

# **Dementia, Cognitive Aging Services and Support**

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# Disclosures

- **Pfizer, Inc. and Janssen Alzheimer Immunotherapy :  
Chair DMC**
- **Roche, Inc.: Consultant**
- **Merck, Inc.: Consultant**
- **Genentech, Inc.: Consultant**
- **Biogen, Inc.: Consultant**
- **Eli Lilly and Company: Consultant**
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  - **P50 AG016574**
  - **R01 AG011378**
  - **R01 AG041581**
  - **U01 AG024904**

# Outline

- **Alzheimer's Disease and Dementia**
- **Cognitive Aging**
- **National Plan to Address Alzheimer's Disease**
  - Long Term Services and Support**
    - **Healthy brain aging**
    - **Dementia-capable services and support**

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# Dementia

**Impairment in cognition,  
memory/thinking, of sufficient severity  
to compromise one's daily activities**



# *Dementia*

**Alzheimer's  
disease (AD)**

**AD vascular dementia**

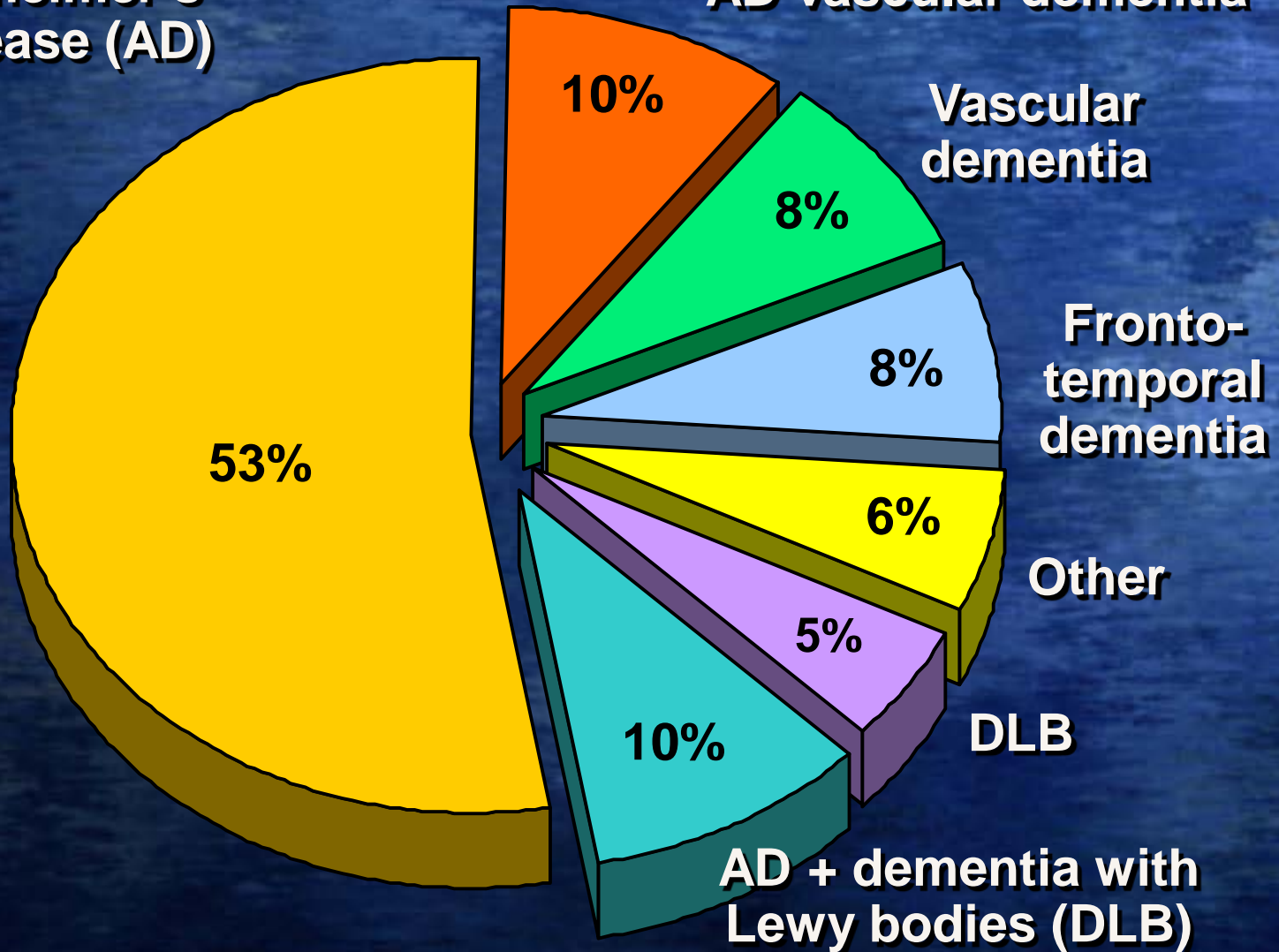
**Vascular  
dementia**

**Fronto-  
temporal  
dementia**

**Other**

**DLB**

**AD + dementia with  
Lewy bodies (DLB)**



# Criteria for AD

**National Institute on Aging**

**Alzheimer's Association**

*Alzheimers and Dementia, May, 2011*



# Introduction to the Recommendations from the National Institute on Aging-Alzheimer's Association Workgroups on Diagnostic Guidelines for Alzheimer's Disease

Clifford R. Jack, Jr, Marilyn S. Albert, David S. Knopman,  
Guy M. McKhann, Reisa A. Sperling, Maria C. Carrillo,  
Bill Thies, Creighton H. Phelps

and the Alzheimer's Disease and Related Disorders Association (ADRD) workgroup in 1984 [1]. These criteria were

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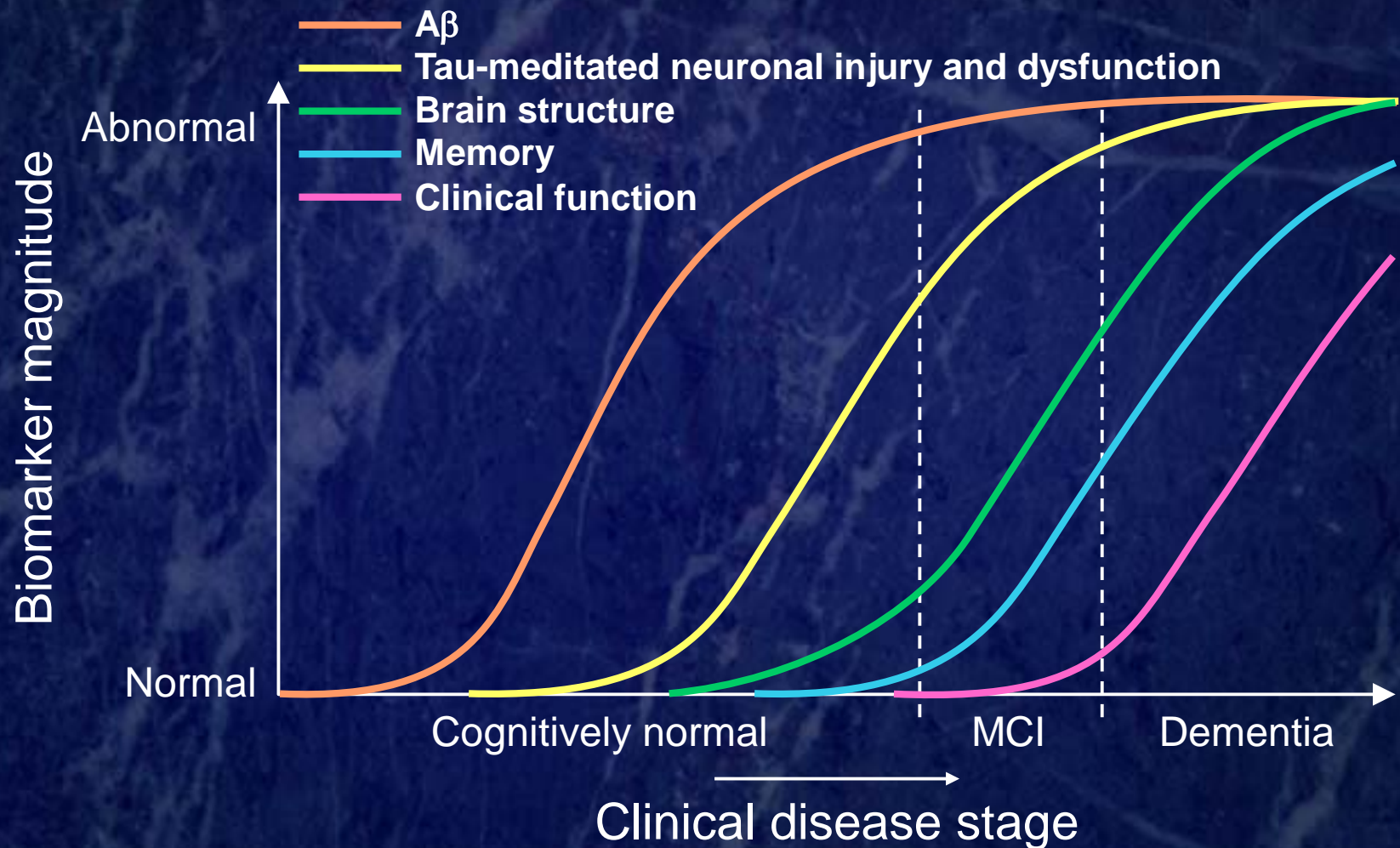
1552-5260/\$ - see front matter © 2011 The Alzheimer's Association. All rights reserved.  
doi:10.1016/j.jalz.2011.03.004

the pathophysiological process of AD, and changes in conceptualization regarding the clinical spectrum of the disease have occurred.

By 2009, broad consensus existed throughout academia and industry that the criteria should be revised to incorporate

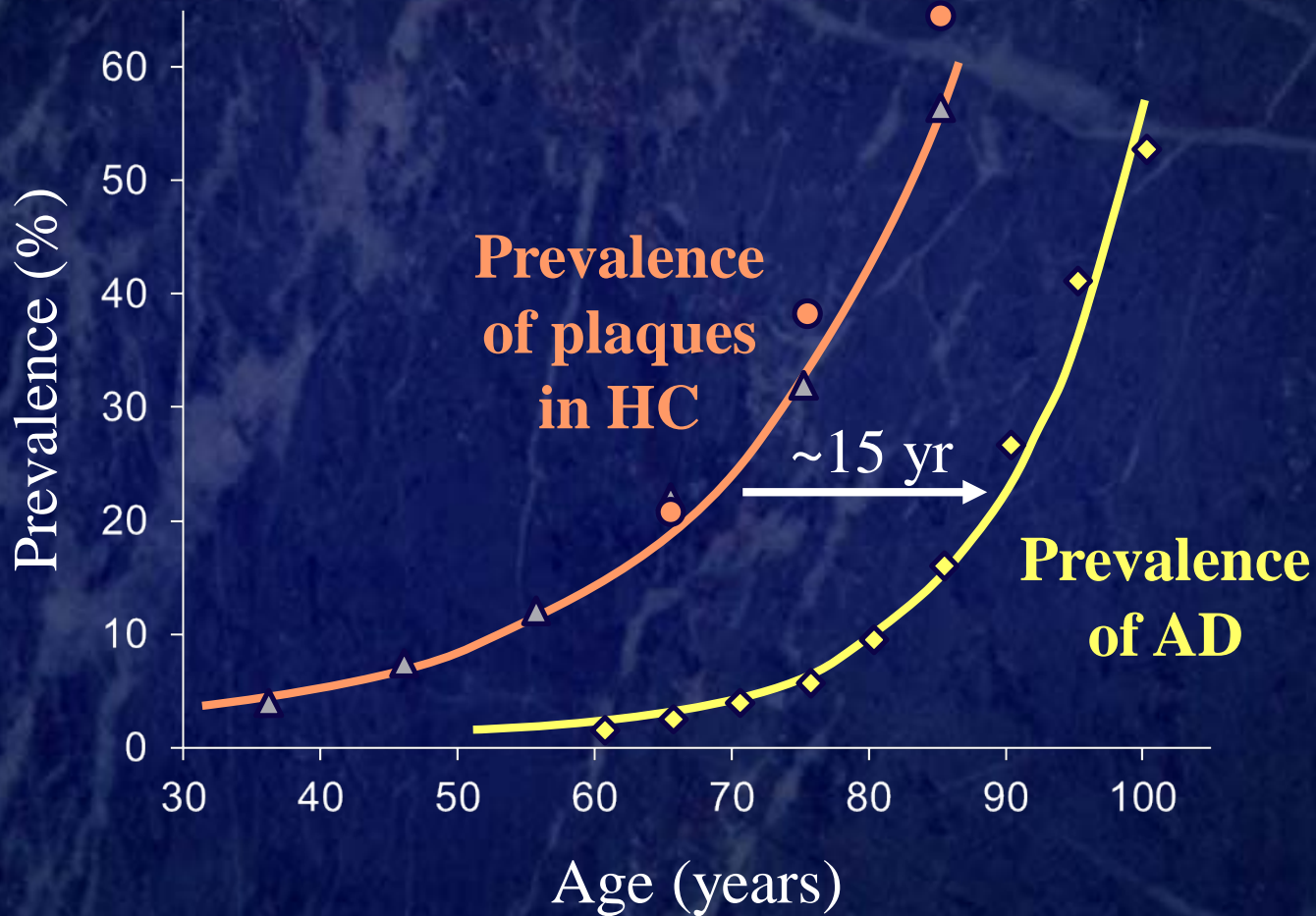


# Hypothetical Model of Dynamic Biomarkers of the Alzheimer's Pathological Cascade



Jack et al: Lancet Neurol 2010

# Prevalence of PiB PET in Normals



Rowe et al: 2010



# Biomarkers for AD

- **Early biomarkers**

  - Amyloid deposition**

    - PET imaging

    - CSF amyloid

- **Later biomarkers**

  - Neurodegeneration**

    - Structural MRI

    - Tau PET

    - FDG PET

    - CSF tau

# Neuroimaging in AD



# Neuroimaging in AD

- **Structural MRI**
- **Functional imaging**  
**FDG PET**
- **Molecular imaging**  
**Amyloid PET imaging**

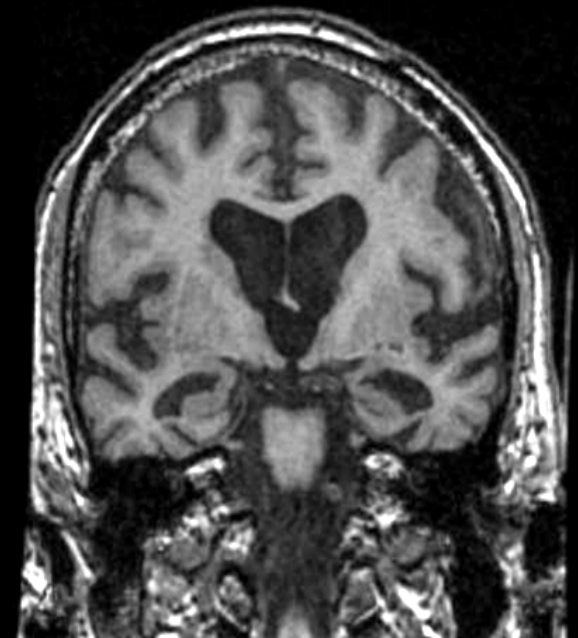
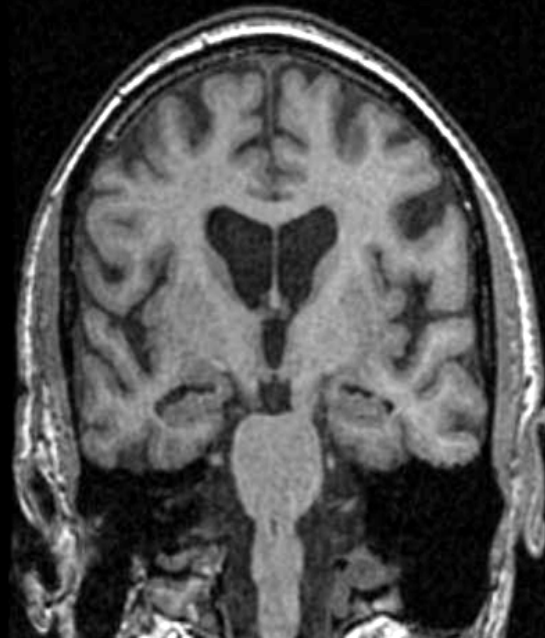
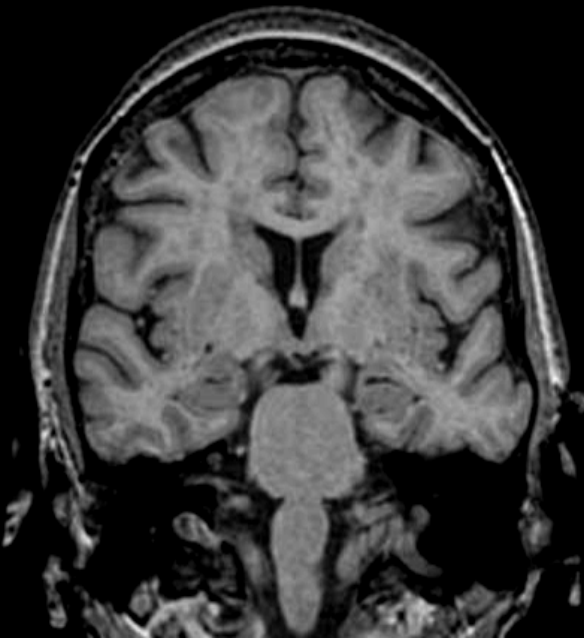
# Structural Imaging in AD

# Structural MRI: Atrophy and AD Stage

Control, 70, F

MCI, 72, F

AD, 74, F





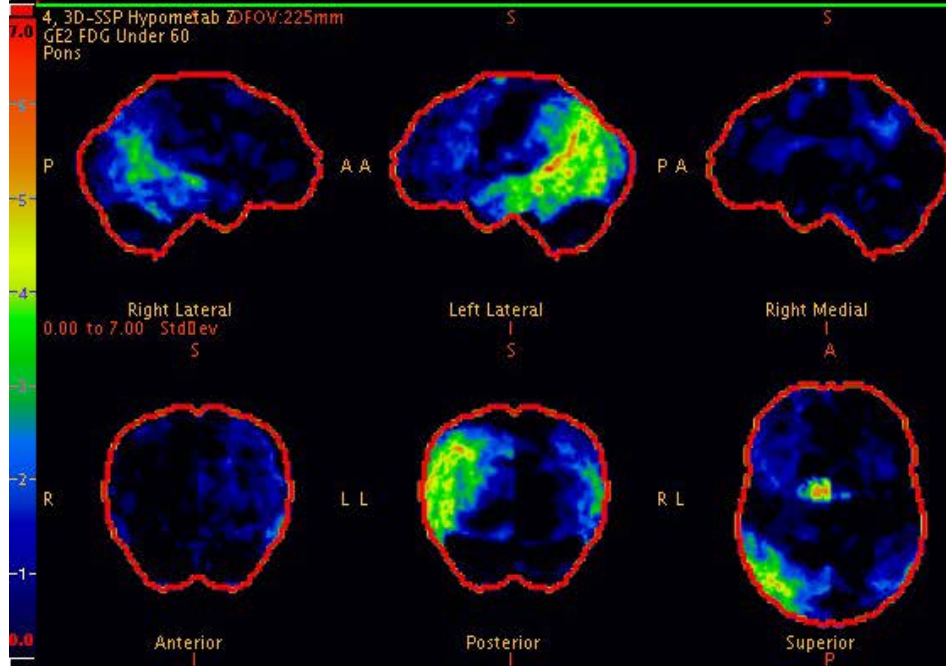
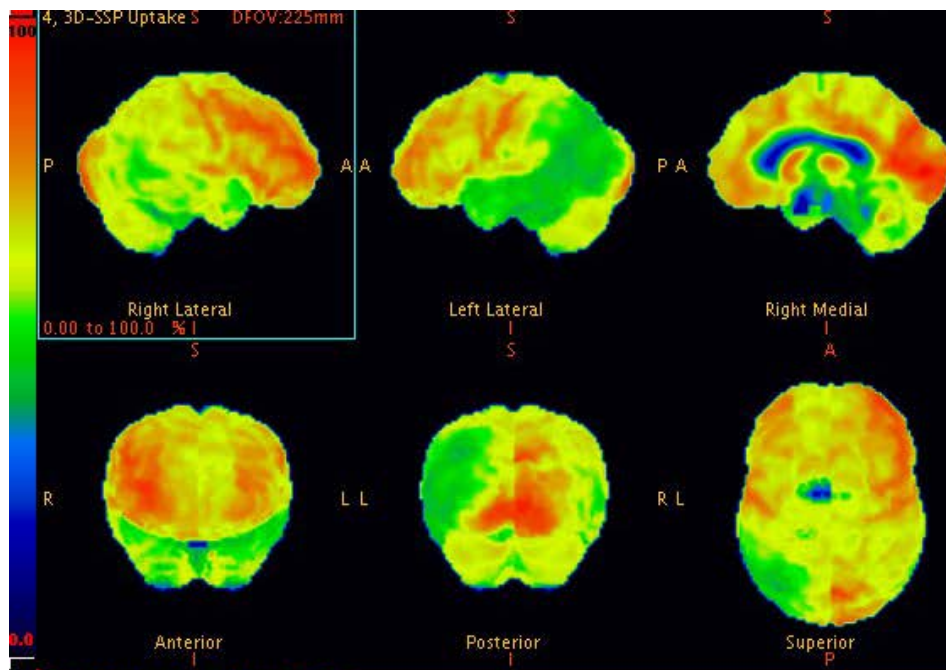
# Functional Imaging in AD



(Z-Score)

Normals File: GE2 FDG Under 60

Normalized By:

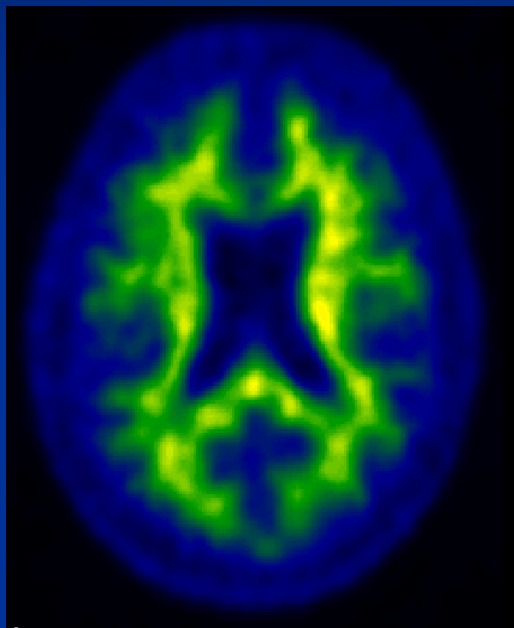


Cortical Regions	R/L	Mean
Parietal Association	R	0.91
	L	2.84
Temporal Association	R	1.41
	L	2.72
Frontal Association	R	-0.19
	L	0.75
Occipital Association	R	0.72
	L	2.55
Posterior Cingulate	R	0.09
	L	0.38
Anterior Cingulate	R	0.05
	L	0.10
Medial Frontal	R	-0.17
	L	0.57
Medial Parietal	R	0.17
	L	1.35
Sensorimotor	R	-0.45

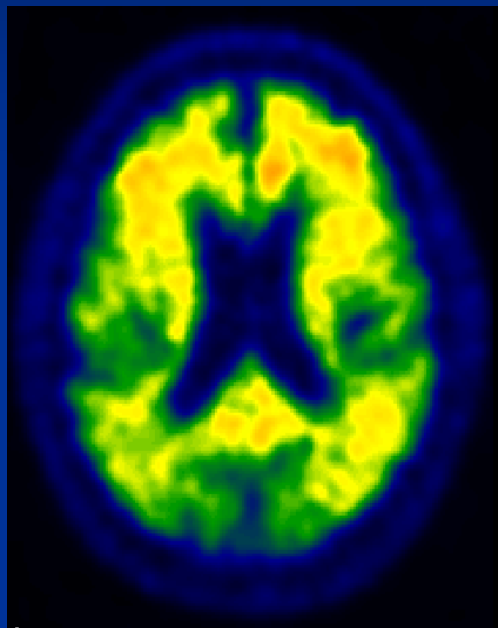
# Molecular Neuroimaging

# PIB Idealized

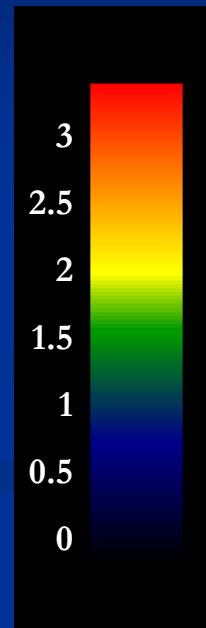
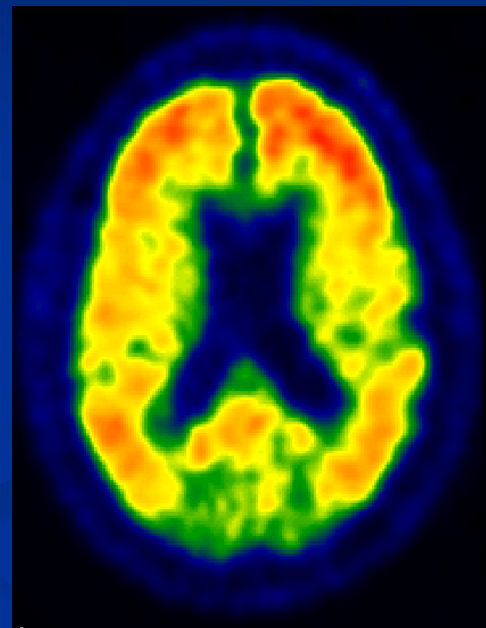
CN



aMCI

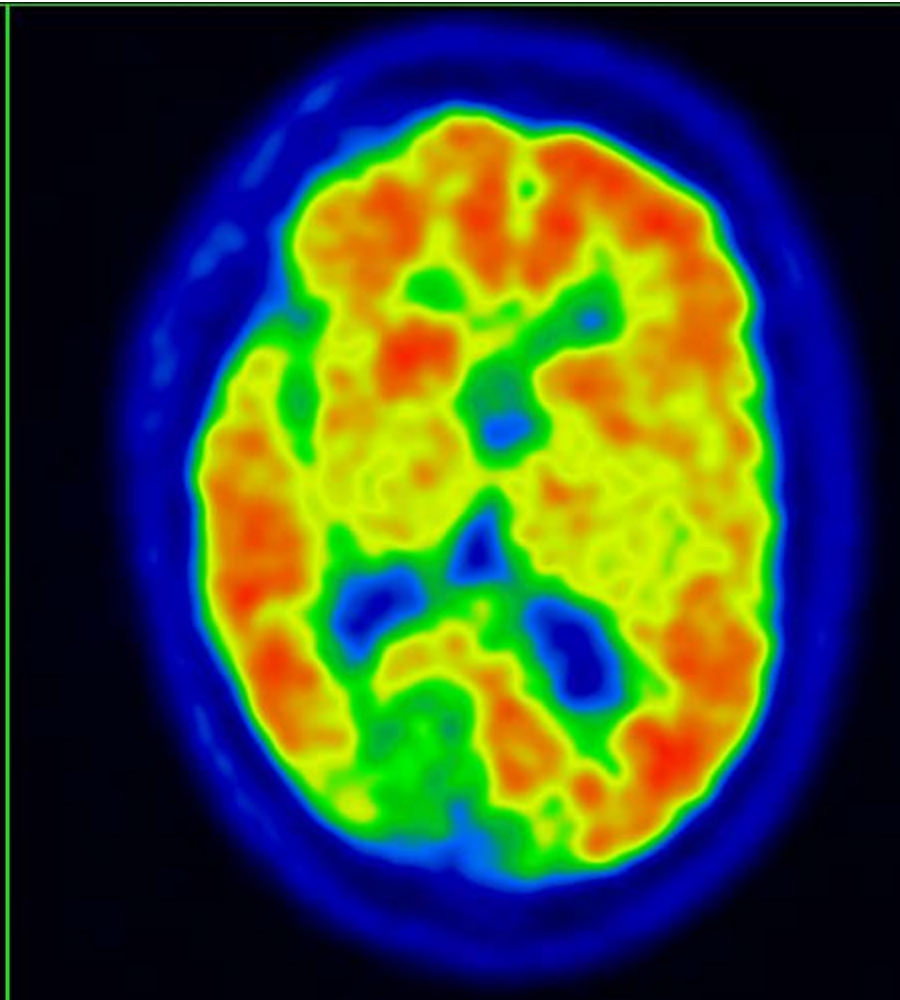
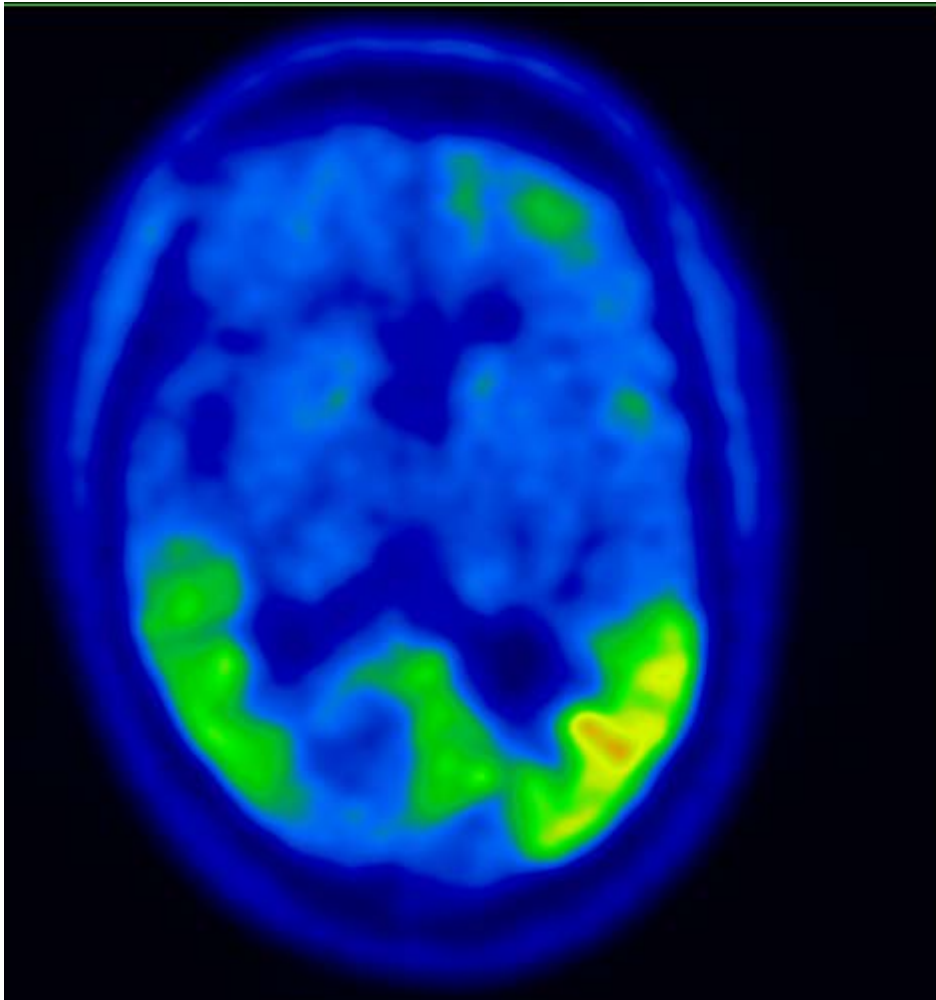


AD



# Tau PET Imaging





# Alzheimer's Disease Spectrum

Preclinical AD



MCI Due to AD



Dementia Due to AD



# AD Statistics

- 5+M people in US have AD
- 10-15M caregivers
- Numbers will triple by 2050
  
- But, not everyone will develop dementia

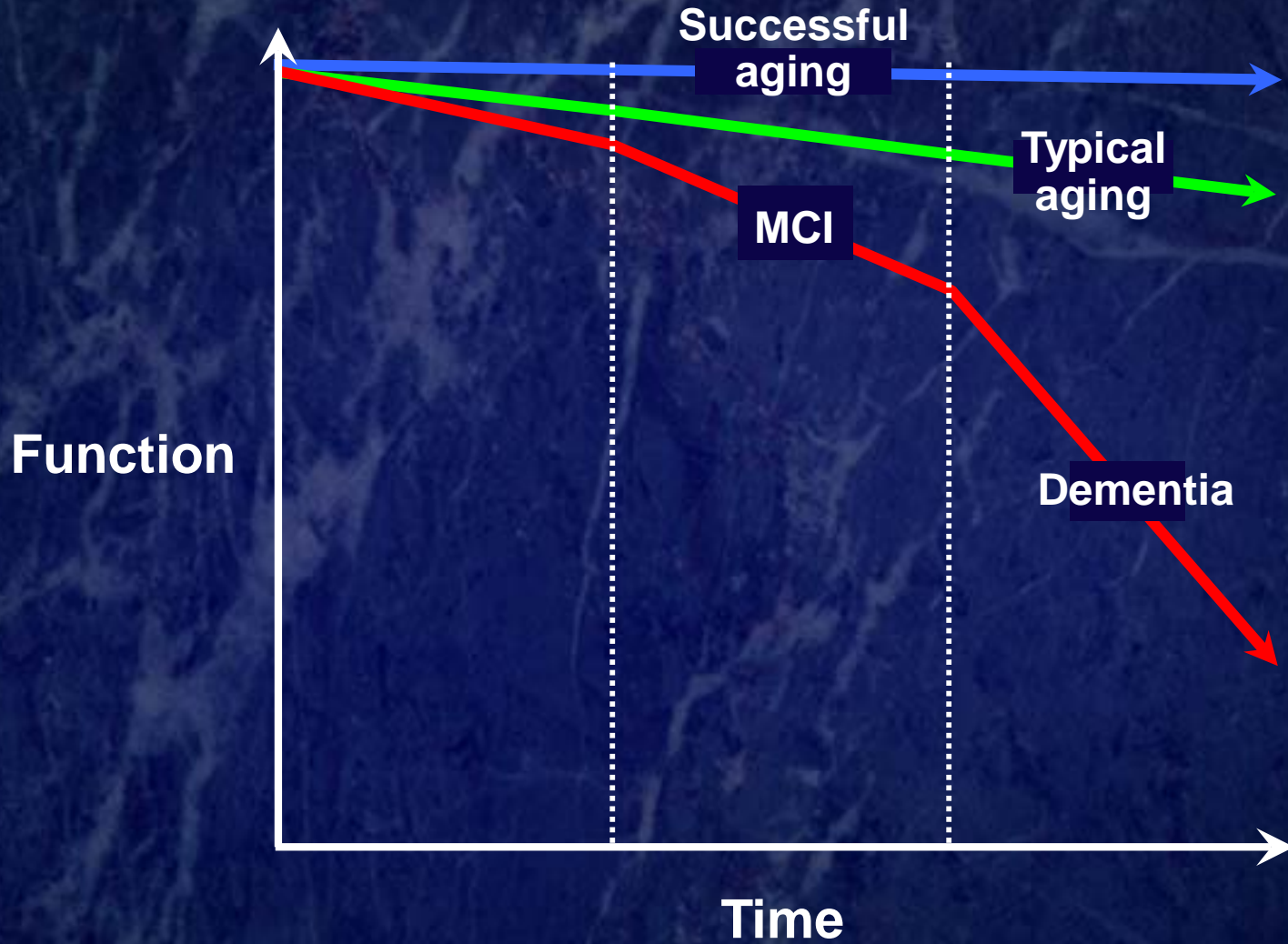
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# Major question

**What is normal aging?**



# Cognitive Aging: Progress in Understanding and Opportunities for Action

IOM Committee on the  
Public Health Dimensions of Cognitive Aging



INSTITUTE OF MEDICINE

OF THE NATIONAL ACADEMIES

Advising the nation • Improving health

# Statement of Task Highlights

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The IOM committee was convened to examine cognitive health and aging, as distinct from Alzheimer's disease. The committee was asked to make recommendations focused on the public health aspects of cognitive aging with an emphasis on:

- Definitions and terminology,
- Epidemiology and surveillance,
- Prevention and intervention opportunities,
- Education of health professionals,
- Public awareness and education.

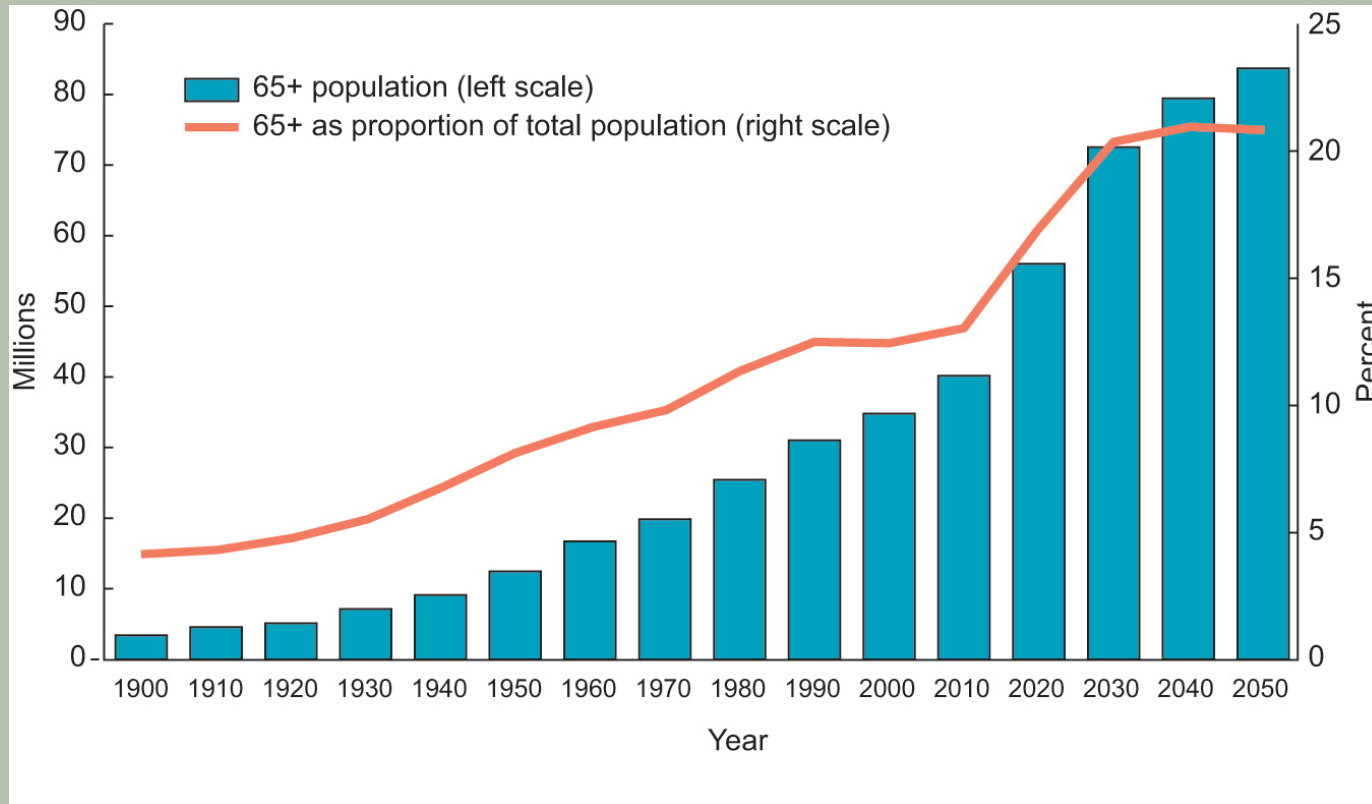


# What is Cognitive Aging?

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- **Cognition** refers to the mental functions involved in attention, thinking, understanding, learning, remembering, solving problems, and making decisions.
- **Cognitive aging** is a process of gradual, ongoing, yet highly variable changes in cognitive functions that occur as people get older.
- Cognitive aging is a lifelong process. It is not a disease or a quantifiable level of function.
- In the context of aging, **cognitive health** is exemplified by an individual who maintains his or her optimal cognitive function with age.

# Demographics



SOURCE: West, L. A., S. Cole, D. Goodkind, and W. He. 2014. *65+ in the United States: 2010*. U.S. Census Bureau Special Studies.

# Key Features of Cognitive Aging

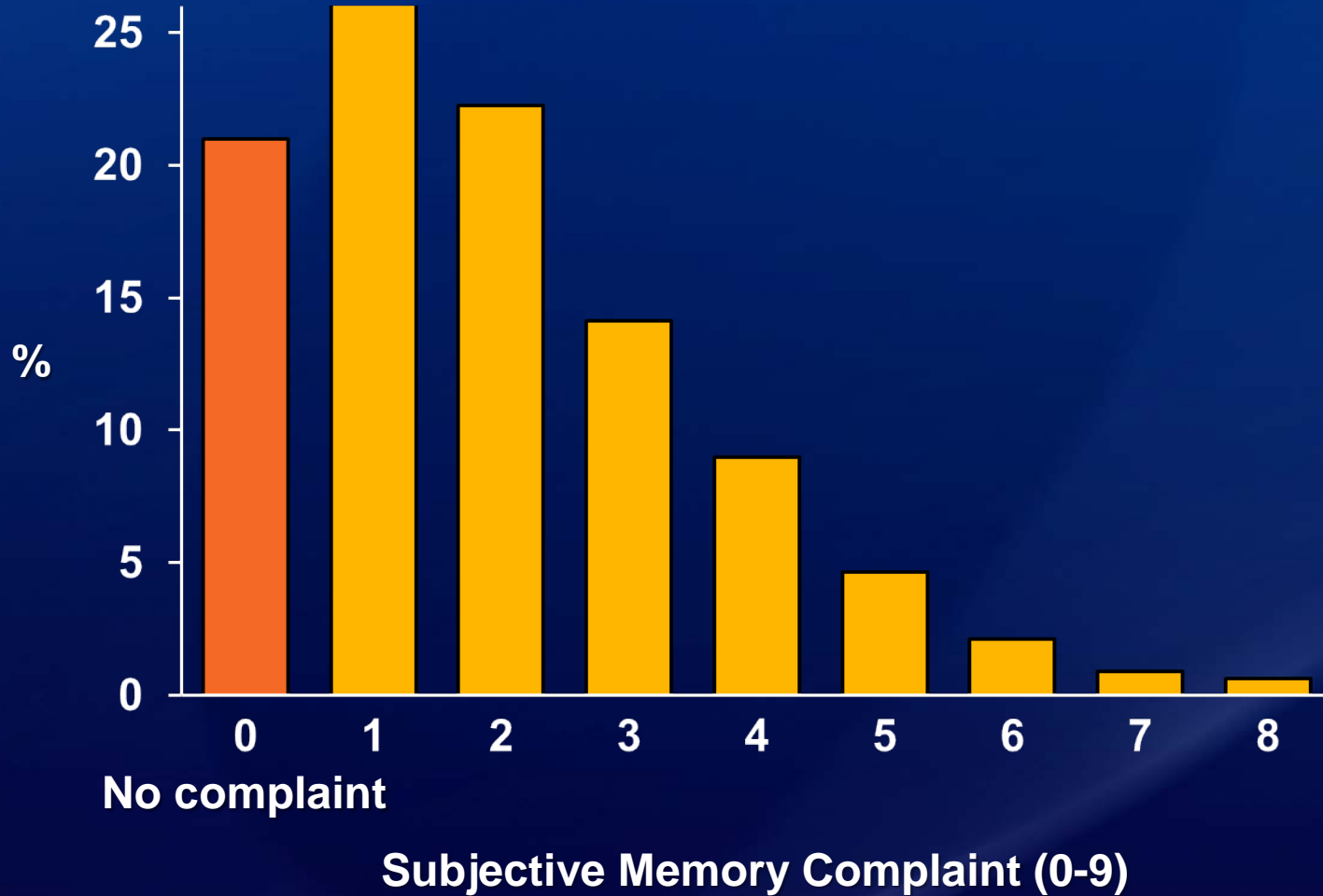
- **Inherent in humans** and animals as they age
- Occurs **across the spectrum of individuals** as they age regardless of initial cognitive function
- Highly dynamic process with **variability within and between individuals**
- Includes cognitive domains that may not change, may decline, or may actually improve with aging, and there is the potential for older adults to strengthen some cognitive abilities
- **Only now beginning to be understood biologically** yet clearly involves structural and functional brain changes
- **Not a clinically-defined neurological or psychiatric disease such as Alzheimer's disease** and does not inevitably lead to neuronal death and neurodegenerative dementia.

# **Mayo Clinic Study of Aging**

**Population-based study of 3000-  
5000 (3000 active) nondemented  
persons ages 50-89 years in  
Olmsted County, MN**



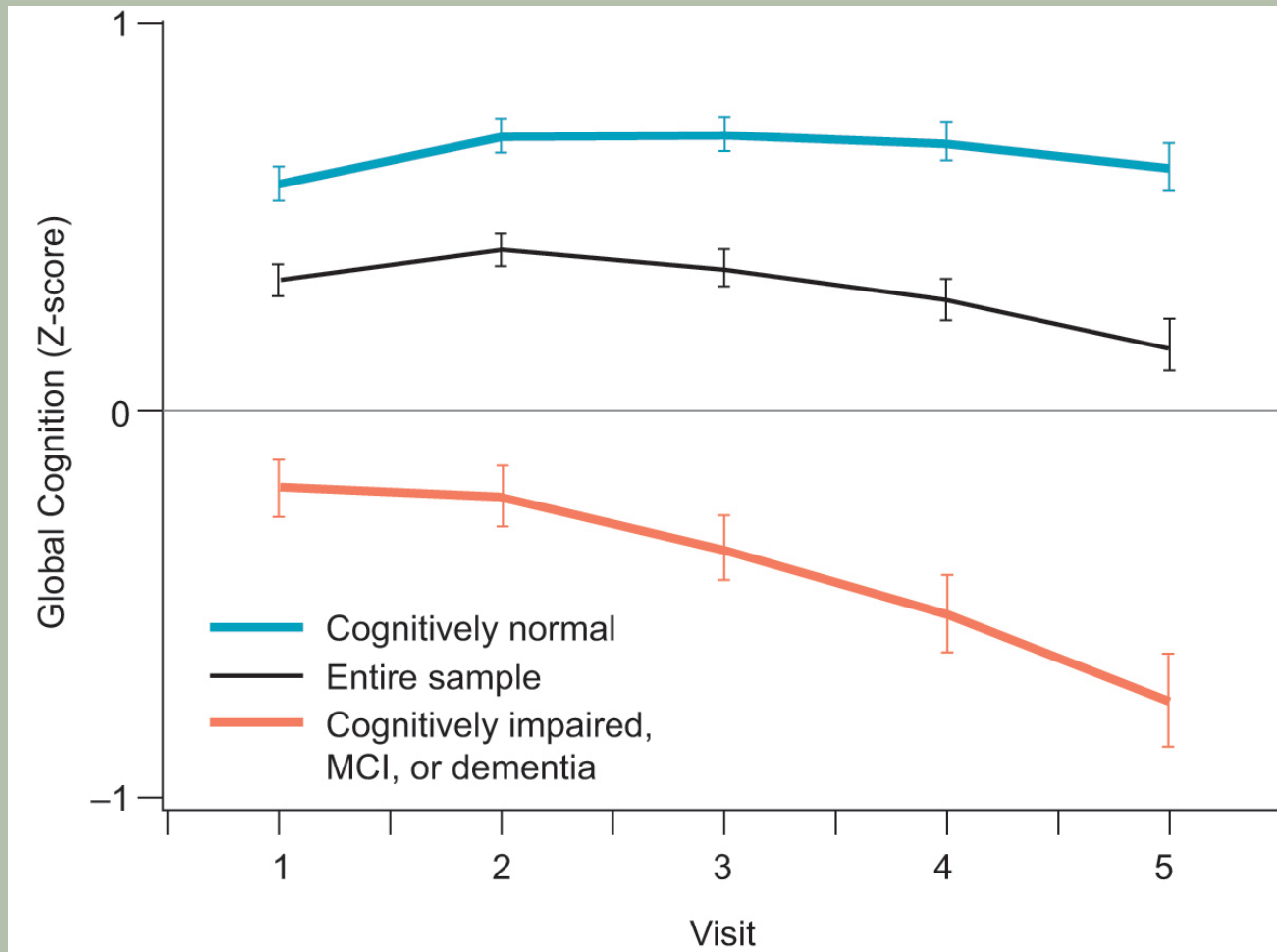
# Frequency of Subjective Memory Complaints



# Multivariate Cox Proportional Hazard Model

Variable	HR (95% CI)	P
Degree of subjective memory complaints (0-9)	1.12 (1.06, 1.19)	<0.0001
Male	0.77 (0.63, 0.95)	0.013
Education	1.04 (1.00-1.07)	0.03
Depression/dysphoria	1.28 (0.85, 1.72)	0.011
Anxiety	1.27 (0.85, 1.92)	0.25
APOE carrier	1.44 (1.17, 1.77)	0.0005
zAttention	0.72 (0.60, 0.87)	0.0004
zMemory	0.57 (0.47, 0.68)	<0.0001
zGlobal	0.32 (0.49, 0.82)	0.0005
Charlson index	1.03 (1.00, 1.06)	0.073

# Cognitive Trajectories for Global Cognition in Older Adults, Mayo Clinic Study of Aging, N=1,390



# Key Messages

- **Cognitive aging is more than decline in memory or speed of processing; can have positive effects on cognition.**
- **Scientific understanding of the non-disease changes in cognition with age is rapidly advancing; much remains to be learned.**
- **Wide variability in the impact of cognitive aging among individuals and throughout the life span.**
- **Age affects all organs, including the brain.**
- **Cognitive changes can affect daily activities.**
- **Actions can be taken by individuals to help maintain cognitive health.**
- **Opportunities for action at many levels.**



# Recommendation 1

## Increase Research and Tools for Assessing Cognitive Aging and Cognitive Trajectories

# Recommendation 2

## Collect and Disseminate Population-Based Data

# Recommendation 3

## Take Actions to Reduce Risks of Cognitive Decline with Aging

# Recommendation 4

## Increase Research on Risk and Protective Factors and Interventions



# Recommendation 5

**Ensure Appropriate Review, Policies, and Guidelines for Products that Affect Cognitive Function or Assert Claims Regarding Cognitive Health**

# Recommendation 6

**Develop and Implement Core Competencies and Curricula  
in Cognitive Aging for Health Professionals**

# Medicare AWW as Springboard



- Established by the Patient Protection and Affordable Care Act of 2010.
- All Medicare beneficiaries are entitled to annual wellness visits where “detection of any cognitive impairment” is a mandated component.
- Opportunity to increase the use of evidence-based cognitive assessment tools to fulfill this mandate on a universal basis.
- No specific evidence-based assessment tools were mandated; as part of its charge, the GSA Workgroup reviewed other efforts to identify such tools.

# Recommendation 7

**Promote Cognitive Health in Wellness and Medical Visits**



# Recommendation 8

**Develop Consumer Product Evaluation Criteria and an Independent Information Gateway**

# Recommendation 9

## Expand Services Relevant to Cognitive Health

# Recommendation 10

**Expand Public Communications Efforts and  
Promote Key Messages and Actions**

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# Cognitive Disability among Adults

- **Most adults living in the community do not have serious cognitive disabilities.**
- **According to the BRFSS, in 2013, among adults living in the community:**
  - **10.1% of those 18-44 reported a serious cognitive disability**
  - **12.0% of those 45-64 reported a serious cognitive disability**
  - **9.9% of those 65+ reported a serious cognitive disability**
- **According to NHATS in 2011, only 20% of adults aged 65+ had probable dementia**



# Cognitive Disability in LTSS

## **HOWEVER:**

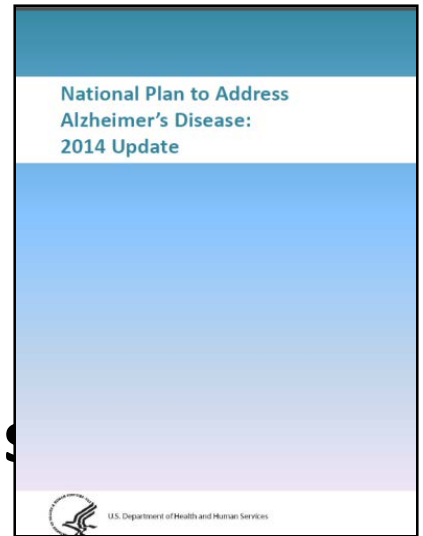
- **About 40% of people using HCBS have cognitive disability**
- **About 50% of those living in ALFs and nursing facilities have cognitive disability**

# **Two Key Goals related to Cognition for Medicaid Beneficiaries**

- 1. Promote brain health and maintenance of cognitive abilities across the life span.**
- 2. Ensure that health and long-term services & supports are “dementia-capable”**

# National Alzheimer's Plan 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**



# **Plan Goal 4: Increase Awareness and Engagement**

## ***Brain Health As You Age***

- **Four-part set of materials developed by:**
  - **Administration for Community Living/Administration on Aging**
  - **National Institutes of Health/National Institute on Aging**
  - **Centers for Disease Control and Prevention**
- **Explains what people can do to protect and maintain cognition – the ability to think, learn, and remember**
- **Provides free resources to help people promote their brain health as they age**

# *Brain Health As You Age*

- Available at:  
[www.acl.gov/Get\\_Help/BrainHealth/Index.aspx](http://www.acl.gov/Get_Help/BrainHealth/Index.aspx)
- New sections available on brain injury and dementia



# Brain Health As You Age

## “Educator Guide”

- Contains the slides for a presentation designed to help older adults and their caregivers learn how to reduce risks that may be related to brain health
- Provides no more than one page of “talking points” per slide
- Includes additional background information for about half of the slides

### Brain Health As You Age: Educator Guide



#### Introduction to the Brain Health Educator Guide

In an effort to help you provide older adults and their caregivers with current information about brain health, we have prepared this presentation and Educator Guide.

This Educator Guide contains slides for a presentation designed to help older adults and their caregivers learn how to reduce risks that may be related to brain health. This hour-long presentation offers information at a basic level to older adults, or caregivers, or both. The slides cover:

- Aging and health
- Good health and the normal aging brain
- Threats to brain health
- Healthy aging for your body and brain

All of the information in the slides and accompanying materials has received the review of the National Institutes of Health and the Centers for Disease Control and Prevention.

If you do not have access to a projector and conversation with your audience.

We have provided the following:

- Additional information for individual slides
- A one-page brain health handout for Health as You Age: You Can Make a Difference
- An optional handout, “Brain Health as You Age: You Can Make a Difference” includes basic information and video presentation

This guide provides one page per slide. The handout provided for about half of the slides is for you to learn or recite all this information. Use the handout, when needed.

Thank you for using this health education resource to help older adults and their caregivers learn about brain health.



Brain Health Educator Guide | 2014

#### Slide 19: Get Moving

##### Get Moving

- Physical activity may:
  - Reduce risks of diabetes, heart disease, depression, and stroke
  - Prevent falls
  - Improve connections among brain cells
- Get at least 150 minutes of exercise each week. Move about 30 minutes on most days. Walking is a good start.
- Join programs that can help you learn to move safely.
- Check with your health care provider if you haven't been active and want to start a vigorous exercise program.

#### Additional Information

Physical activity is one of the most important things an older adult can do for health. It can prevent or reduce your risk of health problems that seem to come with age, which include some of the diseases and conditions associated with brain health. It also helps you stay strong so that you can continue to do your day-to-day activities independently.

In fact, not doing physical activity can be bad for you, no matter your age or health condition.

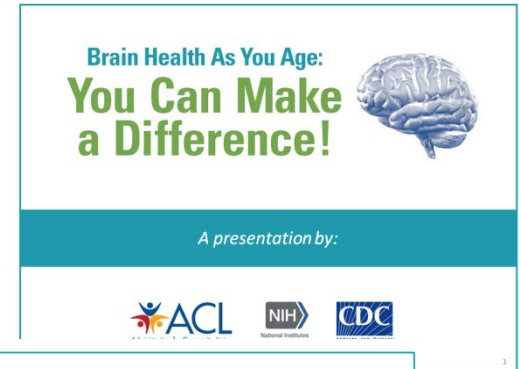
If you are 65 or older and generally fit, with no limiting health conditions, you can benefit from doing aerobic and muscle-strengthening activities each week, using these guidelines:

- A combination of 2 hours and 30 minutes (150) minutes of moderate aerobic activity (such as brisk walking), with 2 or more days a week working all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms)
- A combination of 1 hour and 15 minutes (75 minutes) of vigorous-intensity aerobic activity (such as jogging or running), with 2 or more days a week working all major muscle groups
- A balanced mix of moderate- and vigorous-intensity aerobic activity, with 2 or more days a week working all major muscle groups

# Brain Health As You Age

## “Slide Presentation”

- Designed to help older adults and their caregivers learn how to reduce risks that may be related to brain health
- About 30 minutes in length
- Offers information at a basic level to adults across the lifespan older adults about:
  - Aging and health
  - Good health and the normal aging brain
  - Threats to brain health
  - Healthy aging for your body and brain



### Age-Related Changes in Memory and Learning

#### You may find:

- Increased difficulty finding words
- More problems in multi-tasking
- Mild decreases in ability to pay attention



#### You can still:

- Learn new things
- Create new memories
- Improve vocabulary and language skills

### For More Information

- Community Programs:
  - Contact a local Area Agency on Aging (AAA)
  - Contact a local Aging & Disability Resource Center (ADRC)
  - Or, go to <http://eldercare.gov/>
- National Institutes of Health: <http://nih.gov>
- National Institute on Aging at NIH: <http://nia.nih.gov>
- ClinicalTrials.gov, a service of NIH: <http://clinicaltrials.gov>
- Centers for Disease Control and Prevention:
  - <http://www.cdc.gov/aging>
  - <http://www.cdc.gov/physicalactivity>

# Brain Health As You Age

## “Materials for Older Adults”

► Provides information about risk factors & free resources

**Brain Health As You Age:  
You Can Make a Difference!** 

We all want to stay healthy and independent as we get older. Along with keeping our bodies in good shape, we want to keep our minds healthy, too.

Developing a brain disease or injury as you age depends on a mix of your family's genes, your environment, and your health choices.


Diseases and conditions that affect brain health include:

- Genetic makeup
- Certain medicines, smoking and excessive alcohol
- Health problems like diabetes and heart disease
- Diseases like depression and Alzheimer's
- Brain injury
- Poor diet, insufficient sleep, lack of physical and social activity

Some risks to brain health cannot be controlled or prevented, like your genes. Others, like health choices, are under your control. For example, you can:

- Take care of your health
- Eat a healthy diet
- Drink alcohol moderately, if at all
- Get active and stay active
- Sleep 7-8 hours each night
- Learn new things
- Connect with your family, friends, and communities

**Brain Health As You Age:  
You Can Make a Difference!** 

A doctor or health care provider can provide information you about taking care of your health, and there are a number of resources on the Internet and at libraries on healthy choices in diet, exercise, and social activities.




**Resources**

For information on local programs and resources about health and aging, you can contact your local Area Agency on Aging (AAA) by calling 1-800-677-1116 or visit the Website <http://www.eldercare.gov>.

You can also check out the following user-friendly resources:

- [www.nih.gov](http://www.nih.gov)
- The Website of the National Institutes of Health has information on prevention and treatment for many conditions and disorders related to brain health. It's the National Institute on Aging focuses on a variety of age-related health conditions and ways to lead a healthier life as you grow older, at <http://www.nia.nih.gov>. To find out about participating in research studies, visit <http://www.clinicaltrials.gov>.
- <http://www.cdc.gov/aging/aginginfo/index.htm>

This Website from the Centers for Disease Control and Prevention has links to a wide variety of healthy aging topics of interest to older adults.

# *Brain Health As You Age*

- Available at:  
[www.acl.gov/Get\\_Help/BrainHealth/Index.aspx](http://www.acl.gov/Get_Help/BrainHealth/Index.aspx)
- New sections available on brain injury and dementia
- More to come....

# **Plan Goals 2 and 3: Improve Care and Expand Supports**

## **Dementia-capable systems:**

- 1. Educate the public about brain health and participating in research**
- 2. Identify people with possible dementia and referring for diagnosis**
- 3. Ensure that program eligibility and resource allocation account for cognitive disabilities**
- 4. Ensure services are person and family-centered and culturally appropriate**
- 5. Educate workers to identify possible dementia, understand its symptoms, and provide appropriate services**
- 6. Implement quality assurance systems that measure dementia service impact**
- 7. Encourage development of dementia-friendly communities**



# 1. Educate the public

- Risk factors associated with developing dementia - [http://www.acl.gov/Get\\_Help/BrainHealth/Index.aspx](http://www.acl.gov/Get_Help/BrainHealth/Index.aspx)
- First signs of cognitive problems- <http://www.nia.nih.gov/alzheimers> and National Alzheimer's Call Center at 1-800-272-3900
- Evidence-based management of symptoms - [http://aoa.gov/AoARoot/AoA\\_Programs/HPW/Alz\\_Grants/index.aspx](http://aoa.gov/AoARoot/AoA_Programs/HPW/Alz_Grants/index.aspx).
- Opportunities to participate in research - <http://www.nia.nih.gov/alzheimers/clinical-trials> or [www.alz.org/trialmatch](http://www.alz.org/trialmatch).

## 2. Identify people with possible dementia

- Use assessment and staff training to identify possible impairment
- Explore the ACL-sponsored assessment of cognitive screening tools that non-medical staff can use at [http://www.adrc-tae.acl.gov/tiki-download\\_file.php?fileId=33535](http://www.adrc-tae.acl.gov/tiki-download_file.php?fileId=33535)
- Recommend that those with impairment get a diagnosis and rule out reversible causes of dementia or conditions that resemble it

### **3. Ensure appropriate eligibility and resource allocation**

- Recognize prompting and supervision in eligibility criteria for LTSS programs**
- Recognize that people with dementia use more and different services**
- Service preference may vary and involve respite for caregivers**

# 4. Provide person/family-centered services

- Identify person's abilities, preferences, needs and desired outcomes
- Staff and family caregivers help the person with dementia manage services
- Offer self-direction opportunities
- Recognize role of family caregivers – education and training, respite
- Cultural appropriateness – *Serving Diverse Communities: A Self-Assessment of Alzheimer's Disease Services Provided by the Aging Network and Its Partners* at [www.adrc-tae.acl.gov/tiki-download\\_file.php?fileId=33539](http://www.adrc-tae.acl.gov/tiki-download_file.php?fileId=33539)
- Secretary of HHS' guidance on person-centered planning and self-direction: <http://www.acl.gov/Programs/CDAP/OIP/docs/2402-a-Guidance.pdf>

# 5. Educate workers

- Identify possible dementia
- Understand symptoms of dementia
- Deliver appropriate services
- Toolkit with links to trainings, knowledge tests, staff competencies, and information on state dementia training policies at:  
[http://aoa.gov/AoARoot/AoA\\_Programs/HPW/Alz\\_Grants/docs/Staff-Training-Toolkit\\_September\\_2013.pdf](http://aoa.gov/AoARoot/AoA_Programs/HPW/Alz_Grants/docs/Staff-Training-Toolkit_September_2013.pdf)



# 6. Assure quality

- **Assess dementia-capability of the system**
- **Measure the experience of people with dementia**
- **CQI with feedback**
- **ACL grantees can track their progress in improving dementia-capability -**  
[http://aoa.gov/AoARoot/AoA\\_Programs/HPW/Alz\\_Grants/docs/Learning\\_Collaborative\\_Quality\\_Assurance\\_Tool-FINAL.pdf](http://aoa.gov/AoARoot/AoA_Programs/HPW/Alz_Grants/docs/Learning_Collaborative_Quality_Assurance_Tool-FINAL.pdf)

# 7. Dementia-friendly communities

- These communities learn about dementia and interact effectively with people with dementia and their caregivers as they go about their daily lives:
  - Understand dementia
  - Improve customer service
  - Encourage participation in spiritual life and faith communities
  - Accommodate their needs in transportation and emergency services
- The leading organization promoting dementia-friendly communities is Minnesota's *ACT on Alzheimer's*.  
[www.ACTonALZ.org](http://www.ACTonALZ.org) has tools that help explore building dementia-friendly communities

# Take away messages:

- **Under the National Alzheimer's Plan, there are resources that can help states, localities, and service providers:**
  - Educate people about brain health
  - Develop dementia-capable health and LTSS systems
- **Many free tools are available on brain health and all aspects of dementia-capable services, including an ACL issue brief at:**
- **[http://www.acl.gov/Get\\_Help/BrainHealth/Index.aspx](http://www.acl.gov/Get_Help/BrainHealth/Index.aspx) .**

**Thank You**

