

# **OLLI Course:**

Dr Jeffrey N. Keller

Director, Institute for Dementia Research and Prevention

Director, Alzheimer Disease Cooperative Study Site

Edward G. Schlieder/Hibernia National Bank Chair

Professor, Pennington Biomedical Research Center

# Few Ground rules:

- A. First ~50 minutes for recording, please no questions
- B. Please complete the survey form
- C. We want to respect everyone's time including the speakers
- D. We want you to come to class and get as much as you can from course (maybe teach others? Better caregiver?)
- E. Provide me your feedback

225 763 3190    [jeffrey.keller@pbrc.edu](mailto:jeffrey.keller@pbrc.edu)

February 24 **“What is dementia and what causes dementia?”**

March 3 **“Physician Perspective for Caregivers”**

March 10 **“Beginning the Journey with Dementia”**

March 17 **‘Let’s talk’: Approaches to Individualized Dementia  
Patient/Caregiver Relationship**

March 24 **Daily Caregiving; What you need to know**

March 31 **“Behavioral Expressions: Overcoming that “B”Word in  
Dementia”**

April 7 **“Why a Financial Advisor is an Essential Member of the Care Team”**

April 14 **Why an Estate Planning Attorney is an Essential Member of the  
Care Team, Too!”**

**Questions?**

# What is dementia and what causes dementia?

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**What is dementia?**

# ***AD is the major form of dementia in elderly but there are many more:***

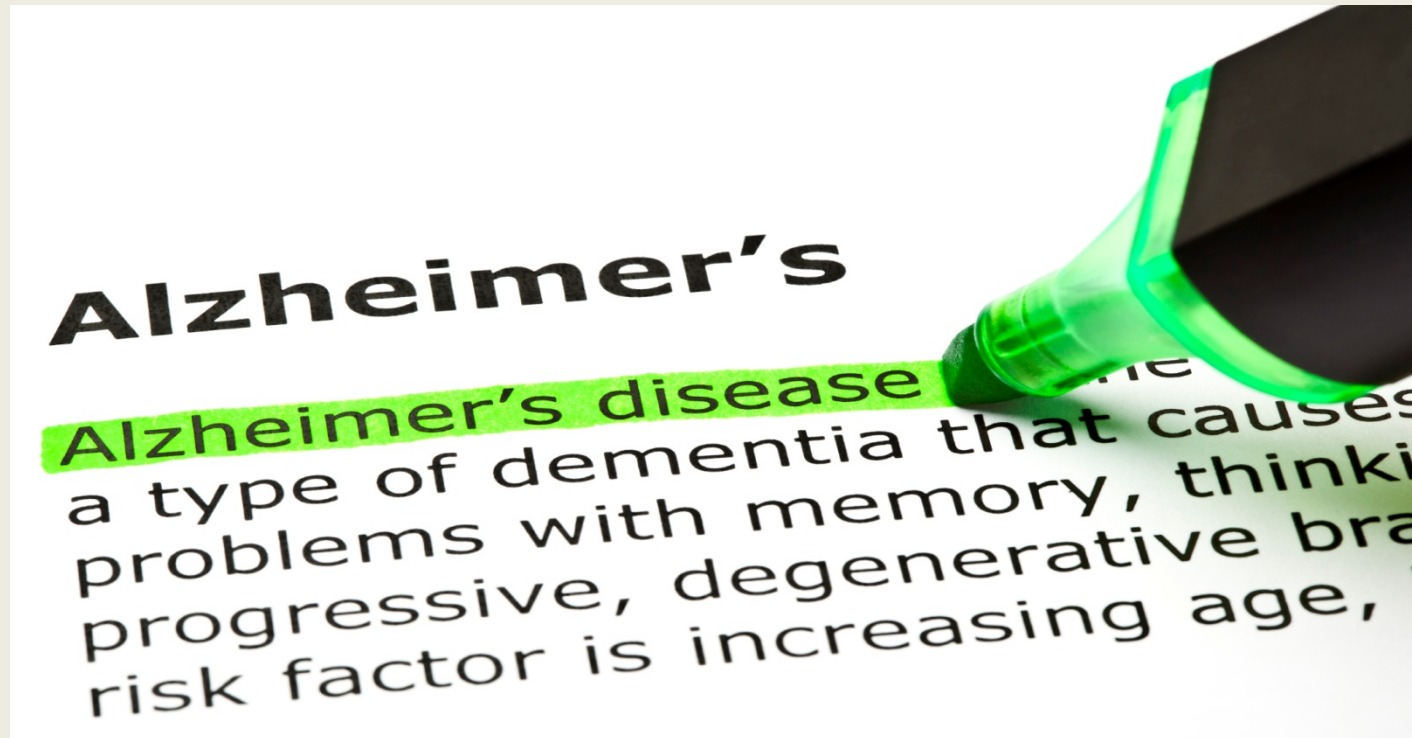
- **Thyroid deficiency**
- **B12 deficiency**
- **Depression**
- **Infection**
- **Stroke**
- **Post anesthesia**
- **Traumatic brain injury**
- **Hippocampal sclerosis**
- **Parkinson's disease with dementia**
- **Dementia with Lewy Bodies**
- **Frontotemporal dementia**
- **Vascular dementia**

# ***AD is the major form of dementia in elderly but there are many more:***

- **Thyroid deficiency** (*R*)
- **B12 deficiency** (*R*)
- **Depression** (*R*)
- **Infection** (*R*)
- **Stroke** (*R*)
- **Post anesthesia** (*onset*)
- **Traumatic brain injury** (*onset*)
- **Hippocampal sclerosis** (*Pathology*)
- **Parkinson's disease with dementia** (*Pathology-Behavior*)
- **Dementia with Lewy Bodies** (*Pathology-Behavior*)
- **Frontotemporal dementia** (*Pathology-Behavior*)
- **Vascular dementia** (*Progression*)



# What Is Alzheimer's Disease?



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- **Loss of ability to learn or remember new things**
- **Other areas of function affected like ability to make new plans (executive function)**
- **No psychosis, neurological abnormalities, or other neurological disturbances**

**How is Alzheimer's disease diagnosed?**



**There is no blood test for Alzheimer's disease**

**There is no picture of the brain to show  
Alzheimer's disease**

# ***Alzheimer's disease Diagnosis***

- **Neurological Assessment**
- **Cognitive Assessment**
- **MRI**
- **PET**
- **Lumbar puncture**
- **Blood**

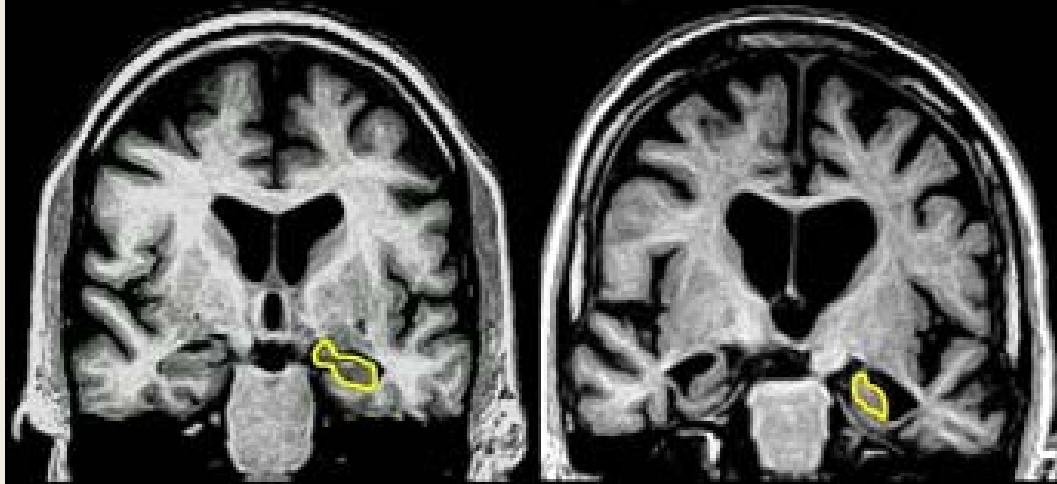
# *Alzheimer's disease Diagnosis*

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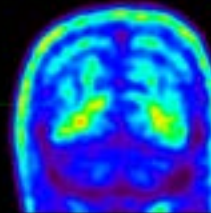
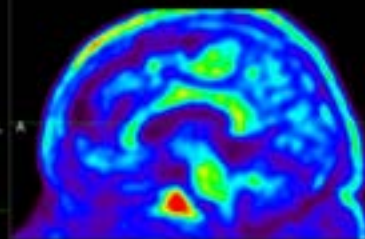
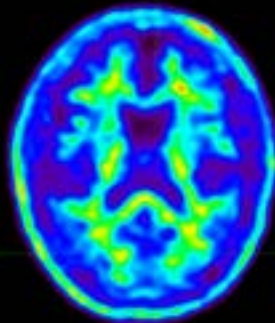
## Hippocampal Volume Measurement



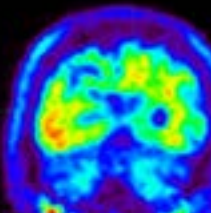
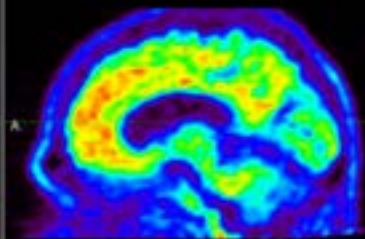
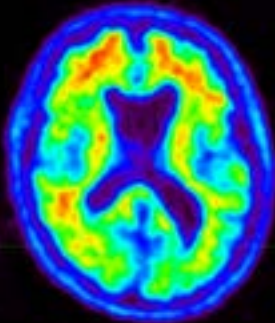
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ADNI Scans



Negative Scan



Positive Scan

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- **Blood:** no evidence of infection

**What is the “normal” progression of Alzheimer’s disease?**

# *Progression of AD*

**Aging**

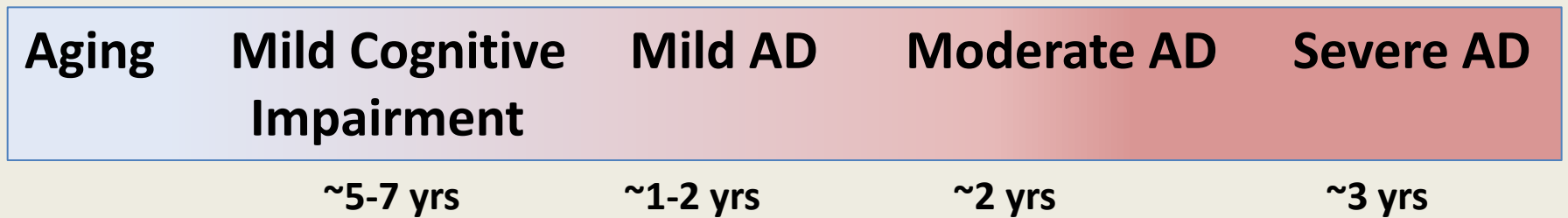
**Mild Cognitive  
Impairment**

**Mild AD**

**Moderate AD**

**Severe AD**

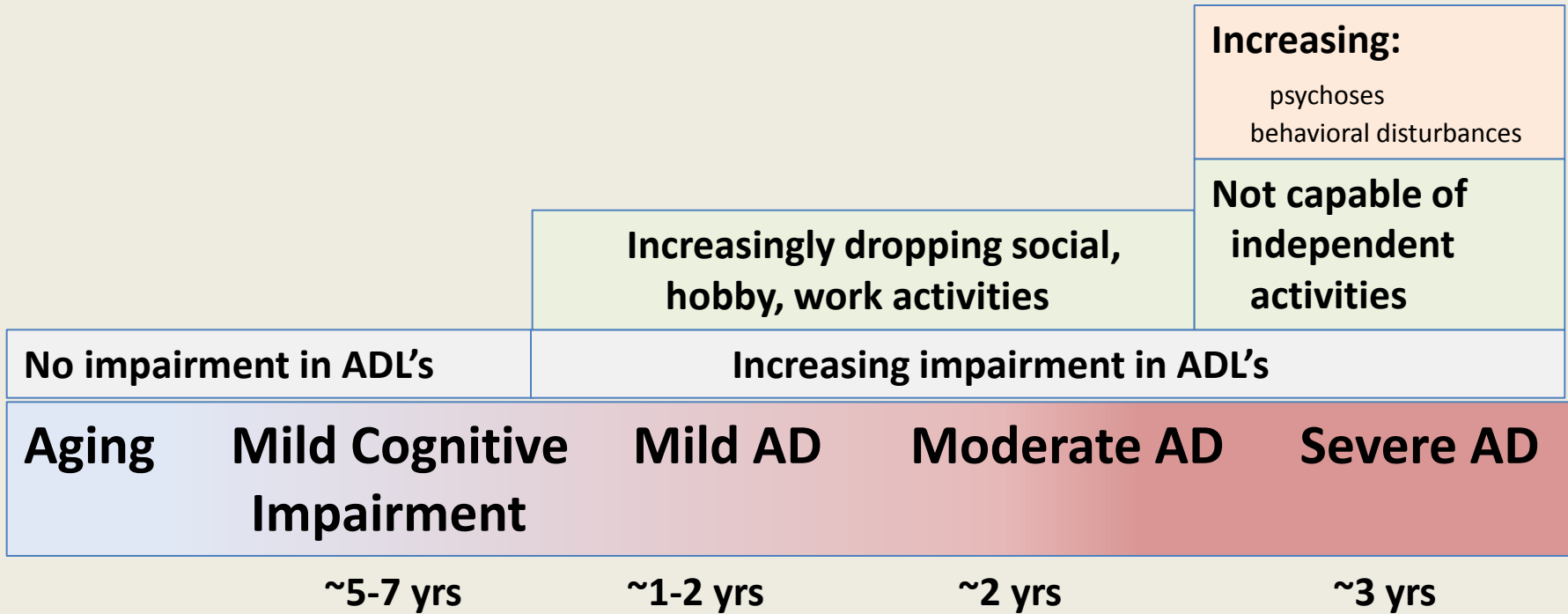
# *Progression of AD*



# *Progression of AD*

No impairment in ADL's		Increasing impairment in ADL's		
<b>Aging</b>	<b>Mild Cognitive Impairment</b>	<b>Mild AD</b>	<b>Moderate AD</b>	<b>Severe AD</b>
	~5-7 yrs	~1-2 yrs	~2 yrs	~3 yrs

# Progression of AD



**What causes Alzheimer's disease?**

## **SLIDE 2**

### *Alzheimer's Disease: Risk Factors*

Age

Female gender

ApoE-4 genotype

Hypercholesterolemia

Hyper-homocysteinemia

Diabetes

Head injury

Psychological stress

Hypertension

Smoking

ApoE-4=apolipoprotein E4.



**Cannot be modified**

**Can be modified**



**What is the treatment for  
Alzheimer's disease?**

**Table 1**

**Treatment Options for Alzheimer's Disease**

<b>Drug</b>	<b>Starting Dose</b>	<b>Target Dose</b>	<b>Recommended Titration</b>	<b>"Unique" Issues Pathway</b>
<b>Cholinesterase Inhibitors</b>				
Tacrine	10 mg qid	30 to 40 mg qid	Four months	Hepatic, hepatotoxic, qid dose
Donepezil	5 mg qd	10 mg qd	One month	Questionable drug interactions
Rivastigmine	1.5 mg bid	6 mg bid	Four months	Signs of nausea and vomiting limit ability to increase dose
Galantamine	4 mg bid	12 to 16 mg bid	Four months	Contraindicated in patients with hepatic or renal disease
<b>NMDA Receptor Antagonist</b>				
Memantine	5 mg qd	10 mg qd	Four weeks	Only agent approved for treatment of moderate to severe Alzheimer's disease

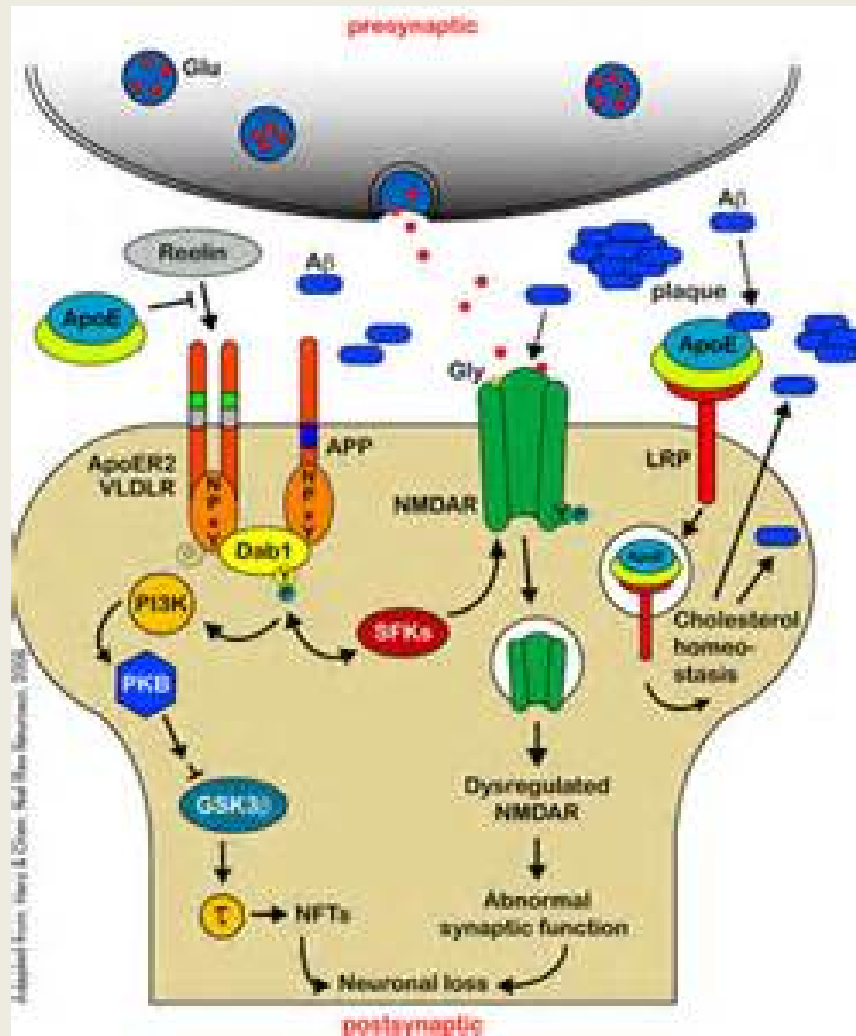
**Adjunct Therapy\***

Antidepressants (e.g., SSRIs and mirtazapine)

Antipsychotics (e.g., risperidone, olanzapine, quetiapine) for the treatment of behavioral symptoms

\* These agents are typically used off label. Treatment should be started at half the recommended dose and titrated slowly.

qid: four times per day; qd: once daily; bid: twice per day; NMDA: N-methyl-D-aspartate



# **Need for clinical trials**

**How common is Alzheimer's disease now?**

**Will this change in future years?**

**~10,000 people a day turn 65 in USA**

# ~10,000 people a day turn 65 in USA



<b>Age Group</b>	<b>2012</b>	<b>2030</b>	<b>2050</b>
<b>Under 18</b>	<b>23.5</b>	<b>22.4</b>	<b>21.5</b>
<b>18-64</b>	<b>62.8</b>	<b>57.3</b>	<b>57.6</b>
<b>&gt; 65</b>	<b>13.7</b>	<b>20.3</b>	<b>20.9</b>



**Alzheimer's disease is currently 6<sup>th</sup>  
leading cause of death.**

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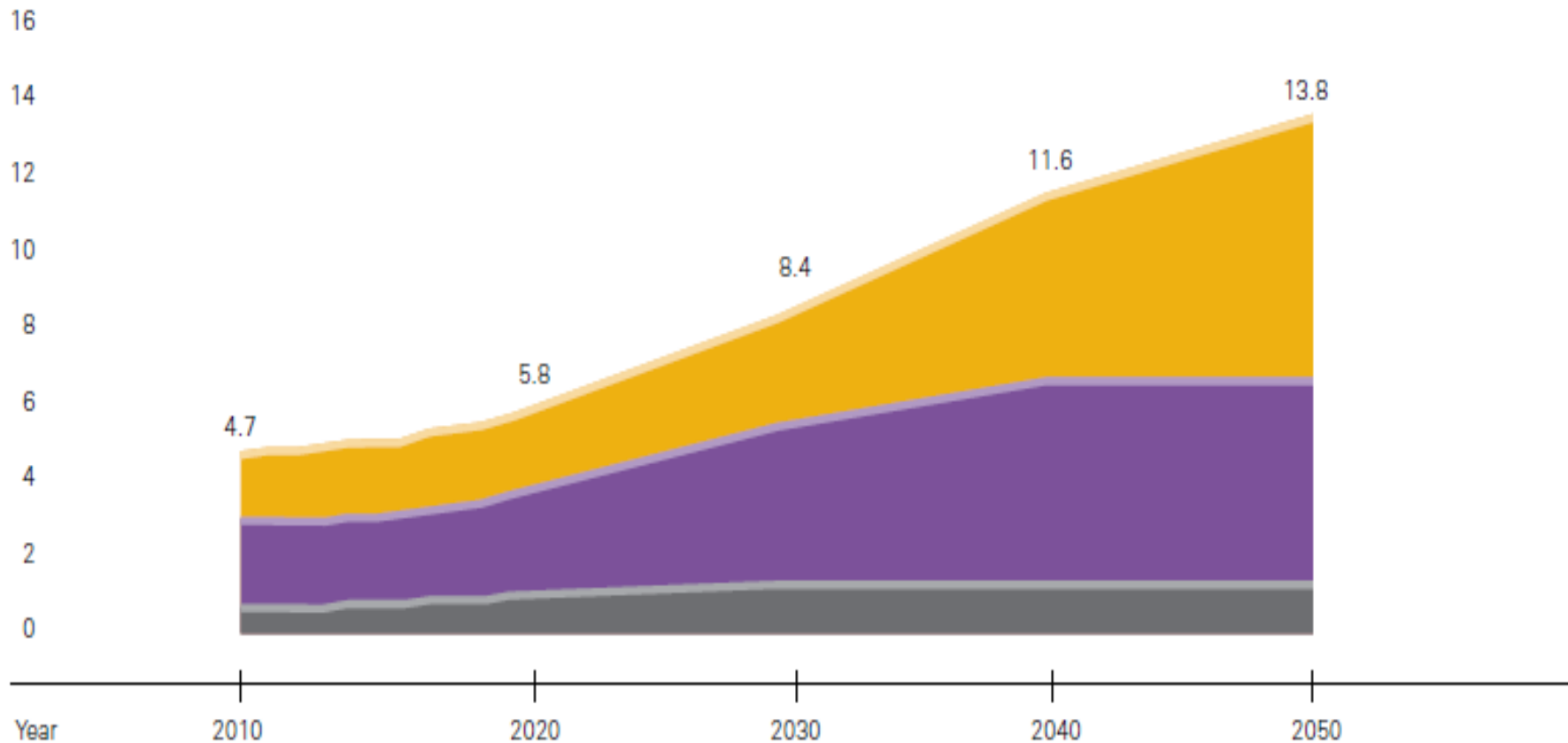
***The number of people with  
Alzheimer's disease is going to  
explode***

FIGURE 4

PROJECTED NUMBER OF PEOPLE AGE 65 AND OLDER (TOTAL AND BY AGE GROUP)  
IN THE U.S. POPULATION WITH ALZHEIMER'S DISEASE, 2010 TO 2050

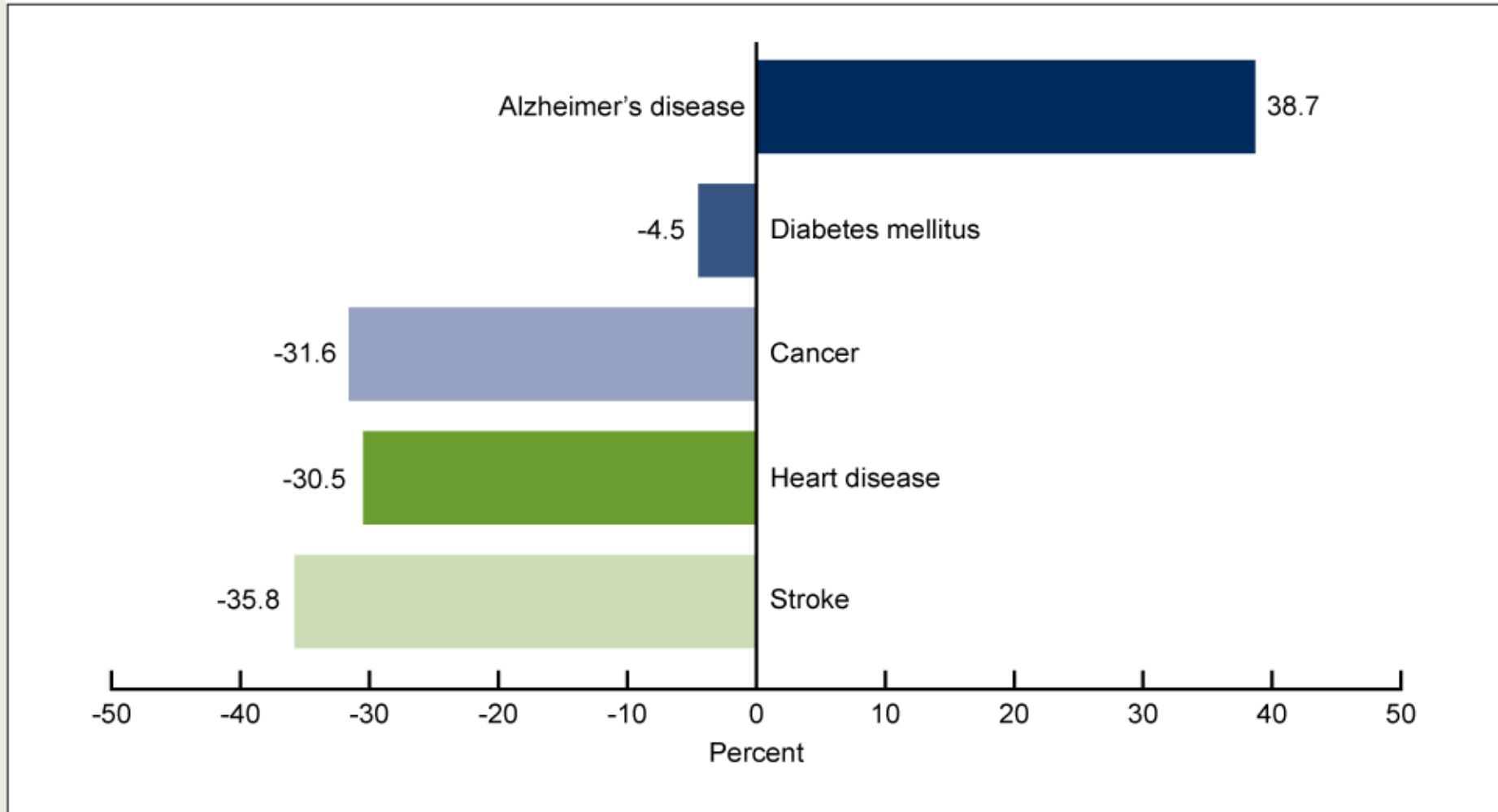
Millions of people  
with Alzheimer's

■ Ages 65-74   ■ Ages 75-84   ■ Ages 85+



Created from data from Hebert et al.<sup>83, A10</sup>

Figure 1. Percent change in age-adjusted death rates for selected causes of death: United States, 2000 and 2010

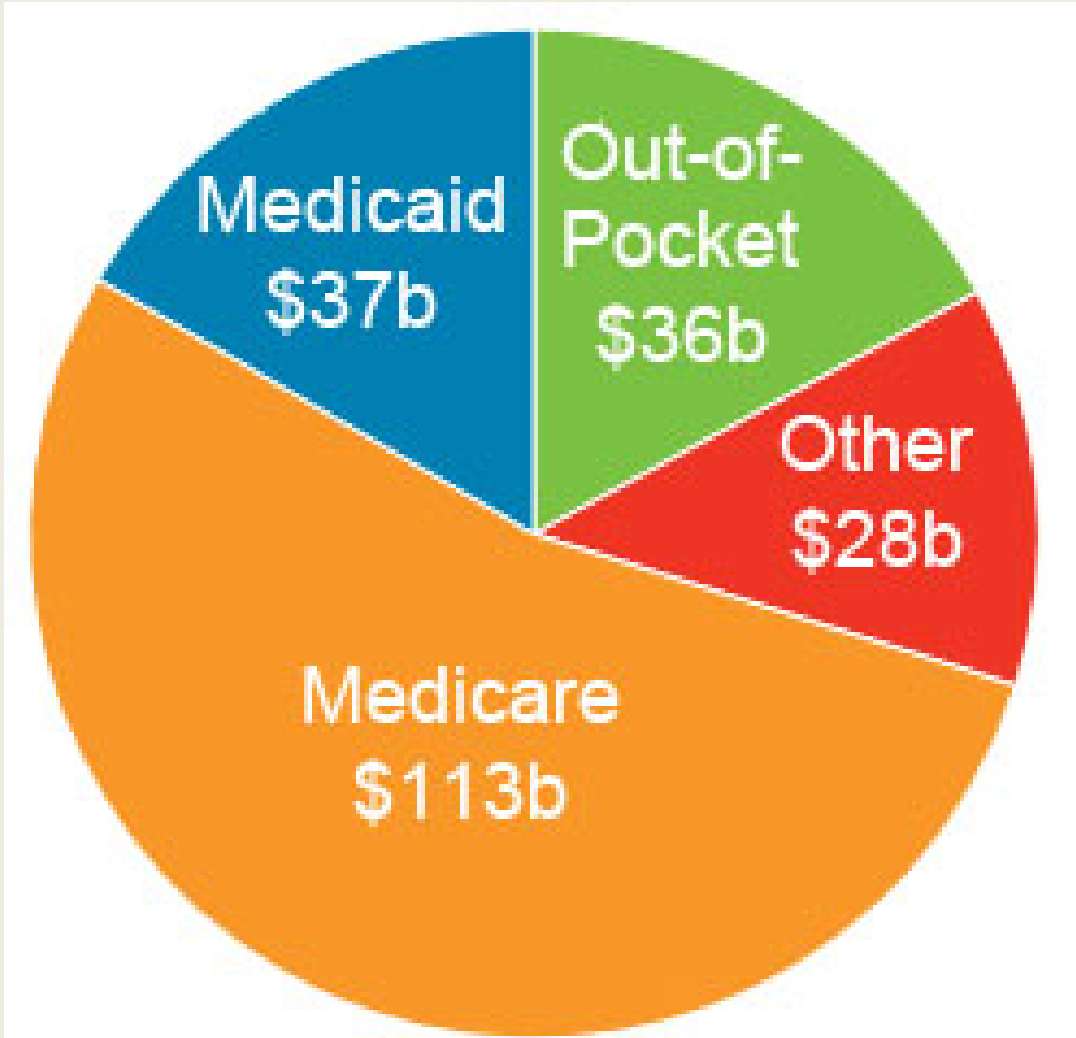


SOURCE: National Vital Statistics System, Mortality.

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# 2014 Costs of Alzheimer's = \$214 Billion

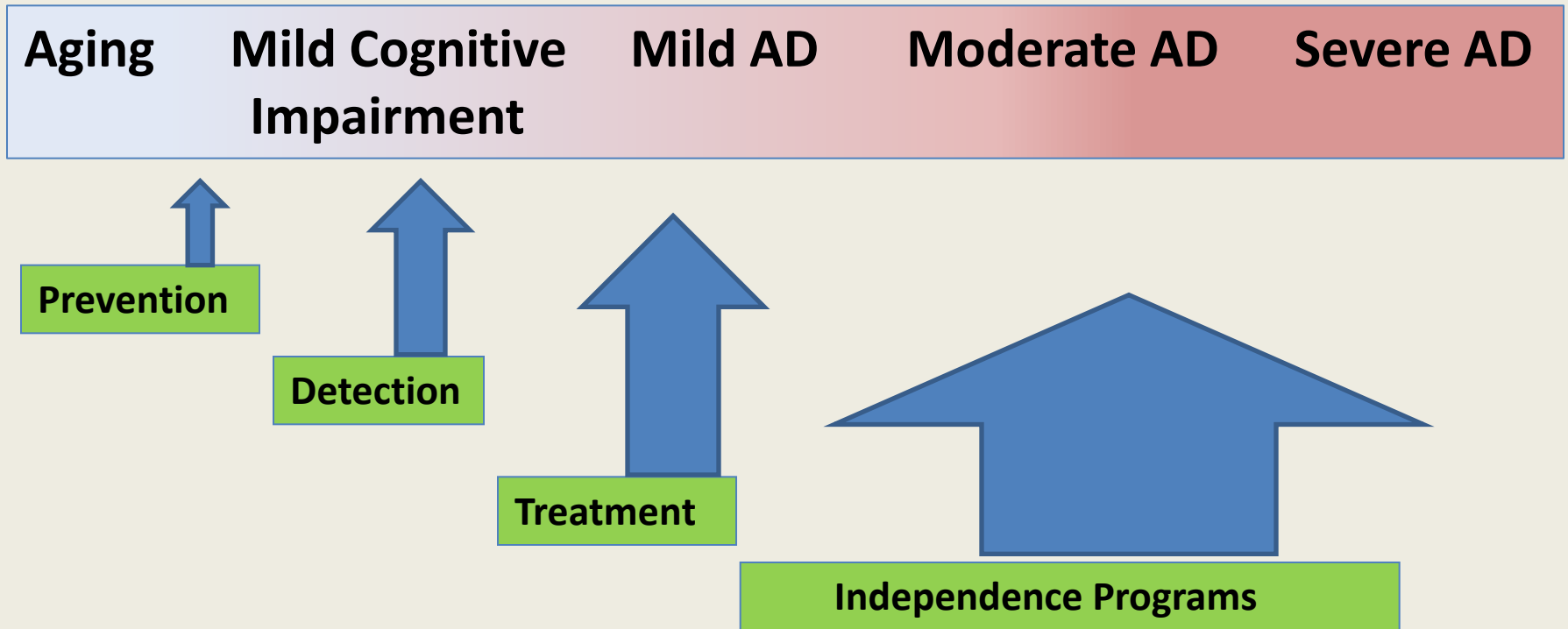


**Pennington Biomedical Research  
Center  
is an  
Alzheimer's Disease Cooperative  
Study Site**

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**Institute For Dementia Research and Prevention**

# Alzheimer's Disease Cooperative Study Site





# Thank You!

Dr Jeffrey Keller

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IDRP

[dementia@pbrc.edu](mailto:dementia@pbrc.edu)

**1-877-276-8306**

# How to get involved?

INSTITUTE FOR DEMENTIA  
RESEARCH & PREVENTION



[Our Research](#)

[Participate in a Clinical Trial](#)

[Information](#)

[Support Us](#)

[IDRP Home](#) | [Contact Us](#) | [www.pbrc.edu](#)



## OUR MISSION

The mission of the Institute for Dementia Research and Prevention (IDRP) is to improve the quality of life for individuals in Louisiana by generating world class research programs focused on dementia prevention, providing local access to the latest clinical trials for the treatment of dementia, and providing educational opportunities for individuals/families affected by dementia.

To find out more information, schedule a visit, or request an IDRP representative at your event:  
Phone: (225) 763-2973 or 1-877-276-8306 | Fax (225) 763-3293 | Email: [dementia@pbrc.edu](mailto:dementia@pbrc.edu)

### Our Research



The IDRP brings together multiple scientific disciplines within the clinical research arena in order to find novel ways of preventing, detecting, and managing dementia in the elderly. Our longitudinal studies provide a platform for the collection of data which identify the most important risk factors for the development of dementia, elucidate novel targets for the design of new therapeutic interventions, and develop new test for more effective detection and monitoring the earliest stages of dementia.

[Learn More](#) ▶

### Participate in a Clinical Trial



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[Learn More](#) ▶

### Information & Useful Links



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### Support the IDRP



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**Our World Is Rapidly And Dramatically Changing**

**Our World Is Rapidly And Dramatically Changing**

**Phone**

# Our World Is Rapidly And Dramatically Changing



# Our World Is Rapidly And Dramatically Changing



# Our World Is Rapidly And Dramatically Changing



**Texting**

**Taking/Exchanging Photos**

**Internet Searches**

**Viral Philanthropy**

**FaceBook**

**Shopping**

**Calendars**

**Health Monitoring**



**A Similar Level Of Change Is  
Happening With The Aging Of  
America**

**Who is going to care for these  
people?**

# Right Now

*In Louisiana ~90,000 with dementia*

*Average 2.5 family care providers for each patient*

*Average care provider 10 hours a week*

# Right Now

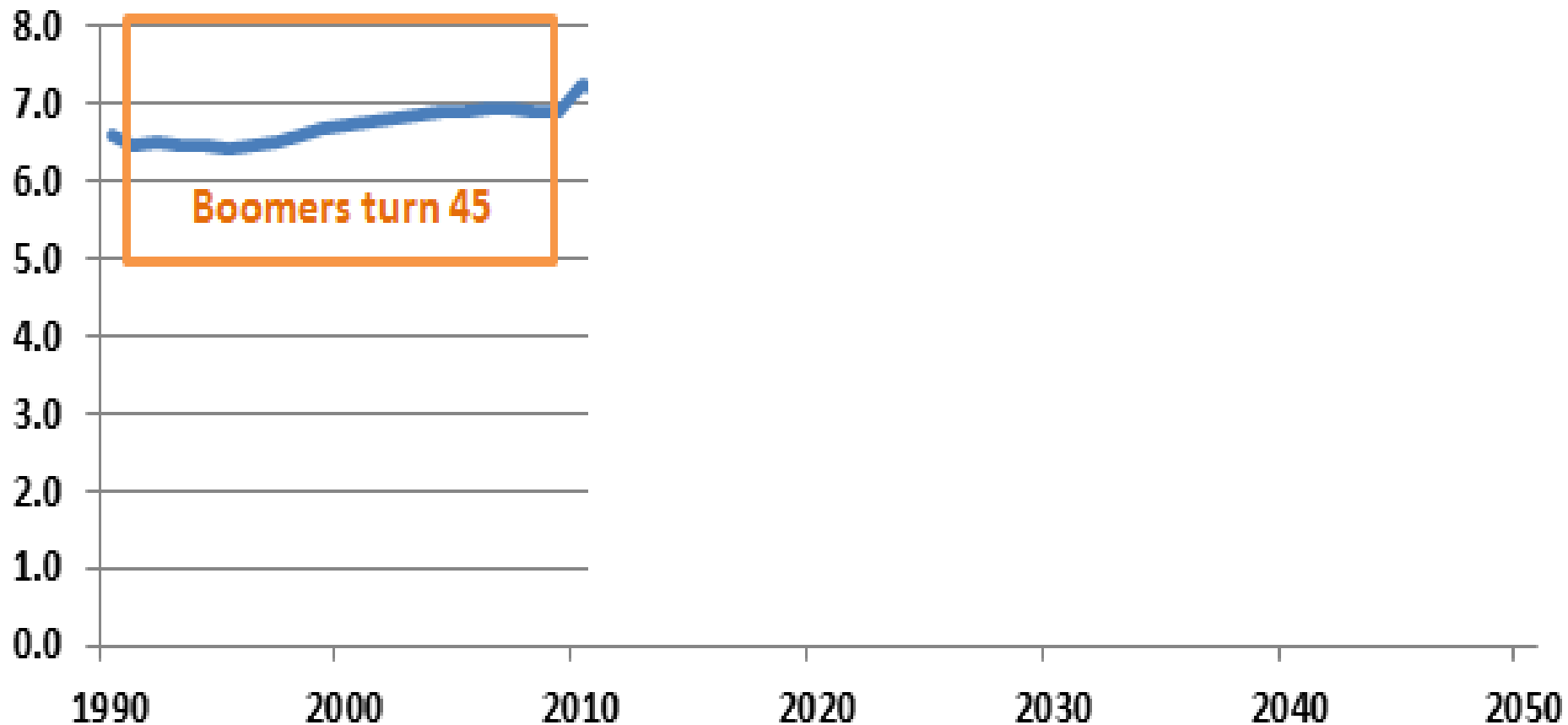
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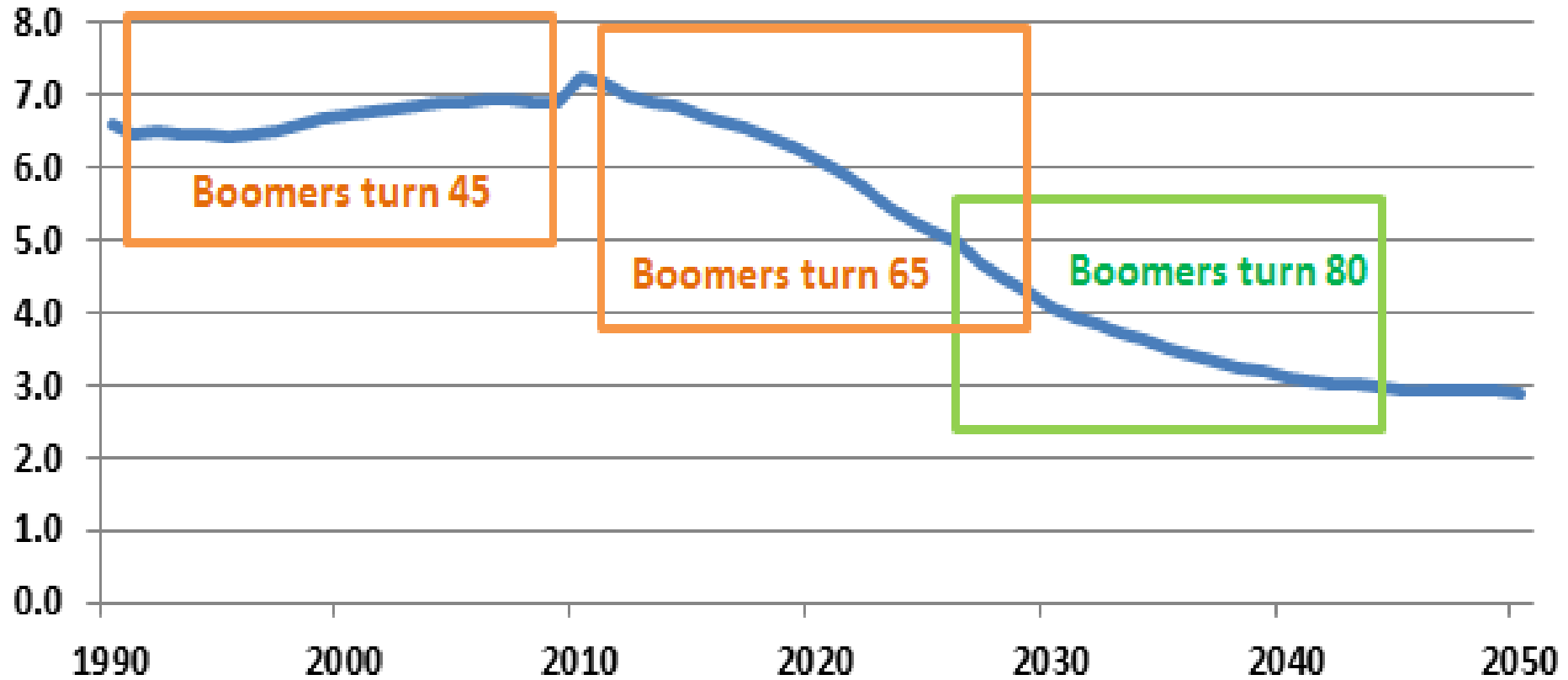
**Nearly 1 in 15 in State actively dealing  
with AD!**

# Caregiver Support Ratio



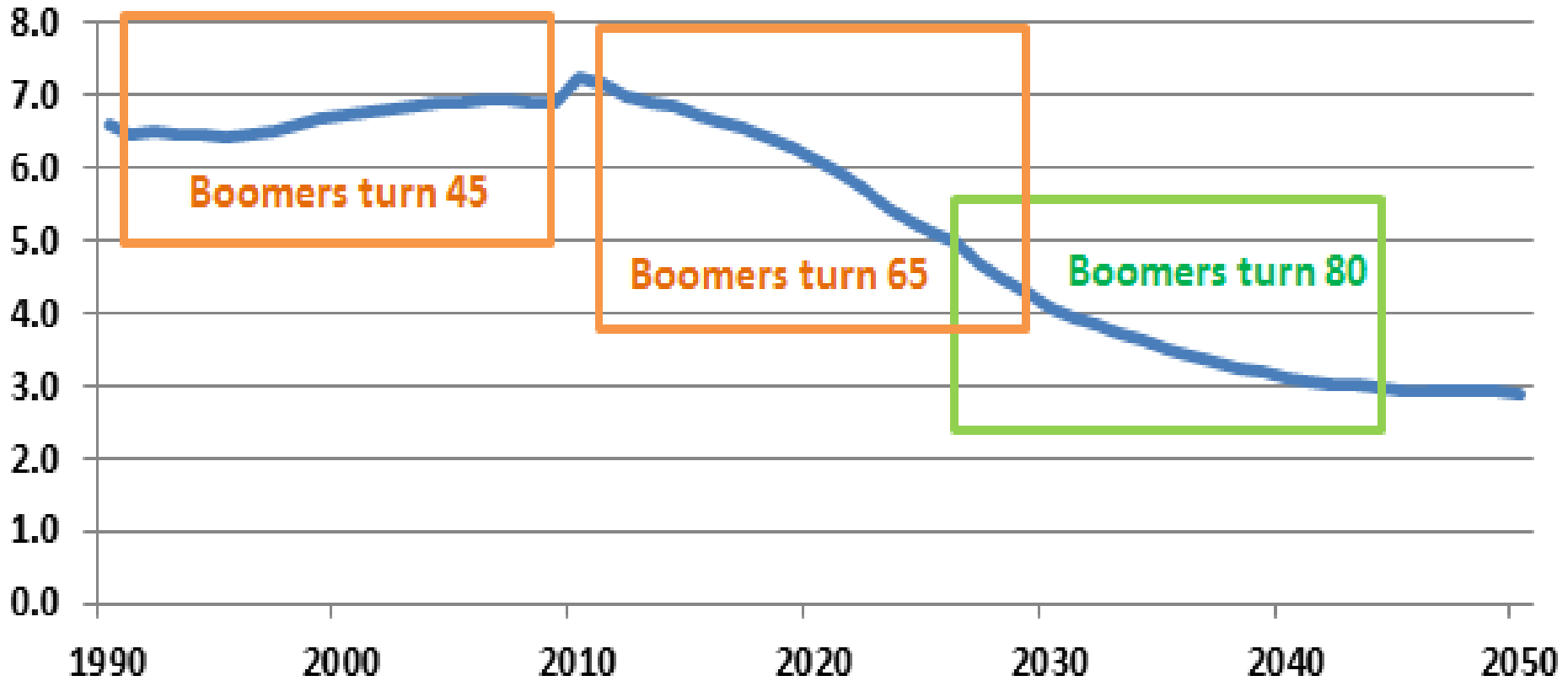
In 2010, there were 7.2 potential caregivers (ages 45-64 or the average age of caregivers) for every person age 80-plus.

# Caregiver Support Ratio



**In 2030, that caregiver ratio will drop to 4 to 1 and by 2050, when all boomers will be in late life, the ratio becomes less than 3 to 1.**

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**In 2030, that caregiver ratio will drop to 4 to 1 and by 2050, when all boomers will be in late life, the ratio becomes less than 3 to 1.**

**In 2050, there will be three times as many people age 80-plus as there are today**

**Do we have treatments for  
Alzheimer's disease?**





**What are we going to do?**

**Aging**

**Mild Cognitive  
Impairment**

**Mild AD**

**Moderate AD**

**Severe AD**

# Alzheimer's Disease Cooperative Study Site

**Aging**

**Mild Cognitive  
Impairment**

**Mild AD**

**Moderate AD**

**Severe AD**

**How Big Is The Enemy/Battlefield?**

**What Does The Enemy Look Like?**

**What Do We Need To Win The War?**

**What Do We Have Here In Louisiana?**

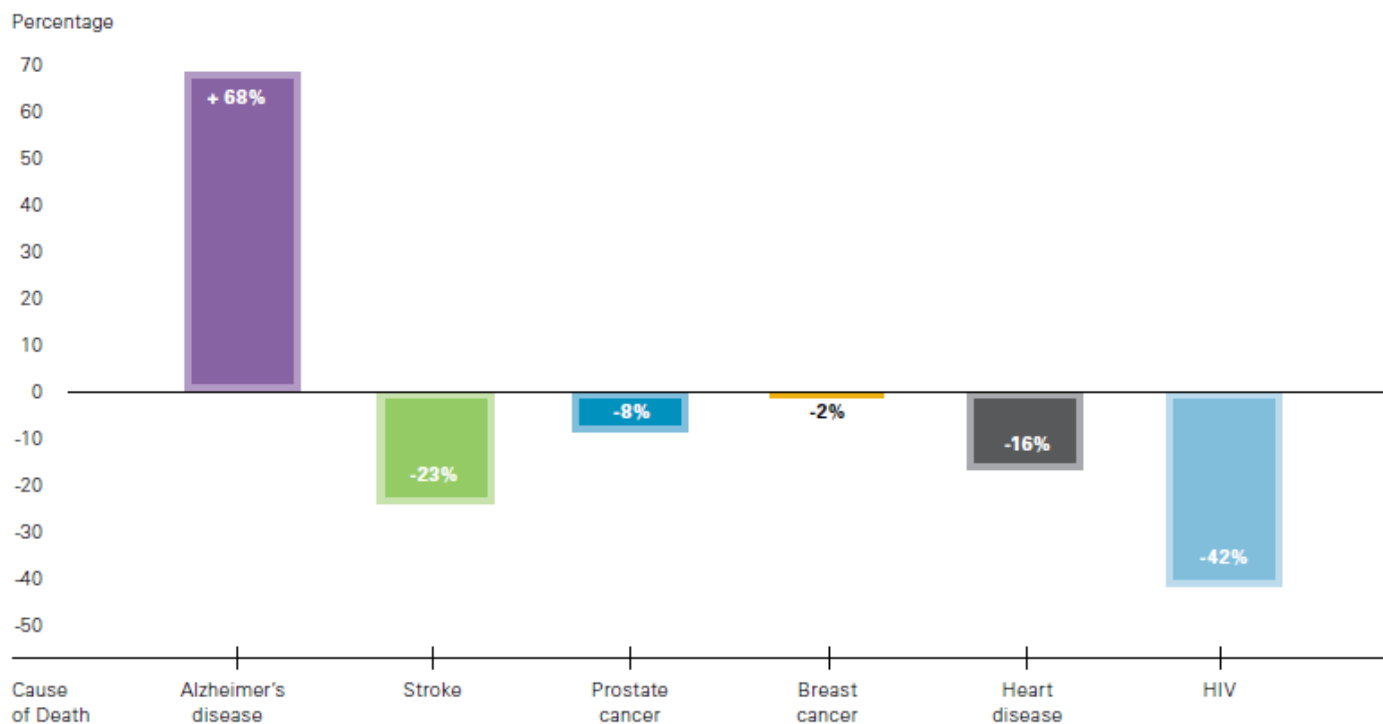
# How Big Is The Enemy/Battlefield?

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*Alzheimer's disease (AD) Sixth leading cause of death.*

*Only disease in top 10 without disease modifying medication*

**FIGURE 5** | PERCENTAGE CHANGES IN SELECTED CAUSES OF DEATH (ALL AGES) BETWEEN 2000 AND 2010



Created from data from the National Center for Health Statistics.<sup>1113,1240</sup>



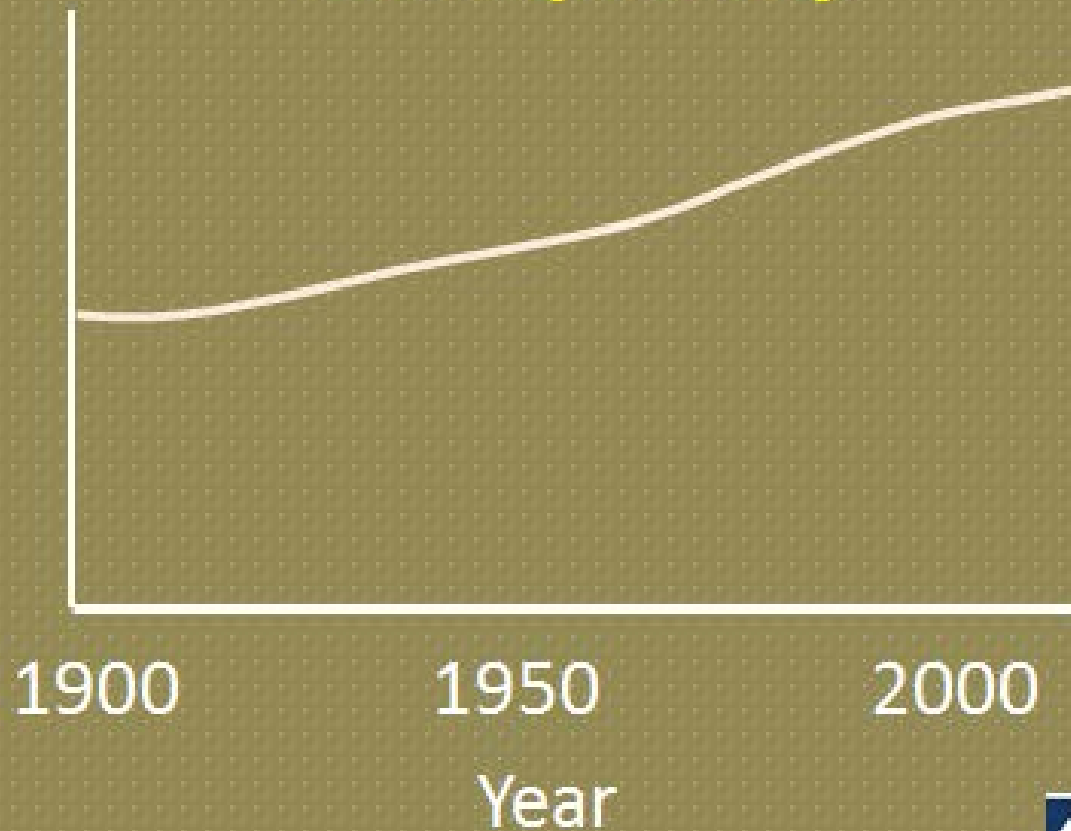
**Age is the biggest risk factor for AD**

**Nearly 8,500 people a day turn 65 so incidence of AD is going to be increasing**

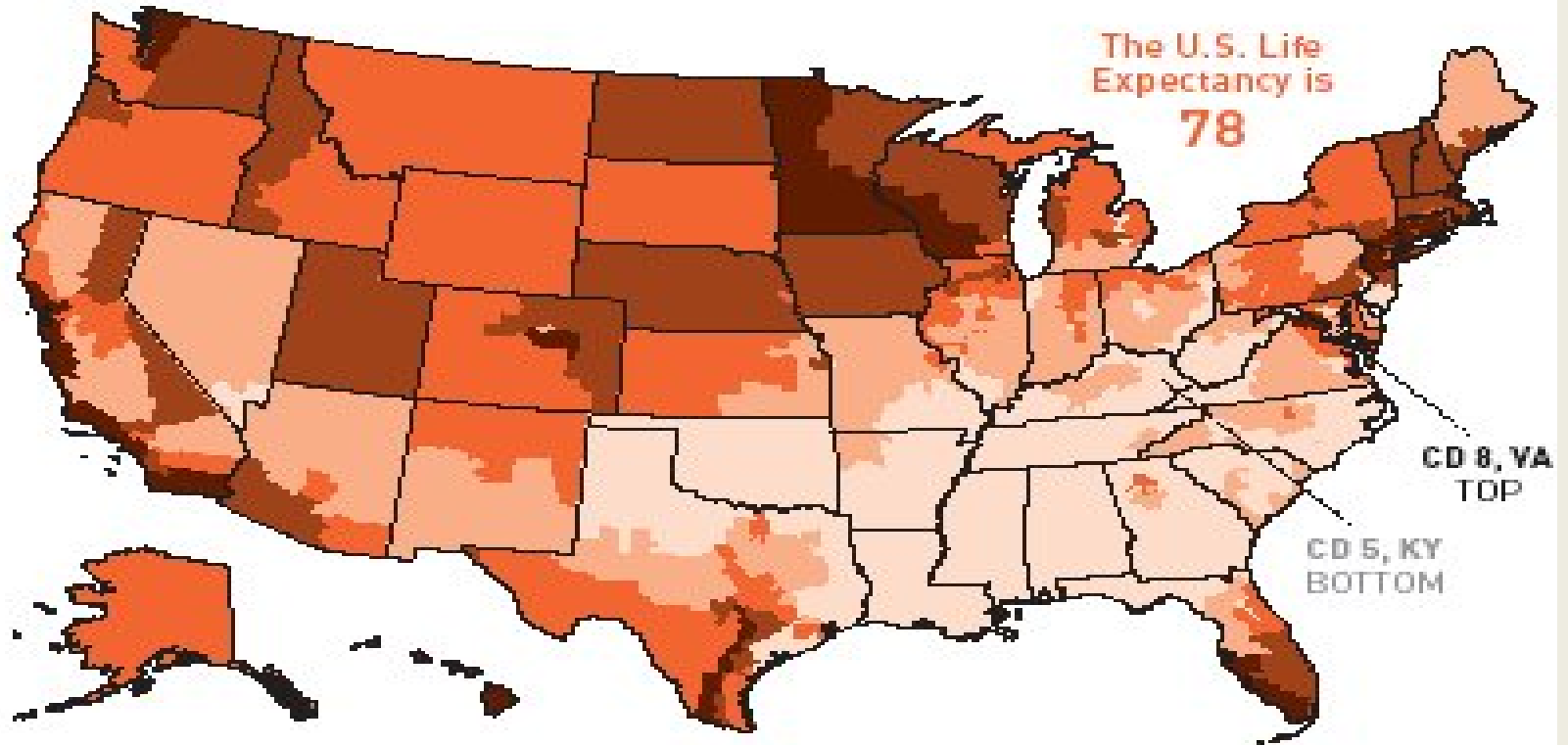


**Louisiana will have people develop age-related diseases earlier, and people will die from them sooner**

# Life Expectancy



The U.S. Life  
Expectancy is  
**78**



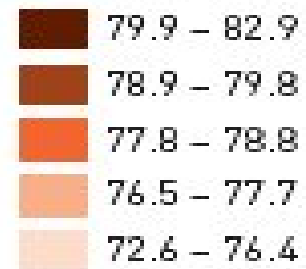
**Top 5**

1. CD 8, VA
2. CD 8, MD
3. CD 15, CA
3. CD 16, CA
5. CD 1, HI

**Bottom 5**

432. CD 4, MS
433. CD 5, LA
434. CD 2, MS
435. CD 2, LA
436. CD 5, KY

**YEARS**



# What Does The Enemy Look Like?

**What Do We Need To Win The War?**

# What Do We Have To Fight The War?

- **Alzheimer's Association**

(advocacy, education, research, trial match)

<http://www.alz.org>

1.800.272.3900

- **Alzheimer's Services of the Capital Area**

(respite, education, support groups)

<http://www.alzbr.org>

(800) 548-1211

- **Council on Aging**

(programs and advocacy)

[acadiacoa1@bellsouth.net](mailto:acadiacoa1@bellsouth.net)

Phone: 337 788 1400

- **Pennington Biomedical Research Center**

(Institute for Dementia Research and Prevention)



# How to get involved?

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RESEARCH & PREVENTION



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[Learn More](#) ▶

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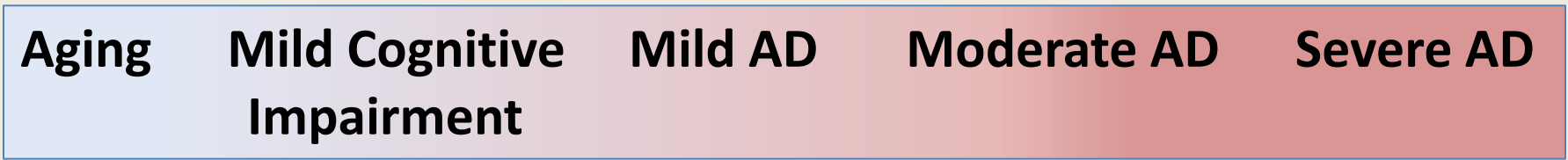
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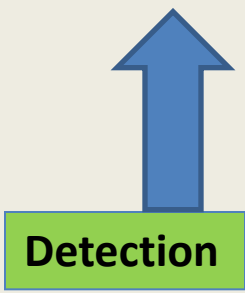


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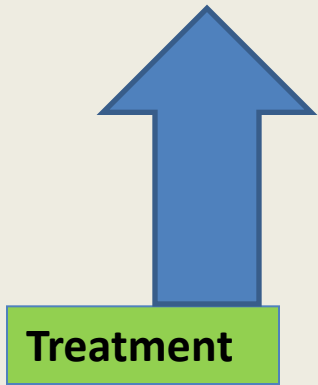
[Learn More](#) ▶



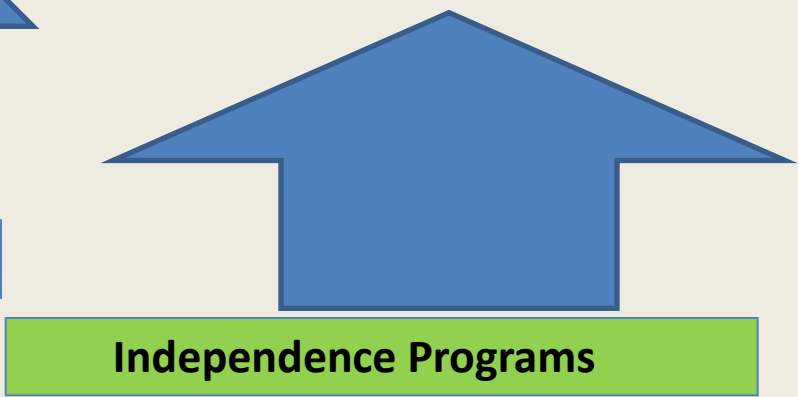
**Coming Soon!**



LABrainS  
JLDS



Clinical  
Trials



**Coming Soon!**

