



U.S. Department of Health and Human Services
National Institutes of Health



National Heart
Lung and Blood Institute

Public Health Perspectives on Sleep Research National Center on Sleep Disorders Research

Al Golden, MPH

American Public Health Association
2007 Annual Meeting



National Commission on Sleep Disorders Research

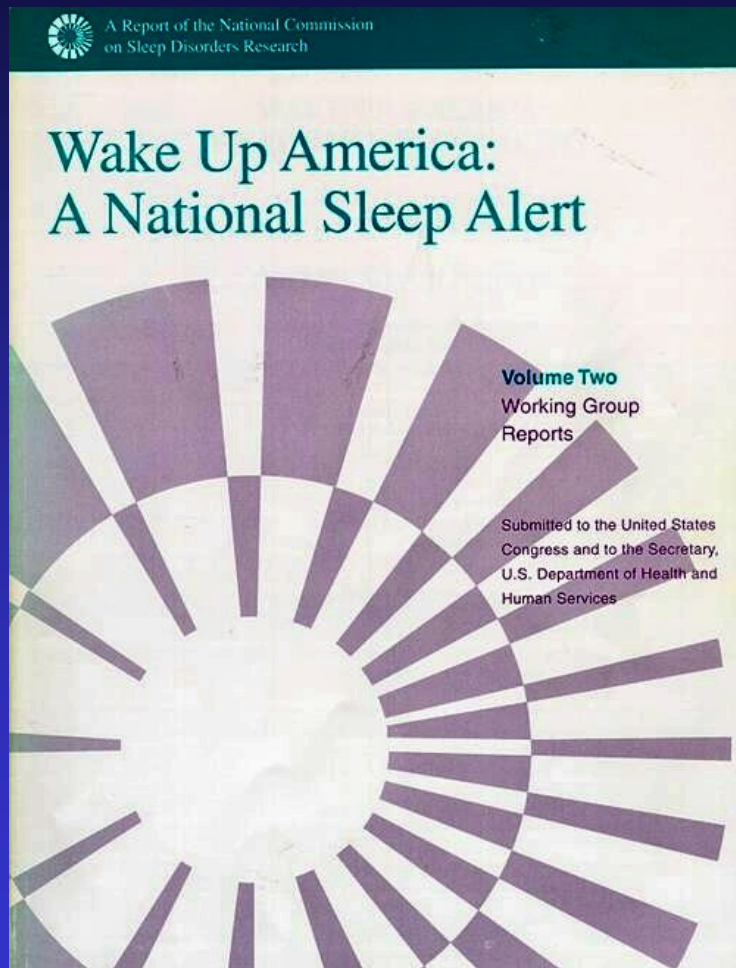


The National Commission on Sleep Disorders Research, mandated by Congress in Section 162 of Public Law 100-607 (Public Health Omnibus Programs Extension Act of 1988), was appointed by the Secretary of the Department of Health and Human Services (DHHS) in early 1989. The Panel's charge was ...

"...to conduct a comprehensive study of sleep disorders and to develop a long-range plan for the use and organization of national resources to deal effectively with sleep disorders research and medicine"



National Commission on Sleep Disorders Research



Major Recommendations (1992):

Strengthen Ongoing Programs

Accountability in All Federal Agencies

Training and Career Development

Education of Health Professionals

An Educated America

Establish a National Center



The NIH Revitalization Act of 1993, PL 103-43 (signed into law on June 10, 1993)



Office of the Law Revision Counsel, U.S. House of Representatives

42 USC Sec. 285b-7

TITLE 42 - THE PUBLIC HEALTH AND WELFARE

Sec. 285b-7. National Center on Sleep Disorders Research

(a) Establishment

Not later than 1 year after June 10, 1993, the Director of the Institute shall establish the National Center on Sleep Disorders Research (in this section referred to as the "Center"). The Center shall be headed by a director, who shall be appointed by the Director of the Institute.

(b) Purpose

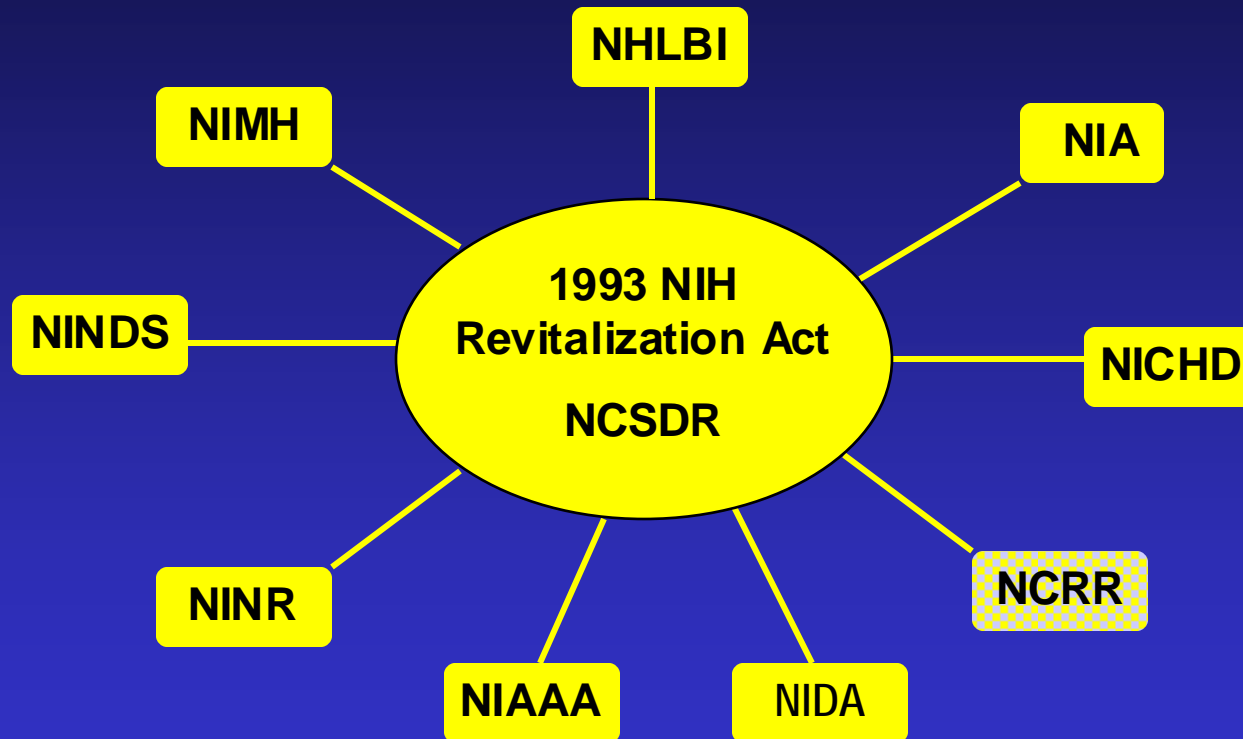
The general purpose of the Center is -

(1) the conduct and support of research, training, health information dissemination, and other activities with respect to sleep disorders, including biological and circadian rhythm research, basic understanding of sleep, chronobiological and other sleep related research; and;

(2) to coordinate the activities of the Center with similar activities of other Federal agencies, including the other agencies of the National Institutes of Health, and similar activities of other public entities and nonprofit entities.



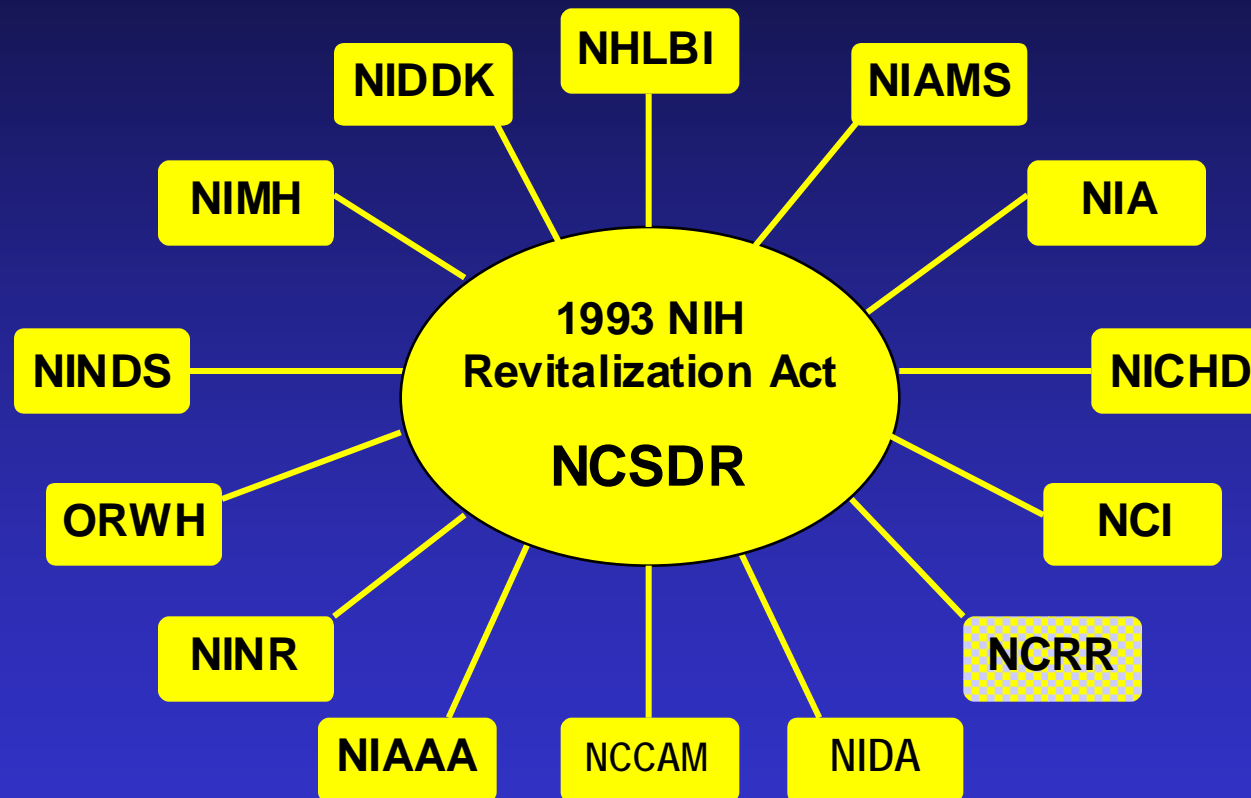
Trans-NIH Sleep Coordination 1993



9 Institutes and Centers



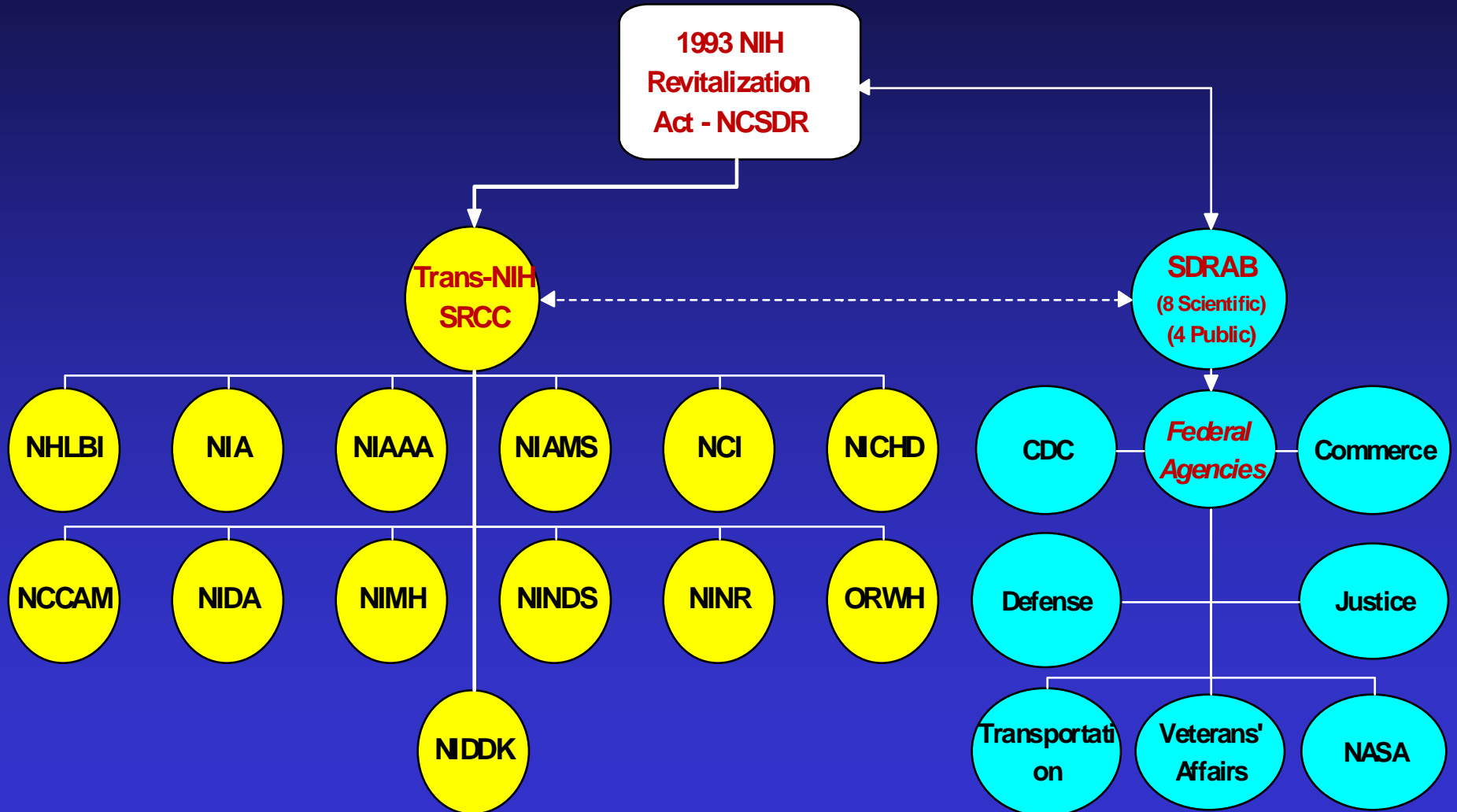
Trans-NIH Sleep Coordination 2007



13 Institutes and Centers

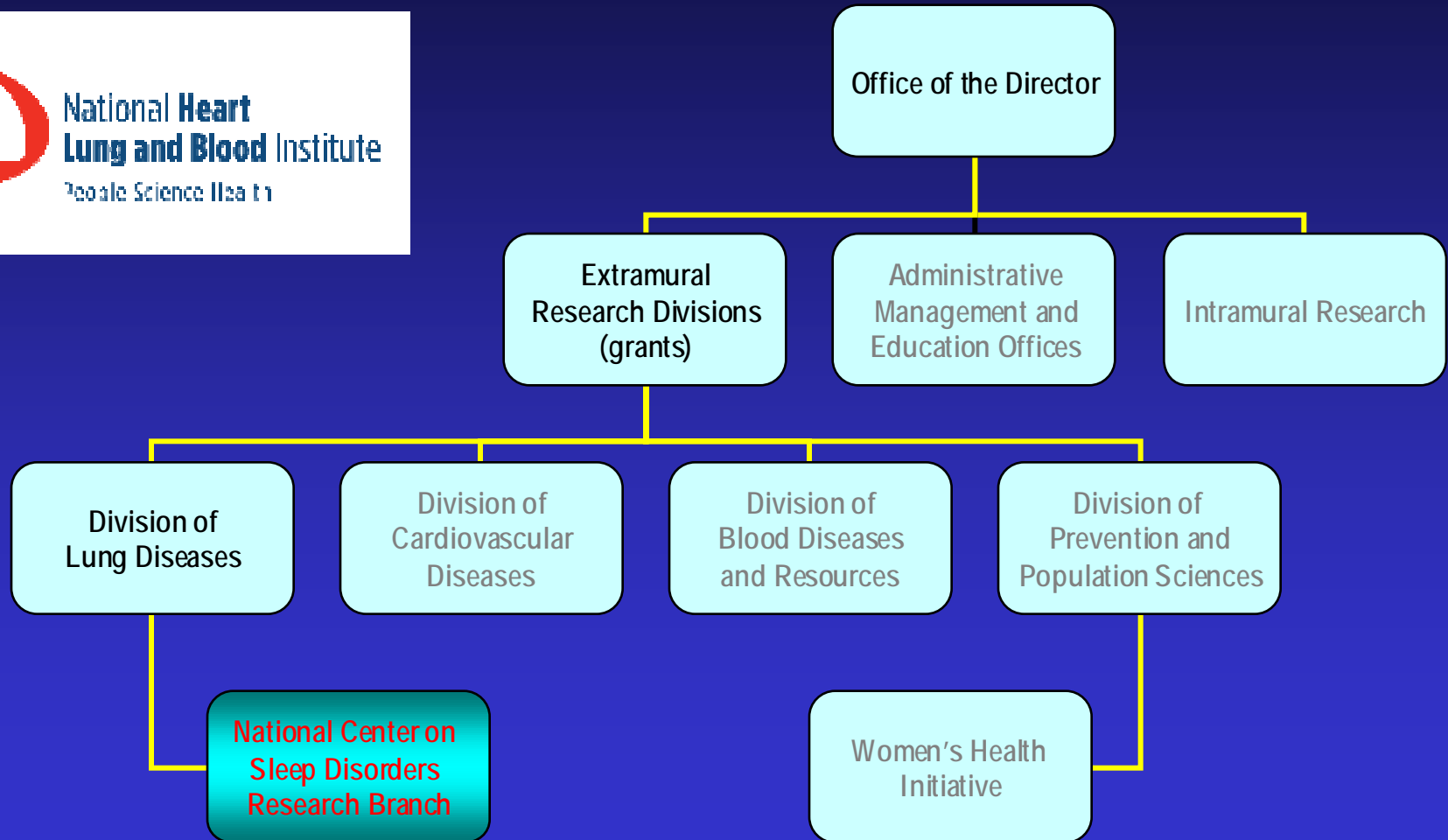
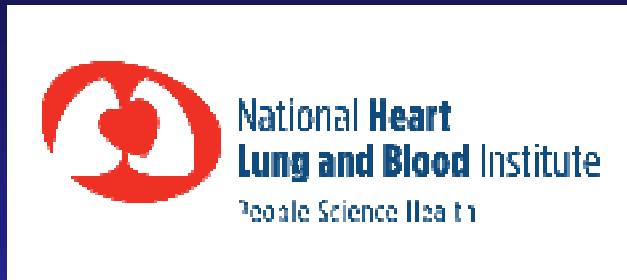


NIH Sleep Coordination; Sleep Disorders Research Advisory Board (SDRAB)



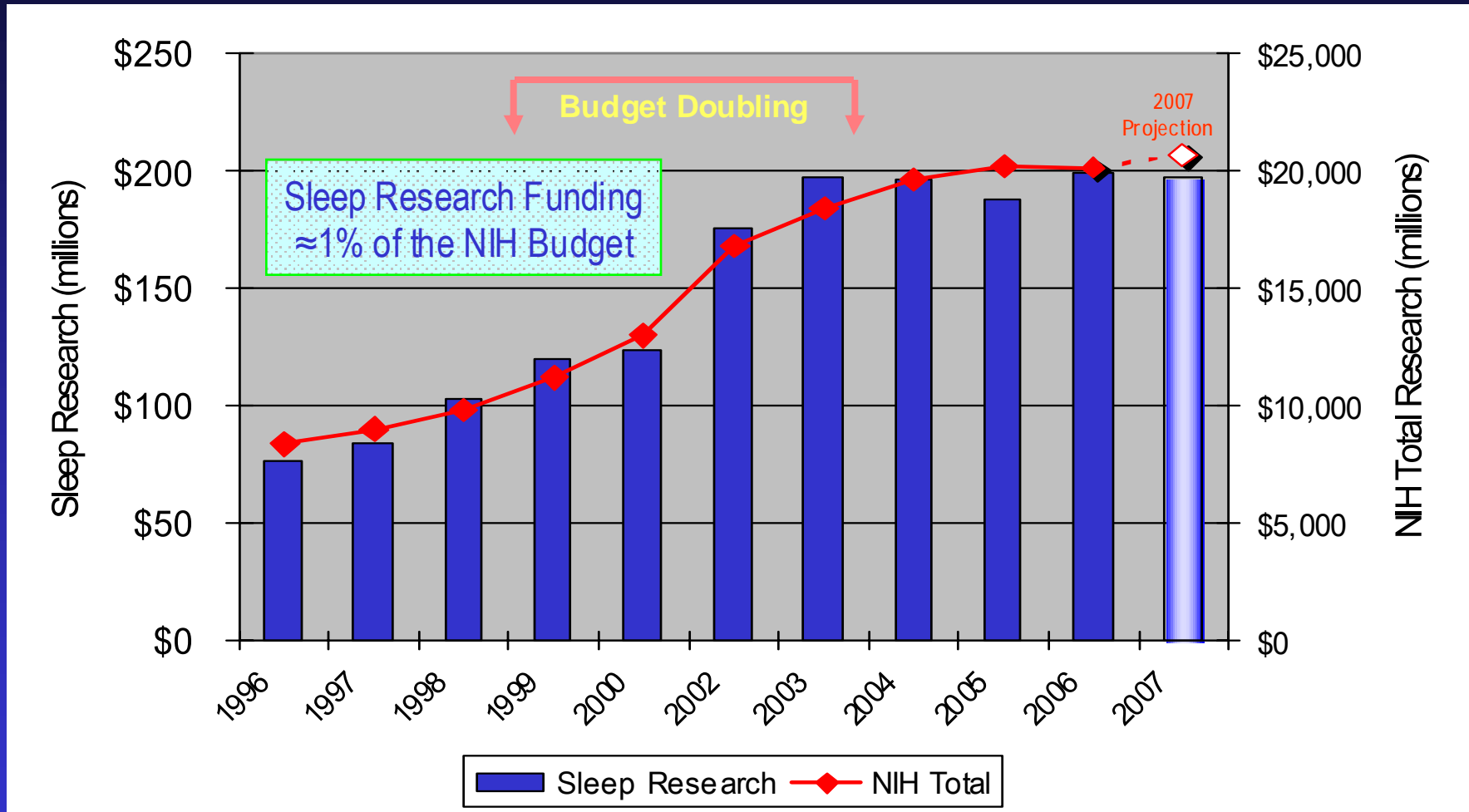


National Center on Sleep Disorders Research 2007 Organizational Update





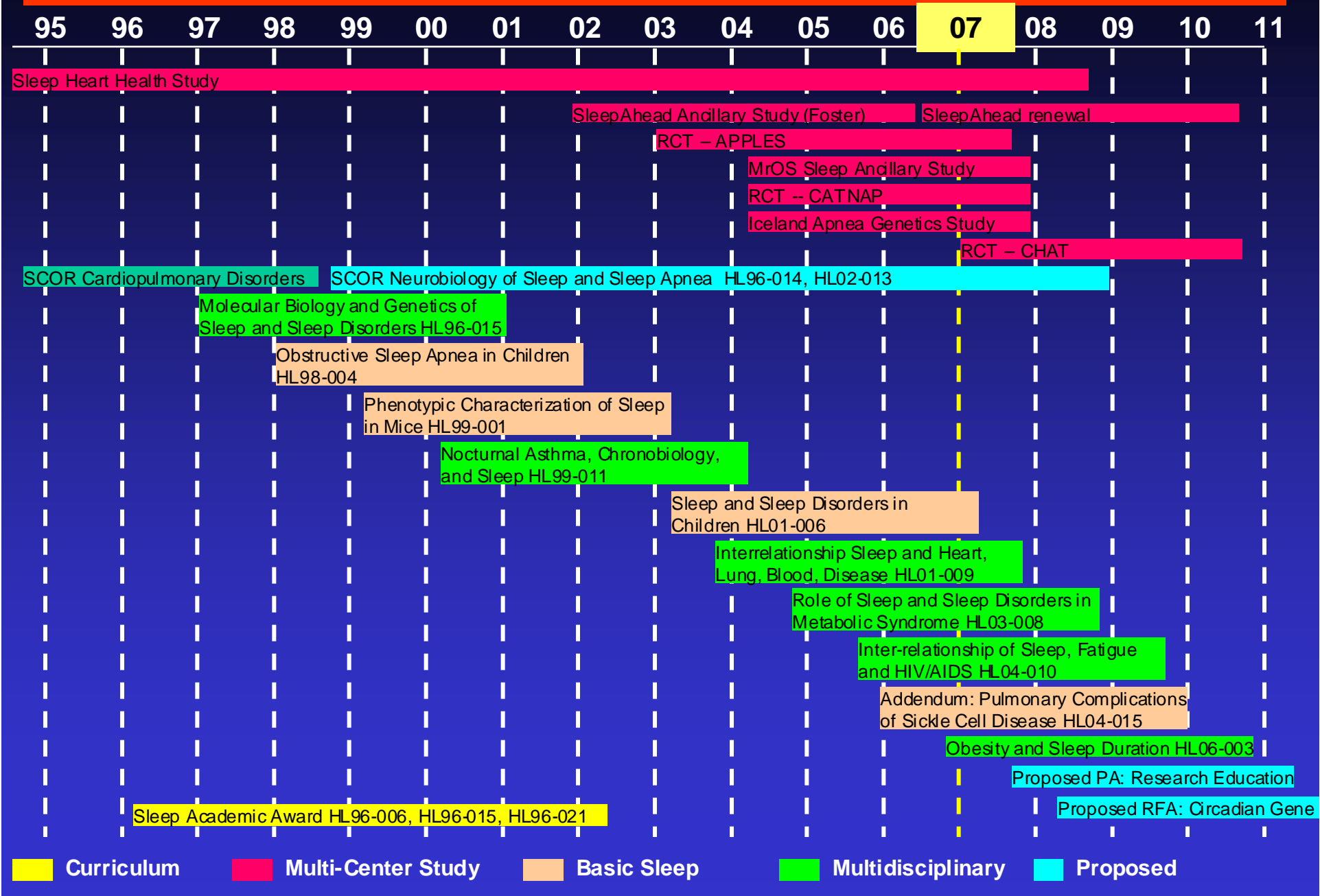
NIH Sleep Research Funding 1996 - 2006



Based on SRCC and NHLBI Congressional Reporting of "Sleep Disorders Research" Percent Increase compared to 1996 budget level



Selected Sleep Research Initiatives





Scientific Workshops and Conferences



Department of Health and Human Services • National Institutes of Health
National Heart Lung and Blood Institute
People Science Health

Information for...Researchers

Home > Information for Researchers

Workshop and Meeting Summaries, and Other Scientific Reports (2000 to Present)

- [General \(Crosscutting\) Topics](#)
- [Heart and Vascular](#)
- [Lung](#)
- [Blood](#)
- [Sleep](#)

Circadian-Coupled Cellular Function and Disease (2007)

Neuroimaging In Sleep Research (2006)

Effects Of Sleep Disorders And Sleep Restriction On Adherence to Cardiovascular And Other Disease Treatment Regimens: Research Needs (2003)

Cardiovascular and Sleep-Related Consequences of Temporomandibular Disorders (TMD) (2001)

Neurobiology of Sleep and Waking (2001)



Sleep Education and Literacy



Frontiers of Knowledge in Sleep & Sleep Disorders: Opportunities for Improving Health and Quality of Life (2004)



Keynote Speaker: Dr. Richard H. Carmona, U.S. Surgeon General

“...sleep and sleep disorders must be translated into cost-effective, comprehensive, and broadly applied strategies to improve all aspects of sleep-related healthcare. Dissemination of existing medical knowledge and implementation of expanded clinical practice guidelines are critically important.”



NIH State of the Science Conference

Manifestations and Management of Chronic Insomnia in Adults (2005)



1. Diagnosis, classification, etiology
2. Prevalence, natural history, incidence, and risk factors for chronic insomnia
3. Consequences, morbidities, comorbidities, and public health burden
4. Treatments used for management, and evidence regarding safety, efficacy, and effectiveness
5. Important future directions for insomnia-related research

State of the Science Panel Final report available:

<http://www.consensus.nih.gov/2005/2005InsomniaSOS026main.htm>



Web Resources



**National Institutes of Health
National Center on Sleep Disorders Research**

RESEARCH

PROFESSIONAL EDUCATION

PATIENT AND PUBLIC INFORMATION

COMMUNICATIONS

Coordinating government-supported sleep research, training, and education to improve the health of Americans

part of the
National Heart, Lung, and Blood Institute

About
Help
Site Map
Feedback

<http://www.nhlbi.nih.gov/sleep>

<http://www.nhlbi.nih.gov/health/public/sleep/starslp/>

Star Sleeper for Kids mission Z

Garfield needs your help! The world's been robbed of sleep. Your challenge is this: solve Mission Z and tuck the world in for a good night's rest!

- > [Solve the mystery](#)
- > [Play other games](#)

JOIN MISSION Z NOW!

GARFIELD "I need your help!"

- For Kids
- For Teachers
- For Parents
- For Pediatricians

TEK Extra!
Supplement to TIME For Kids

- About the Star Sleeper Campaign
- Star Sleeper Gear
- Press Room
- Campaign Partners

Welcome to the Garfield Star Sleeper Web Site!

Garfield and the [National Center on Sleep Disorders Research](#) have teamed up to bring you information on sleep and how it helps kids do their best at whatever they do.

Sleep Well. Do Well.

[Star Sleeper Home](#) | [For Kids: Mission Z](#) | [For Teachers](#) | [For Parents](#) | [For Pediatricians](#)
[About the Star Sleeper Campaign](#) | [Star Sleeper Gear](#) | [Press Room](#)
[Campaign Partners](#) | [Contact Us](#) | [Privacy Policy](#)

[Star Sleeper Home \(Screen Reader Version\)](#)

Produced in cooperation with Paws, Inc.
Garfield © Paws. All rights reserved. The images of the Garfield characters may only be copied or otherwise reproduced within the context of this Web site of the National Institutes of Health.

Please send us your feedback, comments, and questions by using the appropriate link on the page, [Contact the NHLBI](#).

Note to users of screen readers and other assistive technologies: Please report problems [here](#).



Public and Provider Information



PEOPLE • SCIENCE • HEALTH
National Heart, Lung, and Blood Institute

Facts About Sleep Apnea

WHAT IS SLEEP APNEA?

Sleep apnea is a common disorder that can be very serious. In sleep apnea, your breathing stops or gets very shallow while you are sleeping. Each pause in breathing typically lasts 10 to 20 seconds or more. These pauses can occur 20 to 30 times or more an hour.

The most common type of sleep apnea is obstructive sleep apnea. During sleep, enough air cannot flow into your lungs through your mouth and nose even though you try to breathe. When this happens, the amount of oxygen in your blood may drop. Normal breaths then start again with a loud snort or choking sound.

When your sleep is upset throughout the night, you can be very sleepy during the day. With sleep apnea, your sleep is not restful because:

- These brief episodes of increased airway resistance (and breathing pauses) occur many times.
- You may have many brief drops in the oxygen levels in your blood.
- You move out of deep sleep and into light sleep several times during the night, resulting in poor sleep quality.

People with sleep apnea often have loud snoring. However, not everyone who snores has sleep apnea. Some people with sleep apnea don't know they snore.

- Sleep apnea happens more often in people who are overweight, but even thin people can have it.
- Most people don't know they have sleep apnea. They don't know that they are having problems breathing while they are sleeping.
- A family member and/or bed partner may notice the signs of sleep apnea first.

Untreated sleep apnea can increase the chance of having high blood pressure and even a heart attack or stroke. Untreated sleep apnea can also increase the risk of diabetes and the risk for work-related accidents and driving accidents.

WHAT CAUSES SLEEP APNEA?

Sleep apnea happens when enough air cannot move into your lungs while you are sleeping. When you are awake, and normally during sleep, your throat muscles keep your throat open and air flows into your lungs. In obstructive sleep apnea, however, the throat briefly collapses, causing pauses in your breathing. With pauses in breathing, the oxygen level in your blood may drop.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
National Heart, Lung, and Blood Institute

National Center on Sleep Disorders Research
and Office of Prevention, Education, and Control

Causes Identification Management Consequences

MANAGEMENT CONSEQUENCES

PROBLEM
SLEEPINESS
IN YOUR
PATIENT

NATIONAL INSTITUTES OF HEALTH
NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

IN BRIEF:

Your Guide To Healthy Sleep

When you're in a rush to meet work, school, family, or household responsibilities, do you cut back on your sleep? Like many people, you might think that sleep is merely a "downtime" when the brain shuts off and the body rests. Think again.

What Is Sleep?

Sleep was long considered just a uniform block of time when you are not awake. Thanks to sleep studies done over the past several decades, it is now known that sleep has distinctive stages that cycle throughout the night. Your brain stays active throughout sleep, but different things happen during each stage. For instance, certain stages of sleep are needed for us to feel well rested and energetic the next day, and other stages help us learn or make memories.

In brief, a number of vital tasks carried out during sleep help maintain good health and enable people to function at their best. On the other hand, not getting enough sleep can be dangerous—for example, you are more likely to be in a car crash if you drive when you are drowsy.

How Much Sleep Is Enough?

Sleep needs vary from person to person, and they change throughout the lifecycle. Most adults need 7-8 hours of sleep each night. Newborns, on the other hand, sleep between 16 and 18 hours a day, and children in preschool sleep between 10 and 12 hours a day. School-aged children and teens need at least 9 hours of sleep a night.

Some people believe that adults need less sleep as they get older. But there is no evidence to show that older people can get by with less sleep than younger people. As people age, however, they often get less sleep or they tend to spend less time in the deep, restful stages of sleep. Older people are also more easily awakened.

Why Sleep Is Good for You—and Skimping on It Isn't

Does it really matter if you get enough sleep? Absolutely! Not only does the quantity of your sleep matter, but the quality of your sleep is important as well. People whose sleep is interrupted a lot or is cut short might not get enough of certain stages of sleep. In other words, how well rested you are and how well you function the next day depend on your total sleep time and how much of the various stages of sleep you get each night.

Performance: We need sleep to think clearly, react quickly, and create memories. In fact, the pathways in the brain that help us learn and remember are very active when we sleep. Studies show that people who are taught mentally-challenging tasks do better after a good night's sleep. Other research suggests that sleep is needed for creative problem solving.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
National Heart, Lung, and Blood Institute

U.S. Department of Health & Human Services • National Institutes of Health

National Heart Lung and Blood Institute Diseases and Conditions Index

Tell us what you think about this site

Enter keywords to search this site.
(Click here for Search Tips)

[NIH Home](#) [NHLBI Home](#) [About this Site](#)

Welcome to the **Diseases and Conditions Index (DCI)**. This new Web health index gives you a quick and easy way to get complete and dependable information about **heart, lung, and blood diseases and sleep disorders**. *New topics will be added regularly.*

Index

Select a letter to find a list of diseases and conditions:
[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)



Information for Children and Adolescents



Garfield 'Star Sleeper' Campaign

- Increase awareness that sleep is important to young children's health, performance, and safety.
- Encourage parents to take steps to provide an environment that will allow their young children to get at least 9 hours of sleep each night.



High School Biology Curriculum Supplement: "Sleep, Sleep Disorders, and Biological Rhythms"



Lesson 1: What Is Sleep?

Lesson 2: Houston, We Have a Problem

Lesson 3: Do You Have Rhythm?

Lesson 4: Evaluating Sleep Disorders

Lesson 5: Sleepiness and Driving: What You Don't Know Can Kill You

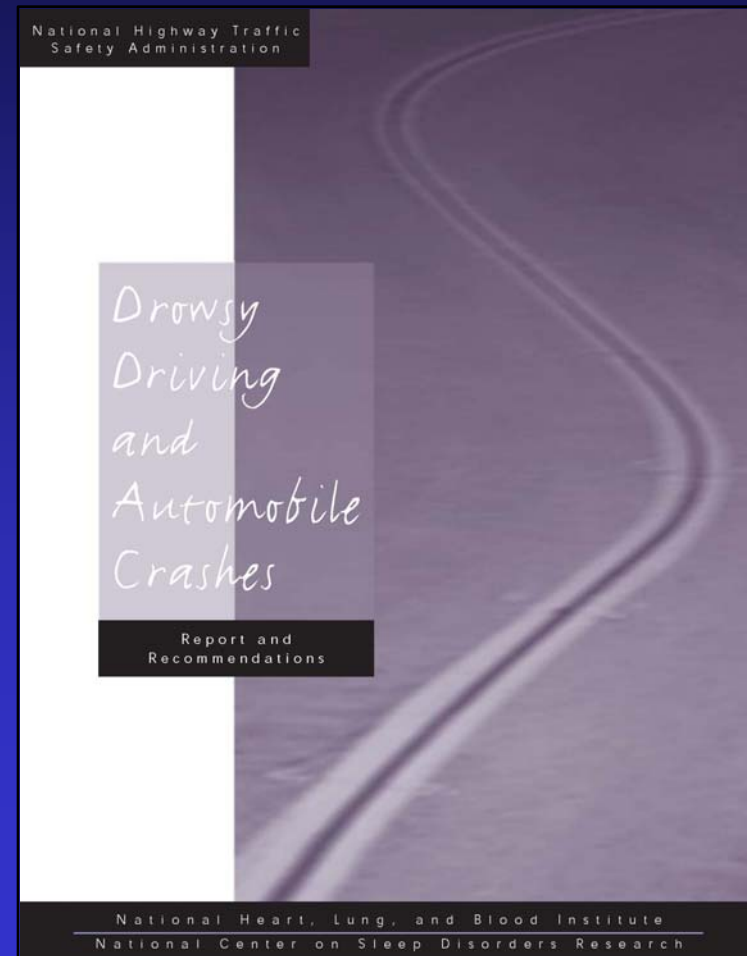


Drowsy Driving and Automobile Crashes

NCSDR/NHTSA Panel On Driver Fatigue And Sleepiness (1998)



The report presents the results of a literature review and opinions of the Expert Panel on Driver Fatigue and Sleepiness.





Healthy People 2010 – MidCourse Review



HEALTHY PEOPLE

[Home](#)[Search](#)[Site Map](#)[Help](#)[Contact](#)[About Healthy People](#)[Be a Healthy Person](#)[healthfinder.gov](#)[Leading Health Indicators](#)[Implementation](#)[Publications](#)[Data](#)

HP 2010 Midcourse Review

Founded on data that enable progress and trends to be tracked, *Healthy People 2010* provides a set of 10-year evidence-based objectives for improving the health of all Americans. Its two overarching goals are to increase the quality and years of healthy life and to eliminate health disparities. *Healthy People 2010* covers 28 focus areas with 467 specific objectives.

Midway through the decade, the U.S. Department of Health and Human Services conducts a midcourse review to assess the status of the national objectives. Through the Midcourse Review the U.S. Department of Health and Human Services, Federal agencies, and other experts assess the data trends during the first half of the decade, consider new science and available data, and if appropriate, revise the objectives to ensure that *Healthy People 2010* remains current, accurate, and relevant to public health priorities.

<http://www.healthypeople.gov/Data/midcourse/>



Healthy People 2010 – MidCourse Review



HEALTHY PEOPLE



Home Search Site Map Help Contact

About Healthy People

HP 2010 **UPDATE** Review

One sleep (24-12) objective moved from “developmental” and “slated for deletion” to “measurable” during the Healthy People 2010 Mid Course Review

REVISED OBJECTIVE

24-12. 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.

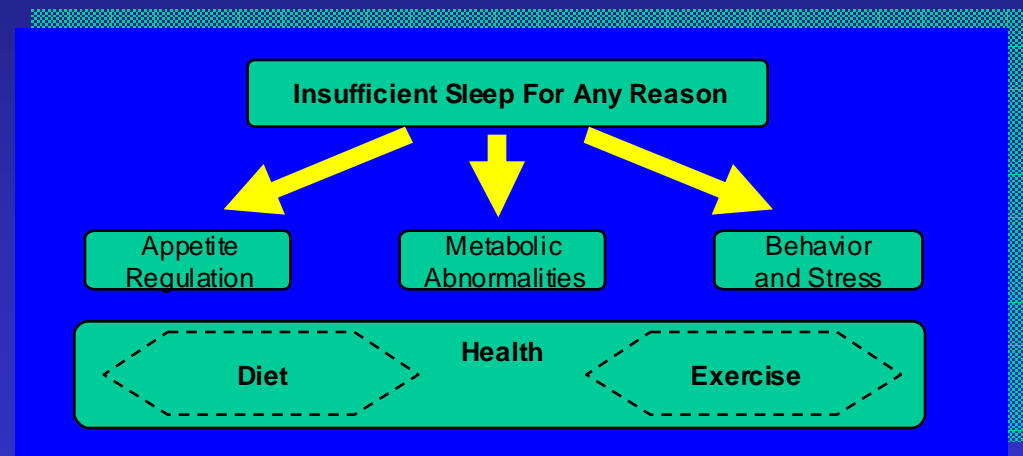
Target setting method: Better than the best.

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).



Much has been Accomplished There is Much More Left to Do

Elucidate mechanisms
coupling sleep and sleep disorders
to clinically significant health outcomes.



Inter-disciplinary Research Teams
Information Dissemination
Informed Policy

Collaborative Opportunities for Public Health Policy

A potential framework for proactive response

Proaction

- Communication BETWEEN agents
- Gain in reaction time for stakeholders
- Ability to address opportunities high





Key Stakeholders: Expanding Knowledge and Awareness to Better Inform Public Policy

- Public – Ability to make informed decisions about health, lifestyle.
- Researchers – Continuing to advance the science in order to improve the practice.
- Legislators – Prioritizing sleep-related health issues (funding, legislation, access to care, reimbursement, etc.).
- Government Agencies – Support and facilitate further data collection, analysis and dissemination of information to inform policy.
- Others: Media, Scientific and Medical Societies, NGOs, Advocacy organizations, Support Groups.



Guide to Selected Publicly Available Sleep-Related Data Resources



- 23 Population Based Studies with Sleep Related Variables
(e.g., American Time Use Survey, Framingham, NHANES, Nurse's Health Study, VAMC)
- 7 Large Sample Sleep Studies
(e.g., British Health Survey, Pediatric Sleep Medicine Survey, Older Adults and Arthritis)
- 13 Sleep Scales and Questionnaires
(e.g., Epworth Sleepiness Scale, PSQI, Infant Screening Survey, Parental Bedtime Behavior)

'Data Mining' Opportunity to Help Inform Public Policy

Report and Appendices with Relevant Questions, Instruments, Surveys and Direct Links

<http://www.nhlbi.nih.gov/about/ncsdr/research/sleep-datasets-july-06.pdf>



Health Behavior of Adults: United States, 2002-2004: National Center for Health Statistics

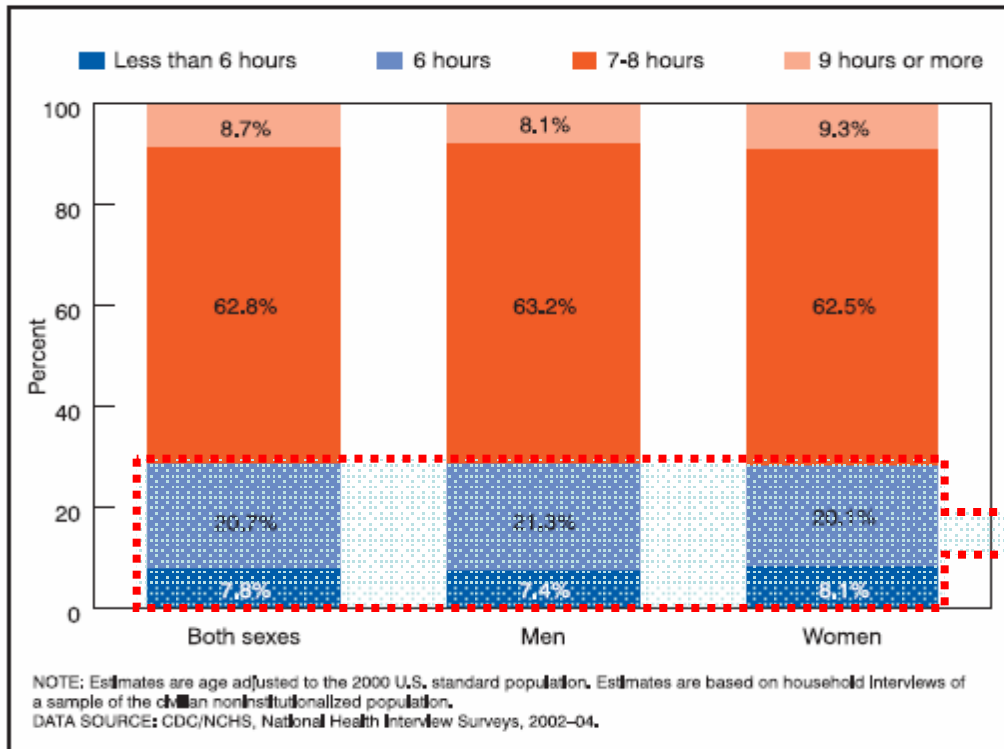


Figure 7.1. Percent distributions of hours of sleep in a 24-hour period, by sex: United States, 2004

28% of U.S. adults sleep 6 hours or less each night



Health Behavior of Adults: United States, 2002-2004:

National Center for Health Statistics



Chapter 7 Sleep

All Adults

- Overall, about 6 in 10 adults (62.8%) usually slept 7 to 8 hours in a 24-hour period (Table 7.1).
- Almost 3 in 10 adults (28.5%) averaged 6 hours of sleep or less in a 24-hour period—20.7% of adults slept 6 hours and 7.8% slept less than 6 hours (Figure 7.1).
- About 1 in 10 adults (8.7%) slept an average of 9 hours or more (Table 7.1).

Race

- Black adults (34.5%) were more likely than white adults (27.6%) to sleep 6 hours or less in a 24-hour period (Table 7.1).
- Black adults (10.9%) were more likely than white adults (8.3%) and almost twice as likely as Asian adults (5.6%) to sleep 9 hours or more (Table 7.1).

Poverty Status

- Adults with incomes four times the poverty level or more (66.5%) were more likely than adults below the poverty level (55.1%) to sleep 7 to 8 hours in a night (Table 7.1)
- Adults with family incomes below the poverty threshold (13.5%) and those with family incomes at or just above the poverty threshold (11.0%) were the most likely to sleep 9 hours or more (Table 7.1).

Hispanic or Latino Origin and Race

- Hispanic adults (64.5%) and non-Hispanic white adults (63.7%) were more likely than non-Hispanic black adults (54.4%) to sleep 7 to 8 hours a night (Table 7.1).
- Hispanic adults (26.0%) and non-Hispanic white adults (28.1%) were less likely than non-Hispanic black adults (34.6%) to sleep 6 hours or less a night (Table 7.1).

Education

- About 7 in 10 adults who had a bachelor's degree (68.8%) or an advanced degree (70.7%) averaged 7 to 8 hours of sleep compared with about one-half of adults who had a GED (53.5%) and 6 in 10 other adults who were not college graduates (Table 7.1).
- Adults who had not graduated from high school (12.2%) were more than twice as likely as adults who had advanced degrees (4.9%) to sleep 9 hours or more (Table 7.1).

Age

- Adults aged 75 years and over were the least likely to sleep 7 to 8 hours (57.0%) and the most likely to sleep 9 hours or more (19.3%) (Table 7.1).
- Adults aged 45–64 years (31.8%) were more likely to sleep 6 hours or less than adults in other age groups (Table 7.1).

Vital and Health Statistics, Series 10, Number 230: Data From the National Health Interview Survey, DHS Publication No. (PHS) 2006-1558



National Sleep Foundation: 2007 Sleep In America Poll - Women and Sleep



Biological changes impact sleep

- Hormonal changes throughout the lifespan impact women's ability to get a good night's sleep
 - 24% of women of childbearing age report getting a good night's sleep a few nights a month or less
 - 40% of pregnant and 55% of post partum women report getting a good night's sleep a few nights a month or less
 - 25% of perimenopausal women and 30% of post menopausal women report getting a good night's sleep a few nights a month or less

<http://www.sleepfoundation.org/>



National Sleep Foundation: 2007 Sleep In America Poll - Women and Sleep



Poor health is linked to sleep problems

- Of women who are in fair to poor health:
 - 66% experience a symptom of a sleep disorder at least a few nights per week
 - 40% diagnosed with a sleep disorder
 - 46% experience daytime sleepiness a few days per week
 - 26% have missed work in the past month
 - 54% use a sleep aid a few nights per week

<http://www.sleepfoundation.org/>



2005-06 NHANES



National Health and Nutrition Examination Survey

[NCHS Home](#) | [NHANES Home](#) | [Participant](#) | [What's New](#) | [Survey Results and Products](#) | [Data Sets](#) | [Health Professionals](#) | [Growth Charts](#) | [CDC/NCHS Privacy Policy Notice](#) | [Accessibility](#) | [Search NCHS](#) | [NCHS Definitions](#) | [Contact us](#)

Survey Questionnaires, Examination Components and Laboratory Components 2005-2006

2005-06 Questionnaire

SLEEP DISORDERS – SLQ

Target Group: 16+

SLQ.010 The next set of questions are about your sleeping habits.
H/M



Healthy People 2020



Healthy People 2020 National Disease Prevention and Health Promotion Objectives



The Department of Health and Human Services is in the initial stages of planning for the next set of comprehensive objectives to serve as a framework for disease prevention and health promotion efforts throughout the nation. Healthy People 2020 will build on the efforts of Healthy People 2010 by leveraging the scientific insight and lessons learned during the past decade along with emerging data, trends, and innovations to identify and address the most significant preventable threats to health.

A framework and objectives for Healthy People 2020 will be informed by a variety of sources, including a federal interagency workgroup, regional meetings across the country, public comment and guidance solicited from public and private stakeholders.

Check back for updates and new information.

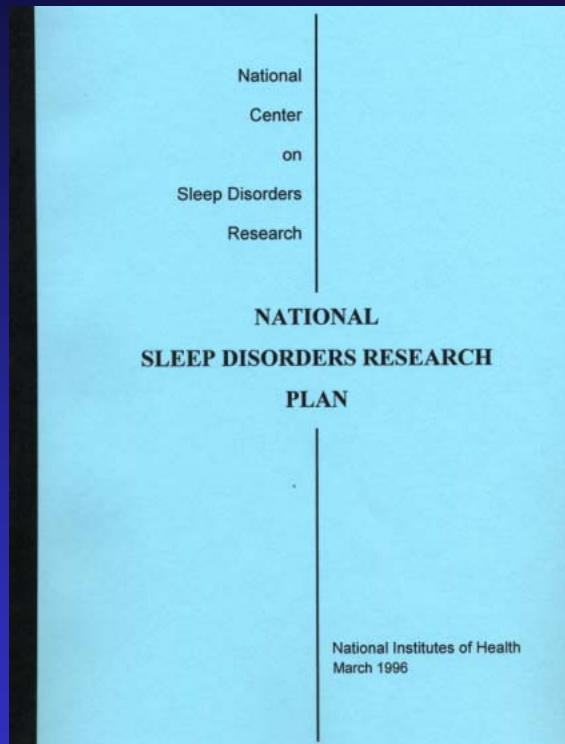
"...leveraging the scientific insight and lessons learned during the past decade along with emerging data, trends, and innovations to identify and address the most significant preventable threats to health."



National Sleep Disorders Research Plan



1996



2003



2008 - 09

??

Opportunity for
Input

Research;

Education;

Strategic
Direction;



Copyright © 2002 United Feature Syndicate, Inc.



**National Heart
Lung and Blood Institute**
People Science Health

