Progress Review Webinar: Hearing and Other Sensory or Communication Disorders and Vision

February 22, 2018

ODPHP | Office of Disease Prevention and Health Promotion

The Diagnosis, Prevention, and Treatment of Sensory and Communication Disorders

Don Wright, MD, MPH
Deputy Assistant Secretary for Health
Health Promotion and Disease Prevention
U.S. Department of Health and Human Services

ODPHP | Office of Disease Prevention and Health Promotion

Agenda and Presenters

Chair

- Don Wright, MD, MPH, Deputy Assistant Secretary for Health, Disease Prevention and Health Promotion, U.S. Department of Health and Human Services

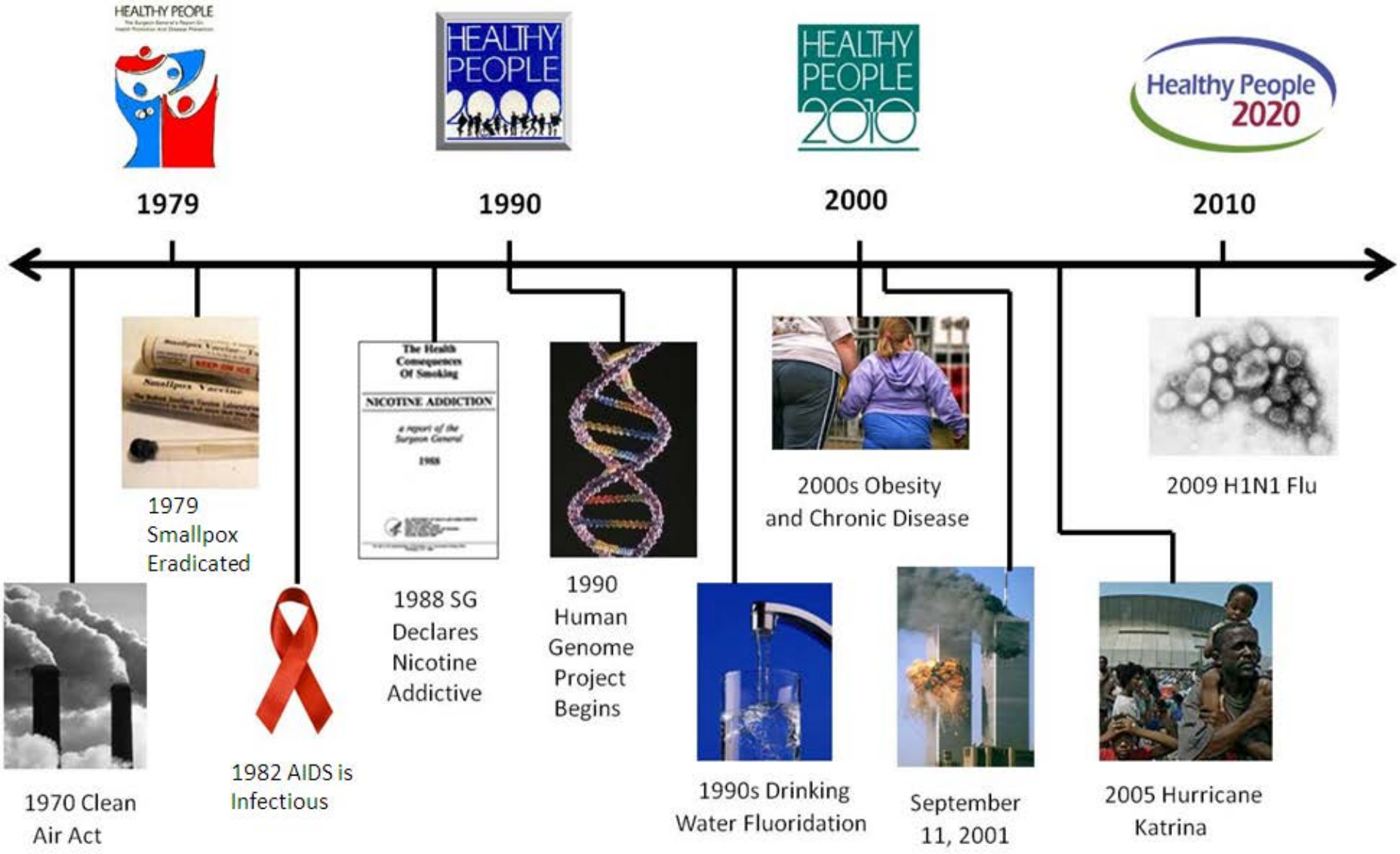
Presentations

- Charles Rothwell, MBA, MS, Director, National Center for Health Statistics
- James F. Battey, Jr., MD, PhD, Director, National Institute on Deafness and Other Communication Disorders, National Institutes of Health
- Paul Sieving, MD, PhD, Director, National Eye Institute, National Institutes of Health

Community Highlight

- Nicole Marrone, PhD, CCC-A, Department of Speech, Language and Hearing Sciences, University of Arizona

Healthy People at the Forefront of Public Health



Evolution of Healthy People

Target Year	1990	2000	2010	2020
Overarching Goals	• Decrease mortality: infants–adults • Increase independence among older adults	• Increase span of healthy life • Reduce health disparities • Achieve access to preventive services for all	• Increase quality and years of healthy life • Eliminate health disparities	• Attain high-quality, longer lives free of preventable disease • Achieve health equity; eliminate disparities • Create social and physical environments that promote good health • Promote quality of life, healthy development, healthy behaviors across life stages
# Topic Areas	15	22	28	42
# Objectives/ Measures	226	312	1,000	~1,200

The Public Health Importance of Human Communication

Healthy People 2020

- **Communication Disorders** cross all ethnic and socioeconomic lines, and reduce our ability to interact with each other. They can lead to social isolation and difficulty at school or work. At least 20% of U.S. adults have significant impairment of hearing, balance, taste, smell, voice, speech, or language.
- **Newborn Hearing Screening** helps identify hearing problems early, to enable language intervention if needed. Children begin to learn speech and language in the first six months of life.
- **Hearing Aid Use** can be critical to help some adults with hearing loss maintain their ability to communicate. Despite this, most adults who could benefit from hearing aids do not use them, often because the devices are not accessible or they are too costly.

The Public Health Importance of Human Communication

- **Noise-Induced Hearing Loss –** Loud sounds can damage the inner ear, resulting in permanent hearing loss. Many people don't realize that every day activities can damage hearing just as much as noise on the job.
- **Tinnitus** is the #1 disability for military veterans. Tinnitus is ringing, roaring, buzzing, or other sound in the ears or head when no external sound is present.
- **Balance and Dizziness** problems can cause falls. Falls are the leading cause of injury and death in older Americans, according to the CDC.
- **Chemosensory (Taste & Smell) Disorders –** We need our sense of taste and smell to detect poisonous fumes and spoiled food. Taste and smell disorders can also lead to unhealthy eating habits and poor nutrition.

Source: https://www.cdc.gov/media/releases/2016/p0922-older-adult-falls.html

Causes of Vision Loss / Blindness

Healthy People 2020

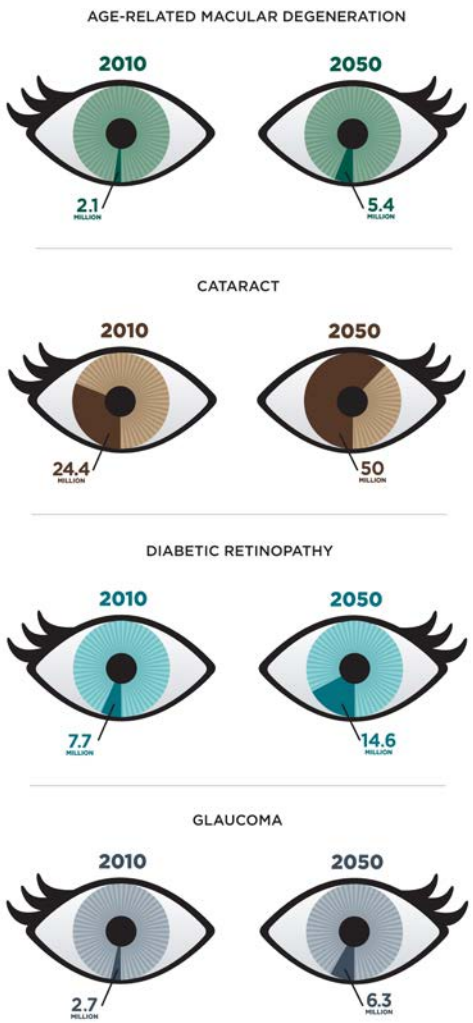
Leading causes of vision loss and blindness are age-related eye diseases

Age-related Macular Degeneration—blurs sharp, central vision needed for straight-ahead activities like reading and driving

Cataract—clouding of the lens of the eye

Diabetic Retinopathy—diabetes complication that affects small blood vessels in the eye

Glaucoma—damages the optic nerve which carries vision messages from the eye to brain



NOTES: https://www.nei.nih.gov

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Each eye represents 80 million people, the estimated number of Americans aged 65 and over in 2050

Burden of Vision Impairment

U.S. Burden 3.22 million people over age 40 with **vision loss**
1.02 million people are **blind**
$139 billion, **total costs and lost productivity**

***Correctable* vision impairment** includes

- **Cataract**, lens replacement surgery to restore good vision
- **Refractive Errors**, (e.g., nearsightedness), corrected by eyeglasses, contact lenses, or laser surgery (e.g., LASIK)
  - Uncorrected refractive error impairs vision in 8.2 million people

***Uncorrectable* vision impairment** from eye disease or trauma

- **Prevention and Therapies** can reduce vision loss if caught early

Eye Care: Only half of the estimated 61 million adults in the United States at high risk for serious vision loss visited an eye doctor last year

NOTES: https://www.nei.nih.gov/eyedata/ ; https://www.cdc.gov/visionhealth/basics/index.html

Healthy People 2020

Charles Rothwell, MBA, MS
Director, National Center for Health Statistics
Centers for Disease Control and Prevention

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

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Presentation Overview

- Tracking the Nation's Progress
- Hearing and Other Sensory or Communication Disorders
- Vision

Tracking the Nation's Progress

- 27 HP2020 Measurable Hearing and Other Sensory or Communication Disorders Objectives:
  - 7 Target met
  - 3 Improving
  - 9 Little or no detectable change
  - 2 Getting worse
  - 6 Baseline data only

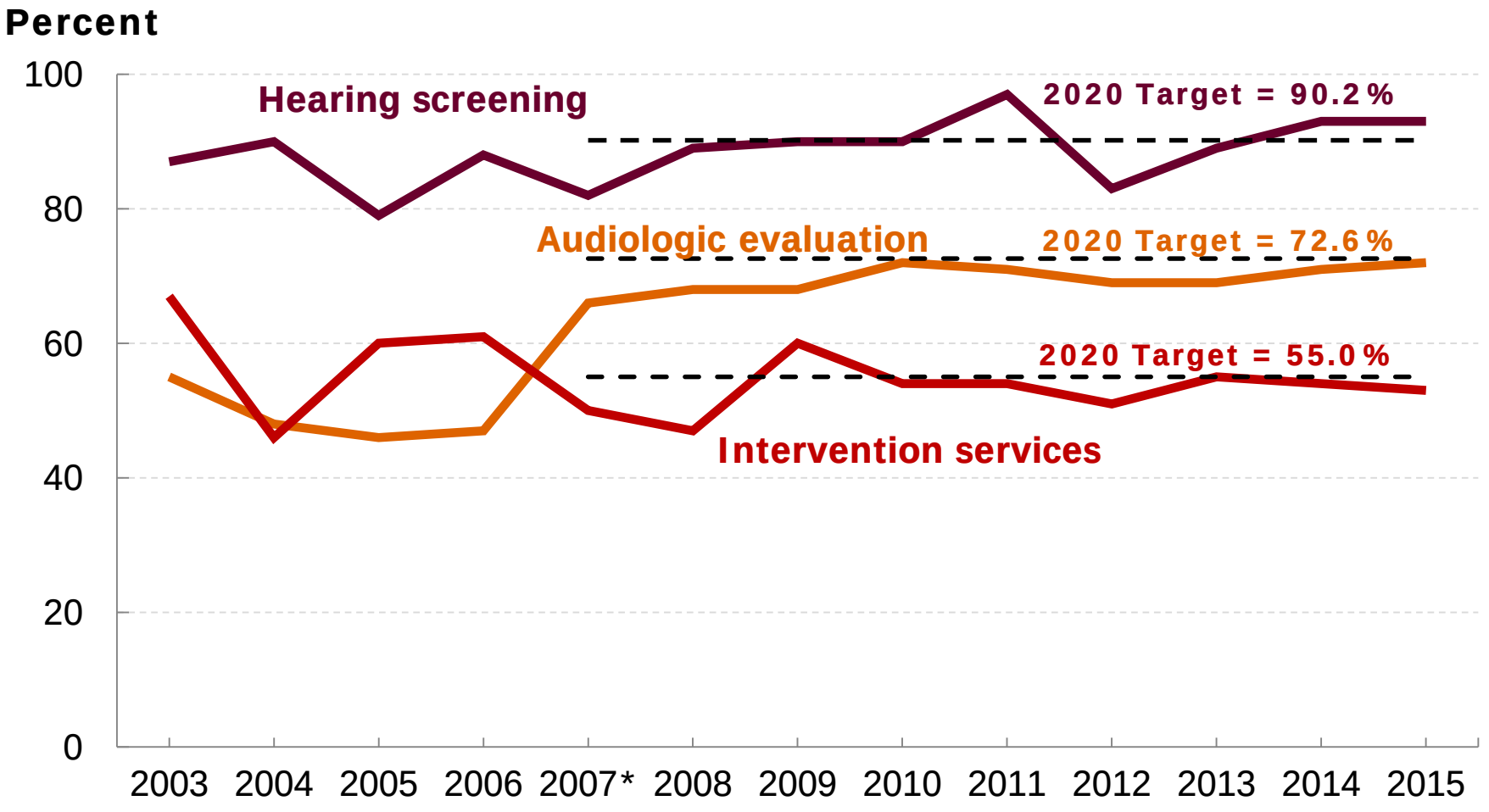
- 14 HP2020 Measurable Vision Objectives:
  - 6 Target met
  - 1 Improving
  - 6 Little or no detectable change
  - 1 Baseline data only

NOTES: The Hearing and Other Sensory or Communication Disorders Topic Area has 9 developmental objectives. The Vison Topic Area has 1 developmental objective. Measurable objectives are defined as having at least one data point currently available, or a baseline, and anticipate additional data points throughout the decade to track progress. The developmental objectives do not have a national baseline value.

Presentation Overview

- Tracking the Nation's Progress
- Hearing and Other Sensory or Communication Disorders
  - Newborn screening, evaluation, and intervention services
  - Noise-induced hearing loss
  - Referral to audiologist or otolaryngologist due to tinnitus
  - Falls caused by dizziness or imbalance
  - Visits to healthcare providers by adults with chemosensory disorders
- Vision

Newborn Hearing Screening, Evaluation, and Intervention



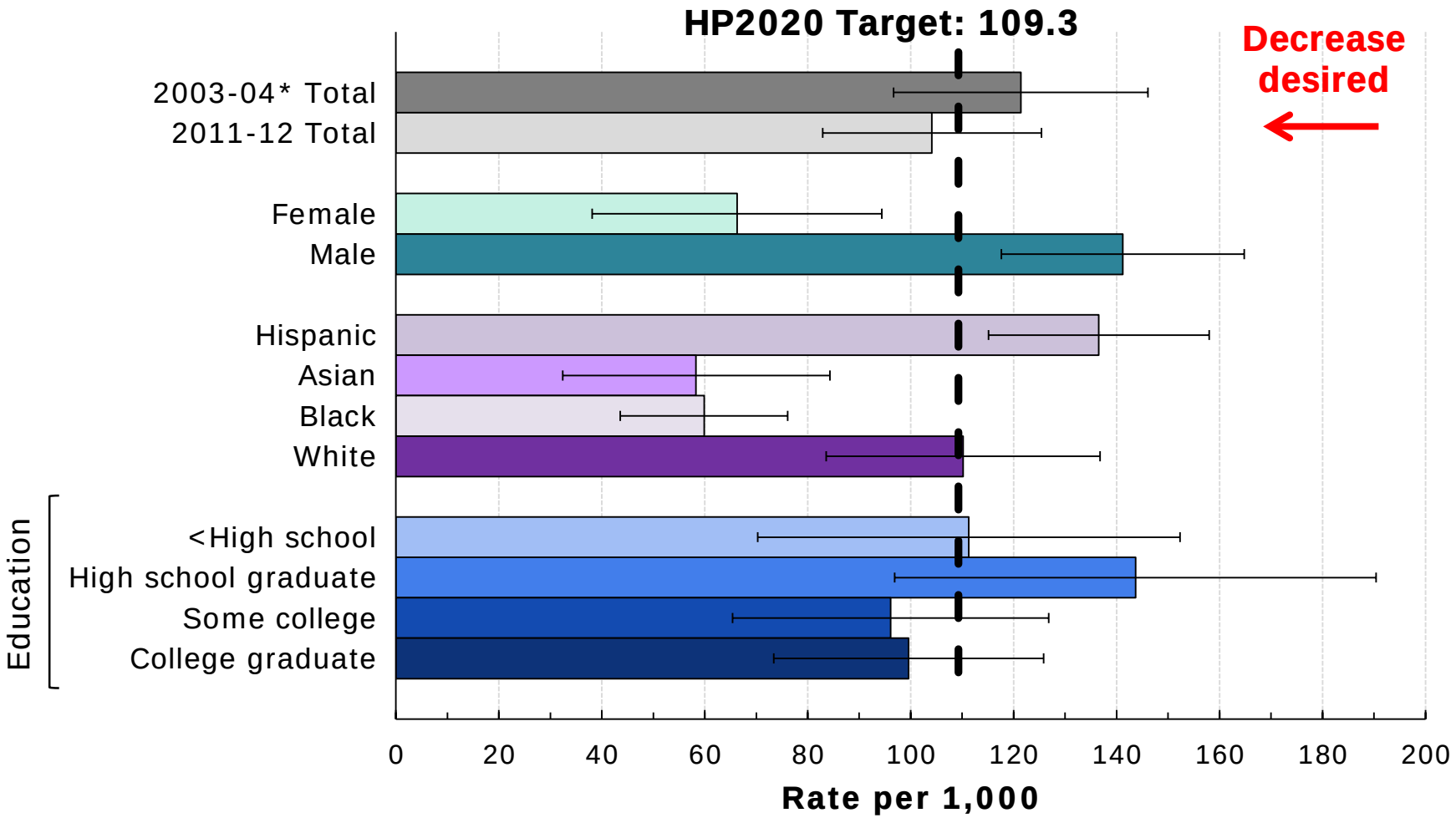
NOTES: 2007* = HP2020 baseline. Hearing screening data are for newborns aged 1 month and under who had screening for hearing loss; audiologic evaluation data are for infants aged 3 months and under who did not pass the hearing screening and received audiologic evaluation; intervention services data – for infants aged 6 months and under with confirmed hearing loss enrolled for intervention services.

SOURCE: State-based Early Hearing Detection and Intervention Program Network (EHDI), CDC/NCBDDD.

Objs. ENT-VSL-1.1 through 1.3

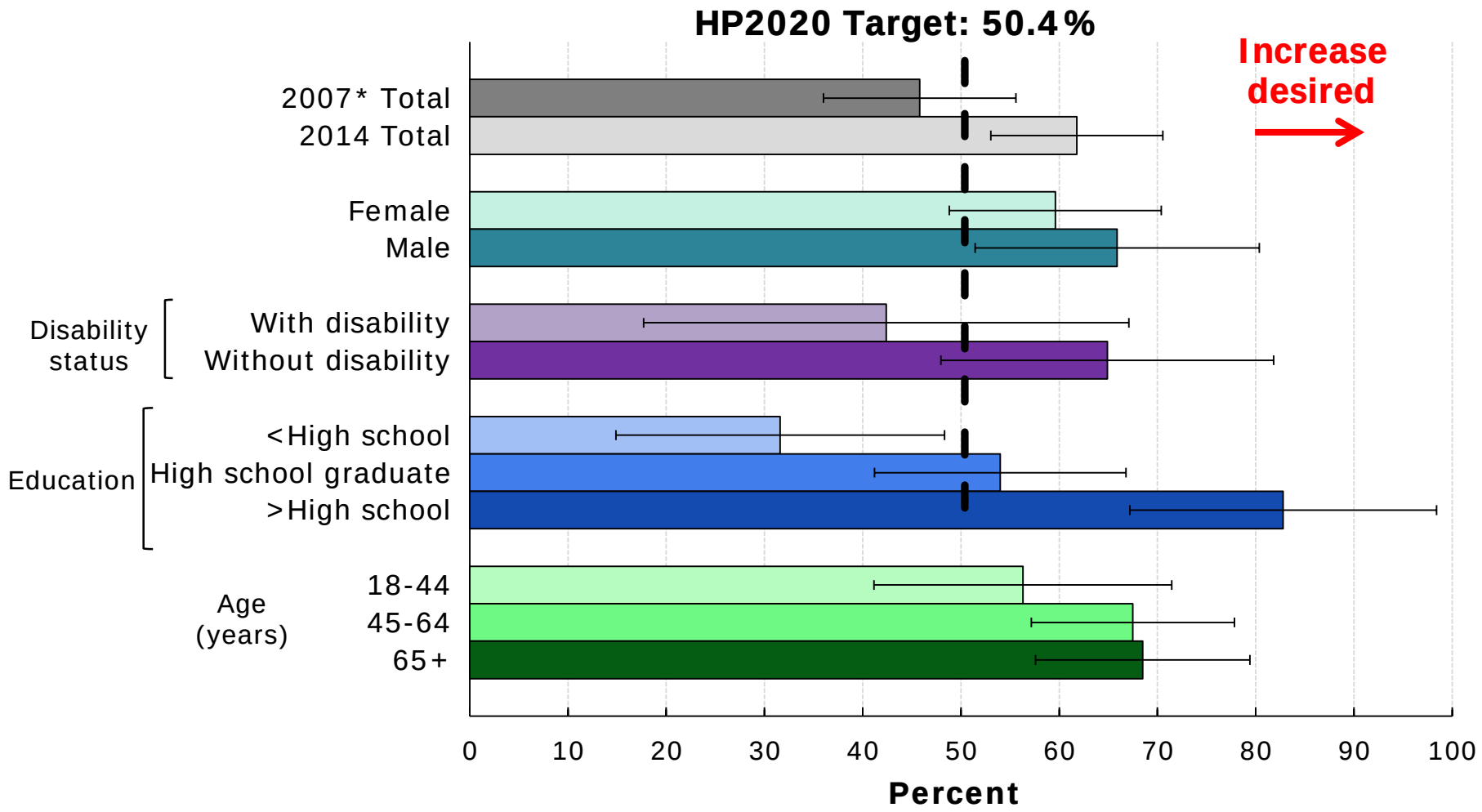
Increase desired

Noise-Induced Hearing Loss, Adults 20-69 Years, 2011–12



NOTES: ─ = 95% confidence interval. 2003-04* = HP2020 baseline. Except for education, data are for adults aged 20 to 69 years who had elevated hearing thresholds, or audiometric notches, in high frequencies (3, 4, or 6 kHz) in both ears, signifying noise-induced hearing loss. The categories Asian, black, and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group. Educational attainment data are for adults aged 25-69 years. Data are age-adjusted to the 2000 standard population. SOURCE: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.

ENT-VSL-8

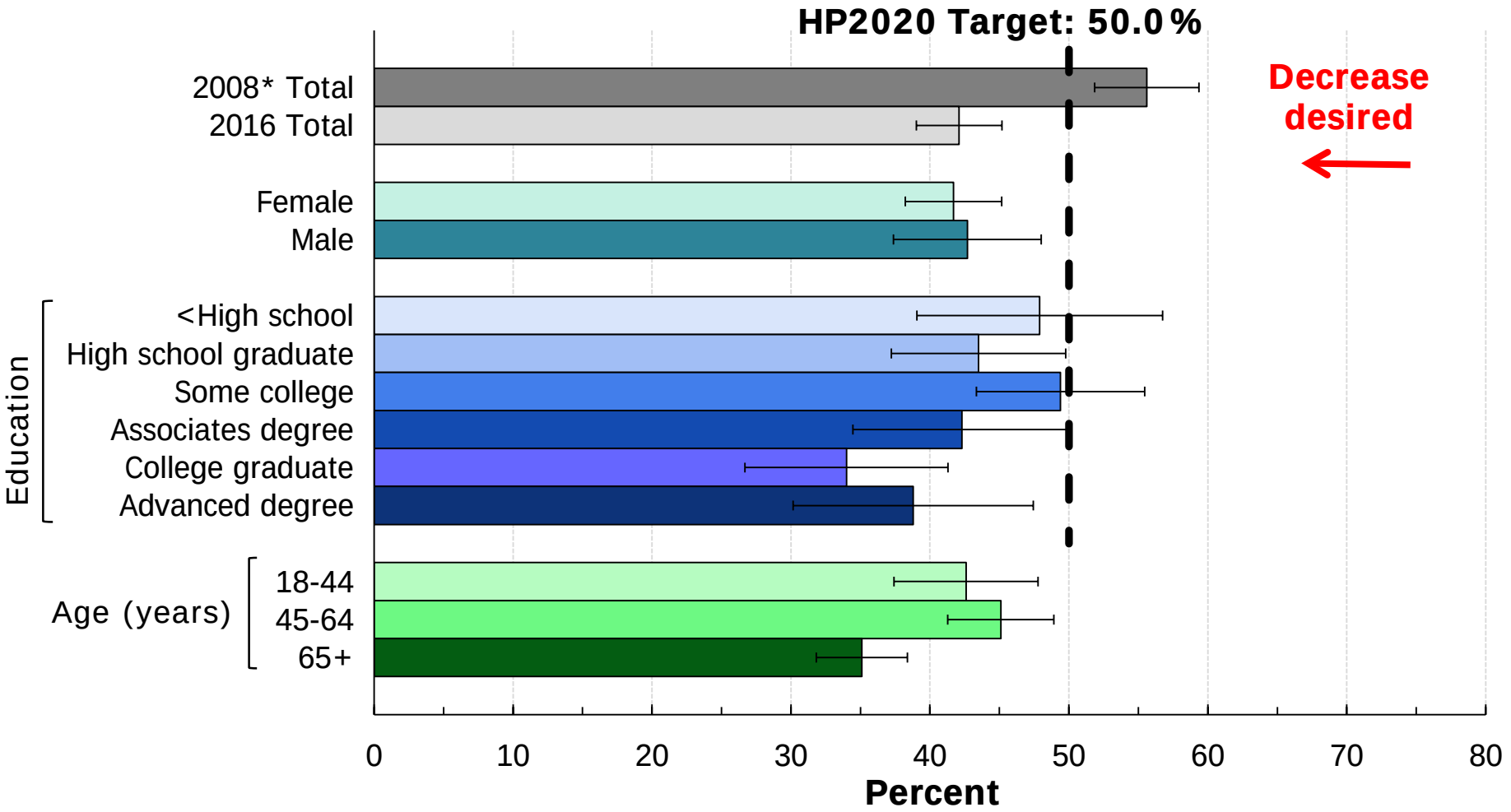


NOTES: ⊢ = 95% confidence interval. 2007* = HP2020 baseline. Except for education, data are for adults aged 18 years and over bothered by the onset of tinnitus in the past 5 years and for whom it is a moderate, big, or very big problem, and who had been seen or been referred to an audiologist or otolaryngologist. Educational attainment data are for adults aged 25 and over. Except for age-specific estimates, data are age-adjusted to the 2000 standard population. Target is not applicable to age groups.

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

ENT-VSL-9.2

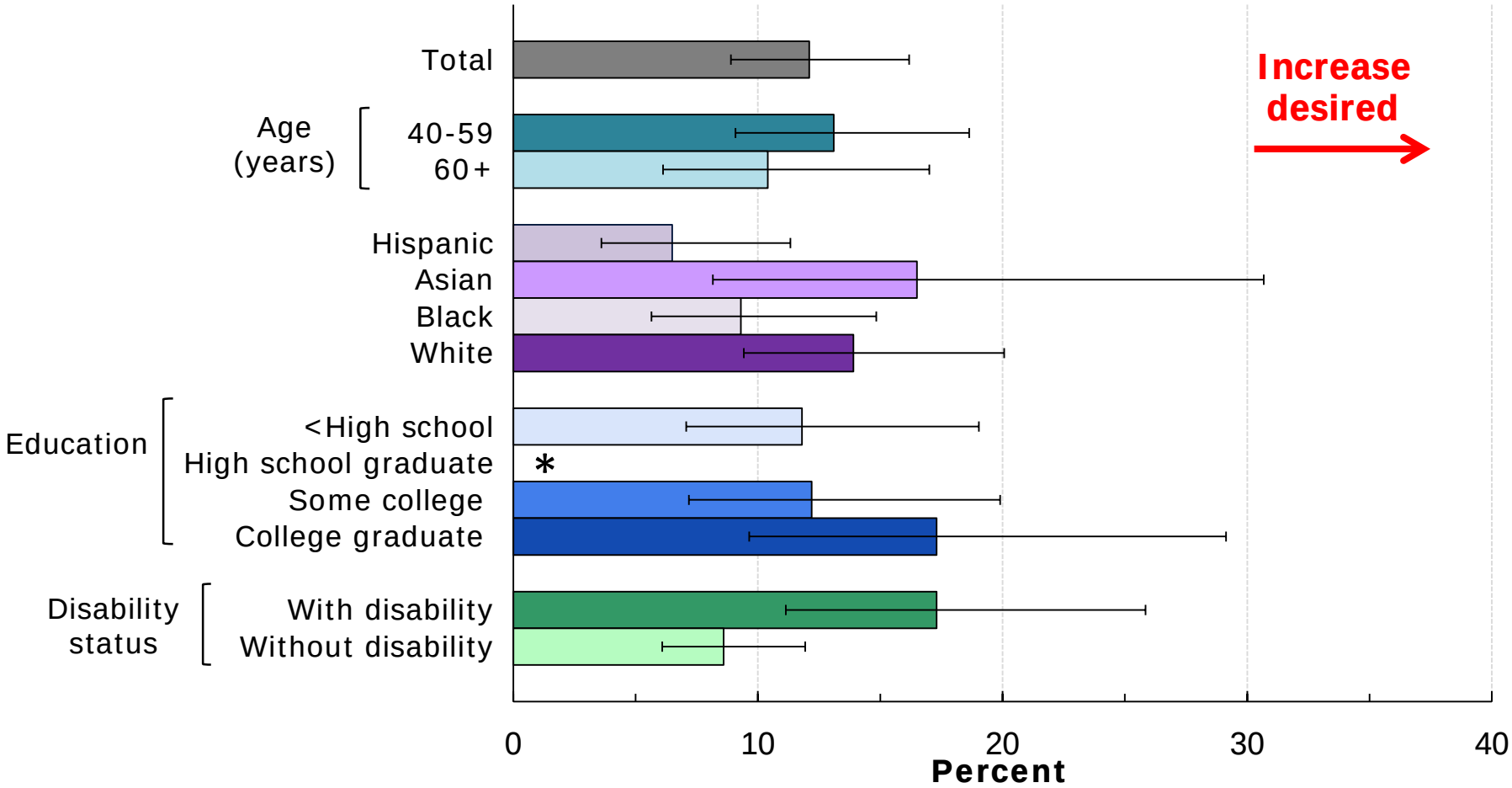
Falls Due to Dizziness, Vertigo, or Imbalance, Adults with Balance and Dizziness Problems, 2016



NOTES: ─ = 95% confidence interval. 2008* = HP2020 baseline. Except for education, data are for adults aged 18 years and over with dizziness or balance problems who have fallen in the past 5 years while having dizziness, vertigo, or imbalance just before or around the time they fell. Educational attainment data are for adults aged 25 and over. Data, except for age groups, are age-adjusted to the 2000 standard population. Target is not applicable to age groups.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. ENT-VSL-15.1

Healthcare Provider Visit, Adults 40+ Years with Smell or Taste Disorders, 2013–14

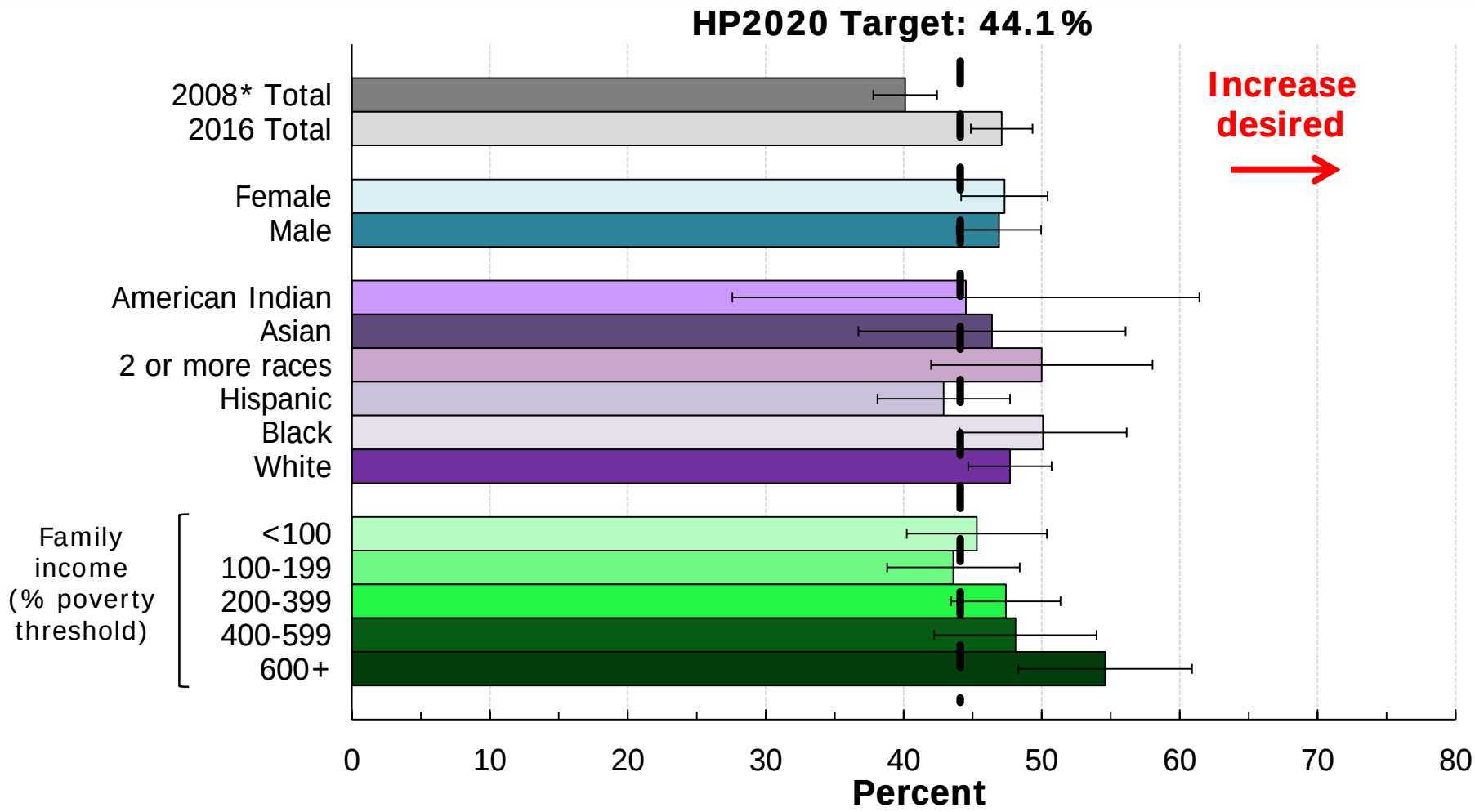


NOTES: ⊢ = 95% confidence interval. *Data are not statistically reliable. Data are for adults aged 40 years and older who had smell or taste disorders and who had discussed their problem with a healthcare provider in the past 12 months. The categories Asian, black, and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group. Except for age-specific groups, data are age-adjusted to the 2000 standard population.
SOURCE: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.

Presentation Overview

- Tracking the Nation's Progress
- Hearing and Other Sensory or Communication Disorders
- Vision
  - Vision screening and eye examination
  - Visual impairment
  - Rehabilitation services and adaptive devices use by adults with visual impairment
  - Occupational eye injuries
  - Use of protective eyewear

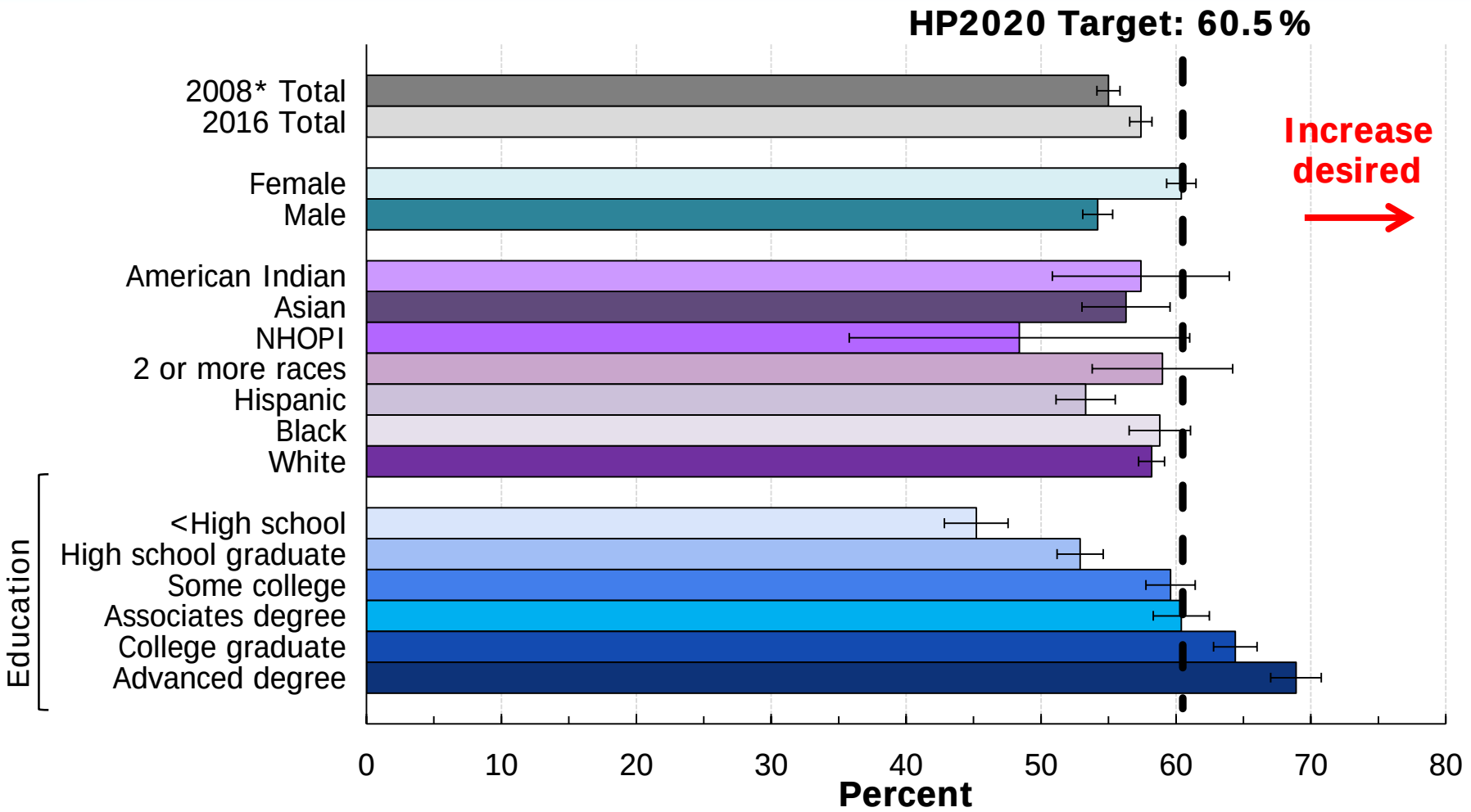
Vision Screening, Children 5 Years and Under, 2016



NOTES: ⊢ = 95% confidence interval. 2008* Total = HP2020 baseline. Data are for children aged 5 years and under who have ever had their vision tested by a doctor or other health professional. American Indian includes Alaska Native. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. V-1

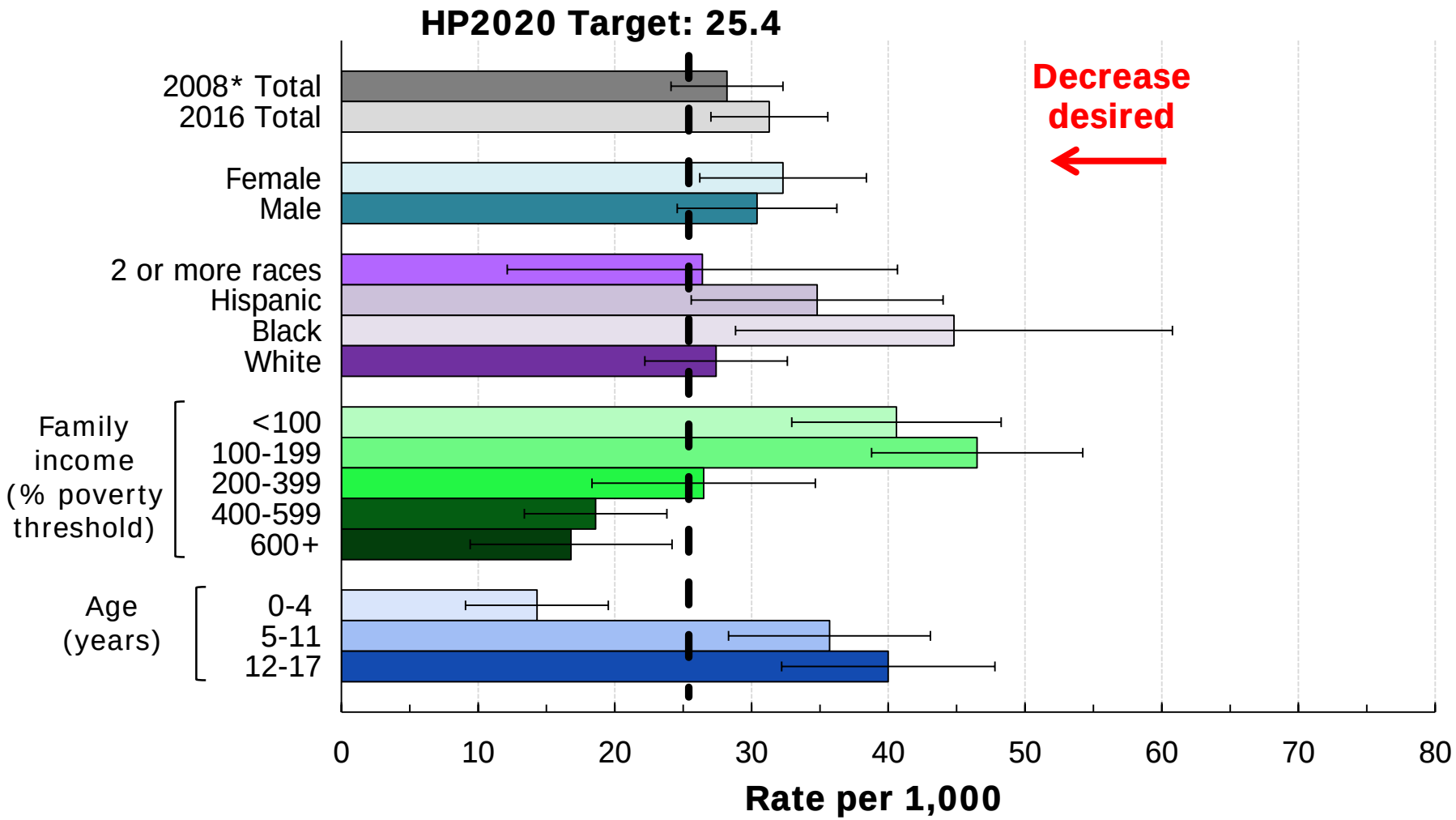
Dilated Eye Examination in the Past 2 Years, Adults 18+ Years, 2016



NOTES: ⊢ = 95% confidence interval. 2008* Total = HP2020 baseline. Except for education, data are for adults 18 years and over, who report they had a dilated eye exam within the past two years. American Indian includes Alaska Native. NHOPI is Native Hawaiian or other Pacific Islander. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group. Educational attainment data are for adults aged 25 and over. Data are age-adjusted to the 2000 standard population. SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. V-4

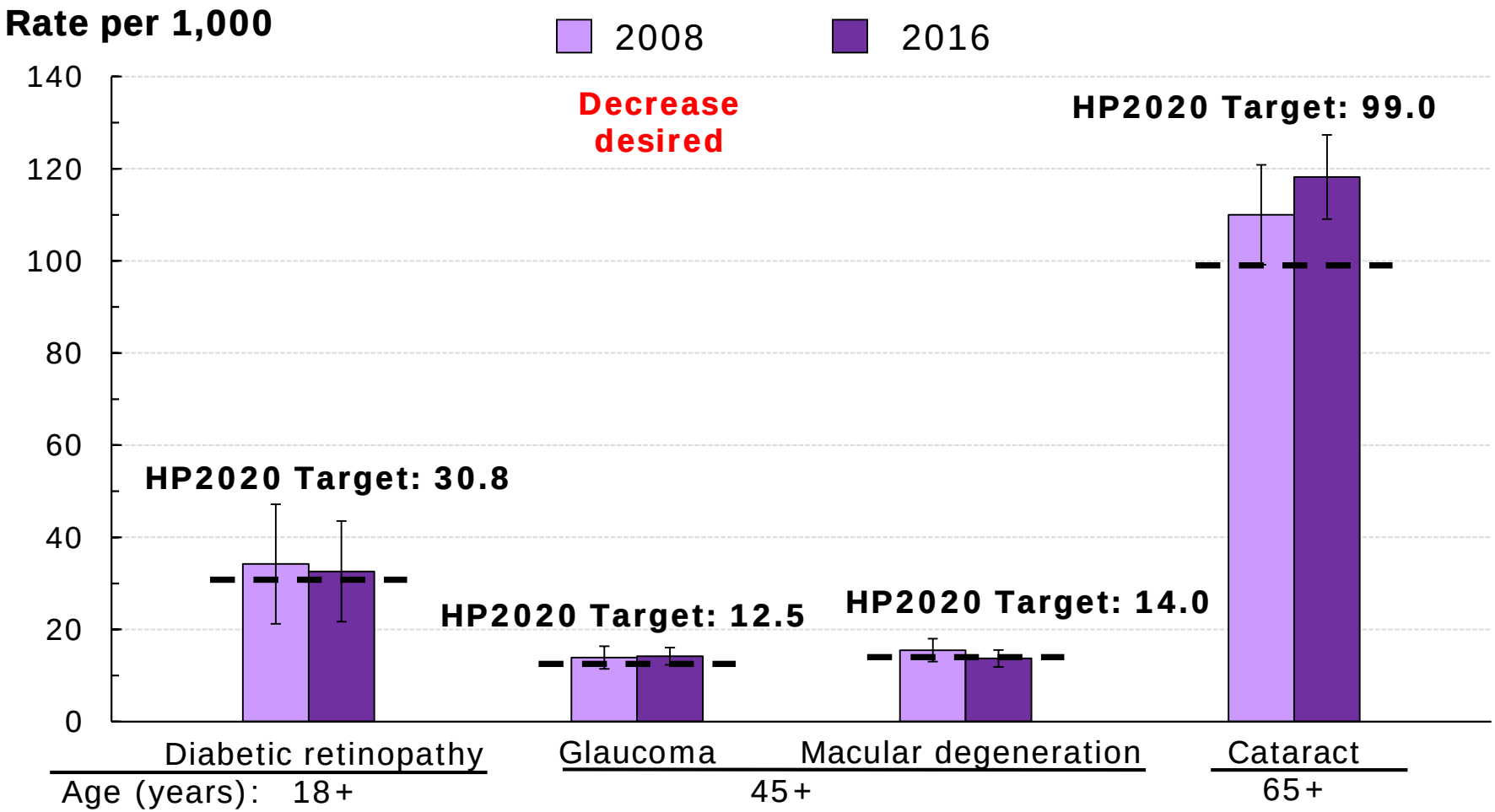
Visual Impairment and Blindness, Children 17 Years and Under, 2016



NOTES: ⊢ = 95% confidence interval. 2008* Total = HP2020 baseline. Data are for children aged 17 years and under who have trouble seeing even when wearing glasses or contact lenses or were blind. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. V-2

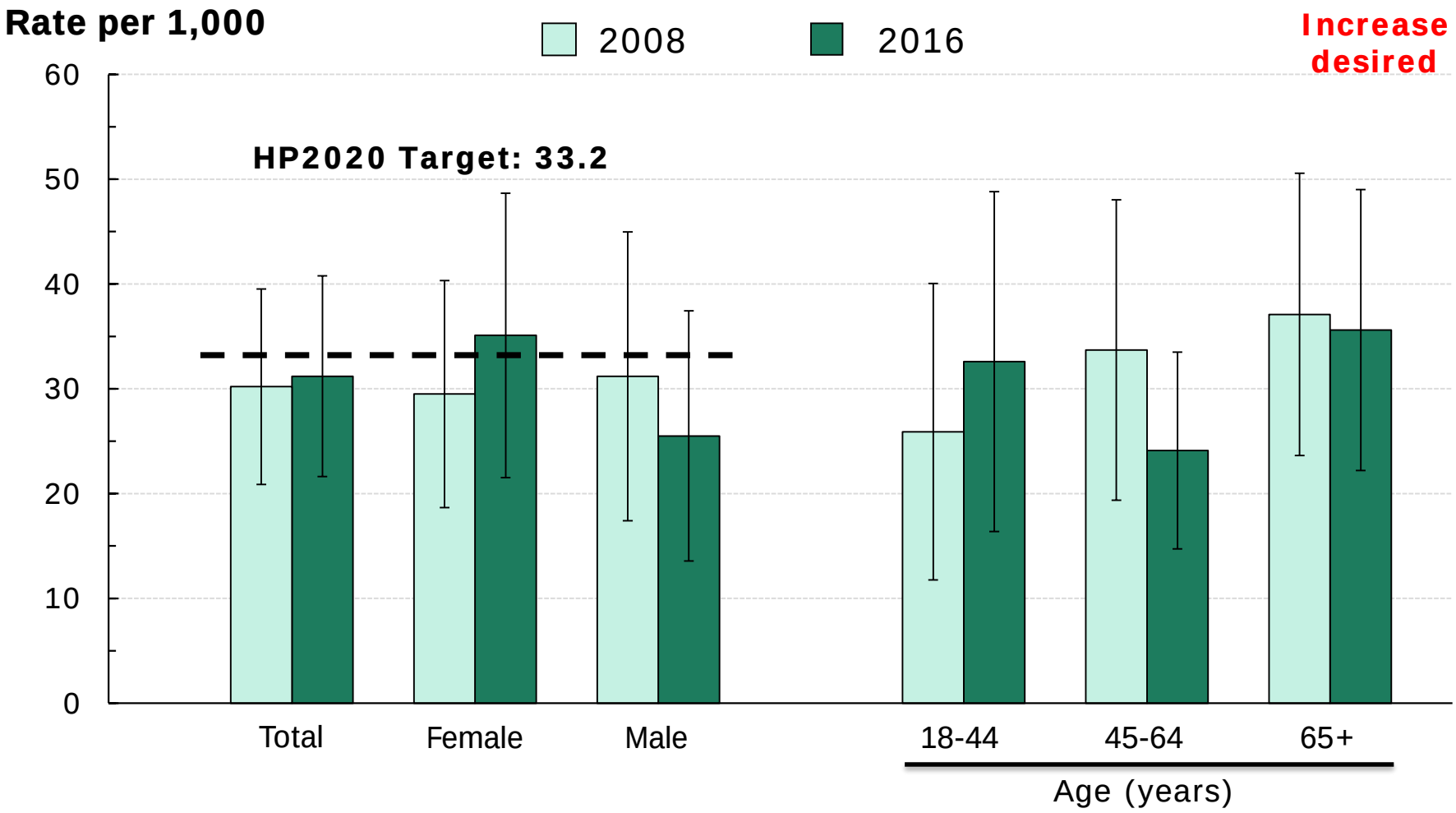
Self-Reported Visual Impairment, Adults with Diagnosed Eye Diseases



NOTES: I = 95% confidence interval. Data are for adults aged 18 years and over who have ever been told by a doctor or healthcare professional that they had diabetic retinopathy; persons aged 45 years and over who have ever been told they had glaucoma or macular degeneration; and persons aged 65 years and over who have ever been told they had cataract, and reported vision loss due to these conditions. Data, except estimates for adults with diagnosed cataract, are age-adjusted to the 2000 standard population.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Objs. V-5.2 through 5.5

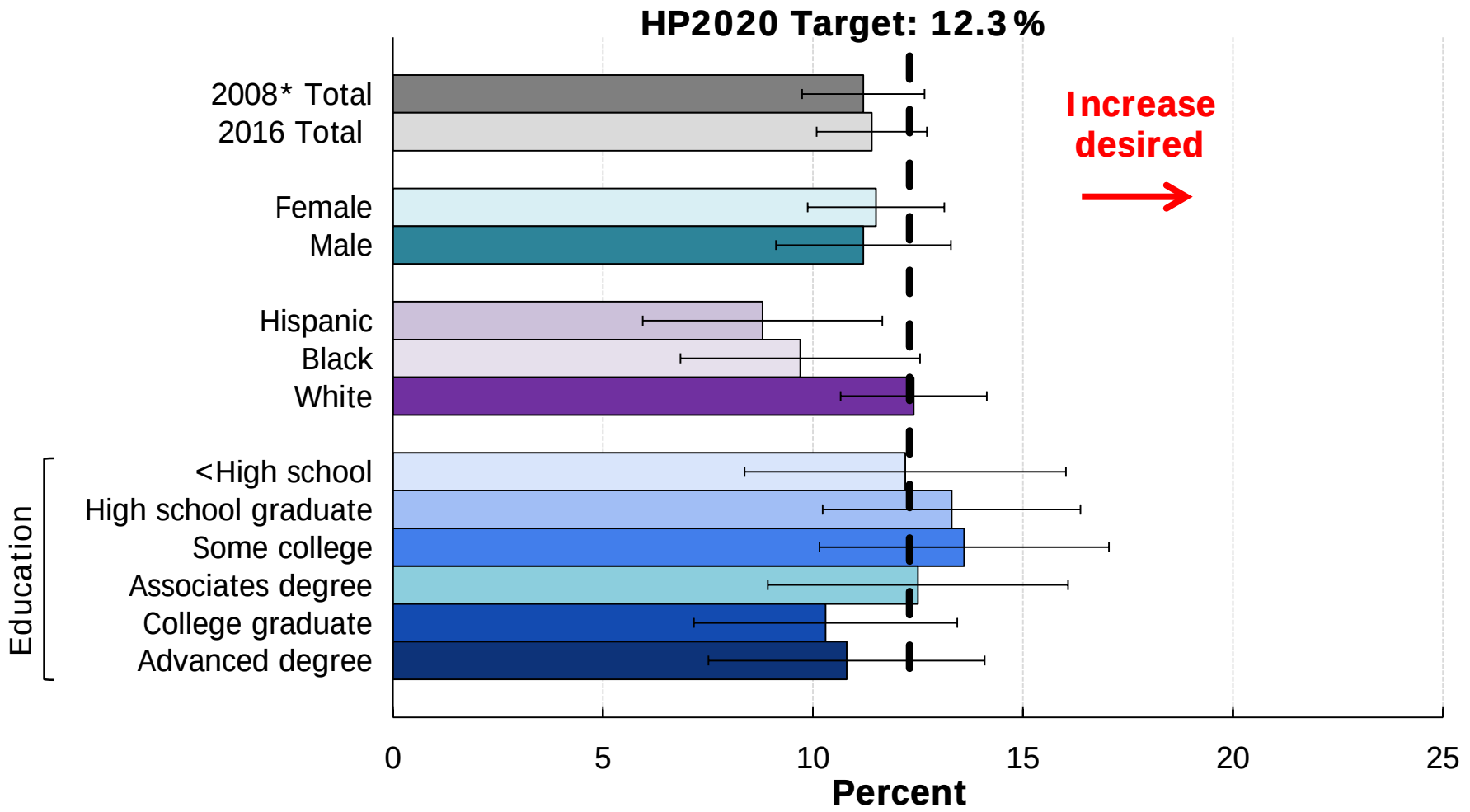
Vision Rehabilitation Services, Adults with Visual Impairment



NOTES: I = 95% confidence interval. Data are for adults aged 18 years and over who reported trouble seeing even when wearing glasses or contact lenses and use of vision rehabilitation services such as job training, counseling, or training in daily living skills and mobility. Except for age-specific estimates, data are age-adjusted to the 2000 standard population. Target is not applicable to age groups.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. V-7.1

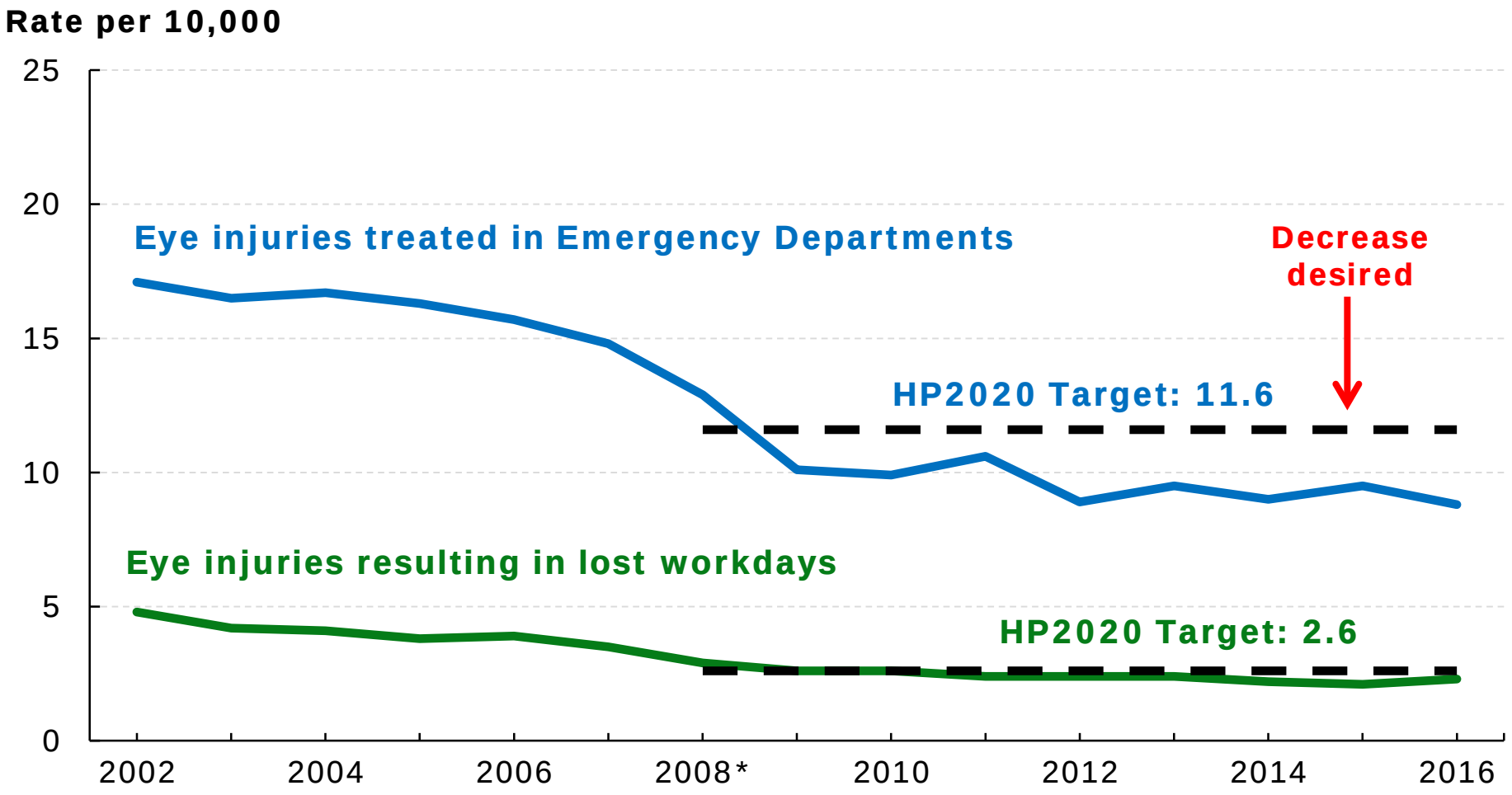
Visual Assistive and Adaptive Devices, Adults with Visual Impairment, 2016



NOTES: ─ = 95% confidence interval. 2008* = HP2020 baseline. Except for education, data are for adults 18 years and over, who have trouble seeing and use any visual assistive and adaptive devices such as telescopic or other prescriptive lenses, magnifiers, large print or talking materials, CCTV, white cane, or guide dog. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group. Educational attainment data are for adults aged 25 and over. Data are age-adjusted to the 2000 standard population. SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. V-7.2

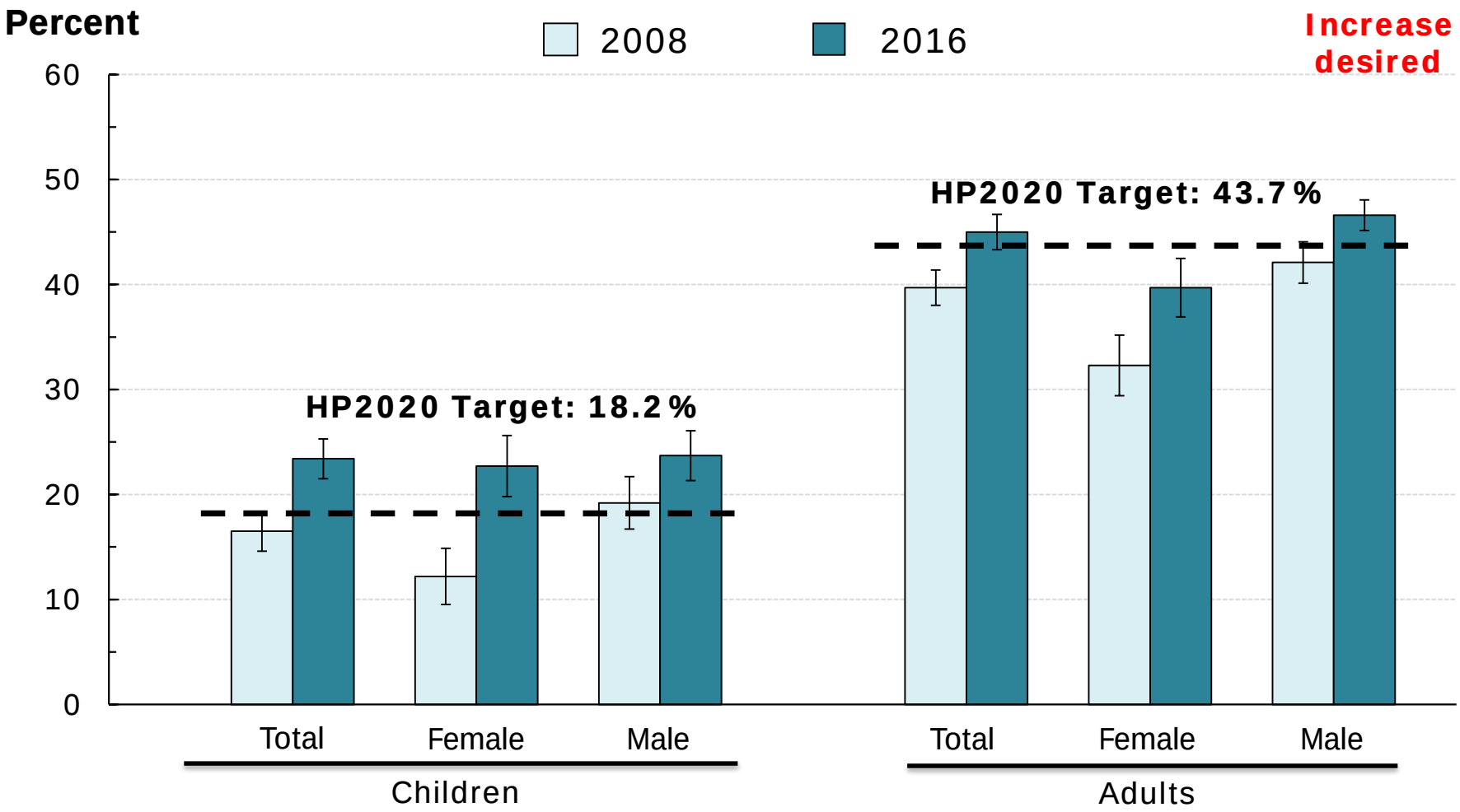
Occupational Eye Injuries



NOTES: 2008* = HP2020 baseline. Rate per 10,000 full-time equivalent workers aged 16 years and older. Data are for occupational eye injuries or illnesses treated in hospital emergency departments; and for occupational eye injuries among private industry employees that required medical treatment beyond first aid and that resulted in one or more days away from work.
The eye injury or illness resulted from an event in the work environment.
SOURCES: National Electronic Injury Surveillance System (NEISS), CPSC; Current Population Survey (CPS), Census and DOL/BLS; Survey of Occupational Injuries and Illnesses (SOII), DOL/BLS.

Objs. V-3.1 & 3.2

Protective Eyewear Use at Home: Always or Most of the Time



NOTES: I = 95% confidence interval. Data are for children 6-17 years and adults aged 18 years and over who were involved in activities that can cause eye injury and who wore protective eyewear always or most of the time. Adult data are age-adjusted to the 2000 standard population.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Objs. V-6.1 & 6.2

Key Takeaways – Hearing and Other Sensory or Communication Disorders

- Between 2007 and 2015, the percent of newborns and infants who received hearing screening, evaluation, and intervention services increased. One objective has met its HP2020 target and two objectives are improving.
- Noise-induced hearing loss among adults aged 20-69 years decreased between 2003-04 and 2011-12. The objective met its HP2020 target.
- In 2014, 61.8% of adults aged 18 years and over with tinnitus had been seen or referred to specialists.
- In 2016, 42.1% of adults aged 18 years and over with dizziness or balance problems reported falls caused by dizziness or imbalance.
- In 2013-14, 12.1% of adults aged 40 years and over with smell or taste disorders discussed their problem with a healthcare provider in the past 12 months.

Key Takeaways – Vision

- In 2016, 47.1% of children aged 5 years and under had a vision screening and 57.4% of adults aged 18 years and over had a dilated eye examination.
- Between 2008 and 2016, the rates of visual impairment due to diabetic retinopathy, glaucoma, and cataract showed little or no detectable change. The objective on visual impairment due to macular degeneration has met its target.
- Vision rehabilitation and visual adaptive device use among adults with visual impairment remained low. These objectives showed little or no detectable change between 2008 and 2016.
- In 2016, the objectives on occupational eye injuries have met their Healthy People 2020 targets.
- In 2016, 23.4% of children 6-17 years and 45.0% of adults aged 18 years and over participating in activities that can cause eye injury used protective eyewear always or most of the time. These objectives have met their Healthy People 2020 targets.

Healthy People 2020: NIDCD Efforts to Prevent, Diagnose, and Treat Communication Disorders

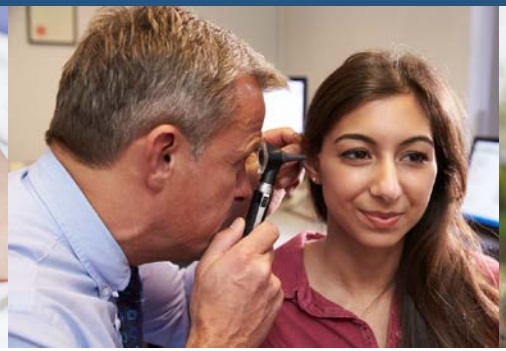
James F. Battey, Jr., M.D., Ph.D.
Director, National Institute on Deafness and Other Communication Disorders, NIH

February 22, 2018

ODPHP | Office of Disease Prevention and Health Promotion

NIH National Institute on Deafness and Other Communication Disorders

The NIDCD's Mission

To support research and research training to prevent, detect, diagnose, and treat conditions in **hearing** and **balance**, **taste** and **smell**, and **voice**, **speech,** and **language.**

We seek to improve the lives of **more than 65 million people** in the United States who have a communication disorder.

Objectives 1.1, 1.2, 1.3
Newborn Hearing Screening

- Before 1993, fewer than 1 in 10 newborns in the U.S. were screened for hearing loss.
- In 2000, the NIDCD supported a multicenter study that established the necessary technologies to screen newborns for hearing loss. These noninvasive tests are still used today.
- Today, about 90% of infants are screened for hearing loss during the first month of life and 98% during their first year.

NOTE: https://www.cdc.gov/ncbddd/hearingloss/2014-data/2014_ehdi_hsfs_summary_h.pdf [PDF - 437 KB]

Objectives 1.1, 1.2, 1.3
Newborn Hearing Screening

Healthy People 2020

New Law Strengthens Early Hearing Screening Program

- October 2017 – President Trump signed the Early Hearing Detection and Intervention Act.
- It reauthorizes the NIH, the CDC, and HRSA to continue a long-standing partnership to coordinate and advance a national program for the early identification and diagnosis of hearing loss and intervention services for newborns, infants, and young children.

NIH National Institute on Deafness and Other Communication Disorders

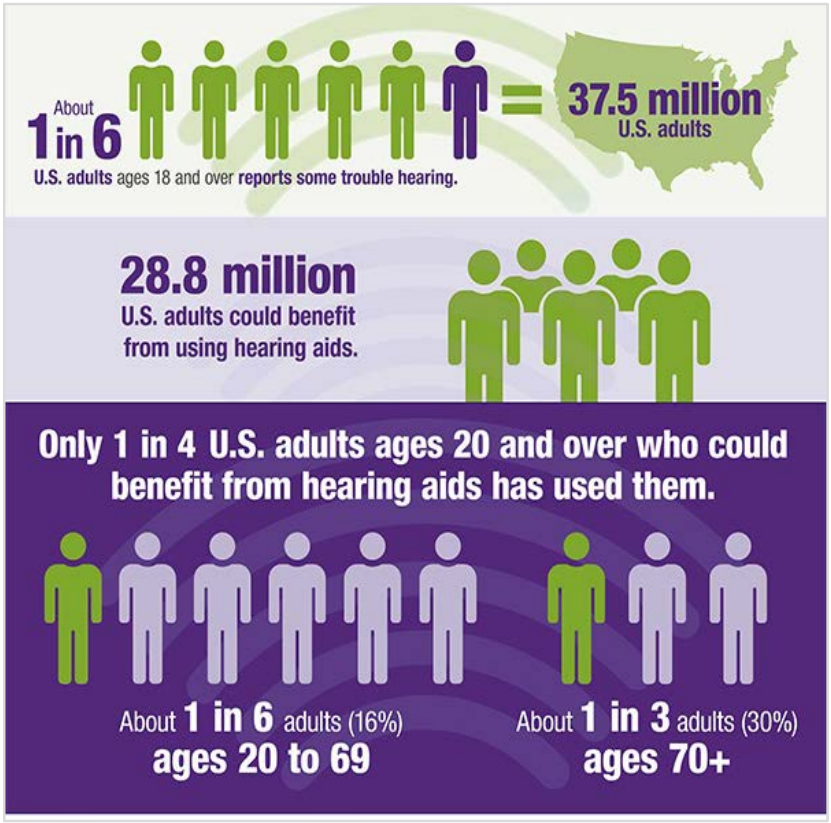
CDC Centers for Disease Control and Prevention

HRSA Health Resources & Services Administration

Objectives 3.1 and 3.3
Hearing Aid Use in Adults

Healthy People 2020

Low Use of Hearing Aids



- 2009 – The NIDCD began supporting research on accessible and affordable hearing health care.
- Two reports stress the need for improving hearing health care access and affordability:
  - October 2015 – President's Council of Advisors on Science and Technology
  - June 2016 – National Academies of Sciences, Engineering, and Medicine
- August 2017 – President Trump signed law authorizing the FDA to develop guidelines for a class of over-the-counter hearing aids.

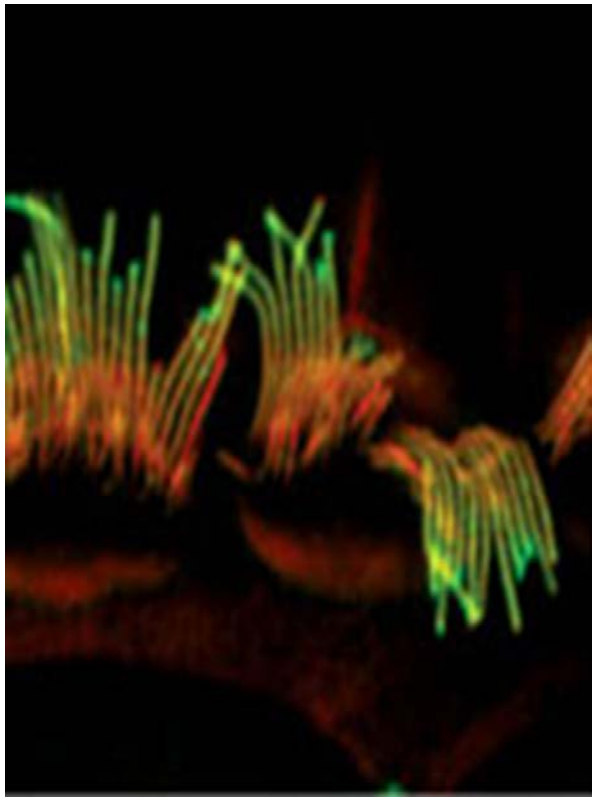
NOTE: https://www.nidcd.nih.gov/shareable-images/infographic-hearing-loss-and-hearing-aid-use

Campaign to Prevent Hearing Loss

- The NIDCD's *It's a Noisy Planet. Protect Their Hearing.*® public education campaign is aimed at preteens (children ages 8 to 12), their parents, and other educators on the causes and prevention of NIHL.
- Launched in 2008, the campaign has reached about 6 million people.
- About 827,000 materials in English and Spanish have been distributed.
- Since 2010, about 20,000 students in the Washington, DC, area have been reached through school presentations.
  - https://www.noisyplanet.nidcd.nih.gov

Objective 8
Noise-Induced Hearing Loss (NIHL) in Adults

- As many as 24% of American adults under age 70 may have hearing loss due to noise exposure.
- The NIDCD's research on NIHL includes:
  - Identifying gene mutations that make individuals more susceptible to NIHL.
  - Studying cellular mechanisms that lead to noise-induced hearing damage.
  - Understanding ways that the ear protects itself from noise damage.
  - Developing molecules/drugs that can prevent or treat noise-induced hearing damage.

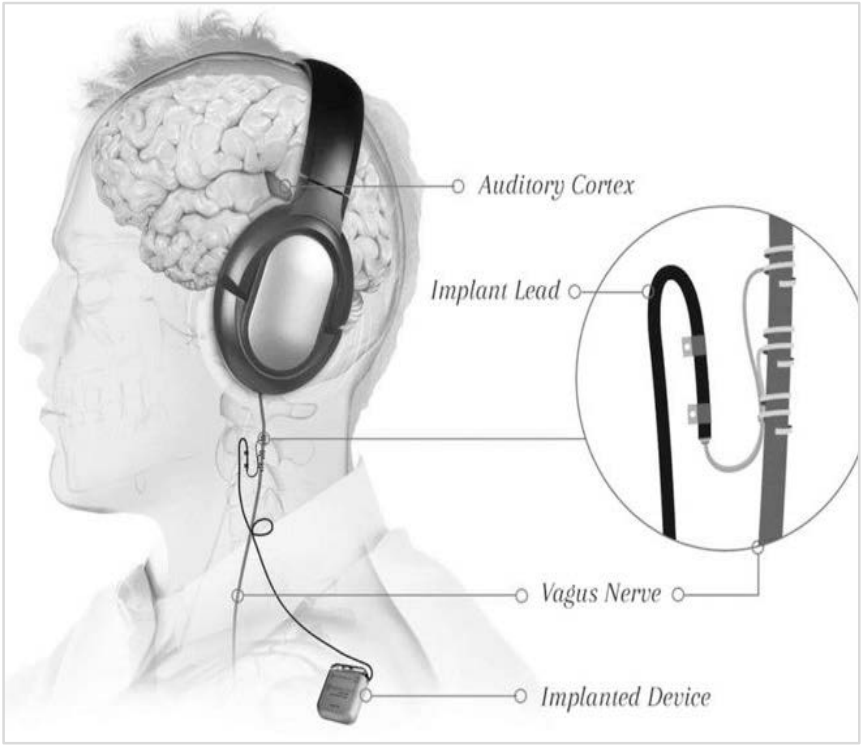


Noise-damaged hair cells of the inner ear.

NOTE: https://www.nidcd.nih.gov/health/noise-induced-hearing-loss

Objective 9.2
Tinnitus

- Approximately 10% of U.S. adults has had tinnitus lasting at least 5 minutes in the past year.
- NIH-supported clinical trials of treatments for tinnitus:
  - A study of a device to stimulate the vagus nerve to rewire brain connections
  - Brain stimulation studies

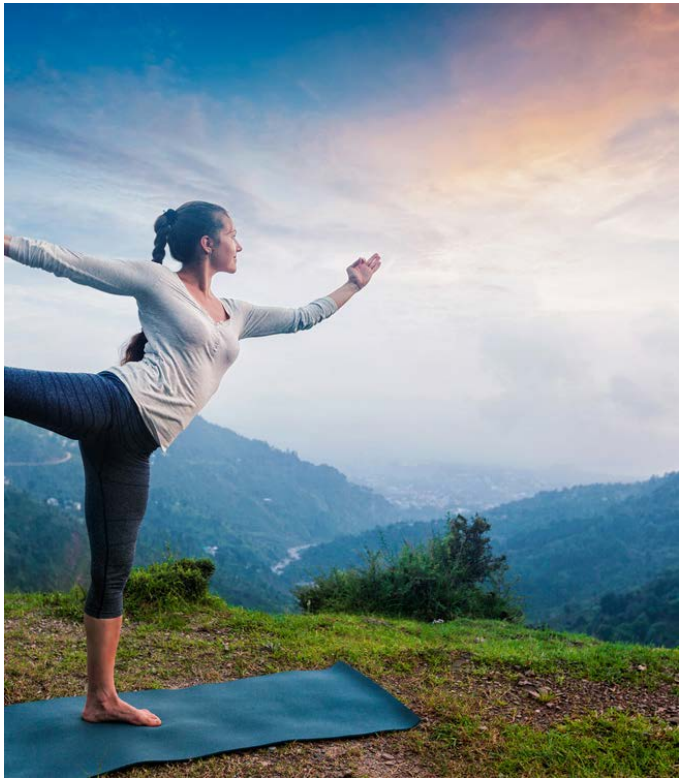


Setup pairing Vagus Nerve Stimulation (VNS) with tones. The inset shows the electrode lead wrapped around the vagus nerve. A pulse generator is implanted under the chest wall. *Image courtesy of MicroTransponder, Inc.*

NOTE: https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing

Objective 15.1
Balance and Dizziness

- About 15% of American adults (35 million) reported having a balance or dizziness problem during the past year.
- The NIDCD is supporting a clinical trial to develop tools that can help hospital emergency room physicians better diagnose balance problems.



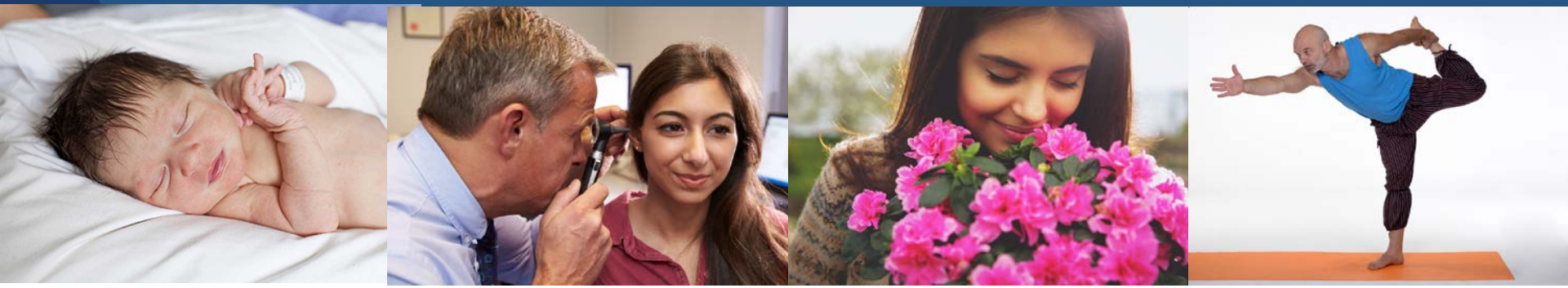
NOTE: https://apha.confex.com/apha/2017/meetingapp.cgi/Paper/384250.

Objective 16
Chemosensory (Taste and Smell) Disorders

- Roughly 12% (13 million) of Americans aged 40 or older had an impaired sense of smell. As the population ages, more people will likely be affected.
- Effective, evidence-based ways to prevent or treat taste and smell disorders have not been developed. More clinical research on these disorders is needed.
- To address this need, the NIDCD is dedicated to building a critical mass of clinical researchers to conduct patient-oriented studies and develop treatments for taste and smell problems.

NOTES: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5033684/

Connect With the NIDCD



The NIDCD would like to thank NCHS.

- Web: https://www.nidcd.nih.gov
- Twitter: https://twitter.com/nidcd
- Facebook: https://www.facebook.com/NoisyPlanet
- Content Syndication: https://www.nidcd.nih.gov/content-syndication
- NIDCD Information Clearinghouse:
  - Voice: (800) 241-1044
  - Email: nidcdinfo@nidcd.nih.gov

Healthy People 2020 Progress Review: The Diagnosis, Prevention, and Treatment of Sensory Disorders

Paul A. Sieving, M.D., Ph.D.
Director, National Eye Institute, NIH

ODPHP | Office of Disease Prevention and Health Promotion

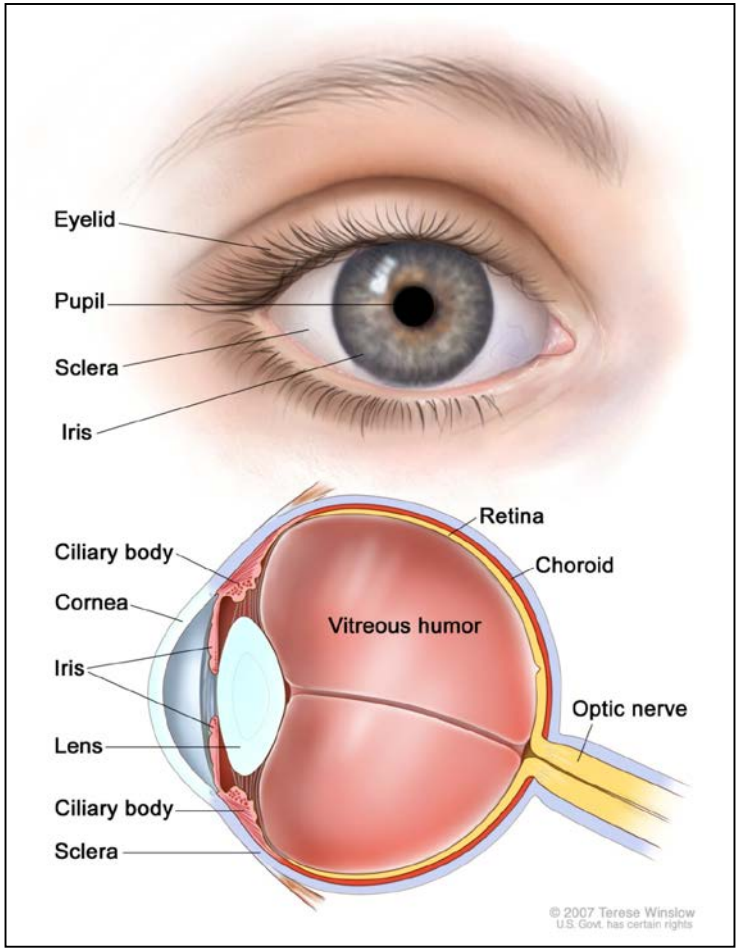
NIH National Eye Institute

NEI Mission

Healthy People 2020

Research to Improve Vision Health:

- Population Research
- Clinical Research
- Basic Laboratory Research
- Public Outreach and Education
- Vision Rehabilitation



Technology Identifies Blinding Disease in Premature Babies

- **Retinopathy of prematurity** (ROP)—a blinding disorder affecting very premature infants
- **Prompt diagnosis and treatment can improve outcomes**
- **NEI Telemedicine trial** demonstrated that remote screening is highly successful
  - Trained non-physicians reviewed eye images
  - Correctly identified 159/162 cases (98%)
  - Infants needing specialty care referred to doctor, improving outcomes
  - Expands eye care options for rural and underserved communities

Vision Screening is Critical for School Readiness

- **Early detection and treatment** can reduce vision loss

- **Vision In Preschoolers (VIP) Study**
  - Vision impairment leads to reading and learning deficits
  - Well trained nurses can effectively screen children
  - Children needing eye care referred to an eye care professional

- **US Preventive Services Task Force** recommends vision screening in children ages 3-5

Research Shines Light on Reducing Myopia in Children

- Children with **myopia** cannot see distance objects clearly
- Myopia can be corrected with eyeglasses or contact lenses
- Prevalence of myopia is increasing

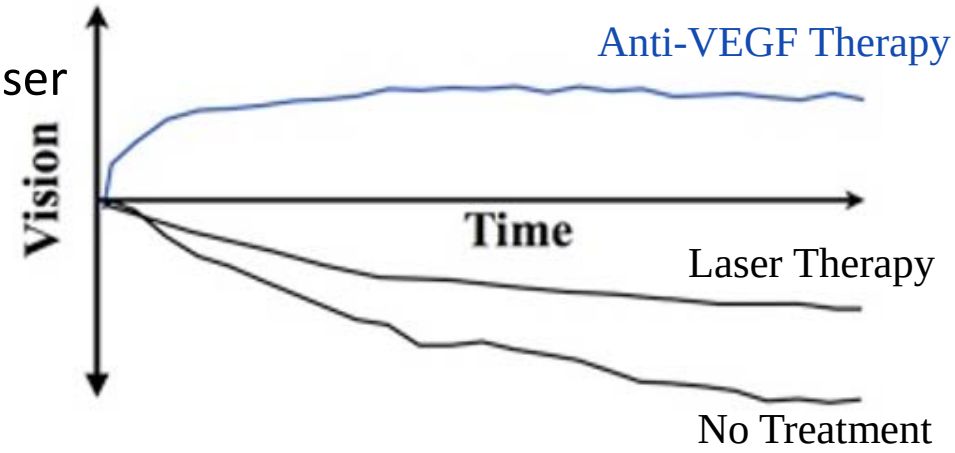
- The CLEERE study examined the impact of "near work":

- **Children who spent more time outdoors (>14 hrs/wk) reduced their risk of myopia**

- Exercise may play a role, but bright sunlight seems to be the key
- **Encourage children to play outdoors!**

Develop Therapies through Diabetic Retinopathy Network

- **Diabetic Retinopathy (DR)** is leading cause of vision loss in working-age adults
- **DR Clinical Trial Network** brings together academic and community clinics
- **Private-Public Partnership**
- **Anti-VEGF Therapy** is better than laser
  - Without treatment, vision continues to deteriorate
  - Drugs stopped vision loss, and **improved vision**
  - Changed standard of care



New Prevention and Treatments for AMD

- **Age-Related Macular Degeneration** is leading cause of vision loss in adults age ≥ 65
- **Prevention—** Age-Related Eye Disease Studies (AREDS) demonstrated 27% risk reduction through nutritional supplements
  - Vitamins
  - Antioxidants based on leafy green vegetables
  - Zinc and copper

- **Genomics—** Discovery of 34 risk genes opens door to future therapies
- **Environment—** Smoking
  UV exposure
  Unhealthy diet
- **Treatment—** Anti-VEGF drugs for one form of AMD

Improving Quality of Life for People with Low Vision

- **Rehabilitation training,** uses brain plasticity
  - Audio-based "video" game environment

- **Assistive devices and navigational aids**
  - Smartphone aps that read street signs or convert drug labels to text
  - Robotic walking cane that detects objects and talks to user
- **Artificial Retina Prosthesis (ARGUS II)**—FDA approved in 2013; restores vision to patients with inherited blinding disease
  - Camera on glasses relays visual scenes to wireless electrode array implanted in the eye

- **Small Business grants**—Product development to bring tools to market

Public Eye Health Education and Awareness

National Eye Health Education Program (NEHEP) teaches eye health literacy to the public

- Educates medical providers and patients about **science-based treatments and preventions**
- Conducted through **public-private partnerships**
- **Targets populations at increased risk** for eye diseases (African Americans, Hispanics/Latinos, and older adults)
- Focuses on increasing clinical care for **diabetic eye disease** and **glaucoma**
- Encourages **vision rehabilitation** for low vision patients

Achieving Healthy People Objectives through *Healthy Vision Month*

NEI established May as *Healthy Vision Month* to promote **eye health as a priority**

Messages for social media, campaigns, and TV ads:

1. Get a comprehensive dilated eye exam
2. Live a healthy lifestyle, including
   - ✓ Healthy foods
   - ✓ Healthy weight
   - ✓ Managing chronic conditions
   - ✓ Not smoking
3. Know your family history
4. Use protective eyewear
5. Wear sunglasses

Stay Connected to NEI



National Eye Health Education Program nei.nih.gov/nehep
Facebook: www.facebook.com/NationalEyeHealthEducationProgram
NEI Social Media: nei.nih.gov/tools/stay_connected

Phone: (301) 496-5248—English and Spanish
Email: 2020@nei.nih.gov
Web: www.nei.nih.gov

Development of a Community-based Hearing Health Education and Support Program for Adults with Hearing Loss and their Families

Nicole Marrone, Ph.D., CCC-A

James S. and Dyan Pignatelli/UniSource Clinical Chair in Audiologic Rehabilitation for Adults

Assistant Professor, Department of Speech, Language, and Hearing Sciences,
University of Arizona, Tucson, Arizona

Funded by: NIH NIDCD
R21/R33 DC013681

THE UNIVERSITY OF ARIZONA

Healthy People 2020 Progress Review
February 22, 2018

Overview

- Importance of equity in access to quality care
- National challenges
- Barriers in our region

- Needs assessment
- Our innovation

- Results of pilot program
- Overcoming barriers in access to care
- Future directions

Access to comprehensive hearing health care is important for the health and wellbeing of all Americans.

Medical services

e.g., Screening and assessing the auditory system; Otolaryngology

Diagnostic audiology services

e.g., Evaluate degree, type, configuration of hearing loss and its functional impacts on daily life

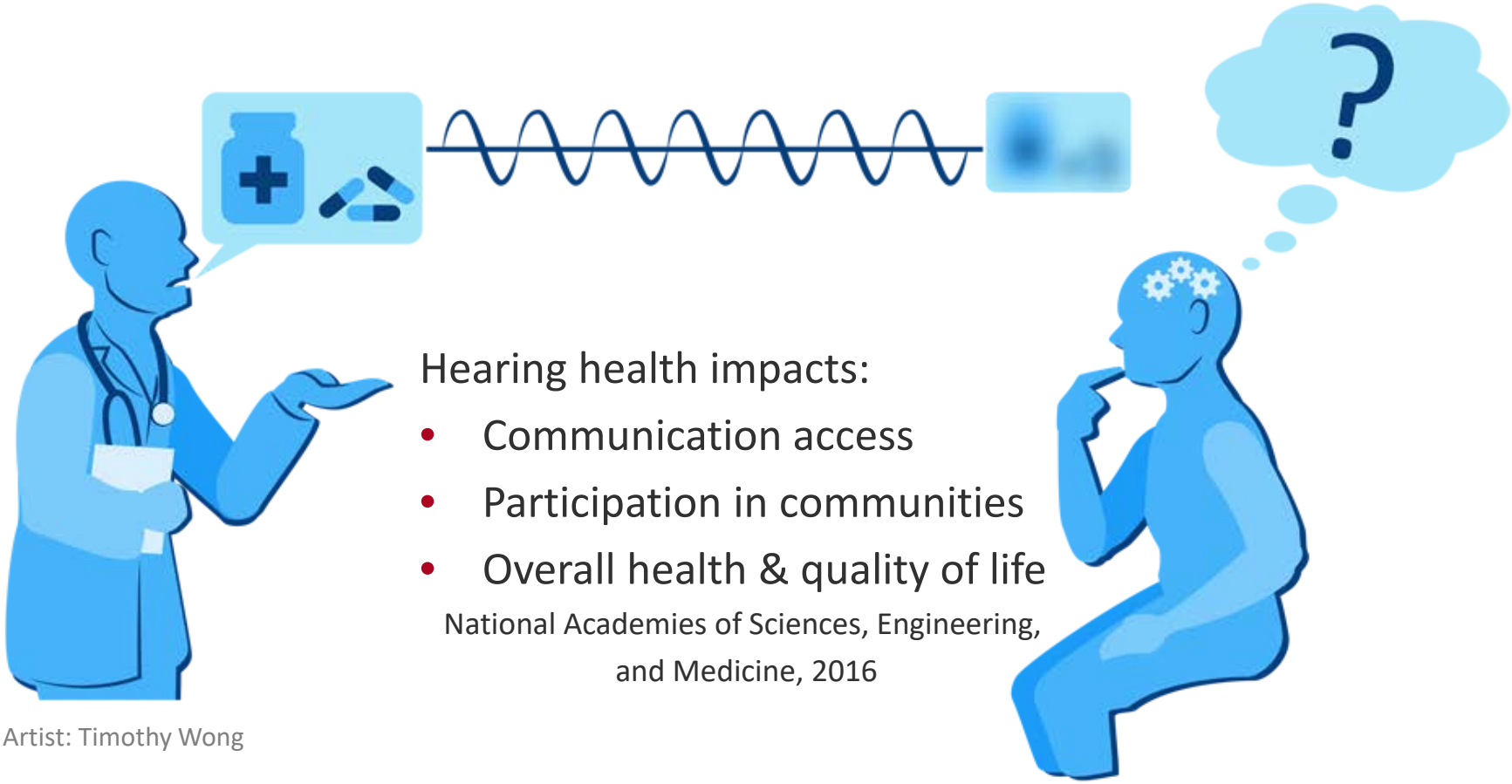
Rehabilitative audiology services

e.g., Family-centered care, counseling, amplification, assistive technology, ongoing management and aural rehabilitation

Preventive services

e.g., Health education, hearing conservation (*"It's a Noisy Planet: Protect Their Hearing"*)

Hearing loss affects health and quality of life,
like other sensory and communication disorders.



Hearing health impacts:

- Communication access
- Participation in communities
- Overall health & quality of life

National Academies of Sciences, Engineering, and Medicine, 2016

Artist: Timothy Wong

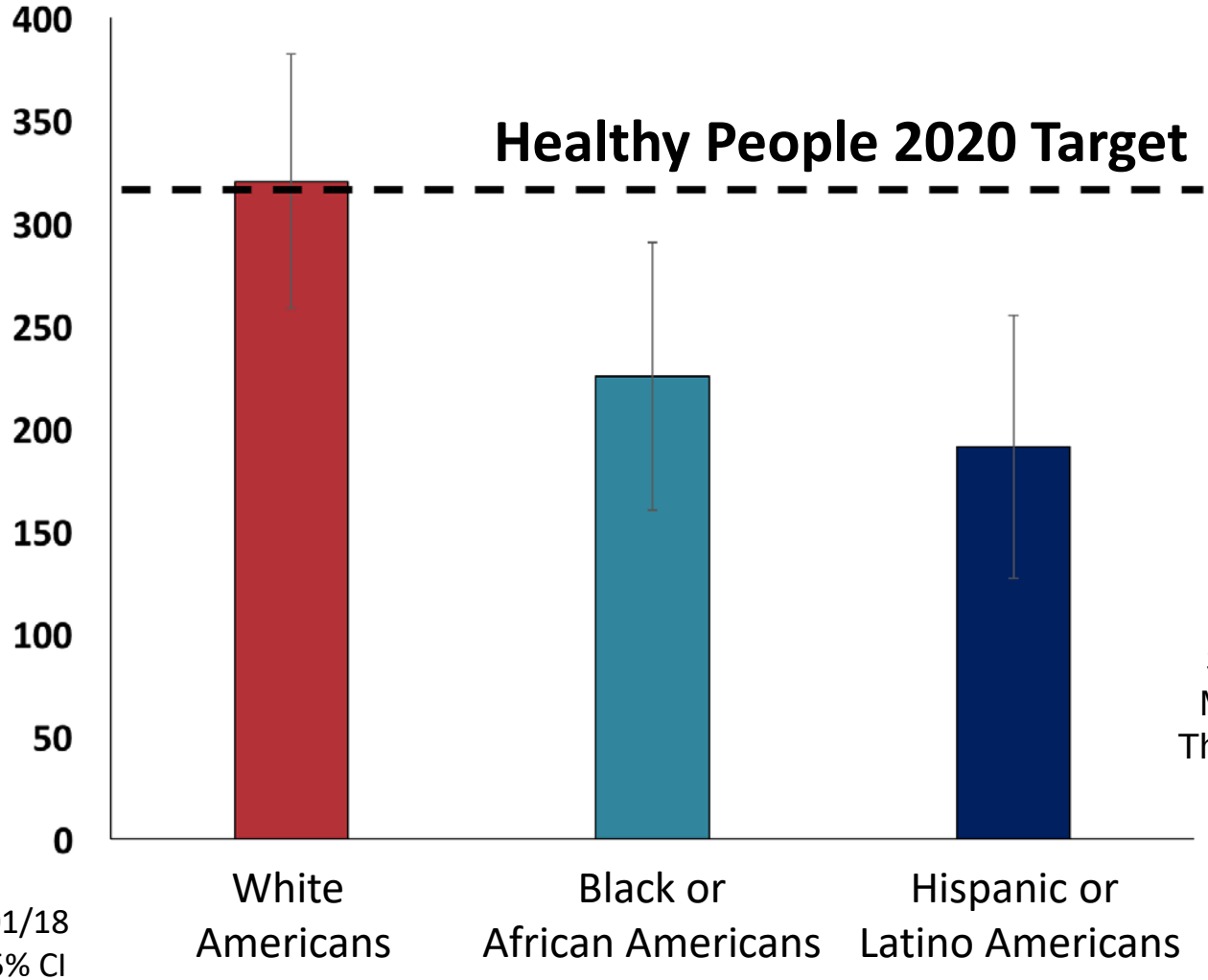
Nearly 2 in 3 Americans age 70+ are living with hearing loss.

Challenges in access to comprehensive audiologic care in the U.S.

- **Significant gaps in care**, between self-reporting hearing loss and receiving evaluation, treatment, and rehabilitation services (Mahboubi, Lin, & Bhattacharyya, 2017).
- **Nationally, rehabilitative services from audiologists are not covered by Medicare** (National Academies of Sciences, Engineering, and Medicine, 2016).
- **Coverage varies across state Medicaid systems** for adults (Arnold, Hyer, & Chisolm, 2017).
  - Adults with **lower socioeconomic status** are less likely to use hearing aids (Bainbridge & Ramachandran, 2014).

Hearing Aid Use in the U.S. by race/ethnicity

Rate per 1,000 Adults 70+ years with moderate or greater hearing impairment



Data Source:
HP2020
ENT-VSL-3.3
2011-2013
Accessed 02/01/18
Error bars ± 95% CI

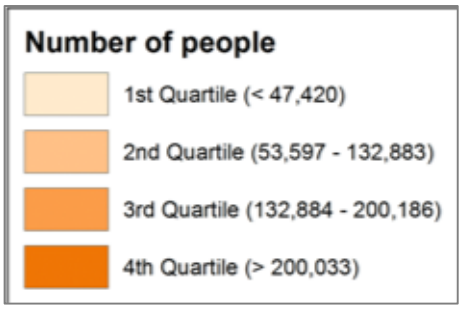
See also Nieman, Marrone, Szanton, Thorpe, & Lin (2016), *J Aging Health*

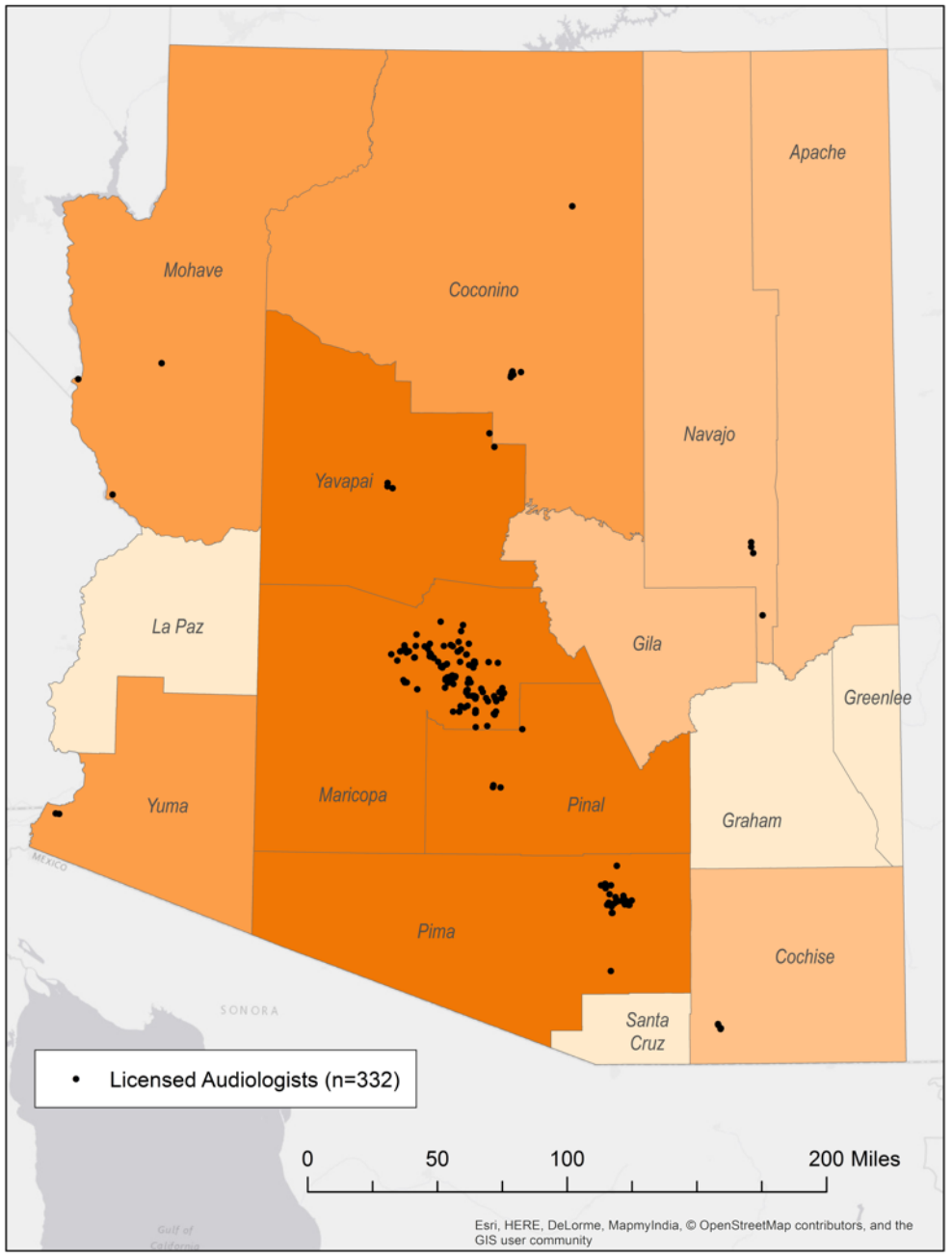
Availability of Health Care Providers in Rural Areas

- **Rural USA:** shortages of health care providers (Chan et al., 2017; Goins et al. 2005; Rosenblatt et al., 2006).

- **Arizona:** 6 non-metro counties without any audiologists (Coco, Sorlie Titlow, & Marrone, submitted)

Data Source: Licensed dispensing audiologist practice locations; list accessed 06/17/17 from Arizona Department of Health and Human Services





Our Approach:
Community-Based Participatory Research

A strategy for reducing health disparities in underserved communities that:

- Helps define health needs;
- Increases trust and bridges cultural gaps;
- Enhances relevance of research and accuracy of study findings.

Our Innovation:
Collaboration between Audiologists and Community Health Workers

Audiologists

are health care professionals who provide care in the prevention, diagnosis, treatment, and management of hearing loss, other auditory and balance disorders

(Bureau of Labor and Statistics, 2018).

Community health workers

are "frontline," lay public health workers who share sociocultural characteristics with their community and provide culturally-relevant health education

(American Public Health Association).

- For our research, audiologists have trained community health workers on recognizing hearing concerns and communicating effectively with people with hearing loss in their programs and community (Sánchez et al., 2017).

Community Needs Assessment

Ingram et al. (2016), *Frontiers in Public Health*

n = 206

Community hearing screenings

Trainings for community health workers

Community survey (n = 100)
5 community focus groups (n=47)
20 patient interviews
3 family focus groups (n=27)
12 provider interviews

Theory-based within Health Belief & Social-ecological models

Key barriers to be addressed

- **Lack of knowledge and resources on hearing loss**
  - Perception that the "only" intervention (i.e., hearing aid) is out of reach
- **High perceived severity of issue**
  - Many concerns related to depression, reduced participation
- **Low perceived self-efficacy**
  - Social withdrawal and lack of support
  - Frustrations of family
- **Gaps in access to care**
  - Medical providers not referring to Specialists due to perceived costs
  - Limited availability of local options
  - Limited trust of care requiring out-of-pocket expenses

Ingram et al. (2016),
Frontiers in Public Health

Illustrative Quotes

"Many people assume, 'well, this is how I am, and this is how I'll stay.' We don't seek help, but the problem is serious."

"I know it is expensive so I don't do anything."

"Other health concerns have more attention and resources."

OYENDO BIEN

"Hearing Well"

Hearing assessment and counseling by an audiologist at enrollment in program

Each weekly session facilitated by community health workers

Week 1	Week 2	Week 3	Week 4	Week 5
Communication Strategies Overview	How We Hear & Visual Cues	Coping and Emotions	Hearing Aids, Assistive Devices, & Americans with Disabilities Act	Hearing Health Care Pathways, Self-Advocacy & Hearing Protection

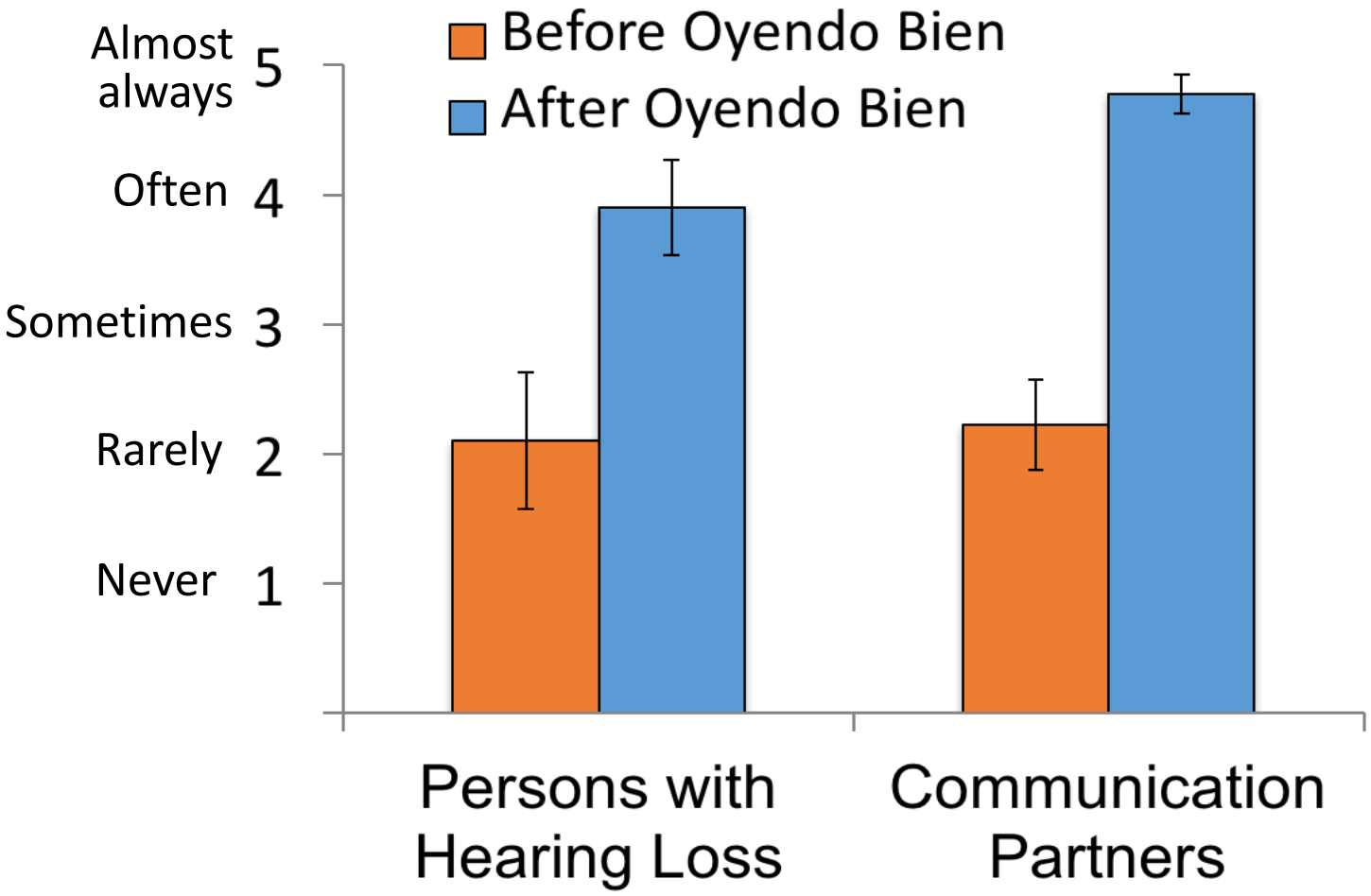
Outcomes assessment

Pilot study: n = 21 (2 communication partners withdrew)

Marrone, Ingram, Somoza, Sánchez, Sanchez, Adamovich, & Harris (2017) ***Seminars in Hearing***

See also: Colina, Marrone, Sánchez, & Ingram (2017); Coco, Colina, Atcherson, & Marrone (2017)

Pilot study results: Spoke slowly & clearly



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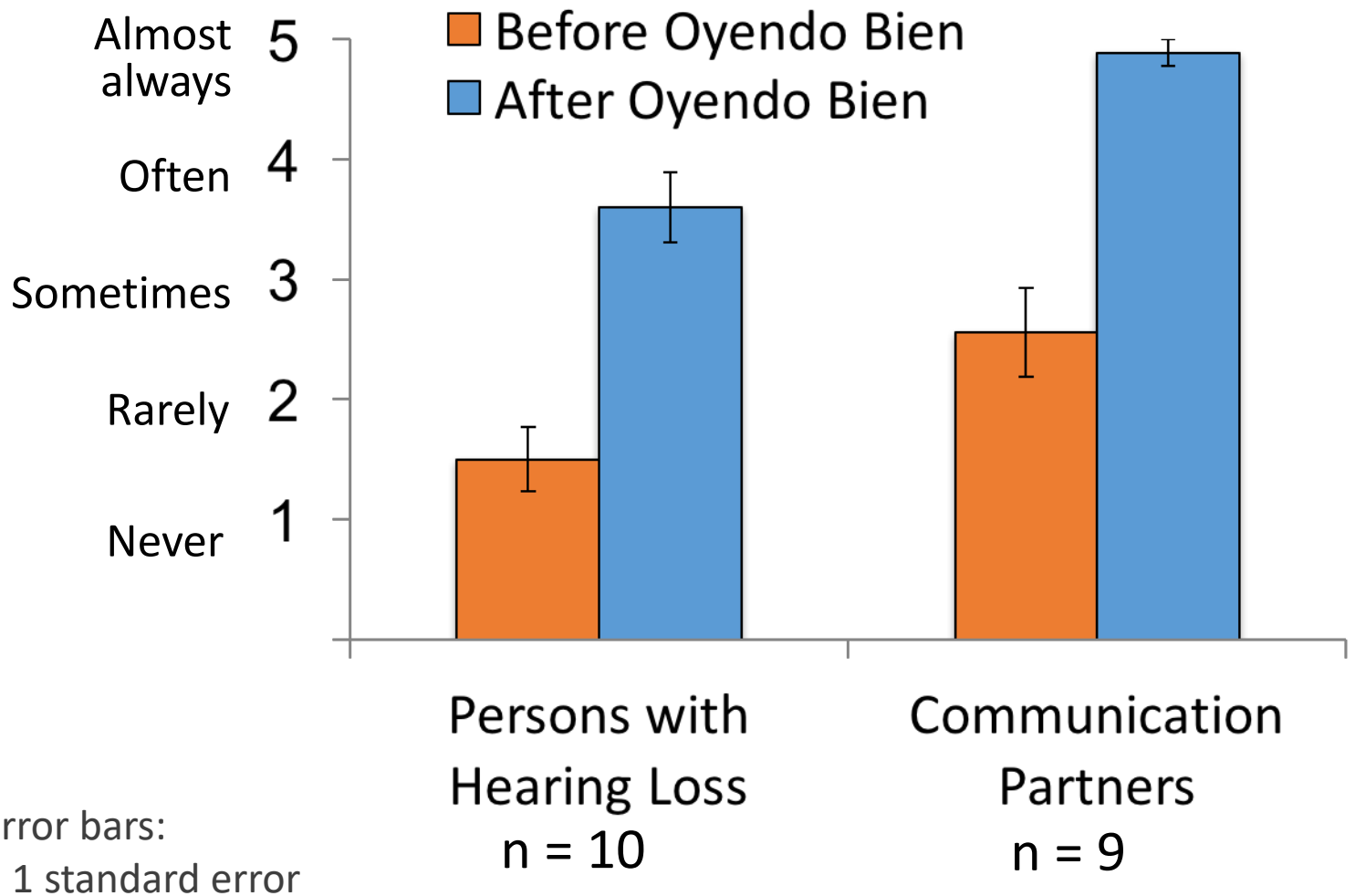
± 1 standard error

Pilot study results: Helped plan activities so partner with hearing loss can hear and participate



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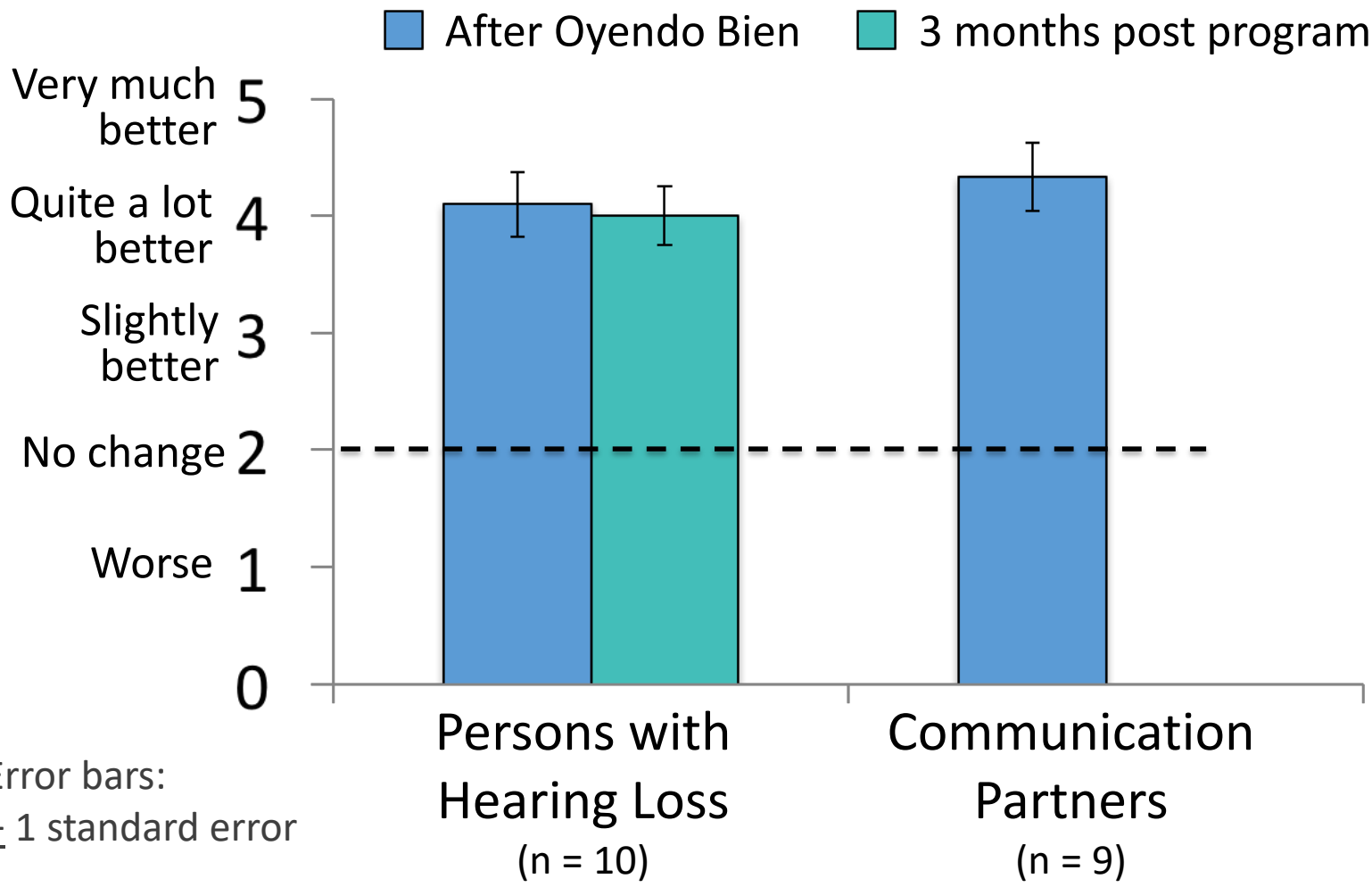
Pilot study results: Enjoyment of Life

International Outcomes Inventory –Alternative Interventions Scale (Noble, 2002)



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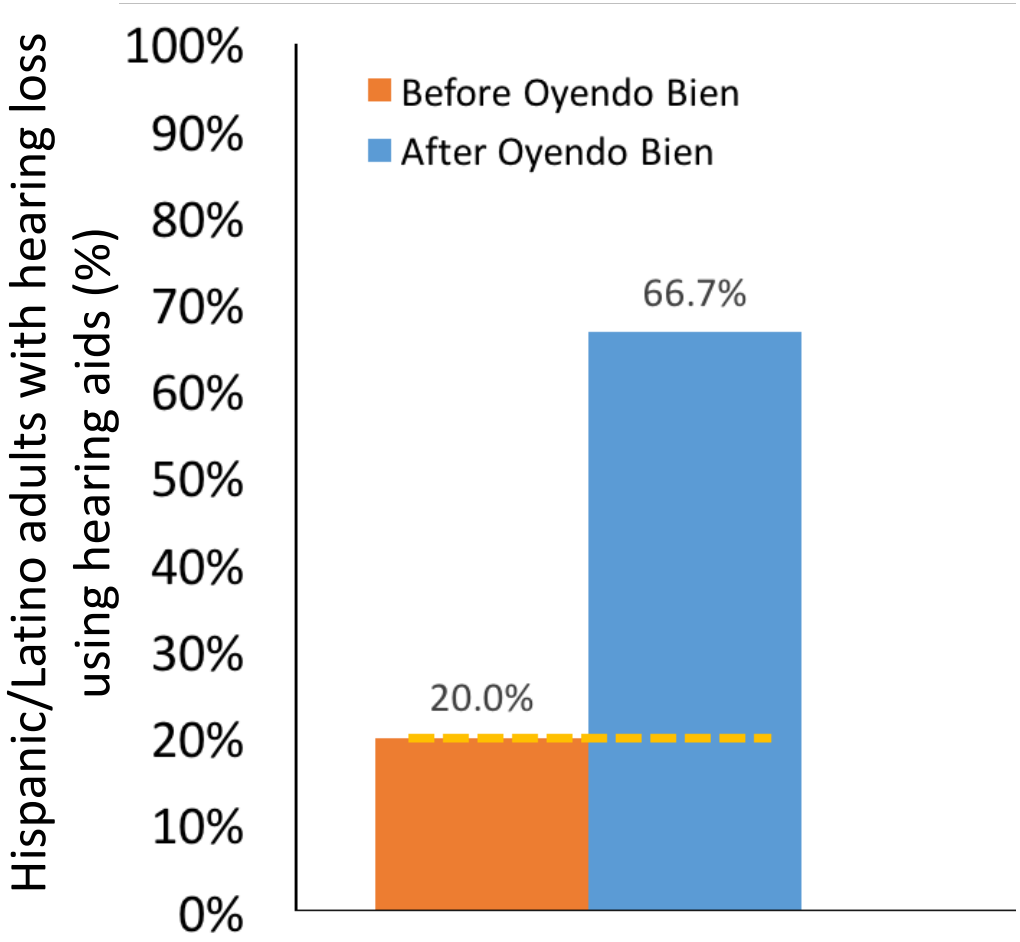
Overcoming barriers in access to care:

Hearing health care utilization outcomes
1 year post pilot study



"You all taught us something new. Before attending the classes, I had almost no hearing. I now have one hearing aid and I have to go back in three weeks for a second…"

Pilot study outcomes:
Marrone et al. (2017)

Current research:
Ongoing randomized trial
ClinicalTrials.gov NCT03255161

Returning to our example …

After Oyendo Bien,

a person may have more effective communication through:

- Improved social supports;
- Family working together to overcome barriers in access to care;
- Developing skills in clarifying misunderstandings and confidence in using assistive technology;

… **topics of ongoing and future research.**

Artist: Timothy Wong

Summary

- **Collaboration between audiology, public health, and the community** has led to a novel, culturally competent program with promising outcomes in quality of life and access to hearing health care (Marrone et al., 2017).

- Community health workers may serve as a feasible link between underserved communities and the hearing health care system; **continued research is needed** in this area and in other communities across the U.S. (e.g., Baltimore HEARS, Nieman et al., 2017).

- **Achieving health equity includes increasing access to, and use of, comprehensive audiologic care for all Americans.**

Thank you

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- *Speech, Language, & Hearing Sciences:* Nicole Marrone, PhD (PI), Aileen Wong, AuD, Adriana Sanchez, Laura Coco, AuD, Frances Harris, PhD, Clemente Morales, Alyssa Everett, Diane Cheek, Giau Le, AuD, Daisey Sánchez Jacob, AuD, Anette Real-Arrayga
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OYENDO BIEN

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Roundtable Discussion

Carter Blakey
Deputy Director, Office of Disease Prevention and Health Promotion

Healthy People 2020
Stories from the Field

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

Healthy People in Action

http://www.healthypeople.gov/2020/healthy-people-in-action/Stories-from-the-Field

Who's Leading the Leading Health Indicators? Webinar

Please join us on
Thursday, March 22, 2018
from 12:00 to 1:00 pm ET
for a Healthy People 2020
Who's Leading the Leading Health Indicators? webinar on Environmental Quality Prevention.

Registration on HealthyPeople.gov available soon

Who's Leading the Leading Health Indicators?

Progress Review Planning Group

- Jennifer Villani (NIH/OD)
- Howard Hoffman (NIH/NIDCD)
- May Chiu (NIH/NIDCD)
- Chuan-Ming Li (NIH/NIDCD)
- Lonnie Lisle (NIH/NIDCD)
- Baldwin Wong (NIH/NIDCD)
- Laura Cole (NIH/NIDCD)
- Susan Dambrauskas (NIH/NIDCD)
- Christa Themann (CDC/NIOSH)
- Shefa Gordon (NIH/NEI)
- Mary Frances Cotch (NIH/NEI)
- David Huang (CDC/NCHS)
- Leda Gurley (CDC/NCHS)
- Asel Ryskulova (CDC/NCHS)
- Cheryl Rose (CDC/NCHS)
- Carter Blakey (HHS/ODPHP)
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