RISK REDUCTION STRATEGIES FOR BRAIN HEALTH

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Centers for Disease Control and Prevention

National Center for Chronic Disease Prevention and Health Promotion

Division of Population Health

Presented at the 2022 Mid-America Institute on Aging and Wellness on August 12, 2022



OUTLINE

- What is a public health approach to dementia and risk reduction?
- What is the evidence behind risk factors?
- What are CDC and its award recipients doing?
- What resources are available to address Alzheimer's in Indiana?

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WHAT IS THE PUBLIC HEALTH APPROACH?

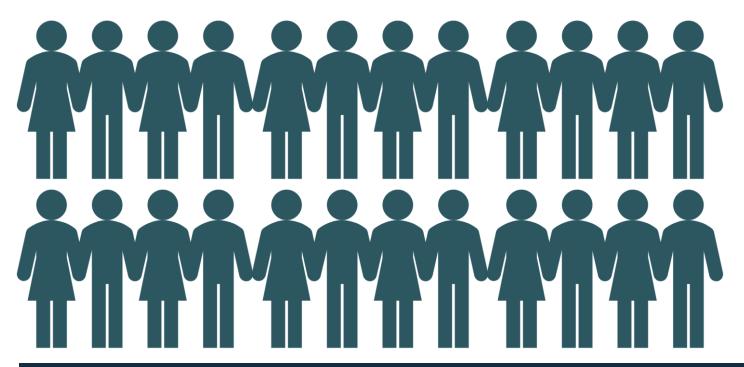


One at a time



Many at a time

WHAT IS A PUBLIC HEALTH APPROACH?



- Not Duplication
- Population-Based
- EnhancingSustainability
- Systems,Environments, andPolicies



POINTS OF PUBLIC HEALTH INTERVENTION

- **Primary Prevention:** Intervening before health effects occur, through measures such as altering risky behaviors (e.g., poor eating habits, tobacco use) and banning or regulating substances known to be associated with a disease or health condition
- Secondary Prevention: Detecting diseases in the earliest stages, before the onset of more severe symptoms
- Tertiary Prevention: Managing disease post diagnosis to minimize negative health and quality of life effects

ALZHEIMER'S DISEASE AND RELATED DEMENTIAS (ADRD) AS A PUBLIC HEALTH ISSUE



There are WAYS to INTERVENE

- Surveillance
- Risk reduction—primary prevention
- Early detection and diagnosis secondary prevention
- Management of co-morbidities tertiary prevention
- Caregiving (Dementia Caregiving)

THE NATIONAL PLAN

National Alzheimer's Project Act (NAPA) requires Secretary of HHS to:

- Create and maintain an integrated national plan to overcome Alzheimer's
- Create an Advisory Council to review and comment on the national plan and its implementation

Advisory Council on Alzheimer's Research, Care, & Services

Makes annual recommendations to Secretary and Congress on priority actions

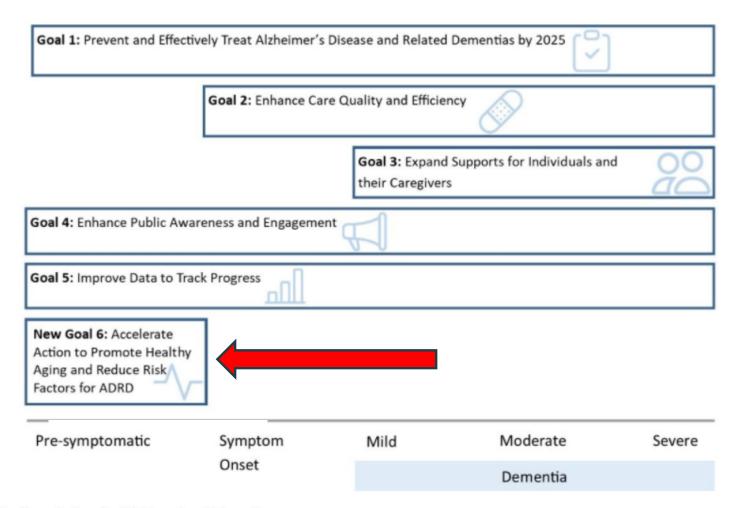
THE NATIONAL PLAN: INITIAL GOALS

- 1. Prevent and Effectively Treat Alzheimer's Disease by 2025
- 2. Optimize Care Quality and Efficiency
- 3. Expand Supports for People with Alzheimer's Disease and Their Families
- 4. Enhance Public Awareness and Engagement
- 5. Track Progress and Drive Improvement

National Plan to Address Alzheimer's Disease: 2021 Update



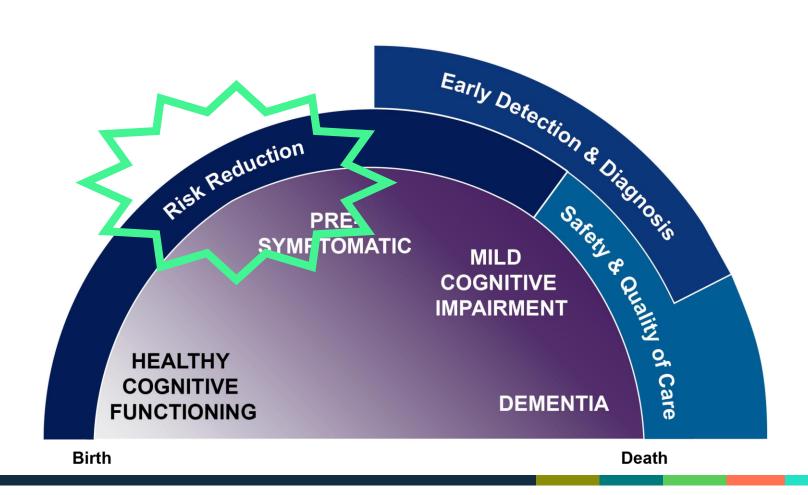
National Plan to Address Alzheimer's Disease: 2021 Update



PURPOSE OF GOAL 6

- Prioritizes <u>healthy aging</u>
- Builds infrastructure
 - Identify and research risk reduction interventions
 - Quickly translate those interventions in healthcare and public health practices.
- Inequities in dementia
 - Higher burden on Black and Latino communities
 - Address the risk factors that lead to the higher prevalence of dementia.

PUBLIC HEALTH APPROACH TO ADRD

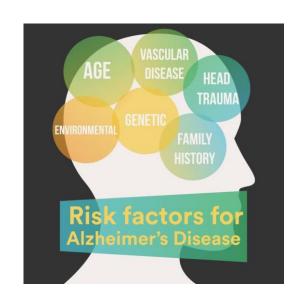


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WHAT CAUSES ALZHEIMER'S?

- Genetics accounts for <15% of known risk for developing Alzheimer's
- Greatest risk factors:
 - Age (risk doubles every 5 years after age 65)
 - Common medical conditions (cardiovascular)
 - Behavioral risk factors
- Complex interactions among multiple factors determine the risk of developing Alzheimer's
- Window of opportunity: many risk factors are modifiable



RISK REDUCTION FOR DEMENTIA



Depression

Diabetes

Hearing Loss

Mid-life Hypertension

Physical Inactivity

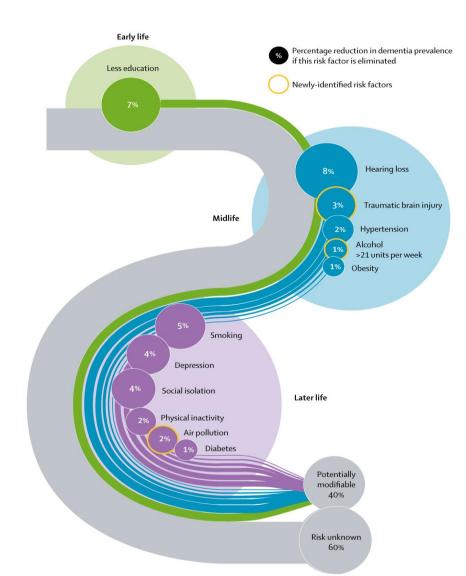
Poor Diet Quality and Obesity

Poor Sleep Quality and Sleep Disorders

Tobacco Use

Traumatic Brain Injury

Unhealthy Alcohol Use



An update to the 2017 Lancet Commission on Dementia prevention, intervention, and care expands the life-course model showing the potentially modifiable risk factors that contribute to dementia. Read the full Commission.

REVIEW OF RISK FACTORS



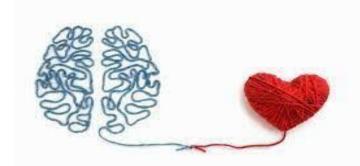


- Areas of focus aligned with other national and international initiatives
- Currently driven primarily by epidemiologic evidence
- Commitment to:
 - Translating research findings into improved care
 - Building a health equity, diversity, and inclusion focus into each field of study
 - Supporting prevention across the lifespan, from pediatric populations to older adults



VASCULAR HEALTH (HYPERTENSION)

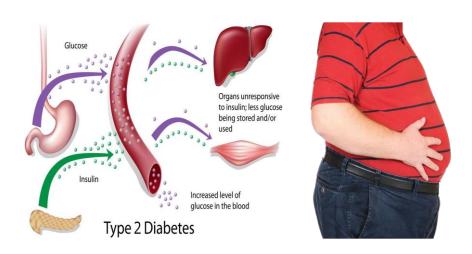
- Evidence for treating elevated blood pressure as a pathway to reducing cognitive impairment and dementia
 - Obtained in diverse populations
- U.S. guideline: systolic blood pressure <130 mm Hg
- Large potential for public health impact on cognitive health through hypertension prevention and control







- Compelling evidence:
 - Midlife obesity and Type 2 diabetes increase risk for cognitive deficits, accelerated cognitive decline, and cognitive impairment
 - Type 2 diabetes is preventable through lifestyle intervention
- Less compelling evidence:
 - Obesity is generally preventable long term
 - Treating obesity and diabetes reduces risks for cognitive decline and impairment
- Likely more effective if in the context of a multi-domain approach





DIET AND NUTRITION

- Reviews find healthy dietary factors associated with better cognitive function and lower risk of dementia
 - Nutrients (e.g., vitamins from the B group, vitamin E, fatty acids)
 - Food groups (e.g., vegetables, fruits, fish, vegetable fats)
 - Diet patterns (e.g., Mediterranean diet, DASH diet, MIND diet)
 - Research gaps: Midlife vs. late life; time of "exposure"
- Limited but promising data from trials
 - Multi-domain interventions (FINGER)
 - Lack of effect for dietary supplements





PHYSICAL ACTIVITY AND EXERCISE

- Growing evidence to support favorable effects of aerobic physical activity on preserving cognition
- Larger ongoing comprehensive clinical trials will inform whether exercise may be a therapeutic option to prevent cognitive decline and Alzheimer's and other dementias
- Consider various settings including health care and community level participation in physical activity







Tobacco:

Smoking increases risk of dementia

 Smoking cessation reduces risk of developing cognitive decline and dementia

Alcohol:

- Alcohol abuse increases risk of dementia
- Cessation of alcohol abuse may lead to improvements in cognitive functioning, but deficits remain in brain structure





SOCIAL ENGAGEMENT

- Only evidence is from cross-sectional and longitudinal observational studies
- Focus on racial and ethnic minority communities, single older persons,
 LGBT individuals, and rural populations
- Need for additional research (e.g., randomized controlled trials, intervention studies)



https://www.alz.org/media/Documents/social-engagement-ph.pdf



SLEEP

- Strong evidence for a risk relationship
- Health care providers may discuss sleep disturbances

Lacking large RCT data for sleep intervention strategies to reduce

dementia risk

 Existing interventions include some low cost and non-pharmacological options

 Targeting sleep is beneficial for multiple organ systems





SENSORY IMPAIRMENTS

- Meta-analyses support link between sensory impairment and cognitive decline/dementia
- Available evidence suggests persons with disabilities may benefit, and are unlikely to be harmed, especially from minimally invasive approaches to optimize vision/hearing
- Better evidence is needed to determine effect of sensory interventions on cognitive outcomes or effectiveness in persons with disabilities





SUMMARY OF SCIENTIFIC REVIEW

- Strongest evidence around reducing risk of cognitive impairment and dementia involves managing hypertension
 - In diverse communities
 - Goal of SBP <130 mm Hg
- Strong epidemiologic evidence for other risk factors:
 - Physical activity and exercise
 - Diet and nutrition
 - Tobacco and alcohol
 - Social engagement

- Diabetes and obesity
- Sleep
- Sensory impairments

Learn more: Risk Reduction | Alzheimer's Association

Morbidity and Mortality Weekly Report

Modifiable Risk Factors for Alzheimer Disease and Related Dementias Among Adults Aged ≥45 Years — United States, 2019

John D. Omura, MD¹; Lisa C. McGuire, PhD¹; Roshni Patel, MPH²; Matthew Baumgart³; Raza Lamb³; Eva M. Jeffers, MPH^{1,4}; Benjamin S. Olivari, MPH¹; Janet B. Croft, PhD¹; Craig W. Thomas, PhD¹; Karen Hacker, MD¹



OBJECTIVES

- To determine the prevalence of eight potential modifiable risk factors for ADRD among US adults aged ≥45 years, overall and by select characteristics
- To examine whether the prevalence of each risk factor and number of risk factors varies by SCD status among US adults aged ≥45 years

Subjective Cognitive Decline (SCD):

- Self-reported memory problems that have been getting worse over the past year
- An early indicator of possible future ADRD

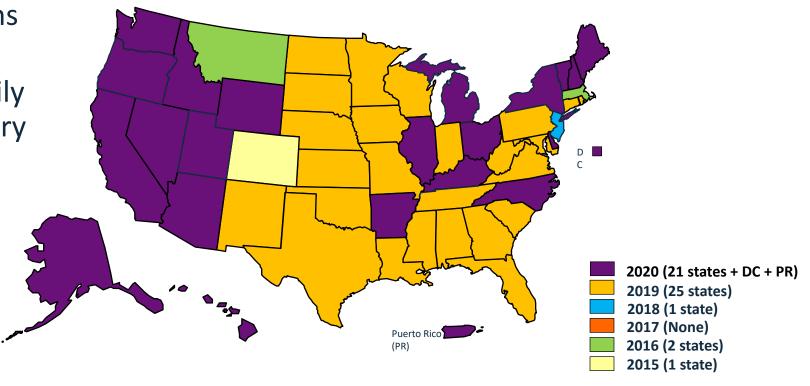
BRFSS COGNITIVE DECLINE OPTIONAL MODULE

Worsening memory problems

 Potential difficulties with daily living associated with memory problems

 Any discussions with healthcare professionals

Adults 45 years or older



METHODS

- 2019 cognitive decline module: 31 states and DC
- Combined (landline and mobile) median response rate = 49.4%

SCD:

During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse?

Risk Factors:

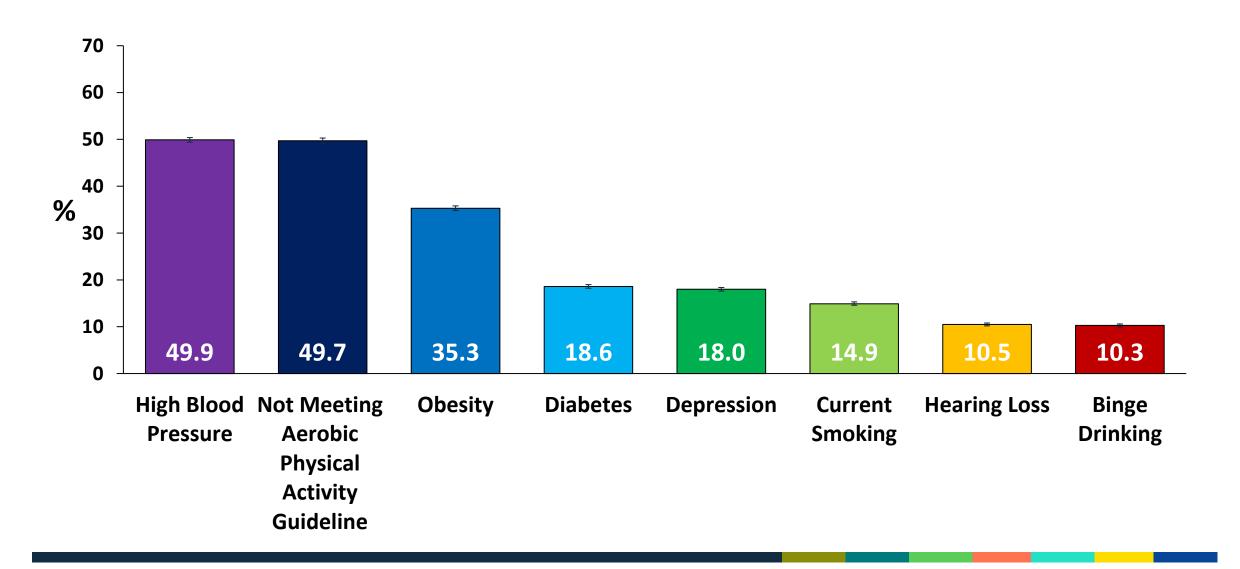
- High blood pressure Diabetes
- Not meeting the Depression aerobic physical • Current smoking activity guideline
- Obesity

- Hearing loss
- Binge drinking

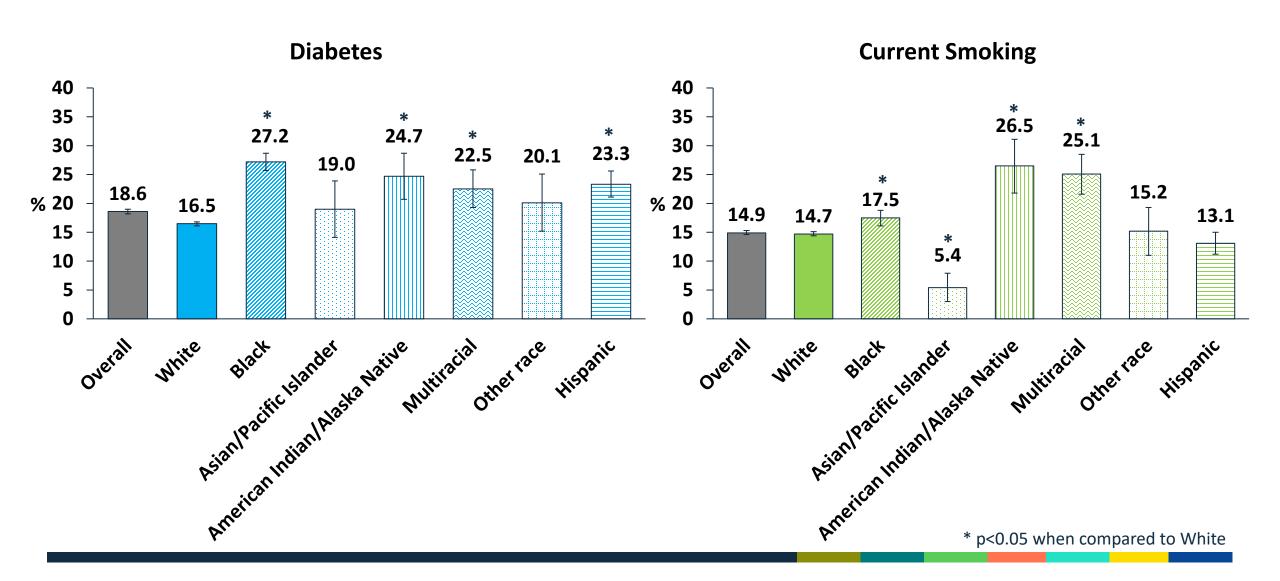
Number of Risk Factors:

0, 1, 2, 3, 4+

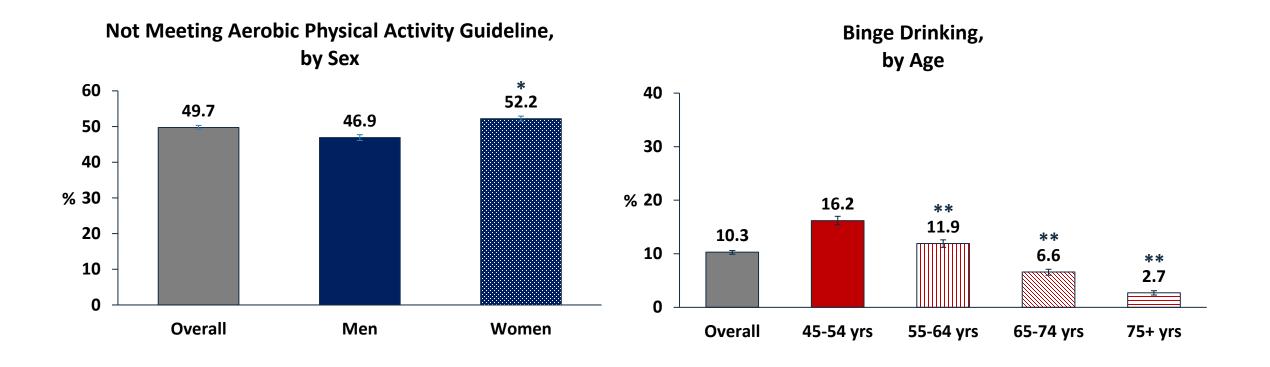
Prevalence of Risk Factors: Overall



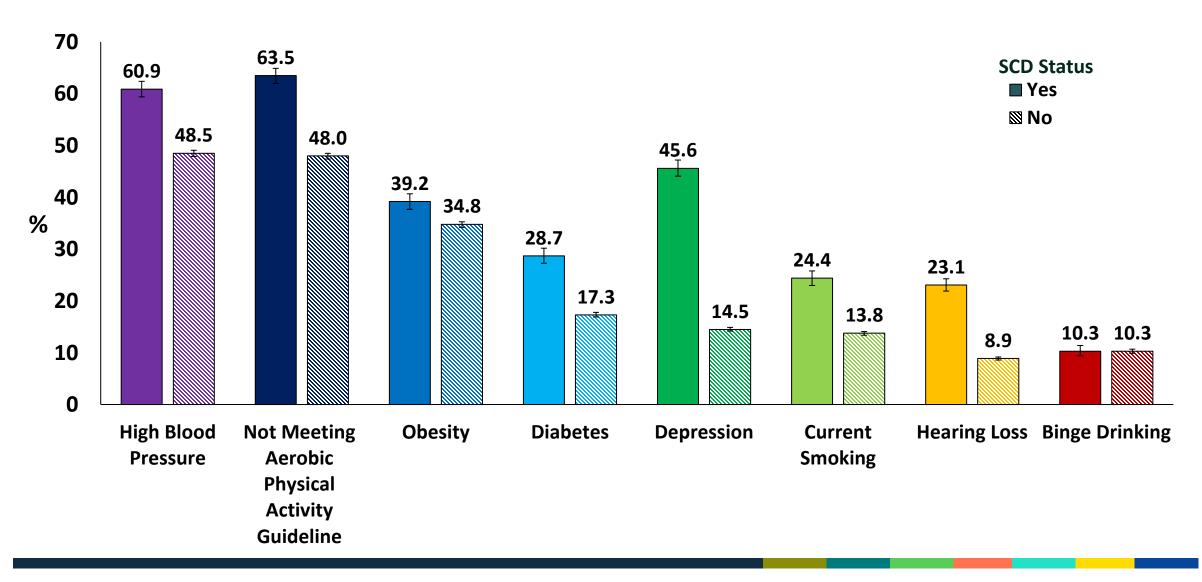
Prevalence of Select Risk Factors: by Race/Ethnicity



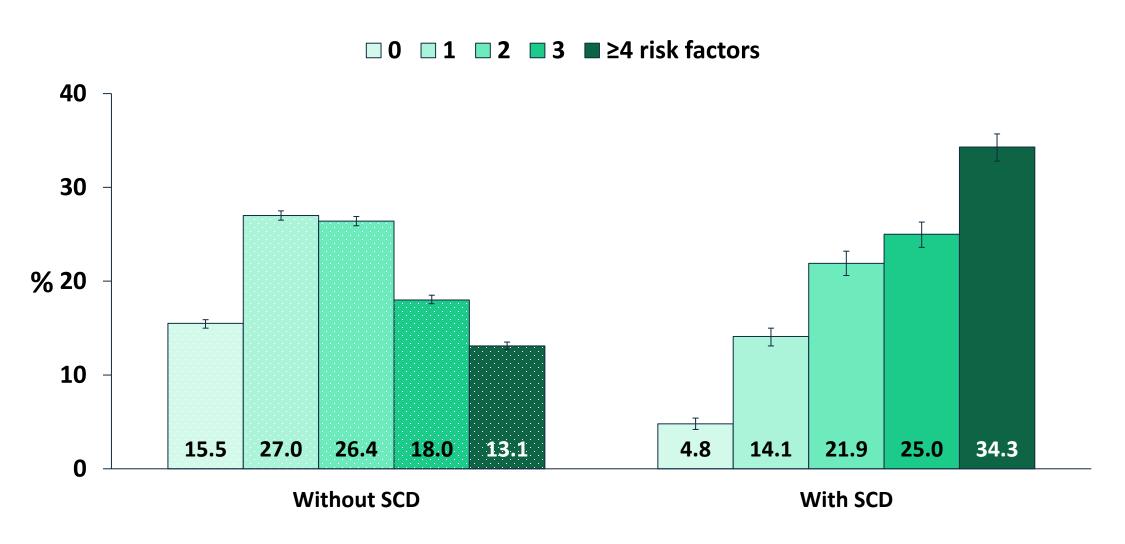
Prevalence of Select Risk Factors: by Various Characteristics



Prevalence of Risk Factors: by SCD Status



Proportion with Number of Risk Factors by SCD Status



PUBLIC HEALTH IMPLICATIONS

- Identify priorities for public health action for ADRD risk reduction
 - Strategies tailored to those at highest risk
- Early detection of SCD and associated risk factors
- Many evidence-based activities (e.g., managing hypertension, promoting physical activity) can serve as potential strategies

Learn more: <u>Full Article</u>, <u>Podcast</u>, <u>Web Feature</u>, Blog (forthcoming), Medscape CE (forthcoming)

OUTLINE

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NATIONAL INITIATIVES

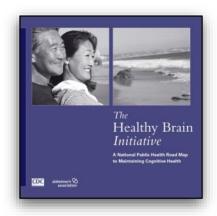


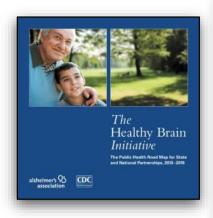
Advances brain health as a central part of public health practice



Public health strategies to promote brain health, address dementia, and help support caregivers











www.cdc.gov/aging

Road Map Framework

25 actions consistent with 4 essential services of public health

- Assure a competent workforce
- Monitor and evaluate
- Develop policies and mobilize partnerships
- Educate and empower communities



The National Healthy Brain Initiative (CDC-RFA-DP20-2003)

Five-year, multi-component approach for Alzheimer's disease public health activities https://www.cdc.gov/aging/healthybrain/index.htm

Component A: Funds an organization with <u>national scope and reach within states</u>, to develop and implement public health strategies guided by the Healthy Brain Initiative (HBI) Road Map Series

The Alzheimer's Association

https://www.alz.org/professionals/public-health/public-health-approach/alz-association-efforts

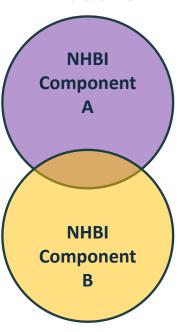
Component B: Funds organizations to <u>support populations with a high burden of ADRD</u>

➤International Association for Indigenous Aging (IA²) - American Indian/Alaska Native https://bolddementiacaregiving.org/

➤ University of Illinois at Chicago (UIC) - Intellectual and Developmental Disabilities https://healthmattersprogram.org/healthybrain/

➤ Us Against Alzheimer's (UsA2) - Hispanic/Latino & African American https://www.usagainstalzheimers.org/

National Healthy Brain Initiative





Building Our Largest Dementia
Infrastructure (BOLD) is designed to create
a strong public health infrastructure for
dementia and dementia caregiving







BOLD PRIORITY AREAS

Address Alzheimer's as an urgent public health issue to create population-level change

- Early detection and diagnosis
- Preventable hospitalizations
- Care planning and management
- Support for caregivers

Attention to:

- Health disparities
- Rural areas
- High burden populations



BOLD Public Health Programs

Building Our Largest Dementia Infrastructure (BOLD)—Public Health Programs to Address Alzheimer's Disease and Related Dementias (CDC-RFA-DP20-2004) funds a total of 23 recipients from states, counties, cities, and tribal organizations for 3-year awards at the *Enhanced or Core* level.

Provides funding to improve the lives of those with Alzheimer's disease and related dementias and to provide support for their caregivers by

- Building/maintaining a community coalitions for identifying and monitor ADRD priorities (Core)
- Creating/updating a community ADRD strategic plans including Road Map actions (Core)
- Generating actions plans for implementing ADRD strategic plans (Core)
- Implementing ADRD programming in their community (Enhanced)

https://www.cdc.gov/aging/funding/php/index.html

BOLD Public Health Programs - Example

Partner with local groups to distribute information about brain health and Alzheimer's

Department of Health

- **Foundations**
- Aging Organizations
- Voluntary Health Associations



General Public



- Medical Societies
- Health Provider Associations

Health Care Providers





Building Our Largest Dementia Infrastructure (BOLD)—Public Health Centers of Excellence to Address Alzheimer's Disease and Related Dementias (CDC-RFA-DP20-2005)

https://www.cdc.gov/aging/funding/phc/index.html

Funded 5-year awards to 3 Public Health Centers of Excellence

Early Detection & Diagnosis – NYU Grossman School of Medicine

➤ National resource and driving force for evidence-based and evidence-informed public health strategies dedicated to increasing **early detection of dementia** to improve the lives of people who are living with ADRD https://bolddementiadetection.org/

Dementia Caregiving - University of Minnesota

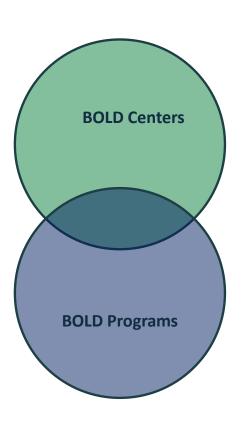
➤ Supports state, tribal and local public health agencies nationwide in implementing actions that protect the wellbeing and meet the needs of family members, friends, partners, and other unpaid caregivers of people with dementia

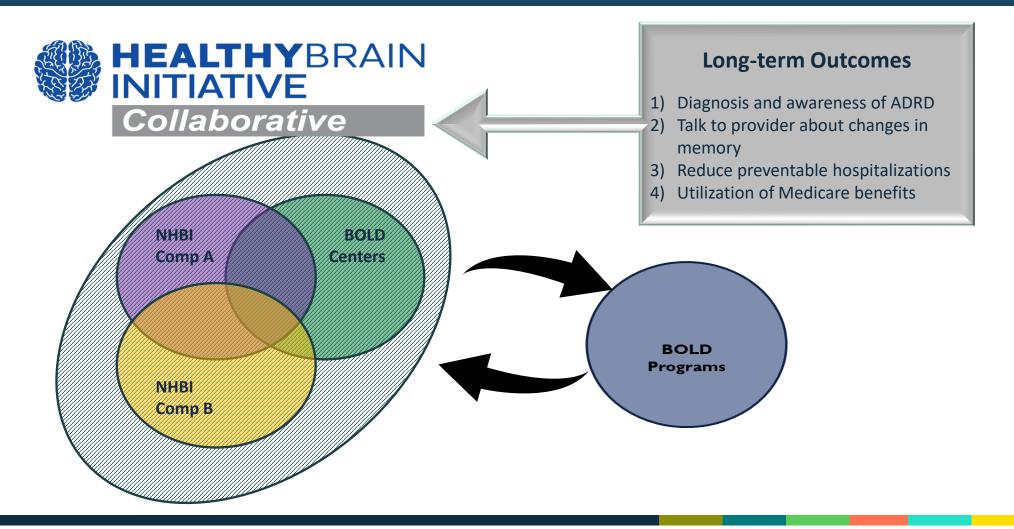
https://bolddementiacaregiving.org/

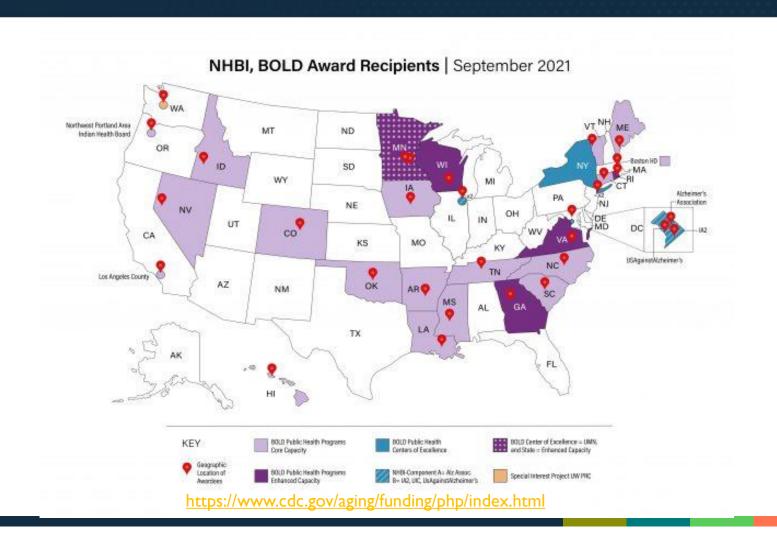
Risk Reduction – Alzheimer's Association

Coordinates **risk reduction** efforts and helps public health agencies share best practices https://www.alz.org/professionals/public-health/public-health-approach/alz-association-efforts









CDC Programs That Address Alzheimer's Risk Factors Heart Disease and Stroke Prevention

Supports public health efforts that address heart disease and stroke https://www.cdc.gov/dhdsp/

- Funds all 50 states and Washington D.C. (including Indiana) to address the serious national health problems of diabetes, heart disease, and stroke (DP18-1815)
- Funds 20 state and local health departments for prevention, management, and reduction of the risk factors associated with heart disease and stroke (DP18-1817)
- Connect with the heart disease and stroke program at the Indiana Department of Health for information & potential collaboration

https://www.in.gov/health/cdpc/cardiovascularhealth/cardiovascular-health-home/

Program Development and Services Branch Fiscal Year 2019 of Diabetes, Heart Dise and Stroke ♦ (6 large city or county) MT ♥♥★ Good Health and Wellnes in Indian Country Tribes and Tribal Organization: (16 tribes and urban indi-(1 tribal coordinating center * CO ★ ▲ WISEWOMAN² Tribal Organizations - Core Funding NM ▼ ♥ Native American Rehabilitation Foundation (SCF1**, and Southeast Alaska Regional Heal Consortium [SEARHC]*** YMCA of the USA Program CDC/ASTHO4 Heart Disease an Stroke Prevention Learning Collaborative (26 states, D.C., the U.S. Virgin Islands, Palau, Guam, and the For FY2019, DHDSP funded statewide initiatives in all 50 states and the District of Columbia through the Improving the Health of Americans through Prevention and Management of Diabetes, Heart Disease, and Stroke cooperative agreement. WISEWOMAN is an abbreviation for Well-Integrated Screening and Evaluation WOMen Across the Nation Some states have multiple participating YMCA programs. A total of 103 YMCA associations are delivering the program in 30 state 4 ASTHO is an abbreviation for the Association of State and Territorial Health Officia

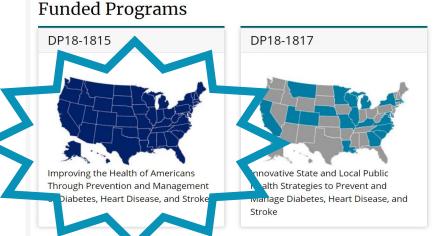
Division for Heart Disease and Stroke Prevention's (DHDSP)

CDC Programs That Address Alzheimer's Risk Factors Diabetes

Supports programs and activities to prevent or delay the onset of type 2 diabetes and to improve health outcomes for people diagnosed with diabetes.

https://www.cdc.gov/diabetes/index.html

- Funds all 50 states (including Indiana) and Washington D.C. to prevent and manage diabetes, heart disease, and stroke. (DP18-1815)
- Funds 20 state and local health departments to prevent or delay the onset of type 2 diabetes and to improve health outcomes for people diagnosed with diabetes (DP18-1817)
- Connect with the diabetes program at the Indiana Department of Health for information & potential collaboration https://www.in.gov/health/cdpc/diabetes/diabetes-home/





CDC Programs That Address Alzheimer's Risk Factors
Physical Activity and Nutrition

Leads the national effort to prevent chronic diseases by promoting good nutrition, regular physical activity, and a healthy weight https://www.cdc.gov/nccdphp/dnpao/index.html

Funds obesity prevention projects in 40 states via SPAN, HOP, & REACH (including REACH in Indiana)

Connect with the physical activity and nutrition program at the Indiana Department of Health for information & potential collaboration https://www.in.gov/health/dnpa/

SPAN

The State Physical Activity and Nutrition (SPAN) carries out evidence-based strategies at state and local levels to improve nutrition and physical activity.

About SPAN

SPAN Recipients

HOP

The High Obesity Program (HOP) funds land grant universities to work with community externon services in counties where one than 40% of adults have obesits.

About HOP

HOP Recipients

REACH

The Racial and Ethnic Approaches to Community Health (REACH) program addresses racial and ethnic health disparities through local, culturally appropriate projects.

About REACH

REACH Recipients

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Public Health Center of Excellence – Risk Reduction



INDIANA?





- Available to assist state, local, and tribal public health agencies to address risk factors for dementia
- Learn more at: alz.org/publichealth
- Contact: CenterOfExcellence@alz.org



Chronic Disease Risk Reduction Messages that Promote Brain Health

Nuevo en español!



Pressure/Healthy Brain Presión Arterial Saludable/Cerebro Sano



Healthy Blood
Sugar/Healthy Brain
Nivel Saludable de
Azúcar en la
Sangre/Cerebro Sano



Brain
Cuerpo
Saludable/Cerebro Sano



Healthy Diet/Healthy Brain Alimentación Saludable/Cerebro Sano



<u>Healthy Brain Infographic</u> Infografía de Cerebro Sano

Fliers

National Association of Chronic Disease Directors (NACDD) produced 4 fliers and 1 infographic for use on websites, in doctors' offices, and other venues.

Messages highlight the importance of maintaining healthy blood sugar, healthy blood pressure, a healthy body, and a healthy diet.

Rack cards and infographic can be customized to include your organization's logo.

These resources are available in Spanish. For more information and approval to customize these rack cards visit the NACDD website

NACDD Action on Healthy Aging and Brain Health

Healthy Brain Resource Center

Healthy Brain Resource Center



The Healthy Brain Resource Center (HBRC) is an easy-to-navigate website that helps users find credible public information and materials to support implementing the Healthy Brain Initiative (HBI) Road Map actions.

https://nccd.cdc.gov/DPH_HBRC/





Subjective Cognitive

Decline — A Public Health Issue



The Coronary Heart Disease, Myocardial Infarction, and Stroke data brief provides the most recent practical and useful data on adults 45 and older, and includes action items to increase overall health.



data available

Data Briefs

State of Aging and Health in America Data Briefs are a series of topic-specific documents from the National Association of Chronic Disease Directors that focus on public health issues related to older adults

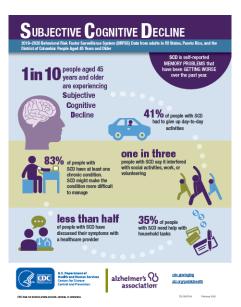
Provide the most recent and relevant data available on health and aging related conditions and include breakdowns by state, age, gender, and ethnicity

Useful in making informed decisions and policies related to these issues

https://www.cdc.gov/aging/publications/healthy-brain-issue-maps.html

National & Indiana Infographics

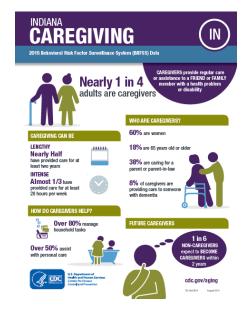
Social Cognitive Decline





Caregiving





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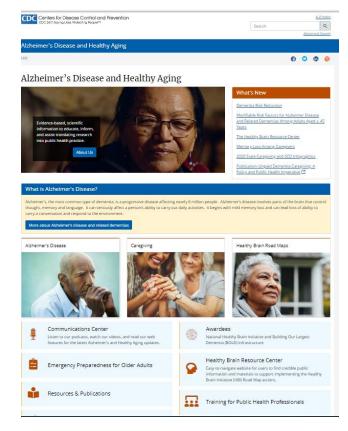
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Please enter your email address. This email address will be used to manage your subscriptions and subscriber preferences.

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Newsletter Subscription



<u>Homepage</u>

THANK YOU





www.cdc.gov/aging

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Centers for Disease Control and Prevention

National Center for Chronic Disease Prevention and Health Promotion

Division of Population Health

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

