drowsy driving
- SH-3 Students getting sufficient sleep on school nights
- SH-4 Adults getting sufficient sleep per night

Target met | Improving | Little/No change | Getting worse | Baseline only

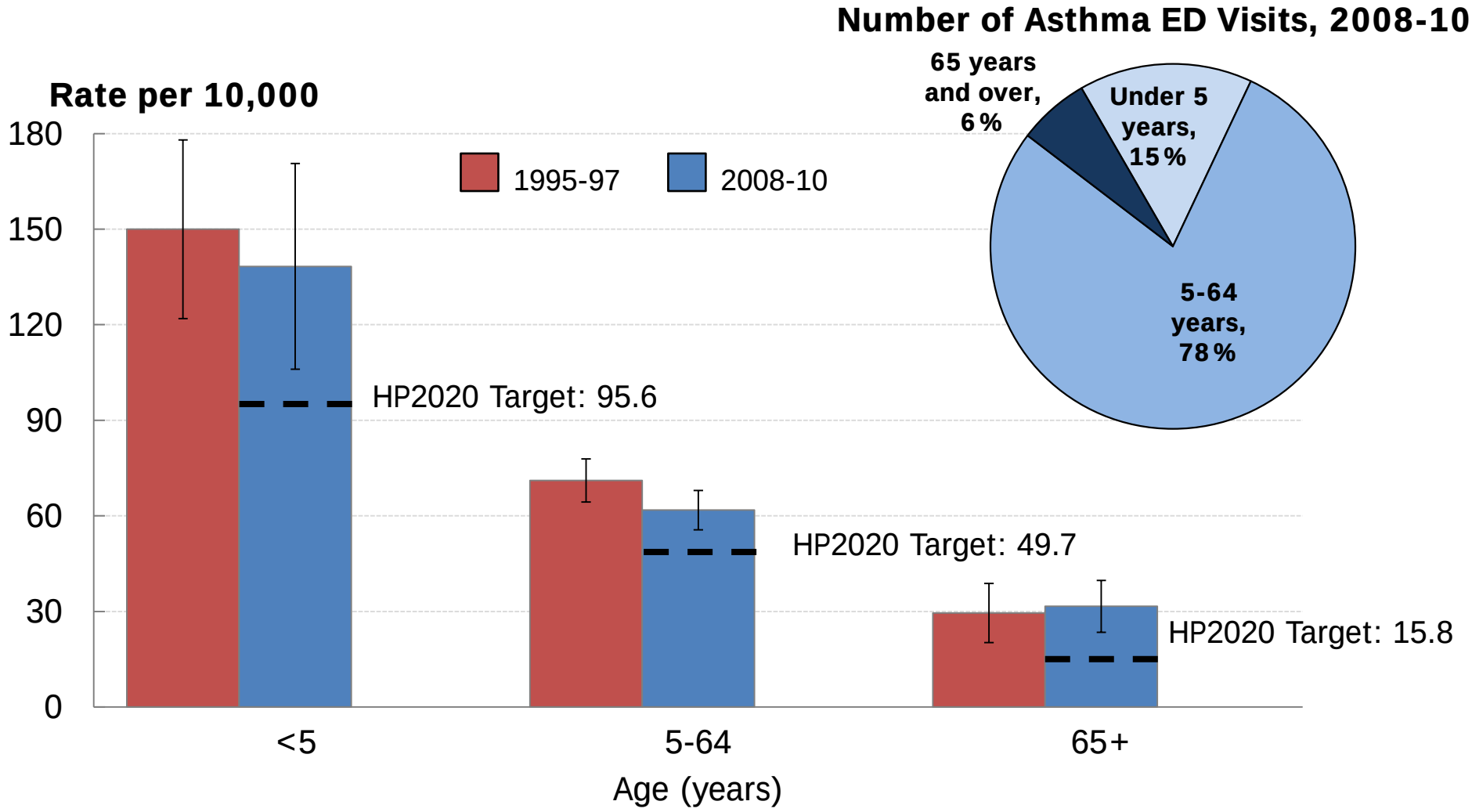
Asthma Health Care Encounter Rates 2001–2009



NOTES: Data are for health care encounters with a principal diagnosis of asthma (ICD-9-CM code 493).

SOURCE: National Ambulatory Medical Care Survey, National Hospital Ambulatory Medical Care Survey, National Hospital Discharge Survey, CDC/NCHS

Asthma Emergency Department Visits

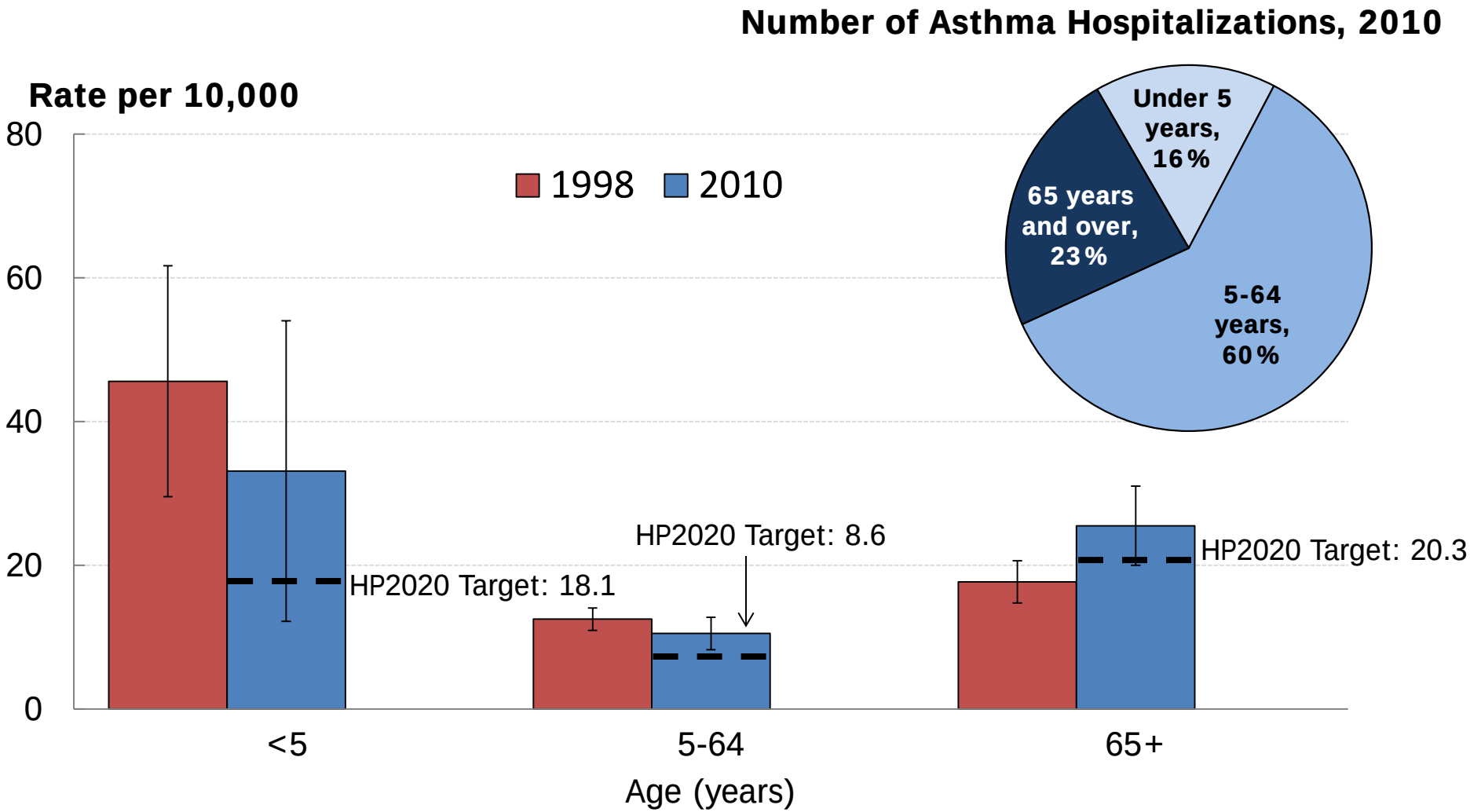


NOTES: I = 95% confidence interval. Data are for visits to an emergency department with a first-listed diagnosis of asthma (ICD-9-CM code 493).

SOURCE: National Hospital Ambulatory Medical Care Survey (NHAMCS), CDC/NCHS.

Obj. RD-3.1, 3.2, 3.3
Decrease desired

Asthma Hospitalizations by Age

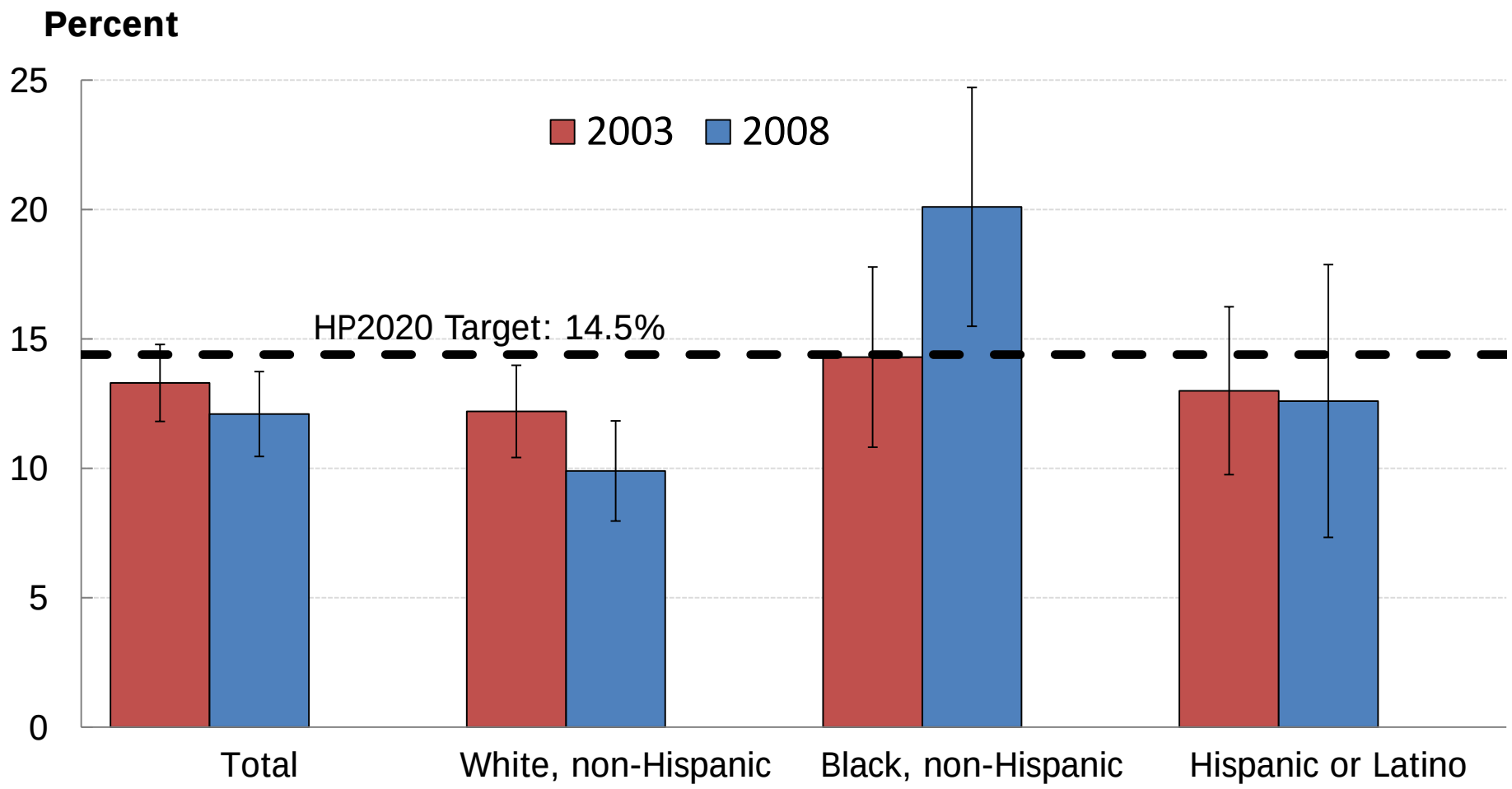


NOTES: I = 95% confidence interval. Data are for hospital discharges with a principal diagnosis of asthma (ICD-9-CM code 493). Data, except those among children aged under 5 years, are age adjusted to the 2000 standard population.

SOURCE: National Hospital Discharge Survey (NHDS), CDC/NCHS.

Obj. RD-2.1, 2.2, 2.3
Decrease desired

Asthma Patient Education

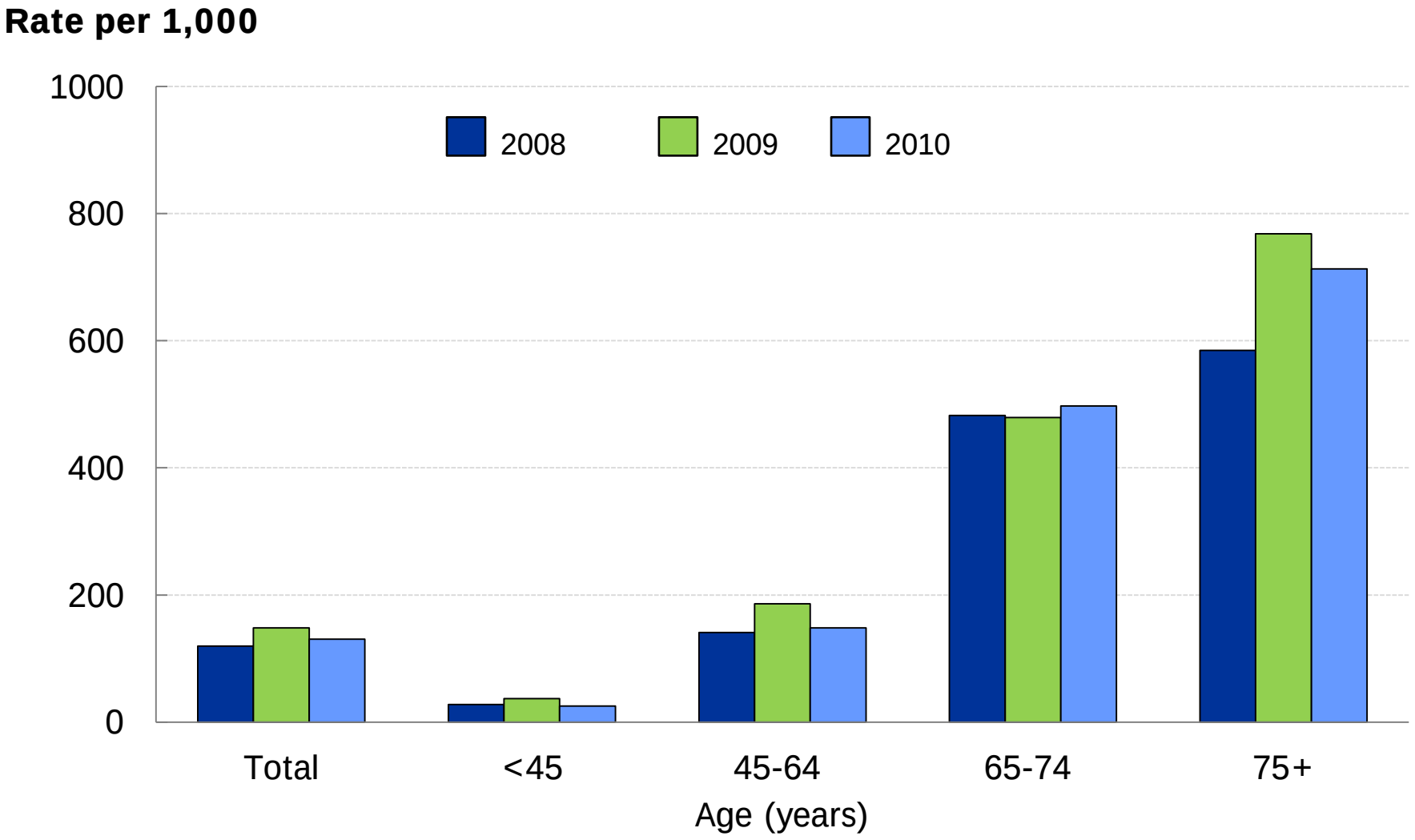


NOTES: I = 95% confidence interval. Data are for the proportion of persons with current asthma who have ever taken a course or class on how to manage their asthma, and are age adjusted to the 2000 standard population. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group. Persons of Hispanic origin may be of any race.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

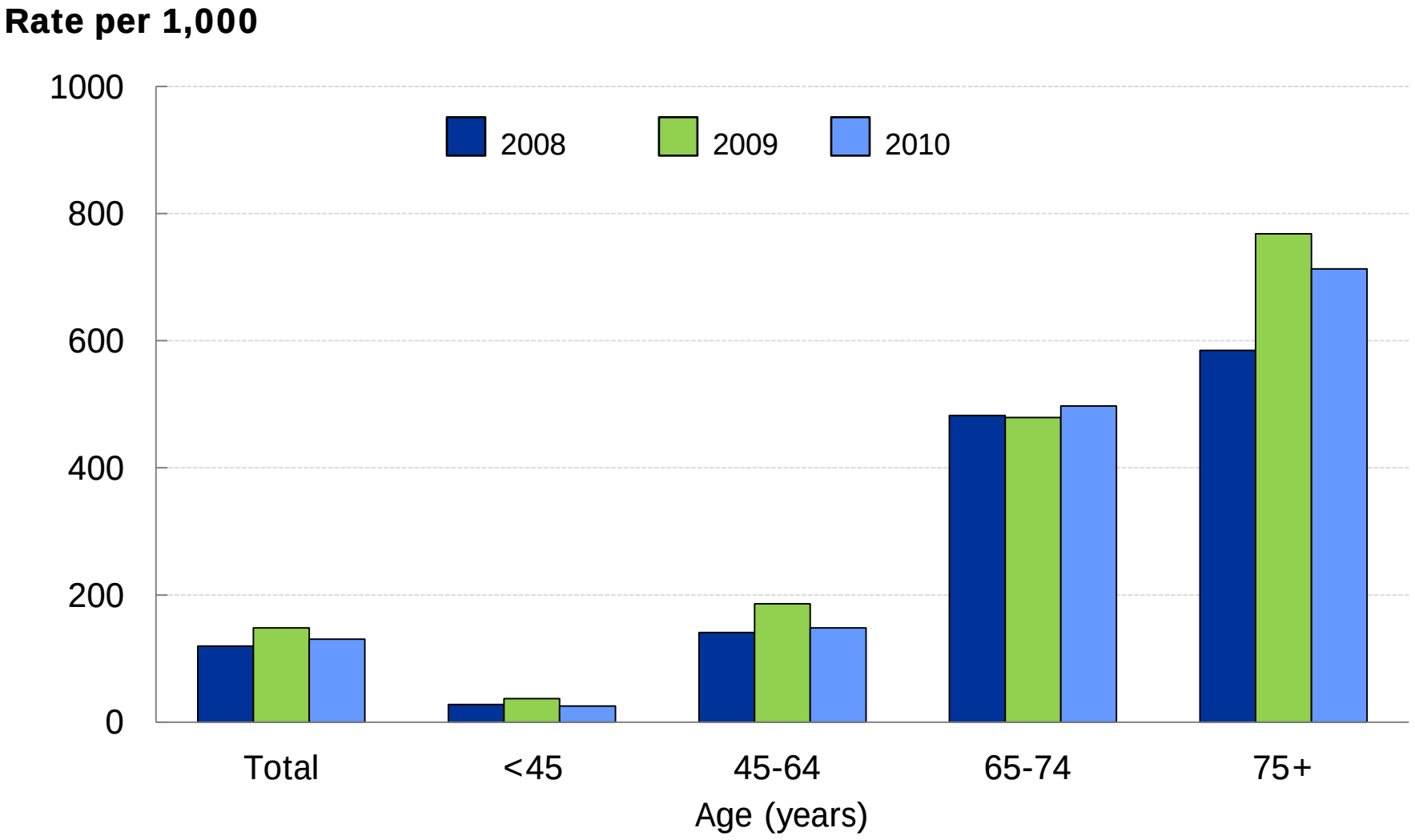
Obj. RD-6
Increase desired

COPD Physician Office Visits, 2008-2010



NOTES: Data are for physician office visits with a principal diagnosis of COPD (ICD-9-CM code 490-492, 496).
SOURCE: National Ambulatory Medical Care Survey (NAMCS), CDC/NCHS.

COPD Physician Office Visits, 2008-2010



NOTES: Data are for physician office visits made by patients with COPD based on the chronic conditions checkbox or any-listed diagnosis of COPD (ICD-9-CM code 490-492, 496).

SOURCE: National Ambulatory Medical Care Survey (NAMCS), CDC/NCHS.

Sleeping, Breathing, and Quality of Life:

Perspectives from:

National Heart, Lung, and Blood Institute
National Institute of Allergy and Infectious Diseases
National Institute of Environmental Health Sciences

Gary H. Gibbons, MD, Director

National Heart, Lung, and Blood Institute

December 5, 2013

Healthy People 2020

Office of Disease Prevention and Health Promotion

Today's Research for Tomorrow's Care: NHLBI Enduring Principles

- Investigator-initiated discovery science.
- Balanced, cross-disciplinary research portfolio.
- Train a diverse new generation of leaders in science.
- Implementation science for public health impact that empowers patients and enables partners.
- Evidenced-based elimination of health disparities.

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Chronic Obstructive Pulmonary Disease (COPD) Research

COPDGene

- Developing innovative imaging tools to detect COPD prior to the onset of symptoms.
- Discovering genetic factors that predispose to COPD as a guide to new therapies.

SPIROMICS

- Collaborative teams developing next-generation diagnostic tests and treatments for COPD.

COPD Clinical Research Network

- Testing new treatment strategies to reduce hospitalizations in COPD patients.
  - Macrolide Antibiotic (Azithromycin) Trial
- Long-term Oxygen Treatment Trial (with CMS)

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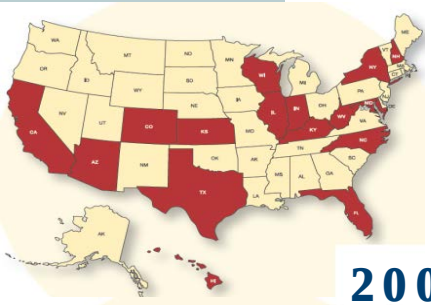
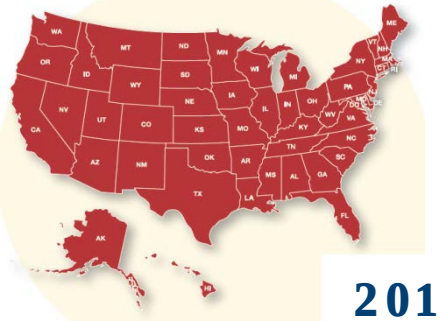
Public Awareness of COPD

Learn More Breathe Better

- **Public Health Challenge**
  - Estimated 24 million Americans with COPD; yet nearly 50% are undiagnosed and unaware.
- **NHLBI Public Awareness Campaign (2007)**
  - **At-Risk Group**: Adults 45+ with a history of smoking
  - **Objectives**
    - To increase awareness and understanding of COPD
    - Empower patients to move from awareness-to-action
  - **Outcomes**
    - Growing 80+ partner network (local/national) in 50 states
    - *Breathe Better Network* members conduct COPD education and outreach in their communities



2009



2013

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NIH National Heart, Lung, and Blood Institute

Improving Asthma Outcomes by Adherence to Evidence-Based Care

NAEPP Guidelines

- Systematically review latest evidence and identify gaps
- Provide recommendations for clinical practice

Healthy People Practice Communities

- Implement guidelines in clinic and community settings
- Define lessons learned, knowledge gaps & future research priorities

Clinical Research

- Test new treatment strategies
- Provide new evidence base for updating guidelines

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Clinical Research Addresses Critical Questions to Improve Asthma Care

- **Do preschoolers with recurrent wheeze need inhaled corticosteroids (ICS) every day?**
  - *Clinical Trial Evidence:* Compared to daily ICS treatment, intermittent therapy (taken only as needed) uses much less (1/3) medicine for similar benefit

The NEW ENGLAND JOURNAL of MEDICINE

THE LANCET
Articles

Annals of Internal Medicine
Established in 1927 by the American College of Physicians

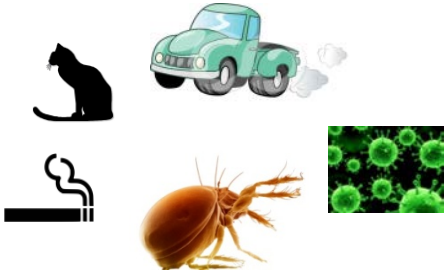
- **Current Trials Examine New Potential Approaches to Asthma Control:**
  - Is asthma control improved by Vitamin D supplementation?
  - Does treatment with a macrolide antibiotic improve wheezing in pre-schoolers?

Healthy People 2020

Developing Novel Therapies for Asthma: A Broad, Balanced, Cross-Disciplinary Portfolio

Social Determinants

Inflammation



Exposures

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Genetics

National Heart, Lung, and Blood Institute

- Epidemiology ➡ key risk factors
- Genetics consortium ➡ personalized medicine
- Basic science ➡ cellular, molecular targets
- Centers to Advance Experimental Therapies
- Origins of Asthma Projects ➡ prevention

National Institute of Allergy and Infectious Diseases

- Allergen Epitope Research and Validation Centers
- Asthma and Allergic Diseases Cooperative Research Centers ➡ role of allergy
- Inner City Asthma Consortium ➡ immune based therapies

National Institute of Environmental Health Sciences

- Research (basic science, epidemiology, clinical) ➡ understanding environmental exposures and genetic susceptibility for prevention and intervention
- Well Being Project ➡ understanding respiratory health among children to identify environmental asthma triggers
- Broader knowledge of asthma ➡ establishing relationship between genes, social factors, and environment

Implementation Science Accelerates Adoption of Evidence-Based Care

Recently funded studies show adherence can be improved with novel approaches:

- Supervised therapy at school by school nurses
- Computer assisted learning in urban high schools
- Voice recognition - automated telecommunication

Current studies examine:

- Cultural competency training for primary care physicians
- Asthma management in Head Start
- Peer telephone counseling for women of color

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The National Asthma Education and Prevention Program (NAEPP): From Expert Panel Report-3 to Six Key Actions

National Asthma Education and Prevention Program (NAEPP)

The NAEPP works with over 40 organizations and partners:

- Major medical associations
- Voluntary health organization
- Federal partners

The NAEPP's Expert Panel Report 3– Guidelines for Diagnosing and Managing Asthma (2007) is based on the best available science

The NAEPP's Guidelines Implementation Panel (GIP) Report (2008) prioritized six key actions

Six Key Actions to Control Asthma

1. **Use inhaled corticosteroids for control of persistent asthma**
2. **Use written asthma action plans**
3. **Assess asthma severity**
4. **Assess and monitor asthma control**
5. **Schedule follow-up visits**
6. **Control environmental exposures**

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www.nhlbi.nih.gov/guidelines/asthma

Mobilizing Partners to Put Guidelines Into Action for Improved Asthma Control

National Asthma Control Initiative (NACI)

- Purpose: To improve asthma care and control, particularly in hard-hit communities, by promoting awareness and use of the NAEPP clinical practice guidelines
- Time Period: 2009-2012
- Audiences:
  - Health Care Providers and Organizations
  - Patients, Families, and Caregivers
  - Schools and Childcare Settings
  - States, Communities, and Coalitions

NATIONAL ASTHMA CONTROL INITIATIVE

Keeping Airways Open

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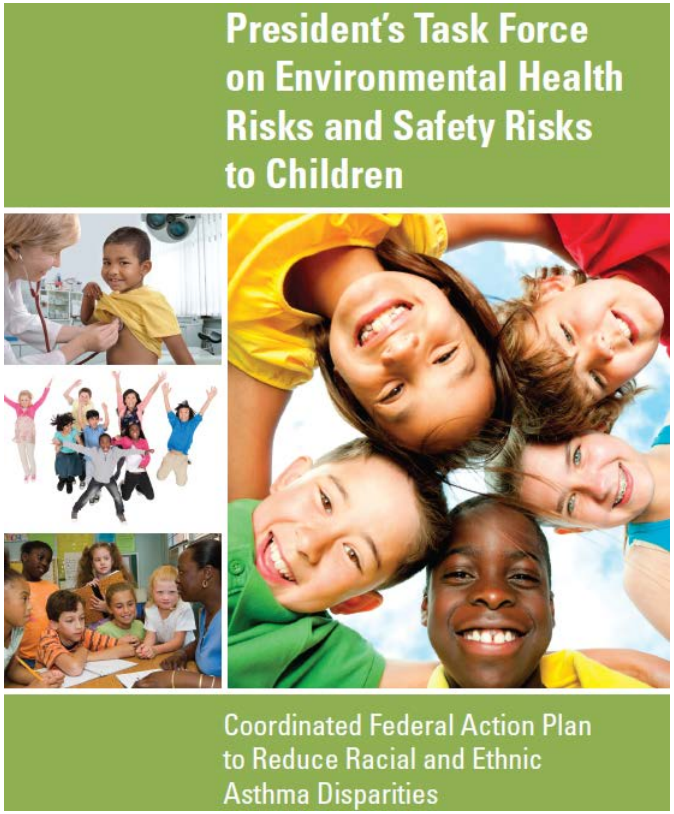
Reducing Disparities: Coordinated Federal Action Plan

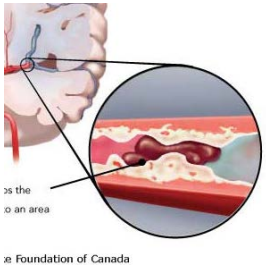


The Federal Action Plan was developed to avoid redundancies & increase impact through interagency collaborations to:

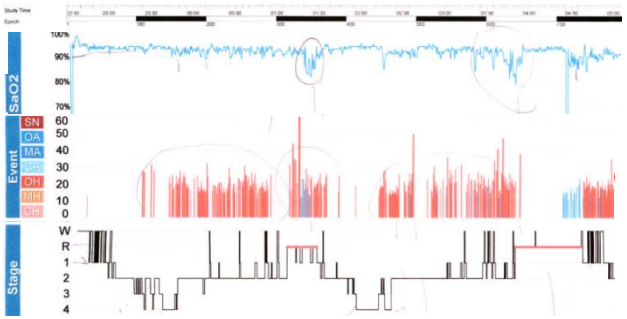
- Reduce barriers to asthma care;
- Enhance local capacity to deliver care; (e.g., health care teams, healthy homes).
- Improve ability to identify children most in need;
- Accelerate research efforts to prevent the onset of asthma

Sleep and Health Outcomes

Stroke risk ⇧

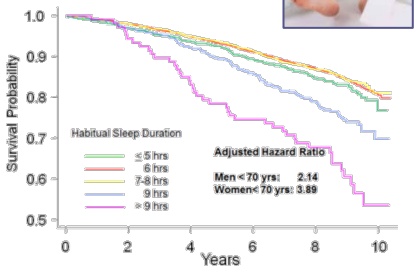


Sleep Deficiency
Sleep Disorder



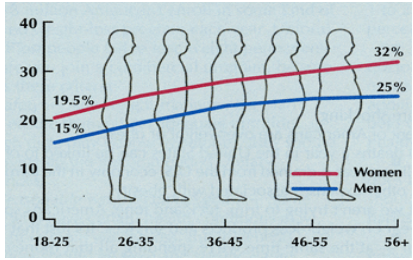
CVD risk ⇧

Hypertension risk ⇧



Mortality ⇧

Obesity risk ⇧



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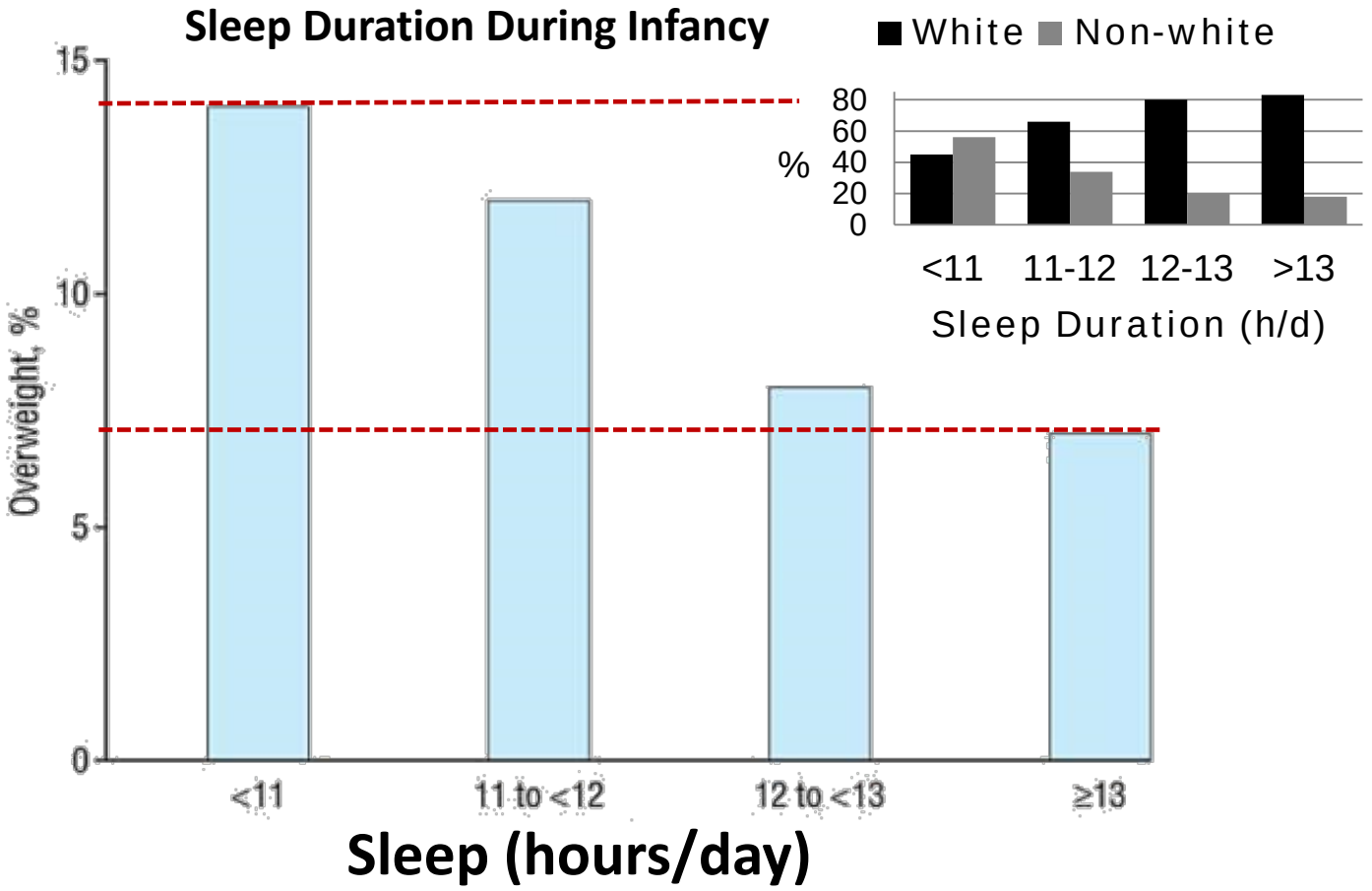
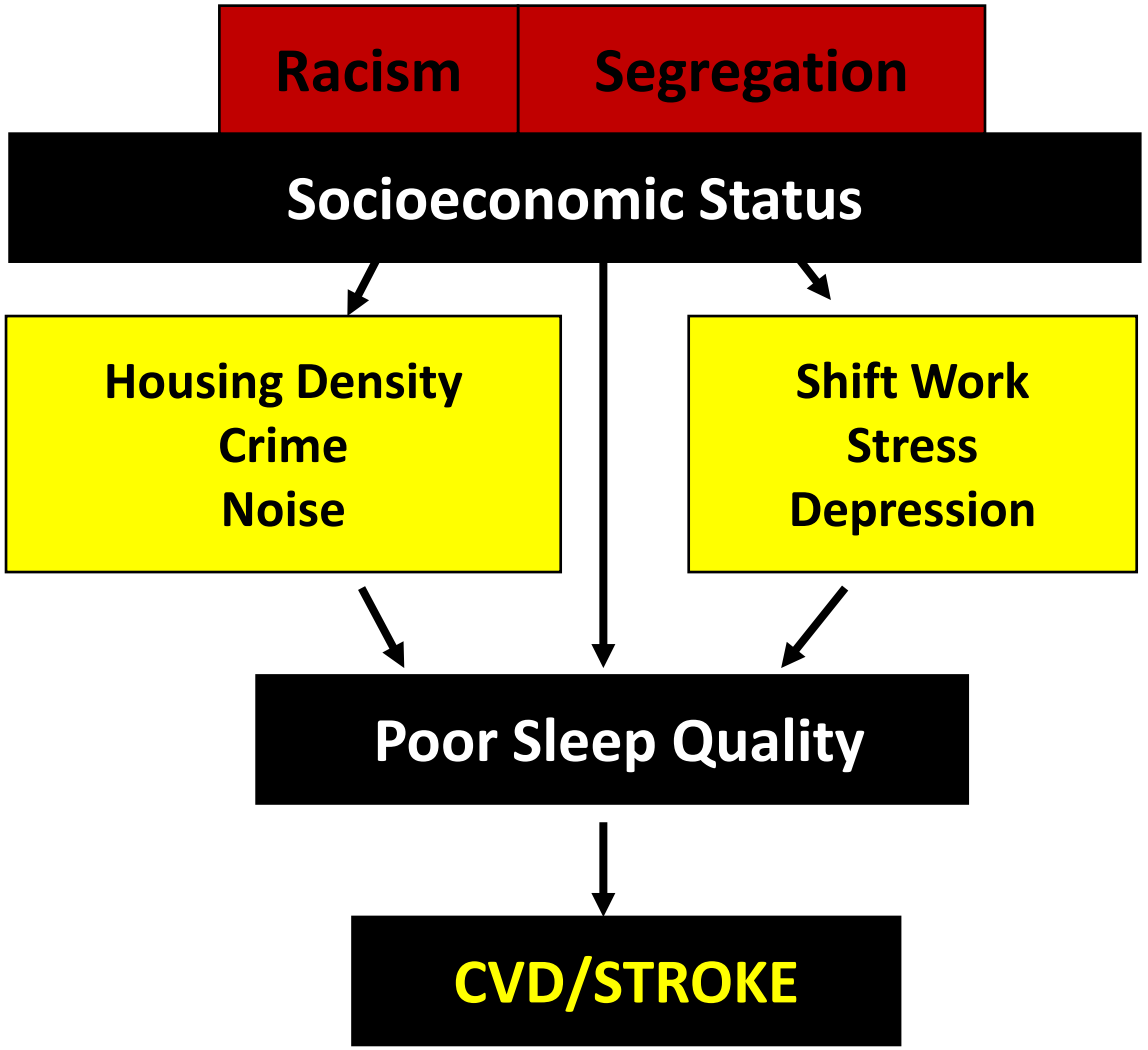
Sleep and Weight Gain in Children: Racial Disparities



Short Sleep Duration in Infancy and Risk of Childhood Overweight
Taveras et al, Arch Pediatr Adolesc Med. 2008 April; 162(4): 305–311.

Sleep and CVD Disparities: Social Context and Systems Science



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Key Takeaways

- NHLBI maintains a broad portfolio of research to effectively elucidate factors influencing COPD, asthma and sleep.
- Collaborations among NIH Institutes (NHLBI, NIAID, NIEHS) allows us to maximally leverage resources and broaden the NIH scope
- We work with our stakeholders to generate evidence, translate the science, increase awareness, and promote partnerships for respiratory and sleep health and attainment of HP 2020 goals.

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Vikas Kapil, DO, MPH, FACOEM

Acting Deputy Director and Chief Medical Officer
National Center for Environmental Health and
Agency for Toxic Substances and Disease Registry
Centers for Disease Control and Prevention

Healthy People 2020

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA

OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION

Sleep and Respiratory Diseases

CDC

- National Center for Environmental Health (NCEH)
  - Asthma
- National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)
  - Asthma, COPD and Sleep
- National Institute for Occupational Safety and Health (NIOSH)
  - Asthma, COPD and Sleep

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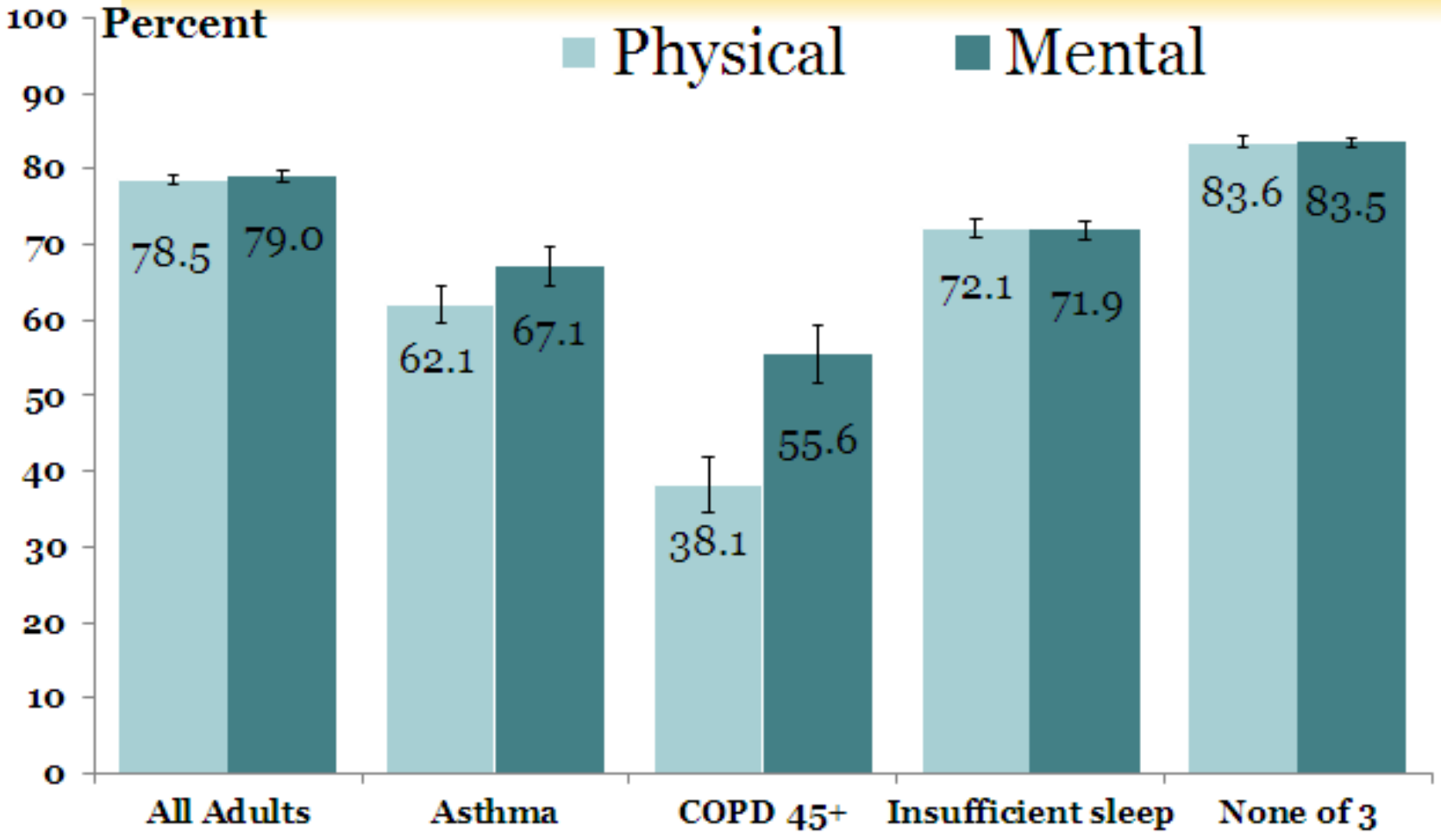
Adults Reporting Good or Better Physical and Mental Health* United States, 2010



* Global PROMIS scale I Confidence Interval

National Health Interview Survey: United States, 2010

NCEH: America Breathing Easier Since 1999
CDC's National Asthma Control Program

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NCEH: Reducing the Burden from Asthma
CDC's National Asthma Control Program

A Public Health Approach Since 1999:

- **Surveillance**
  - National and state level data
  - Asthma Call-back Survey
- **Partnerships**
  - 34 states, Washington D.C., and Puerto Rico
  - Non-governmental organizations
  - Federal agencies
- **Interventions and Evaluation**
  - Self-management education
  - Health care provider education
  - Environmental management
  - School-based programs

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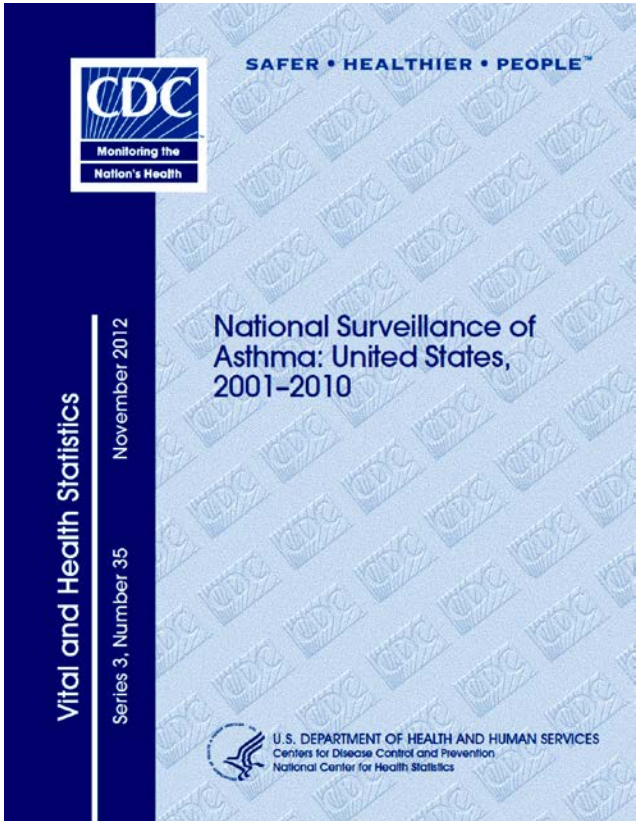
NCEH: National Asthma Surveillance

- Prevalence
- Mortality
- Hospitalization
- Outpatient visits
- ED visits
- Physician office visits



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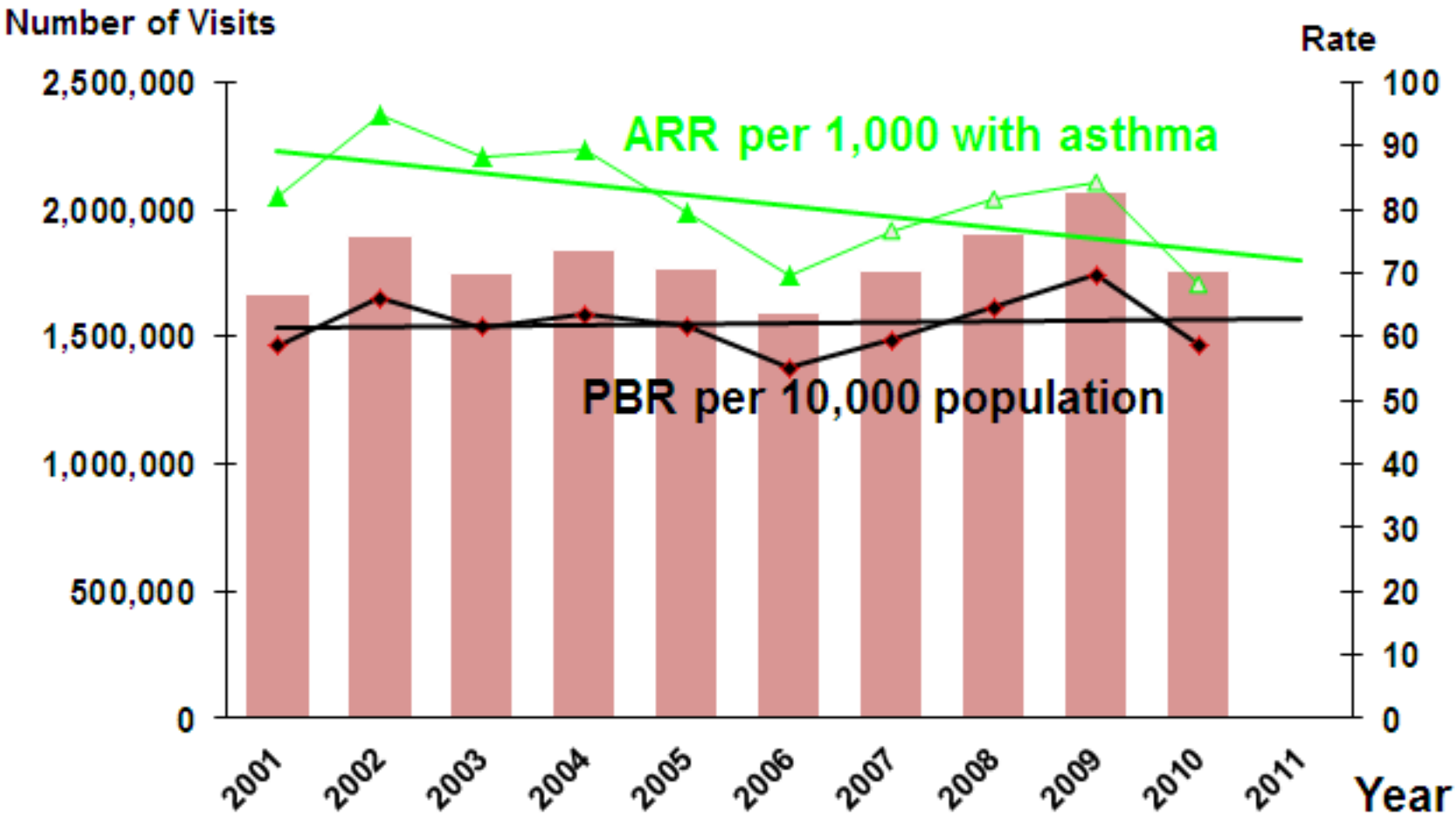
Asthma ED Visits* and Population and Risk-based Rates: United States, 2001 – 2010



* First-listed diagnosis; PBR population-based rate; ARR at-risk-rate

NHAMCS; National Center for Health Statistics

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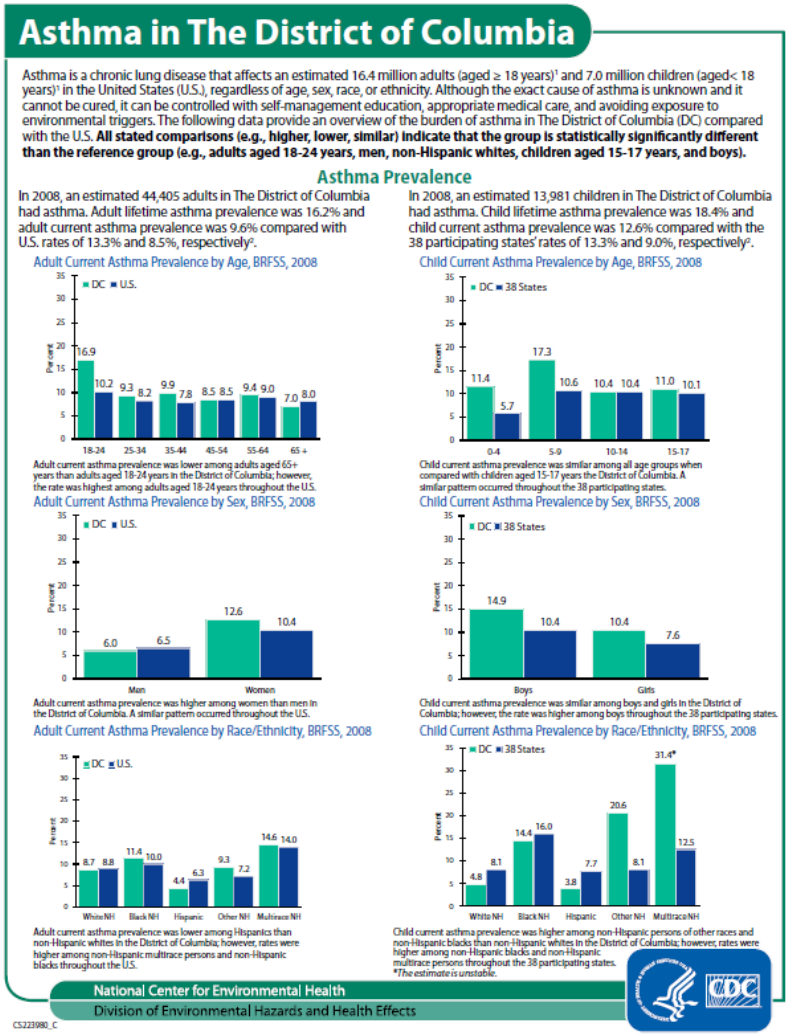
NCEH: State Surveillance: Data Profiles

- Prevalence
- Mortality
- Hospitalization
- Patient education
- Medication use



Asthma in The District of Columbia

Asthma is a chronic lung disease that affects an estimated 16.4 million adults (aged ≥ 18 years)[1] and 7.0 million children (aged< 18 years)[1] in the United States (U.S.), regardless of age, sex, race, or ethnicity. Although the exact cause of asthma is unknown and it cannot be cured, it can be controlled with self-management education, appropriate medical care, and avoiding exposure to environmental triggers. The following data provide an overview of the burden of asthma in The District of Columbia (DC) compared with the U.S. **All stated comparisons (e.g., higher, lower, similar) indicate that the group is statistically significantly different than the reference group (e.g., adults aged 18-24 years, men, non-Hispanic whites, children aged 15-17 years, and boys).**

Asthma Prevalence

In 2008, an estimated 44,405 adults in The District of Columbia had asthma. Adult lifetime asthma prevalence was 16.2% and adult current asthma prevalence was 9.6% compared with U.S. rates of 13.3% and 8.5%, respectively[2].

In 2008, an estimated 13,981 children in The District of Columbia had asthma. Child lifetime asthma prevalence was 18.4% and child current asthma prevalence was 12.6% compared with the 38 participating states' rates of 13.3% and 9.0%, respectively[2].

Adult Current Asthma Prevalence by Age, BRFSS, 2008

Adult current asthma prevalence was lower among adults aged 65+ years than adults aged 18-24 years in the District of Columbia; however, the rate was highest among adults aged 18-24 years throughout the U.S.

Child Current Asthma Prevalence by Age, BRFSS, 2008

Child current asthma prevalence was similar among all age groups when compared with children aged 15-17 years the District of Columbia. A similar pattern occurred throughout the 38 participating states.

Adult Current Asthma Prevalence by Sex, BRFSS, 2008

Adult current asthma prevalence was higher among women than men in the District of Columbia. A similar pattern occurred throughout the U.S.

Child Current Asthma Prevalence by Sex, BRFSS, 2008

Child current asthma prevalence was similar among boys and girls in the District of Columbia; however, the rate was higher among boys throughout the 38 participating states.

Adult Current Asthma Prevalence by Race/Ethnicity, BRFSS, 2008

Adult current asthma prevalence was lower among Hispanics than non-Hispanic whites in the District of Columbia; however, rates were higher among non-Hispanic multirace persons and non-Hispanic blacks throughout the U.S.

Child Current Asthma Prevalence by Race/Ethnicity, BRFSS, 2008

Child current asthma prevalence was higher among non-Hispanic persons of other races and non-Hispanic blacks than non-Hispanic whites in the District of Columbia; however, rates were higher among non-Hispanic blacks and non-Hispanic multirace persons throughout the 38 participating states.
*The estimate is unstable.

National Center for Environmental Health
Division of Environmental Hazards and Health Effects

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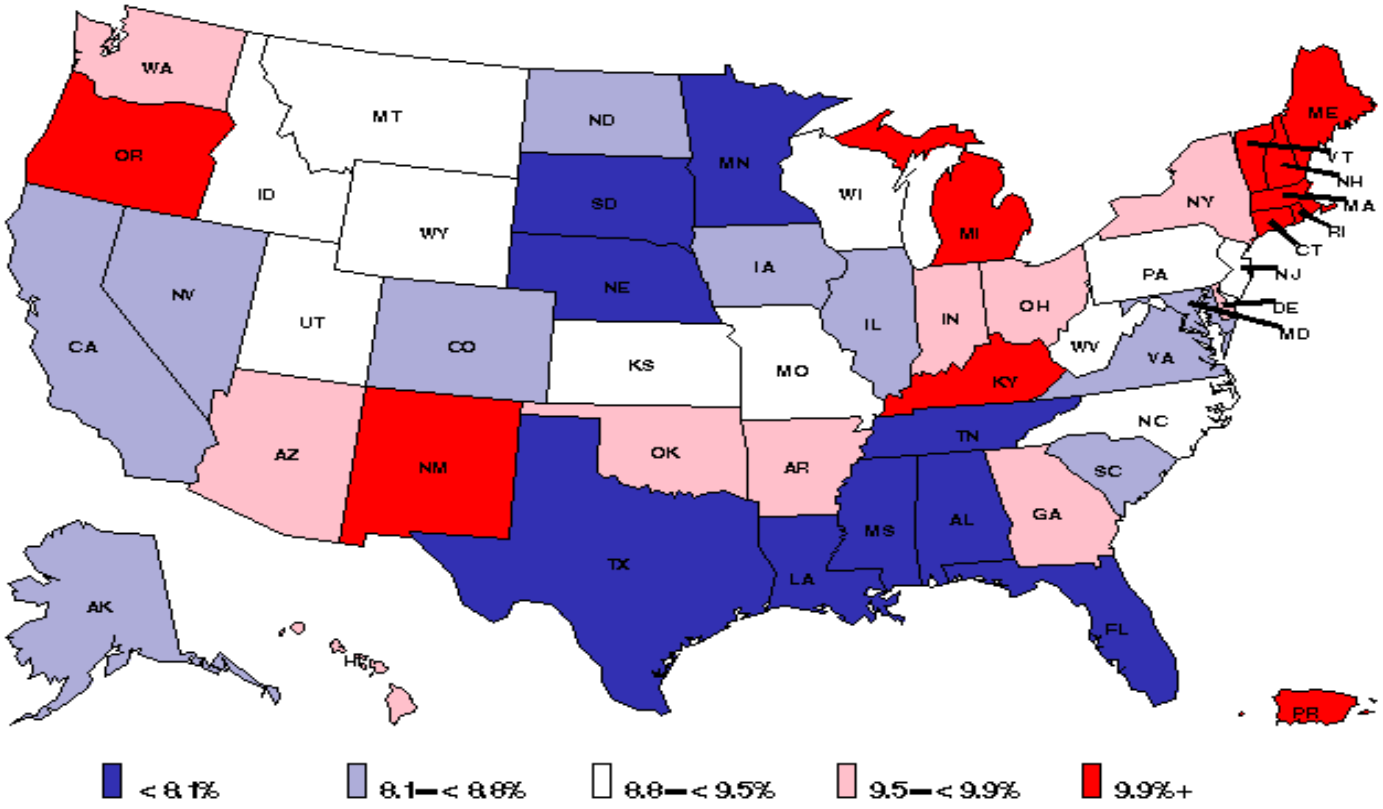
Current Asthma Prevalence, Adults 18+ years



NOTES: Data are for adults aged 18 years and over who have ever been diagnosed with asthma and still have asthma, State data from the BRFSS may not be comparable to the national data from the NHIS.

SOURCE: Behavioral Risk Factor Surveillance System (BRFSS), CDC/PHSPO

NCEH: Education for a Partnership in Asthma Care

- Establish and Maintain a Partnership
  - jointly develop treatment goals
  - health literacy (read, count, measure, time, schedule)
  - cultural sensitivity/ ethnic considerations
- Provider Education
  - implementing guidelines
  - communication techniques
  - clinical decision support
  - systems-based interventions

Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma
http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm p93-164

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NCEH: Education for a Partnership in Asthma Care

- Asthma Self-Management Education at Multiple Points of Care
  - clinic/office-based education
  - emergency department/ hospital-based education
  - education by pharmacists
  - education in school settings
  - community-based interventions
  - home-based interventions
- Tools for Asthma Self-Management
  - asthma action plans
  - peak flow meters

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Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma
http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm p93-164

NCCDPHP: COPD Efforts

- Develop a strategic framework to tackle COPD as a public health issue
- Improve COPD surveillance
- Increase COPD awareness

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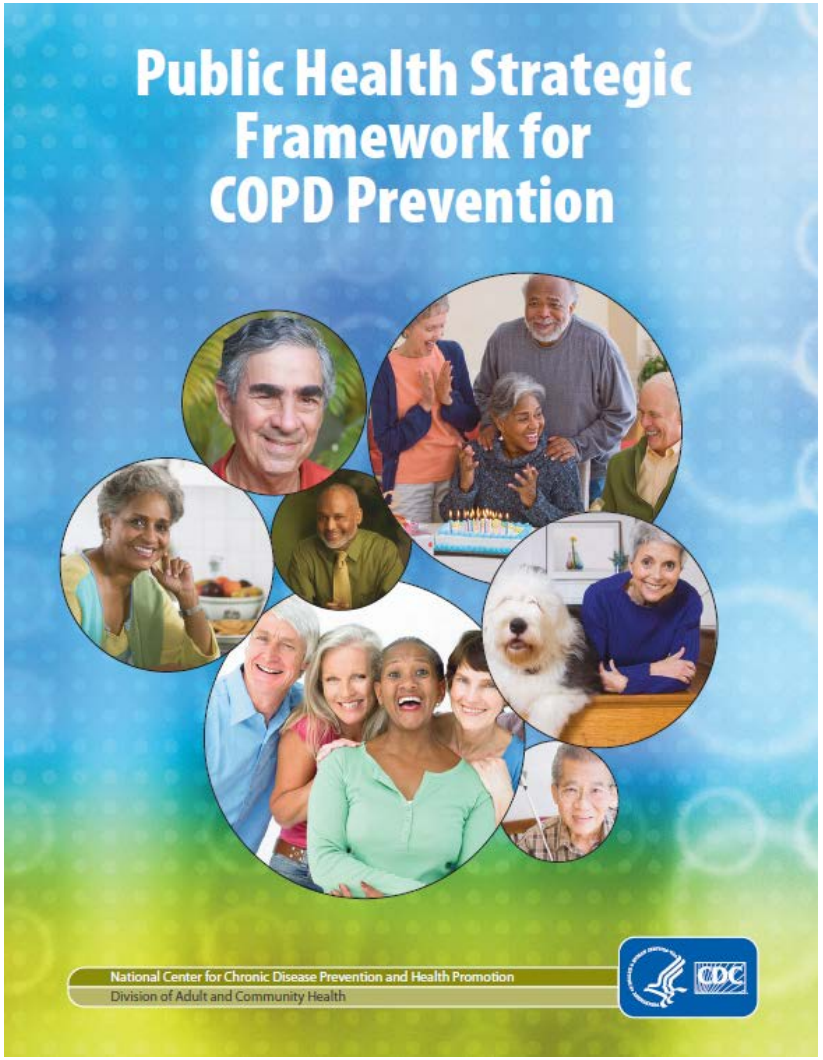
NCCDPHP: Strategic Framework - COPD

Public Health Strategic Framework for COPD Prevention



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NCCDPHP: Improve COPD Surveillance

- National Health and Nutrition Examination Survey
  - Adult Medical Condition Questionnaire
  - Respiratory Health and Disease Questionnaire
  - Spirometry

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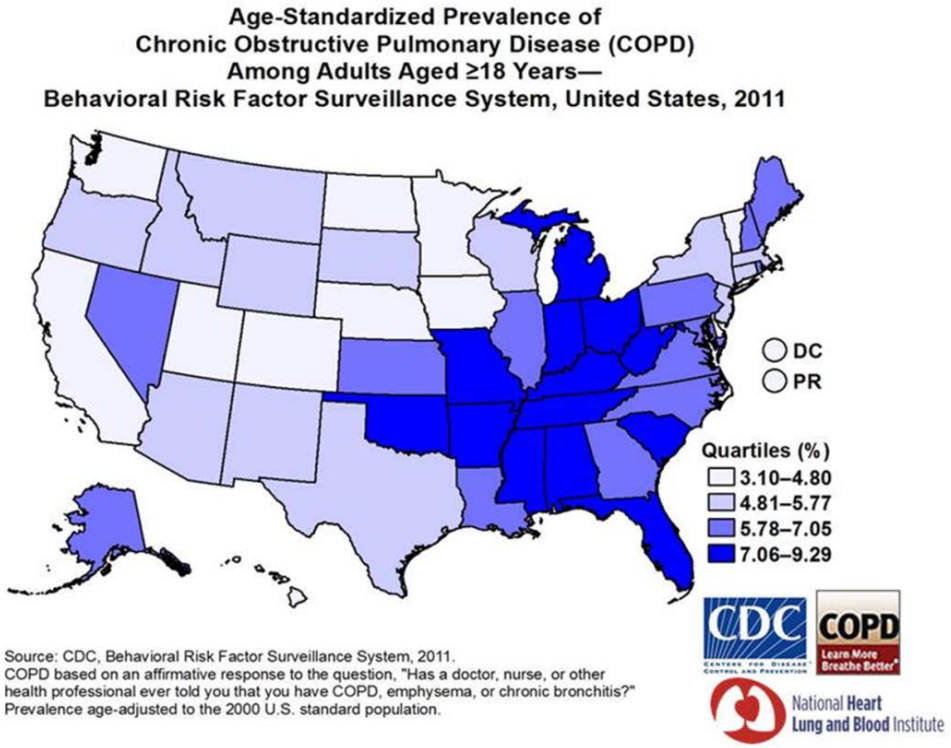
NCCDPHP: Improve COPD Surveillance

- Behavioral Risk Factor Surveillance System
  - Core question: (Ever told) you have COPD (chronic obstructive pulmonary disease), emphysema or chronic bronchitis?
  - COPD module questions asked of individuals with COPD in 20 states, DC, and Puerto Rico (2011)



NCCDPHP: Increase COPD Awareness

Chronic Obstructive Pulmonary Disease

COPD among Adults in MISSOURI

What Is Chronic Obstructive Pulmonary Disease (COPD)?

COPD is the name for a group of diseases that restrict air flow and cause trouble breathing. COPD includes emphysema and chronic bronchitis. Chronic lower respiratory disease, including COPD, is the third leading cause of death in the United States.[1] Fifteen million Americans have been diagnosed with COPD.[2] Two decades ago, more than 50% of adults with poor pulmonary function were not aware that they had COPD, therefore millions more may have it.[3]

Symptoms

- Chronic cough (also known as smoker's cough).
- Chronic phlegm production.
- Shortness of breath while doing things you used to be able to do.
- Not being able to take a deep breath.
- Wheezing.

Causes

Tobacco use is the primary cause of COPD in the United States, but air pollutants at home (such as secondhand smoke and some heating fuels) and at work (such as dusts, gases, and fumes), and genetic predisposition also can cause COPD.

Prevention and Treatment

For current smokers, smoking cessation is essential for preventing COPD. Eliminating exposure to tobacco smoke and other environmental pollutants is also important. While there is no cure for COPD, treatment is available to manage the symptoms that are caused by COPD and improve quality of life. Treatment options include medication (such as inhalers), pulmonary rehabilitation, physical activity training, and oxygen treatment.

1. Kochanek KD, Xu J, Murphy SL, Miniño AM, Kung HC. Deaths: final data for 2009. *Nat Vital Stat Rep*. 2012; 60(3): 1-117.
2. CDC. Chronic obstructive pulmonary disease among adults—United States, 2011. *MMWR*. 2012; 61(46):938-943.
3. Mannino DM, Gagnon RC, Petty TL, Lydick E. Obstructive lung disease and low lung function in adults in the United States: data from the National health care and Nutrition Examination Survey 1988-1994. *Arch Intern Med*. 2000;160:1683-1689.

COPD Risk Factors

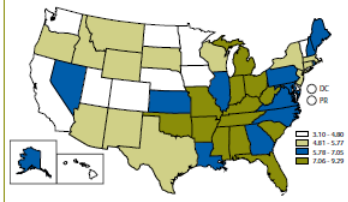
You may be at an increased risk if you are older than 40 years and

- **Have symptoms of COPD.**
- **Have a history of smoking.**
- **Have been exposed to environmental or occupational pollutants.**

Please talk with your health care provider about being tested for COPD using spirometry (a breathing test).

8.0% (age-adjusted = 7.6%) of Missouri residents surveyed in 2011 reported having been told by a health care professional that they have COPD. The map below depicts quartiles of the national prevalence of COPD by state for comparison.

Age-Adjusted† Percentage of U.S. Adults with COPD by State or Territory, 2011*



†Age-adjusted to the 2000 U.S. standard population.
*Behavioral Risk Factor Surveillance Survey (BRFSS) for 2011.

COPD Learn More Breathe Better®

Find more information about COPD and its treatment is available at www.cdc.gov/. Type *COPD* in the search box or visit the COPD Learn More Breathe Better® Campaign, at www.nhlbi.nih.gov/health/health-topics/topics/copd/

Other resources:

- www.copdfoundation.org/
- www.thoracic.org/clinical/copd-guidelines/index.php
- www.goldcopd.org/

National Center for Chronic Disease Prevention and Health Promotion
Division of Population Health

CS241875_AZ

The table to the right breaks down the prevalence of COPD among Missouri adults by age, race/ethnicity, sex, employment status, education level, income, marital status, smoking status, and asthma history.

Respondents were more likely to report COPD ($p<0.05$) if they

- Were female.
- Were unable to work.
- Had not graduated from high school.
- Had a household income of $25,000 or less.
- Were divorced, widowed, or separated.
- Were current smokers.
- Had a history of asthma.

Respondents were less likely to report COPD ($p<0.05$) if they

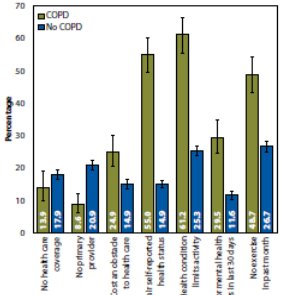
- Were aged 44 years or younger.
- Were male.
- Had at least some college education.
- Had never smoked.
- Had no history of asthma.

The figure below compares health and health care characteristics by COPD status.

Compared with adults without COPD, adults with COPD were more likely ($p<0.05$) to report

- They had a primary health care provider.
- Cost was an obstacle to health care.
- Poor/fair health status.
- A health condition limited activity.
- Fourteen or more poor mental health days in the past 30 days.
- No exercise in the past month.

Health and Healthcare Characteristics by COPD Status: Missouri



Percentage of Missouri Adults with COPD, 2011 BRFSS*, n=6,335

Characteristic	%	95% CI
Age Group (Years)		
18–44	3.7	(2.7–5.0)
45–54	9.4	(7.5–11.8)
55–64	13.0	(10.8–15.5)
65–74	13.0	(10.7–15.7)
≥75	14.7	(12.0–17.9)
Race/Ethnicity		
White	8.2	(7.3–9.2)
Black	7.2	(4.7–10.9)
Hispanic	**	—
Other	13.4	(8.7–20.1)
Sex		
Men	6.8	(5.7–8.1)
Women	9.3	(8.2–10.6)
Employment Status		
Employed	3.6	(2.9–4.5)
Unemployed	9.2	(6.1–13.7)
Homemaker/Student	5.3	(3.3–8.2)
Retired	12.4	(10.6–14.4)
Unable to work	31.8	(26.8–37.3)
Education Level		
Less than High School Diploma	14.2	(11.3–17.7)
High School Diploma or GED	9.4	(8.0–11.1)
At least Some College	5.7	(4.8–6.8)
Income		
<$25,000	14.5	(12.5–16.7)
$25,000–$49,999	6.7	(5.3–8.4)
$50,000–$74,999	5.2	(3.5–7.7)
>$75,000+	3.4	(2.3–4.9)
Marital Status		
Married	7.3	(6.3–8.6)
Divorced/Widowed/Separated	14.3	(12.4–16.4)
Never Married	4.5	(3.2–6.4)
Member of Unmarried Couple	**	—
Smoking Status		
Current	15.9	(13.5–18.5)
Former	11.3	(9.6–13.2)
Never	2.6	(2.0–3.4)
Ever Had Asthma		
Yes	22.2	(18.9–26.0)
No	5.9	(5.1–6.7)

*BRFSS for 2011. Respondents were asked, "Have you ever been told by a doctor or health professional that you have COPD, emphysema, or chronic bronchitis?"

**Relative standard error ≥0.3. Learn more about BRFSS methodology at www.cdc.gov/BRFSS.

Healthy People 2020

NCCDPHP: Sleep Activities

- Improve sleep-related content of national and state surveillance systems
- Increase public awareness of the importance of healthy sleep
- Support research
- Promote sleep-healthy policies

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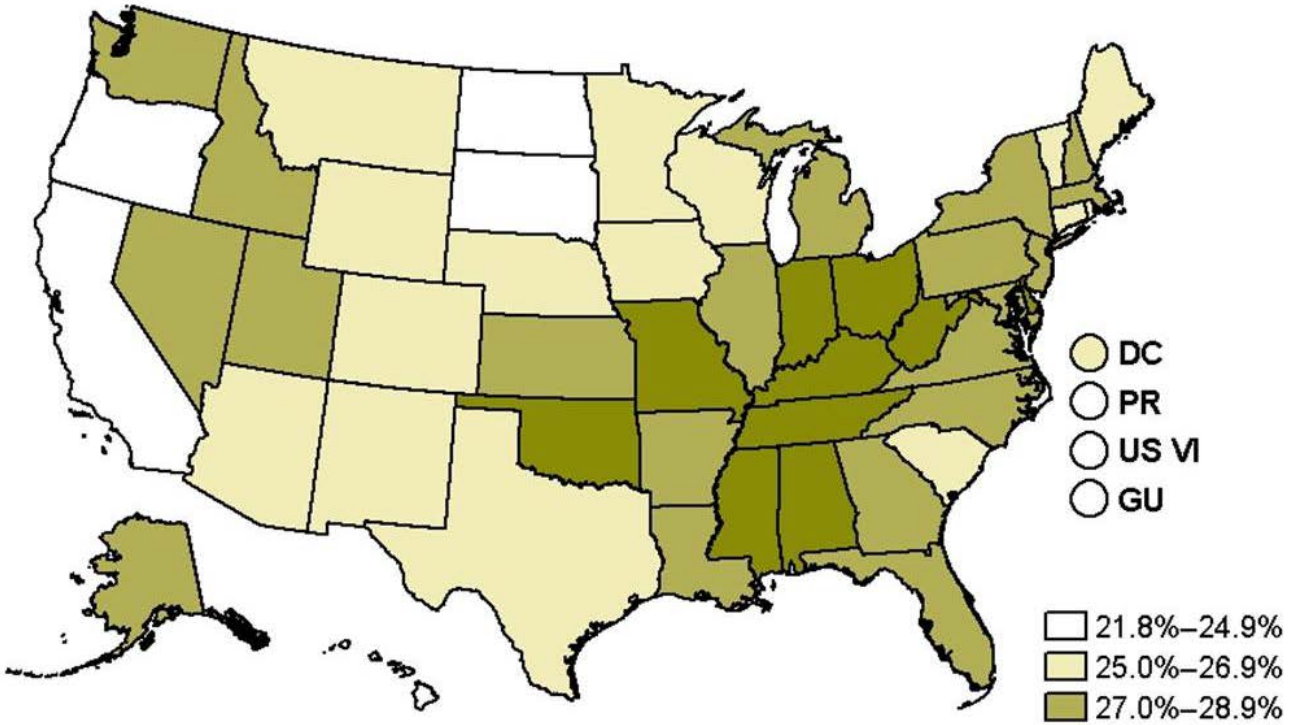
NCCDPHP: Improved Surveillance for Sleep Issues

Behavioral Risk Factor Surveillance System:

Days of perceived insufficient rest or sleep question

Percentage of adult population that reported ≥14 days of insufficient rest or sleep in the past 30 days, 2008-2009



Source: 2008–2009 Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

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NCCDPHP: Improved Surveillance for Sleep Issues

- National Health and Nutrition Examination Survey
  - Sleep Disorders Questionnaire
    - In 2005-2008 (extensive)
    - In 2009-2010 (limited):
  - Actigraphy
- Youth Risk Behavior Survey
  - Sleep duration on school nights
- School Health Policies and Practices Study
  - School start time

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NCCDPHP: Improved Surveillance for Sleep Issues

Insufficient Sleep State Fact Sheets

Insufficient Sleep Among Georgia Adults

Sleep, like food and water, is essential for life.

Consequences of insufficient sleep.
Insufficient sleep has been linked to the onset of and correlates with a number of chronic diseases and conditions, including diabetes, cardiovascular disease, obesity, and depression. Insufficient sleep also contributes to motor vehicle crashes and machinery-related accidents, causing substantial injury and disability each year.[1]

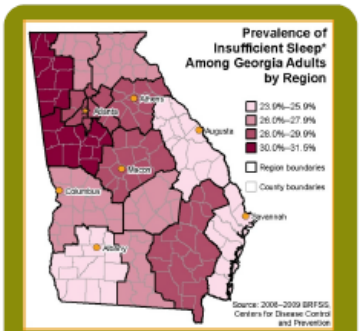
How much sleep do we need?
Although how much sleep is needed varies between individuals, most adults need 7–9 hours of sleep each night.[2] More than a third of U.S. adults report sleeping less than 7 hours per night.[3]

Why don't we get the sleep we need?
Causes of insufficient sleep include lifestyle and occupational factors (e.g., access to technology and work hours).[1] In addition, some medical conditions, medications, and sleep disorders affect the quantity and quality of sleep.[1]

Getting the sleep we need.
Good sleep practices are important for achieving healthy sleep.

Sleep hygiene tips:
- Go to bed at the same time each night and rise at the same time each morning.
- Moderate physical activity may help promote sleep, but avoid vigorous exercise in the few hours before going to bed.
- Avoid large meals before bedtime.
- Avoid caffeine and alcohol close to bedtime.
- Avoid nicotine.

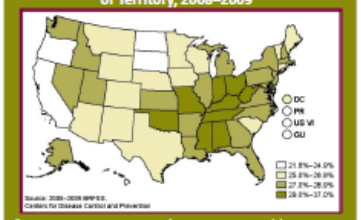
The sleep environment:
- Your bedroom should be a quiet, dark, and relaxing environment, that is neither too hot nor too cold.
- Remove all TVs, computers, and other "gadgets" from the bedroom.
- Your bed should be comfortable and used only for sleeping and not for other activities, such as reading, watching TV, or listening to music.



*Percentage of adult population that reported ≥14 days of insufficient sleep in the past 30 days.

For 2008–2009, 28.3% of Georgia adults reported not getting enough sleep on ≥14 days in the past 30 days. The map above presents the prevalence of insufficient sleep among Georgia adults by state region. For comparison, the national map below shows state-by-state adult prevalence of insufficient sleep.

Adult Prevalence of Insufficient Sleep* by State or Territory, 2008–2009



*Percentage of adult population that reported ≥14 days of insufficient sleep in the past 30 days.

1 Institute of Medicine. *Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem*. Washington, DC: The National Academies Press; 2006.
2 National Sleep Foundation. How much sleep do we really need? Washington, DC: National Sleep Foundation; 2010. Available at http://www.sleepfoundation.org/article/how-sleep-works/how-much-sleep-do-we-really need.
3 CDC. Effect of short sleep duration on daily activities—United States, 2005–2008. MMWR 2011;60:239–42.

National Center for Chronic Disease Prevention and Health Promotion
Division of Adult and Community Health

How's *your* sleep?
You may suffer from a sleep disorder if:
1. You frequently have difficulty sleeping (e.g., trouble falling asleep or staying asleep, feeling unrefreshed after sleep).
2. You snore loudly or you or others have observed that you stop breathing or gasp for breath during sleep.
3. You suffer from excessive sleepiness during the day.
4. You have unpleasant, tingling, creeping feelings or nervousness in your legs when trying to sleep.

What to do if you have trouble sleeping.
- Practice good sleep hygiene.
- Consult your physician to discuss any of the problems above.
- Keep a sleep diary to discuss with your physician or sleep specialist.

For more information, go to

http://www.cdc.gov/sleep

The table to the right breaks down the prevalence of insufficient sleep among Georgia adults by sex, age, race/ethnicity, education, employment status, marital status, presence of children in the home, and body mass index (a measure of excess weight).

Respondents were **more likely** ($p<0.05$) to report insufficient sleep if they:
- Were aged 25–34 years (35.8%) compared to ≥45 years
- Were of other race or multiracial (40.3%) compared to white (28.0%), black (29.4%), or Asian individuals (15.6%)
- Were unable to work (49.2%) compared to other employment status categories
- Had a child living in the home (33.9%)
- Were obese (33.7%) compared to normal-weight (25.7%) or overweight individuals (27.0%)

Respondents were **less likely** ($p<0.05$) to report insufficient rest or sleep if they:
- Were aged ≥65 years (15.7%) compared to other age groups
- Were retired (16.3%) compared to other employment status categories
- Did not have a child living in the home (23.5%)

There were no statistically significant differences in the prevalence of self-reported insufficient sleep for groups defined by sex or marital status.

Prevalence of Insufficient Rest or Sleep (≥14 days in past 30 days) Among Georgia Adults, 2008–2009 BRFSS* (N= 11,367)

	%	(95% CI)
Total	28.3	(26.9 – 29.7)
Sex		
Men	27.4	(25.0 – 29.7)
Women	29.2	(27.7 – 30.7)
Age		
18–24	28.2	(21.6 – 34.9)
25–34	35.8	(31.9 – 39.7)
35–44	31.0	(28.3 – 33.7)
45–54	28.7	(26.4 – 31.0)
55–64	23.6	(21.5 – 25.8)
≥65	15.7	(14.1 – 17.2)
Race/Ethnicity		
White	28.0	(26.5 – 29.4)
Hispanic	25.7	(18.0 – 33.3)
Black	29.4	(26.3 – 32.4)
Asian	15.6	(8.7 – 22.4)
American Indian/Alaska Native	32.6	(18.2 – 47.0)
Native Hawaiian/Pacific Islander	-	- -
Other/Multiracial	40.3	(28.0 – 52.7)
Employment Status		
Employed	28.6	(26.8 – 30.4)
Unemployed	33.1	(26.6 – 39.6)
Retired	16.3	(14.7 – 18.0)
Unable to work	49.2	(44.0 – 54.4)
Homemaker or student	28.3	(23.7 – 32.9)
Marital Status		
Married	28.0	(26.3 – 29.7)
Divorced, widowed, separated	29.6	(27.2 – 31.9)
Member of unmarried couple	37.2	(26.1 – 48.3)
Never married	27.0	(23.1 – 30.9)
Children in Home		
No	23.5	(21.9 – 25.1)
Yes	33.9	(31.7 – 36.2)
Body Mass Index		
Underweight	24.2	(13.8 – 34.7)
Normal	25.7	(23.3 – 28.0)
Overweight	27.0	(24.7 – 29.3)
Obese	33.7	(31.1 – 36.4)

*Data source: Behavioral Risk Factor Surveillance Survey (BRFSS) for 2008 and 2009. As part of the phone survey, respondents were asked, "During the past 30 days, for about how many days have you felt you did not get enough rest or sleep?" Dashes (-) indicate a cell size <50. For information about BRFSS methodology, go to http://www.cdc.gov/BRFSS.

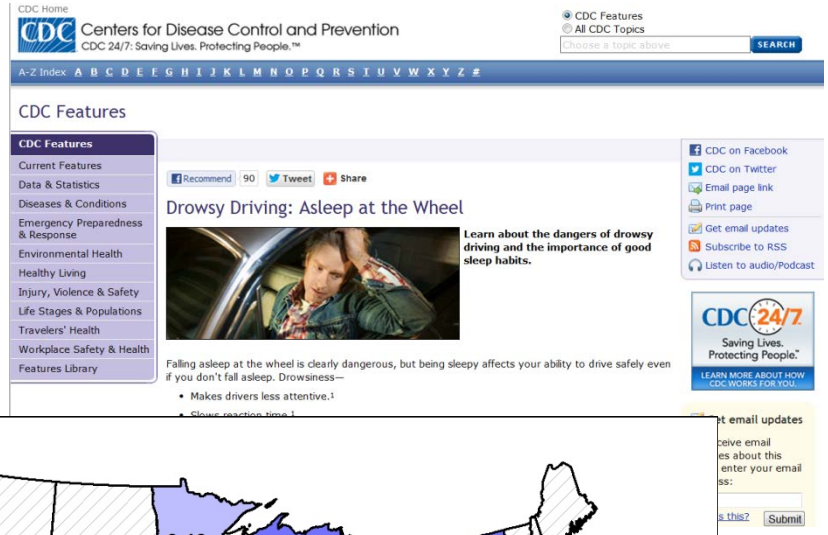
NCCDPHP: Improved Surveillance for Sleep Issues

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 61 / Nos. 51 & 52
January 4, 2013

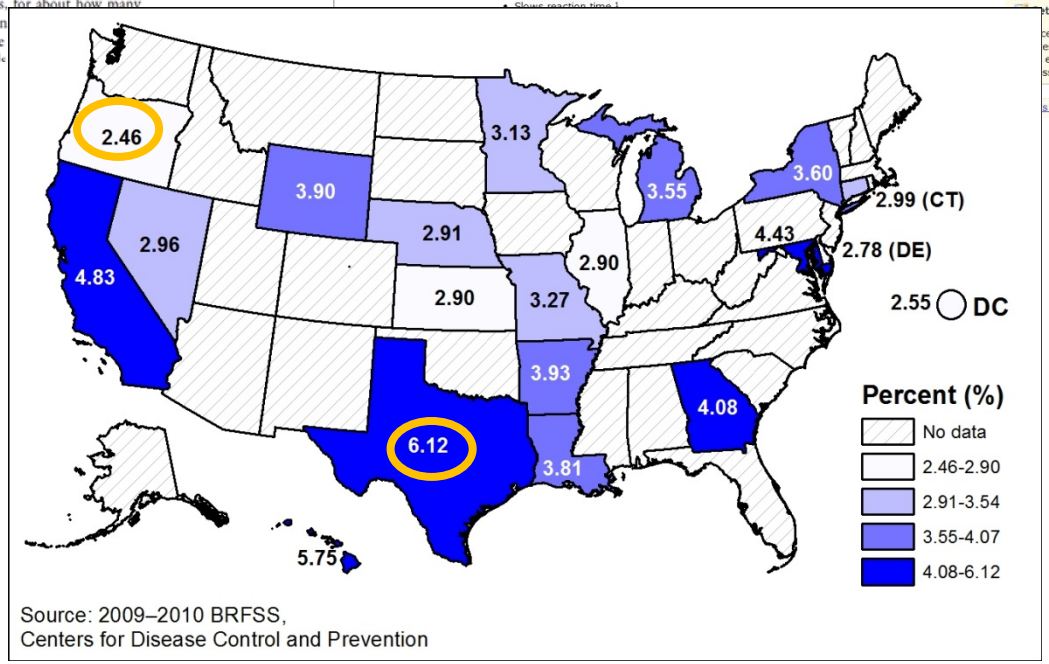
Drowsy Driving — 19 States and the District of Columbia, 2009–2010

According to the National Highway Traffic Safety Administration (NHTSA), 2.5% of fatal motor vehicle crashes (approximately 730 in 2009) and 2.0% of all crashes with non-fatal injuries (approximately 30,000 in 2009) involve drowsy driving (*1*). However, although data collection methods make it challenging to estimate the number of crashes that involve drowsy drivers, some modeling studies have estimated that 15% to 33% of fatal crashes might involve drowsy drivers (*2,3*). Fatalities and injuries are more likely in motor vehicle crashes that involve drowsy driving compared with non-drowsy driving crashes (*1,4*). To assess the state-level self-reported prevalence of falling asleep while driving, CDC analyzed data from a set of questions about insufficient sleep administered through the Behavioral Risk Factor Surveillance System (BRFSS) during 2009–2010. Among 147,076 respondents in 2009–2010 had a median of 52.1% and ranged from 39.1% (Oregon in 2010) to 68.8% (Nebraska in 2010).

Respondents were asked, "During the past 30 days, have you ever nodded off or fallen asleep, even just for a brief moment, while driving?" Drowsy driving was defined as those with an affirmative response, whereas no drowsy driving included those who responded "no," "don't drive," "don't have a license," or "don't know/not sure." Respondents also were asked, "On average, how many hours of sleep do you get in a 24-hour period?" "Do you snore?" "During the past 30 days, for about how many days have you felt you did not get enough rest or sleep?" and "During the past 30 days, for about how many days did you find yourself unintention... ing the day?" Age-adjusted prevalence ... driving and 95% confidence intervals



Adults ≥ 18 Years Who Fell Asleep While Driving in Preceding 30 Days: 2009, 2010



Source: 2009–2010 BRFSS, Centers for Disease Control and Prevention

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NCCDPHP: Improved Surveillance for Sleep Issues

CDC extramural research support

- BRFSS Sleep Question Validation Study by the University of Rochester
  - Wrist Actigraphy
  - Sleep Journals
- Delayed School Start Times Study by the University of Minnesota
  - Academic performance
  - Student health

Healthy People 2020

NIOSH: Work-Related Asthma (WRA)

Burden:

- About 15% of adult asthma attributable to work
- About 23% of adults with asthma experience work-related asthma exacerbations

Examples of NIOSH Efforts:

- Surveillance (collaboration with national studies, state-based)
- Isocyanates (widely used chemicals that cause asthma)
- Indoor dampness and mold
- Healthcare (cleaners & disinfectants)
- Appropriate recognition and treatment of WRA
- Participation in authoritative groups – Cochrane, American Thoracic Society, European Respiratory Society, NIH-NAEPP

Healthy People 2020

NIOSH: Work- Related COPD

- Burden – COPD prevalence, 12 million people; about 15% attributable to work
- COPD mortality in 2010: 135,000
- Collaboration with population based-studies is an important source of information
  - National Health and Nutrition Examination Survey (NHANES); NIOSH assisted in providing spirometry
  - Multi-Ethnic Study of Atherosclerosis (MESA); included spirometry and chest CT; NIOSH is analyzing relationships between occupation, industry, and COPD
- Studies evaluating specific at-risk populations: coal mine dust, agriculture, construction, WTC dust, etc.

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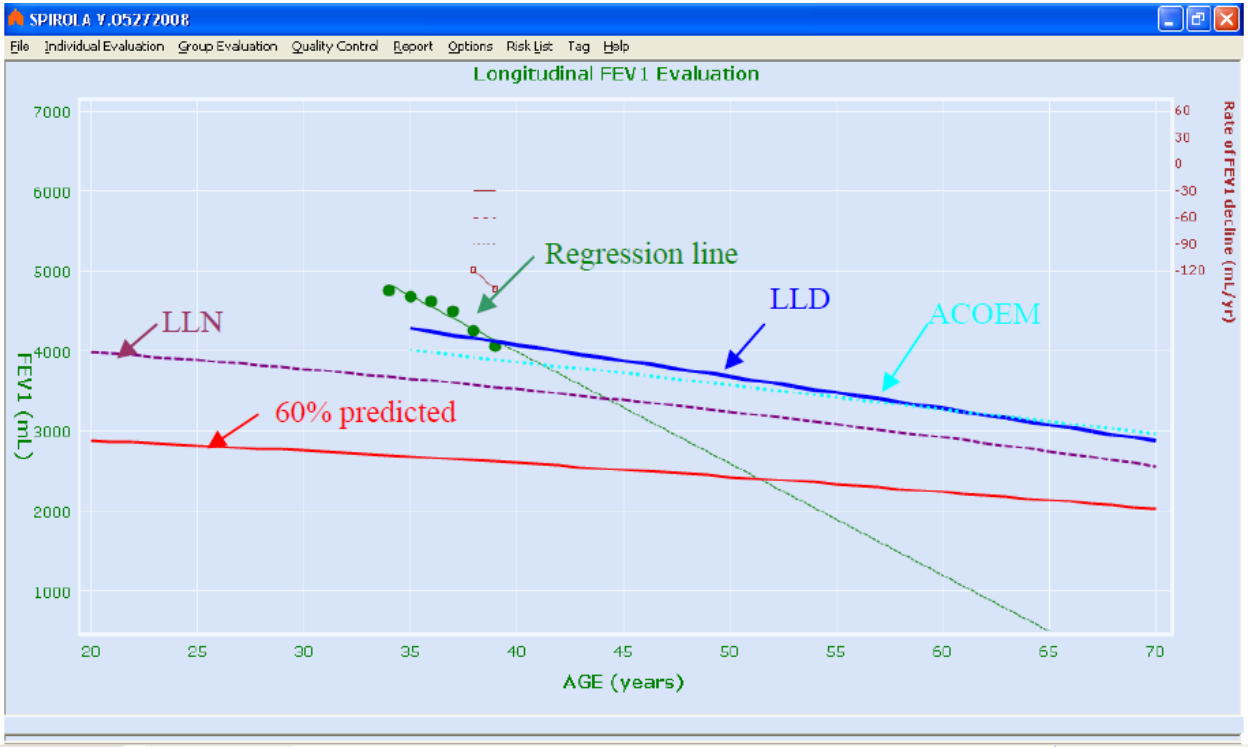
NIOSH: Early Detection of Work-Related COPD

Efforts to improve the quality of spirometry: technician training, educational materials

Longitudinal spirometry software: monitors spirometry program quality, aids in evaluating individual data, useful for health protection and promotion



NIOSH: Sleep & Work Schedule Research

Burden: Sleep disruption by factors such as rotating shifts is a health hazard. For example, the International Agency for Research on Cancer (IARC) designates shiftwork that involves circadian disruption as probably carcinogenic to humans (Group 2A).

Sleepiness is also a safety issue for those who drive or operate heavy equipment.

NIOSH Efforts

- developing & testing tailored work schedule & sleep training for managers & workers in aviation, manufacturing, mining, nursing, retail, & trucking
- large national survey of long-haul truck drivers includes measures of sleep, fatigue, work hours, health conditions & crashes.
- surveillance of the prevalence of insufficient sleep by industry sector
- impact of shift work on women's reproductive outcomes
- adverse health outcomes associated with insufficient sleep & shift work in police officers
- Series of long work hour studies examining insufficient sleep, depression, injury, immune measures
- quantitative risk assessment of work hours related to occupational illnesses & injury

See NIOSH Blog http://blogs.cdc.gov/niosh-science-blog/2012/03/09/sleep/

Healthy People 2020

EPA's Asthma Program

- Aimed at reducing racial and ethnic asthma disparities
  - Training 5,000+ health care professionals annually to help families manage environmental triggers
  - Raising awareness and action via the Asthma Media Campaign and www.noattacks.org.
  - Disseminating best practices and successful strategies through:
    - www.AsthmaCommunityNetwork.org
    - National Environmental Leadership Award in Asthma Management

Healthy People 2020

CDC Program Summary

Healthy People objectives related to asthma, COPD, and sleep disorders are addressed by three organizational units at CDC.

CDC has established programs dedicated to improving the quality of life for those affected by respiratory disease and sleep disorders.

The CDC programs work closely with other federal agencies, non-governmental organizations, and state health departments to achieve these objectives.

Healthy People 2020

APPENDIX

Note: The information contained within these slides provides additional details to supplement the webinar material.

NCEH: Advancing knowledge on asthma interventions

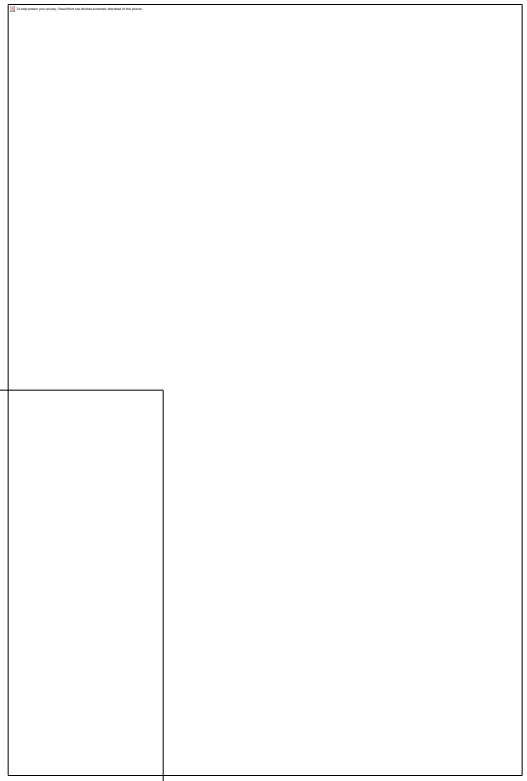
Effectiveness of Home-Based, Multi-Trigger, Multicomponent Interventions with an Environmental Focus for Reducing Asthma Morbidity

A Community Guide Systematic Review

Deidre D. Crocker, MD, Stella Kinyota, MD, MPH, Gema G. Dumitru, MD, MPH, Colin B. Ligon, MD, Elizabeth J. Herman, MD, MPH, Jill M. Ferdinands, PhD, David P. Hopkins, MD, MPH, Briana M. Lawrence, MPH, Theresa A. Sipe, PhD, MPH, Task Force on Community Preventive Services

Context: Asthma exacerbations are commonly triggered by exposure to allergens and irritants within the home. The purpose of this review was to evaluate evidence that interventions that target reducing these triggers through home visits may be beneficial in improving asthma outcomes. The interventions involve home visits by trained personnel to conduct two or more components that address asthma triggers in the home. Intervention components focus on reducing exposures to a range of asthma triggers (allergens and irritants) through environmental assessment, education, and remediation.

Evidence acquisition: Using methods previously developed for the *Guide to Community Preventive Services*, a systematic review was conducted to evaluate the evidence on effectiveness of home-based, multi-trigger, multicomponent interventions with an environmental focus to



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President's Task Force on Environmental Health Risks and Safety Risks to Children

Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities

Division of Lung Diseases
National Heart, Lung, and Blood Institute

Indoor Environments Division
U.S. Environmental Protection Agency

National Center for Environmental Health
Centers for Disease Control and Prevention

US Department of Housing and Urban Development

EPA United States Environmental Protection Agency

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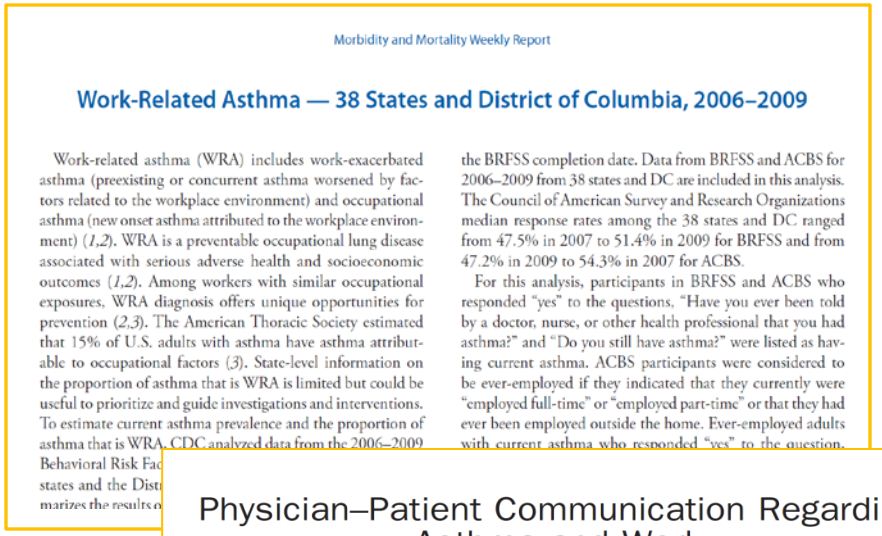
NIOSH: Improve WRA Awareness

- MMWR
- Scientific Publications
- Twitter



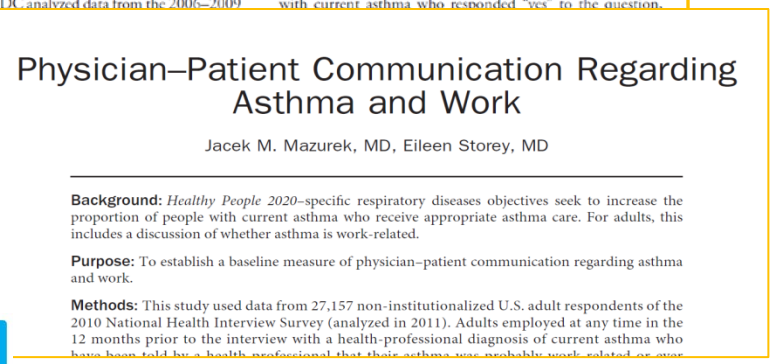
Morbidity and Mortality Weekly Report

Work-Related Asthma — 38 States and District of Columbia, 2006–2009

Work-related asthma (WRA) includes work-exacerbated asthma (preexisting or concurrent asthma worsened by factors related to the workplace environment) and occupational asthma (new onset asthma attributed to the workplace environment) (*1,2*). WRA is a preventable occupational lung disease associated with serious adverse health and socioeconomic outcomes (*1,2*). Among workers with similar occupational exposures, WRA diagnosis offers unique opportunities for prevention (*2,3*). The American Thoracic Society estimated that 15% of U.S. adults with asthma have asthma attributable to occupational factors (*3*). State-level information on the proportion of asthma that is WRA is limited but could be useful to prioritize and guide investigations and interventions. To estimate current asthma prevalence and the proportion of asthma that is WRA, CDC analyzed data from the 2006–2009 Behavioral Risk Fac
states and the Distr
marizes the results o

the BRFSS completion date. Data from BRFSS and ACBS for 2006–2009 from 38 states and DC are included in this analysis. The Council of American Survey and Research Organizations median response rates among the 38 states and DC ranged from 47.5% in 2007 to 51.4% in 2009 for BRFSS and from 47.2% in 2009 to 54.3% in 2007 for ACBS.

For this analysis, participants in BRFSS and ACBS who responded "yes" to the questions, "Have you ever been told by a doctor, nurse, or other health professional that you had asthma?" and "Do you still have asthma?" were listed as having current asthma. ACBS participants were considered to be ever-employed if they indicated that they currently were "employed full-time" or "employed part-time" or that they had ever been employed outside the home. Ever-employed adults with current asthma who responded "yes" to the question,



Physician–Patient Communication Regarding Asthma and Work

Jacek M. Mazurek, MD, Eileen Storey, MD

Background: *Healthy People 2020*–specific respiratory diseases objectives seek to increase the proportion of people with current asthma who receive appropriate asthma care. For adults, this includes a discussion of whether asthma is work-related.

Purpose: To establish a baseline measure of physician–patient communication regarding asthma and work.

Methods: This study used data from 27,157 non-institutionalized U.S. adult respondents of the 2010 National Health Interview Survey (analyzed in 2011). Adults employed at any time in the 12 months prior to the interview with a health-professional diagnosis of current asthma who

Healthy People 2020

NCCDPHP: Improve COPD Surveillance

CHEST

Special Features

US COPD SURVEILLANCE DATA

COPD Surveillance—United States, 1999-2011

Earl S. Ford, MD, MPH; Janet B. Croft, PhD; David M. Mannino, MD, FCCP; Anne G. Wheaton, PhD; Xingyou Zhang, PhD; and Wayne H. Giles, MD

This report updates surveillance results for COPD in the United States. For 1999 to 2011, data from national data systems for adults aged ≥ 25 years were analyzed. In 2011, 6.5% of adults (approximately 13.7 million) reported having been diagnosed with COPD. From 1999 to 2011, the overall age-adjusted prevalence of having been diagnosed with COPD declined ($P = .019$). In 2010, there were 10.3 million (494.8 per 10,000) physician office visits, 1.5 million (72.0 per 10,000) ED visits, and 699,000 (32.2 per 10,000) hospital discharges for COPD. From 1999 to 2010, no significant overall trends were noted for physician office visits and ED visits; however, the age-adjusted hospital discharge rate for COPD declined significantly ($P = .001$). In 2010 there were 312,654 (11.2 per 1,000) Medicare hospital discharge claims submitted for COPD. Medicare claims (1999-2010) declined overall ($P = .045$), among men ($P = .022$) and among enrollees aged 65 to 74 years ($P = .033$). There were 133,575 deaths (63.1 per 100,000) from COPD in 2010. The overall age-adjusted death rate for COPD did not change during 1999 to 2010 ($P = .163$). Death rates (1999-2010) increased among adults aged 45 to 54 years ($P < .001$) and among American

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NCCDPHP: Improve COPD Surveillance

- National Health Interview Survey
  - Emphysema
  - Chronic bronchitis
  - ***Chronic obstructive pulmonary disease (COPD)**

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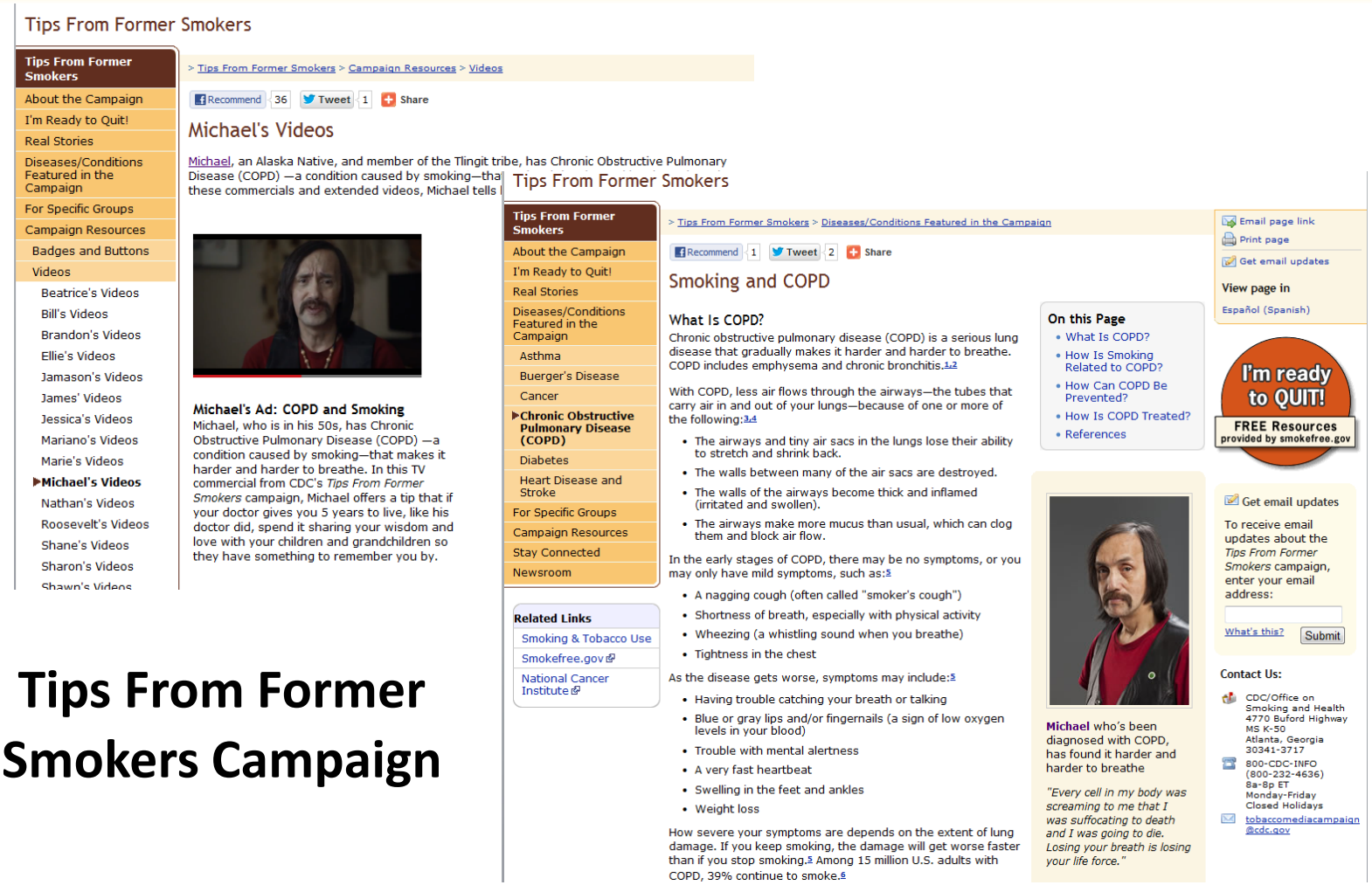
NCCDPHP: Increase COPD Awareness

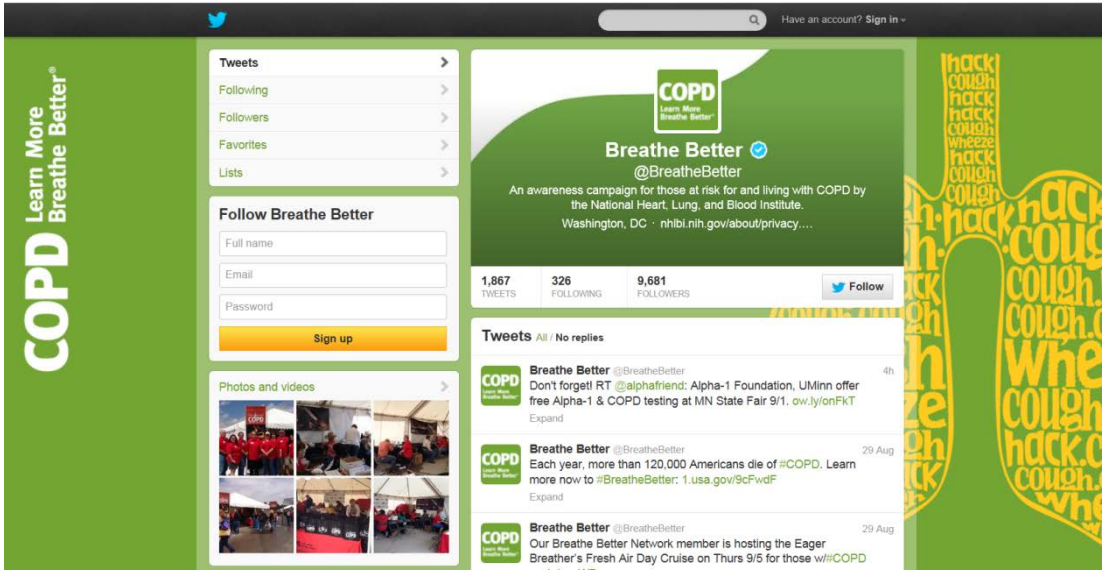


Tips From Former Smokers Campaign

NCCDPHP: Increase COPD Awareness

- Podcasts

- Twitter Chat



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NCCDPHP: Improved Surveillance

- Behavioral Risk Factor Surveillance System
  - Days of perceived insufficient rest or sleep question
  - Insufficient Sleep module:
    - Usual sleep duration
    - Snoring
    - Excessive daytime sleepiness
    - Falling asleep at the wheel

Healthy People 2020

NCCDPHP: Improved Surveillance

- National Health and Nutrition Examination Survey
  - Sleep Disorders Questionnaire
    - In 2005-2008 (extensive):
      - General sleep– sleep duration, sleep latency
      - Sleep disorders/symptoms – OSA, insomnia, RLS
      - Sleep-related difficulties
    - In 2009-2010 (limited):
      - How much sleep do you usually get at night on weekdays or workdays?
      - Have you ever told a doctor or other health professional that you have trouble sleeping?
      - Have you ever been told by a doctor or other health professional that you have a sleep disorder?
  - Actigraphy

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NCCDPHP: Improved Surveillance

School Health

- Youth Risk Behavior Survey
  - Sleep duration on school nights
- School Health Policies and Practices Study
  - School start time

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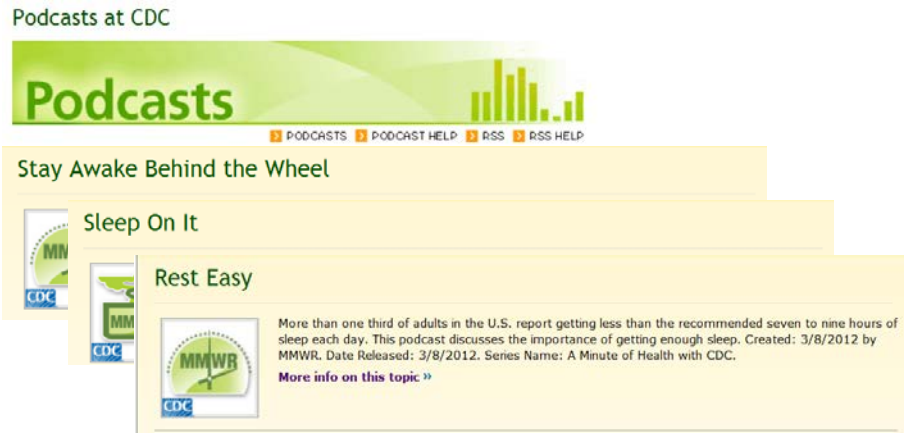
NCCDPHP: Increase Awareness

- Podcasts
- Scientific Publications
- Sleep Essay



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PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

ESSAY

Volume 10 — August 08, 2013

Raising Awareness of Sleep as a Healthy Behavior

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Sleep is an essential component of health, and its timing, duration, and quality are critical determinants of health (1). Sleep may play an important role in metabolic regulation, emotion regulation, performance, memory consolidation, brain recuperation processes, and learning (2). Because of the importance of these functions, sleep should be viewed as being as critical to health as diet and physical activity. However, public health practitioners and other health care

Healthy People 2020

NCCDPHP: National Sleep Awareness Roundtable (NSART)

Goals

1. To increase public awareness about sleep, sleep disorders, and the consequences of sleep deprivation
2. To promote science-based public policies
3. To advance basic, clinical, applied, and population-based research
4. To promote recognition of and access to care for all individuals with sleep disorders.

Healthy People 2020

Home-Based Case Management for Asthma

Healthy People 2020 Progress Review

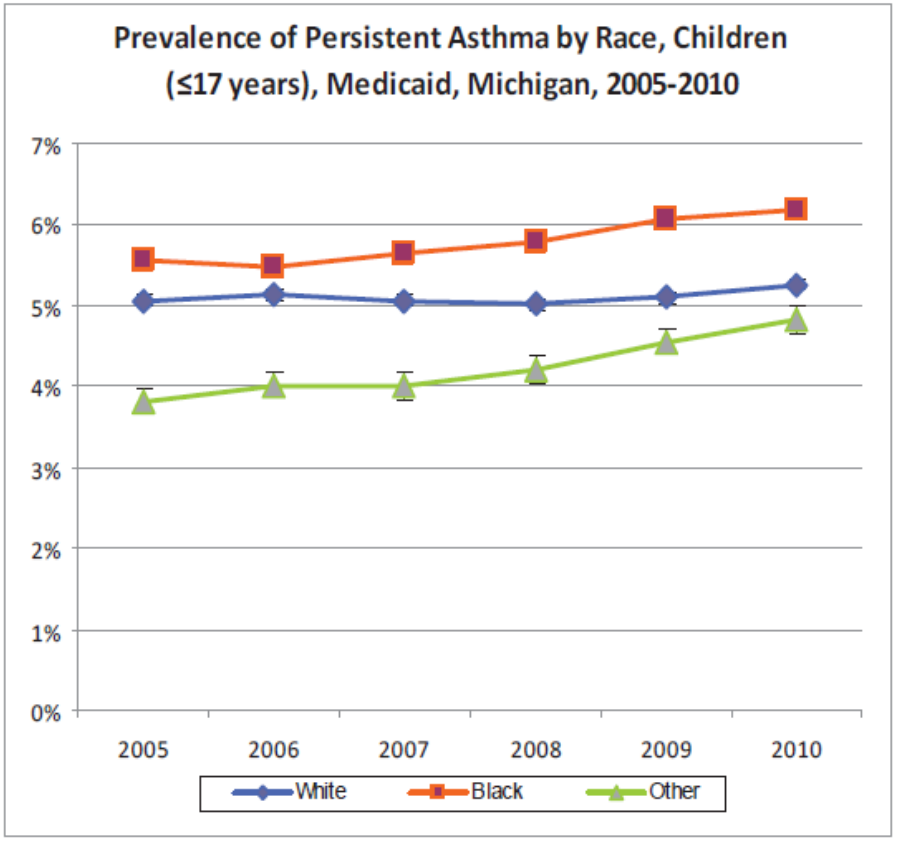
December 5, 2013

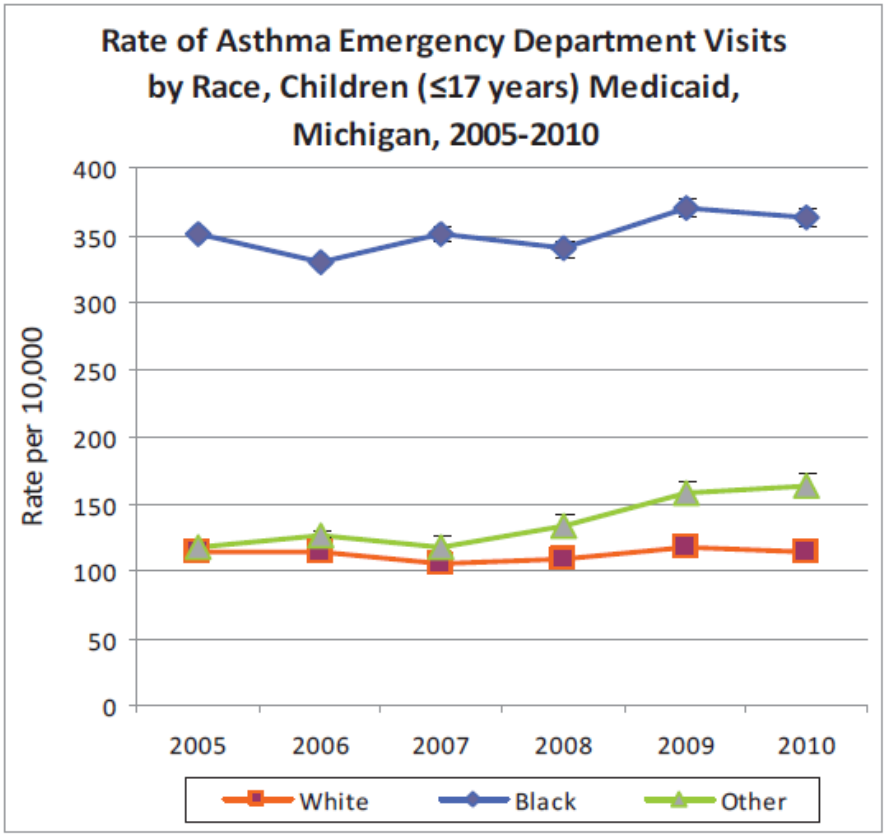
Karen Meyerson, MSN, APRN, FNP-C, AE-C

Who We Are

- **Community Asthma Coalition** established in 1994
- **Location:** Grand Rapids, Michigan
- **Population:** 82,933 people with asthma in 3 counties
- **Target population:** children (≤18 years) with uncontrolled asthma from low-income families
- **Backgrounds served:** 33% African American, 32% Hispanic/Latino, 15% Caucasian
  - 78% covered by Medicaid, 20% uninsured/under-insured
- **Original funding:** Foundations, local hospitals

Asthma Burden for Children with Medicaid - Michigan





Garcia, E and Lyon-Callo S. "Asthma Burden for Children in Medicaid." Epidemiology of Asthma in Michigan. Bureau of Epidemiology, Michigan Department of Community Health, 2012.

What We Do

Why we are essential to the delivery of quality asthma care in our community:

- Provide asthma education and case management support in homes
- Utilize holistic approach to asthma management
  - Work with patients, caregivers, families, school staff, health care providers
- Serve as the “eyes and ears” of providers in the homes

Tailored Environmental Interventions: Case Management

- Staff: Case managers, social worker, community health workers
- Home-Based Case Management:
  - Home visits
  - Medical home visit(s)
  - School/daycare visit(s)
  - Up to 18 visits authorized per patient, per year
- Community outreach:
  - Speakers' Bureau

Our Impact

The results we're most proud of:

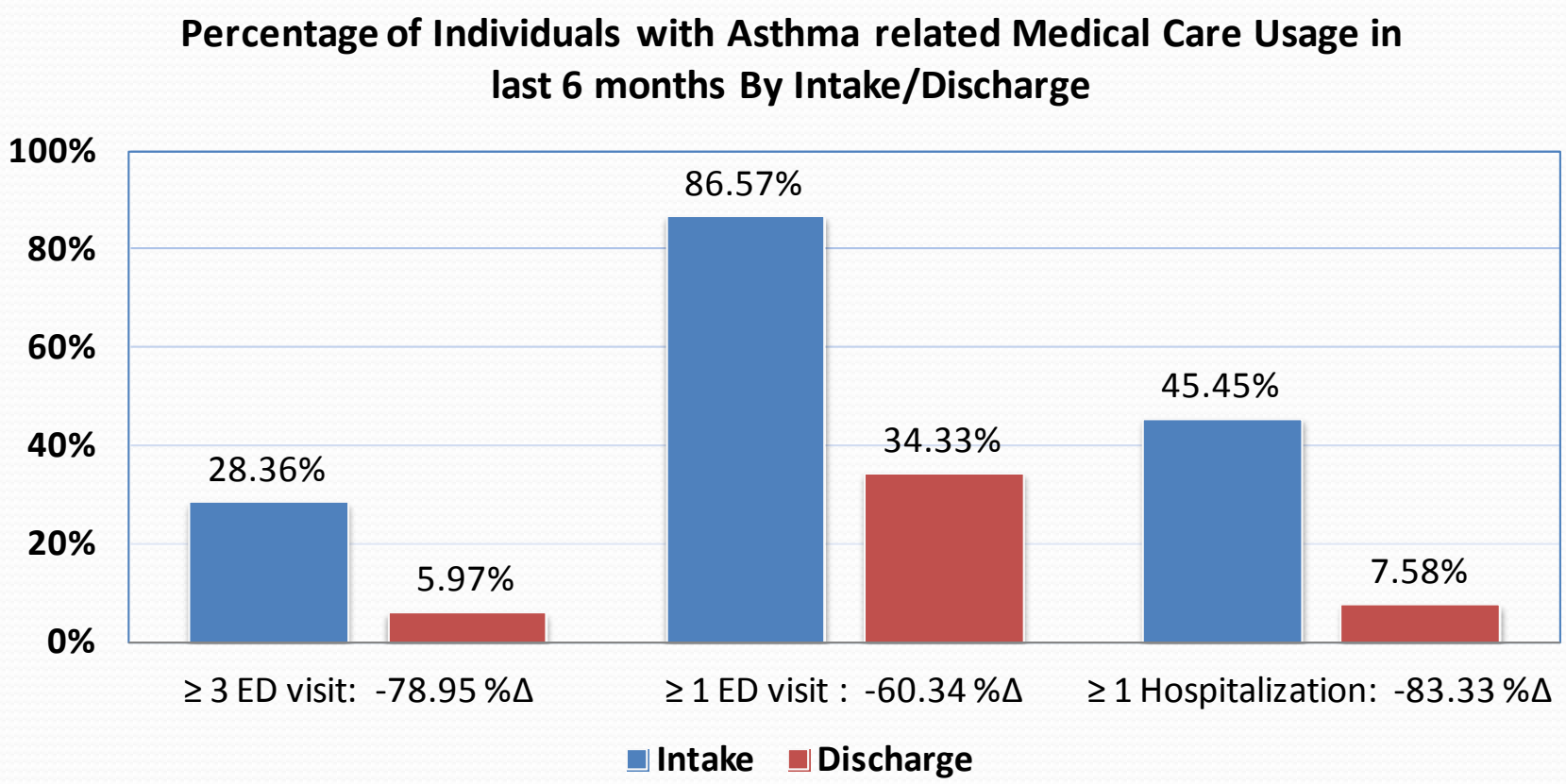
- Design and implement a sustainable, comprehensive home-based asthma case management model
- First asthma coalition in the nation to partner with a health plan and obtain reimbursement for services
- Long-term partnership with health plans who report cost savings and positive return on investment (ROI)
- 60% decrease in hospitalizations
- 40% decrease in ED visits
- Two national U.S. EPA awards:
  - "National Model Asthma Program" (2006)
  - National Environmental Leadership Award in Asthma Management (2008)

Getting Early Results: Evaluating the System

Clinical Outcomes	Cohort Group N=45			Control Group N=39			Cohort vs. Control
	Pre	Study	P-value	Yr 1	Yr2	P-value	P-value
ED Visits	80	61	0.047	28	43	0.0211	0.0040
Hospitalizations	41	13	<0.0001	23	28	0.1457	<0.0001
Days Hospitalized	114	25	<0.0001	55	67	0.0779	<0.0001

Kirk GM, et al. Abstract presented to the American Thoracic Society International Conference in San Francisco - May 2001

MATCH Study: Utilization



“This is the woman who saved my life”

Key Takeaways

- Building and Fueling the System
  - Diversify your funding base
  - Don’t reinvent the wheel
  - Plan for focused growth, but ensure financial stability at every step
- Build strong community partnerships
  - “Leave your badges at the door”
- Evaluating & Tracking Results
  - Measure everything and share outcomes with potential funders
- The Asthma Network of West Michigan is striving daily to bring asthma under control in our community. Individuals with asthma should expect nothing less.

For more information, please contact:

- Karen Meyerson, MSN, APRN, NP-C, AE-C
  - E-mail: meyersok@mercyhealth.com
  - Websites: www.asthmanetworkwm.org

    www.GetAsthmaHelp.org

Roundtable Discussion

Please take a moment to fill out our brief survey

Healthy People 2020

U.S. Department of Health & Human Services · USA

Office of Disease Prevention and Health Promotion

In This Section:
- Development and Framework
- Who's Leading the Leading Health Indicators?
- Share Your LHI Story
- LHI Infographic Gallery
- 2020 LHI Topics
  - Access to Health Services
  - Clinical Preventive Services
  - Environmental Quality
  - Injury and Violence
  - Maternal, Infant, and Child Health
  - Mental Health
  - Nutrition, Physical Activity, and Obesity

LHI Infographic Gallery

Print E-mail Share

The Leading Health Indicators are high-priority health issues in the United States that serve as measures of the Nation's health. Each month healthypeople.gov displays one or more infographics to visually communicate the existing health disparities for the featured Leading Health Indicator Topic.

If you would like the monthly infographic and bulletin sent straight to your inbox, sign up for Healthy People email updates.

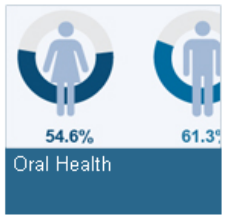
Maternal, Infant, and Child Health
July 2013

Reproductive and Sexual Health
June 2013

Mental Health
May 2013

Substance Abuse
April 2013

Physical Activity, Nutrition, and Obesity
March 2013



Oral Health
February 2013

Access to Health Services
January 2013

Environmental Quality
December 2012

LHI Infographic Gallery

http://www.healthypeople.gov/2020/LHI/infographicGallery.aspx

Healthy People 2020 Progress Review Webinar

Prevention of Foodborne Illness and Medical Product Adverse Events

Wednesday, January 8 | 12:00 PM EST

Please join us as we review select Healthy People 2020 objectives in the Food Safety and Medical Products Safety Topic Areas.

Hear from a community-based organization that is partnering to share evidence-based science with consumers to prevent illness.

To register, visit:
www.healthypeople.gov

Healthy People 2020

Stay Connected

Join the Healthy People Listserv & Consortium

	Web	healthypeople.gov
	Email	hp2020@hhs.gov
	Twitter	@gohealthypeople
	LinkedIn	Healthy People 2020
	YouTube	ODPHP (search “healthy people”)

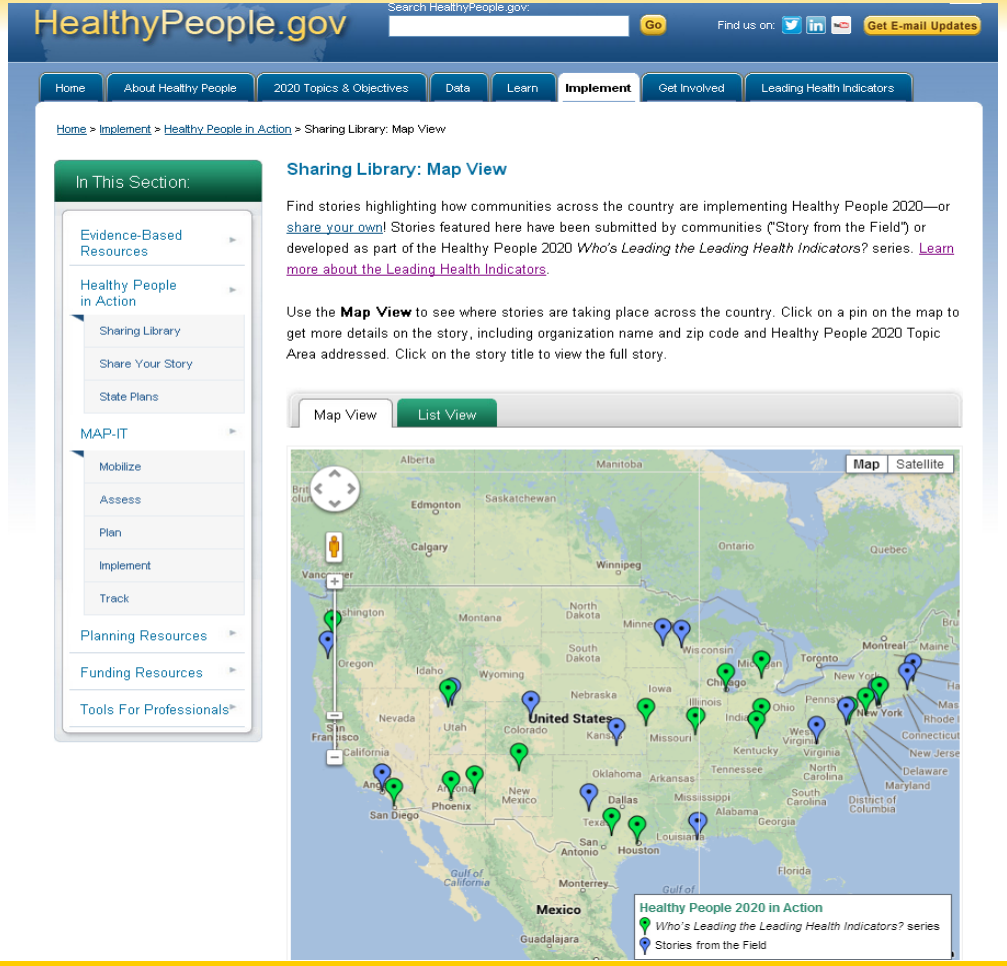
Healthy People 2020

Healthy People 2020
Oral Health LHI Webinar

Join us on January 23rd for a
Who's Leading the Leading Health Indicators?
Webinar to learn how one group is working to address the importance of oral health.
Register soon!
www.healthypeople.gov

Healthy People 2020 Sharing Library

A library of stories highlighting ways organizations across the country are implementing Healthy People 2020



Healthy People in Action - Sharing Library

http://healthypeople.gov/2020/implement/MapSharingLibrary.aspx

Healthy People 2020 Progress Review Planning Group

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