

2024 Carolyn P. Horchow  
Women's Health Symposium

**UTSouthwestern**  
Medical Center

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# Forget Me Not: Innovative approaches to dementia and Alzheimer's disease

Ihab M. Hajjar, M.D., M.S.

Professor of Neurology and Medicine

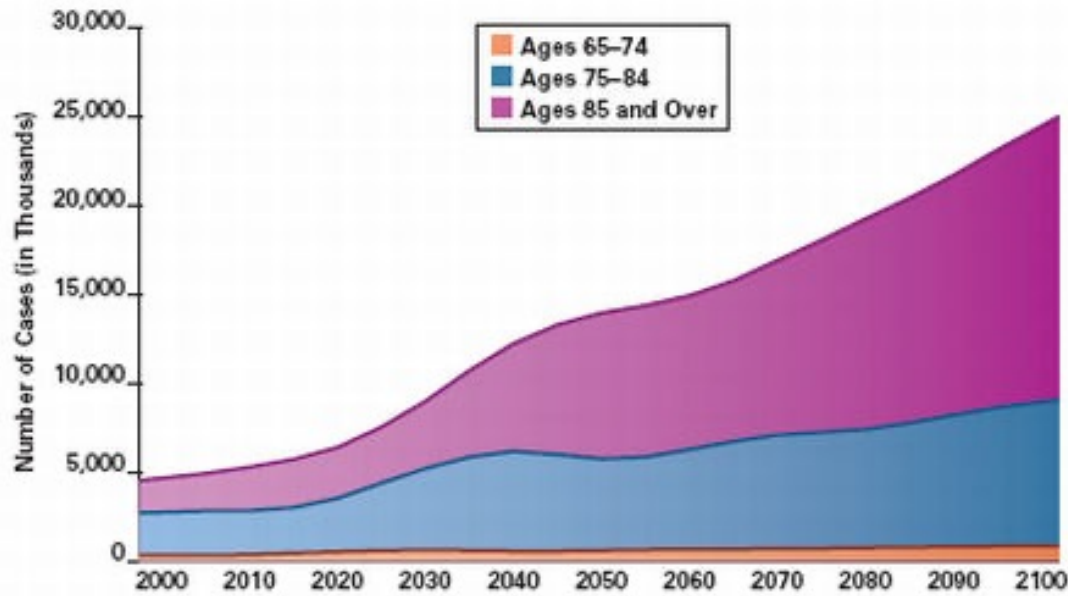
Section Head, Cognitive and Memory Disorders

Pogue Family Distinguished Chair in Alzheimer's Disease Clinical  
Research And Care

Peter O'Donnell Jr. Brain Institute

# The Growing Alzheimer's Disease Burden

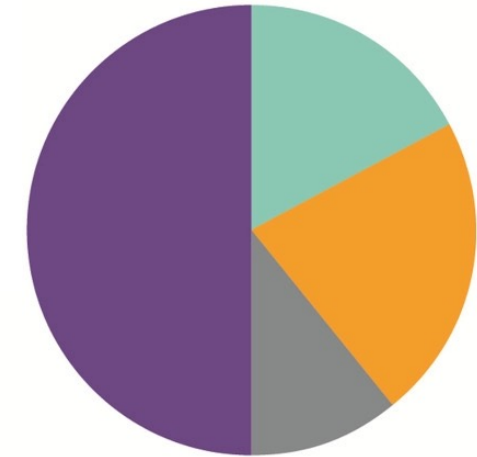
Projected Alzheimer's Disease Prevalence,\*  
2000-2100



\*PhRMA projections calculated by applying current prevalence rates to population projections.

Data sources: U.S. Census Bureau<sup>2</sup>; Hebert et al.<sup>3</sup>

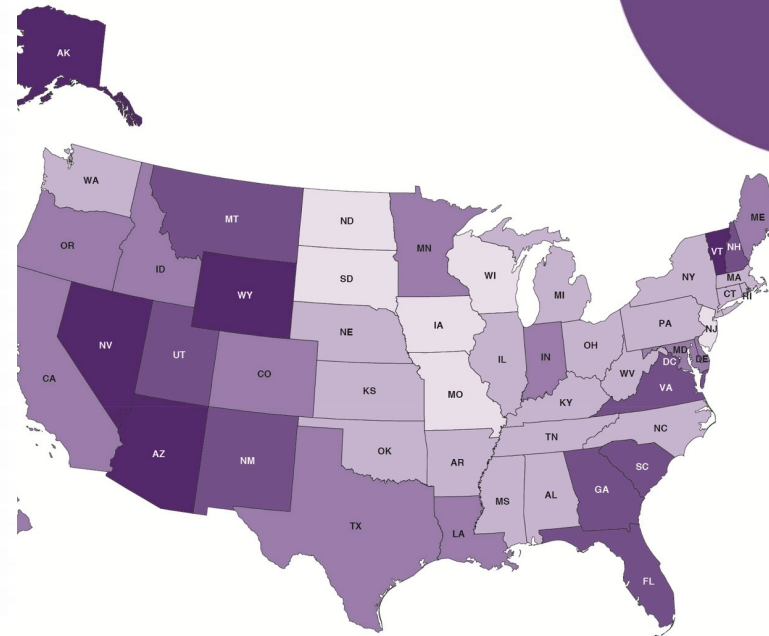
Annual Expenditure in 2020



Total cost:  
\$305 Billion (B)

- Medicare \$155 B, 51%
- Medicaid \$51 B, 17%
- Out of pocket \$66 B, 22%
- Other \$33 B, 11%

2020-2025 Increase in cases



6.7% - 12%    12.1% - 17.3%    17.4% - 22.6%    22.7% - 27.9%    28.0% - 33.3%

# Alzheimer's Disease and Women

- Of all Americans living with Alzheimer's disease (AD), 2/3 are women.
- Women are twice as likely to develop Alzheimer's disease.
- 60% of all caregivers for Alzheimer's disease patients are women.
- 19% of women had to stop working due to caregiving responsibilities.



# Alzheimer's Disease: Texas Burden

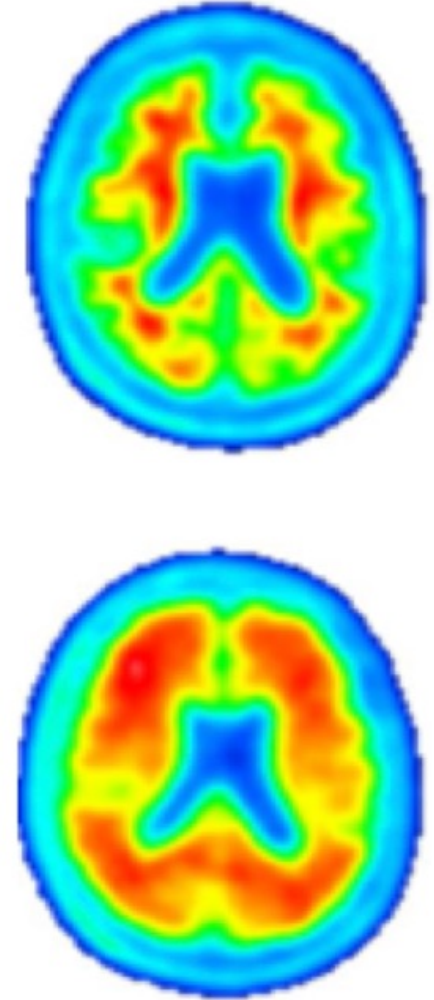
- 400,000 people aged 65 and older are living with Alzheimer's.
- 1 million family caregivers bear the burden of the disease.
- \$23.5 billion is the value of the unpaid care.
- \$3.2 billion is the cost of Alzheimer's to the state Medicaid program.



*2023 Alzheimer's Disease Facts and Figures report at [alz.org/facts](https://www.alz.org/facts)*

# UT Southwestern Alzheimer's Disease Research

- The **Cognitive and Memory Disorders Section** in the Department of Neurology has multiple initiatives addressing Alzheimer's disease:
  - Discovering methods for detecting early disease stages that allow for early treatments and prevention
  - Providing access to new therapies and testing novel treatments
  - Developing programs that support patients and their caregivers in their disease journey

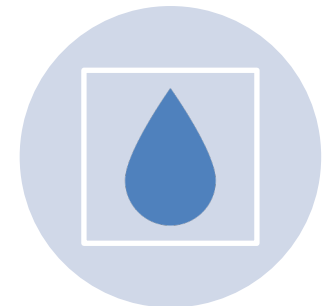
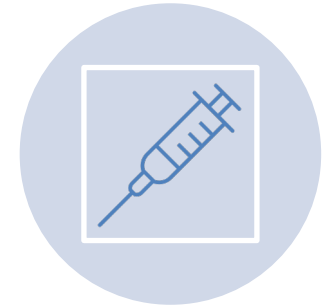


# My Journey to UT Southwestern

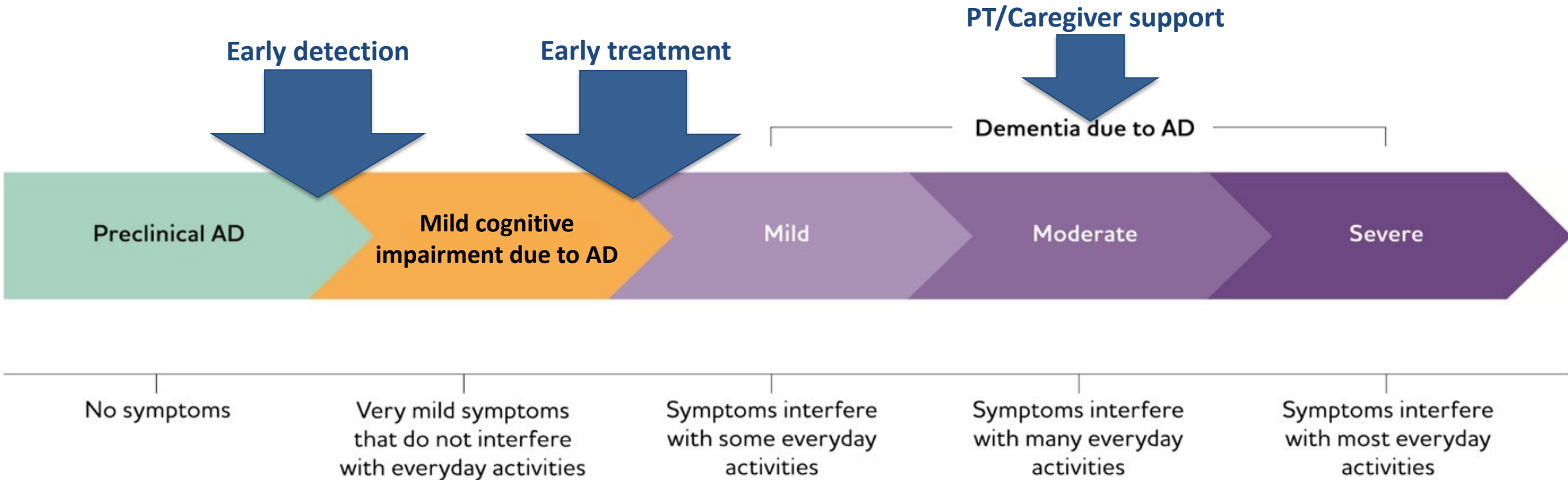


# The Cognitive and Memory Disorders Section Is a HUB for Translating Basic Science Discoveries

- Scientists in UTSW's **O'Donnell Brain Institute** (OBI) and **Center for Alzheimer's and Neurodegenerative Diseases** are discovering new targets for diagnosis and treatment in bench research and animal models.
- These discoveries must be tested in humans before new treatments become available in the clinic.
- Research programs in the **Cognitive and Memory Disorders Section** are the key for translating these discoveries into clinical applications.



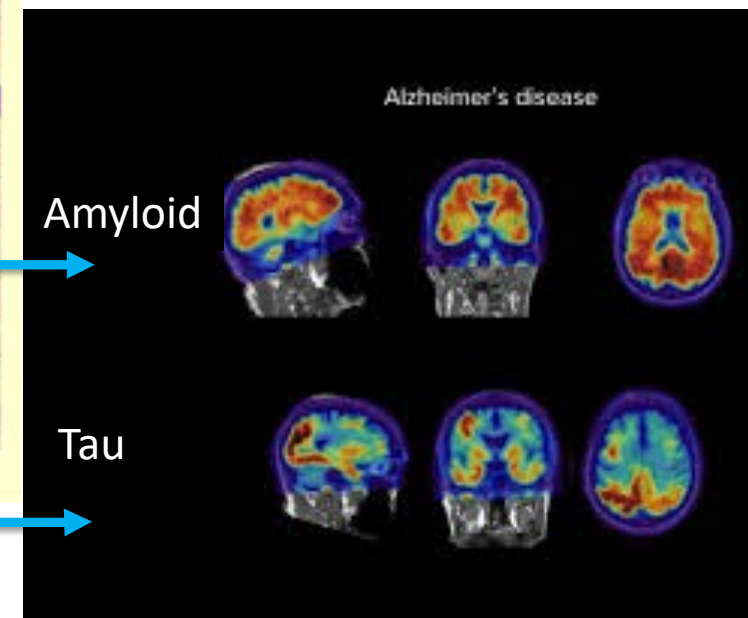
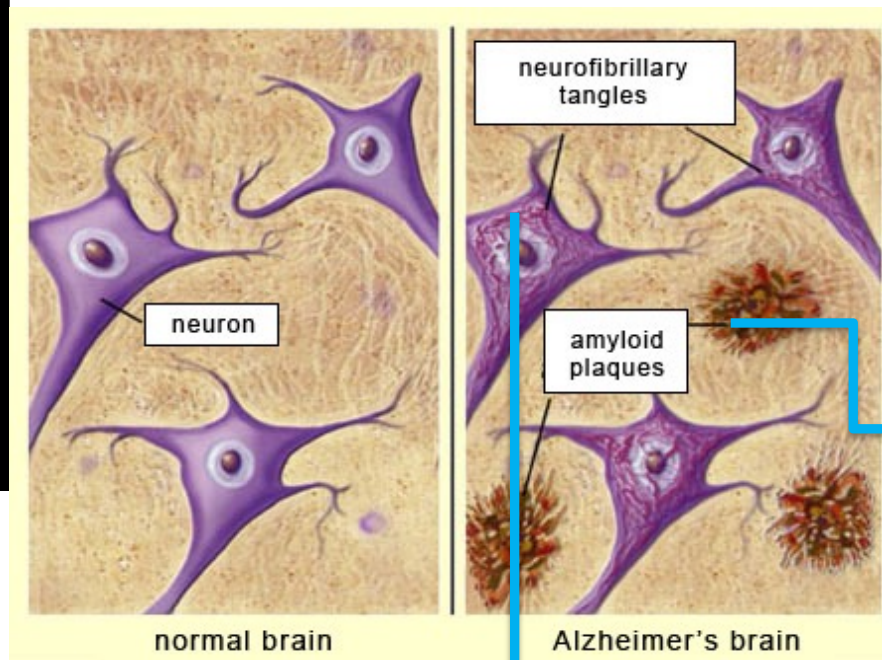
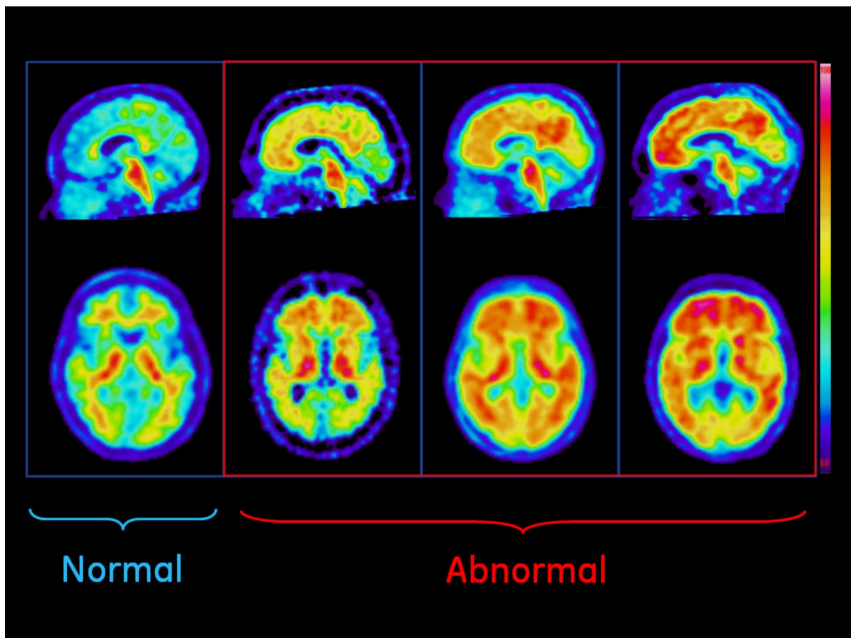
# Recent Advances: Understanding Disease Stages and Spectrum



AD = Alzheimer's Disease

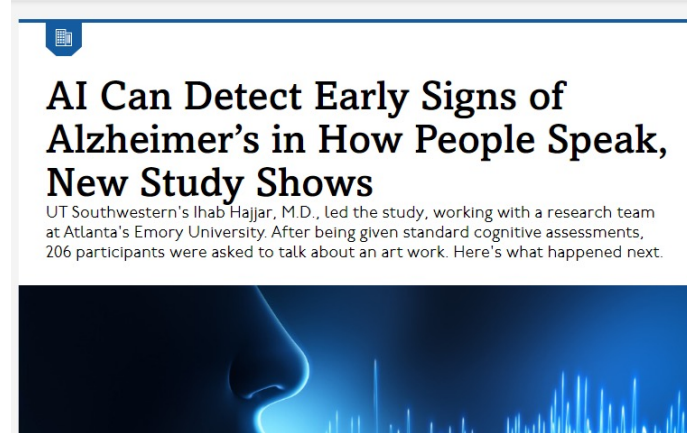


# Plaques/Tangles Start 1-2 Decades Before Symptoms



# UTSW Using AI in Early Detection

- A brief recording of an audio describing an image from healthy individuals or those with Mild Cognitive Impairment (MCI) was analyzed using AI programs created by our team.
- Using this 2-minute audio, AI was able to tell if a person had MCI.
- It was better than usual memory testing to tell if a person has plaques in their brain.
- This is now being tested on a large scale at UTSW with funding from NIH.



WebMD News Brief

## AI Voice Analysis Could Boost Alzheimer's Detection

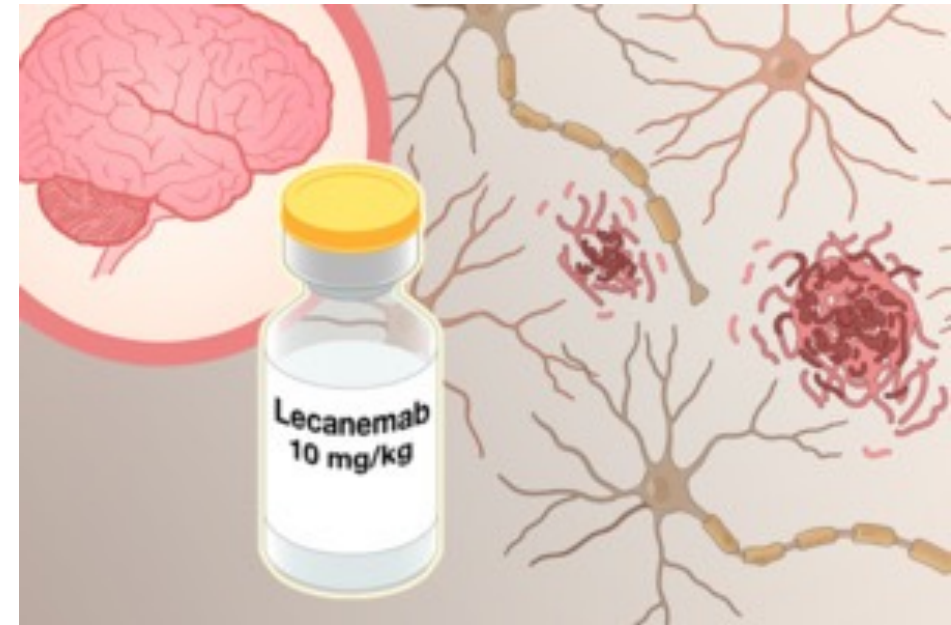
Written by Lisa O'Mary



April 14, 2023 – Using artificial intelligence to analyze a recording of someone's

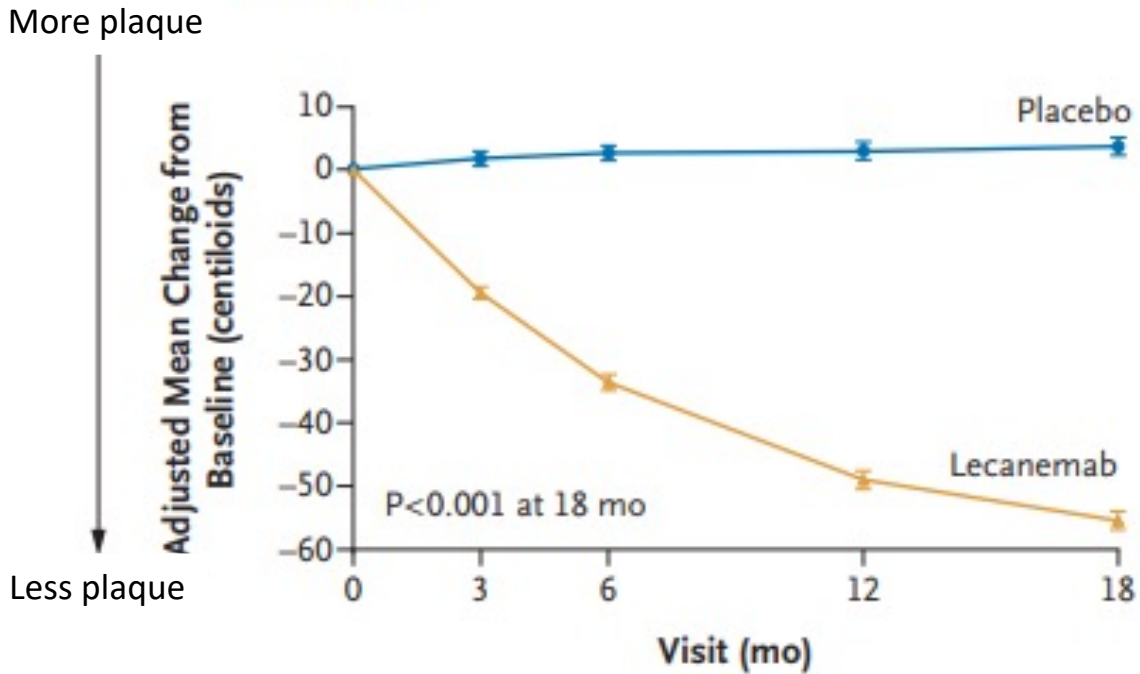
# Early Disease Treatments: New Therapies

- For many decades, we could only treat symptoms, not the underlying plaque formation (example drugs are Aricept/Donepezil, Namenda/Memantine).
- In the last few years, new drugs have been developed to attack the plaques in the brain.
- After a long wait, the FDA approved new medications (such as Lecanemab) that are now being rolled out across the country.
- The Memory Clinic at UTSW has prescribed Lecanemab for 12 cases this year so far.



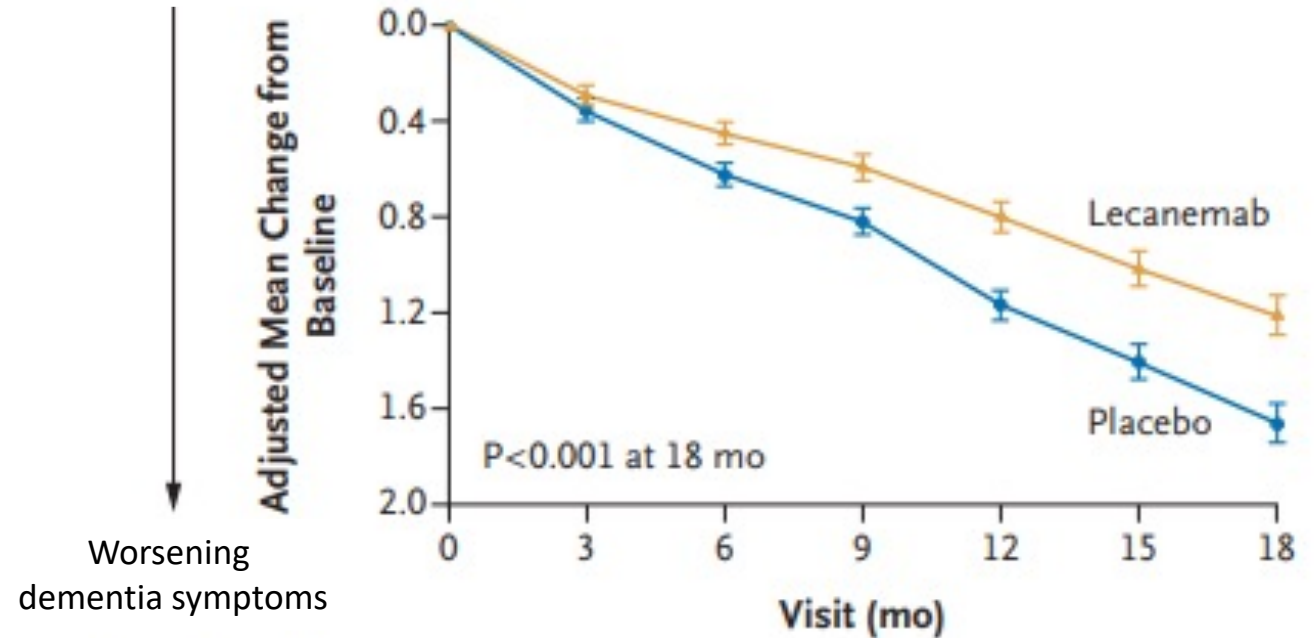
# Lecanemab Clears the Plaques and Slows Down the Disease

## Lecanemab decreases plaque levels



Fewer dementia symptoms

## Lecanemab slows down cognitive decline



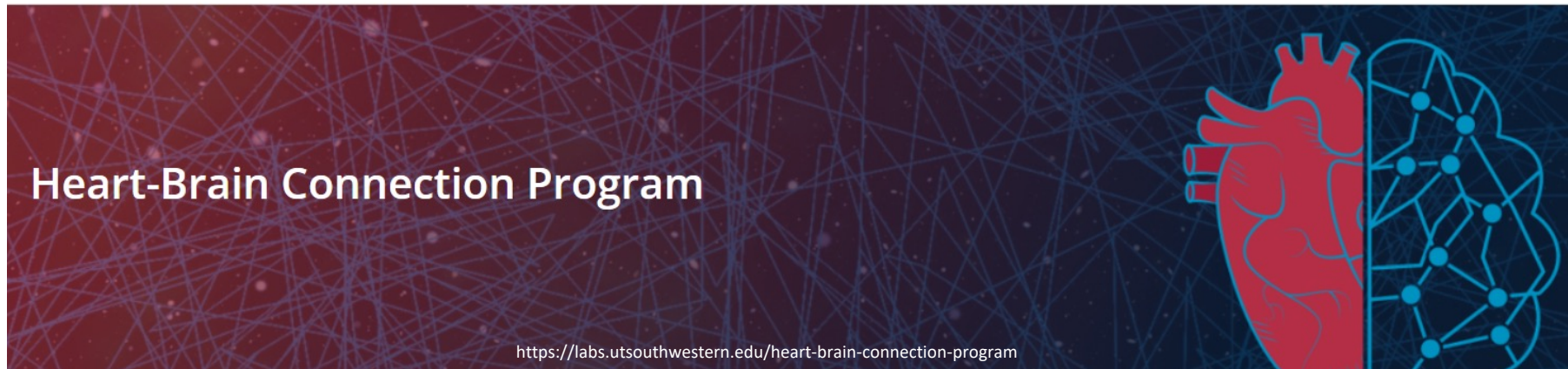
# What Is the Lecanemab Therapy?

- LEQEMBI is an intravenous (IV) infusion administered every 2 weeks at a specialized infusion center.
- FDA approved this medication only for those with the early stages of Alzheimer's disease (**MCI or mild dementia**).
- To qualify, a patient needs to have a diagnosis of MCI or mild dementia and have evidence of the amyloid plaques in their brain.
- Treatment has multiple side effects which may be serious. A detailed discussion with the provider should occur about risks and benefits before making an informed decision on how to proceed.



# UTSW Research on Other Treatments

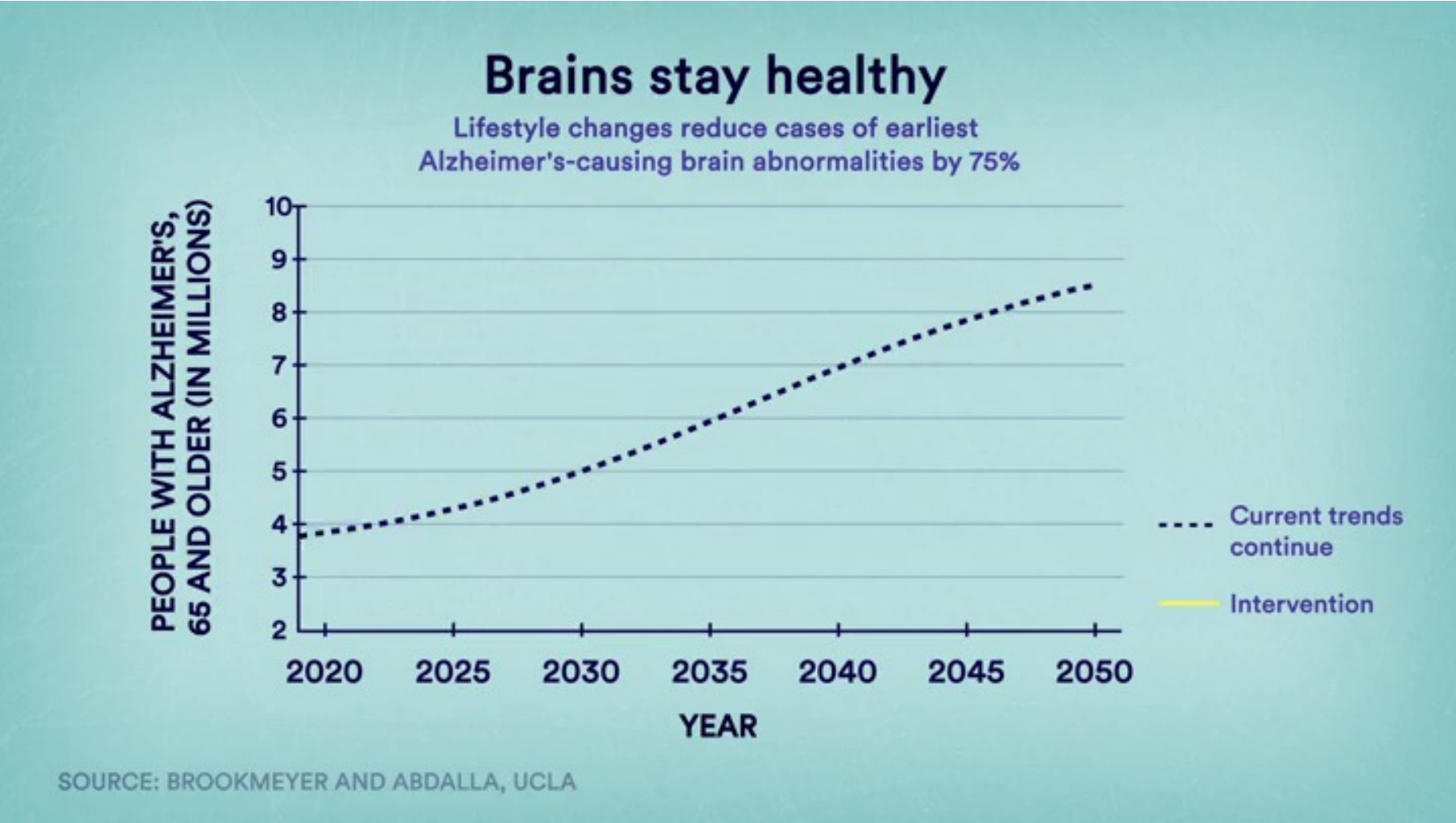
- Heart risk factors (hypertension, diabetes, insulin resistance) are linked with cognitive decline and Alzheimer's disease.
- The **Heart-Brain Connection Program** is a new UTSW initiative that focuses on studying the intimate link between heart disease and Alzheimer's disease.



# Why Is It Important to Focus on the Heart When It Comes to Dementia and Alzheimer's Disease?



# Societal Healthier Lifestyle Changes Can Significantly Lower Number of Alzheimer's Cases





# Drugs That Impact Obesity and Diabetes May Prevent AD Dementia

- Metformin is a medication for diabetes that can also lower weight
- Multiple pre-clinical studies have indicated that metformin may help prevent Alzheimer's
- Clinical trial ongoing at UTSW in the Heart-Brain Connection Program



# MAP

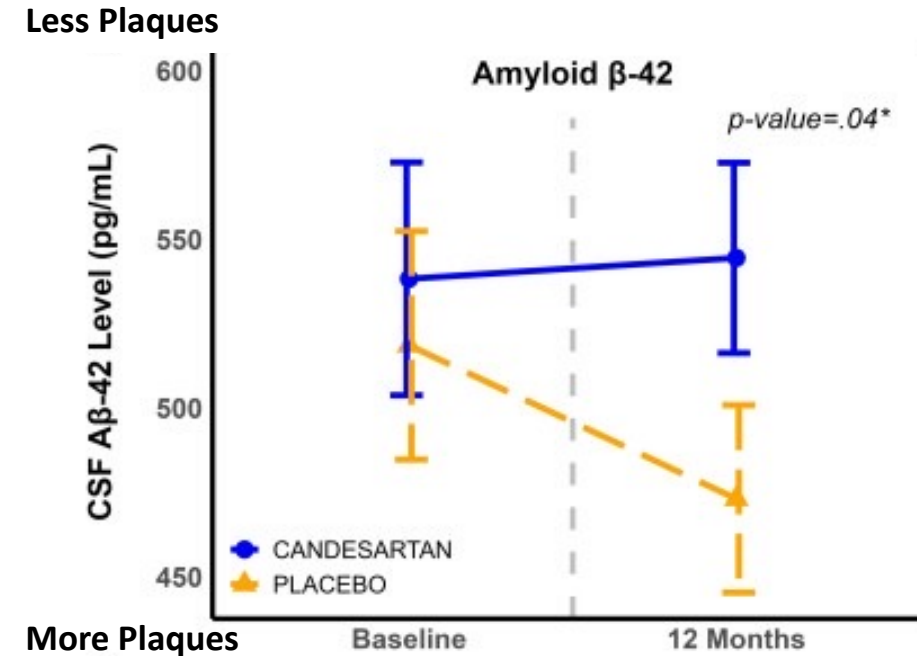
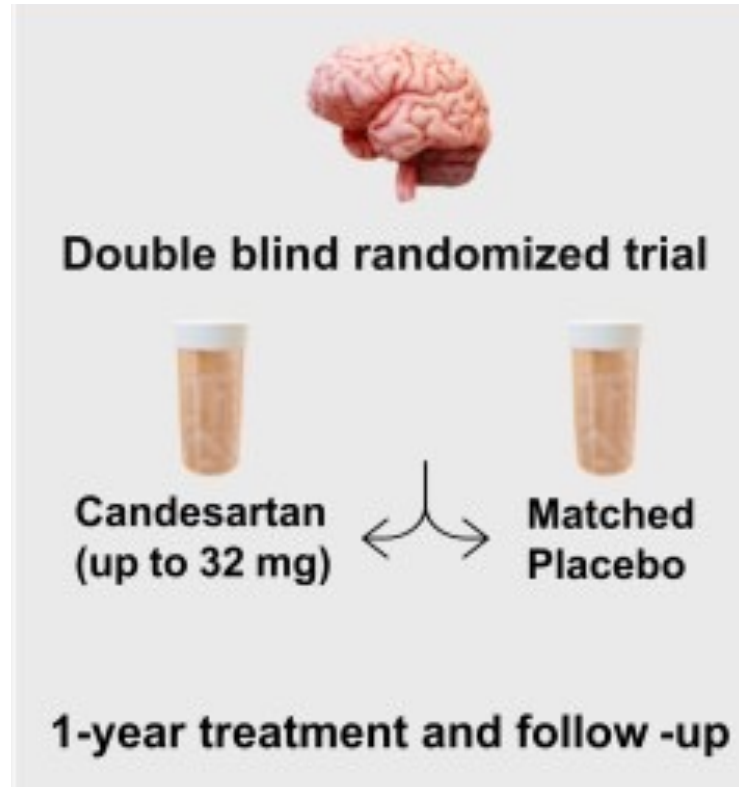
**Metformin in Alzheimer's  
dementia Prevention**

# Antihypertensive Medications as a Treatment for Alzheimer's

- Four of our studies to date have shown that Candesartan (an antihypertensive medication) may slow progression and lower the degree of plaques in those with AD.



FDA-approved  
anti-hypertensive  
medication



# Summary

- Alzheimer's Disease continues to increase and disproportionately affects women.
- New therapies such as Lecanemab are offering new hope.
- Early detection is important since Lecanemab is only approved for the early stages of Alzheimer's Disease (e.g. Mild Cognitive Impairment)
- UT Southwestern is at the forefront of addressing this disease:
  - Research and clinical program for early detection using advanced AI and speech analysis
  - Exploring new therapies based on the connection between heart disease and the brain
  - Metformin (a diabetes medication) and Candesartan (a BP medication) are promising new treatments that are under investigation at UTSW.

# When To Be Concerned and What To Do

- Occasional short-term memory and word finding difficulties are not unusual as we age.
- Time to check in on your memory if these difficulties become frequent, persistent, affect your communication, or affect your ability to perform day-to-day tasks.
- A detailed memory test can be done by your primary doctor, a neuropsychologist, or by calling for an appointment to our Memory Clinic at UTSW.
- Another way to get checked is by volunteering for a cognitive or memory study.

# Questions?

**Thank you!**

Ihab.Hajjar@utsouthwestern.edu  
Neurology Clinic - Memory  
214-645-8800

***Interested in volunteering for a study or getting more information? Please provide your contact information by email to Ihab Hajjar.***