Summa Health™

Summa Health's Second Annual Senior Health Symposium

Prioritizing Mentation and Cognitive Health for Age-Friendly Care

Tuesday, October 15, 2024
8 a.m. – 4 p.m.

Summa Health Senior Health Symposium: **Session 1**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Introduction:
Describing the state of senior care in medicine today.

Jennifer Drost, D.O.
Medical Director, Senior Health
Summa Health System

Summa Health

Thank you!

This activity is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award [grant #U1QHP33073] totaling $3.7 million with 0 percentage financed with non-governmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.

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House Keeping

Complex Care Institute

- Summa Services for Older Adults
- Comfort
  - Bathrooms
  - Breaks
  - Breakfast/Lunch

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Continuing Education

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Deadline to request continuing medical education credits: October 31, 2024, at 8 a.m.

How to apply:

- Text **02SNAP** to **828.294.1144**
- Go to **www.eeds.com** > Click the 'Sign-In'
- Button > Enter **02SNAP**
- Enter **559315**

The deadline to request continuing medical education credits is Thursday, October 31, 2024 at 8 a.m. Scan this code to access.

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Agenda

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

8 a.m. – Introduction – Jennifer Drost, D.O., MPH, Medical Director, Senior Health, Summa Health

8:15 a.m. – Keynote Address: Advancing the Science: The Latest in Alzheimer's and Dementia Research – Camren Harris, Alzheimer's Association

9:30 a.m. – Strengthening Early Detection of Dementia with the KAER Framework – Jennifer L. Pettis, MS, RN, CNE, Gerontological Society of America

10:00 a.m. – Deciphering Dementia: Exploring Etiologies and Subtypes – Natalie Kayani, M.D., Summa Health

10:45 a.m. – When Cognition Impacts Decision-making: Navigating Legal Complexities: Justine Winger, Esq., Atlas Guardianship, Inc.

11:30 a.m. – Lunch break

12:00 p.m. – Community Resource Fair (for in-person attendees)

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Agenda

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

1:00 p.m. – Breakout Sessions – Advanced Topics for Dementia *(choose one)*

1. Advanced Diagnostics, Imaging and Therapeutics for Dementia: James R. Bavis, M.D. and Joseph S. Marchiano, Pharm.D., BCPS, BCGP, RPh, Summa Health
2. Non-Pharmacological Interventions for Dementia: Marty Williman, Ohio Council for Cognitive Health and Anna Caldwell, DNP, MPH, APRN-CNP

2:15 p.m. – Managing and Preventing Acute Delirium: Sue Fosnight, RPh, BCGP, BCPS and Amanda Harvan, MS, APRN- CNP, Summa Health

3:00 p.m. – Case/Panel Discussion – Moderated by Jennifer Drost, D.O., MPH, Summa Health and speakers

4:00 p.m. – Symposium Concludes

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Audience Response System

- What is your interest in attending this symposium?
  - I'm a clinician who works with older adults in the health care setting.
  - I'm a community-based provider who connects older adults with services in the community.
  - I'm a community member who interacts with older adults as a part of my job.
  - I'm a community member who wants to know more about caring for myself and my loved ones as we age.

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Audience Response

- What is your primary discipline?
  - Physician
  - Advance Practice Provider/NP/PA
  - Social Work
  - Nursing
  - Therapies/PT/OT/ST
  - Counseling/behavioral health
  - Dietician
  - Community Member
  - Other

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Audience Response

- Are you familiar with the Age Friendly, 4Ms framework
  - Yes
  - No

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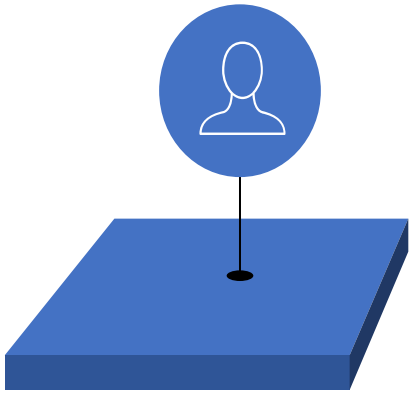
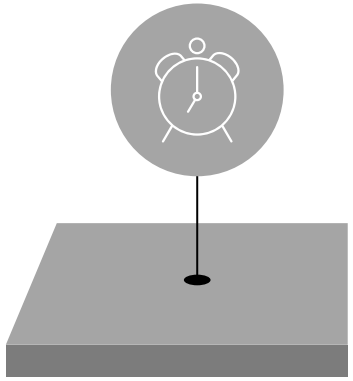
Objectives

- Define the 4Ms of the Age Friendly framework and why they matter in all care settings.
- Describe how each of the 4Ms relate to the care of older adults across multiple care settings to create Age Friendly ecosystems.
- Recognize how to incorporate Age Friendly concepts into the learners' unique professional practice.
- Identify ways to integrate healthcare and community resources to optimize the care of older adults.

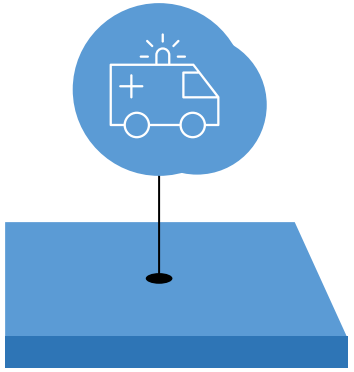
The Scope



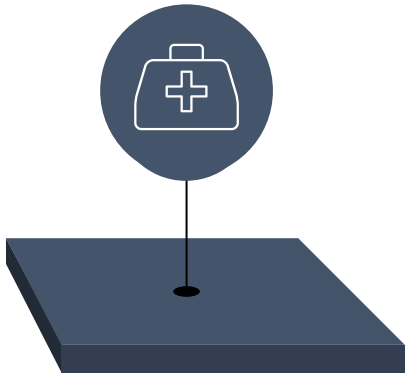
Seniors will become 22% of the US population by 2040[1]



54% persons 65 and older live in 9 states; Ohio is among them with 1.9 million (16.2%) persons 65 and older [1]



66% of Ohioans >65 have ambulatory disabilities and 48% have disabilities that impair independent living[2]



By 2030, Seniors in Akron will make up 30.7% of the population.[3]

1. Administration for Community Living, 2019 Profile of Older Americans
2. Ohio Disability and Health Program, Disability and Health in Ohio Public Health Needs Assessment, June 2013
3. Akron Community Foundation Report, 2015

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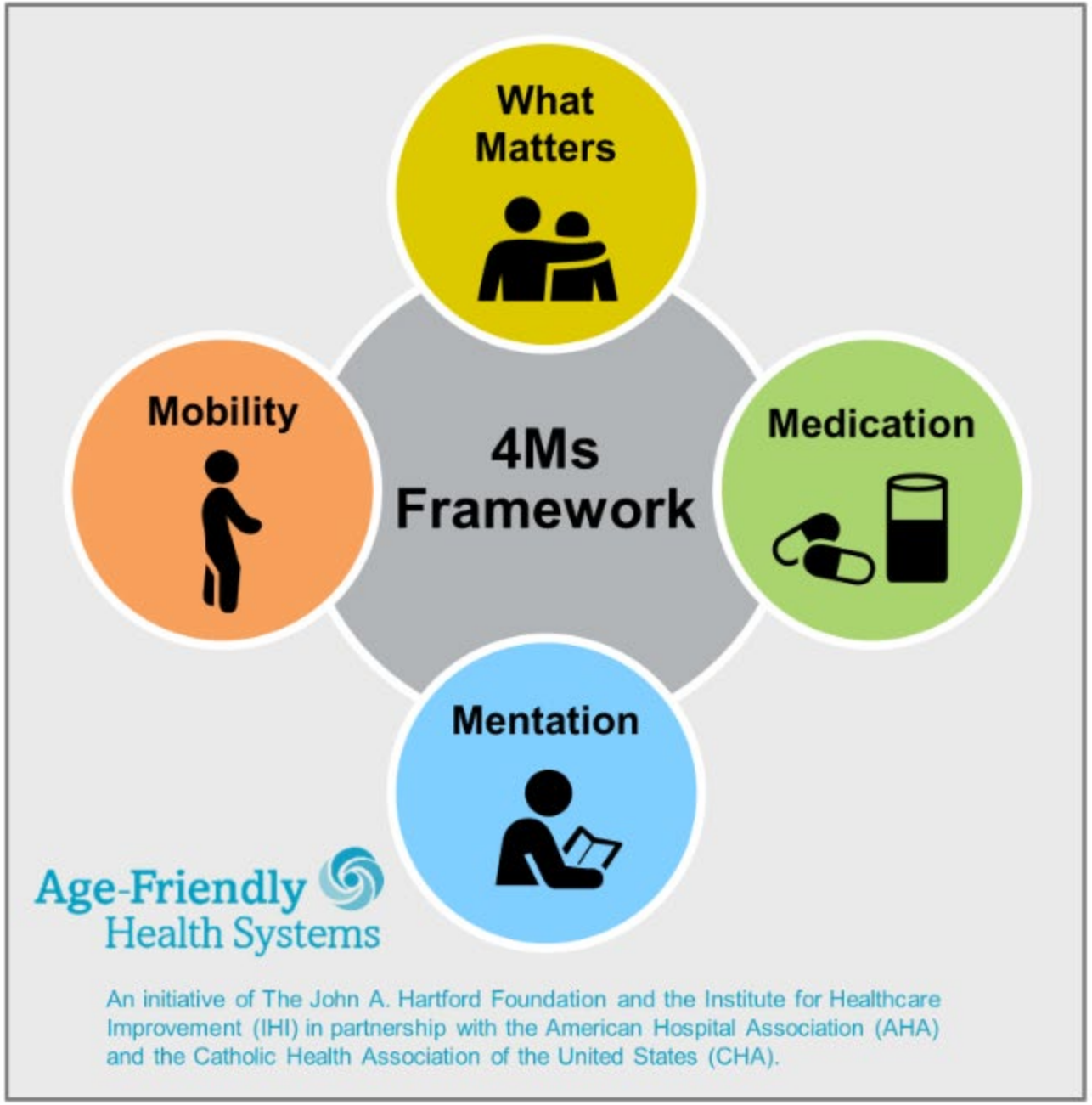

What Matters

Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication

If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation

Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

Mobility

Ensure that older adults move safely every day in order to maintain function and do What Matters.

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Mentation

- Prevent, identify and treat dementia, depression and delirium across care settings
- Focus on dementia
  - Epidemiology
  - Diagnosis and Identification
  - Treatment
  - Avoidance of Harm/Risk reduction
  - Evaluation and treatment of delirium

Depression and behavioral health concerns in older adults

- Depression
  - Minor depression (aka subclinical or subsyndromal depression)
    - Up to 15% of older adults in outpatient settings
    - Associated with disability and poor health outcomes including higher mortality
  - Major depression
    - 2%–10% of older adults in primary care clinics
    - 12%–20% of nursing home residents
    - 11%–45% of hospitalized older adults

- May have higher presentation of somatic or non-mood symptoms including:
  - Fatigue or low energy
  - Withdraw
  - Anger/frustration/irritability
  - Sleep problems
  - Decreased appetite and weight loss
  - Decreased focus and concentration

- Associated with
  - Poorer health outcomes
  - Poorer self-perception of health
  - More visits to doctors/hospitalizations
  - Decreased social activity
  - Mortality

Depression - treatment

- Early detection and treatment can prevent negative outcomes
- Recommend routine screening using validated tool
  - PHQ
  - Geriatric Depression screen
- Evaluation for medical causes/contributors
  - Chronic medical conditions (cardiac, diabetes, COPD)
  - Sleep disturbances
  - Side effects of medications
  - Alcohol, prescription medication or drug misuse/abuse
  - Disability/physical limitations/chronic pain
  - Stressful life events/transitions
  - Grief/bereavement
- Often combination therapy with medications and psychotherapy/counseling is more effective than either alone
- Frequent follow-up with titration of medications or alternative supports to monitor for resolution or worsening
- Address and optimize co-morbid conditions

Anxiety

- Anxiety disorders may be present in up to 15% of the population
- Can co-occur with depression
- Rates of anxiety may be higher in chronic illness and hospitalized older adults

- Common Anxiety Disorders
  - Generalized Anxiety disorder
  - Panic disorder
  - Phobias
  - Obsessive-compulsive disorder
  - Hoarding disorder
  - Post-Traumatic Stress Disorder

Anxiety - treatment

- Screen for anxiety using validated tools
  - Beck's Anxiety Inventory
  - Generalized Anxiety Disorder scale
- Evaluation for medical causes/contributors
  - Chronic medical conditions (cardiac, diabetes, COPD)
  - Sleep disturbances
  - Side effects of medications
  - Alcohol, prescription medication or drug misuse/abuse
  - Disability/physical limitations
  - Stressful life events/transitions
  - Grief/bereavement
- Often combination therapy with medications and psychotherapy/counseling is more effective than either alone
  - Medication and counseling strategies impacted by underlying anxiety sub-type

Audience Response

- What ‘M’ are you most interested to learn more about?
  - Mobility
  - Medication
  - Mind/Mentation
  - What Matters Most

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Audience Response

Summa Health Senior Health Symposium: **Session 2**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Keynote Address:
Advancing the Science: The Latest in Alzheimer's and Dementia Research

Camren Harris
Ohio Public Policy Manager
Alzheimer's Association

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Advancing the Science: The Latest in Alzheimer's and Dementia Research

Camren Harris, M.A.
Public Policy Manager & Region 10 Research Champion
Alzheimer's Association

ALZHEIMER'S® ASSOCIATION

The Alzheimer's Association leads the way to end Alzheimer's and all other dementia — by accelerating global research, driving risk reduction and early detection, and maximizing quality care and support.

Our dual mission symbol represents the abstract forms of a human head and a beaker, emphasizing the people and the science behind our cause.

Care & Support

Advocacy

Education & Awareness

Research

Diversity, Equity & Inclusion

ALZHEIMER'S ASSOCIATION®

Our Time Today

1. About Alzheimer's & Dementia
2. Early Detection & Diagnosis
3. Treatment
4. Risk Reduction
5. Alzheimer's Association Initiatives & How You Can Get Involved

About Alzheimer's & Dementia

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2024 ALZHEIMER'S DISEASE FACTS AND FIGURES

NEARLY
7 MILLION
AMERICANS ARE LIVING WITH ALZHEIMER'S

THE LIFETIME RISK FOR ALZHEIMER'S AT AGE 45 IS

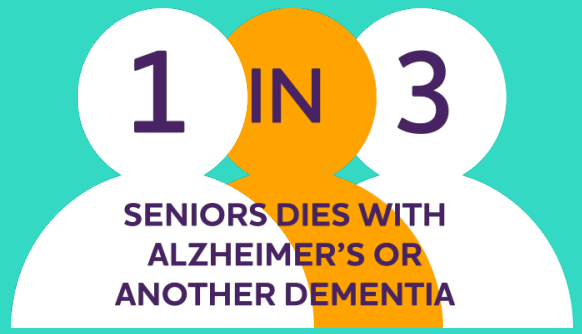
1 in 5 FOR WOMEN

1 in 10 FOR MEN

Older Black Americans are
2X AS LIKELY
to have Alzheimer's or other dementia than Whites.

BETWEEN 2000 AND 2021, DEATHS
FROM HEART DISEASE HAVE
DECREASED 2.1%

WHILE DEATHS FROM ALZHEIMER'S DISEASE HAVE
INCREASED 141%



SENIORS DIES WITH ALZHEIMER'S OR ANOTHER DEMENTIA

IT KILLS MORE THAN BREAST CANCER AND PROSTATE CANCER

+

COMBINED

Older Hispanic Americans are
1.5X AS LIKELY
to have Alzheimer's or other dementia than Whites.

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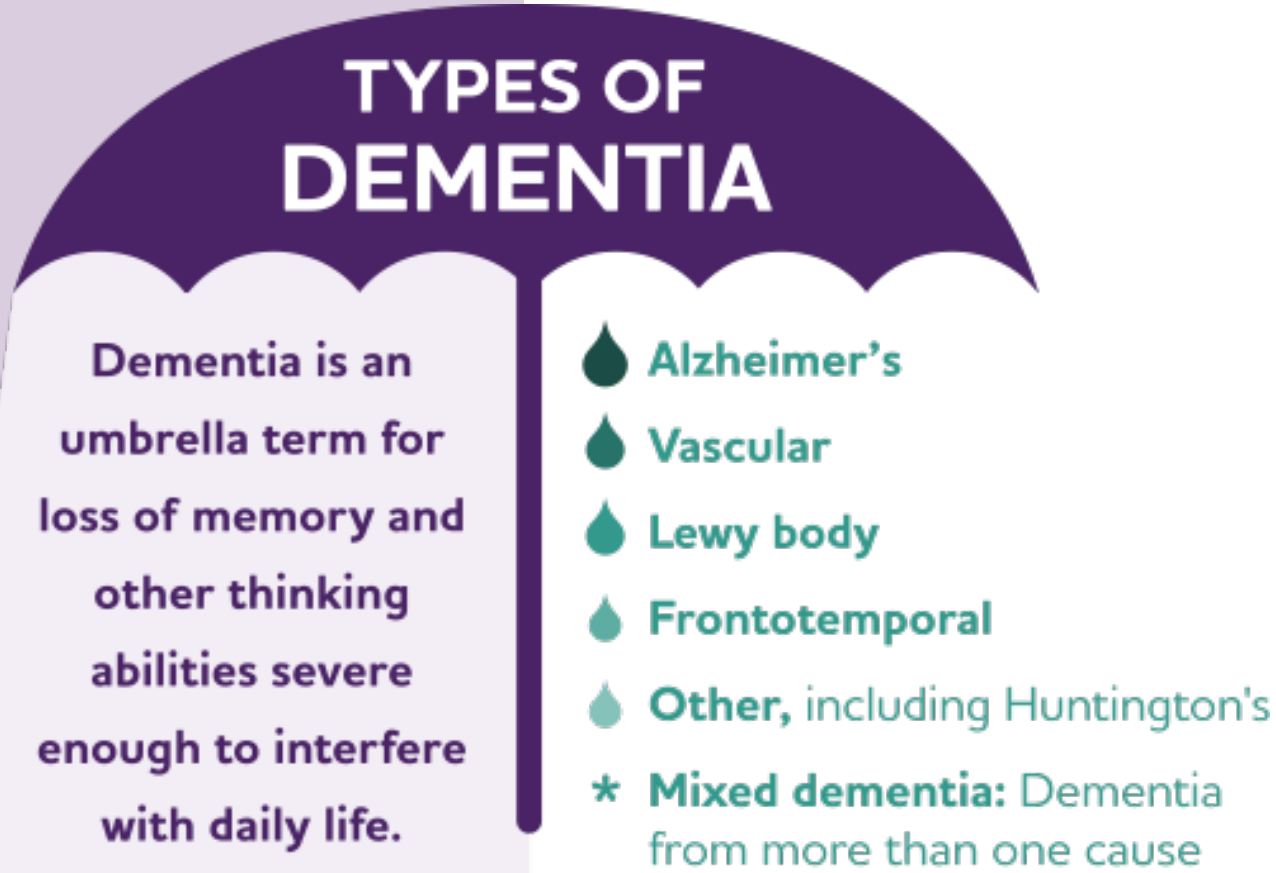
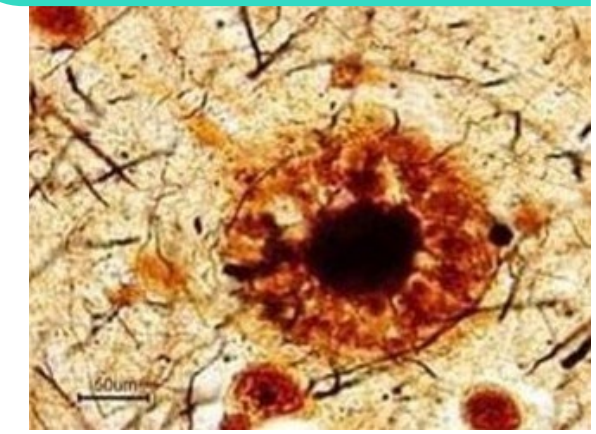
What is Dementia?

- Dementia is a collection of symptoms related to cognitive decline
- This can include
  - Cognitive symptoms
  - Behavioral symptoms
  - Psychological symptoms
- **Alzheimer's is the most common cause of dementia**
- Not everyone with cognitive decline has dementia. Some causes of cognitive decline are reversible.



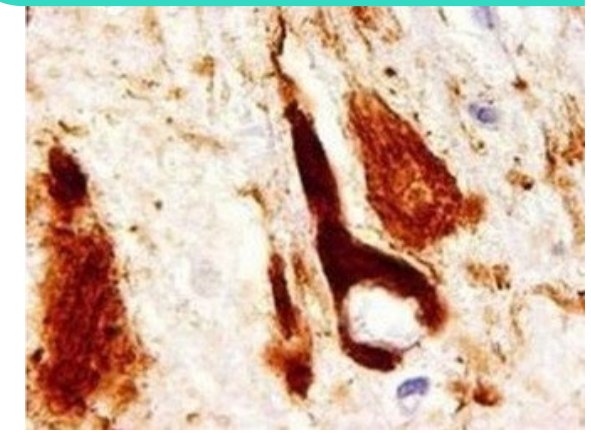
The Hallmarks of Alzheimer's

1 Plaques



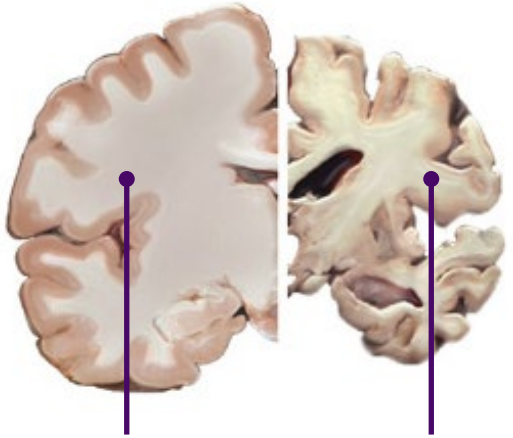
Made up of **beta amyloid**

2 Tangles



Made up of **tau**

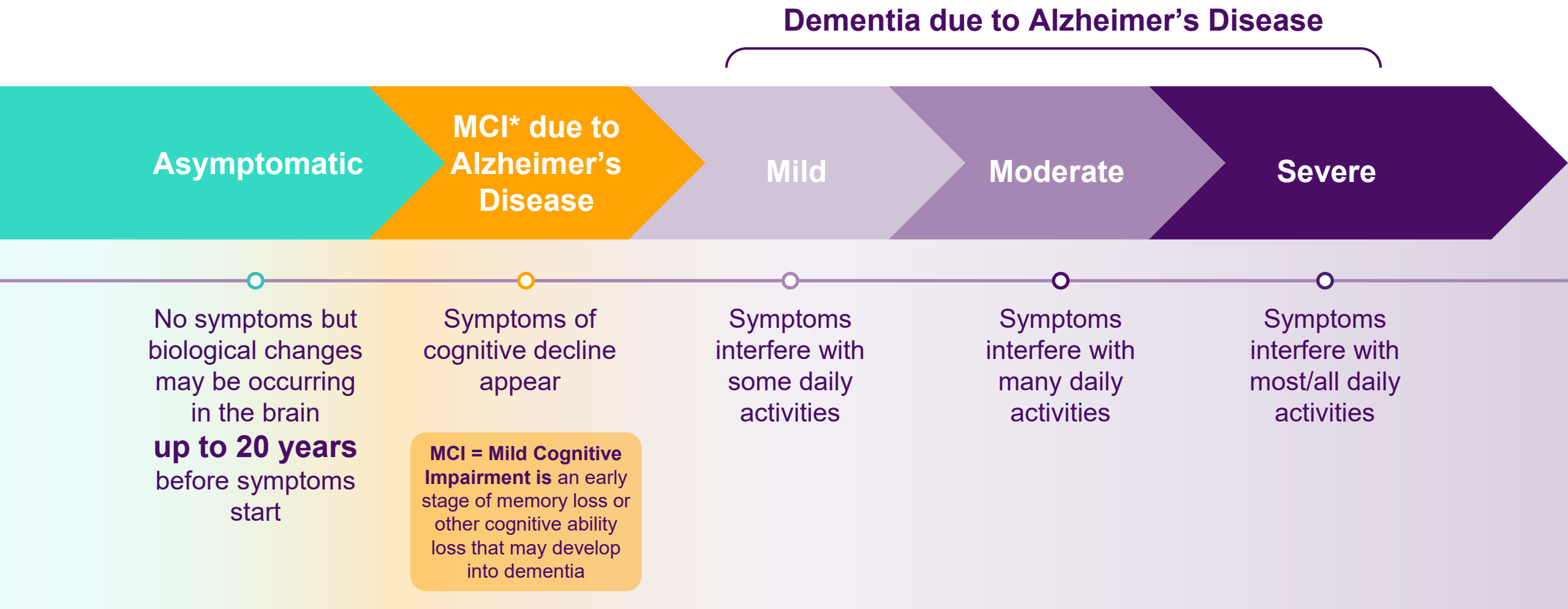
3 Brain Cell Death

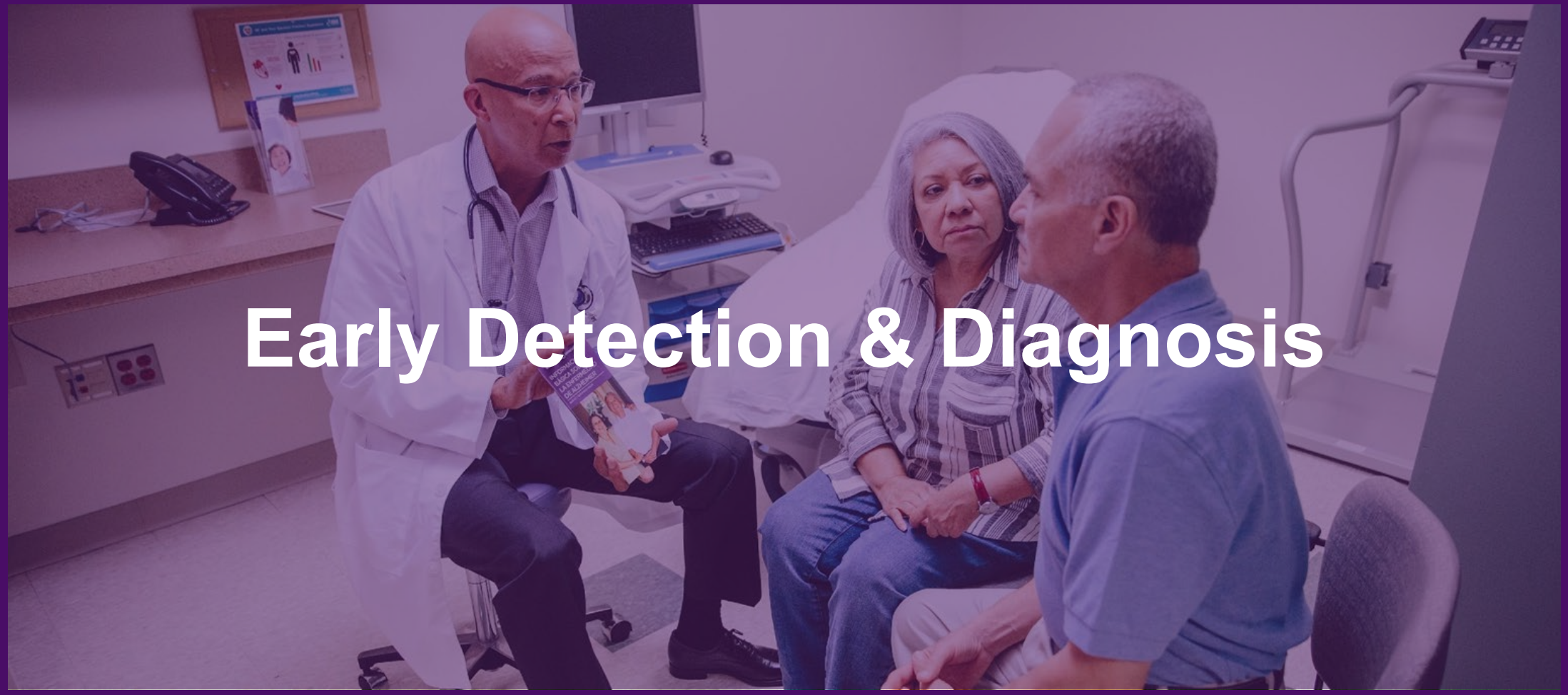


Healthy brain

Advanced Alzheimer's

Alzheimer's Disease is a Continuum





Early Detection & Diagnosis

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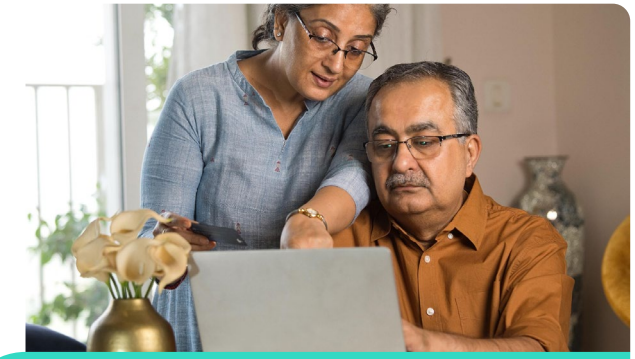
Benefits of an Early and Accurate Diagnosis

Medical Benefits

- Access to current treatments
- An opportunity to participate in clinical trials
- A chance to prioritize health, including making lifestyle changes

Emotional and Social Benefits

- More time to plan for the future, access resources
- Time to plan end-of-life decisions



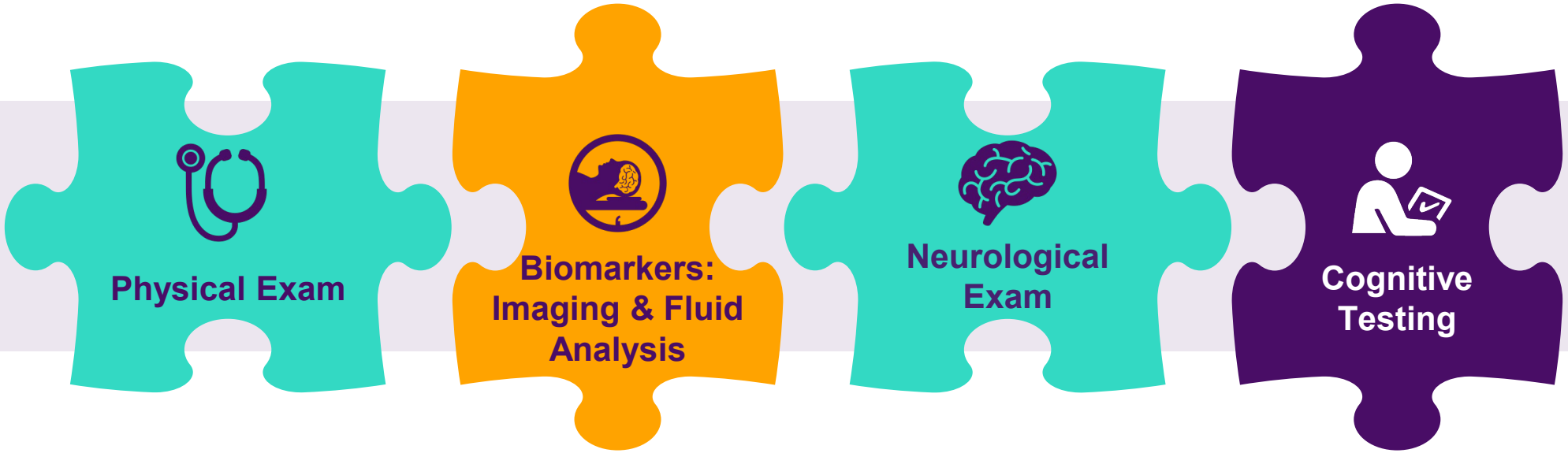
Financial Benefits

- Cost savings for families
- Cost savings for the U.S. government

How is Alzheimer's Currently Diagnosed?

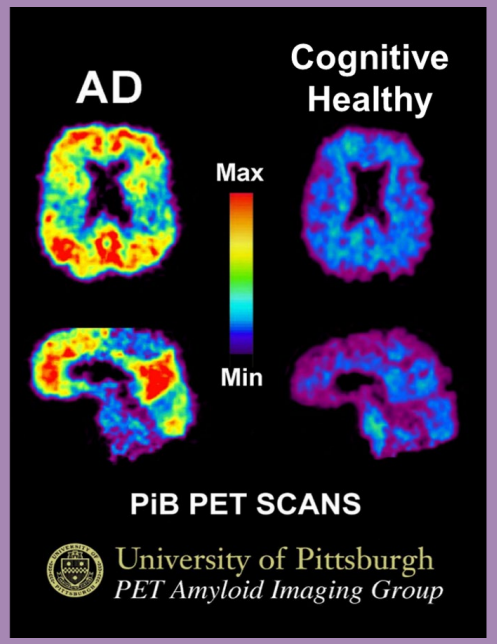
There is no single test that can determine if a person is living with Alzheimer's disease or another dementia.

Doctors use a combination of diagnostic tools combined with medical history to make an accurate diagnosis.



What is a Biomarker?

A biomarker is a biological marker that measures change.



Biomarkers are reliable predictors and indicators of disease and disease progression.

For example:

- Glucose is a biomarker for insulin resistance and diabetes.
- Cholesterol is a biomarker for heart disease

Uses of biomarkers in Alzheimer's disease include:

Diagnostic: used to determine diagnosis

Enrichment: used to determine entry into a clinical trial

Prognostic: used to determine course of illness

Predictive: used to track outcomes and side effects of treatments

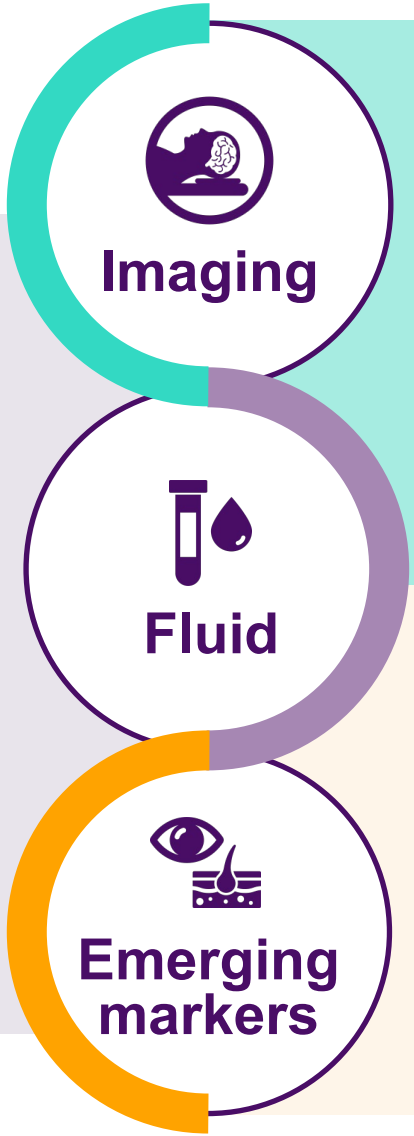
Biomarkers

A New Frontier in Alzheimer's Detection, Diagnosis and Research

Cerebrospinal fluid (CSF) analysis can use to detect amyloid in the CSF (taken by a lumbar puncture), which can be predictive of changes in the brain.

There are several emerging **blood tests** on the market that can indicate presence of Alzheimer's markers years before symptoms emerge.

Blood tests for Alzheimer's should be prescribed by a doctor and followed by other methods of diagnosis.



Positron emission tomography (PET) scan results aid doctors in diagnosing and treating memory conditions. There are FDA approved PET scans that measure amyloid and tau.

Magnetic Resonance Imaging (MRI) can help doctors rule out other symptoms that may be causing dementia symptoms, as well as track treatment side effects.

Other **emerging biomarkers** include:

- examining skin and saliva to indicate early biological changes in the brain
- retinal imaging

which show promise to be low cost, accessible detection methods for Alzheimer's.

Research Roundup

Identifying New Biomarkers

- In addition to amyloid and tau — two key hallmarks in Alzheimer's disease — researchers are exploring emerging markers of cell death, inflammation and vascular related changes.

Standardizing Biomarkers

- Alzheimer's Association leads the Global Biomarker Standardization Consortium (GBSC), which conducts studies that aim to standardize use of fluid biomarkers across populations.

Bringing New Tests to Doctors' Offices

- As new biomarkers reach doctor's offices, the Alzheimer's Association publishes recommendations and guidance for doctors for use of imaging, fluid and other diagnostic biomarkers for Alzheimer's disease.

These programs provide a strategy to determine the most valuable tests that can be used to detect, diagnose and inform treatment for individuals with Alzheimer's and other dementia.

Ohio Counties and Alzheimer's Prevalence

COUNTY	TOTAL POP. AGE 65 + (nearest 100)	AD CASES AGE 65+ (nearest 100)	AD PREVELENCE (Age 65+)
Cuyahoga	234,400	31,500	13.40%
Hamilton	132,200	16,500	12.50%
Montgomery	98,800	12,300	12.50%
Mahoning	50,000	6,000	12.10%
Lucas	73,600	8,600	11.70%
Franklin	167,900	19,300	11.50%
Summit	102,300	11,700	11.50%
Allen	18,900	2,200	11.40%
Richland	24,600	2,800	11.30%
Clark	27,000	3,000	11.10%
Erie	17,000	1,900	11.10%
Henry	5,200	600	11.10%
Morgan	3,200	400	11.10%
Stark	75,300	8,400	11.10%
Lorain	60,500	6,700	11.0%

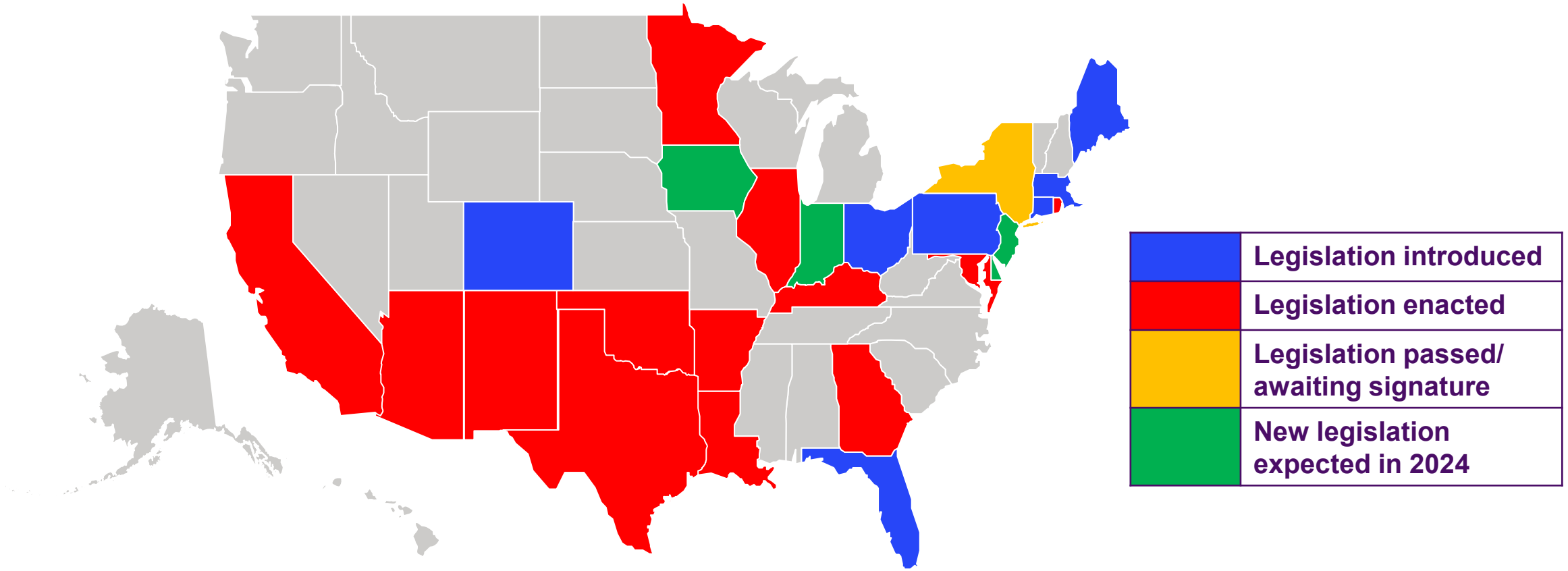
Biomarkers Legislation – HB24

- Requires health benefit plans and the Medicaid program to cover biomarker testing for specified purposes when need for the test is supported by medical and scientific evidence.

- Biomarkers are measurable biological changes that can show if a disease is present or a person is at risk for developing a disease. Methods for detecting biomarkers can include conducting imaging scans, and collecting samples of bodily fluids like blood, saliva, urine and cerebrospinal fluid.

- Continued progress around blood-based amyloid biomarker markers is likely to lead to new diagnostic tools coming to market within the next couple of years.

Legislation to Expand Access to Biomarker Testing



Legislation enacted: AZ, CA, GA, IL, LA, KY, MD, MN, NM, RI, OK, TX, and AR* *(*commercial coverage only)*
Legislation passed in 2023 awaiting signature: NY
Legislation introduced in 2023, continuing in 2024: CO, CT, FL, MA, ME, OH, PA

Treatment

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FDA-Approved Therapies for Alzheimer's

First description of disease 1906

- donepezil (Aricept®) — 1996
- rivastigmine (Exelon®) — 2000
- galantamine (Razadyne®) — 2001
- memantine (Namenda®) — 2003
- memantine + donepezil (Namzaric®) — 2014
- suvorexant* (Belsomra) — 2020
- aducanumab (Aduhelm™) — 2021
- lecanemab (Leqembi™) — 2023
- brexpiprazole (Rexulti) — 2023

Treat Symptoms: Cognition and Function

Treat Symptoms: Insomnia

Slow Disease Progression: Cognition, Function and Behavior

Treat Symptoms: Agitation

Alzheimer's disease continuum

- Asymptomatic
- MCI
- Mild Dementia
- Moderate Dementia
- Severe Dementia

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2024 Alzheimer's Drug Development Pipeline

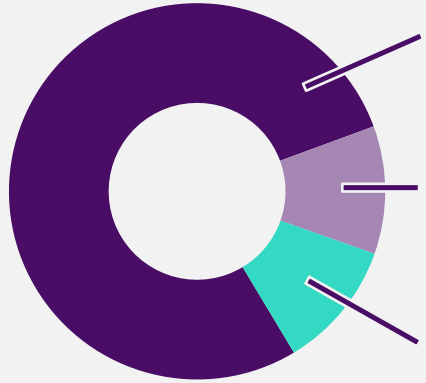
127 Unique therapies

164 Clinical Trials for Alzheimer's disease as registered on clinicaltrials.gov

33 New agents have entered the pipeline in the past year

65,798 Total number of participants needed to populate all currently active trials (Phases 1, 2 and 3)

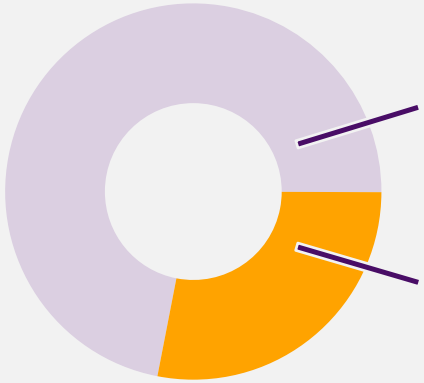
Targets of agents currently in clinical trials include:



76% disease modification

12% cognitive enhancement

13% behavioral and neuropsychiatric symptoms



75% novel disease processes

25% amyloid & tau

Research Roundup

Next Generation Therapies

- There are ongoing studies investigating new and easier ways to administer FDA approved treatments.
- History has shown that the first FDA approval in a disease class leads to more and better treatments in the future.

Combination Therapies

- The future of Alzheimer's treatment may involve a combination of drug treatment and brain-healthy lifestyle changes for maximum impact.
- **Dominantly Inherited Alzheimer's Network Trials Unit (DIAN-TU)** is testing a combination of both anti-amyloid and anti-tau drugs in people with dominantly inherited Alzheimer's disease.

New Approaches Across the Disease Course

- 28% of therapies in clinical trials are repurposed from other diseases.
- The Alzheimer's Association's Part the Cloud grant program has invested more than $68 million in 65 early-stage clinical trial investigating novel treatment approaches for Alzheimer's disease.
- New treatments in development for ALL stages of the disease continuum.

Risk Reduction

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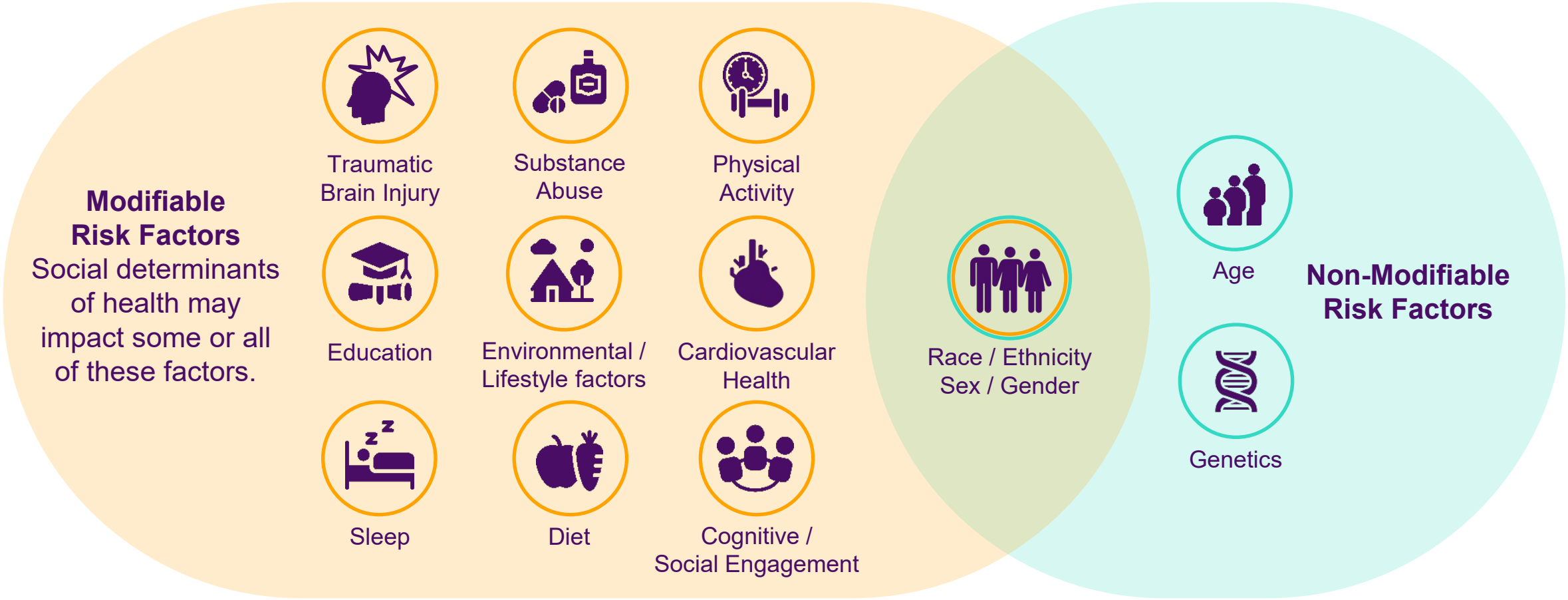
What May Impact Risk of Cognitive Decline or Dementia?



There is a lot we still don't know about these risk factors. We need to study risk from all angles and in all populations!

Reducing Risk of Dementia

- Positive, everyday actions can make a difference in brain health, even lowering the risk of cognitive decline and possibly Alzheimer's and dementia.
- Up to **40%** of dementia cases could be prevented or delayed by targeting modifiable risk factors.
- Research suggests **combining multiple healthy factors** may be the most impactful.
- Nonmodifiable risk factors include age, genetics and sex/ gender/ race/ ethnicity.

U.S. Study to Protect Brain Health through Lifestyle Intervention to Reduce Risk

U.S. POINTER
ALZHEIMER'S ASSOCIATION

Two Year | Multi-Center (Five U.S. Sites) | Randomized Clinical Trial
2,000 Participants | 60-79 Years Old | At Risk for Cognitive Decline

Self-Guided and **Structured** Intervention Groups
Physical Activity | Nutrition | Intellectual Engagement | Health Coaching
Differ in Format, Expectations, and Accountability

Commitment to **Community-Based** Outreach, Recruitment and Representation

- ✓ *Completed Recruitment in March 2023*
- ✓ ***~ 30% from Underrepresented Populations***

NIA Supported **Ancillary Studies**:

- ✓ **POINTER-Neuroimaging**
- ✓ **POINTER-zzz**
- ✓ **POINTER-Neurovascular**
- ✓ **POINTER-Microbiome**

If the interventions prove effective, this study will lead the way in the development of an accessible and sustainable community-based program for prevention.

U.S.POINTER

ALZHEIMER'S ASSOCIATION®

WHAT: Two-year clinical trial across the U.S.

RESULTS EXPECTED, SUMMER 2025

HOW: Study intervention simultaneously targets multiple risk factors with a goal to protect cognitive function in older adults at increased risk for cognitive decline.

Results from this trial will inform the development of accessible and sustainable community-based programs for dementia prevention.

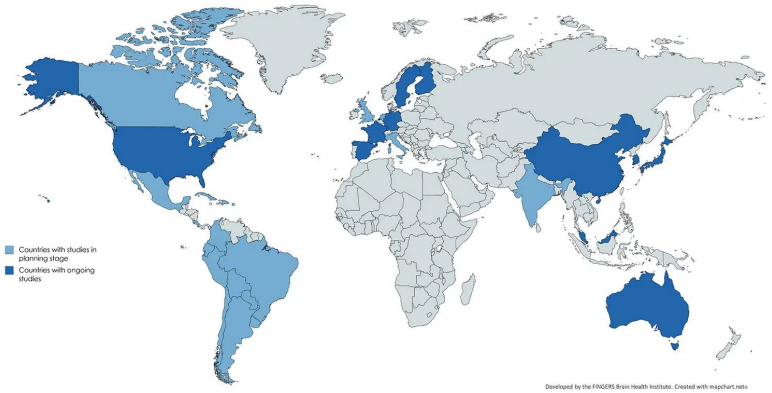
WORLD WIDE FINGERS

ALZHEIMER'S ASSOCIATION®

WHAT: Global network of lifestyle intervention trials that share experiences, data and joint initiatives to prevent cognitive impairment & dementia worldwide

HOW: World-Wide FINGERS network now includes research teams in 62 countries

WW-FINGERS®



Alzheimer's Association Initiatives & How You Can Get Involved

ALZHEIMER'S ASSOCIATION

ADVOCACY

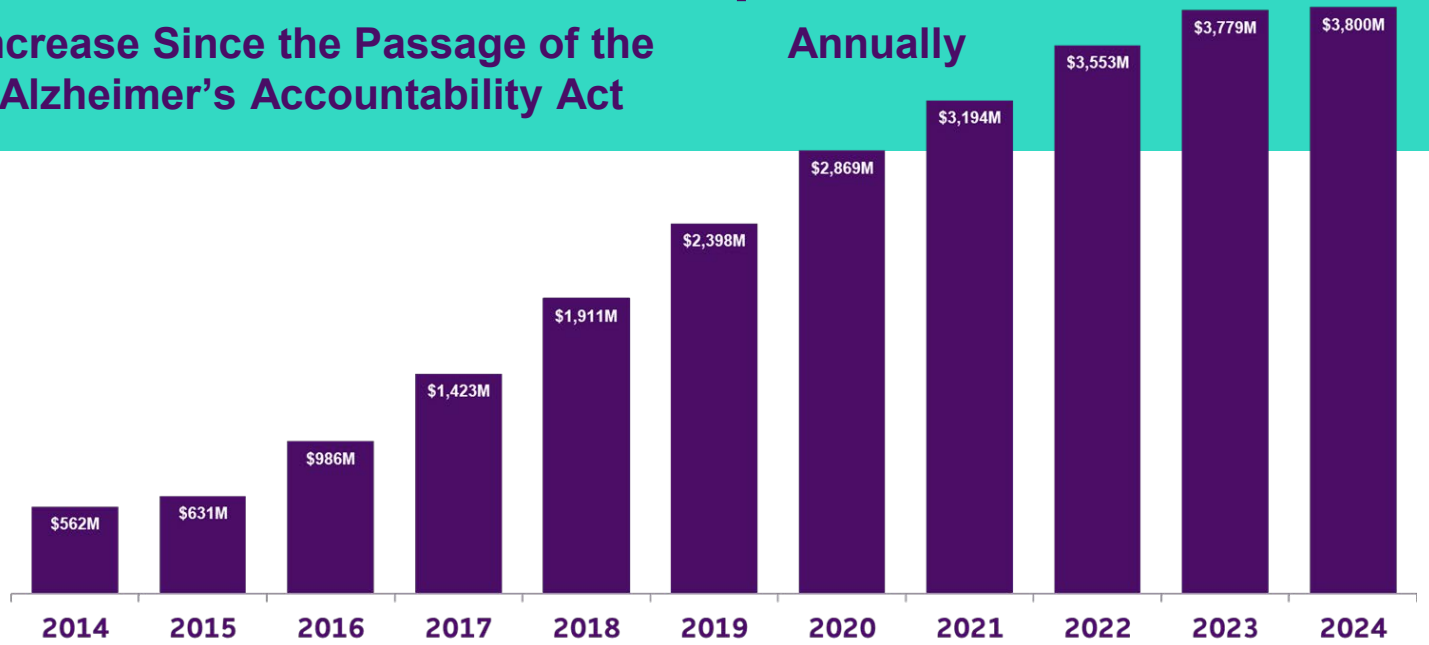
Alzheimer's Research Funding is at an All-Time High

7x

Increase Since the Passage of the Alzheimer's Accountability Act

$3.8B

Annually



Alzheimer's and Related Dementia Funding at the National Institutes of Health (NIH)

Source: NIH (https://report.nih.gov/funding/categorical-spending) with the 2024 figure reflecting NIHs estimated 2023 funding plus the additional increase of $100M appropriated through the FY2024 funding bill.

Alzheimer's Association Ohio State Advocacy Day

ALZHEIMER'S ASSOCIATION

The Alzheimer's Association is the world's leading nonprofit funder of Alzheimer's and dementia research.

currently active **$405M**

projects **1100+**

countries **56**

Research In Your Community

Ohio

Total awards: 94
Year: 1993-2024

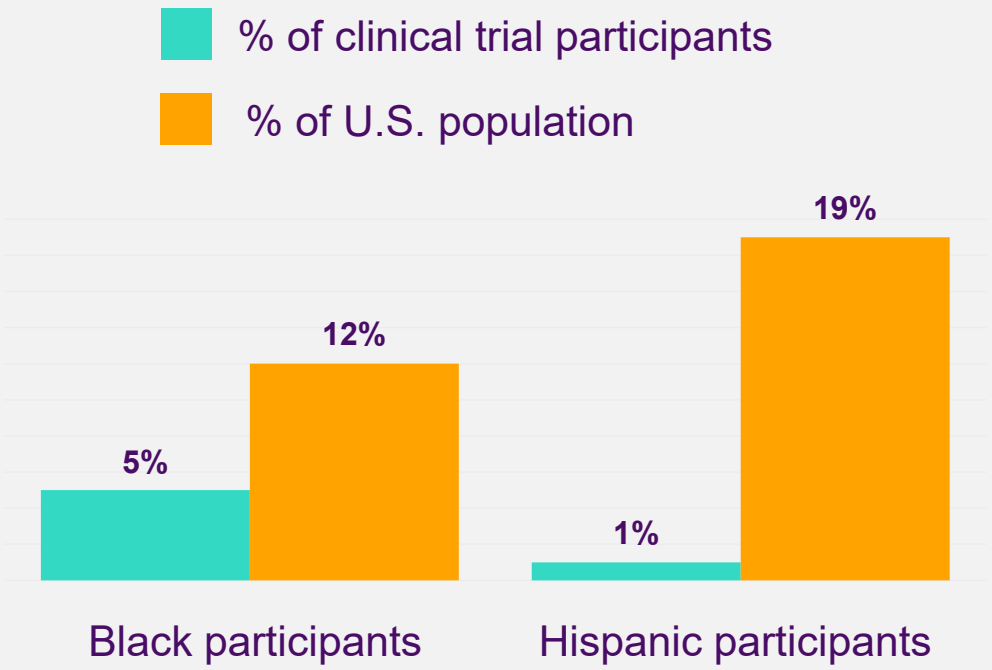
Total amount:
$ 17.8 M

Case Western Reserve University, Cleveland State University, University of Cincinnati, Northeastern Ohio University, Ohio University and others

ALZHEIMER'S ASSOCIATION®

Advancing Health Equity

Racial and ethnic populations are underrepresented in clinical trials.



Legislation like the bipartisan **Equity in Neuroscience and Alzheimer's Clinical Trials (ENACT) Act** will increase education and outreach to underserved and underrepresented communities, encourage diversity of clinical trial staff, and make it easier for underrepresented groups to participate in research.

The Alzheimer's Association is **committed to diversity, equity and inclusion** in Alzheimer's research by supporting researchers from diverse backgrounds.

- *Alzheimer's Association Core Grant Programs to Promote Diversity*
- *ISTAART Diversity and Disparities PIA*
- *AAIC Advancements: Health Equity*

Research Resources

- Association's Website | alz.org
- Research at the Association | alz.org/research
- Join a Clinical Trial | alz.org/trialmatch
- Contact the 24/7 helpline | 800-272-3900

ALZHEIMER'S ASSOCIATION®

Get Involved in Research

- TrialMatch is a **free clinical studies matching service** designed to provide a **customized list** of potential study matches to each user.
- Healthy and cognitively impaired people from all backgrounds are needed to participate in Alzheimer's and dementia research.

SCAN to find out more

trialmatch®

ALZHEIMER'S ASSOCIATION®

POWERED BY CenterWatch iConnect™

**Over 370,000 users and includes 750+ clinical studies around the world.*

731	Alzheimer's Disease
351	Mild Cognitive Impairment
36	Vascular Dementia
110	Other Dementia

**as of March 2024*

In Summary…

- **The Alzheimer's Association is the global leader for Alzheimer's and dementia science**
- **Exciting time in research**
- New tools for detection and diagnosis
- New approved treatments and more in the pipeline
- Strategies for risk reduction
- There is HOPE in research

Care & Support

Advocacy

Education & Awareness

Research

Diversity, Equity & Inclusion


THANK YOU!

ALZHEIMER'S® ASSOCIATION



Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Strengthening Early Detection of Dementia with the KAER Framework

Jennifer L. Pettis, MS, RN, CNE
Director
Gerontological Society of America

Summa Health

GERONTOLOGICAL SOCIETY OF AMERICA®

The GSA KAER Toolkit for Brain Health

Jennifer L. Pettis, MS, RN, CNE
Director of Strategic Alliances

Objectives

Upon completion of this session, attendees will be able to:

- Describe how implementing the KAER framework can improve early detection of dementia
- Identify tools and resources that they can implement to improve care of older adults with dementia and their caregivers

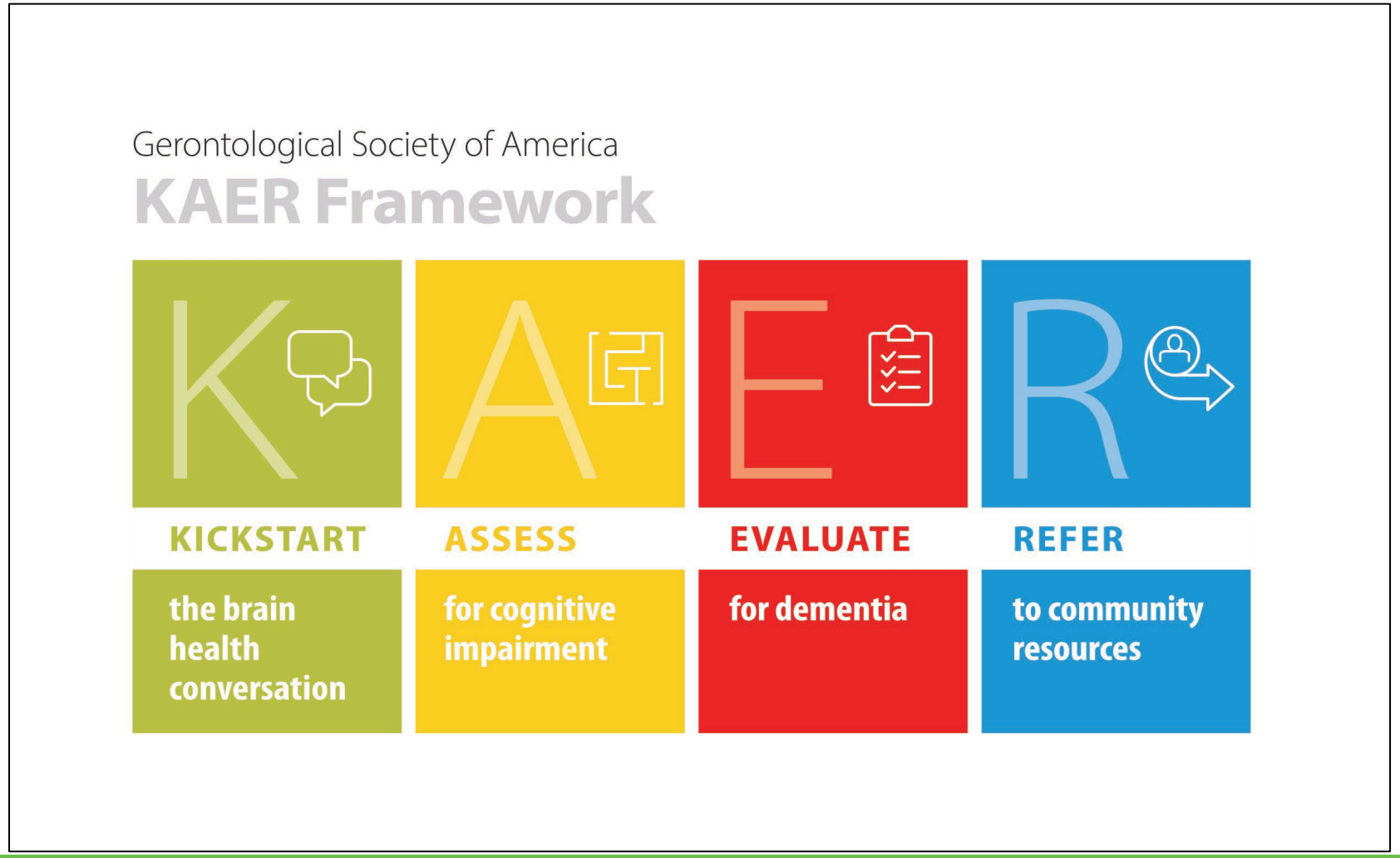
Gerontological Society of America

- Largest professional society dedicated to advancing innovation on aging across the lifespan
- Multidisciplinary membership (5,500)
- Areas of Focus:
  - Stimulating research on aging
  - Providing person-centered interdisciplinary care of older adults
  - Advocating for policy that advances meaningful lives as we age
  - Educating the next generation of experts in aging
- GSA will embed diversity, equity, and inclusion as fundamental principles and practices across the Society

GSA Vision: Meaningful lives for all as we age.

KAER Framework

GSA
GERONTOLOGICAL SOCIETY OF AMERICA®

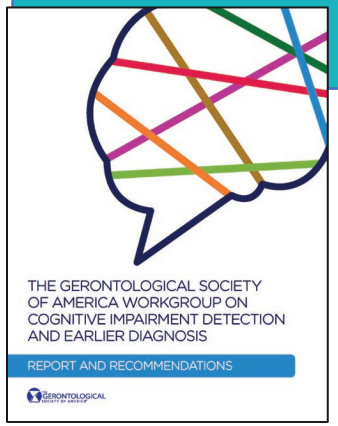


KAER Timeline

GSA GERONTOLOGICAL SOCIETY OF AMERICA®

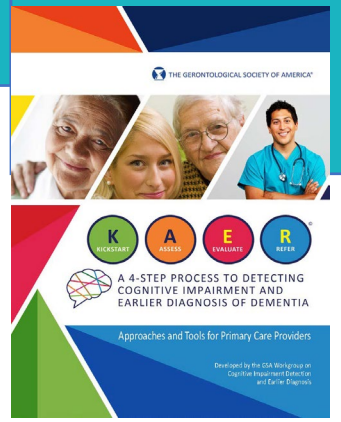
2013

The GSA Workgroup on Cognitive Impairment Detection and Earlier Diagnosis



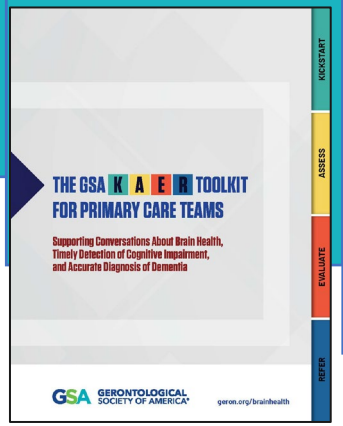
2017

KAER for Brain Health



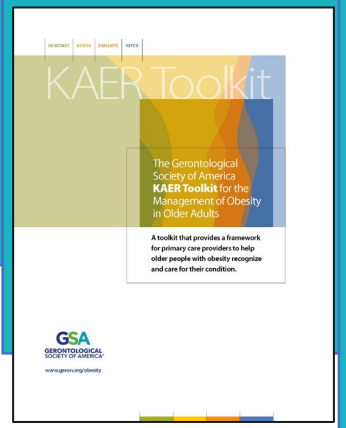
2020

KAER for Brain Health (updated)



2022

KAER for Obesity

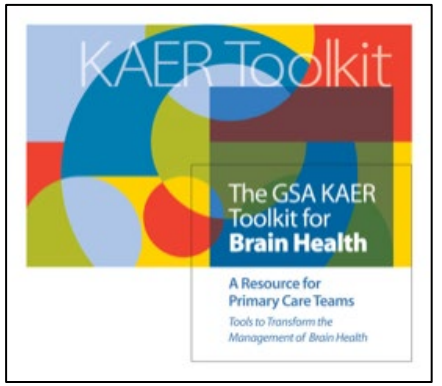


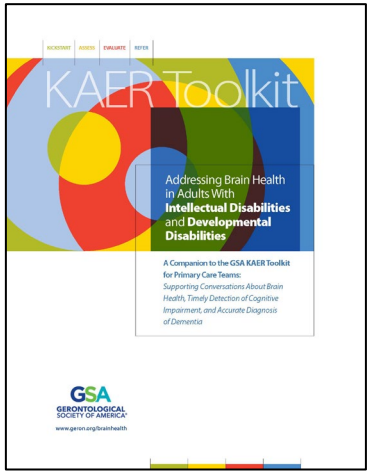
2024 and Beyond

I/DD Companion

Web-based Brain Health Toolkit

Implement and Refine





KAER Toolkit Key Features

GSA
GERONTOLOGICAL SOCIETY OF AMERICA®

- New fully online resource with user-friendly navigation
- Four main sections align with each step of the KAER framework
- Includes key section takeaways for ease of use
- Increased focus on brain health promotion
- Incorporates “the best of the best” tools and resources
- Experts guide ongoing updates and enhancements

GSA
GERONTOLOGICAL SOCIETY OF AMERICA®

Kickstart the Brain Health Conversation

Step One

Kickstart – Objectives

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- Increase awareness of the importance of brain health
- Detect signs and symptoms of cognitive impairment that may lead to further evaluation

Kickstart – Strategies and Resources

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Raise the topic of brain health
Educate people about modifiable risk factors and strategies to support brain health
Ask individuals about their memory and cognition
Actively listen for concerns expressed by patients and their families
Address sensory loss and use effective communication strategies
Alert and teach members of the team to observe for cognitive impairment
Meet the needs of people with diverse life experiences

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Assess for Cognitive Impairment

Step Two

Assess – Objectives

- Detect cognitive impairment
- Determine whether an individual should receive a diagnostic evaluation for dementia

Assess – Strategies and Resources

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Use a validated brief cognitive test to assess for cognitive impairment

Gather information from informants about cognitive changes

Gather information about subjective cognitive decline

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GERONTOLOGICAL SOCIETY OF AMERICA®

Evaluate for Dementia

Step Three

Evaluate – Objectives

- Highlight the importance of a diagnostic evaluation
- Rule out reversible causes
- Conduct a diagnostic evaluation

Evaluate – Strategies and Resources

GSA GERONTOLOGICAL SOCIETY OF AMERICA®

Clearly explain the goals of the diagnostic process

Implement the diagnostic process and/or refer to a specialist

Identify the causes of dementia

Appropriately document the diagnosis

Disclose the diagnosis

Refer for Community Resources

Step Four

Refer – Objectives

- Refer to community supports and clinical trials
- Provide ongoing support and education

Refer – Strategies and Resources

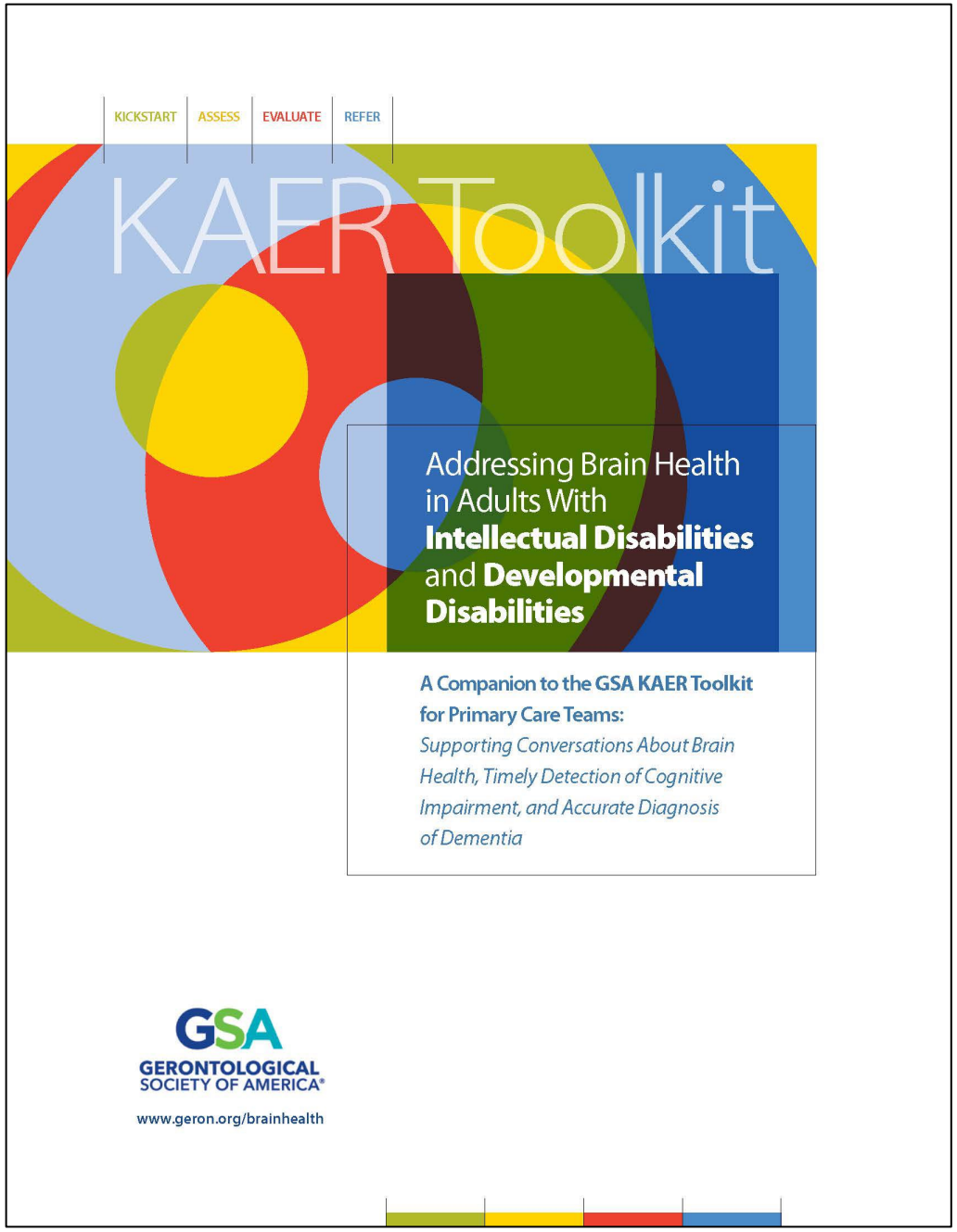
GSA GERONTOLOGICAL SOCIETY OF AMERICA®

Refer to providers, resources, and services

Support continuous education

Refer to clinical trials

A Companion to Address the Unique Needs of Adults with I/DD



Support provided by Eisai

Goals of the Companion Document

GSA GERONTOLOGICAL SOCIETY OF AMERICA®

Raise	Raise awareness of unique needs of adults living with I/DD
Equip and encourage	Equip and encourage caregivers and health care teams to engage in appropriate brain health conversations with adults with I/DD
Promote	Promote brain health conversations and early detection of changes in cognitive and adaptive function for adults with I/DD
Assist	Assist with the identification of community supports and resource networks aimed at enhancing function and quality of life for adults with dementia and I/DD

Key ***Kickstart*** Concepts in the New I/DD Companion

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Engaging in ongoing conversations about brain health

Using strategies and language that allow the individual to comprehend

Incorporating caregivers in conversations

Establishing cognitive and functional baseline

Compiling a “life story”

Incorporating disability-inclusive person-first language

Key ***Assess*** Concepts in the New I/DD Companion

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Avoid automatically interpreting manifestations of new cognitive impairments or dementia as symptoms of the underlying disability

Adapt assessment tools to accommodate sensory impairments (e.g., use large-print reading materials or assisted listening devices)

Conduct longitudinal assessments to help determine if signs of decline are progressive and discern whether behaviors represent an underlying condition or cognitive changes

Use cognitive assessment tools specifically developed for individuals with I/DD (e.g., NTG Early Detection Screen for Dementia [NTG-EDSD])

Capture information about the individual's personal history, including family and living situation, levels of functioning, key recent events, and any changes in behavior or function

Key ***Evaluate*** Concepts in the New I/DD Companion

GSA GERONTOLOGICAL SOCIETY OF AMERICA®

Conduct a thorough evaluation to determine whether a diagnosis of dementia is appropriate

Avoid diagnostic overshadowing (i.e., erroneously attributing a change to a pre-existing disability rather than thoroughly investigating it)

Identify conditions that may be amenable to treatment that can reverse declines in cognition or function, mitigate symptoms, and improve quality of life

Conduct a thorough evaluation that considers a range of issues in addition to a physical exam and cognitive assessment

Key ***Refer*** Concepts in the New I/DD Companion

GSA GERONTOLOGICAL SOCIETY OF AMERICA®

Refer to resources in the community to ensure that the adult with dementia and caregivers receive appropriate post-diagnostic supports and services

Share the diagnosis with the adult's health care providers and other entities that may be involved in the care of the individual

Adapt care approaches used for the general population to meet the needs of the individual with I/DD and dementia

Conduct individualized care planning addressing dementia as well as other preexisting diagnoses

KAERBRAIN.ORG

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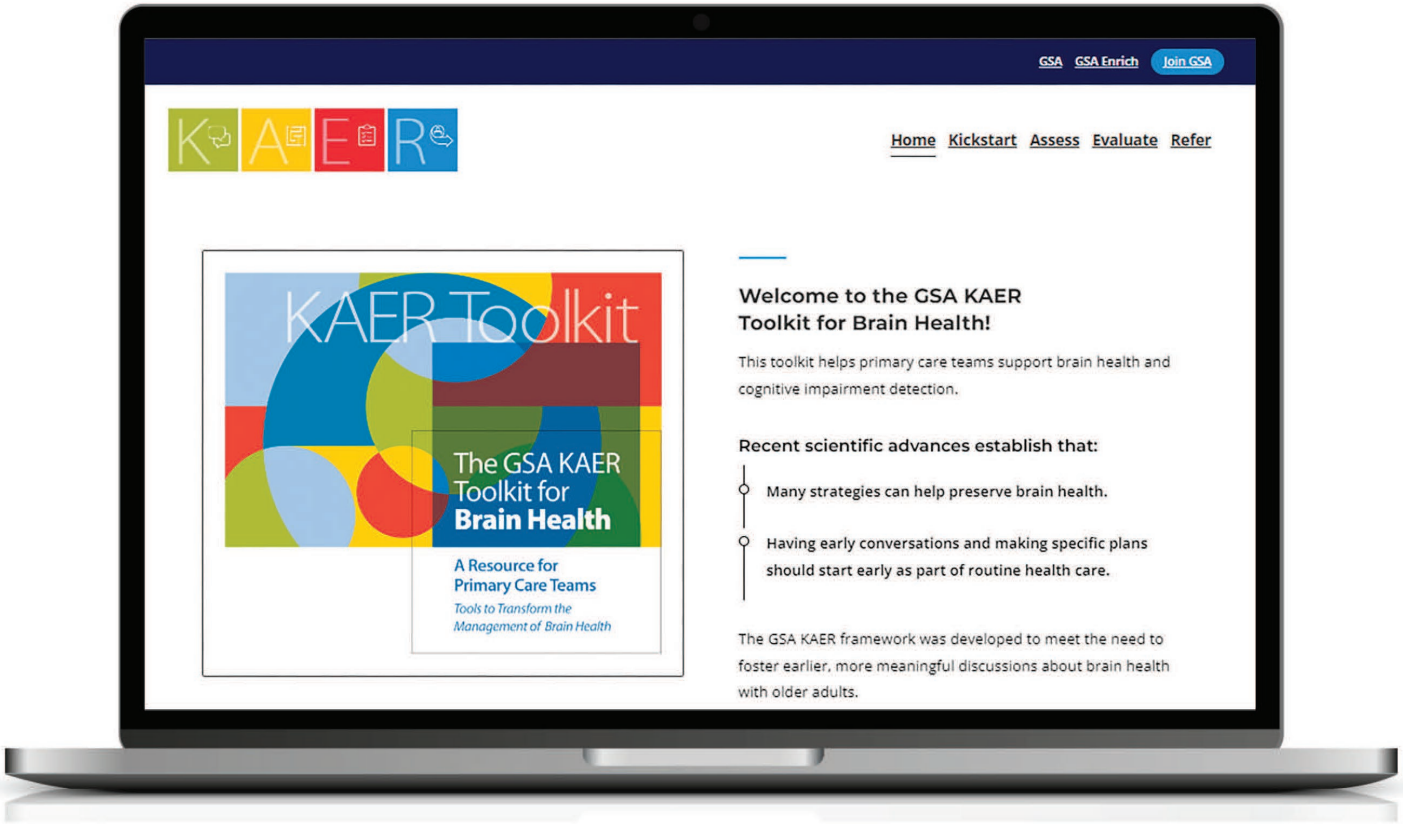


The GSA KAER Toolkit for Brain Health

GSA GERONTOLOGICAL SOCIETY OF AMERICA®
FLOWCODE
PRIVACY.FLOWCODE.COM

The GSA KAER Toolkit for Brain Health

Support provided by Eisai, Genentech, Lilly, Otsuka

Questions, Answers, and Discussion

Jen Pettis

jpettis@geron.org

Summa Health Senior Health Symposium: **Session 4**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Deciphering Dementia: Exploring Etiologies and Subtypes

Natalie Kayani, M.D.
Senior Health
Summa Health System

Summa Health

Deciphering Dementia: Exploring Etiologies and Subtypes

Natalie Kayani, M.D.
Summa Geriatric Medicine
10.15.2024

Objectives

1. Identify key etiologies and distinguish between different types of dementia.
2. Understand the underlying causes and characteristic features of various dementia subtypes.

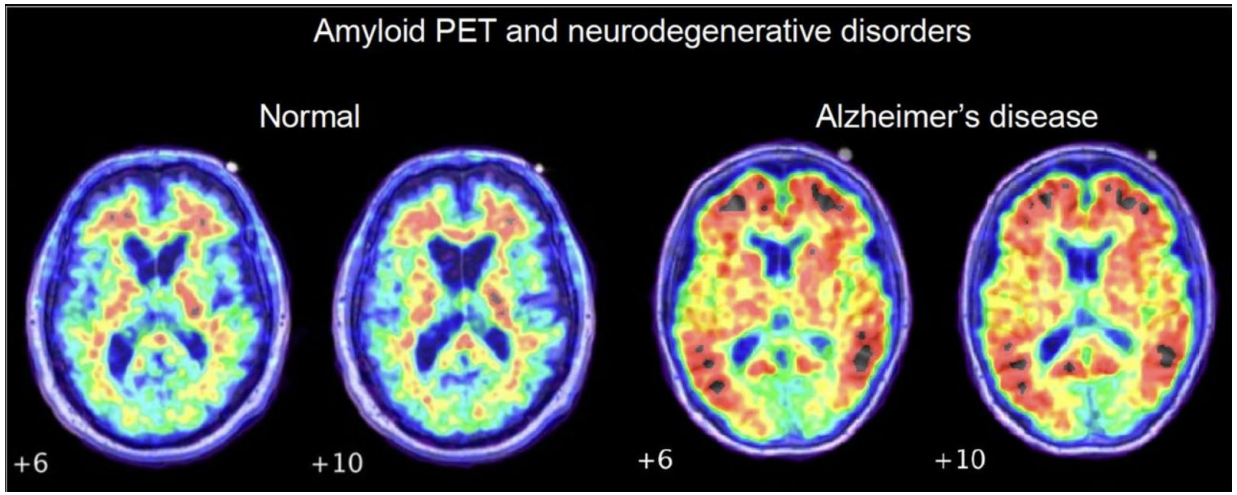
Agenda

1. Overview definition of dementia
2. Discuss common types of dementia:
   - Clinical features
   - Staging
   - Pathophysiologic changes
   - Neuropsychological profiles

What is the definition of dementia?

What is dementia?

- Cognitive losses that lead to functional decline.



What is dementia?

- Cognitive losses that lead to functional decline.
- Cognitive losses that can occur:
  - Memory loss
  - Difficulty focusing or completing a task
  - Difficulty understanding or following instructions
  - Trouble with vision (visuospatial)
  - Difficulty recognizing people, objects or places
  - Mood changes
  - Behavior changes
  - Loss of motivation
  - Unaware of surroundings
  - Difficulty solving problems

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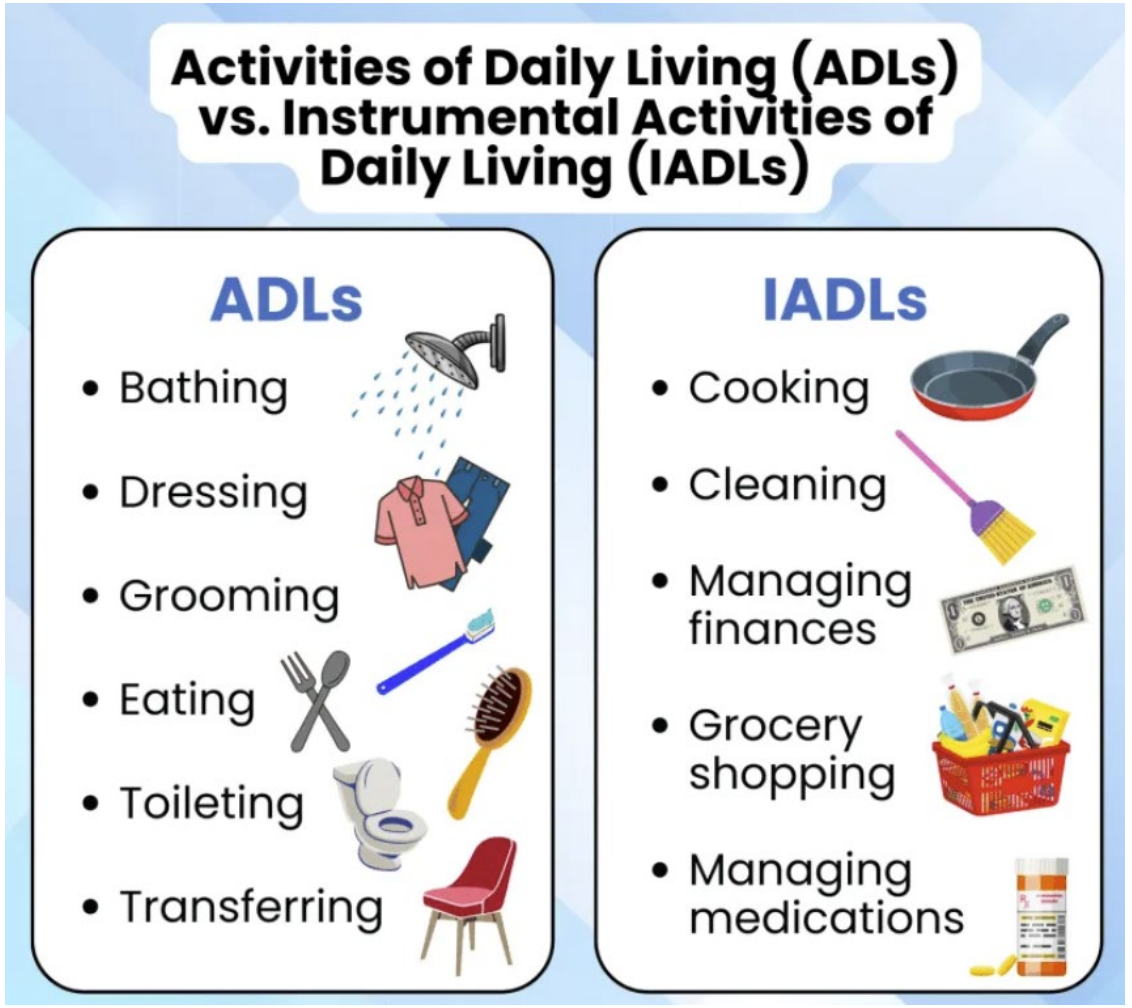
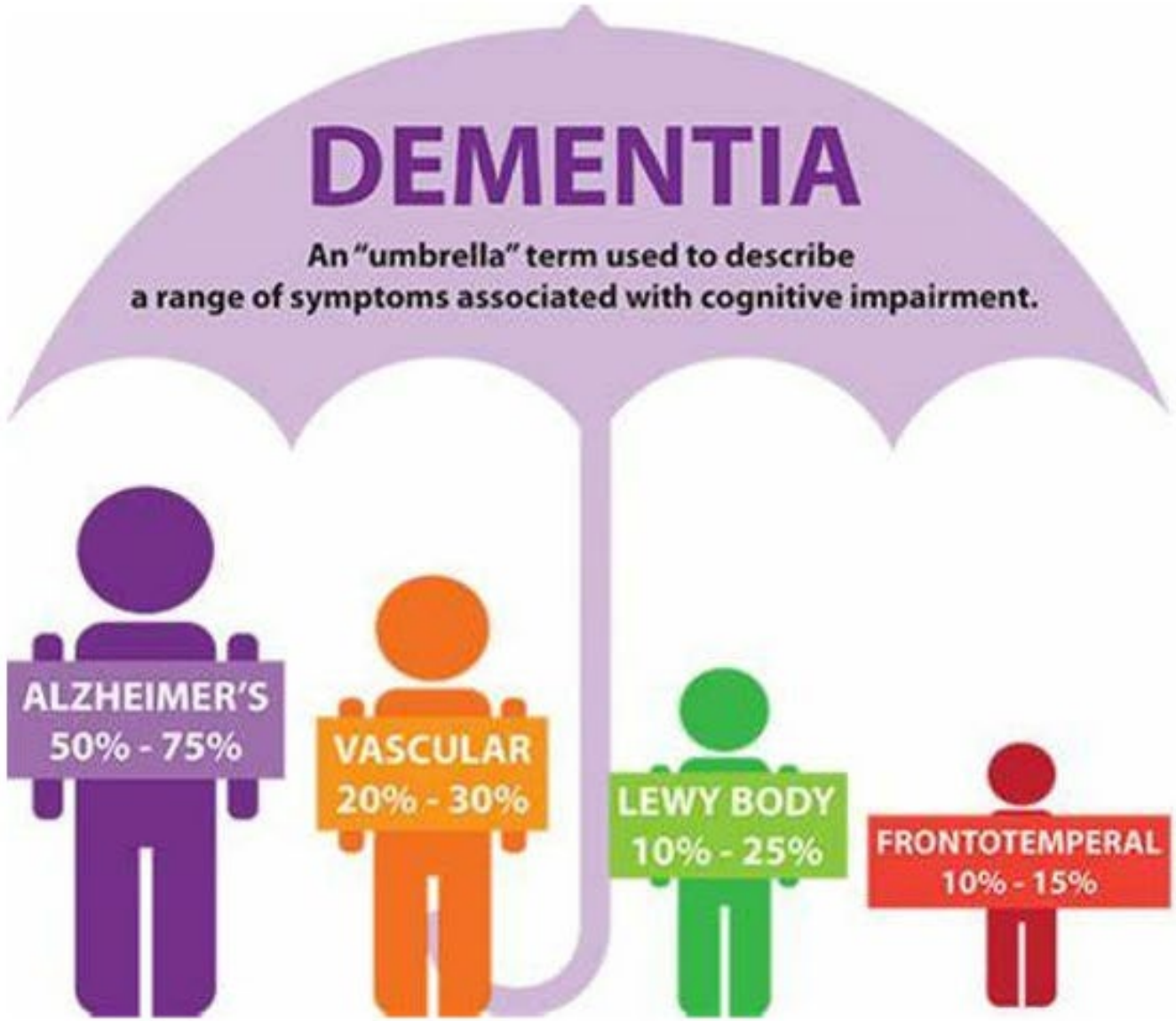
  - Difficulty recognizing people, objects or places
  - Mood changes
  - Behavior changes
  - Loss of motivation
  - Unaware of surroundings
  - Difficulty solving problems
- Leading to functional decline:
  - Trouble with finances, shopping, cooking, medications, driving, bathing, dressing



Types of dementias:
clinical features
pathologic features

Types of dementias

- At least 50 different kinds
- Most common:
  - Alzheimer's
  - Vascular
  - Lewy Body
  - Frontotemporal



50+ types of dementias

- Alzheimer’s
- Vascular
- Dementia with Lewy Bodies/Parkinson’s Dementia
- Frontotemporal (Behavioral and Primary Progressive Aphasia)
- Normal Pressure Hydrocephalus
- Creutzfeldt-Jakob
- Huntington’s
- Corticobasal degeneration
- Progressive Supranuclear Palsy
- Chronic traumatic encephalopathy (CTE)– repeated traumatic brain injury
- LATE (limbic-predominant age-related TDP-43 encephalopathy)
- Hippocampal sclerosis
- Alcohol-related dementia
- Wernicke-Korsakoff syndrome (alcohol-induced persisting amnestic syndrome)
- Result of long-standing bipolar disorder, schizophrenia, etc

Types of dementias

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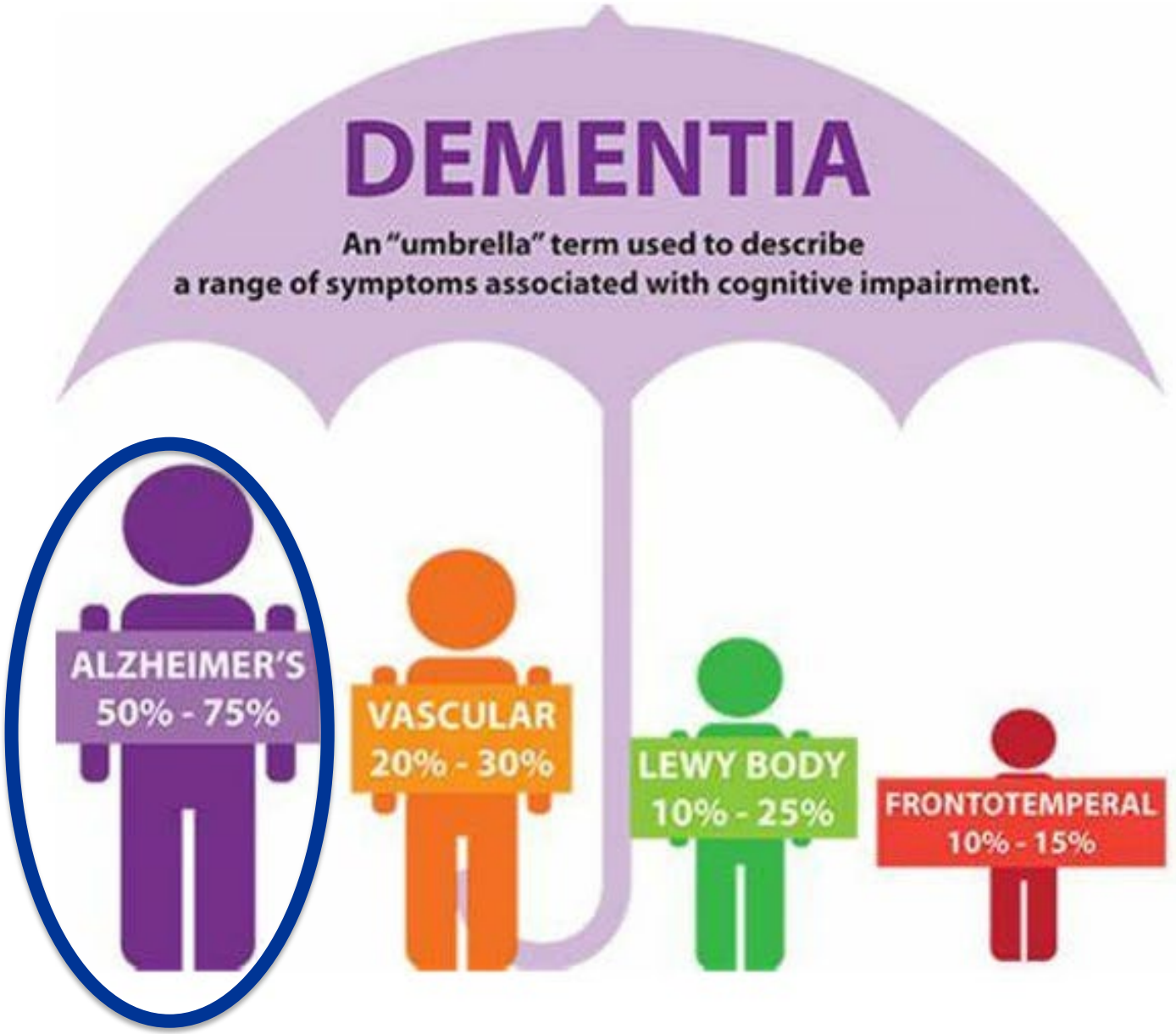
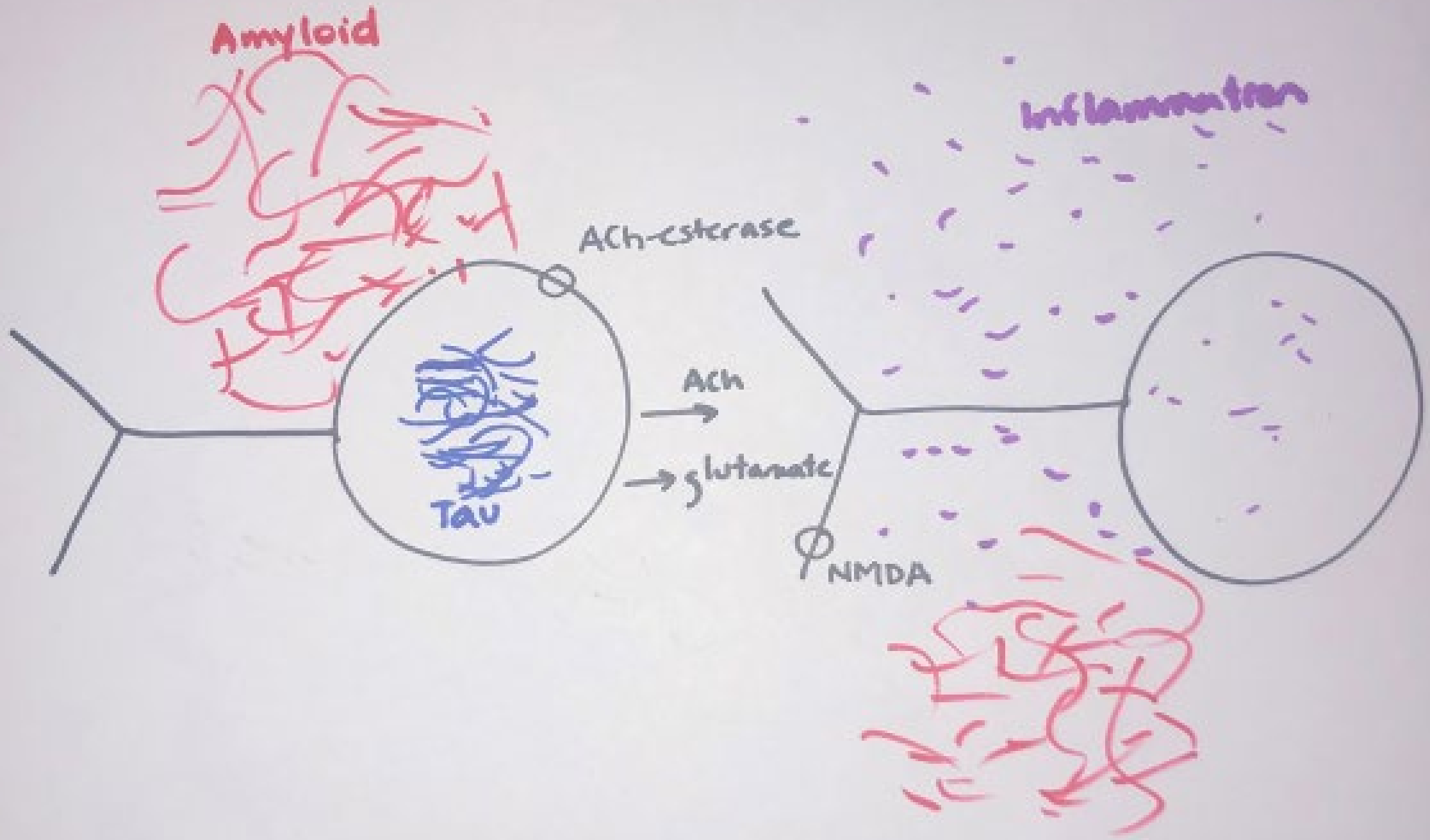


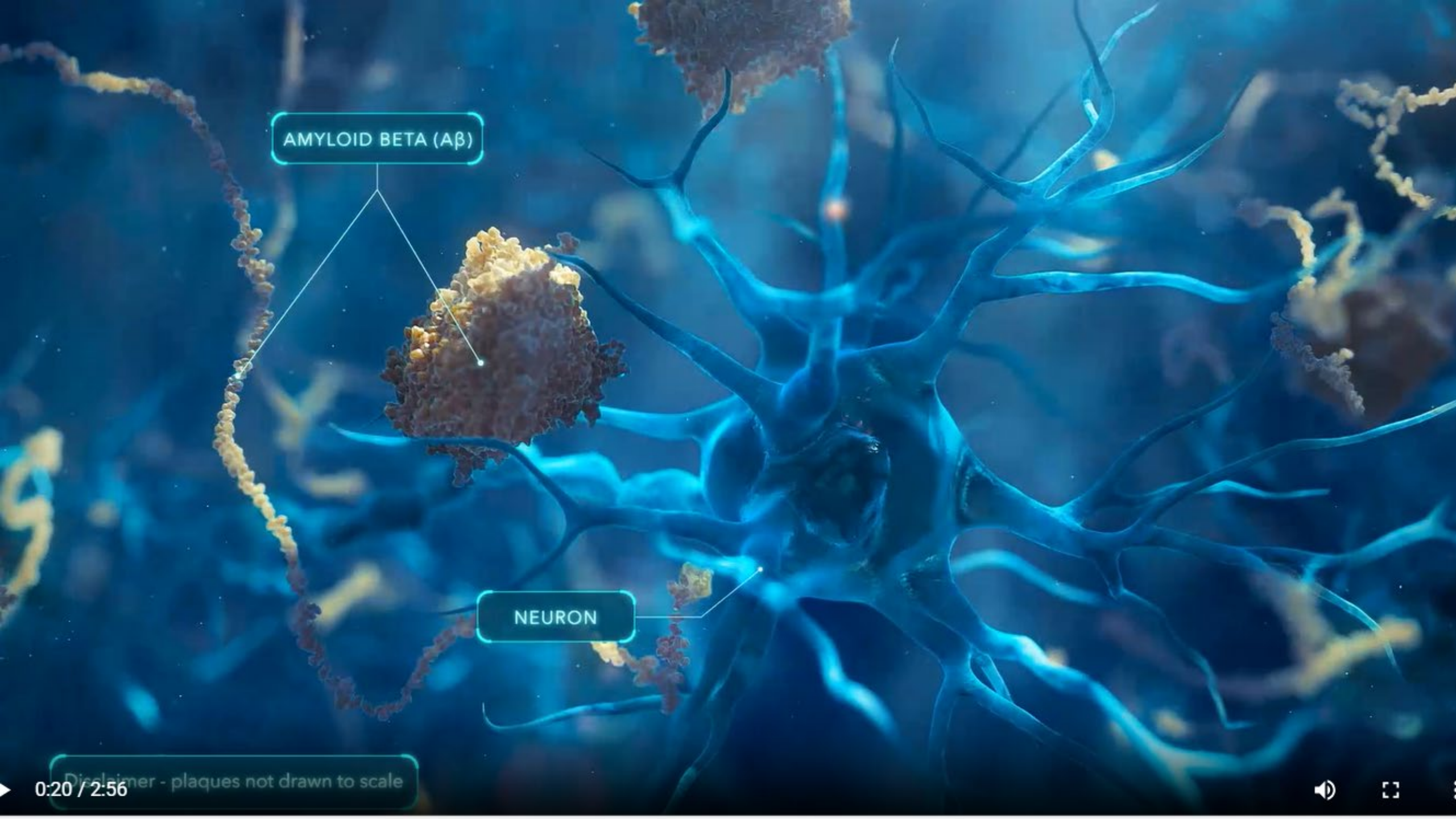
Alzheimer's Dementia

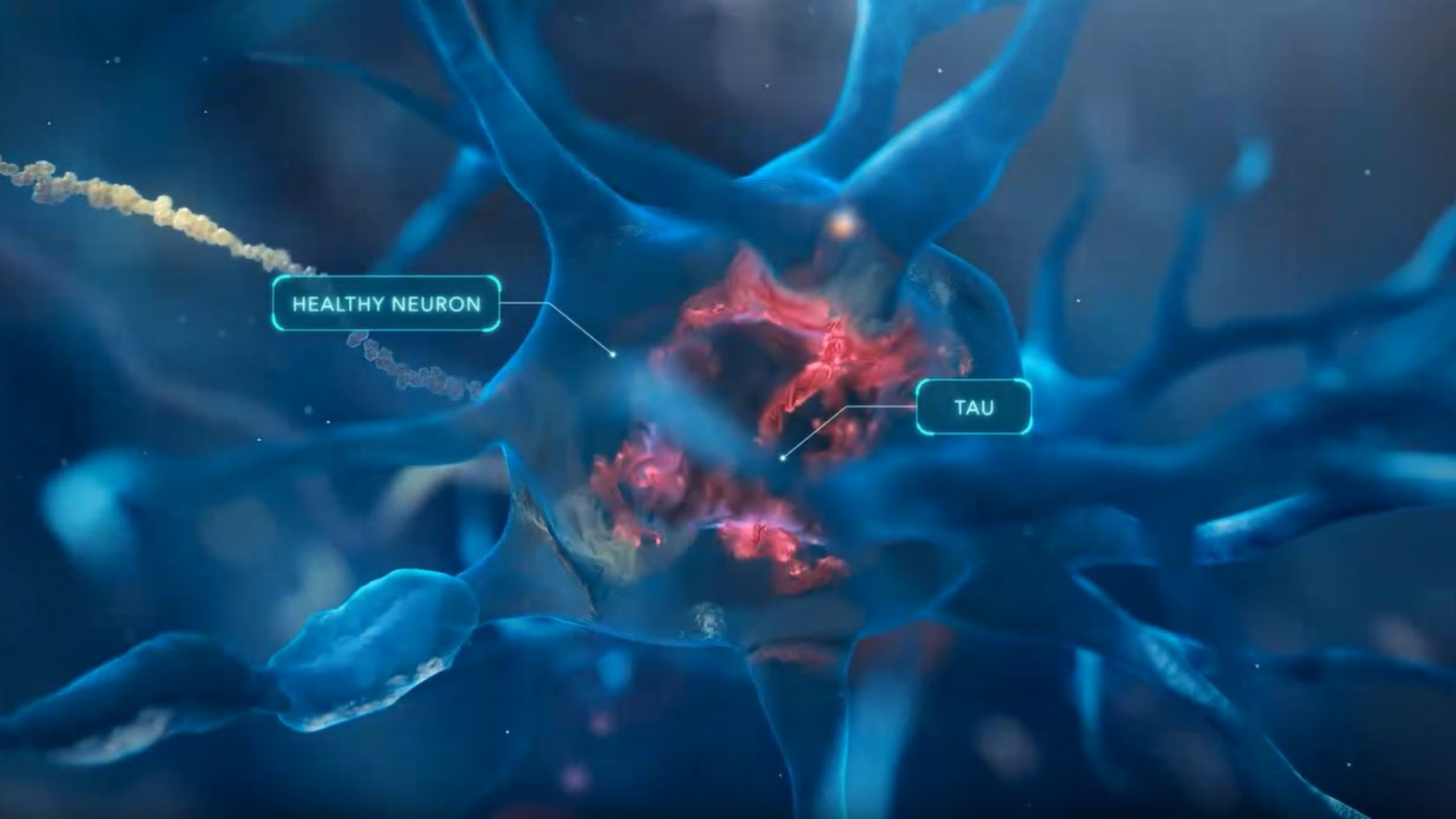
- Impairment in at least one area of cognition
  - Memory- trouble learning new information
  - Visuospatial ability- inability to recognize common objects or find objects in direct view, inability to operate simple tools or orient clothing to body
  - Language- difficulty in speaking, reading or writing
  - Executive function (planning, sequencing, organizing, problem solving, reasoning, judgment, handling complex tasks)
  - Personality or behavior- agitation, loss of interest in activities, social withdrawal, socially unacceptable behaviors
- Worse than baseline
- Slowly changing over time
- Leading to impairment in ability to carry out Activities of Daily Living

Neuropathology of Alzheimer’s disease

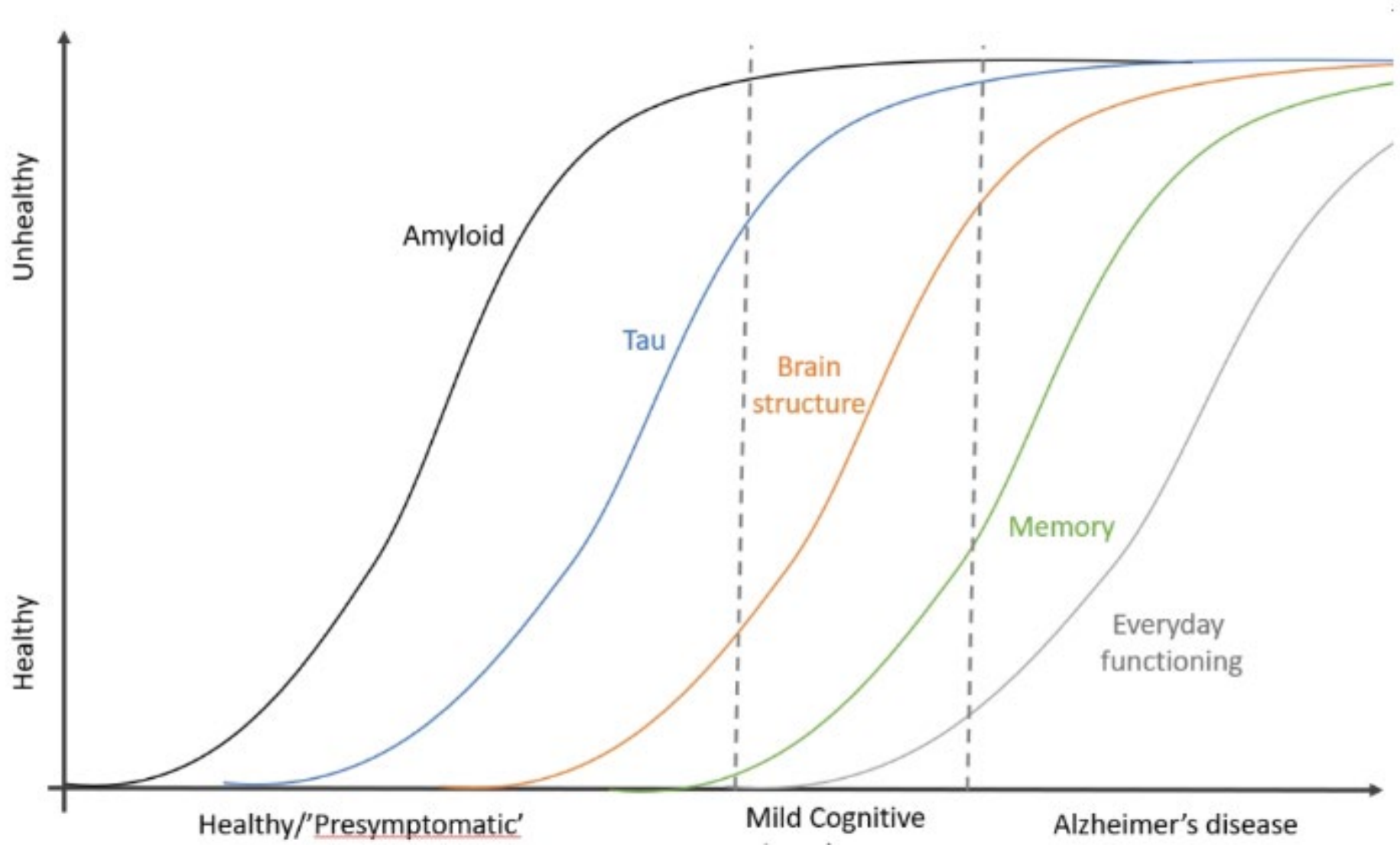
- Amyloid plaques
- Neurofibrillary tau tangles
- Oxidative damage
- Inflammation


Amyloid
Inflammation
ACh-esterase
ACh
glutamate
Tau
NMDA


AMYLOID BETA (Aβ)
NEURON
Disclaimer - plaques not drawn to scale
0:20 / 2:56


HEALTHY NEURON
TAU

Theoretical progression of Alzheimers



Common behavioral changes

- Mild stage
  - Anxious or depressed
  - Apathy- Loss of interest
  - Repetitive
  - Lack of recognition of a problem
  - Difficulty with organizing and planning
- Moderate stage
  - Resistance to help
  - Irritability
  - Paranoia
  - Reduced hygiene
- Moderately severe stage
  - Day-night reversal
  - Sexually inappropriate behavior
  - Wandering
  - Wearing inappropriate clothing
  - Sundowning
  - Shadowing
  - Outbursts
  - Hallucinations
  - Incontinence

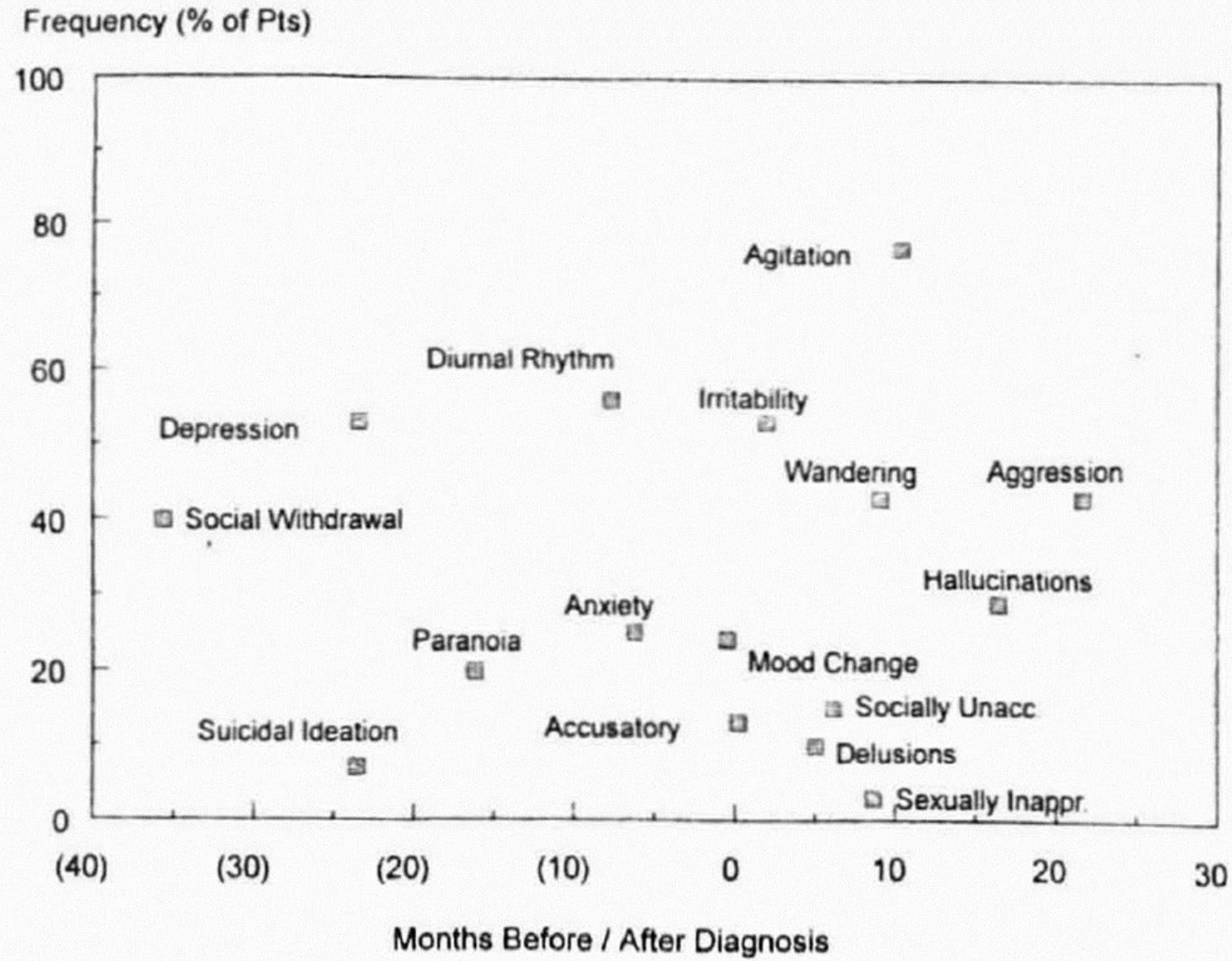


Figure 1. Time-density plot of psychiatric symptoms.

Types of dementias

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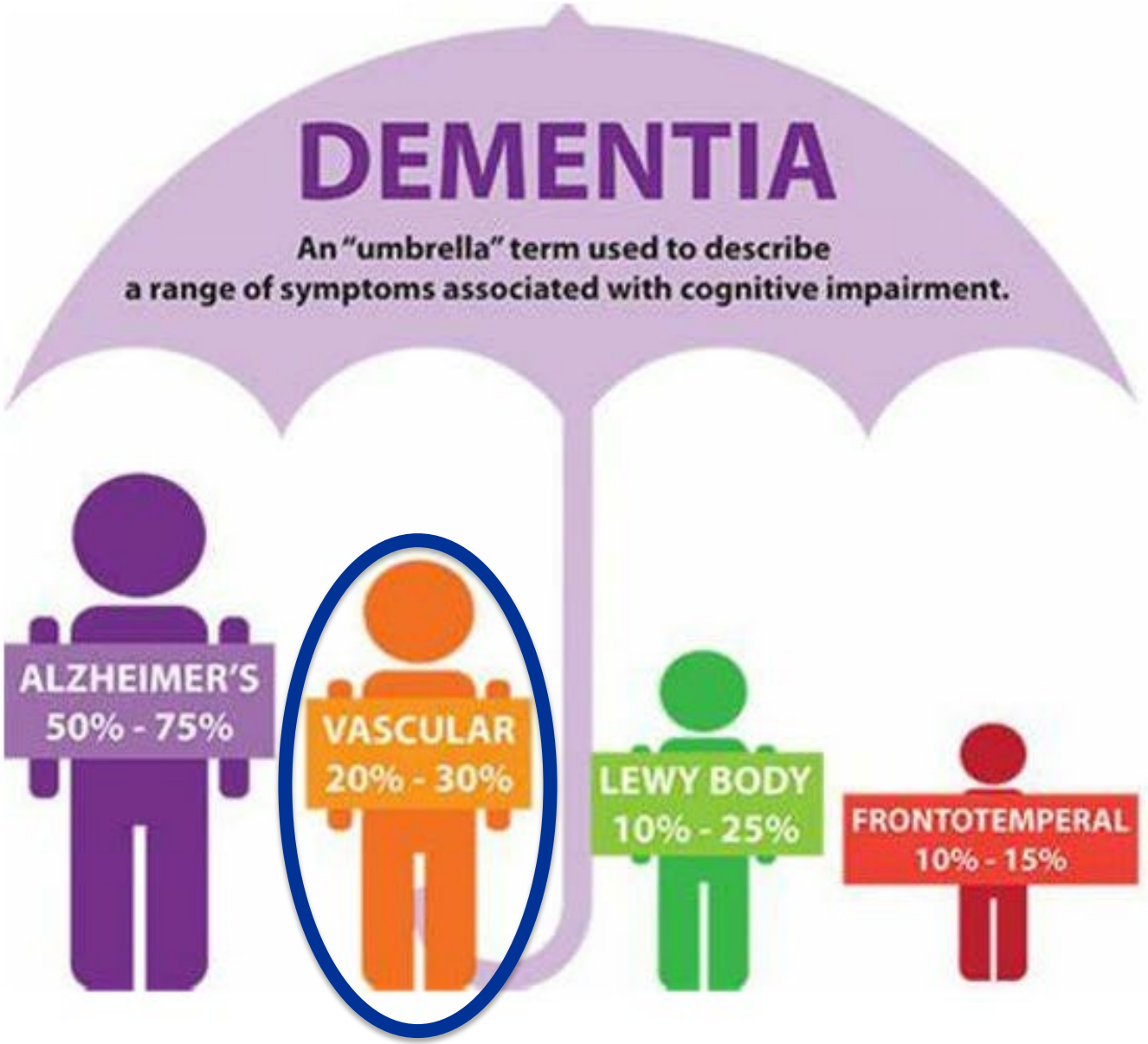
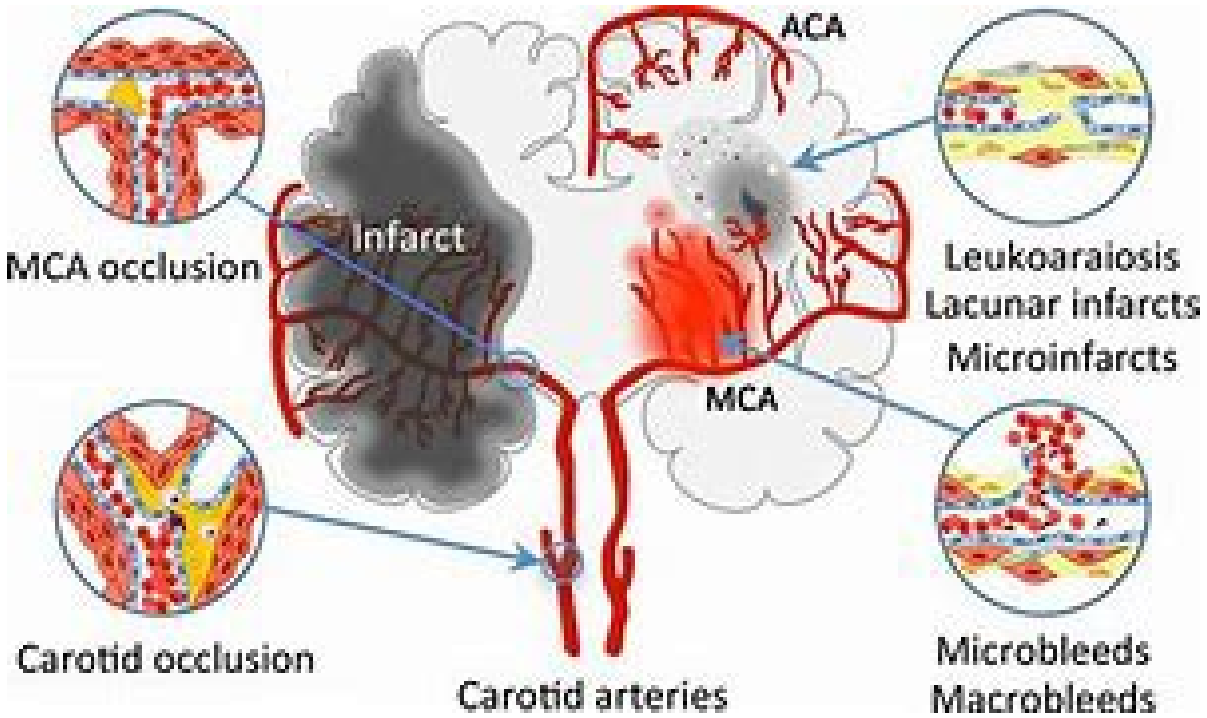
  - Vascular
  - Lewy Body
  - Frontotemporal



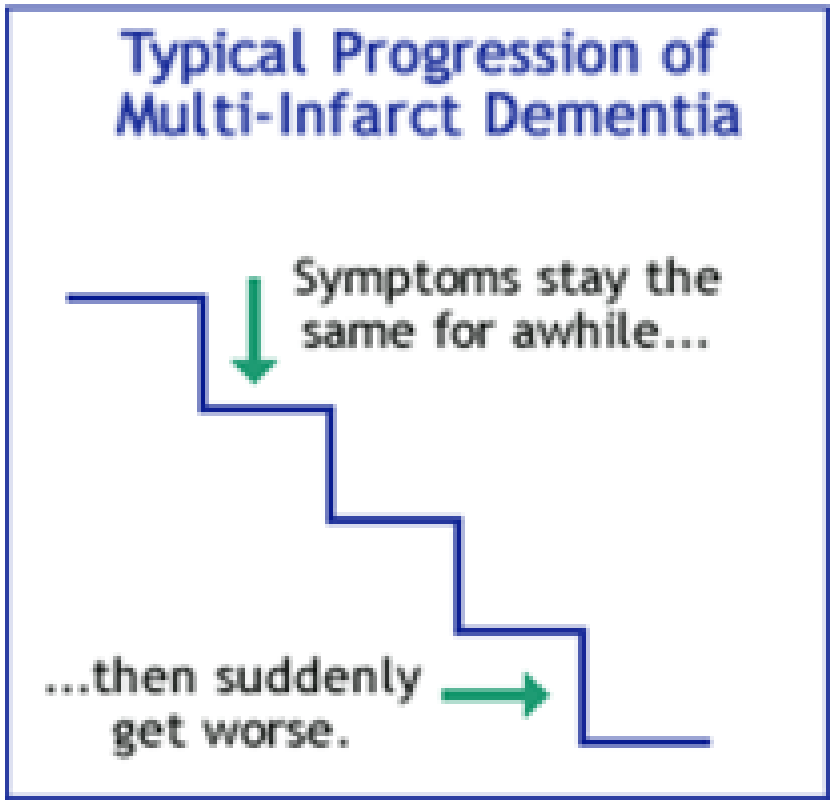
Vascular Dementia

- Can start from any kind of blood vessel problem
  - Strokes due to clogged arteries
  - Strokes due to bleeding
  - Strokes due to blood clots
  - Lack of oxygen
  - Very low blood pressure for long period
    - Septic shock



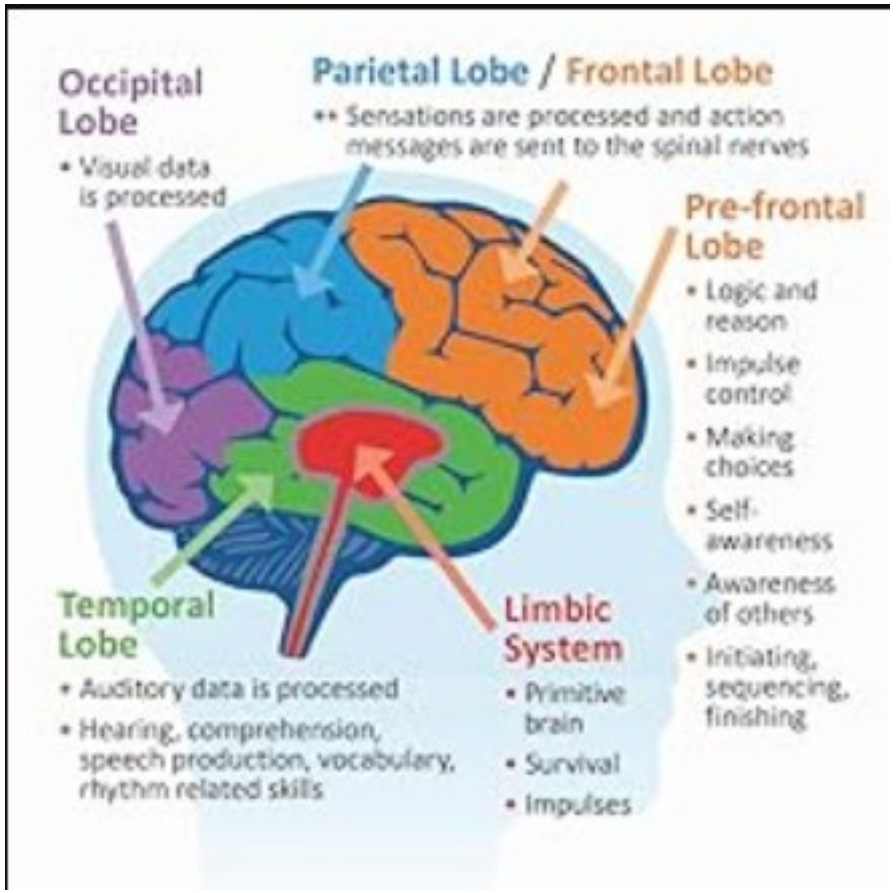
Vascular Dementia

- Symptoms depend on which part of the brain is affected
- Tend to have some kind of event and then sudden change



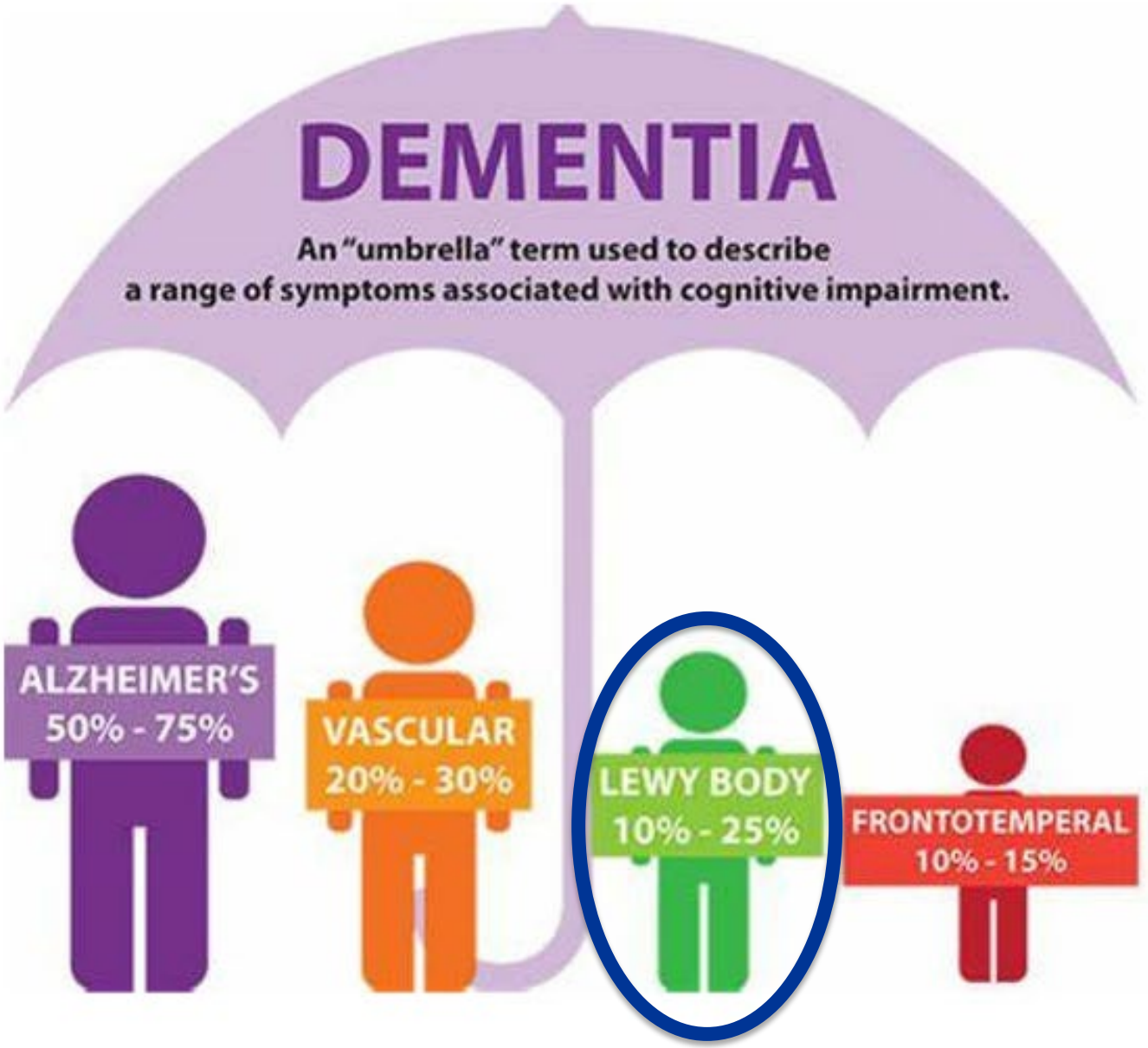
Vascular Dementia

- Common symptoms:
  - Slowed thinking or speech
  - Impaired executive function
    - Difficulty making decisions, planning, organizing
  - Less emotional
  - Difficulty with motor function
    - Changes in walking
      - Slow gait
      - Poor balance



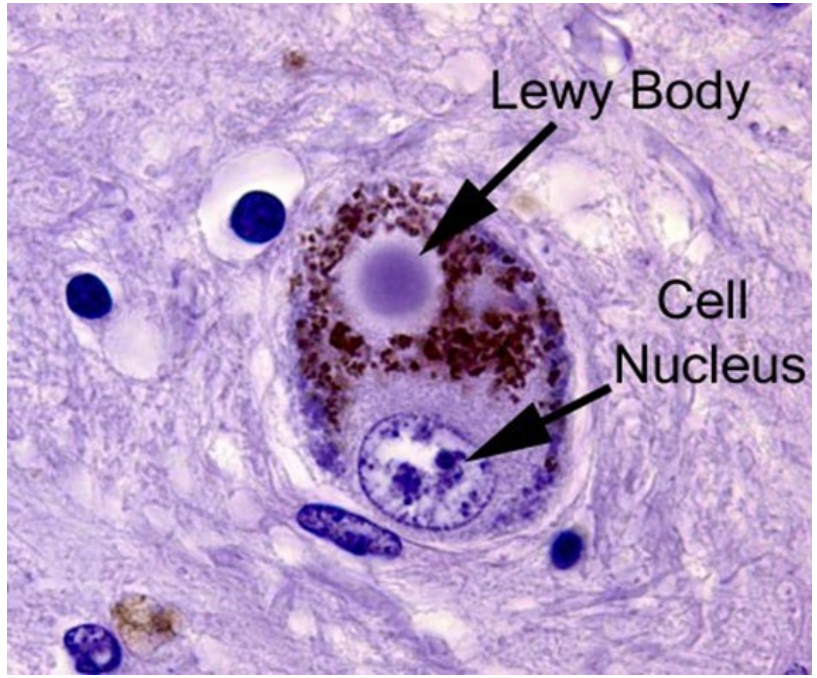
Types of dementias

- At least 50 different kinds
- Most common:
  - Alzheimer's
  - Vascular
  - Lewy Body
  - Frontotemporal



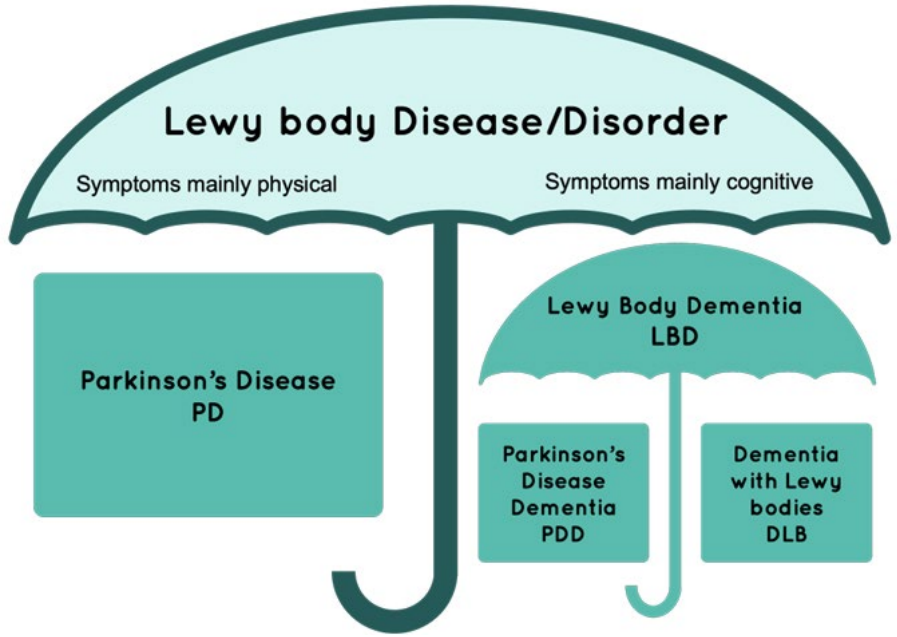
Dementia with Lewy Bodies (DLB)

- Unclear what causes the symptoms
  - Acetylcholine deficiency more pronounced in DLB than AD
  - Dopamine levels diminished
- “Lewy bodies” present in different areas of the brain
  - aggregated alpha synuclein
  - Unclear function
- Lewy neurites involved as well
- other pathologies (about half of patients):
  - amyloid plaques
  - neurofibrillary tangles



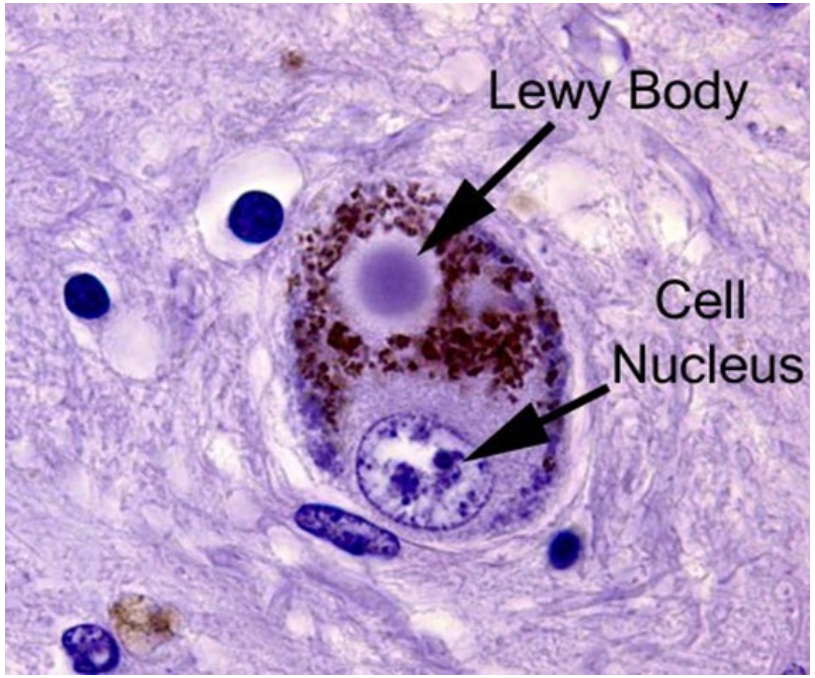
- Location of Lewy bodies determines the clinical presentation:
  - In brainstem and cerebral cortex
    - Dementia starts first
    - Called **Dementia with Lewy Bodies**
  - In brainstem first and later in cortex
    - Dementia occurs later in disease
    - Called **Parkinson disease dementia**

- The “1 year rule”
  - Not much biological foundation



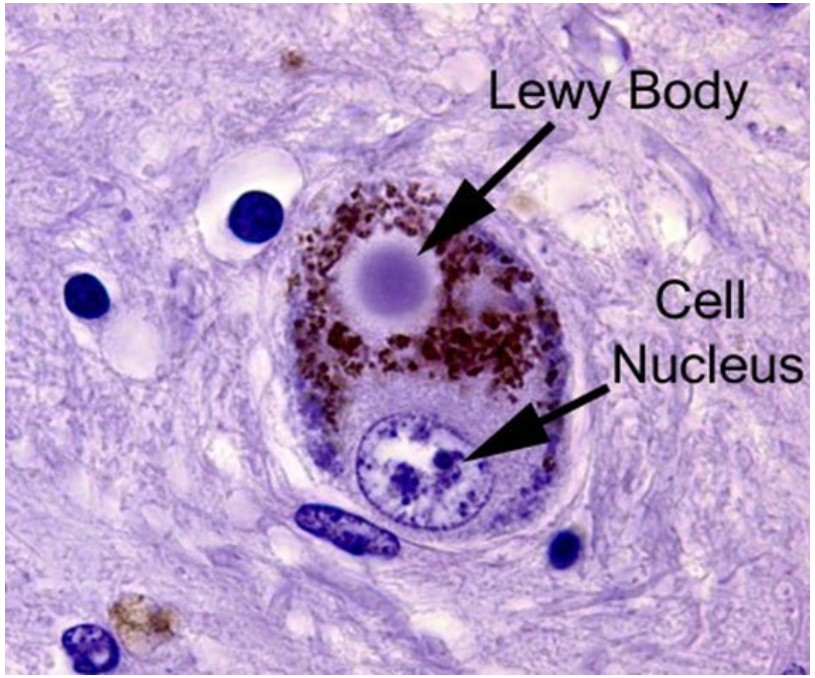
Dementia with Lewy Bodies (DLB)

- Core clinical features:
  - Fluctuations in cognition from hour to hour
    - Change from almost normal to “out of it”/confused in a matter of hours. Then back to normal.



Dementia with Lewy Bodies (DLB)

- Core clinical features:
  - Fluctuations in cognition from hour to hour
    - Change from almost normal to “out of it”/confused in a matter of hours. Then back to normal
  - Visual hallucinations
    - Very clearly see things that aren’t there (often little kids)



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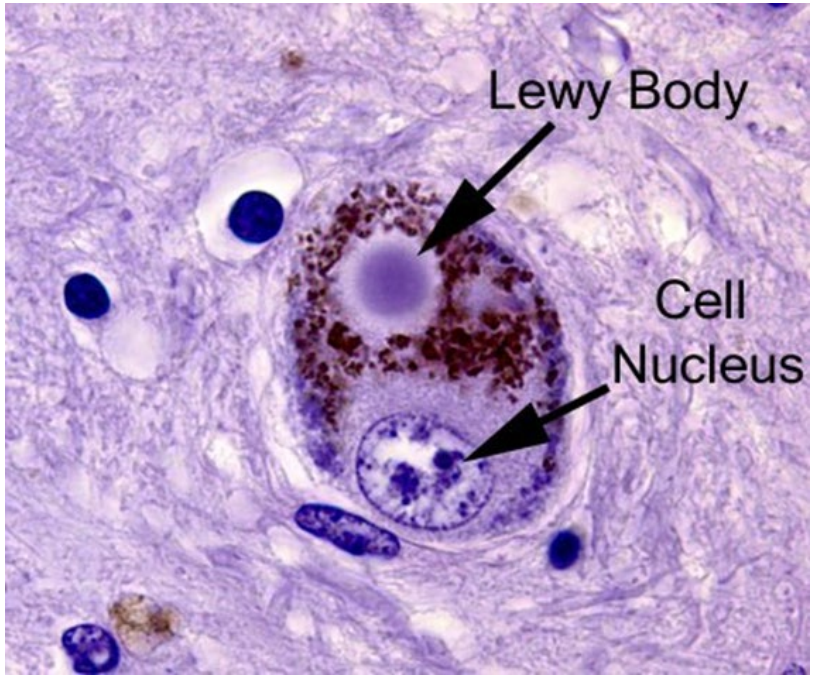
  - Parkinson’s like changes- shuffle when they walk, stiffness, slowness



Dementia with Lewy Bodies (DLB)

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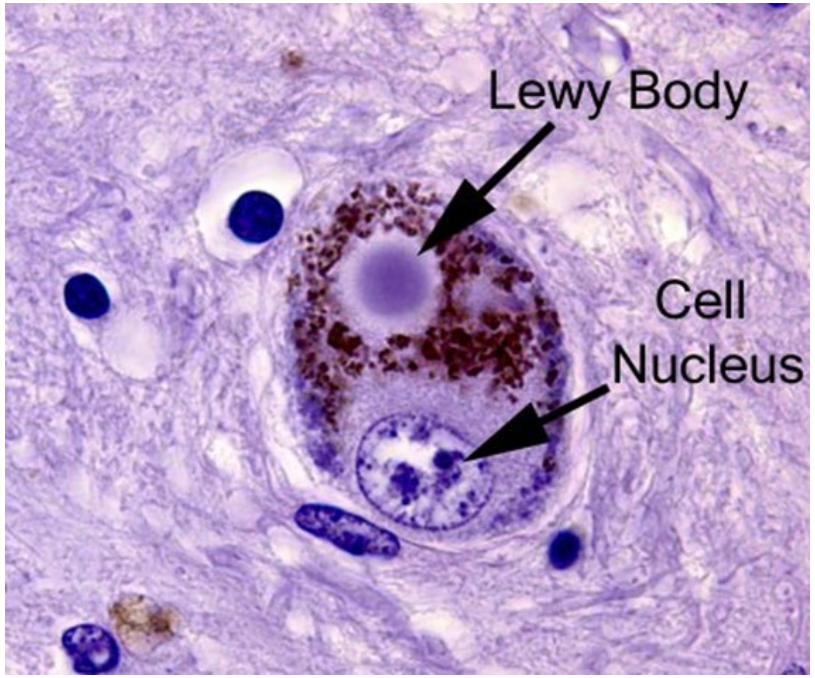
  - Fluctuations in cognition from hour to hour
    - Change from almost normal to “out of it”/confused in a matter of hours. Then back to normal
  - Visual hallucinations
    - Very clearly see things that aren’t there (often little kids)
  - Parkinson’s like changes- shuffle when they walk, stiffness, slowness
  - REM sleep disorder
    - Act out dreams (yells and punch/kicks while sleeping)
    - Starts about 20-30 years before the dementia

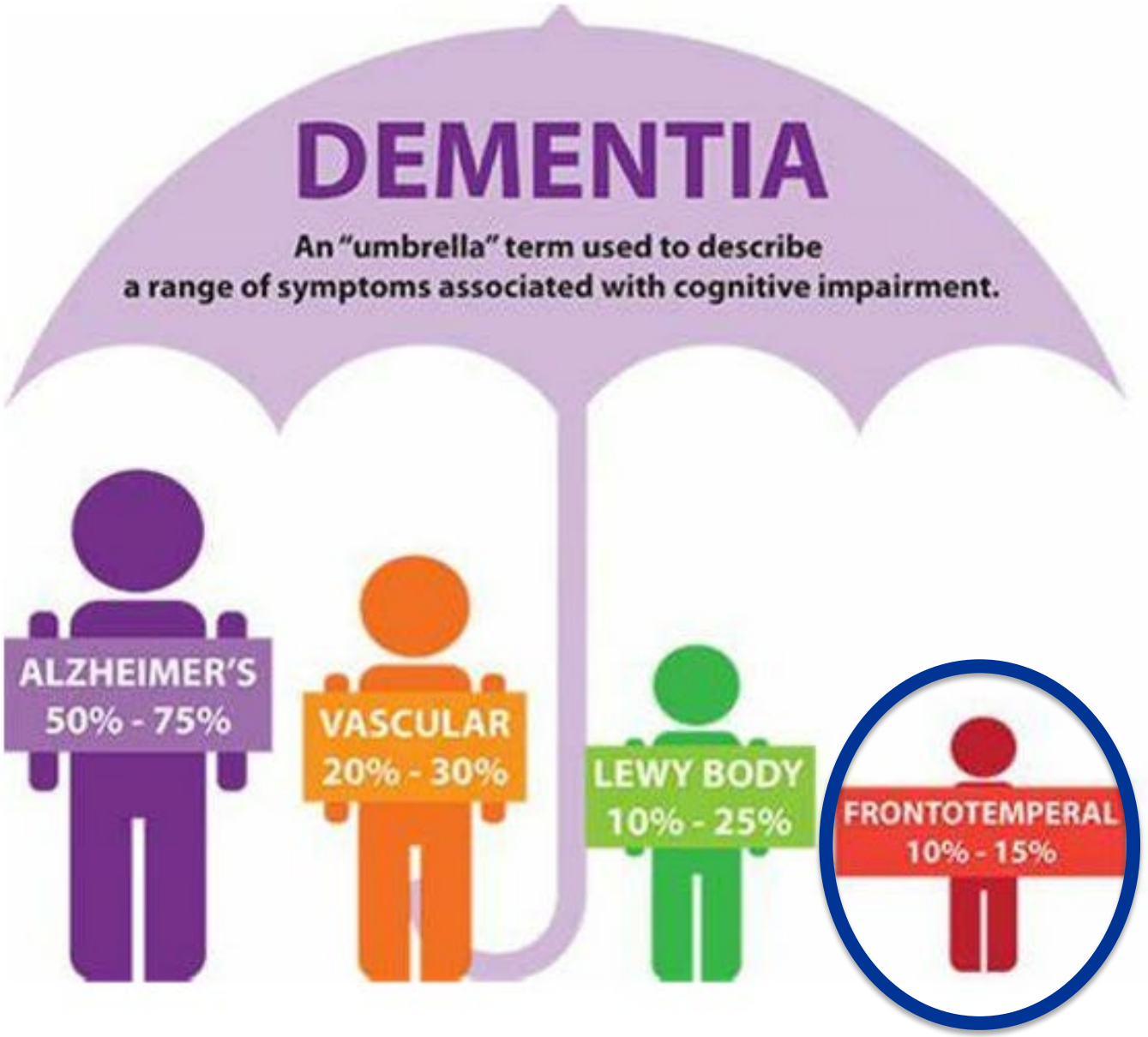


Dementia with Lewy Bodies (DLB)

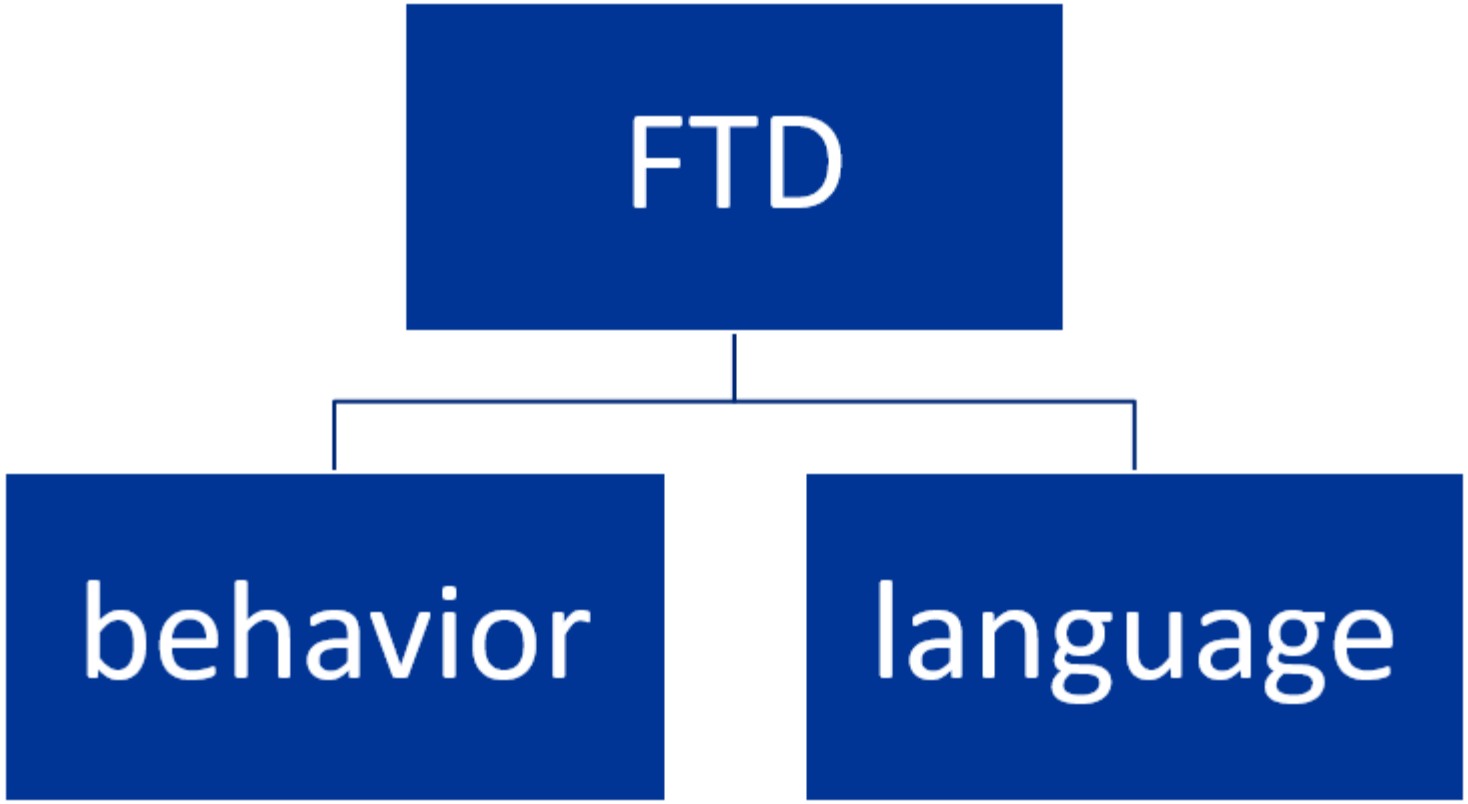
- Supporting features:
  - Autonomic dysfunction
    - Orthostatic hypotension
  - Unexplained falls (especially backwards)
  - Depression
  - Sensitivity to antipsychotic medication (EPS side effects)
  - Hypersomnia
  - Hyposmia

Types of dementias

- At least 50 different kinds
- Most common:
  - Alzheimer's
  - Vascular
  - Lewy Body
  - Frontotemporal

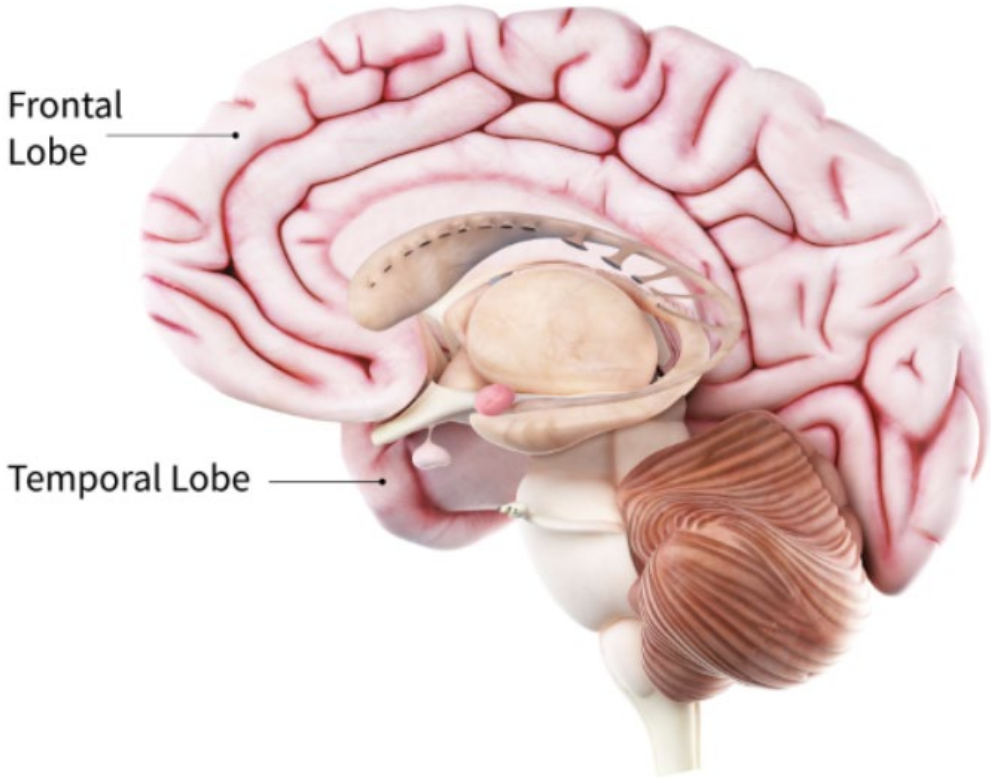


Frontotemporal Dementia



Behavioral Variant Frontotemporal Dementia (bv-FTD)

- Happens at a young age– typically 50s and 60s
  - Behaviors
    - Socially inappropriate behavior or impulsive/careless actions (reckless buying, sexually inappropriate)
    - Apathy (no motivation, loss of interest)
    - Loss of empathy (cold/detached)
  - Repetitive or compulsive behaviors
  - Changes in eating habits (compulsive eating)
  - Executive dysfunction- trouble with planning, organizing, mental flexibility and generation of ideas



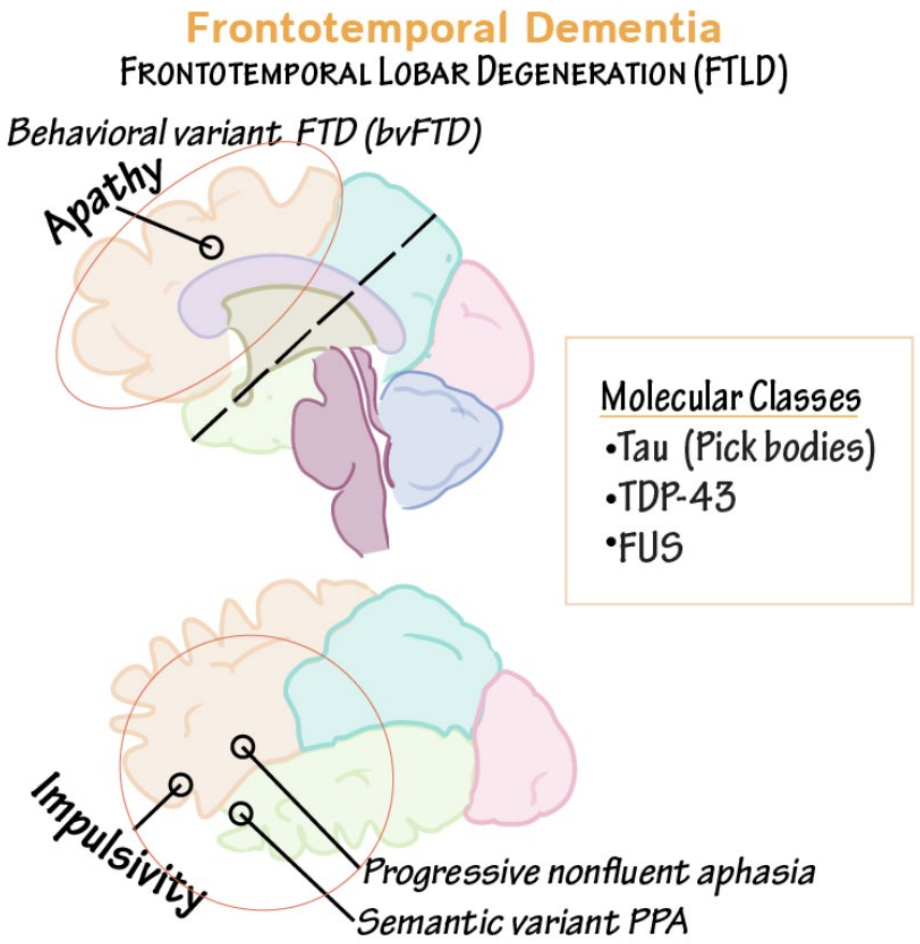
Language Frontotemporal Dementias

- Primary Progressive Aphasia (PPA):
  - Agrammatic PPA
  - Logopenic PPA
- Semantic Dementia

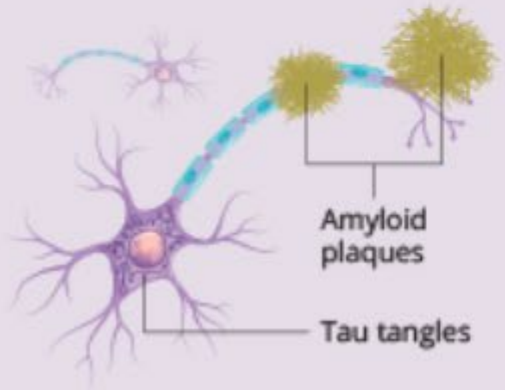
  - Start with 2 years of language problems
    - Make up new words/nonsensical
    - Switch words
    - Trouble naming things
    - Hard to understand words
    - Forget the meaning of words
    - Difficulty recognizing objects or faces

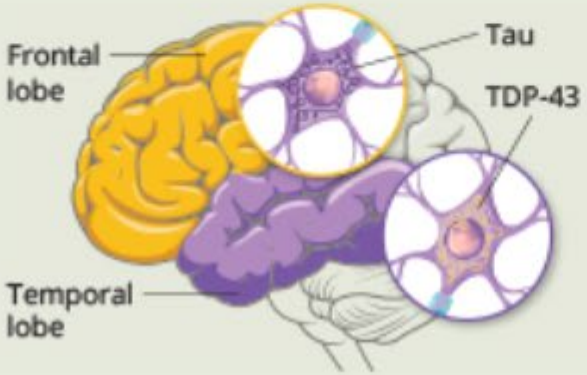
FTD pathology

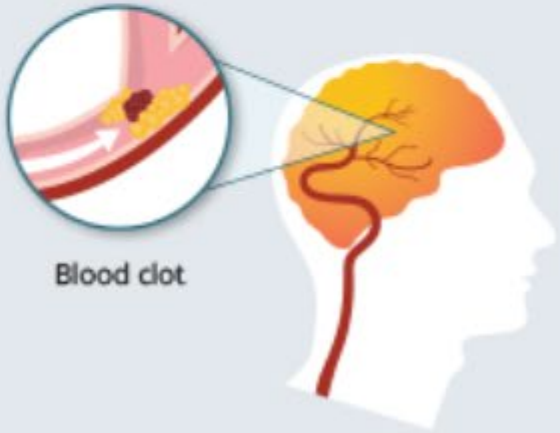
- 50% of cases have abnormal aggregates of transactive DNA-binding protein TDP-43
- 45% are tau protein associated
- 5% have tumor-associated protein (FUS)



Alzheimer's Disease	Frontotemporal Dementia	Lewy Body Dementia	Vascular Dementia
What Is Happening in the Brain?*			
Abnormal deposits of proteins form amyloid plaques and tau tangles throughout the brain.	Abnormal amounts or forms of tau and TDP-43 proteins accumulate inside neurons in the frontal and temporal lobes.	Abnormal deposits of the alpha-synuclein protein, called "Lewy bodies," affect the brain's chemical messengers.	Conditions, such as blood clots, disrupt blood flow in the brain.

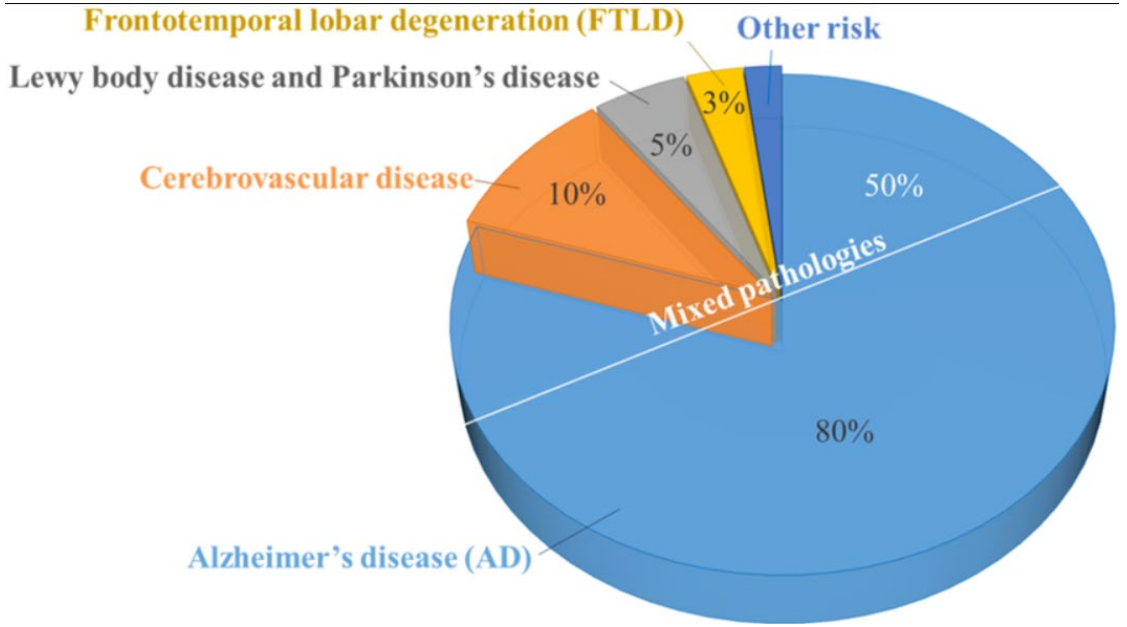






Mixed Dementias

- Alzheimer's- most common dementia
  - estimated 60% to 80% of cases
  - most individuals also have the brain changes of one or more other causes of dementia
  - concomitant cerebrovascular disease pathologies (macroinfarcts, microinfarcts, atherosclerosis, arteriolosclerosis, cerebral amyloid angiopathy)
  - other concomitant neurodegenerative disease pathologies (Lewy bodies, TDP-43, hippocampal sclerosis)

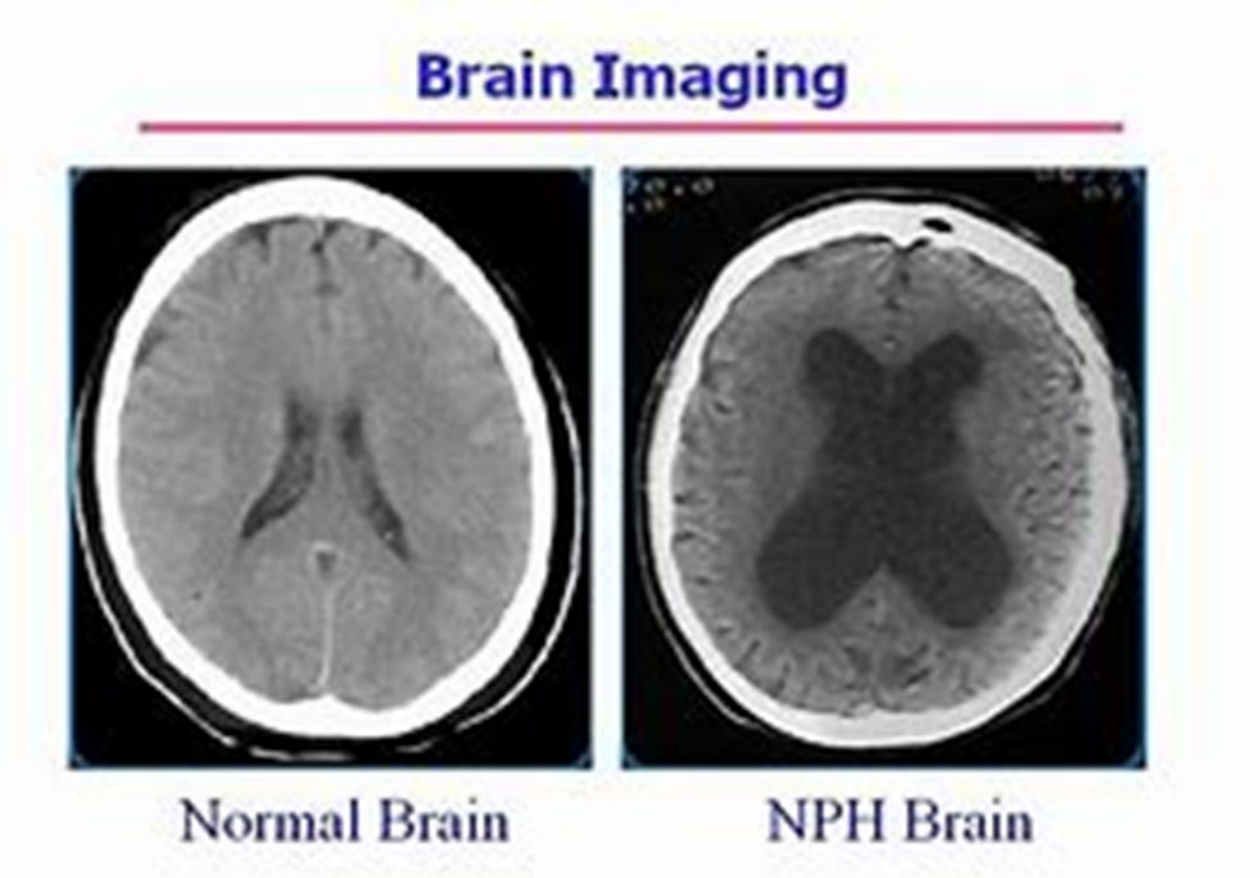


LATE (limbic-predominant age-related TDP-43 encephalopathy)

- Symptoms are similar to Alzheimer's
- But involves abnormal clusters of TDP-43 (the protein also involved in FTD and ALS)
- Tends to affect people over 80
- No way to diagnose it in living people

Normal Pressure Hydrocephalus (NPH)

- Excessive CSF in the brain



Normal Pressure Hydrocephalus (NPH)

- Symptoms- “wacky, wobbly, wet”

- Dementia (wacky)
  - Mild memory loss, reduced activities, executive function problems
- Abnormal walking (wobbly)
  - Like they are walking on the deck of a boat
    - Feet wide apart
    - Knees bent
    - Feet stuck to the ground
- Urinary incontinence (wet)
  - Tends to occur late in the disease

Clinical dementia assessment

What does a dementia assessment look like?

- History taking: stories of the cognitive and functional losses
  - Usually from someone other than the patient
- Physical exam: cognitive testing and neurological exam

- History taking: stories of the cognitive and functional losses
- Physical exam: cognitive testing and neurological exam
  - **MMSE- Mini Mental Status Exam**

Mini-Mental State Examination (MMSE)

Patient's Name: _____ Date: _____

***Instructions:* Ask the questions in the order listed. Score one point for each correct response within each question or activity.**

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day of the week? Month?"
5		"Where are we now: State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials: _____
5		"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, …) Stop after five answers. Alternative: "Spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Repeat the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "Close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.) 
30		TOTAL

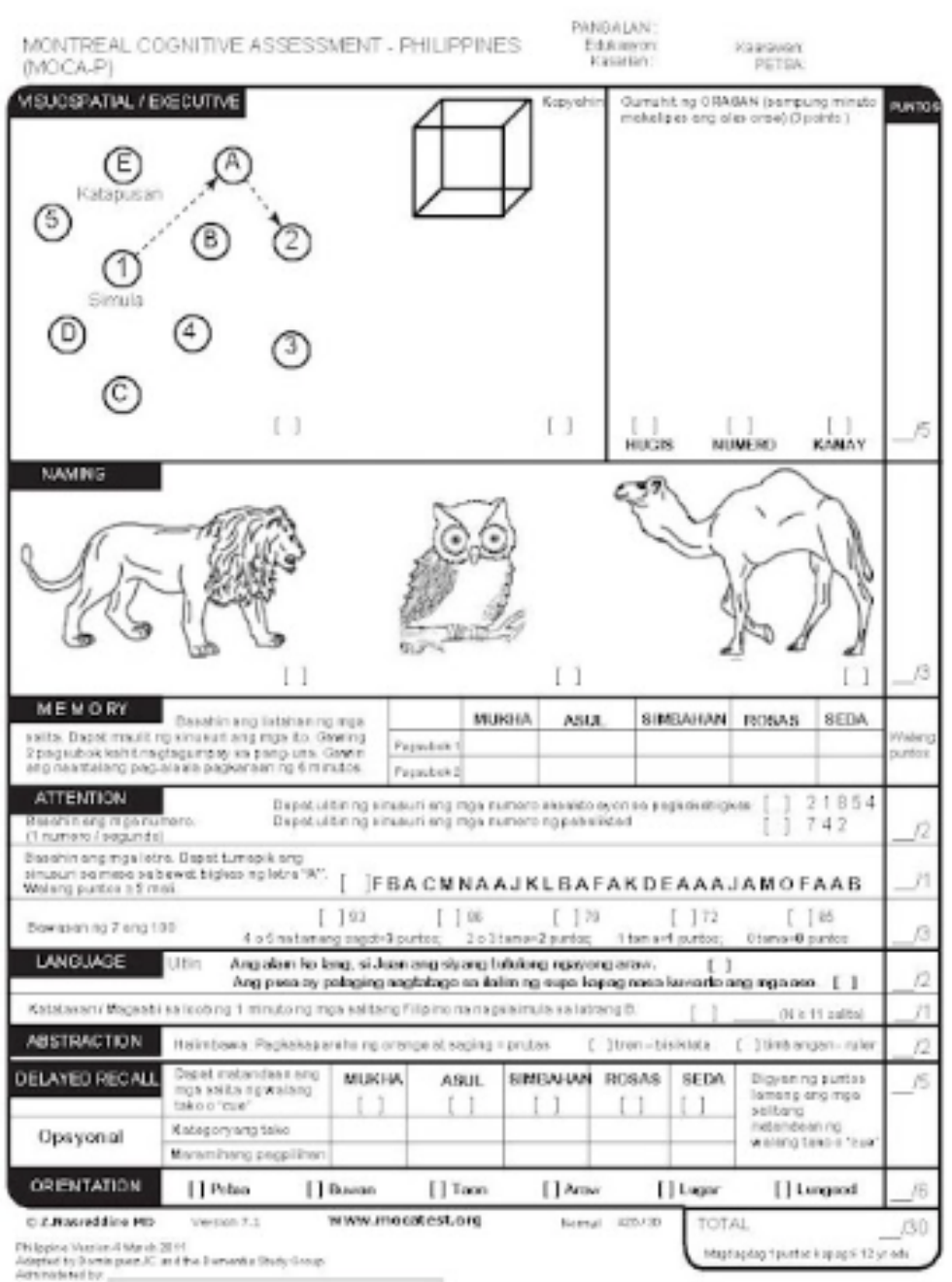
(Adapted from Rovner & Folstein, 1987)

1

Source: www.medicine.uiowa.edu/igec/tools/cognitive/MMSE.pdf

Provided by NHCQF, 0106-410

- History taking: stories of the cognitive and functional losses
- Physical exam: cognitive testing and neurological exam
  - **MoCA (Montreal Cognitive Assessment)**


MONTREAL COGNITIVE ASSESSMENT - PHILIPPINES (MOCA-P)

PANGALAN:
Edukasyon:
Kasarian:
Kasalukuyan:
PETSA:

VISUOSPATIAL / EXECUTIVE

Kopyahin

Gumuhit ng ORASAN (sampung minuto makalipas ang alas onse) (3 points)

PUNTOS

Katapusan
Simula
E A S B 2 1 D 4 3 C

[ ] [ ] [ ]
HUGIS NUMERO KAMAY

/5

NAMING

[ ] [ ] [ ]

/3

MEMORY

Basahin ang listahan ng mga salita. Dapat maulit ng sinasabi ang mga ito. Gawing 2 pagsubok kahit maghagumpay sa pangunahin. Gawin ang naantalang pag-alaala pagkatapos ng 5 minutos.

	MUKHA	ASUL	SIMBAHAN	ROSAS	SEDA
Pagsubok 1					
Pagsubok 2					

Walang puntos

ATTENTION

Basahin ang mga numero. (1 numero / segundo)

Dapat ulitin ang sinasabi ang mga numero ayon sa pagkakasunod-sunod [ ] 2 1 8 5 4

Dapat ulitin ang sinasabi ang mga numero nga pabaligtad [ ] 7 4 2

/2

Basahin ang mga letra. Dapat tumapik ang sinasabi sa mesa sa bawat bigkas ng letra "A". Walang puntos ≥ 5 mali

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

/1

Bawasan ng 7 ang 100

[ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 o 5 tamang sagot=3 puntos; 2 o 3 tamang=2 puntos; 1 tamang=1 puntos; 0 tamang=0 puntos

/3

LANGUAGE

Ulitin: Ang aklan ko lang, si Juan ang siyang lufulong ngayong araw. [ ]
Ang pusa ay palagingnagtatago sa ilalim ng supa kapag nasa kuwarto ang mga aso. [ ]

/2

Katatasan / Magsabi sa loob ng 1 minuto ng mga salitang Filipino na nagsisimula sa letrang B. [ ] ____ (N ≥ 11 salita)

/1

ABSTRACTION

Halimbawa: Pagkakaparehas ng orange at saging = prutas [ ] tren – bisikleta [ ] orasan – ruler

/2

DELAYED RECALL

Dapat maalala ang mga salita ng walang tako o "cue"

	MUKHA	ASUL	SIMBAHAN	ROSAS	SEDA
	[ ]	[ ]	[ ]	[ ]	[ ]

Opsyonal

Kategoryang tako

Maramihang pagpilian

Bigyan ng puntos lamang ang mga salitang naalala ng walang tako o "cue"

/5

ORIENTATION

[ ] Petsa [ ] Buwan [ ] Taon [ ] Araw [ ] Lugar [ ] Lungsod

/6

© Z.Nasreddine MD Version 7.1 www.mocatest.org

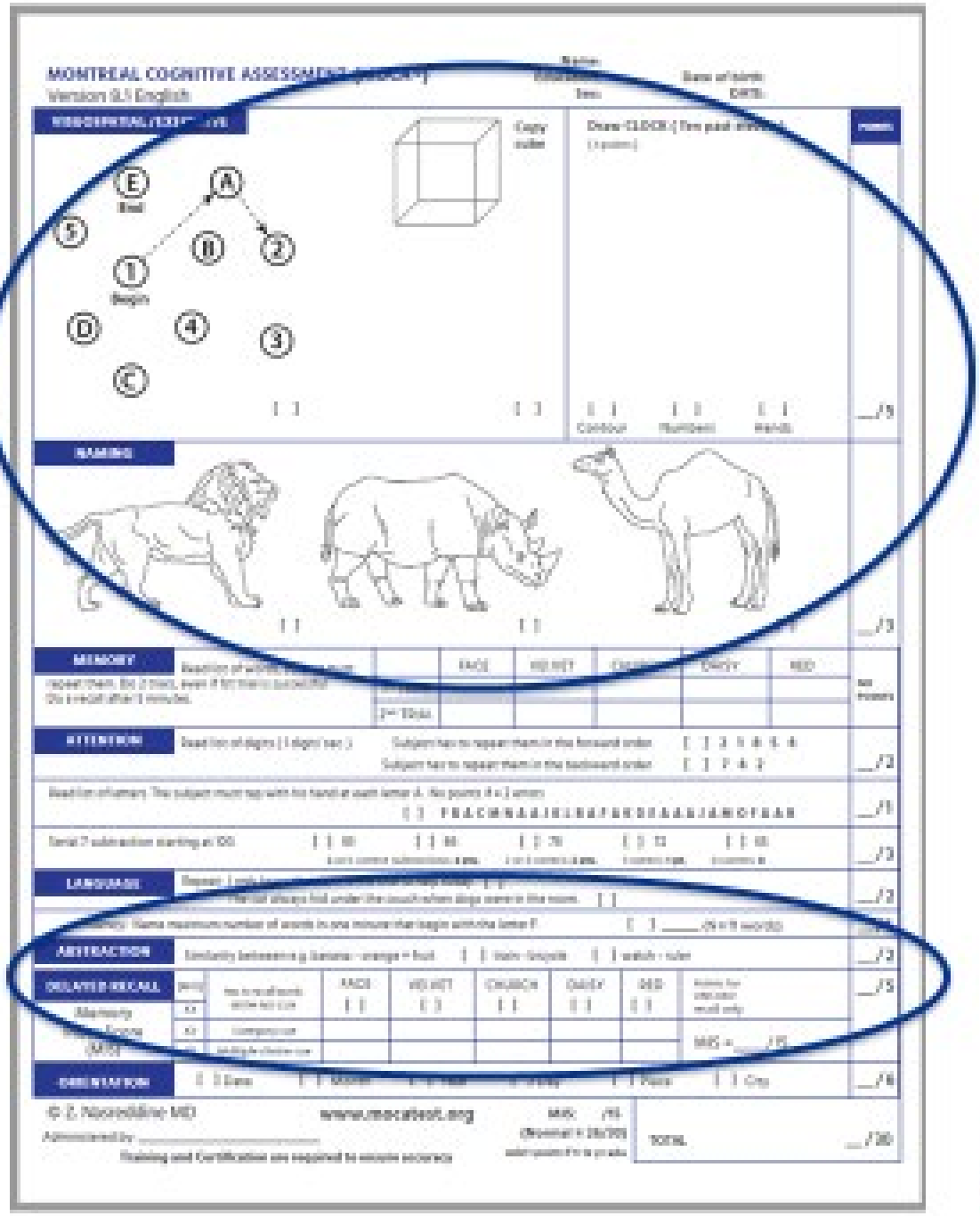
TOTAL /30

Magtaas ng 1 puntos kung ≤ 12 yr edu

Philippine Version 4 March 2011
Adapted by Dominic guan JC and the Bukidnon Study Group
Administered by: _____

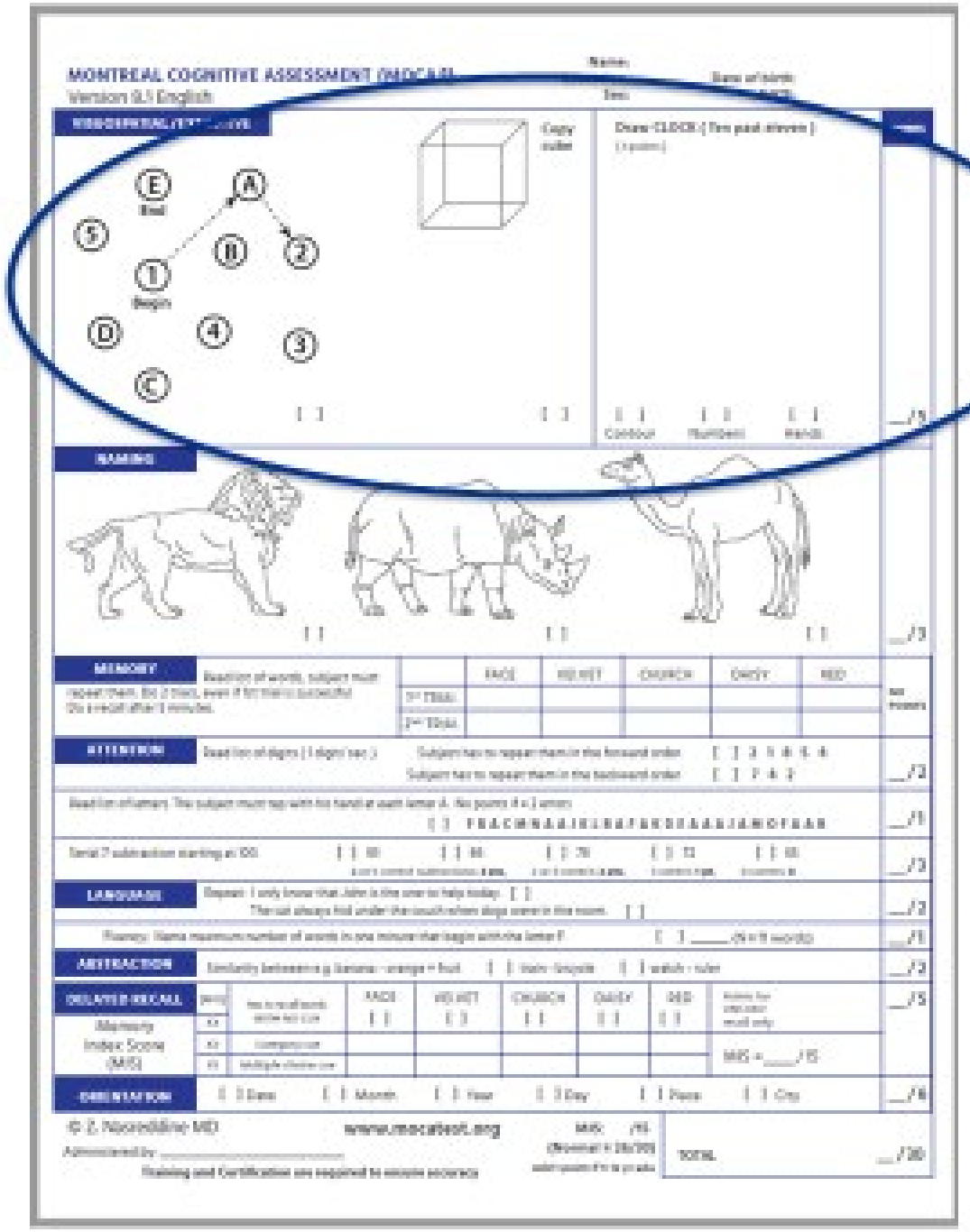
MOCA
Montreal Cognitive Assessment

Typical Alzheimer's profile



MOCA
Montreal Cognitive Assessment

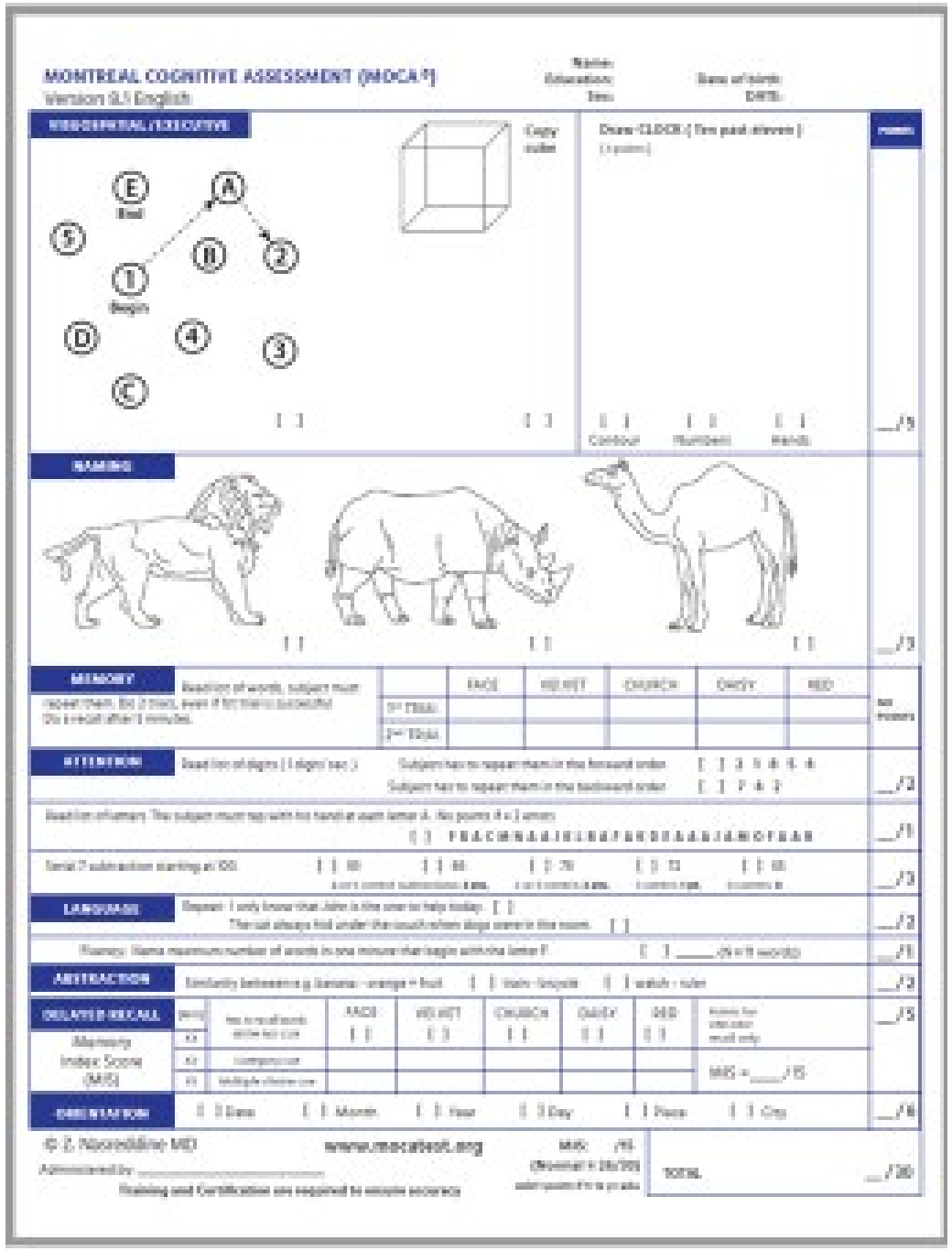
Typical Lewy Body Dementia profile



MOCA
Montreal Cognitive Assessment

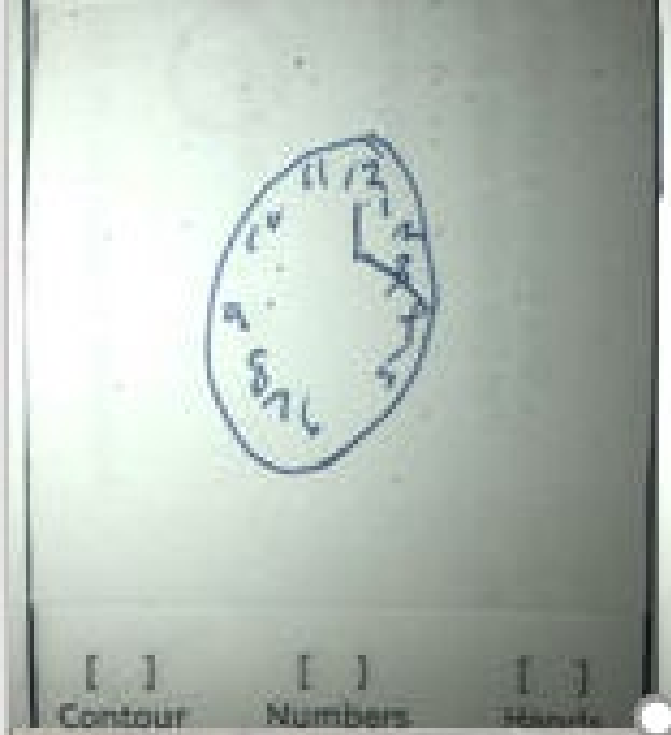
BV-Frontotemporal Dementia

Common to see high scores since this test doesn't measure "behaviors"



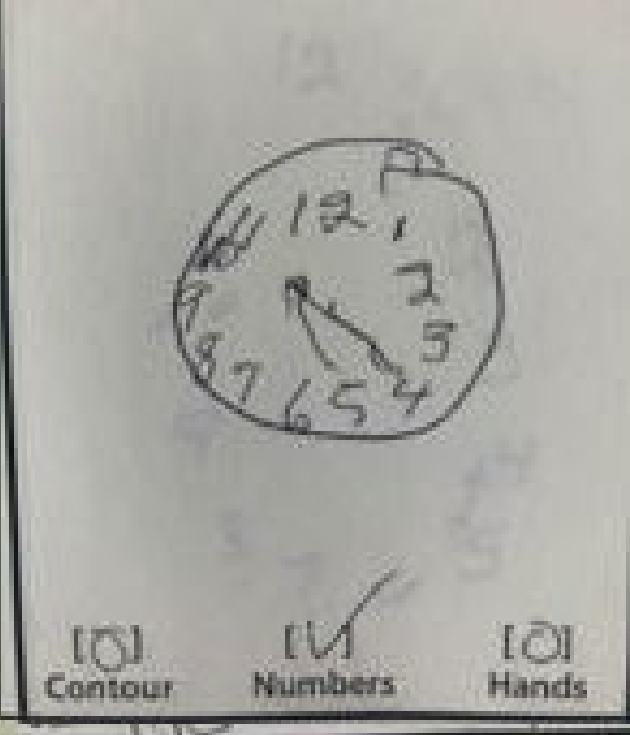
- History taking: stories of the cognitive and functional losses
- Physical exam: cognitive testing and neurological exam

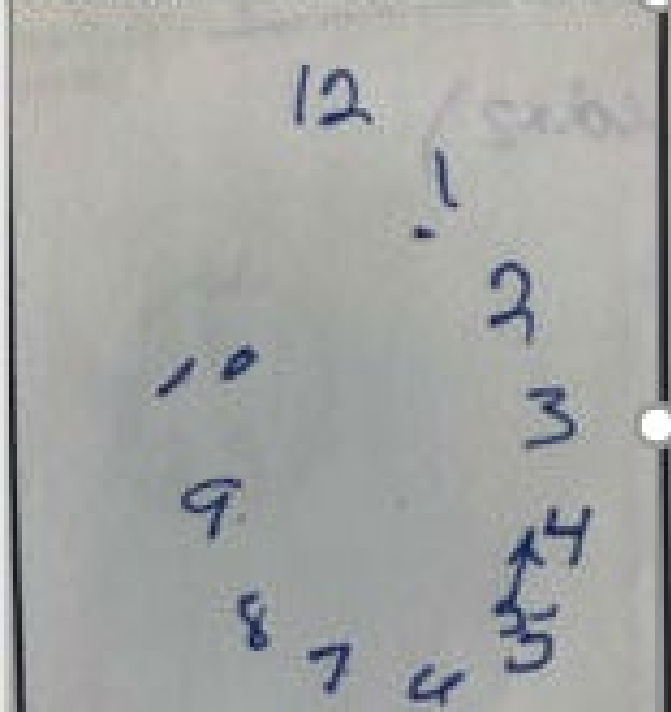
clock drawing test

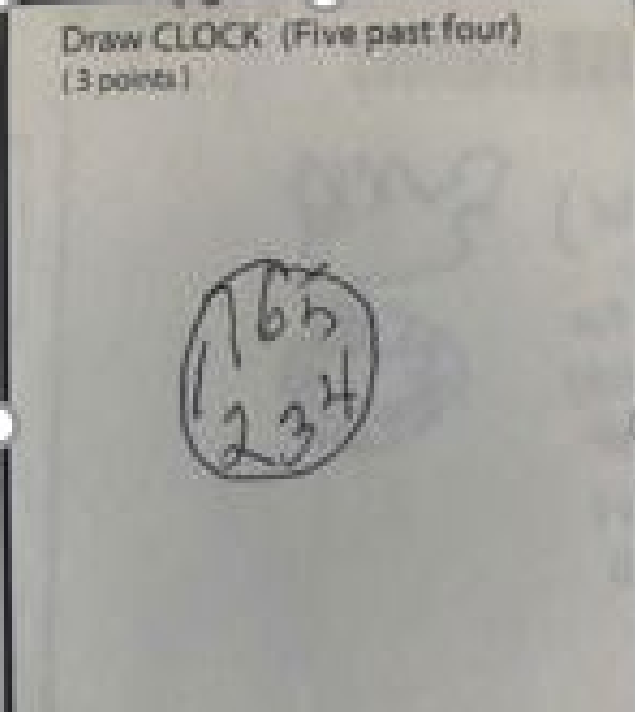

[ ] Contour
[ ] Numbers
[ ] Hands

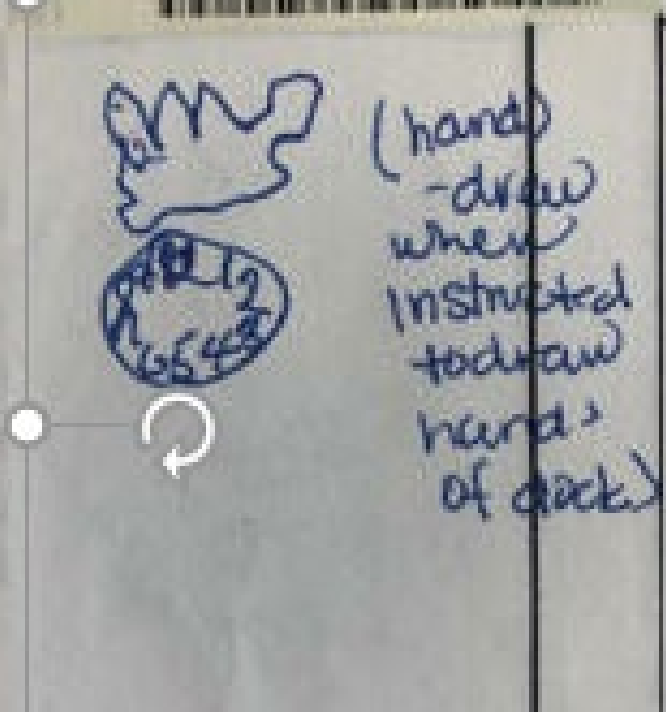

[✓] Contour
[ ] Numbers
[ ] Hands

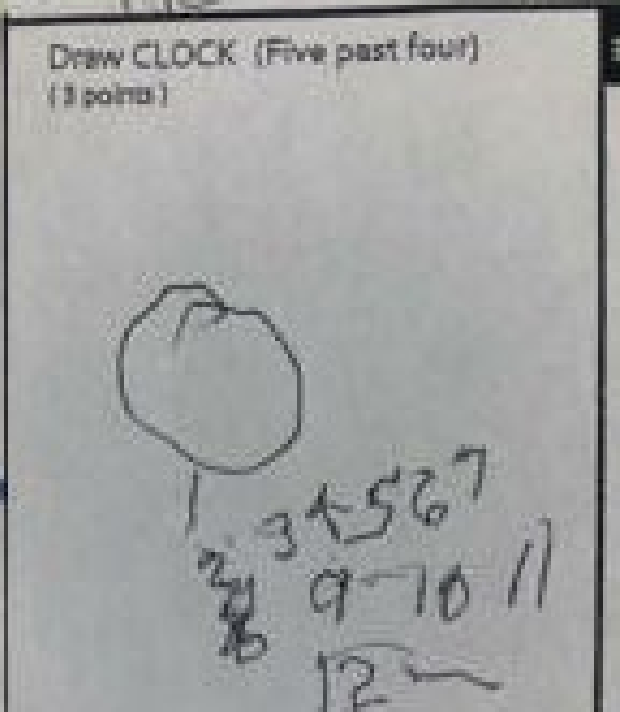

[✓] Contour
[○] Numbers
[○] Hands


[○] Contour
[✓] Numbers
[○] Hands




Draw CLOCK (Five past four)
(3 points)


(hand)
-draw when instructed to draw hands of clock)


Draw CLOCK (Five past four)
(3 points)

So how will we test Gen Z for dementia???!!!

Drs. Bavis and Marchiano
breakout session on

“Advanced Diagnostics, Imaging and Therapeutics”

1pm

Thank you

Episodic memory system

- Hippocampus is always on- storing memories
  - Sights, sounds, smells and feelings are assigned an index to recall later
  - Stored as a “gist”
    - Can develop a false memory as the memory expands when you recall it
  - Once the memory is consolidated in to long term, it no longer needs to go through the hippocampus. It’s stored in the cortex (sleep is critical for this consolidation step)

Summa Health Senior Health Symposium: **Session 5**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

When Cognition Impacts Decision-making: Navigating Legal Complexities

Justine Winger, Esq.
Executive Director
Atlas Guardianship, Inc.

Summa Health

WHEN COGNITION IMPACTS DECISION-MAKING: NAVIGATING LEGAL COMPLEXITIES

ATLAS GUARDIANSHIP

Justine S. Winger, Esq.

CONTENTS

ATLAS GUARDIANSHIP

INCAPACITATED OR INCOMPETENT?

- Capacity
  - The test used to determine mental capacity is the ability of the principal to understand the nature, scope, and extent of the business she is about to transact.

    Cook v. Reising, 2009 Ohio 1131 (9th Dist.)
- Incompetent
  - §2111.02(D)(1): Any person who is **so mentally impaired**, as a result of a mental or physical illness or disability, as a result of intellectual disability, or as a result of chronic substance abuse, that **the person is incapable** of taking proper care of the person's self or property or fails to provide for the person's family or other persons for whom the person is charged by law to provide.

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COGNITIVE TESTING & INFORMED CONSENT

- Cognitive Testing
  - Montreal Cognitive Assessment (MoCA) test
  - Mini-Mental State Exam (MMSE)
  - Mini-Cog
- Informed Consent
  - §2135.01(J): Consent voluntarily given by a person after a sufficient explanation and disclosure of the subject matter involved to enable that person to have a general understanding of the nature, purpose, and goal of the treatment or procedures, including the substantial risks and hazards inherent in the proposed treatment or procedures and any alternative treatment or procedures, and to make a knowing health care decision without coercion or undue influence.

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COMPETENCY: MEDICAL OR LEGAL DETERMINATION?

- §2111.02(D)(1): "the probate court has exclusive jurisdiction *** [t]o make inquests respecting persons who are so mentally impaired as a result of mental or physical illness or disability *** that they are unable to manage their property and affairs effectively ***."
    - There **MUST** be a declaration of legal incompetence by a Probate Court following notice and a hearing
    - Mental illness and/or physical disability do **NOT** equal incompetence

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LESS RESTRICTIVE ALTERNATIVES

DURABLE / NON-DURABLE POWER OF ATTORNEY

§2127.13 Power of Attorney

A power of attorney is a written instrument that authorizes an agent to perform specific acts on behalf of his principal.

This power of attorney authorizes another person to make decisions concerning the principal's property and allows them to make decisions and act with respect to the principal's property.

A durable power of attorney is a subclass of powers of attorney which are unaffected by the disability of the principal or lapse of time.

HEALTHCARE POWERS OF ATTORNEY

§1337.17: Durable Power of Attorney for Healthcare

An adult who is of sound mind voluntarily may create a valid durable power of attorney for health care by executing a durable power of attorney that authorizes an attorney in fact to make health care decisions for the principal at any time that the attending physician of the principal determines that the principal has lost the capacity to make informed health care decisions for the principal.

The durable power of attorney for health care may authorize the attorney in fact to obtain information concerning the principal's health, including protected health information

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DECLARATION FOR MENTAL HEALTH TREATMENT

DESIGNATIONS

Allows a person to name their designated physician, psychiatrist, and proxy decision maker

RESTRICTIONS

Advance decisions re: treatment including psychotropic medications and ECT

FACILITIES

Advance consent (or lack thereof) to being admitted to certain facilities

TREATMENT PLANS (WRAP)

Informs treatment staff of Wellness Recovery Action Plans and other treatment preferences

TERM

Valid for a term of 3 years (unless revoked) and can be renewed 1 time

The declaration takes effect **only** when the designated physician/psychiatrist **and** one other mental health treatment provider who have examined the individual determines that s/he does not have the capacity to consent to mental health treatment decisions.

INITIATING GUARDIANSHIPS

Guardianship of Person

A Guardian of the Person Only makes decisions of a personal nature, and provides for the personal needs of a ward. Such decisions may include living arrangements, medical decision, and issues related to end-of-life planning.

Guardianship of Estate

A Guardian of the Estate Only makes decisions of a financial nature, and manages the ward's estate (including any real property, personal property, monies, etc.)

Duration of Guardianship

Guardians are appointed for either a definite or indefinite time period.

Emergency Guardianships

If an emergency exists and it is reasonably certain that immediate action is required to prevent **significant injury to the person or estate,** the court may appoint an emergency guardian for a maximum period of seventy-two hours.

ATLAS GUARDIANSHIP

STATEMENTS OF EXPERT EVALUATION

PROBATE COURT OF SUMMIT COUNTY, OHIO
ELINORE MARSH STORMER, JUDGE

GUARDIANSHIP OF _____

CASE NO. _____

STATEMENT OF EXPERT EVALUATION

[Sup. R. 66 & R.C. 2111.49]

Definition of Incompetent (R.C. 2111.01(D)): "Incompetent" means any person who is so mentally impaired, as a result of a mental or physical illness or disability, or intellectual disability, or as a result of chronic substance abuse, that the person is incapable of taking proper care of the person's self or property or fails to provide for the person's family or other persons for whom the person is charged by law to provide, or any person confined to a correctional institution within this State.

The Statement of Evaluation does not declare the individual competent or incompetent but is evidence to be considered by the Court. The fee for completing this evaluation WILL NOT be paid by the Probate Court. Each evaluator should secure payment from the Applicant/Guardian.

1. This Statement of Expert Evaluation is to be filed with or attached to:

   ☐ A. Guardianship Application: Completed by ☐ Licensed Physician or
   ☐ Licensed Clinical Psychologist prior to the filing and attached to the application.

   ☐ B. Guardian's Report: Completed by ☐ Licensed Physician
   ☐ Licensed Clinical Psychologist ☐ Licensed Independent Social Worker
   ☐ Licensed Professional Clinical Counselor or ☐ Intellectual Disability Team.
   The evaluation or examination shall be completed within three months prior to the date of the Report. R.C. 2111.49

   ☐ C. Application for Emergency Guardian: ☐ of the person: a Licensed Physician shall complete the Supplement for Emergency Guardian, form 17.1A with specificity indicating the emergency, and why immediate action is required to prevent significant injury to the person. The Supplement shall be signed, dated, and attached as part of this completed Statement.

2. Statement completed by: _____
   Name & Title/Profession: _____
   Business Address: _____
   Business Telephone Number: _____

3. Date(s) of evaluation: _____
   Place(s) of evaluation: _____
   Amount of time spent on evaluation: _____
   Length of time the individual has been your patient: _____

ATLAS GUARDIANSHIP

STATEMENTS OF EXPERT EVALUATION

CASE NO. _____

4. Is the individual presently under medication? ☐ Yes ☐ No If yes, what is the medication, dosage, and purpose?

_____

_____

Are there any signs of physical and/or mental impairments caused by the medications themselves?

_____

5. Is the individual mentally impaired? ☐ Yes ☐ No If yes, indicate the diagnosis below:

☐ Intellectual Disability/Developmental Disabilities:
☐ Profound ☐ Severe ☐ Moderate ☐ Mild

☐ Mental Illness: Type and Severity _____

_____

☐ Substance Abuse: Description _____

_____

☐ Dementia: Description _____

_____

☐ Other: Description _____

_____

Please provide additional comments and test scores if available. (Continue comments on page 4):

_____

6. During the examination did you notice an impairment of the individual's:

a) Orientation	☐ Yes	☐ No	☐ Unknown
b) Speech	☐ Yes	☐ No	☐ Unknown
c) Motor Behavior	☐ Yes	☐ No	☐ Unknown
d) Thought Process	☐ Yes	☐ No	☐ Unknown
e) Affect	☐ Yes	☐ No	☐ Unknown
f) Memory	☐ Yes	☐ No	☐ Unknown
g) Concentration and comprehension	☐ Yes	☐ No	☐ Unknown
h) Judgment	☐ Yes	☐ No	☐ Unknown

7. Please describe any impairments identified in question six. (Continue comments on page 4).

_____

8. Is the individual physically impaired? ☐ Yes ☐ No If yes: Description

_____

ATLAS GUARDIANSHIP

STATEMENTS OF EXPERT EVALUATION

CASE NO. _____

9. Are there any special characteristics of the individual which should be considered in evaluating the individual for guardianship: ☐ Yes ☐ No If yes: Explain

_____

_____

10. Are there any indication of abuse, neglect or exploitation of the individual? ☐ Yes ☐ No

If yes: Explain _____

_____

11. Do you believe the individual is capable of caring for the individual's activities of daily living or making decisions concerning medical treatments, living arrangements and diet? ☐ Yes ☐ No

If no: Explain _____

12. Do you believe this individual is capable of managing the individual's finances and property?

☐ Yes ☐ No If no: Explain

_____

13. Prognosis:

A. Is the condition stabilized? ☐ Yes ☐ No

B. Is the condition reversible: ☐ Yes ☐ No

14. In my opinion a guardianship should be:

☐ Established/Continued

☐ Denied/Terminated

I certify that I have evaluated the individual on _____, 20___.

Date: _____

_____
Signature of Evaluator

_____.
Evaluator Print or Type Name

GUARDIAN'S REPORT ADDENDUM
(Not to be used with initial Application)

It is my opinion, based upon a reasonable degree of medical or psychological certainty that the mental capacity of this ward will not improve.

Date _____

_____
Signature - Licensed Physician/Clinical Psychologist

_____
Print or Type Name

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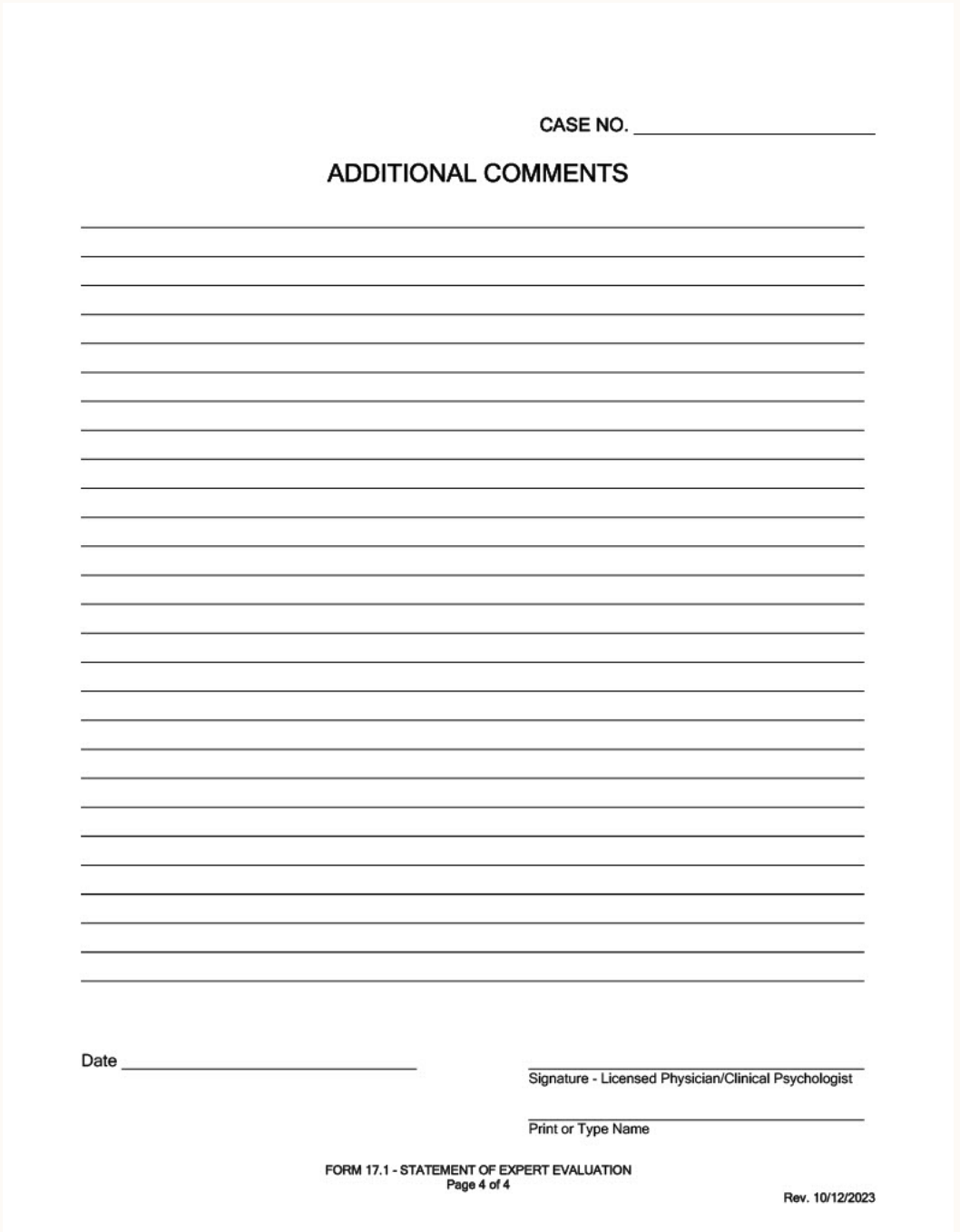
STATEMENTS OF EXPERT EVALUATION



CASE NO. _____

ADDITIONAL COMMENTS

Date _____

_____
Signature - Licensed Physician/Clinical Psychologist

_____
Print or Type Name

FORM 17.1 - STATEMENT OF EXPERT EVALUATION
Page 4 of 4

Rev. 10/12/2023

ATLAS GUARDIANSHIP

STATEMENTS OF EXPERT EVALUATION

PROBATE COURT OF SUMMIT COUNTY, OHIO
ELINORE MARSH STORMER, JUDGE

GUARDIANSHIP OF _____

CASE NO. _____

SUPPLEMENT FOR EMERGENCY GUARDIAN OF PERSON
[R.C. 2111.49]

This Supplement must be completed when there is a request for Emergency Guardianship. The following questions must be answered with specificity and item 1.C, page 1 of the Statement of Expert Evaluation, Form 17.1 must be checked.

A. Does the individual have a durable health care power of attorney? ☐ Yes ☐ No
If yes, why is it not being honored?

_____

_____

B. Exact nature of emergency: _____

_____

_____

C. Length of time emergency has existed, and why? _____

_____

D. Specific action required to prevent significant injury to the person:

_____

_____

E. Ability of the alleged Incompetent to receive notice and give consent:

_____

F. Medical prognosis in detail if immediate action, within 24 hours, is not taken:

_____

_____

G. Additional statements regarding condition, family, support services, etc:

_____

_____

Note: Any above answers may be supplemented by attachments.

_____ _____
Date and Time of Evaluation Licensed Physician Signature

_____ _____
Date of Report Licensed Physician Print or Type Name

FORM 17.1A - SUPPLEMENT FOR EMERGENCY GUARDIAN OF PERSON

Rev. 05/09/2006

ATLAS GUARDIANSHIP

NAVIGATING THE GUARDIANSHIP TIMELINE

Referral for Guardianship

Court receives referral which is given to a court investigator. CI will review referral for completeness and, if there are no family/friends willing or able to become guardian, a referral is made to an independent.

Application for Guardianship

Family member, friend, or an independent attorney/volunteer file the initial application and a court date is set for the hearing – typically at least one month from time of application.

Consent or Oppose?

Court investigator meets with proposed ward to determine if s/he consents the guardianship or is opposed. If opposed, an attorney can be appointed to represent them and assist in obtaining an independent evaluation. The hearing is postponed.

Appoint / Dismiss

Hearing is held to determine if need for guardian exists. Written decision issued within 90 days of hearing.

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CHALLENGES & ETHICAL CONSIDERATIONS

FAMILIES

Without a HIPAA waiver, families are not entitled to information about their family member – abuse and neglect can be hard to detect and care should be taken to avoid providing information to the wrong individual.

OUTSTANDING BALANCES

Just because an individual's payor source is unclear or unavailable does not mean a guardianship should necessarily be established – the hospital's bottom line doesn't trump an individual's rights!

RIGHTS VS. NEEDS

People are allowed to make "bad" decisions – establishing a balance of an individual's best interests and their right to self-determination isn't always easy.

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STRATEGIES, TIPS & TRICKS

- When in doubt, contact your legal department, an attorney who works in guardianship/elder law, or the Probate Court – always remember that incompetency is a **LEGAL** matter
- Never forget that guardianship should be a last resort and that the best interest of the individual is paramount

ATLAS GUARDIANSHIP

THANK YOU

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Summa Health Senior Health Symposium

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Lunch: 11:30 a.m. – Noon

Community Resource Fair: 12 – 1 p.m.
(for in-person attendees)

Summa Health

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Community Resource Fair

Community Organizations represented:

Alzheimer's Assoc.

Area Agency on Aging

Benjamin Rose

Community Health Center – addiction resource

Habitat for Humanity

Ohio Council on Cognitive Health

Summit County Department of Health

Summit County Library

Summit County Probate court

Vantage Aging

YMCA

NOTE: This session is not available to virtual attendees.

Summa Health

Summa Health Senior Health Symposium: **Session 7A**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

James D. Bavis, M.D.
Neuroscience Institute
Summa Health System

Joseph Marchiano, PharmD
Senior Health
Summa Health System

Breakout 1:
Advanced Diagnostics, Imaging and Therapeutics for Dementia

In-person attendees:
Breakout session is located next door at Juve Family Behavioral Health Pavilion.

Virtual attendees:
Click on Breakout Room #1

Summa Health

Advanced diagnostics, imaging and therapeutics for dementia

Dr. James Bavis

Joseph Marchiano, PharmD, BCPS, BCGP

Objectives

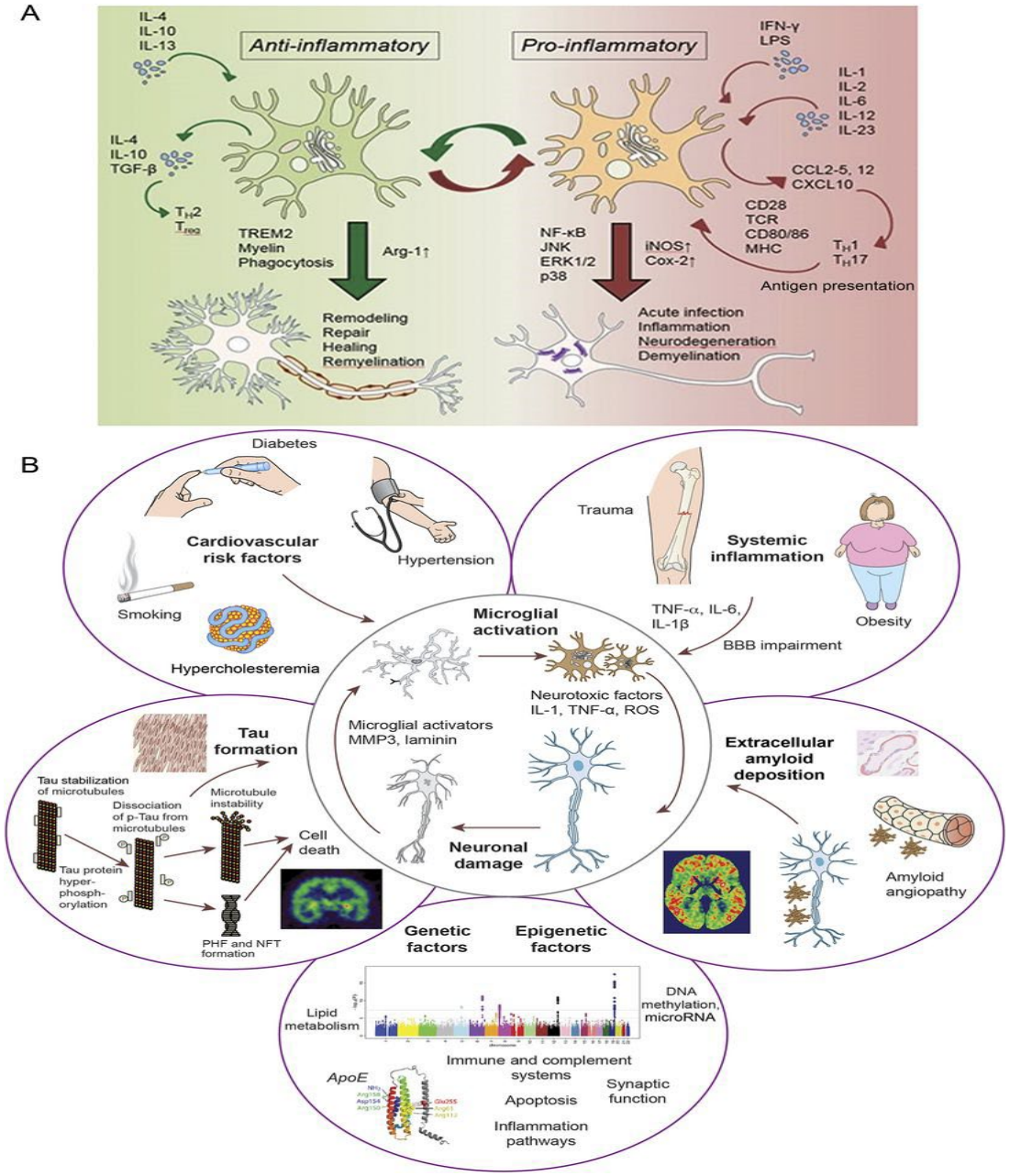
1. Evaluate the latest advancements in diagnostic tools and imaging techniques for assessing dementia patients
2. Explore emerging therapeutic interventions and treatment modalities for dementia, including pharmacological and non-pharmacological approaches

Advances in Dementia Diagnostics

Pathology of Alzheimer's Dementia

- The disease pathology is marked by the build up of insoluble aggregate, amyloid β and phosphorylated tau.
- The amyloid β and phosphorylated tau engender the formation of neurofibrillary tangles.
- The presence and production of amyloid β and phosphorylated tau are very closely tied to Alzheimer's disease and not to other neurodegenerative processes
- Therefore, measuring the presence and production of amyloid β and phosphorylated tau in fluid leads to better identification of Alzheimer's dementia over other causes of memory loss.

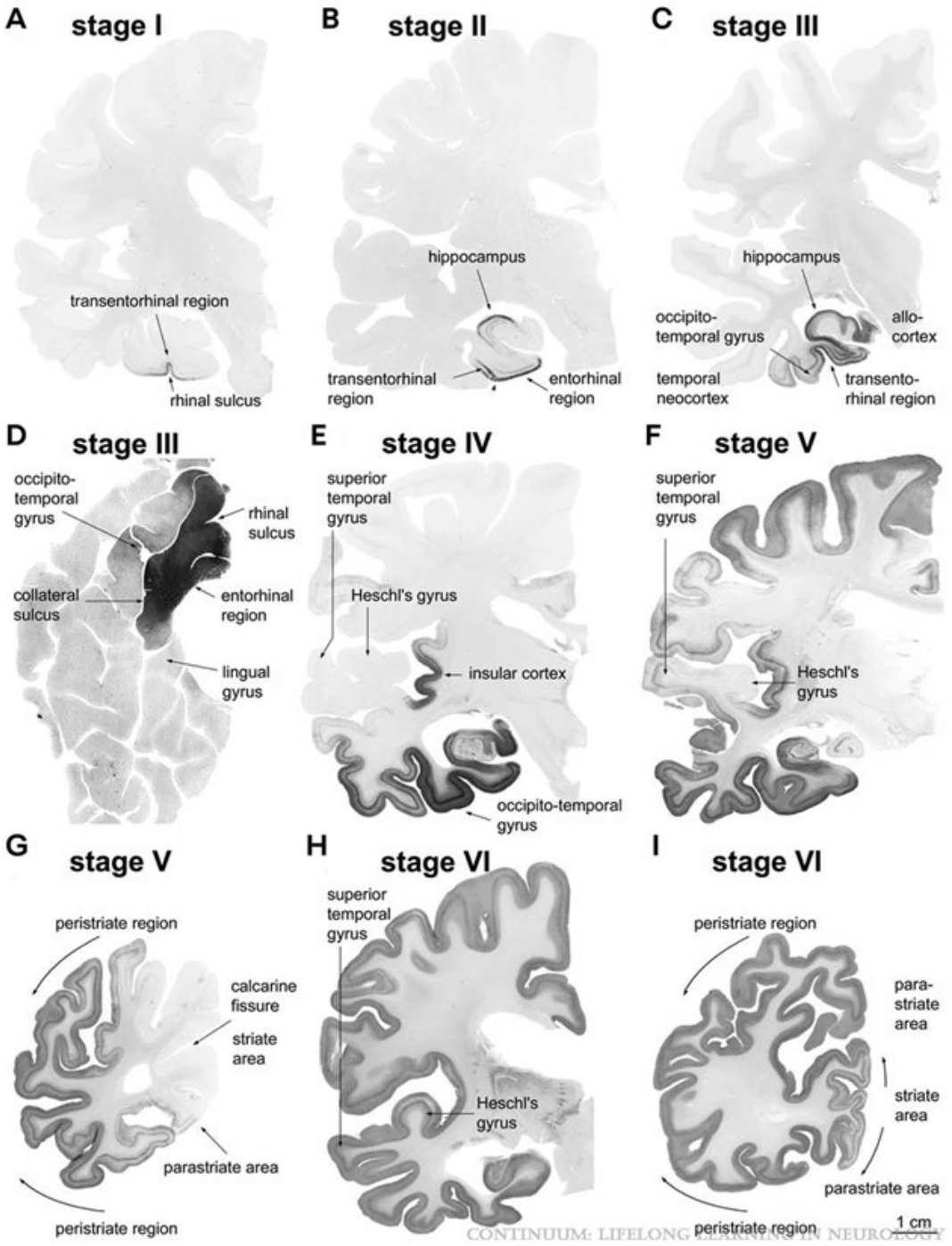
Pathology of Alzheimer's Dementia



(A) Microglia can be activated by either anti-inflammatory stimuli (IL-4, IL-10, or IL-13) or proinflammatory cytokines (IFN-, LPS) that determine the polarization status of the cell. The anti- and proinflammatory responses involve the activation of different intracellular pathways and result in opposite effects on neuronal cells. (B) Systemic (cardiovascular risk factors and systemic inflammation), local (amyloid deposition and tangle formation), and genetic factors contribute to microglial activation. BBB = blood-brain barrier; COX-2 = cyclooxygenase-2; IFN = interferon; IL = interleukin; iNOS = inducible nitric oxide synthase; LPS = lipopolysaccharide; MHC = major histocompatibility complex; NF-κB = nuclear factor κB; NFT = neurofibrillary tangles; PHF = paired helical filaments; p-tau = phosphorylated tau; ROS = reactive oxygen species; TCR = T cell receptor; TGF-β = transforming growth factor β.

Microglial activation in early Alzheimer trajectory is associated with higher gray matter volume
Grazia Daniela Femminella, MD,
PhD, Melanie Dani, MD, Melanie Wood, MD, Zhen Fan, MSc, Valeria Calsolaro, MD, Rebecca Atkinson, MSc, Tru di Edginton, PhD, Rainer Hinz, PhD https://orcid.org/0000-0002-7808-9207, David J. Brooks, MD, FMedSci, and Paul Edison, MD, PhD, FRCPAuthors Info & Affiliations
March 19, 2019 issue
92 (12) e1331-e1343
https://doi.org/10.1212/WNL.0000000000007

Pathology of Alzheimer's Dementia



Braak staging of neurofibrillary tangles. Stages 1 through 4 are largely restricted to the mesial temporal lobe, whereas stages 5 and 6 are widespread in the neocortex.Reprinted with permission from Braak H, et al, Acta Neuropathol.[14] © 2006 Springer-Verlag.

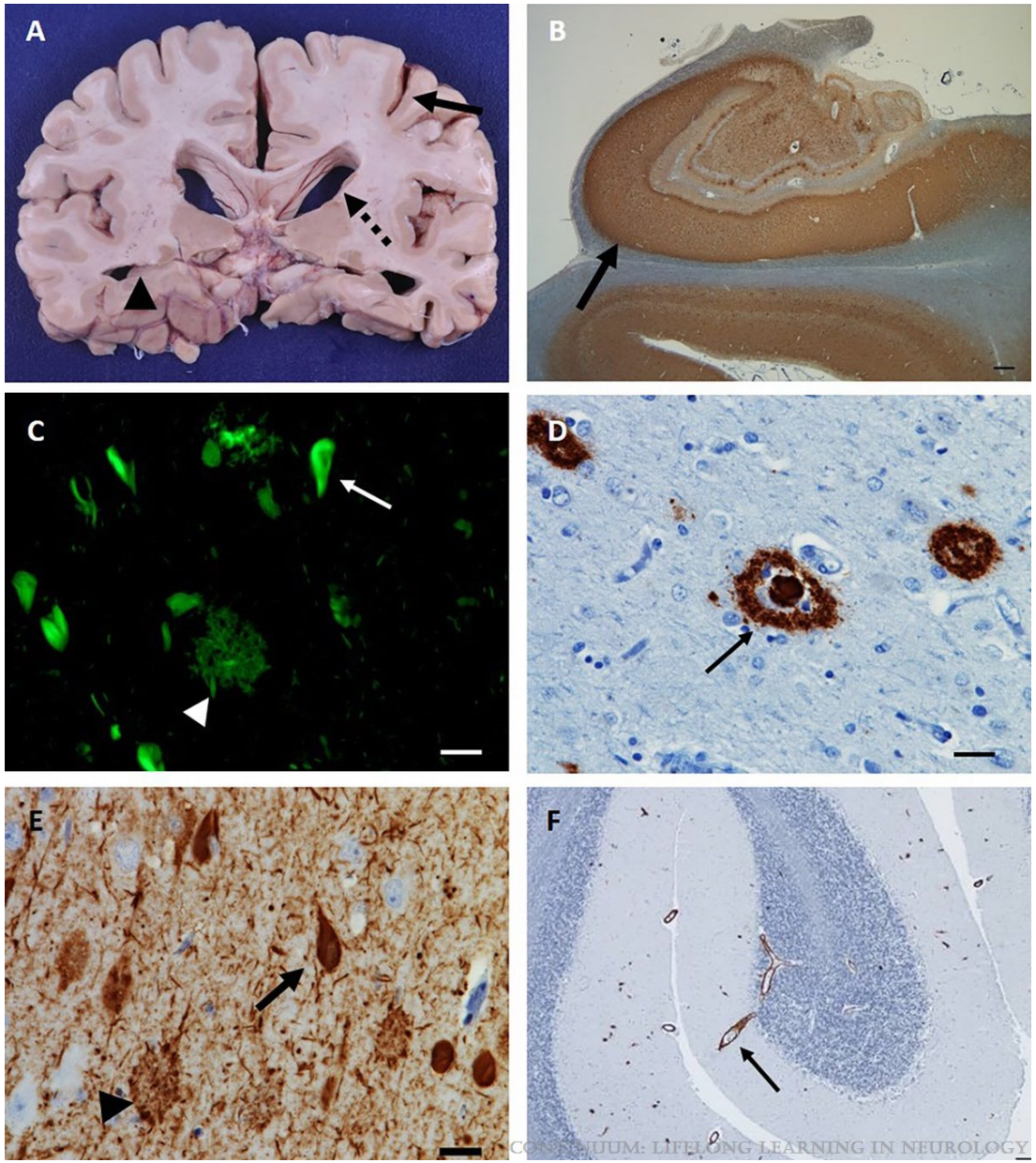
Neuropathology of Dementia Disorders

Schneider, Julie A.

CONTINUUM: Lifelong Learning in Neurology28(3):834-851, June 2022.

doi: 10.1212/CON.0000000000001137

Alzheimer's Disease Pathology



A. Gross neuropathologic features of AD include cortical atrophy (arrow), ventricular enlargement (dashed arrow) and hippocampal atrophy (arrowhead).

B. Low-power photomicrograph (1x) of hippocampus stained demonstrating an abundance of p-tau deposition, most prominent in CA1 (arrow).

C, Thioflavin S staining identifies senile amyloid plaques (arrowhead) and tau neurofibrillary tangles (arrow), the pathologic hallmarks of AD.

D. High-power photomicrographs (40x) of senile plaques (arrow)

E. High-power photomicrograph (40x) of neurofibrillary tangles (arrow) and dystrophic neurites (arrowhead).

F. Low-power photomicrograph reveals amyloid deposition in blood vessel walls (arrow), the pathologic hallmark of cerebral amyloid angiopathy.

Late-onset Alzheimer Disease Rabinovici, Gil D.CONTINUUM: Lifelong Learning in Neurology25(1):14-33, February 2019.

Target Therapy: Blocking Tau Phosphorylation

- A major component of neurofibrillary tangles are paired helical filaments made from hyperphosphorylated tau and neurofilaments from the cytoskeleton of nerve cells.
- Inhibiting hyperphosphorylation of tau can slow the development of neurofibrillary tangles
- Memantine, a medication FDA approved for moderate to severe Alzheimer's, is a medication that works in part by attenuating the hyperphosphorylation of tau.
- Memantine has other important pathways to neuron cell death through its antagonist blockade glutamatergic NMDA receptor on nerves which we will go over later.

Fluid Biomarkers: Phosphorylated Tau (P-tau)

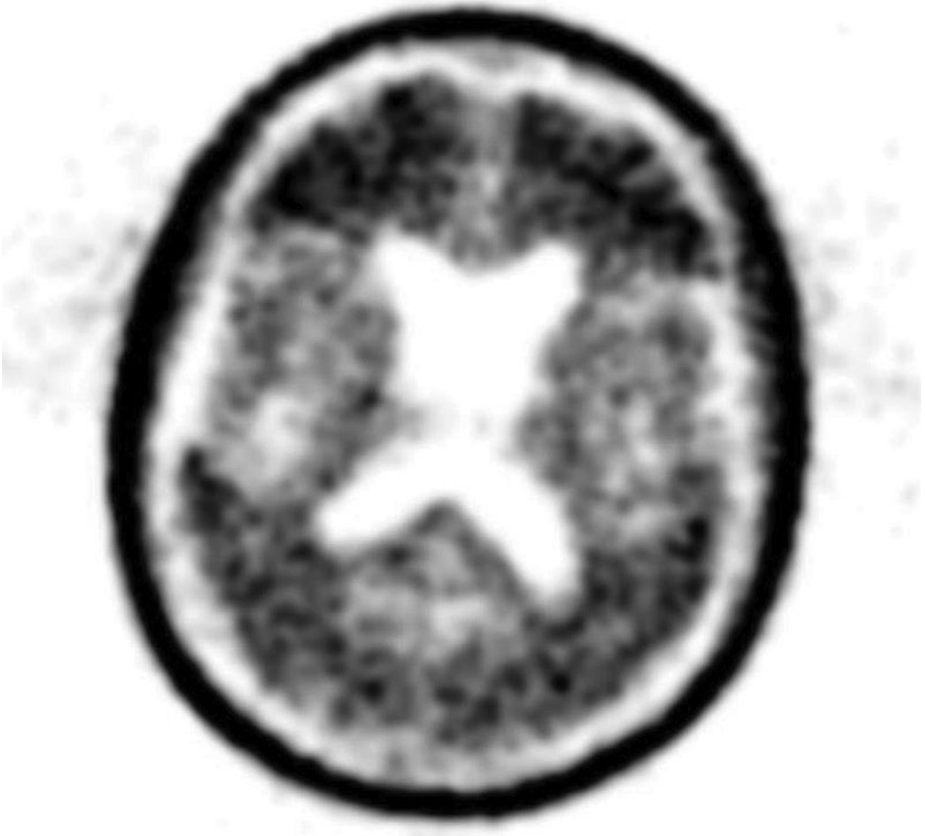
- P-tau refers to (hyper)phosphorylated tau protein variants including p-tau 217, 181, and 231) which are produced in Alzheimer's after amyloid β deposition
  - These hyperphosphorylated tau proteins are not able to do their job of maintaining the cytoskeleton of the neuron leading to cell breakdown.
  - Other neurodegenerative diseases have increased tau protein levels, but this P-tau form is found in Alzheimer's and not in other tau-opathies.
- In autopsy and biopsy studies there is a correlation between CSF P-tau and AD-type neurodegeneration
- Studies of blood P-tau levels are highly correlated with amyloid PET results.

Fluid Biomarkers: Amyloid β (Aβ)

- Peptides Aβ42 and Aβ40 can be measured in CSF and plasma using multiple different assays.
- The recommended use of these peptide measurements is the Aβ42 / Aβ40 ratio
  - Plasma Aβ42 assays have weaker correlation to Aβ42 measured in CSF
  - The differences in the raw quantities of the peptides in plasma in AD patients compared to controls was smaller
  - The Aβ42 / Aβ40 ratio has been shown to better correlate to CSF measures and to amyloid burden on amyloid PET scans
- CSF Aβ42 / Aβ40 ratio is considered one of the Core 1 diagnostic test based on its correlation with amyloid burden found on amyloid PET and brain tissue pathology studies
- CSF Aβ42 / Aβ40 may also be more sensitive at picking up early Alzheimer's in patients who clinically are just in mild cognitive impairment

Amyloid PET

- This diagnostic tool uses compounds based on thioflavin T, a stain for amyloid on pathology slides, are used to detect amyloid β in the brain
  - ^{18}F-florbetapir (Amyvid)
  - ^{18}F-flutemetamol (Vizamyl)
  - ^{18}F-flutafuranol (NAV4684)
- These compounds have a high affinity for Amyloid β in the brain
- 96% sensitivity and 100% specificity
- High percentage agreement of interpretation among
- This procedure is diagnostic and is a Core 1 recommended test for Alzheimer's diagnostics
- Limited availability
- Insurances coverage for this new procedure has been difficult to obtain.



Amyloid positron emission tomography (PET) shows reduced gray-white matter differentiation of the bilateral frontal, parietal, and posterior-lateral temporal areas on florbetapir PET scan suggestive of moderate to severe amyloid-β neuritic plaques. Dark (black) regions in frontal and parietal cortices indicate retention of florbetapir tracer to amyloid plaques.

Alzheimer Disease. McDade, Eric M. CONTINUUM: Lifelong Learning in Neurology28(3):648-675, June 2022.

Amyloid PET

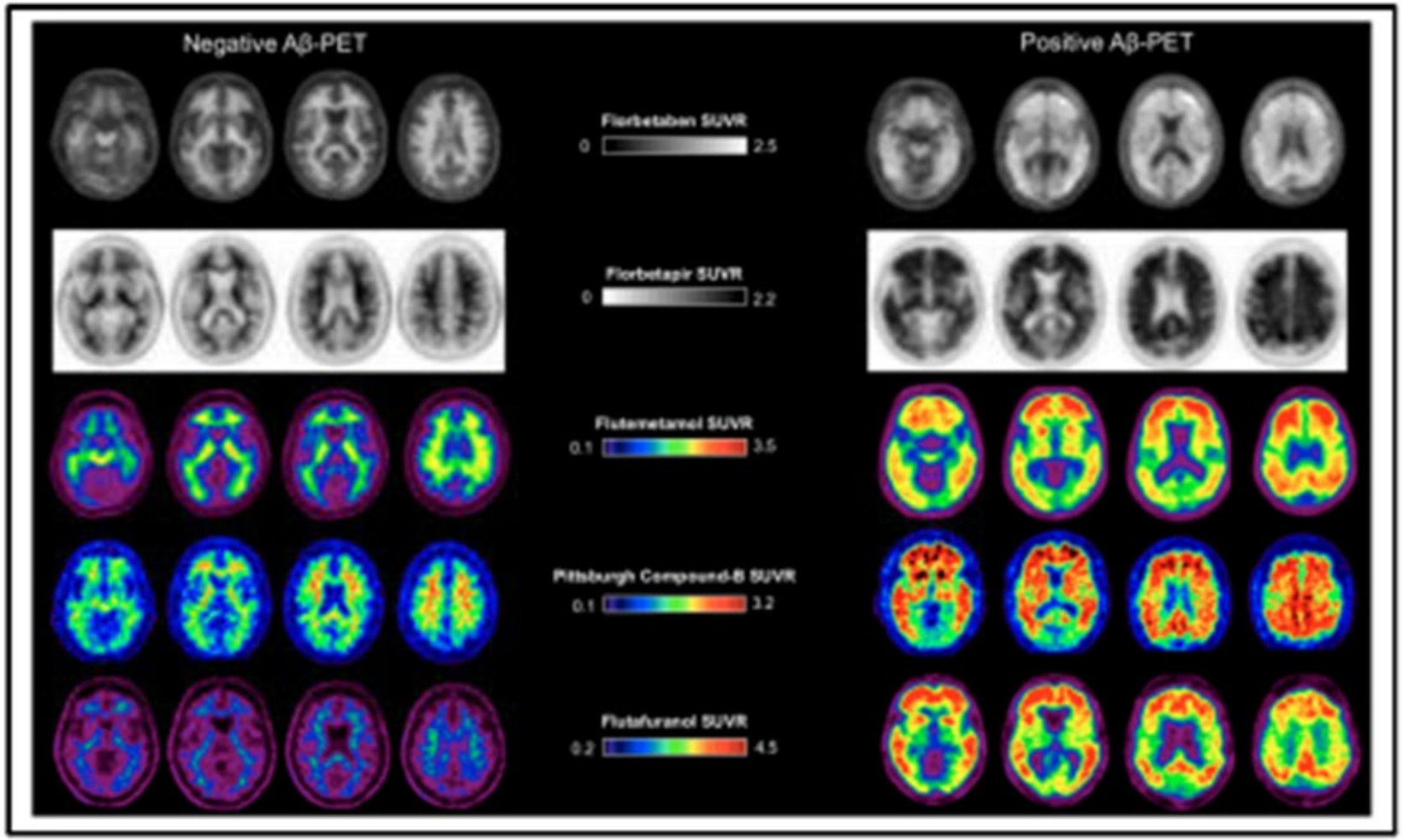


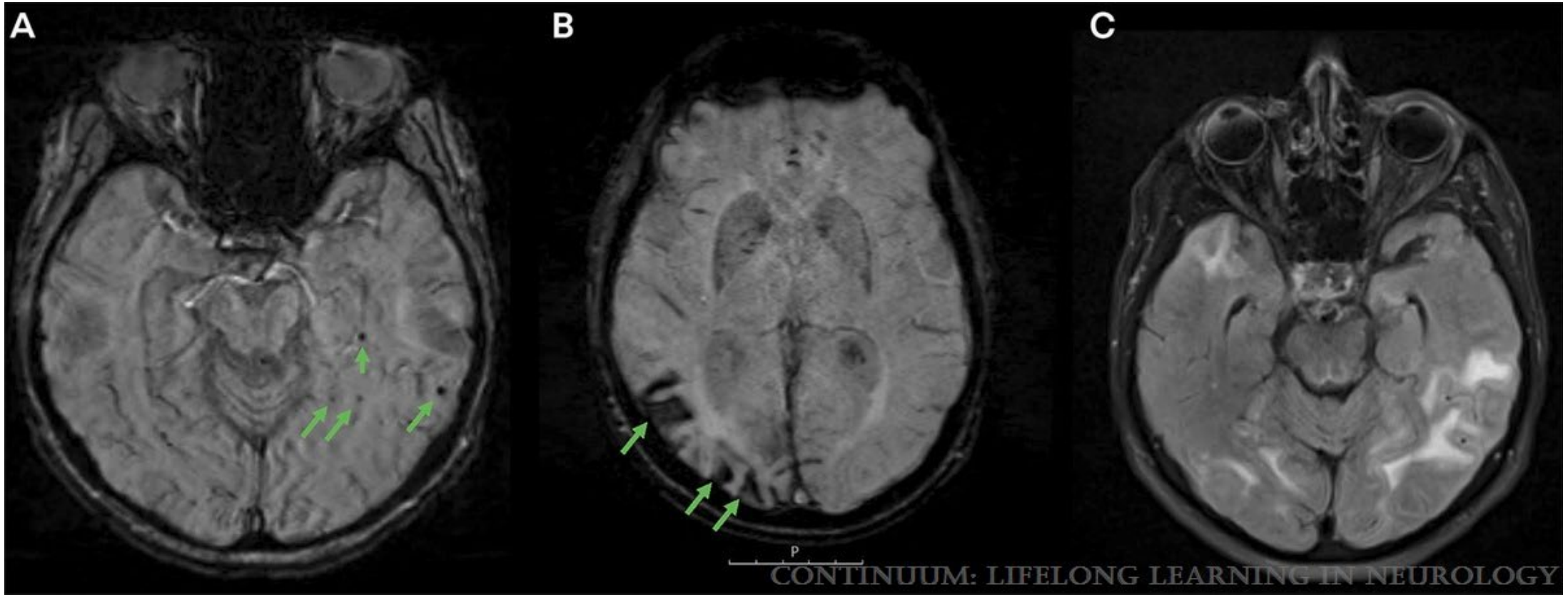
FIGURE 3. Examples of negative and positive Aβ PET findings using different tracers. (^{18}F-flutafuranol images are courtesy of Victor Villemagne and Christopher C. Rowe.)

Image from Chapleau and others, THE JOURNAL OF NUCLEAR MEDICINE Vol. 63 No. 6 (Suppl. 1) June 2022

Amyloid As a Therapeutic Target

- Later we will review new monoclonal antibody therapies that target the removal of Amyloid β.
  - Aducanemab
  - Lecanemab
  - Donanemab
- These therapies carry with them a risk of a potentially severe adverse reaction labeled ARIA (Amyloid-Related Imaging Abnormalities)
  - ARIA-E: vasogenic edema
  - ARIA-H: cerebral hemorrhage.
- As a result of these potential side effects, it is required that the Alzheimer's diagnosis be confirmed with CSF biomarkers or Amyloid PET imaging.

ARIA from anti-amyloid monoclonal antibody treatments



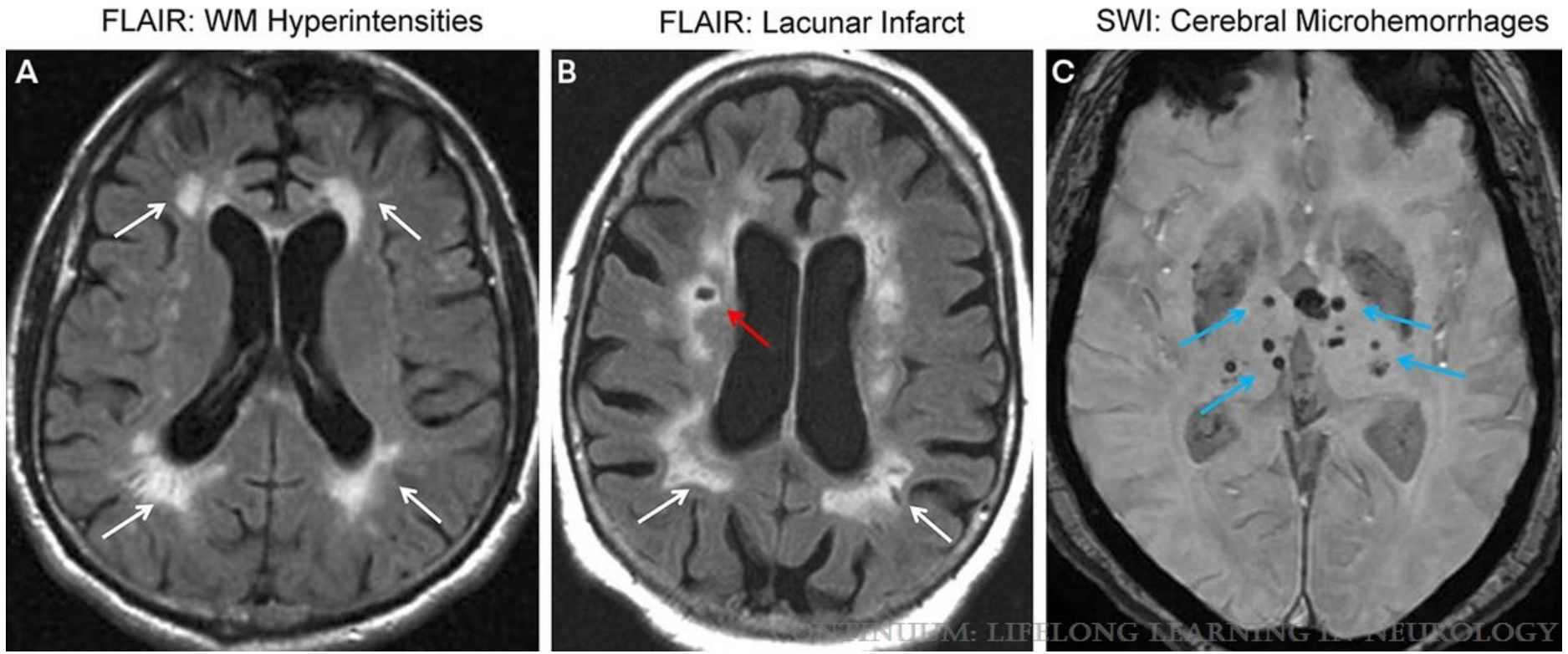
Examples of amyloid-related imaging abnormalities (ARIA). A, Axial susceptibility-weighted imaging (SWI) shows ARIA-H with cerebral microhemorrhages (arrows); B, Axial SWI shows the superficial siderosis that can be seen in ARIA-H and indicates hemosiderin staining on the pial surface of the brain (arrows); C, Axial imaging fluid-attenuated inversion recovery (FLAIR) image shows ARIA-E with multiple areas of edema.

The Value of Neuroimaging in Dementia Diagnosis Raji, Cyrus A.; Benzinger, Tammie L. S.CONTINUUM: Lifelong Learning in Neurology28(3):800-821, June 2022.

Neuroimaging in Dementia

- More traditional imaging for a dementia workup has included: CT head, MRI brain, and FDG-PET
- CT head and MRI brain are primarily used to determine if there is an anatomical cause for a person's memory loss
  - Stroke
  - Small vessel vascular disease
  - Cerebral hemorrhages
  - Tumors of the brain
  - Infections of the brain
- MRI brain offers greater resolution than CT and therefore is the preferred modality between the two.
- FDG –PET is primarily used to assist with differentiating between Alzheimer's and Frontotemporal Dementia.

Neuroimaging in Dementia: MRI brain



Neuroimaging in Dementia; Risacher, Shannon L.; Apostolova, Liana G. CONTINUUM: Lifelong Learning in Neurology29(1):219-254, February 2023.
doi: 10.1212/CON.0000000000001248. Modified with permission from Razek A and Elsebaie N, Clin Imaging.

Common findings on MRI's of the brain of patient's being evaluated for memory loss.

A. Small vessel disease causing hyperintensities in the periventricular and subcortical WM regions
B. Old lacunar (small) strokes
C. Cerebral microhemorrhages, which rule out the use of anti-amyloid monoclonal antibody treatments

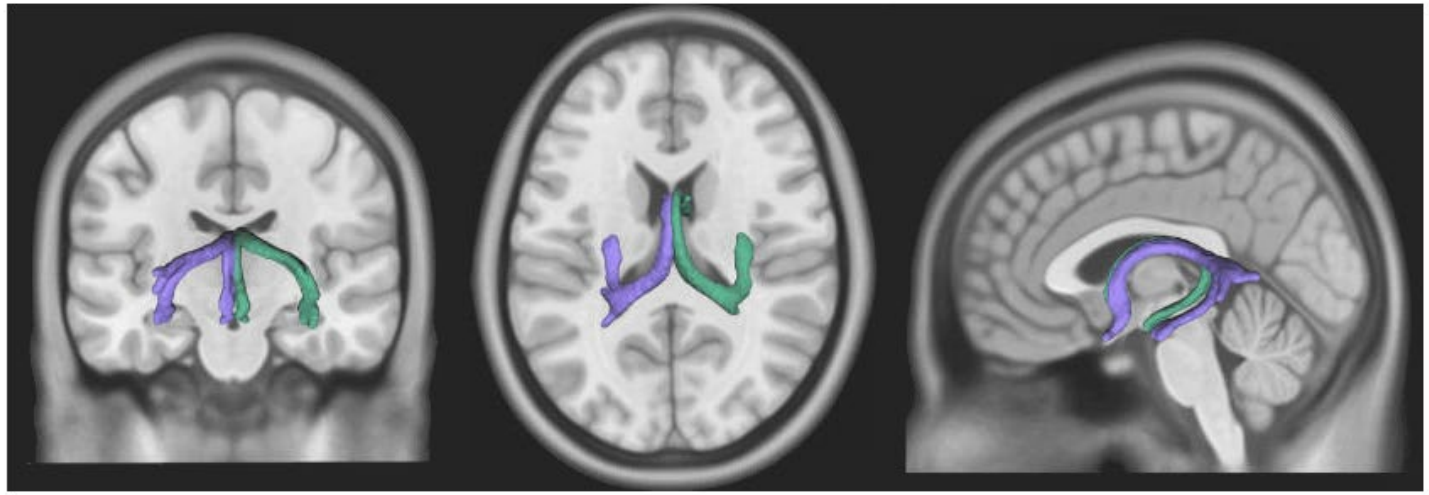


Fig. 1. Three-dimensional representation of the fornix of a healthy adult subject. Coronal (left), axial (center) and sagittal (right) views, overlapped on a T1-weighted magnetic resonance image. DSI studio software was used for visualization (dsi-studio.labsolver.org).

MRI Volumetric Measurement: Fornix

- One helpful feature of MRI as a diagnostic tool is the ability to accurately measure volumes of areas of the brain.
- Different dementias preferentially attack different areas of the brain
- In Alzheimer's, the fornix is a primary area of attack.

Fornix Degeneration in Alzheimer's

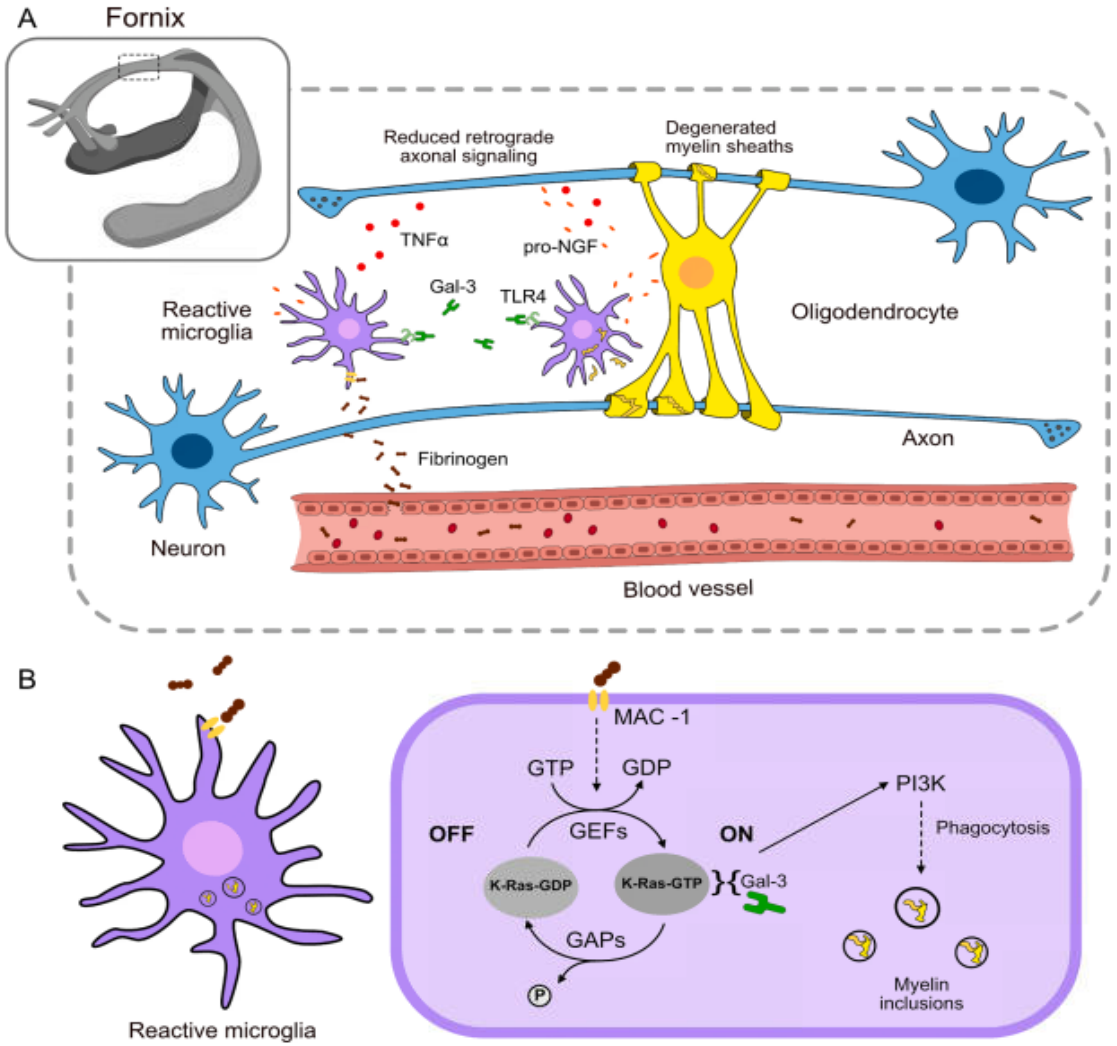
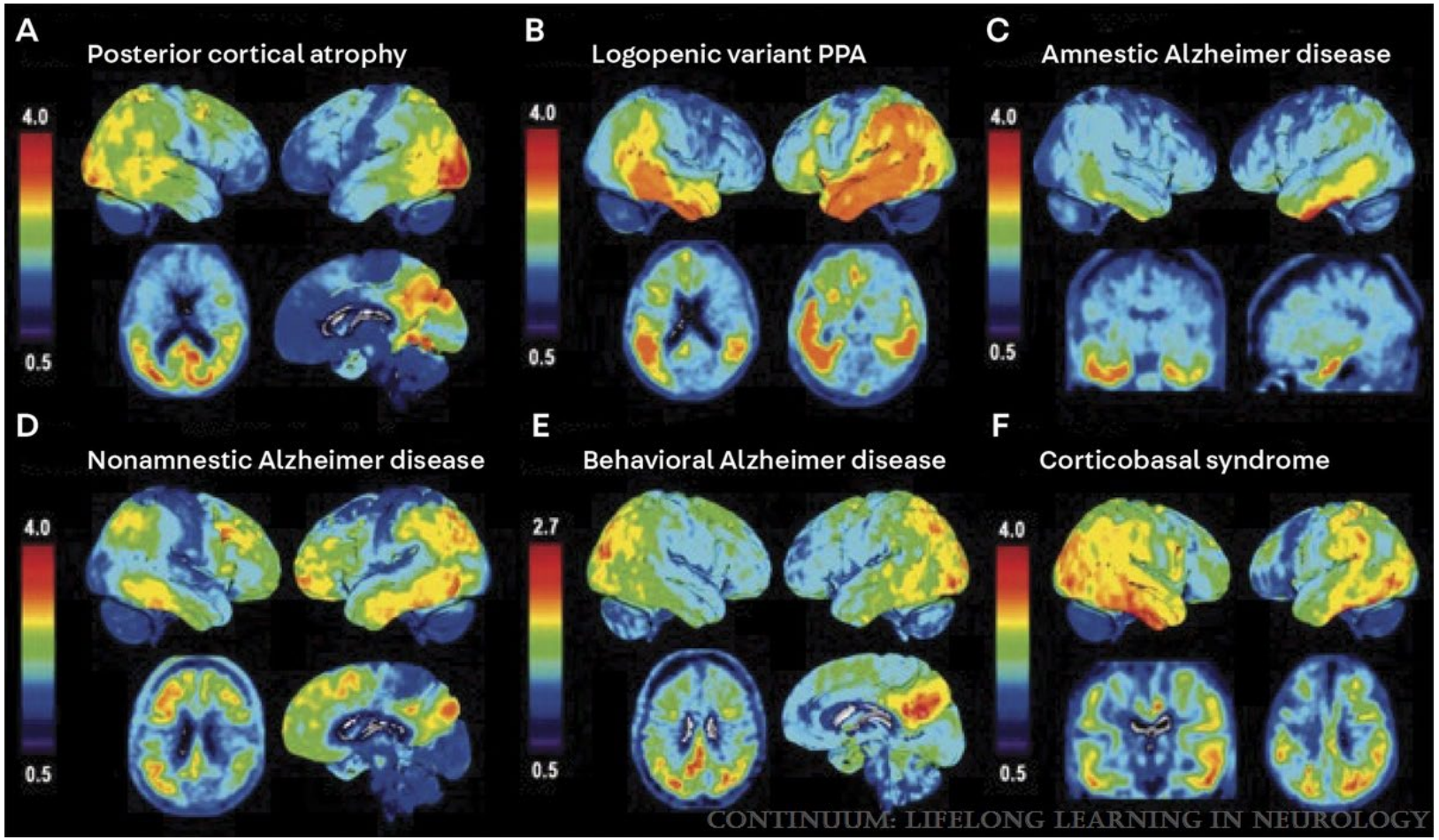


Fig. 2. Schematic representation of a hypothetical model of fornix degeneration due to risk factors of Alzheimer's disease. A) Blood-brain barrier permeability induces inflammation of the white matter. The readjustment of endothelial tight junctions in response to a compromised blood microcirculation facilitates the extravasation of fibrinogen, capable of activating microglia. Reactive microglia can maintain and extend inflammation by releasing Gal-3 acting through TLR4. Reactive microglia phagocyte degenerated myeline and releases pro-NGF and TNFα that may impact oligodendrocytes viability and reduce retrograde axonal transport, thus, neuronal survival. B) Phagocytic phenotype in microglia is sustained by Gal-3 expression. Fibrinogen promotes microglia activation through binding the MAC-1 surface receptor. Gal-3 acts as a molecular switch that up-regulates and prolongs PI3K activity maintaining a phagocytic phenotype in microglia. Gal-3; galectin-3, TLR4; toll-like receptor 4, TNFα; tumor necrosis factor alpha; I3K; phosphatidylinositol 3-kinase; NGF, nerve growth factor; GTP, guanosine triphosphate; GDP, guanosine diphosphate; GEFs, guanine nucleotide exchange factors; GAPs, GTPase-activating proteins.

Fornix degeneration in risk factors of Alzheimer's disease, possible trigger of cognitive decline.
María Lacalle-Aurioles, Yasser Iturria-Medina

Summa Health

Anatomical Distribution of Alzheimer's Disease

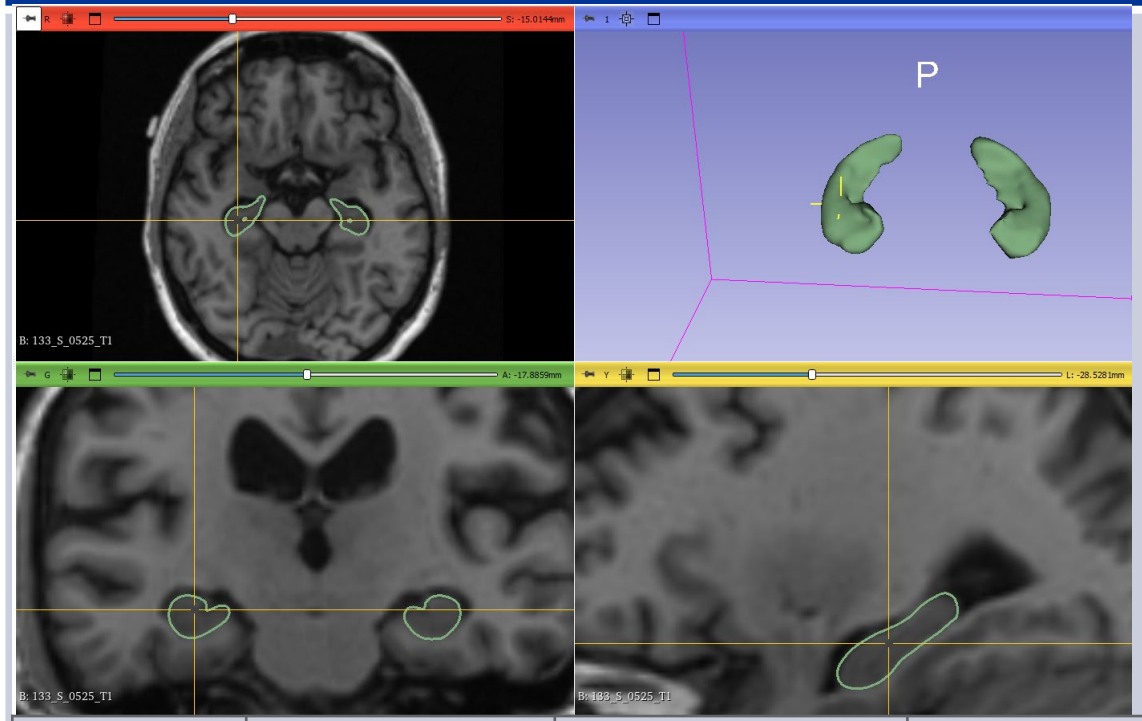


Regional tau positron emission tomography (PET) correlates with Alzheimer disease clinical phenotypes. Tau PET binding in Alzheimer disease highlights the differences in the pattern of neurofibrillary tau burden that reflects differences between amnestic and nonamnestic-predominant phenotypes. Color scale represents standardized uptake value ratio (SUVR), with yellow-red representing regions of higher retention of tau PET tracer.PPA = primary progressive aphasia.Reprinted with permission from Ossenkoppele R, et al, Brain.76 © 2016 Oxford University Press.

Alzheimer Disease_McDade, Eric M. CONTINUUM: Lifelong Learning in Neurology28(3):648-675, June 2022.

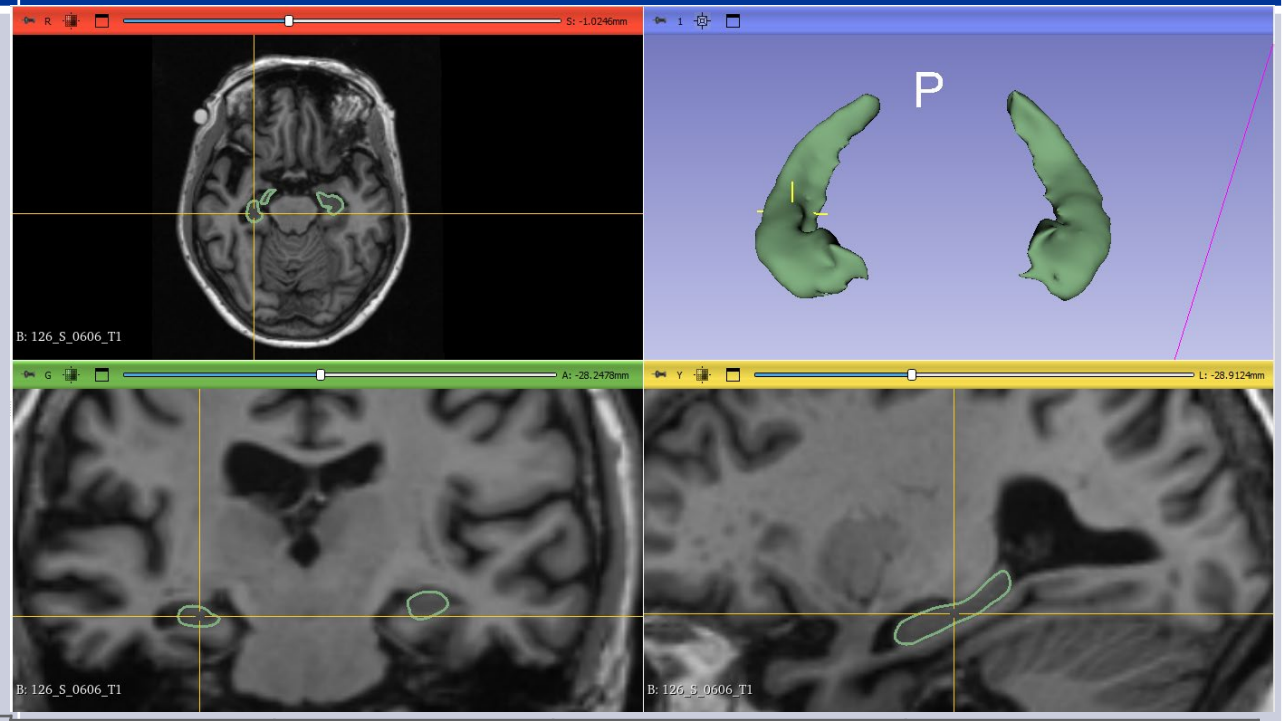
Hippocampal Volumetrics in two patients

Normal control (Female, 70 y.o.)



	Raw Volume [mm3]	Volume normalized by eTIV*	Normal lower limit (normalized by eTIV) (from a population 25-35 y.o)
Left hippocampus	2878	2132	1664
Right hippocampus	2966	2197	1927

Patient with AD (Female, 69 y.o.) Volumetrics reveals bilateral hippocampal atrophy



	Volume [mm3]	Volume normalized by eTIV*	Normal lower limit (normalized by eTIV) (from a population 25-35 y.o)
Left hippocampus	2139	**1584**	1664
Right hippocampus	1824	**1351**	1927

Slide 1: Manual segmentation and hippocampal volumetrics in two patients with similar age and estimated intracranial volume (ICV). Patient 1 is a control with normal hippocampal volumes, while Patient 2 has been diagnosed with Alzheimer's Disease (AD), exhibiting bilateral hippocampal atrophy. Volumes are normalized to ICV to account for differences in head size.

ADNI-Harmonized Protocol For Manual Hippocampal Segmentation

Tracer #	Scheltens 0		Scheltens 2		Scheltens 4	
	Local	Harmonized	Local	Harmonized	Local	Harmonized
6						
10						
13						
14						
16						
20						

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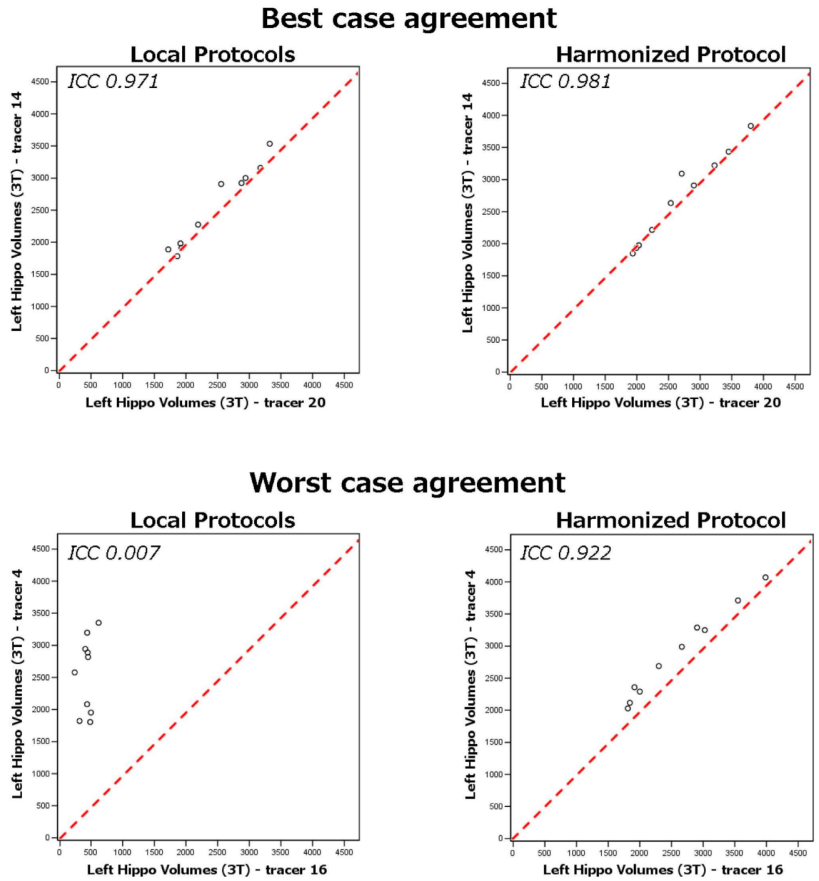

Validation of the ADNI-Harmonized protocol for manual hippocampal segmentation. This includes a 3D rendering of three hippocampi, representing varying degrees of atrophy (Scheltens score). The comparison shows the variability when expert tracers used their own local protocols versus the Harmonized protocol (HarP), with HarP greatly reducing this variability.

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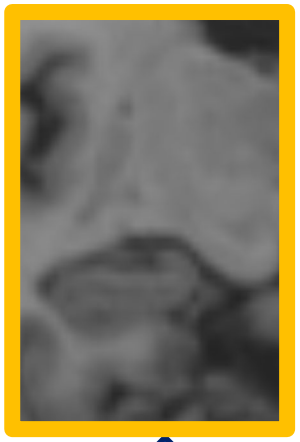
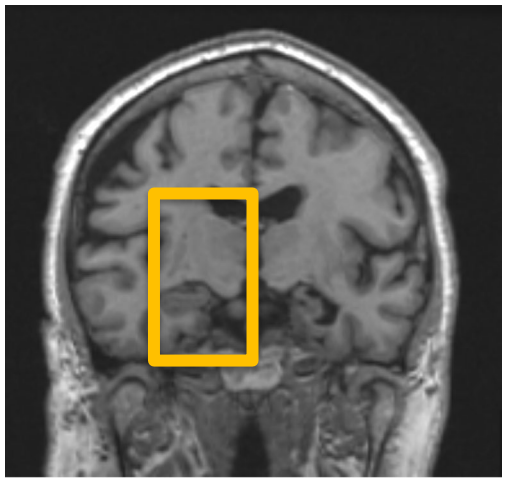
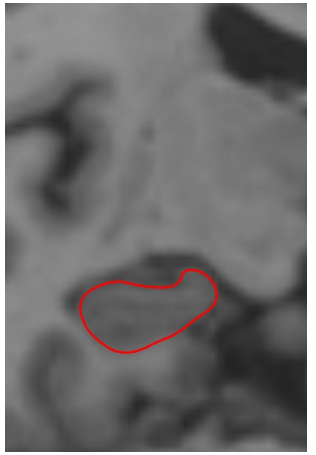
Hippocampal Volumetrics: AI

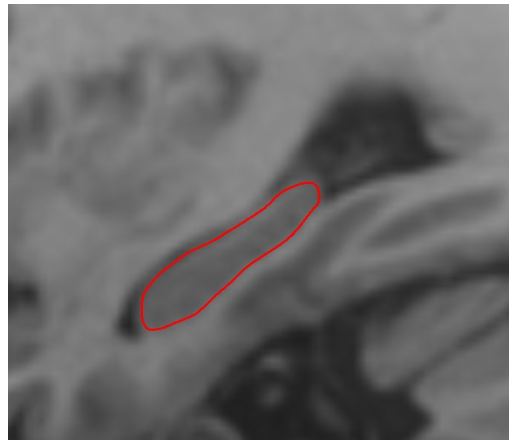


Attention step: Hippocampal ROI extraction



Neural network (Black box)



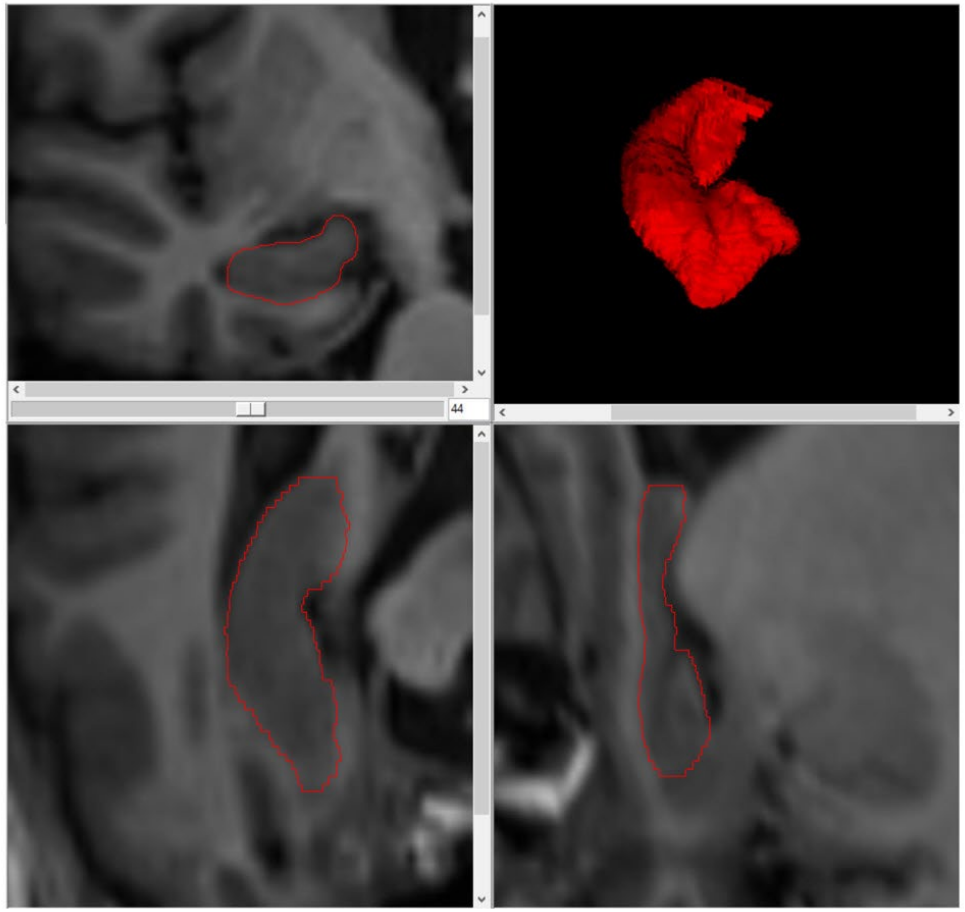


Cendejas-Zaragoza L, et al (2021). COVID-19 Volumetric Pulmonary Lesion Estimation on CT Images using a U-NET and Probabilistic Active Contour Segmentation. In: *2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC)*. Nov:2021:3850-3853.

Hippocampal Volume Evolution

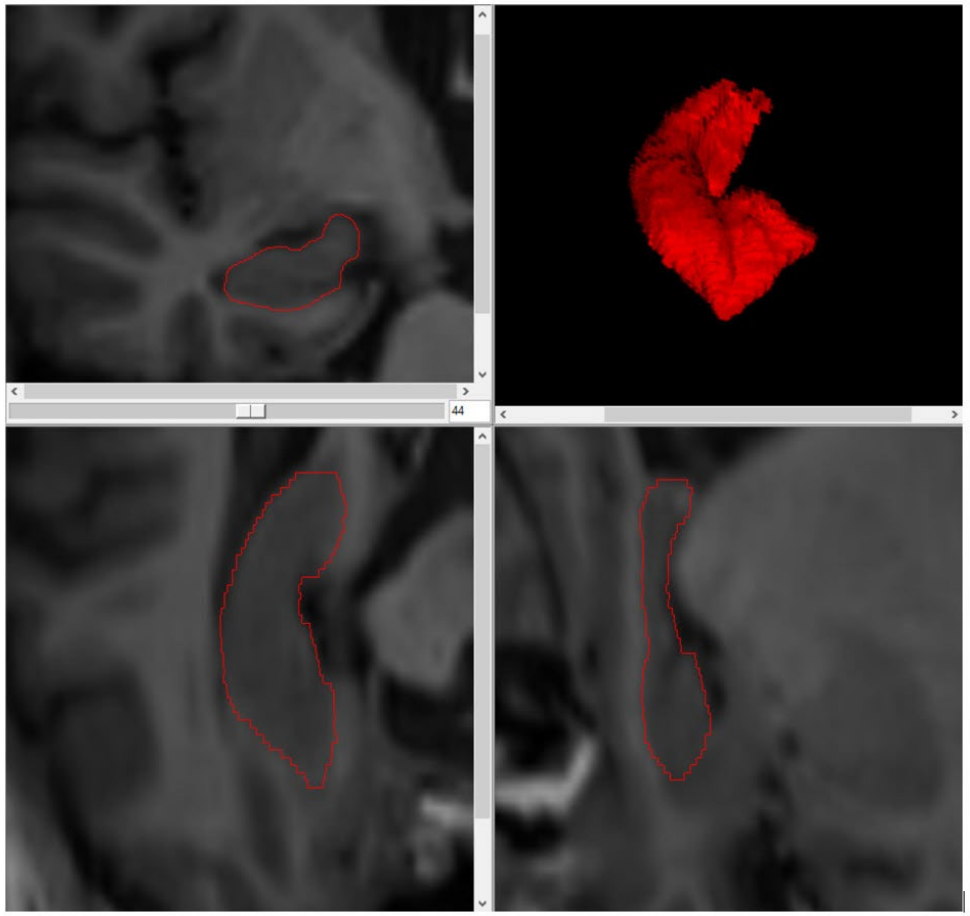
Right Hippocampus

Date of MRI: 12/11/2023



Right Hippocampus

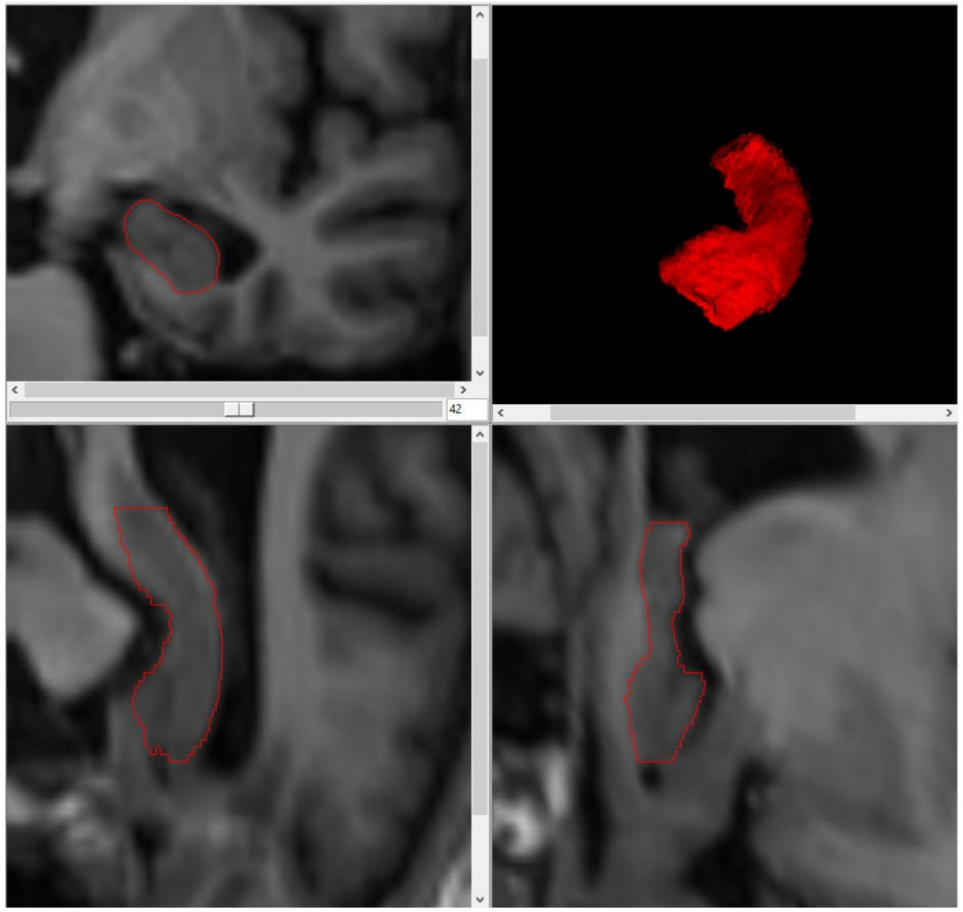
Date of MRI: 06/03/2024



Hippocampal Volume Evolution

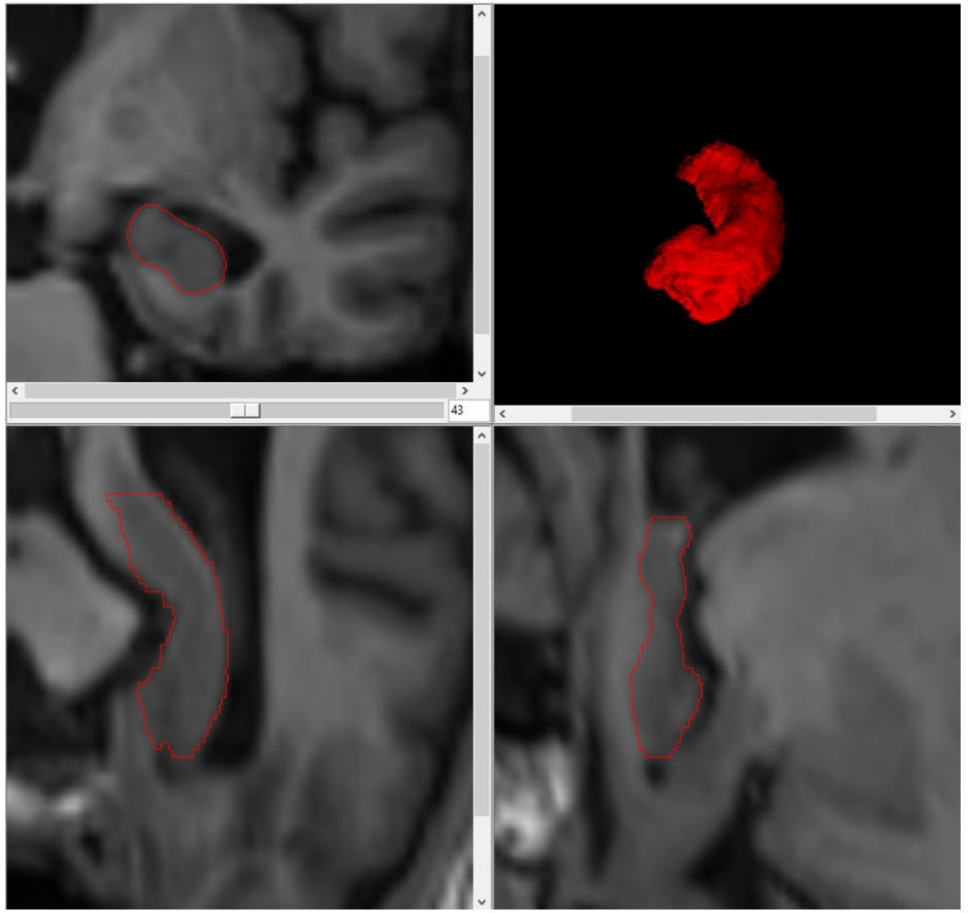
Left Hippocampus

Date of MRI: 12/11/2023



Left Hippocampus

Date of MRI: 06/03/2024



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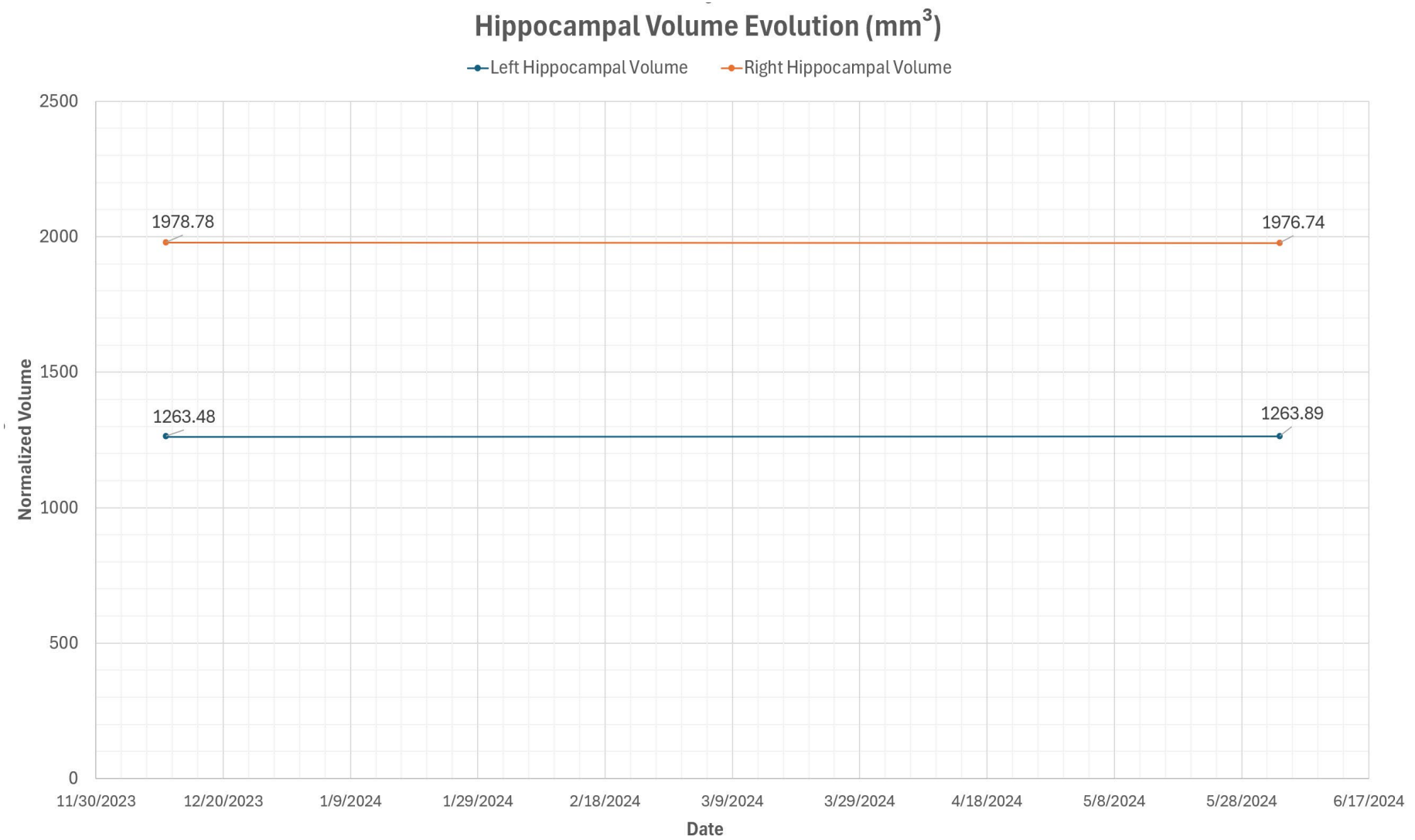

	MRI 12/11/2023	MRI 06/03/2024
Normalized RH Volume (mm^3)	1978.78	1976.74
Normalized LH Volume (mm^3)	1263.48	1263.89
Raw RH Volume (mm^3)	3016.76	3013.60
Raw LH Volume (mm^3)	1926.24	1925.84

Findings:

The hippocampal quantitative volumetric analysis consistent with unilateral left hippocampal atrophy. The right hippocampal volume is within normal limits.

No significant interval changes in right and left hippocampal volume since prior MRI of 12/11/2023.

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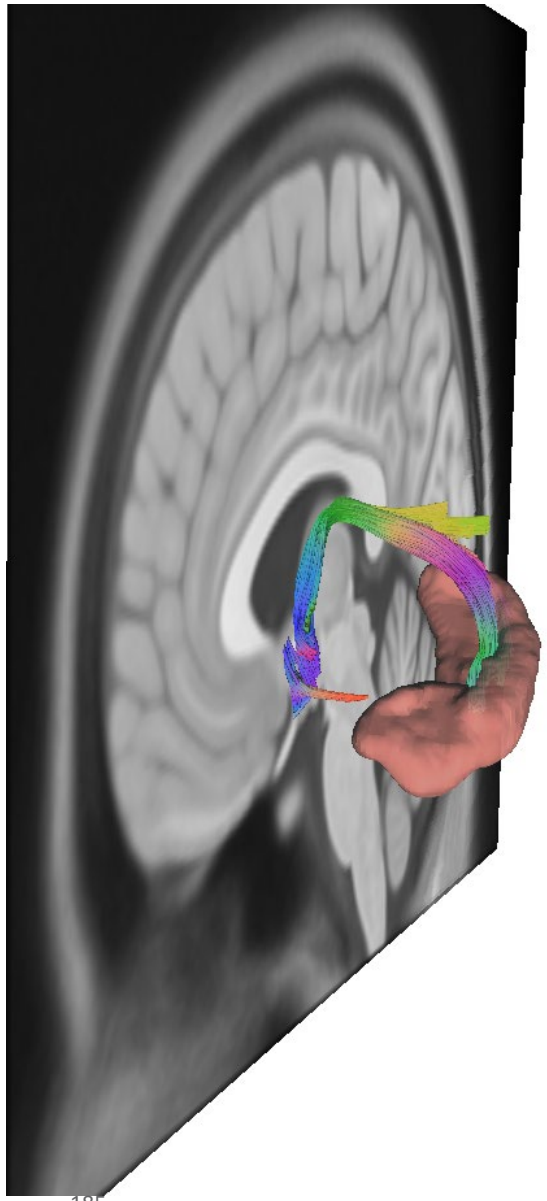
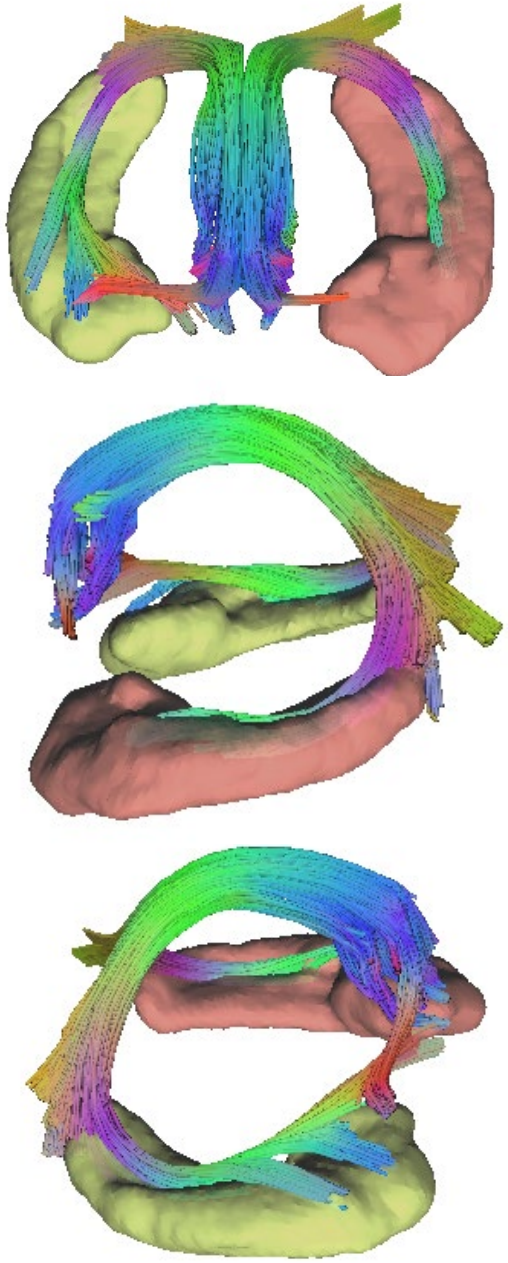
Normal average subject.
Hippocampus + Fornix





3D volume rendering of hippocampal formations alongside tractography of the fornix via diffusion sequences. The data presented is based on an average normal subject.

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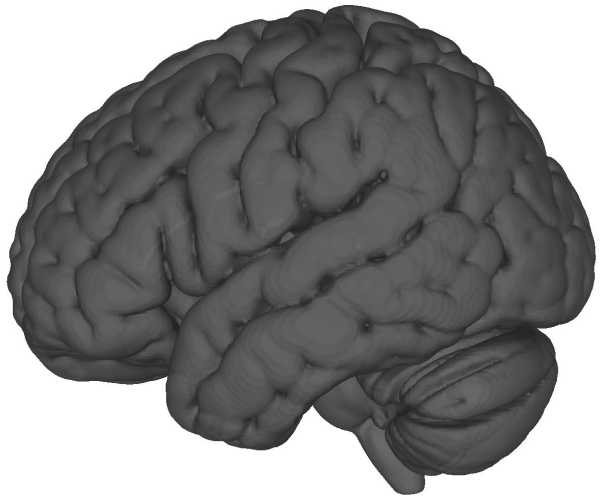
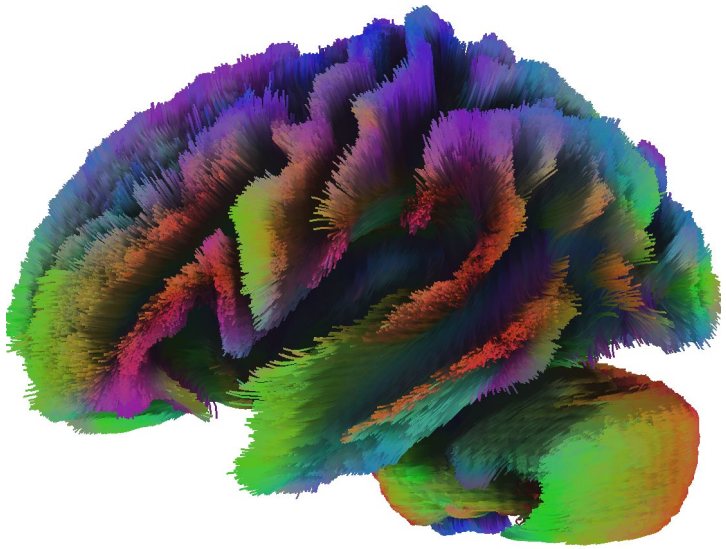
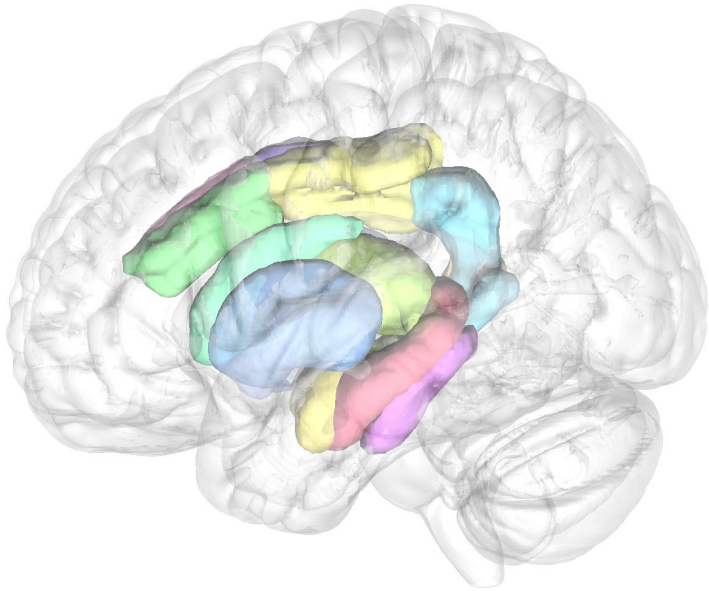
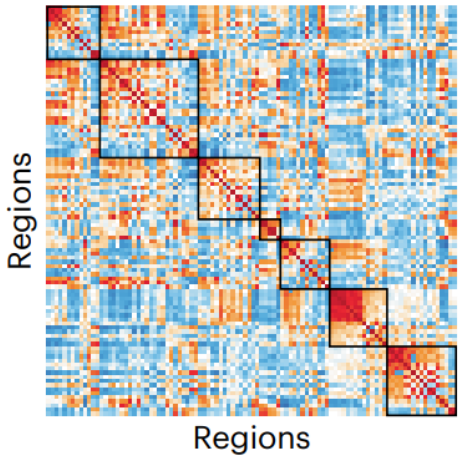
Quantifying the structural connections -> Creating a connectome





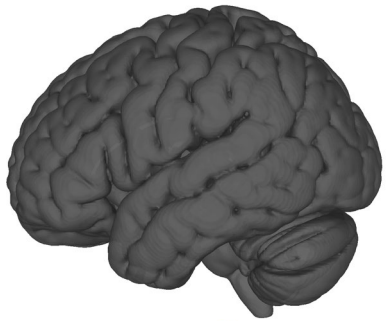


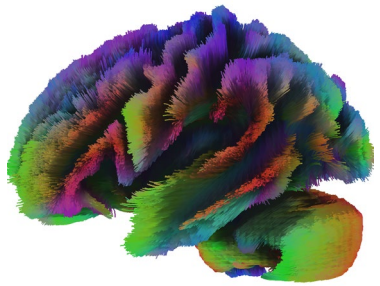
How many tracts are connected with each relevant structure?

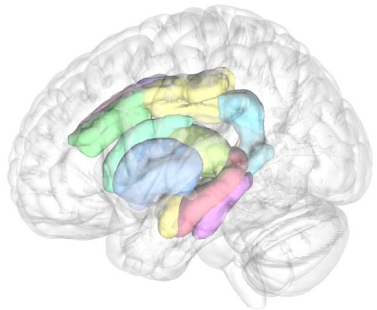


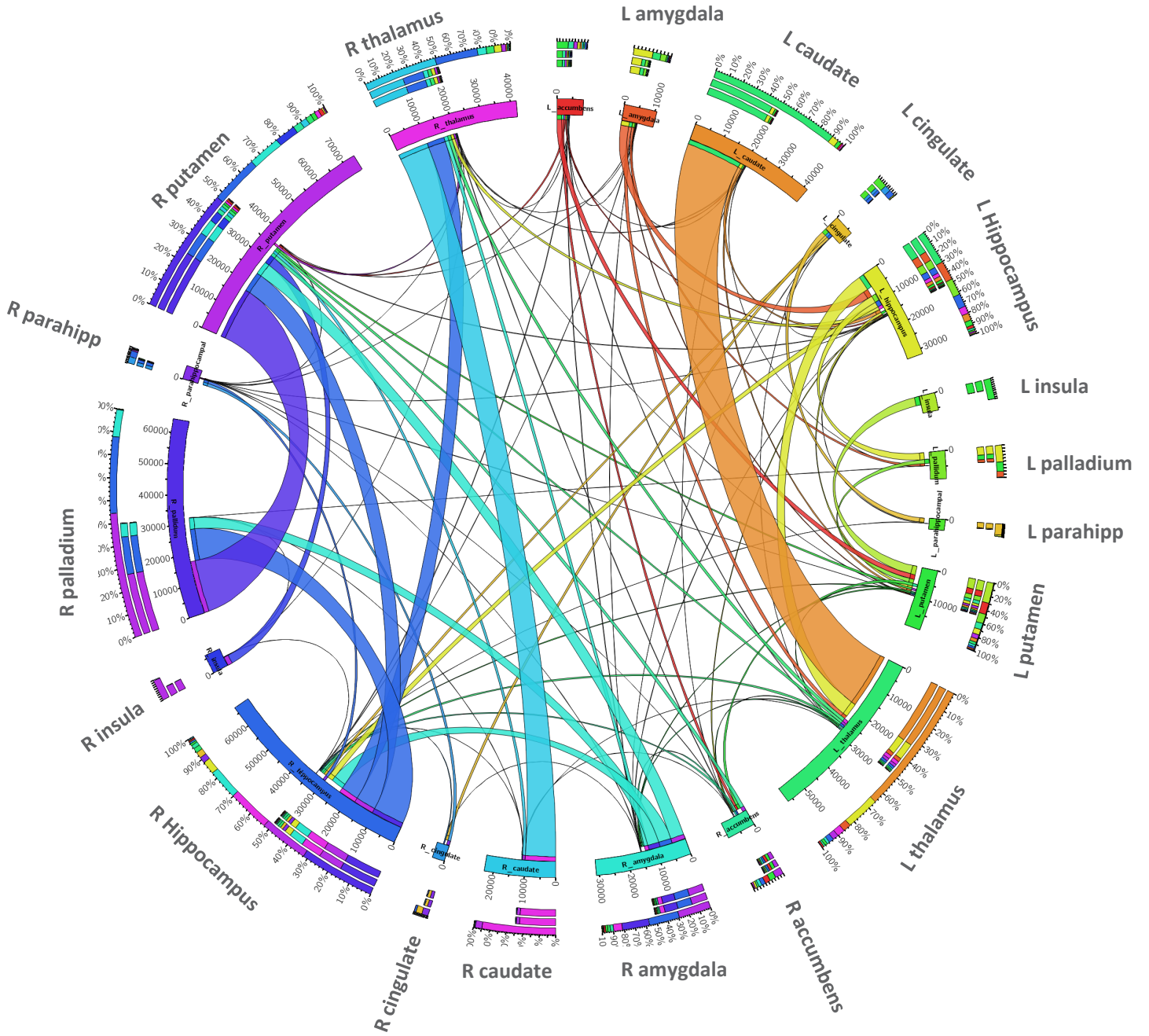
Summa Health

Quantifying the structural connections -> Creating a connectome









Robust WM connectivity between ipsilateral structures

Direct/Indirect connectivity between contralateral structures

Connectivity asymmetry between L and R structures

e.g. R/L hippocampus
R/L caudate

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Cholinergic Tracts and Cholinergic Therapies

- Loss of acetylcholine producing neurons has long been noticed in Alzheimer's and other dementias
- Donepezil, Rivastigmine, and galantamine inhibit acetylcholinesterase and thereby increase the acetylcholine activity
- The increase in acetylcholine activity helps with short term memory and attention

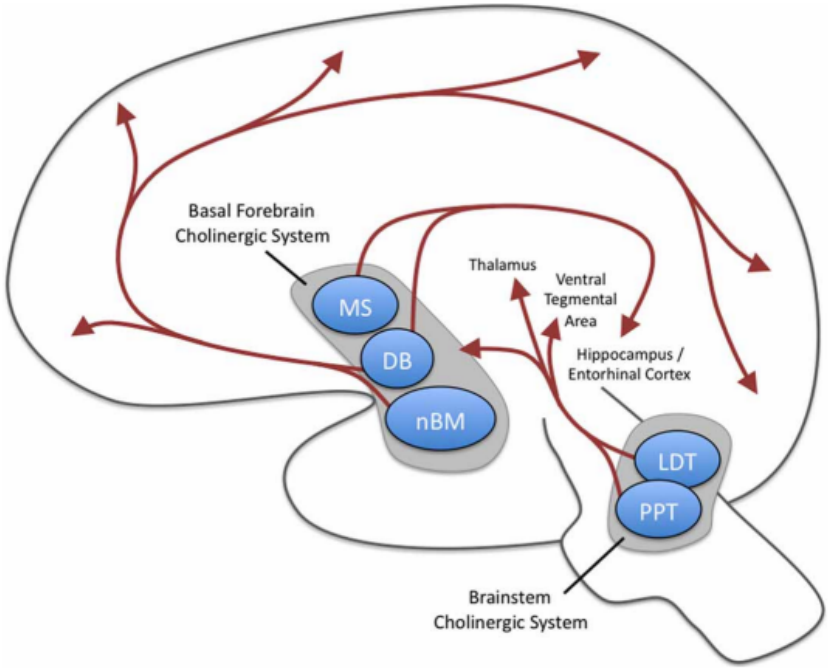
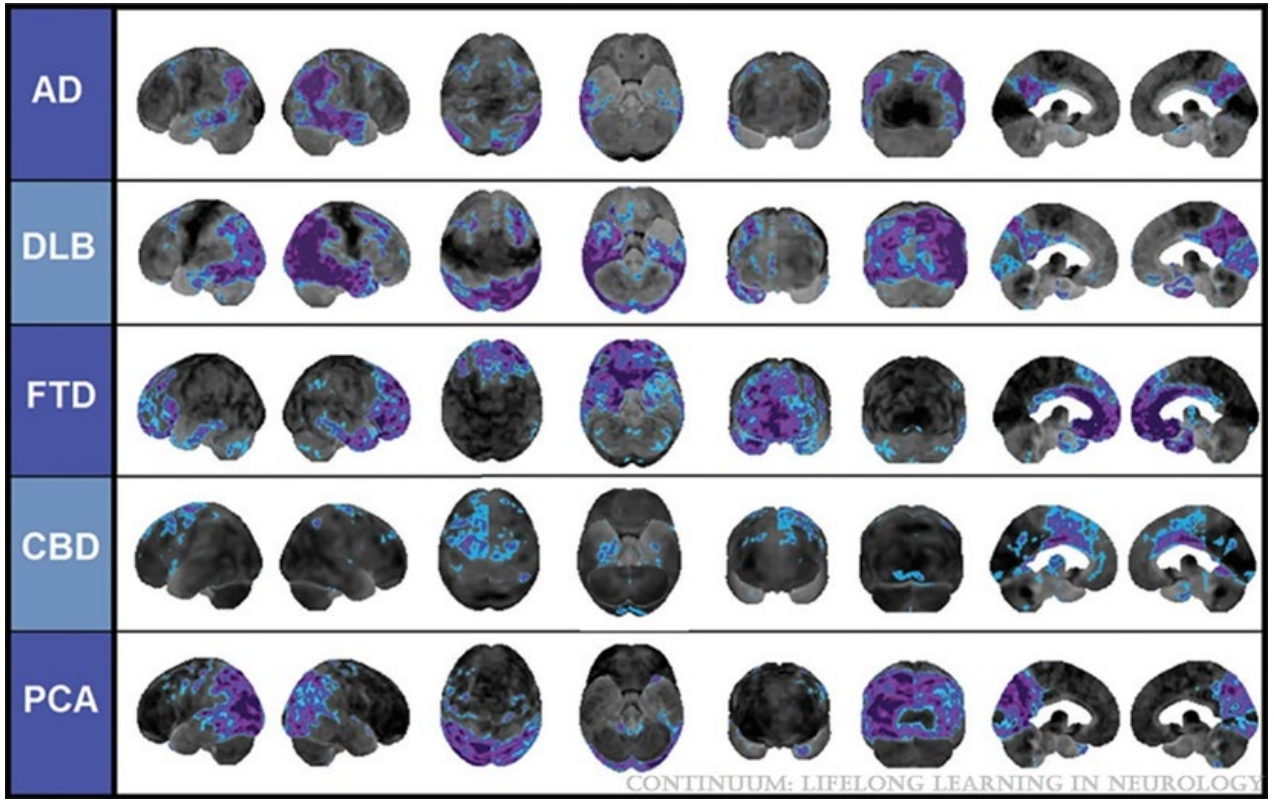


FIGURE 1 | Major cholinergic projections of the central nervous system. Two groups of projections exist: the magnocellular basal forebrain cholinergic system and the brainstem cholinergic system. The magnocellular basal forebrain cholinergic system includes the medial septal nucleus (MS), the vertical and horizontal limbs of the diagonal band of Broca (DB), and the nucleus basalis magnocellularis (nBM). The horizontal limb of the DB and nBM has extensive diffuse projections to neocortex as well as projections to basolateral amygdala and olfactory bulb (these latter two are not shown here). The MS and vertical limb of the DB project to hippocampus and entorhinal cortices. The brainstem cholinergic system includes the pedunculopontine tegmental nucleus (PPT) and laterodorsal pontine tegmentum (LDT) and projects predominantly to the thalamus but also to the basal forebrain region.

Frontiers in Behavioral Neuroscience **www.frontiersin.org** June 2012 | Volume 6 | Article 24 | **2**

FDG-PET



Differential patterns of hypometabolism on fludeoxyglucose positron emission tomography (FDG-PET) z score maps in neurodegenerative disease with temporal parietal hypometabolism in Alzheimer disease (AD), increased occipital hypometabolism in dementia with Lewy bodies (DLB), frontal dominant hypometabolism in frontotemporal dementia (FTD), asymmetry in corticobasal degeneration (CBD), and posterior dominant cortical hypometabolism in posterior cortical atrophy (PCA). The blue and purple colors denote areas of the FDG-PET scan that are lower than -2 standard deviations from the mean of the control comparison population.Reprinted with permission from Brown RKJ, et al, RadioGraphics.67 © 2014 Radiological Society of North America.

- Shows glucose hypo-metabolism in the brain
- Regions of the brain effected by dementias will have decreased glucose metabolism.
- It is primarily used for distinguishing Alzheimer's from frontal temporal dementia (FTD)
- 86% sensitivity and 97.6% specificity when distinguishing AD from FTD.
- Because there is overlap in regions effected by the different forms of dementia, FDG-PET's usefulness for diagnosis of dementia is limited.

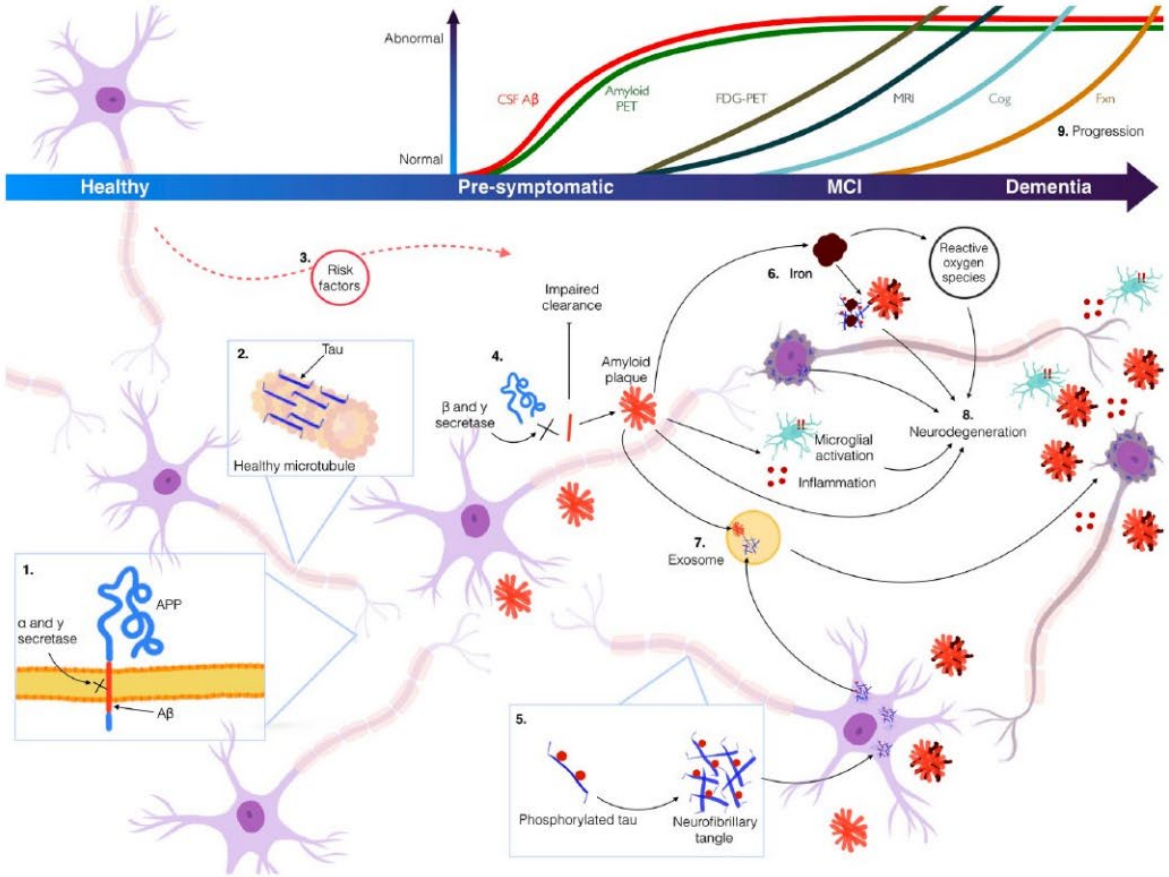
The Value of Neuroimaging in Dementia DiagnosisRaji, Cyrus A.; Benzinger, Tammie L. S.
CONTINUUM: Lifelong Learning in Neurology28(3):800-821, June 2022.

Advances in Dementia Therapeutics

Therapeutics Outline (Alzheimer Disease)

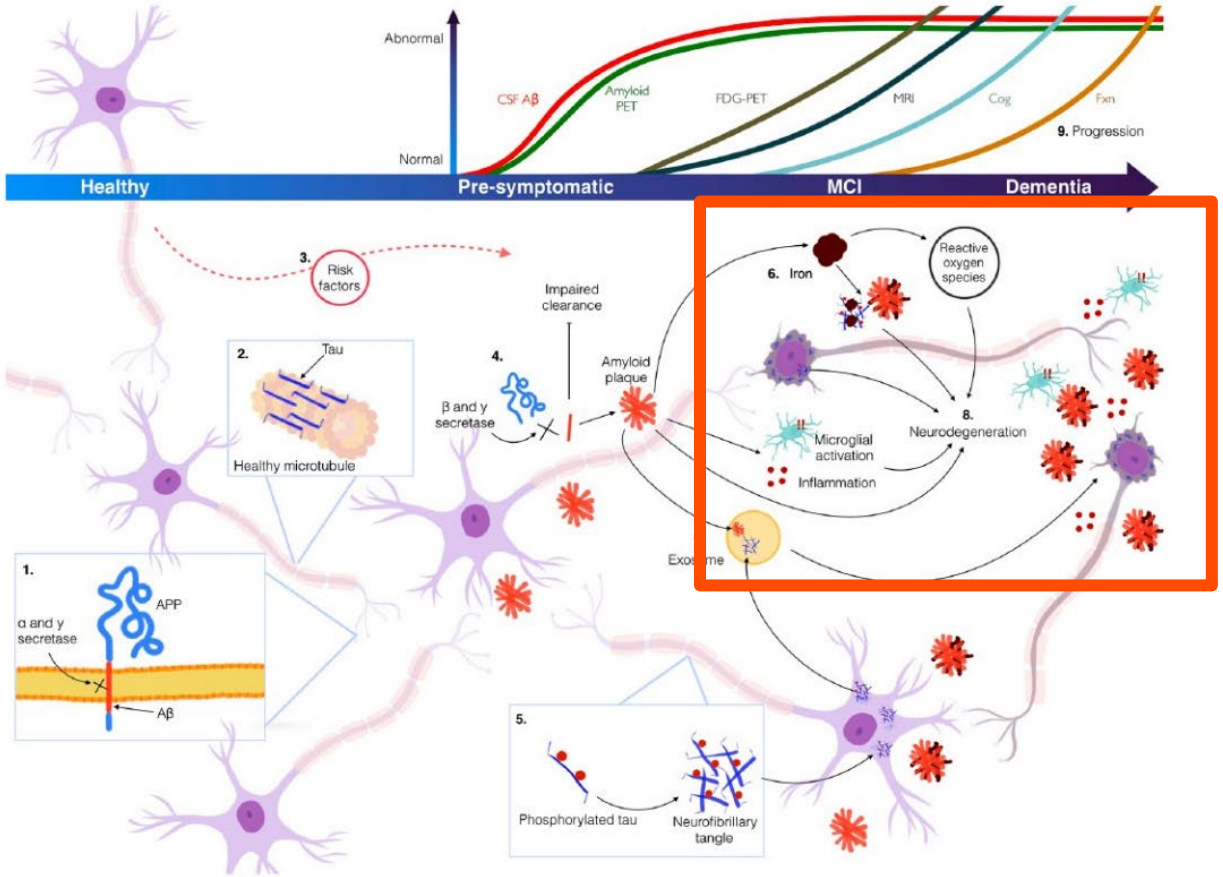
Therapeutics Outline (Alzheimer Disease)

Alzheimer's Disease Dementia: Proposed Pathophysiologic Model



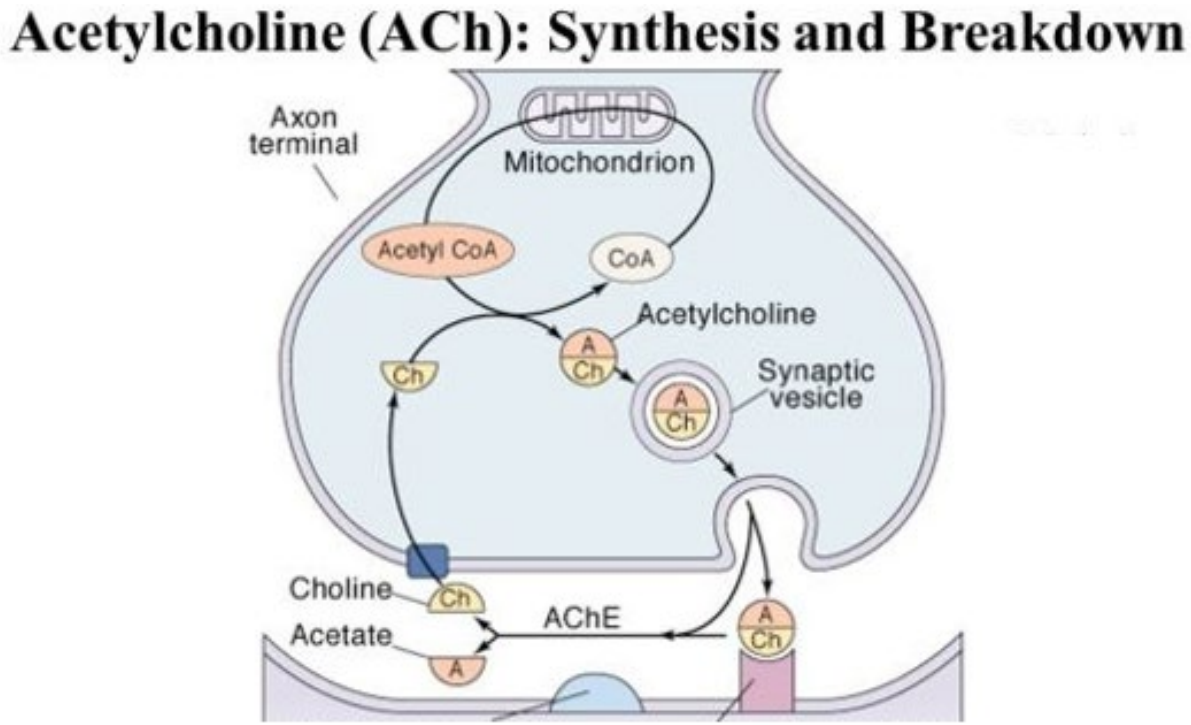
Ertane D. Australas Psychiatry. 2018 Aug;26(4):347-357.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

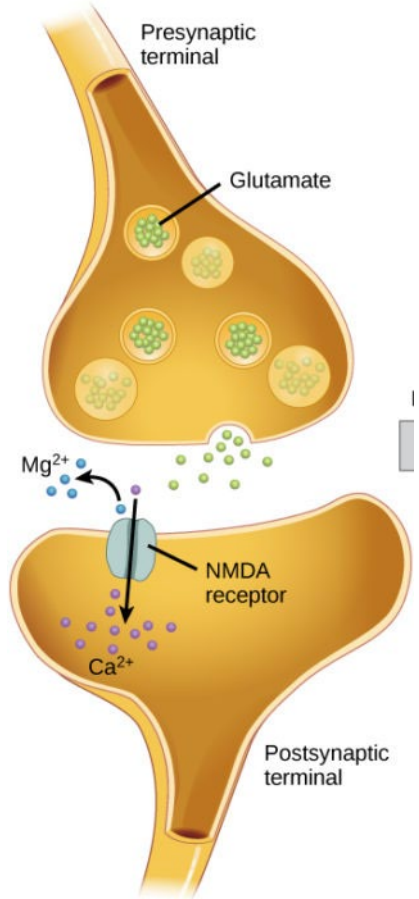
Alzheimer's Disease Dementia: Proposed Pathophysiologic Model



Ertane D. Australas Psychiatry. 2018 Aug;26(4):347-357.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

Long-Term Standard



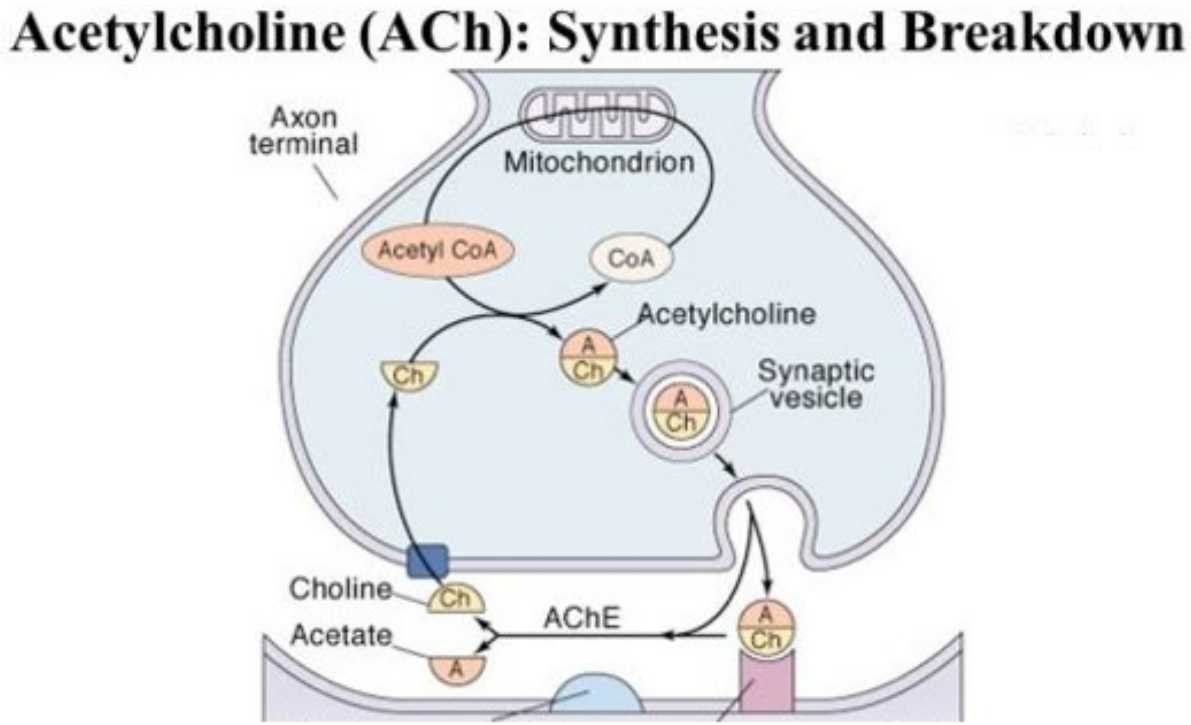


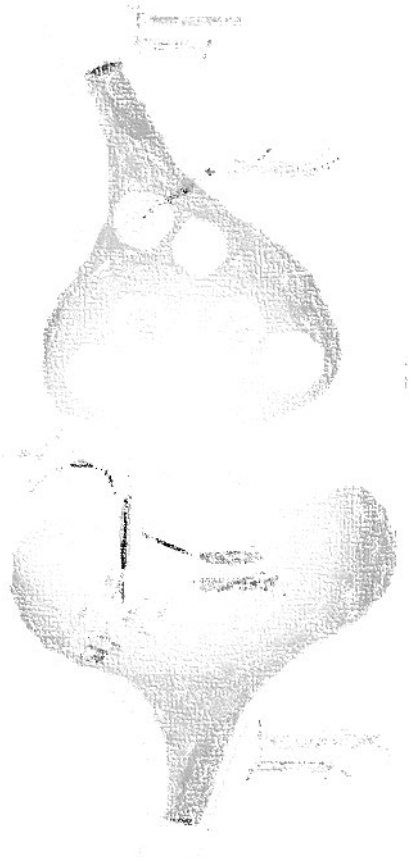
Mild-Severe Disease

Moderate-Severe Disease

Birks JS. Cochrane Database Syst Rev. 2006 Jan 25;(1):CD005593.
Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Vyklicky V. Physiol Res. 2014;63(Suppl 1):S191-203.

Long-Term Standard





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Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Vyklicky V. Physiol Res. 2014;63(Suppl 1):S191-203.

AChEI Summary Table

	Donepezil	Rivastigmine	Galantamine
Mechanism	Reversible acetylcholinesterase inhibitor	Pseudo-irreversible acetylcholinesterase and butyrylcholinesterase inhibitor	Reversible acetylcholinesterase inhibitor and nicotinic receptor modulator
Dosage Forms	Tablet Oral disintegrating tablet **Transdermal once weekly patch**	Capsule Transdermal 24 hour patch	24 hour ER capsule Tablet Oral solution
Target Dose and Titration	5 mg PO daily increased to 10 mg PO daily after 4-6 weeks 5 mg/day using donepezil transdermal once weekly patch for 4-6 weeks, then dosage may be increased to 10 mg/day with once weekly patch	1.5 mg PO BID increased by 3 mg PO daily every two weeks to a maximum of 6 mg PO BID *or* 4.6 mg TD daily increased to 9.5 mg TD daily after ≥ four weeks, then increase to 13.3 mg TD daily after ≥ four weeks	4 mg PO BID for four weeks, then 8 mg PO BID for ≥ four weeks, then 12 mg PO BID (all total daily doses given once daily if using ER product)
Notes	23 mg/day dose unlikely to offer advantages with greater risk of several adverse effects Patch efficacy data based on relative bioavailability study Store patches between 2-8° C	Restart titration if therapy interrupted for > 3 days Administer capsules with food Fewer adverse effects with patch Oral formulation may have highest incidence of GI adverse effects	Restart titration if therapy interrupted for ≥ 3 days Administer with food Firm renal / hepatic adjustments
Monitoring	Dizziness (usually transient), syncope, bradycardia (pulse at baseline, monthly during titration, and semiannually thereafter), GI effects (usually transient), insomnia, vivid dreams, serious skin reactions (galantamine)		

Adlarity® (donepezil) transdermal system [package insert]. 2022 Mar.
Birks JS. Cochrane Database Syst Rev. 2015 Apr 10;(4):CD001191.
Birks JS. Cochrane Database Syst Rev. 2018 Jun 18;6(6):CD001190.
Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Pharmacist's Letter. Alzheimer's Dementia Pharmacotherapy [Internet]. c2022.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

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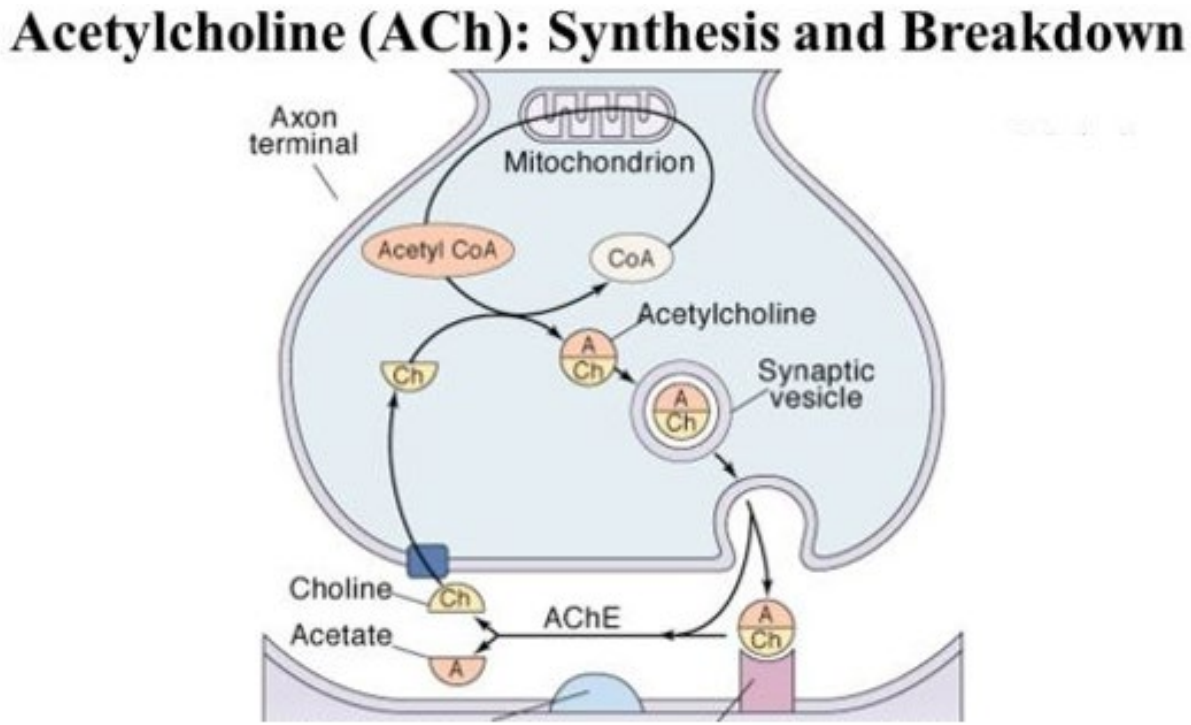
Target Dose and Ti	5 mg PO daily increased to 10 mg	1.5 mg PO BID increased by 3 mg PO	4 mg PO BID for four weeks, then 8
Notes	23 mg/day dose unlikely to offer advantages with greater risk of several adverse effects Patch efficacy data based on relative bioavailability study Store patches between 2-8° C	Restart titration if therapy interrupted for > 3 days Administer capsules with food Fewer adverse effects with patch Oral formulation may have highest incidence of GI adverse effects	Restart titration if therapy interrupted for ≥ 3 days Administer with food Firm renal / hepatic adjustments
Monitoring	Dizziness (usually transient), syncope, bradycardia (pulse at baseline, monthly during titration, and semiannually thereafter), GI effects (usually transient), insomnia, vivid dreams, serious skin reactions (galantamine)		

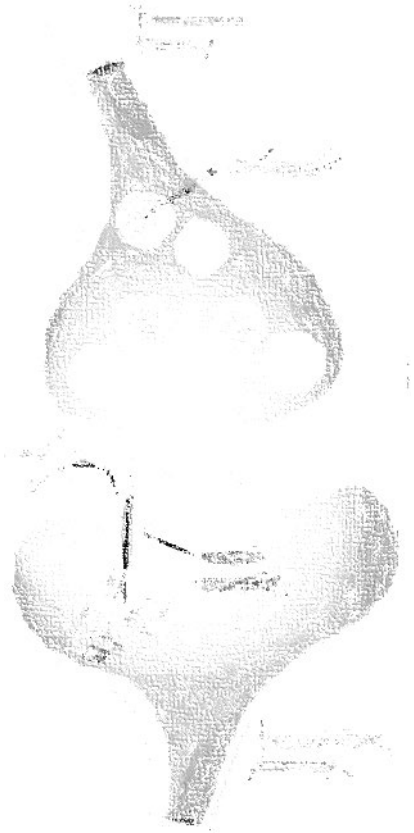
The American Geriatrics Society highlights discussing risks and benefits of these medications prior to initiation and **discontinuing ChEIs after approximately 12 weeks if desired effects are not perceived**

Adlarity® (donepezil) transdermal system [package insert]. 2022 Mar.
Birks JS. Cochrane Database Syst Rev. 2015 Apr 10;(4):CD001191.
Birks JS. Cochrane Database Syst Rev. 2018 Jun 18;6(6):CD001190.
Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Pharmacist's Letter. Alzheimer's Dementia Pharmacotherapy [Internet]. c2022.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

Summa Health

Long-Term Standard





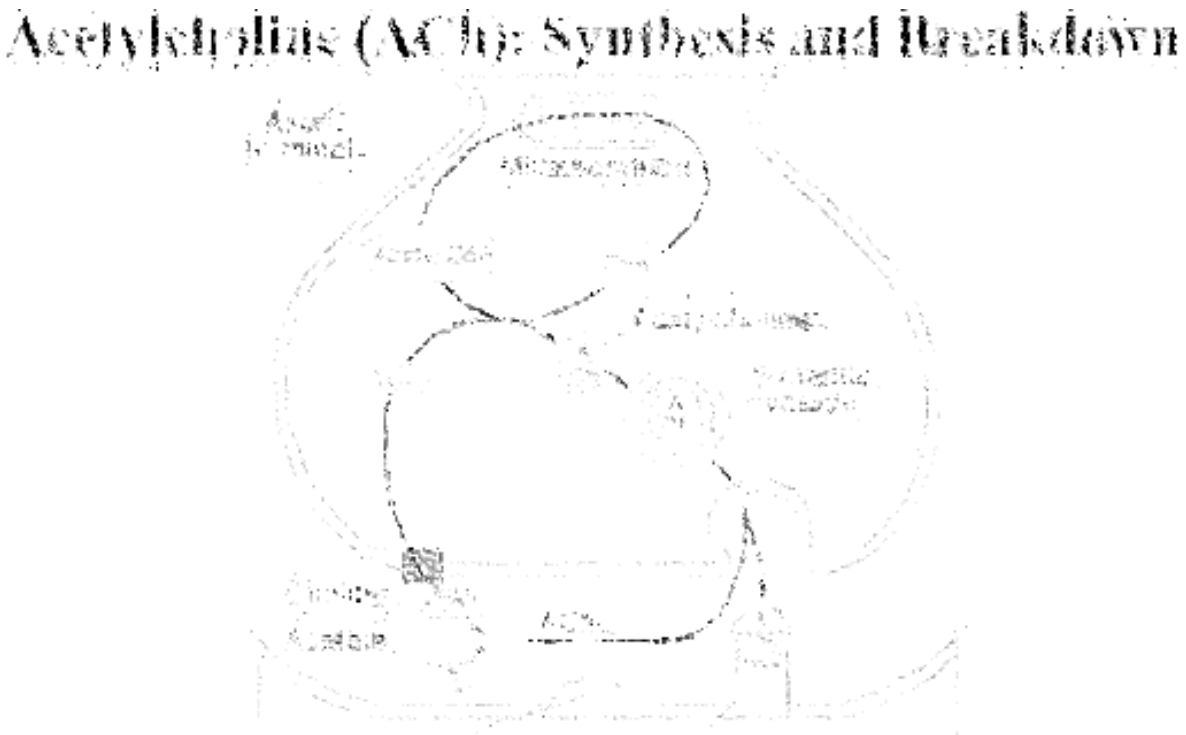
Mild-Severe Disease

Moderate-Severe Disease

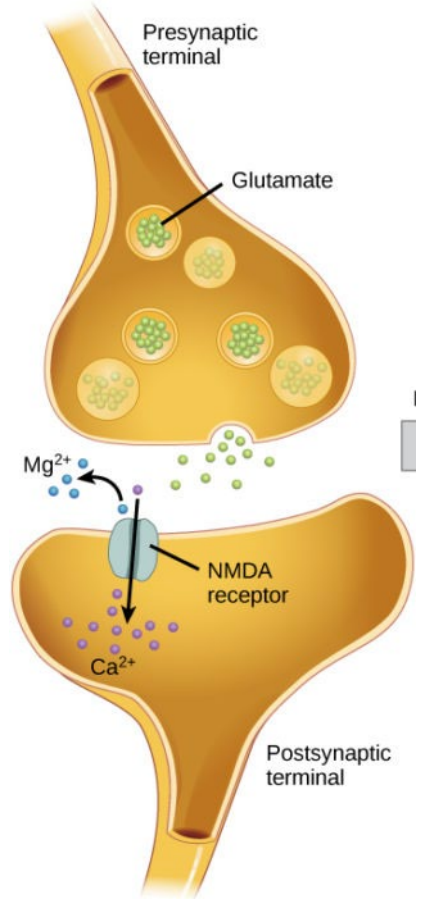
Birks JS. Cochrane Database Syst Rev. 2006 Jan 25;(1):CD005593.
Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Vyklicky V. Physiol Res. 2014;63(Suppl 1):S191-203.

Summa Health

Long-Term Standard



Mild-Severe Disease



Moderate-Severe Disease

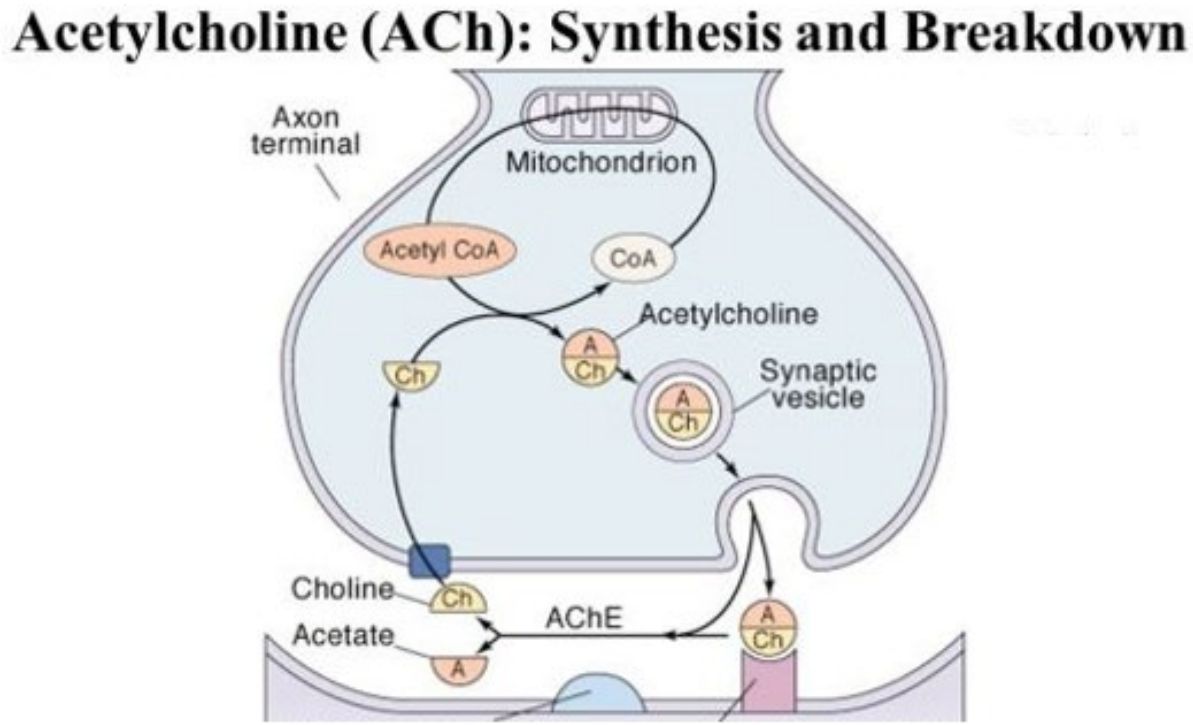
Birks JS. Cochrane Database Syst Rev. 2006 Jan 25;(1):CD005593.
Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Vyklicky V. Physiol Res. 2014;63(Suppl 1):S191-203.

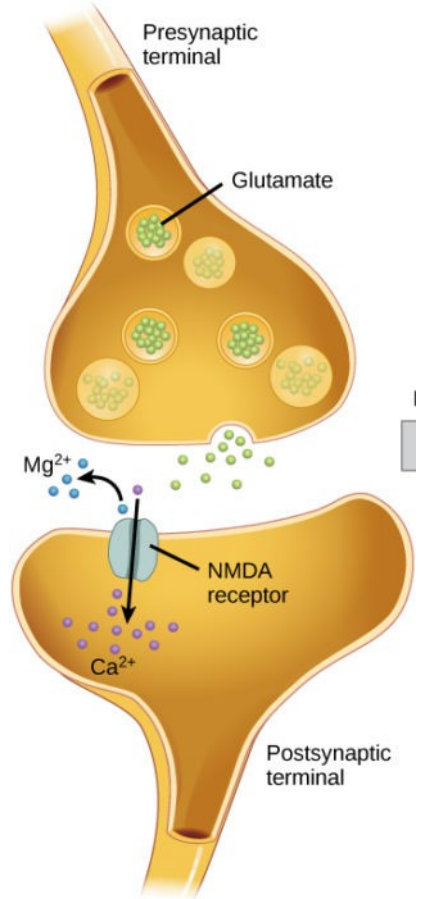
NMDA Antagonist Summary Table

	Memantine
Mechanism	NMDA Receptor Antagonist
Dosage Forms	Tablet Extended release capsule Oral solution
Target Dose and Titration	IR: 5 mg PO daily increased by 5 mg PO on a weekly basis to 20 mg / day in one-two divided doses ER: 7 mg PO daily increased by 7 mg PO on a weekly basis to 28 mg PO once daily
Notes	Maximum IR dose of 5 mg PO BID and maximum ER dose of 14 mg PO daily recommended with CrCl < 30 mL/min Possible risk of treatment-emergent agitation *Not* effective in mild AD ER capsules may be opened and sprinkled on applesauce for immediate use
Monitoring	Headache, confusion (may be transient), dizziness, hallucinations, constipation

Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Pharmacist's Letter. Alzheimer's Dementia Pharmacotherapy [Internet]. c2022.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

Long-Term Standard



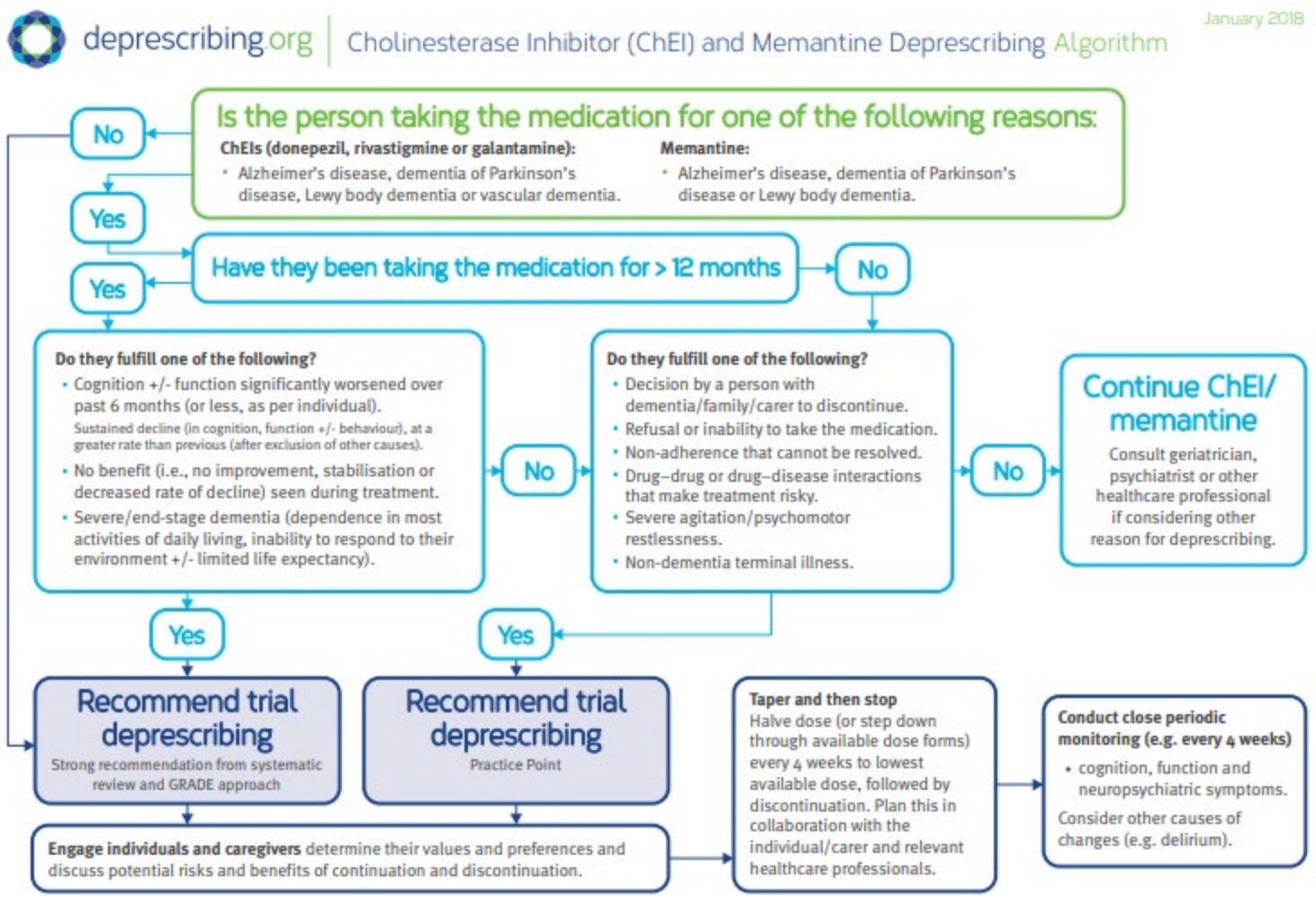


Mild-Severe Disease

Moderate-Severe Disease

Birks JS. Cochrane Database Syst Rev. 2006 Jan 25;(1):CD005593.
Joe E. BMJ. 2019 Dec 6;367:l6217.
Lexicomp Online [Internet].
Vyklicky V. Physiol Res. 2014;63(Suppl 1):S191-203.

AD Pharmacotherapy: Discontinuation of ChEI or Memantine



Pharmacist's Letter. Alzheimer's Dementia Pharmacotherapy [Internet]. c2022.
Reeve E. Med J Aust. 2019 Mar;210(4):174-179.

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AD Pharmacotherapy: Discontinuation of ChEI or Memantine

Monitoring during tapering and after discontinuation

Timing of symptoms after dose reduction/ discontinuation	Types of symptoms	Action to be taken by family/nurses/ care staff	Possible cause*
Less than 1 week	Severe symptoms, including agitation, aggression, hallucinations or reduced consciousness	Restart previous dose immediately and contact responsible healthcare professional as soon as possible	Adverse drug withdrawal reaction
2 to 6 weeks	Worsening of cognition, behavioural or psychological symptoms or function	Contact responsible healthcare professional and consider restarting previous dose and/or make an appointment to see responsible healthcare professional at the next available time	Re-emergence of symptoms that were being treated by ChEI/ memantine
6 weeks to 3 months	Worsening of cognition, behavioural or psychological symptoms or function	Contact responsible healthcare professional at the next available time to make an appointment	Likely progression of condition or possible re-emergence of symptoms that were being treated by ChEI/memantine
> 3 months	Any	As per usual care	Progression of condition

- *Exclude other causes of change in condition (e.g. infection or dehydration) first.
- Discuss monitoring plan with the individual/family/carer and write it down for them (e.g. frequency and type of follow-up). Ensure they have a way to contact a clinician if needed.

Pharmacist's Letter. Alzheimer's Dementia Pharmacotherapy [Internet]. c2022.
Reeve E. Med J Aust. 2019 Mar;210(4):174-179.

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Therapeutics Outline (Alzheimer Disease)

Therapeutics Outline (Alzheimer Disease)

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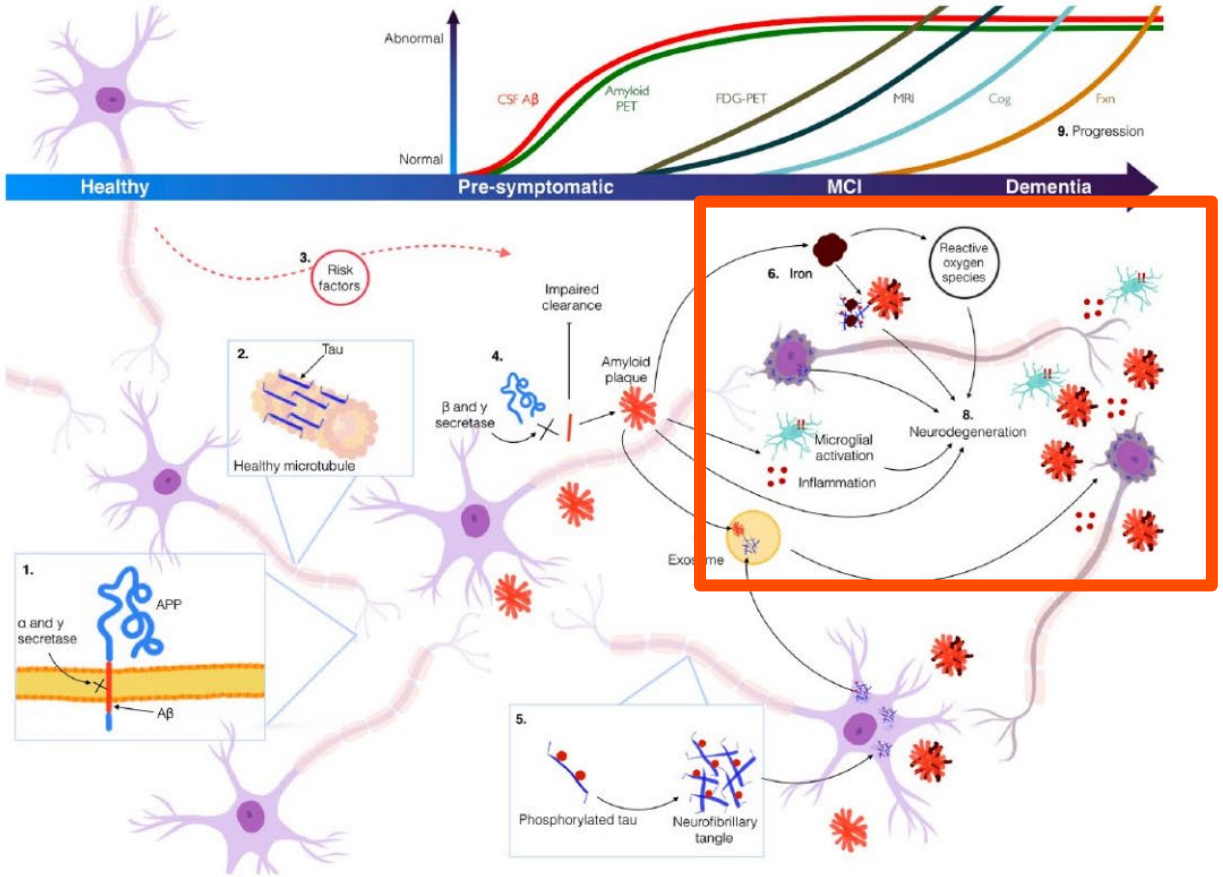
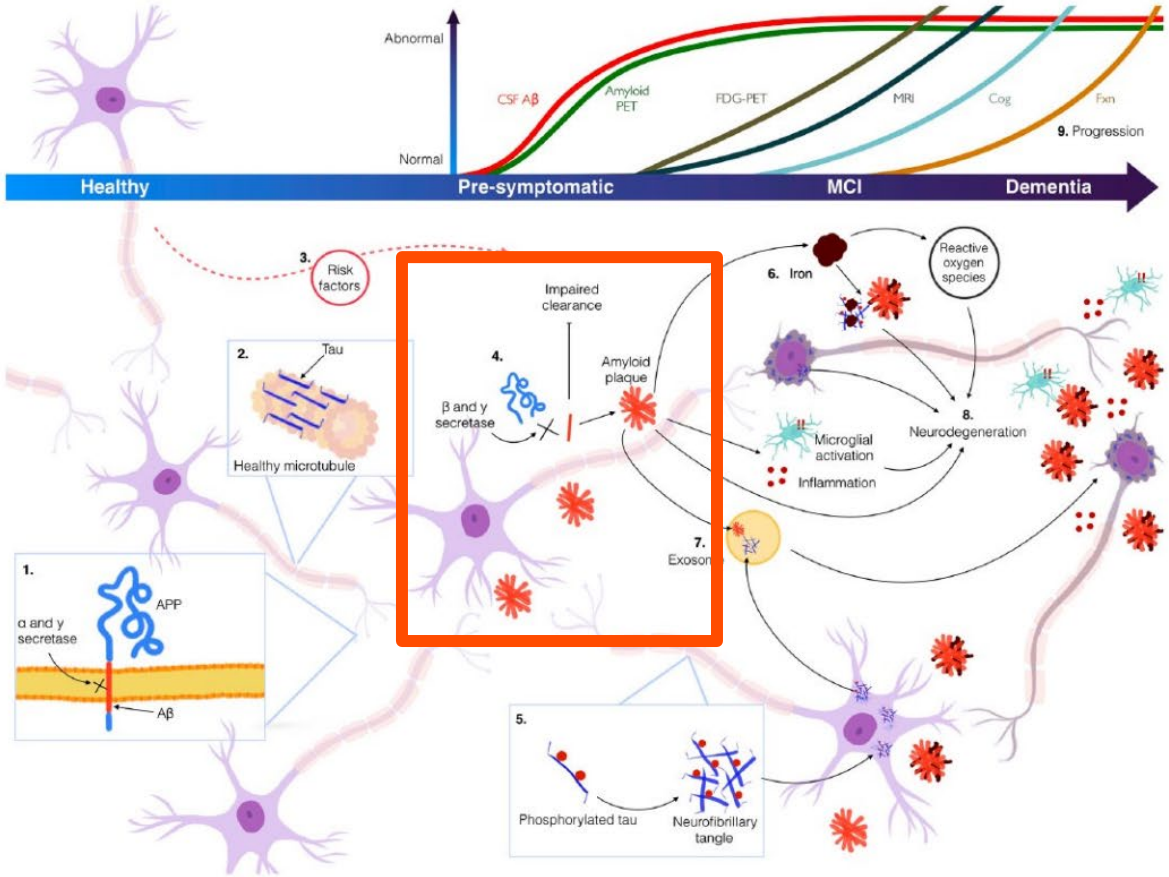
Alzheimer's Disease Dementia: Proposed Pathophysiologic Model



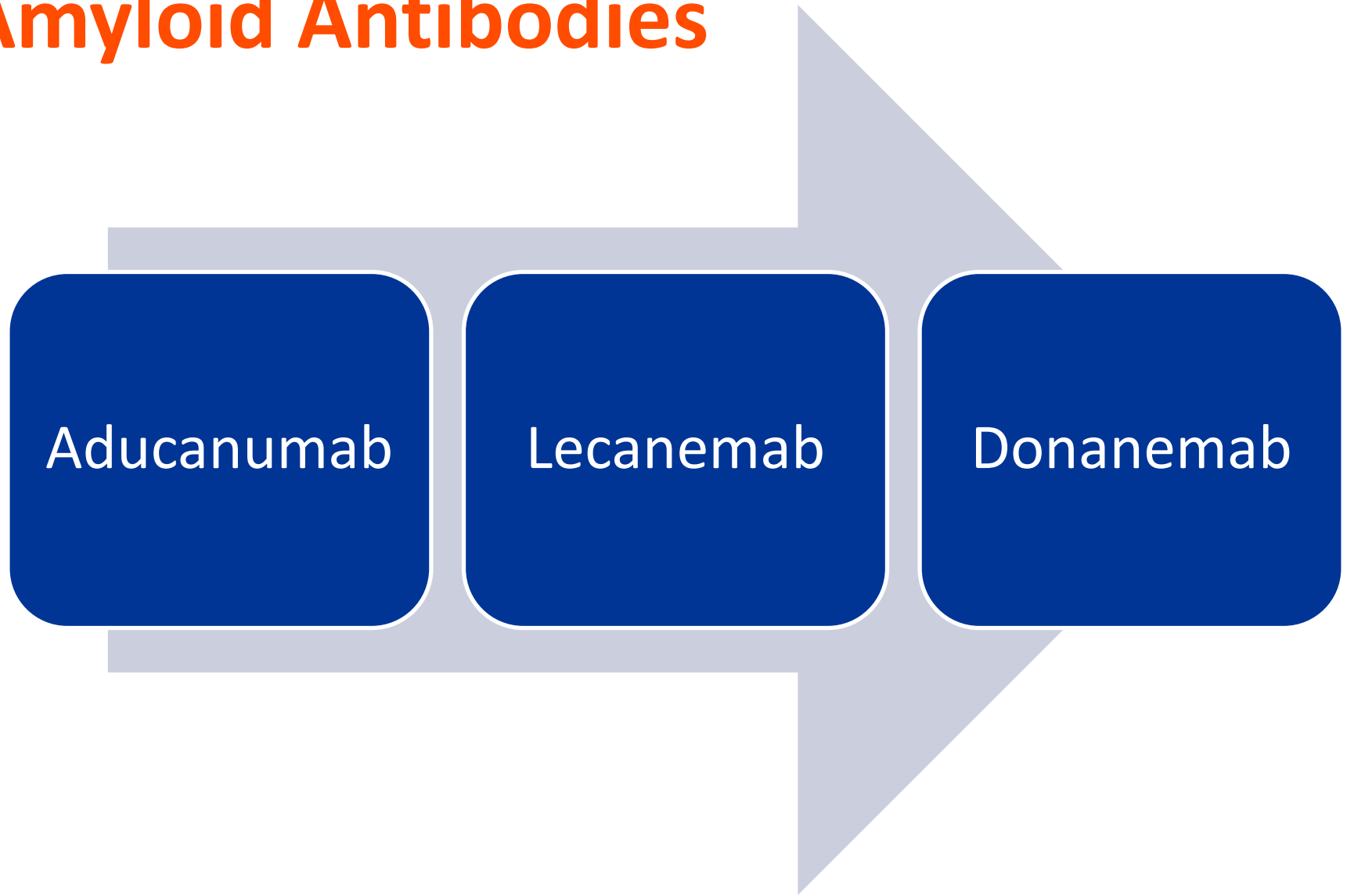
Ertane D. Australas Psychiatry. 2018 Aug;26(4):347-357.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

Alzheimer's Disease Dementia: Proposed Pathophysiologic Model

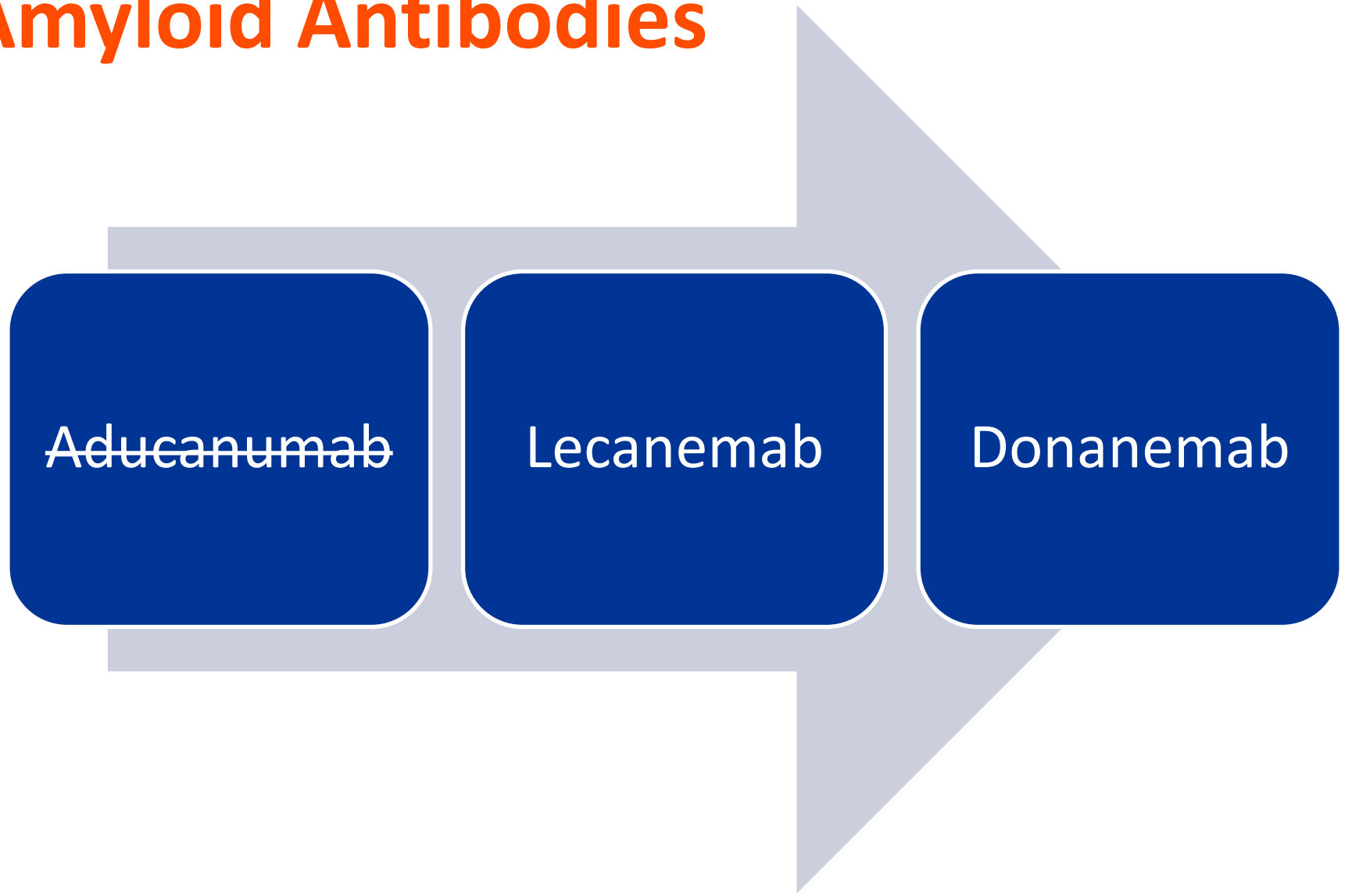


Ertane D. Australas Psychiatry. 2018 Aug;26(4):347-357.
Zimmerman KM. Pharmacotherapy: A Pathophysiologic Approach, 12e [Internet].

Anti-Amyloid Antibodies



Anti-Amyloid Antibodies



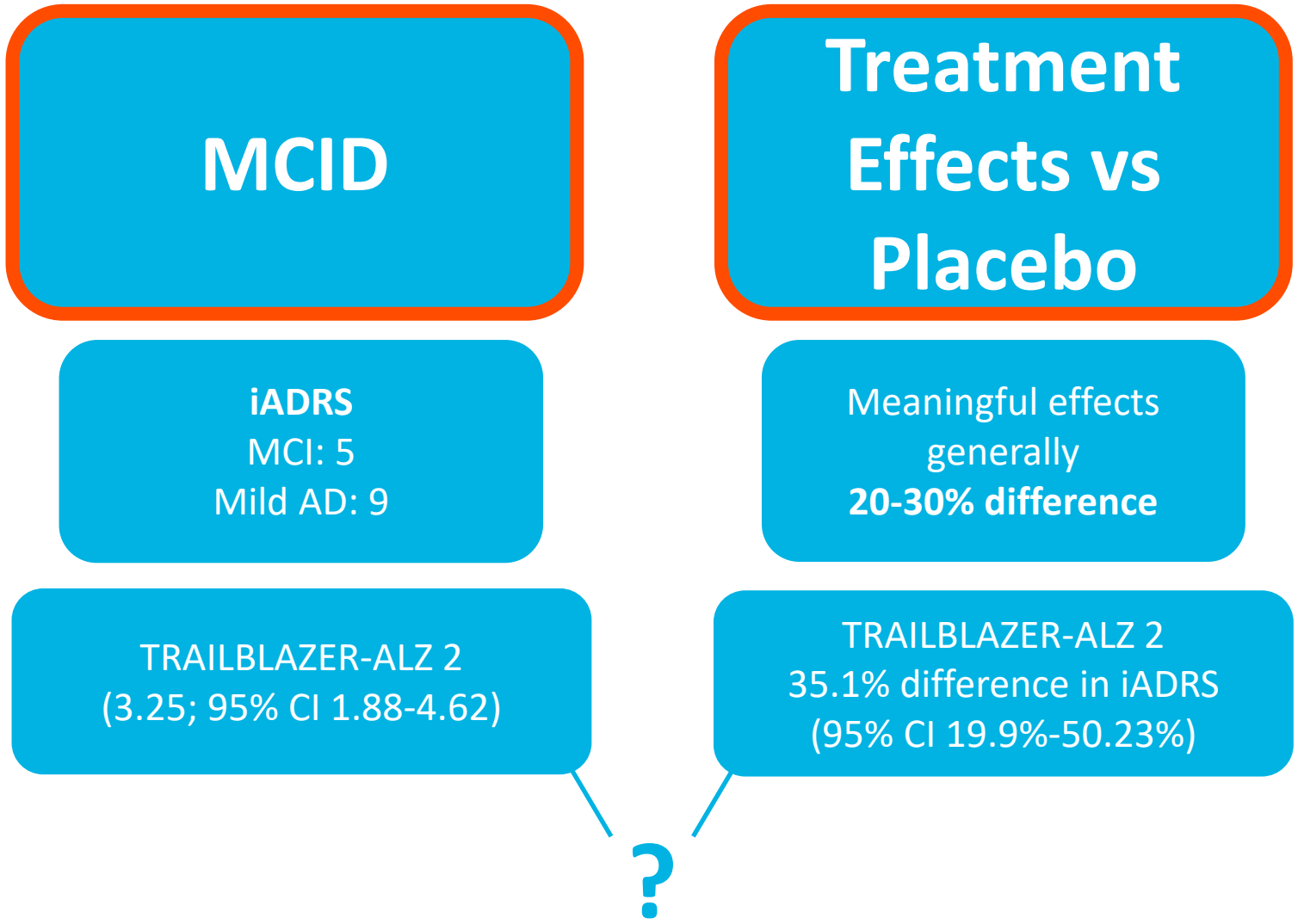
Anti-Amyloid Antibodies

	Clarity AD	*TRAILBLAZER-ALZ 2*
Study Type	Placebo-controlled double-blind randomized trial	Placebo-controlled double-blind randomized trial
Sample Size	1795 patients with mild cognitive impairment due to AD or mild AD-related dementia with confirmed amyloid pathology	1736 patients with mild cognitive impairment due to AD or mild AD-related dementia with confirmed amyloid and tau pathology
Treatment Arms	• Lecanemab 10 mg/kg every 2 weeks for 18 months • Placebo every 2 weeks for 18 months	• Donanemab IV 700 mg for the first 3 doses and 1400 mg thereafter for up to 72 weeks • Placebo IV every 4 weeks for up to 72 weeks

Notable Results	• Mean age of 71 years (SD 7.9)
	• Reduced worsening of CDR-SB compared with placebo (-0.45; 95% CI -0.67, -0.23) at 18 months
	• ARIA-E in 12.6% taking lecanemab vs 1.7% taking placebo
	  • 32.6% in ApoE ε4 homozygotes taking lecanemab vs 3.8% taking placebo
	• ARIA-H in 17.3% taking lecanemab vs 9% taking placebo
	  • 39% in ApoE ε4 homozygotes taking lecanemab vs 21.1% taking placebo
		• Mean age of 73 years
		• Low/medium tau population
		  • Primary: Reduced worsening of iADRS compared with placebo
		  • Difference, 3.25 [95% CI, 1.88-4.62]; $P < 0.001$
		  • Reduced progression on CDR-G
		  • Hazard ratio, 0.61 (95% CI, 0.47-0.8); $P < 0.001$
		  • Death in 2.1% taking donanemab vs 1.3% taking placebo
		• Combined tau population
		  • Primary: Reduced worsening of iADRS compared with placebo
		  • Difference, 2.92 [95% CI, 1.51-4.33]; $P < 0.001$
		  • Reduced progression on CDR-G
		  • Hazard ratio, 0.63 (95% CI, 0.51-0.77): $P < 0.001$
		• ARIA-E in 24% taking donanemab vs 2.1% taking placebo
		  • 40.6% in ApoE ε4 homozygotes taking donanemab vs 3.4% taking placebo
		• ARIA-H in 31.4% taking donanemab vs 13.6% taking placebo

Lexicomp Online [Internet]. Sims JR, et al. JAMA. 2023 Aug 8;330(6):512-527. van Dyck CH, et al. N Engl J Med. 2023 Jan 5;388(1):9-21.

MCID and Clinical Trial Effects



Liu KY, et al. Lancet Psychiatry. 2021 Nov;8(11):1013-1016.
Sims JR, et al. JAMA. 2023 Aug 8;330(6):512-527.
Wessels AM, et al. Alzheimers Dement (N Y). 2022 Jun 6;8(1):e12312.

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Anti-Amyloid Antibodies: Additional Clinical Considerations (if used)

	Lecanemab	Donanemab
Mechanism	Anti-Amyloid Monoclonal Antibody	Anti-Amyloid Monoclonal Antibody
Dosage Forms	IV solution	IV solution
Target Dose and Titration	Using actual body weight, 10 mg/kg IV once every two weeks	700 mg IV every four weeks for three doses, then 1,400 mg IV every four weeks until amyloid plaques are reduced to minimal levels on PET imaging
Monitoring	PET/lumbar puncture, ApoE ε4 prior to initiation Brain MRI one year prior to initiation; prior to infusion 5, 7, and 14, and for symptoms of ARIA (eg headache, AMS, visual changes, nausea, dizziness) or monitoring of detected ARIA ARIA-H and ARIA-E may require suspension of treatment	PET/lumbar puncture, ApoE ε4 prior to initiation Brain MRI prior to initiation; prior to infusion 2, 3, 4, and 7, and for symptoms of ARIA or monitoring of detected ARIA ARIA-H and ARIA-E may require suspension of treatment
Notes	Black Box Warning Questionable clinical significance pending effects over time for patients matching trial inclusion criteria Multistep logistical process to arrange successful therapy initiation, monitoring, and cost management Exclusion Criteria Donanemab: tau pathology role (in addition to ApoE ε4)	

Lexicomp Online [Internet].
Sims JR, et al. JAMA. 2023 Aug 8;330(6):512-527.
van Dyck CH, et al. N Engl J Med. 2023 Jan 5;388(1):9-21

Summa Health

Anti-Amyloid Antibodies: Additional Clinical Considerations (if used)

Lecanemab Appropriate Use Recommendations (selected):

Category	Recommendation
AD Medications	Patients may be on AChEis and/or memantine
Immunological Disease	Exclude if any history of immunologic disease or systemic treatment with immunosuppressants, immunoglobulins, monoclonal antibodies, or derivatives
CNS Abnormality	Exclude if >4 microhemorrhages; single macrohemorrhage; superficial sidosis; >2 lacunar infarcts or stroke involving major vascular territory; other specified abnormalities (see works cited)
CVA / Seizure	Exclude if stroke or TIA within 12 months; any history of seizures
Psychiatry	Exclude if mental illness/major depression will interfere with comprehension of treatment
Bleeding	Exclude if uncontrolled bleeding disorder; platelet count < 50,000; IRN > 1.5
Anticoagulant	Exclude if patients taking anticoagulants should not receive lecanemab
“Catch-All”	Exclude if unstable medical conditions that may affect or be affected by lecanemab therapy

Cummings J, et al. J Prev Alzheimers Dis. 2023;10(3):362-377.

Therapeutics Outline (Alzheimer Disease)

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Therapeutics Outline (Alzheimer Disease)

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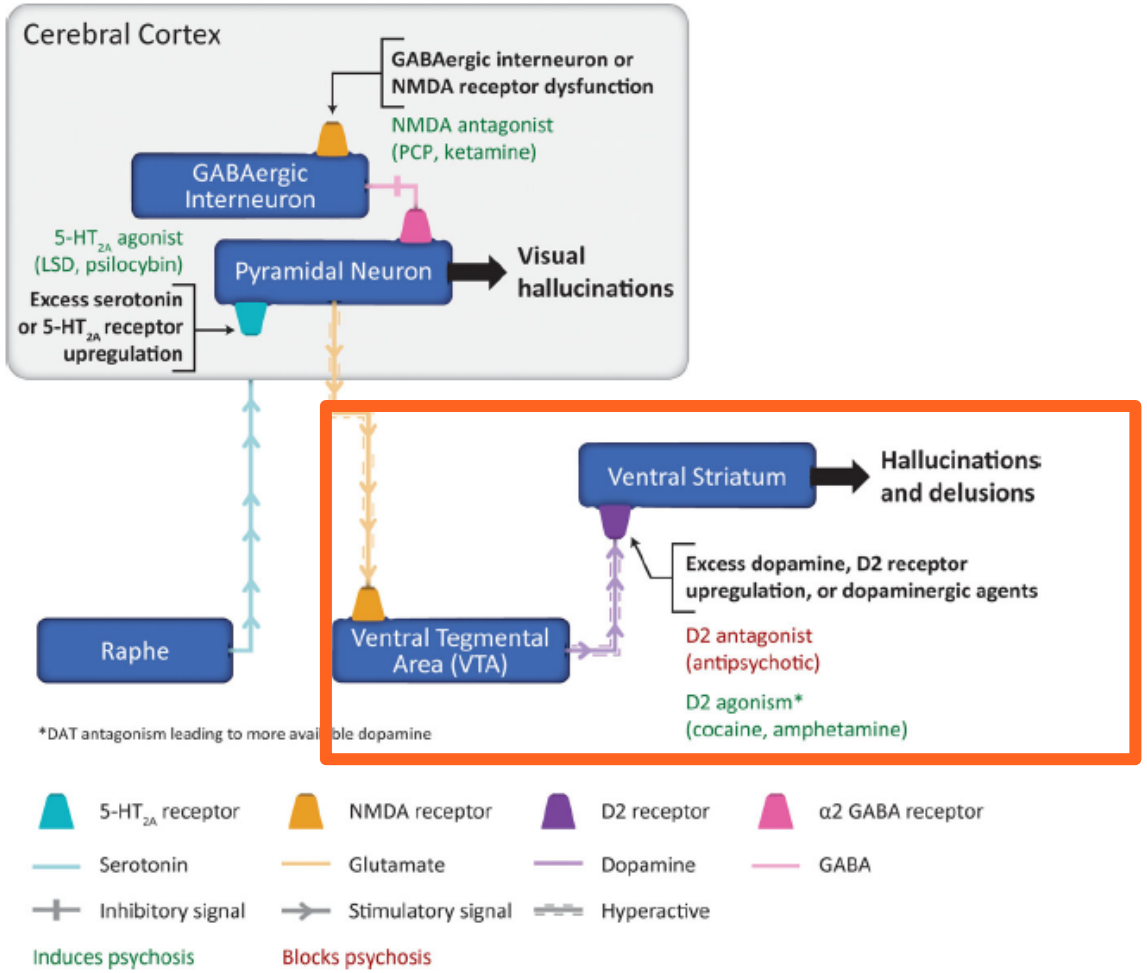
Behavioral and Psychological Symptoms of Dementia (BPSD): Pathophysiology



Cummings JL. CNS Spectr. 2022 Feb;27(1):7-15.

BPSD: Recent News

- Brexpiprazole recently FDA-approved for agitation associated with dementia due to AD
  - 12-week, double-blind, randomized controlled trial
    - Significant agitation at baseline per Cohen-Mansfield Agitation Inventory (CMAI)
    - Brexpiprazole titrated to 2 mg per day or 3 mg per day vs placebo
    - Primary outcome: CMAI change from baseline
      - Difference from placebo: -5.32 (95% CI -8.77, -1.87) with Cohen *d* effect size of 0.35
      - Effects not seen in US region when divided into US / European subgroups
    - Titrate to target dose based on renal/hepatic function
    - Unclear clinical significance and persistence of effects
    - Still follow APA guidance
    - **Black Box Warning still in effect!**

Lee D, et al. JAMA Neurol. 2023 Nov 6:e233810.
Lexicomp Online [Internet].
Reus VI. Washington DC: American Psychiatric Association; c2016.

BPSD and D_2 Blockade: Role in Therapy

2016 American Psychiatric Association Practice Guideline on the Use of Antipsychotics in Patients with Dementia Selected Statements:

Statement 4

- Patients with dementia are recommended to have a comprehensive treatment plan that includes appropriate person-centered **nonpharmacologic** and pharmacologic interventions, as needed

Statement 5

- Nonemergency antipsychotic medication should only be used for the treatment of agitation or psychosis in patients with dementia when symptoms are severe, dangerous, or cause significant distress to the patient

Statement 6

- Review the clinical response to nonpharmacologic interventions prior to nonemergency use of an antipsychotic medication to treat agitation / psychosis in patients with dementia

Reus VI. Washington DC: American Psychiatric Association; c2016.

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BPSD and D_2 Blockade: Role in Therapy

2016 American Psychiatric Association Practice Guideline on the Use of Antipsychotics in Patients with Dementia Selected Statements:

Statement 7

- Before initiating nonemergency treatment with an antipsychotic, assess and discuss potential risks and benefits of antipsychotic medications with the patient and/or surrogate decision maker

Statement 10

- For those who are started on an atypical antipsychotic for dementia with agitation or psychosis, if there is no clinically significant response after a 4-week trial of an adequate dose of an antipsychotic medication, the medication should be tapered and withdrawn

Statement 12

- For patients with dementia who show adequate response of behavioral / psychological symptoms to treatment with an antipsychotic medication, attempt to taper and withdraw the medication within 4 months of initiation unless the patient experienced treatment recurrence in previous tapering attempts

Reus VI. Washington DC: American Psychiatric Association; c2016.

Conclusions

- Imaging techniques, and associated biomarkers, continue to enrich the diagnosis, monitoring, and treatment of dementia.

- Novel therapeutics for both cognitive and behavioral aspects of Alzheimer disease dementia possess questionable clinical significance and are only to be used in highly selected patients after a thorough assessment of individualized risks and benefits.

Advanced diagnostics, imaging and therapeutics for dementia

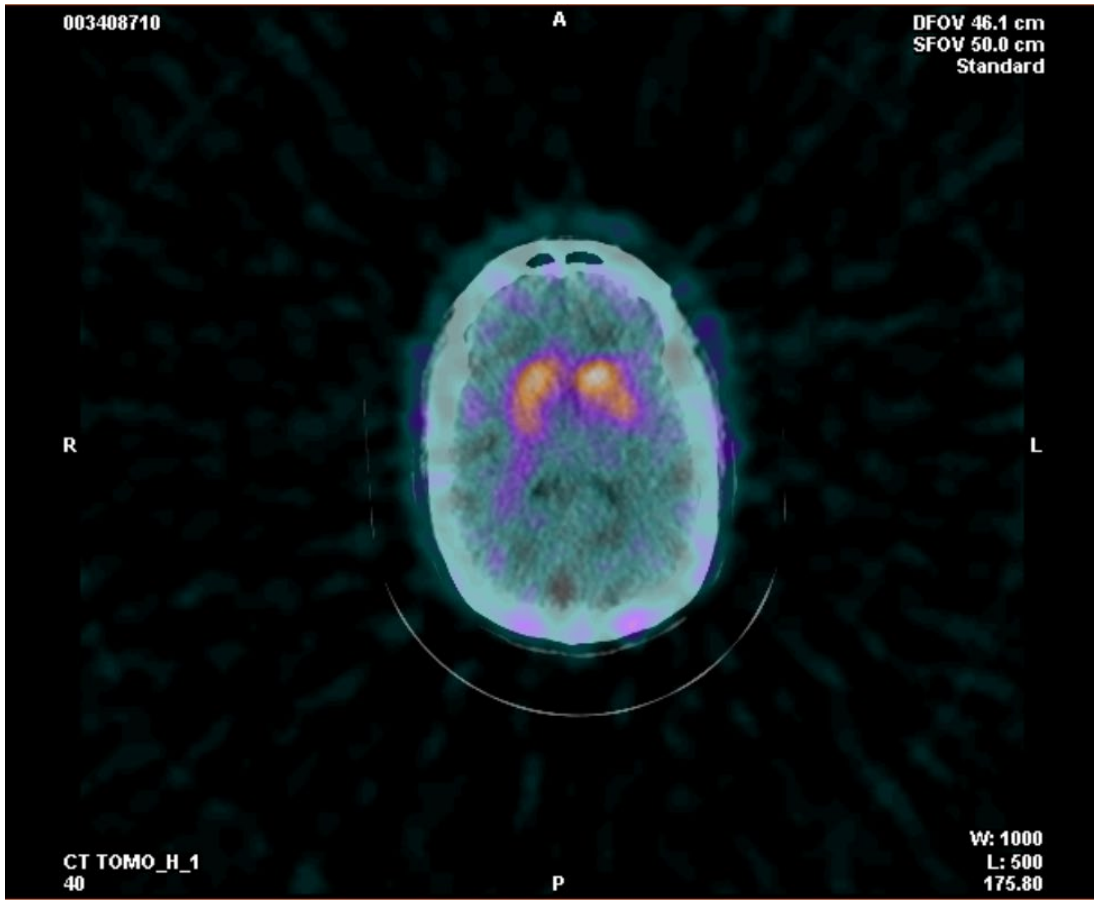
Dr. James Bavis

Joseph Marchiano, PharmD, BCPS, BCGP

Biomarkers for Dementia with Lewy Bodies

- Indicative Biomarkers:
  - Reduced dopamine transporter uptake in basal ganglia on SPECT or PET
  - Low uptake of Iodine-MIBG myocardial scintigraphy
  - Polysomnogram showing REM sleep without atonia
- Supportive Biomarkers
  - Relative preservation of medial temporal lobe structures on CT/MRI
  - Low uptake on SPECT/PET with reduced occipital activity +/- the cingulate island on FDG-PET.
  - Prominent posterior slow wave activity on EEG with periodic fluctuations on pre-alpha/theta range

DaT Scan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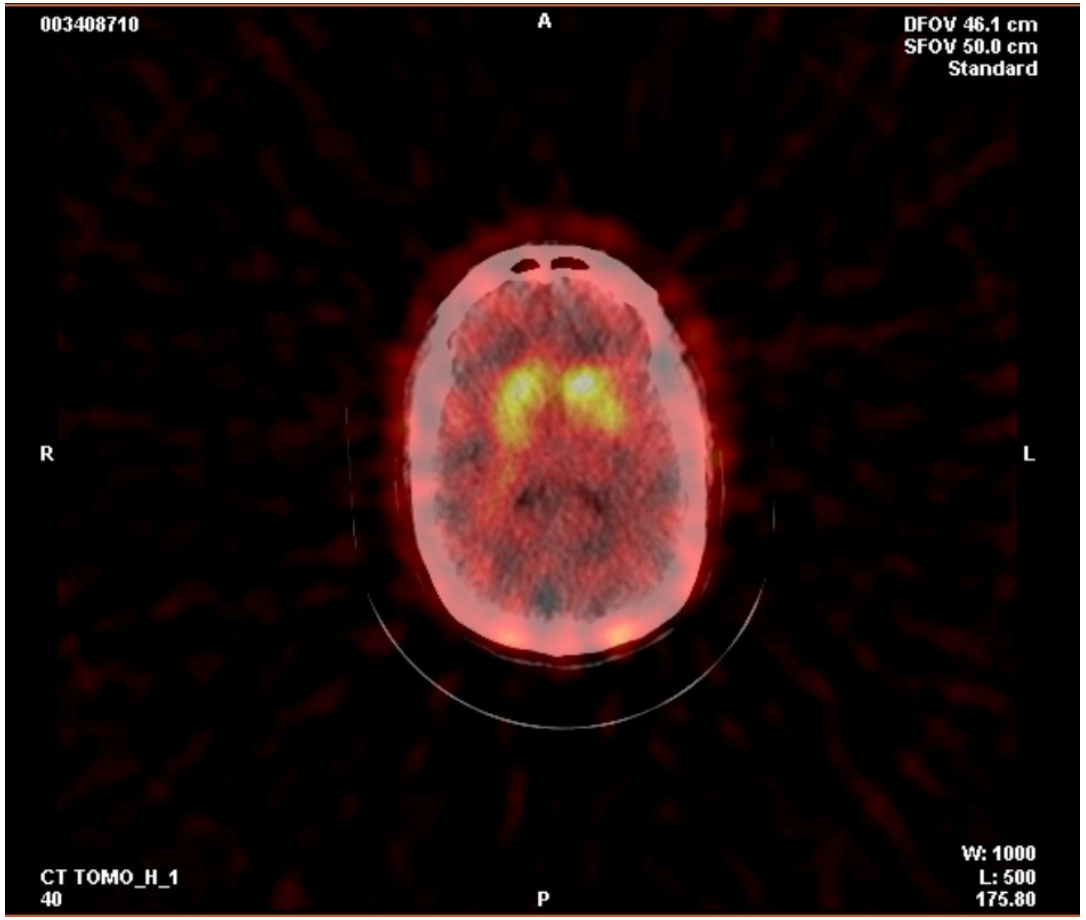
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Summa Health Senior Health Symposium: **Session 7B**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Marty Williman
Program Director
Ohio Council of Cognitive Health

Anna Caldwell, APRN-CNP
Senior Health
Summa Health System

Breakout 2:
Non-Pharmacological Interventions for Dementia

In-person attendees:
Breakout session is located at Firestone Auditorium.

Virtual attendees:
Click on Breakout Room #2

Summa Health

Behavioral Interventions

When Caring for Someone with Dementia

Acknowledgments

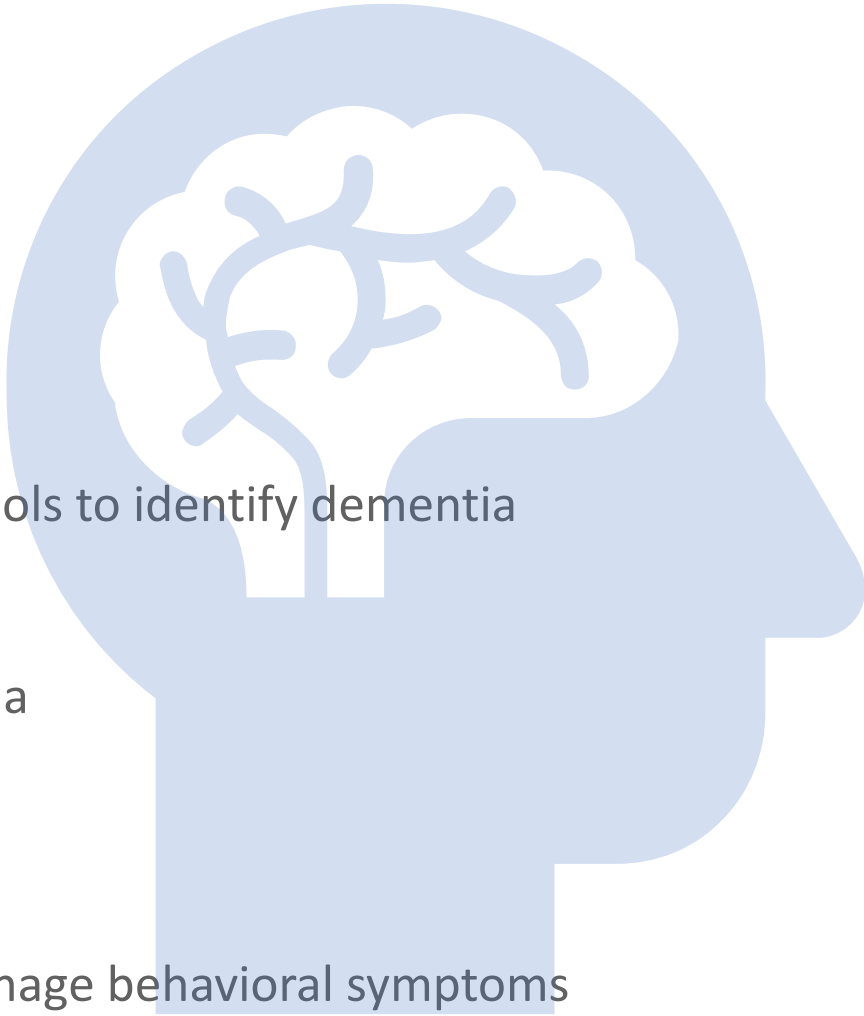
Supported by a Grant from the Department of Health and Human Services, Administration for Community Living (#90ADPI0008-01-00)

Administration for Community Living
https://acl.gov/programs/support-people-alzheimers-disease/support-people-dementia-including-alzheimers-disease

National Alzheimer's and Dementia Resource Center
https://nadrc.acl.gov/

State of Minnesota, Act on Alzheimer's
https://actonalz.org/

Learning Objectives



- Identify different causes of dementia
- Understand the importance of timely detection and effective tools to identify dementia
- Recognize common behaviors among people with dementia
- Learn methods for analyzing behaviors of persons with dementia
- Determine causes of challenging behaviors
- Apply interventions to reduce behavioral symptoms
- Implement systematic, non-pharmacological approaches to manage behavioral symptoms
- List resources to help caregivers

Agenda

- Overview of Dementia
- Defining Behaviors
- Causes
- Interventions
- Resources
- Case Studies

Overview of Dementia

Signs and Symptoms of Dementia

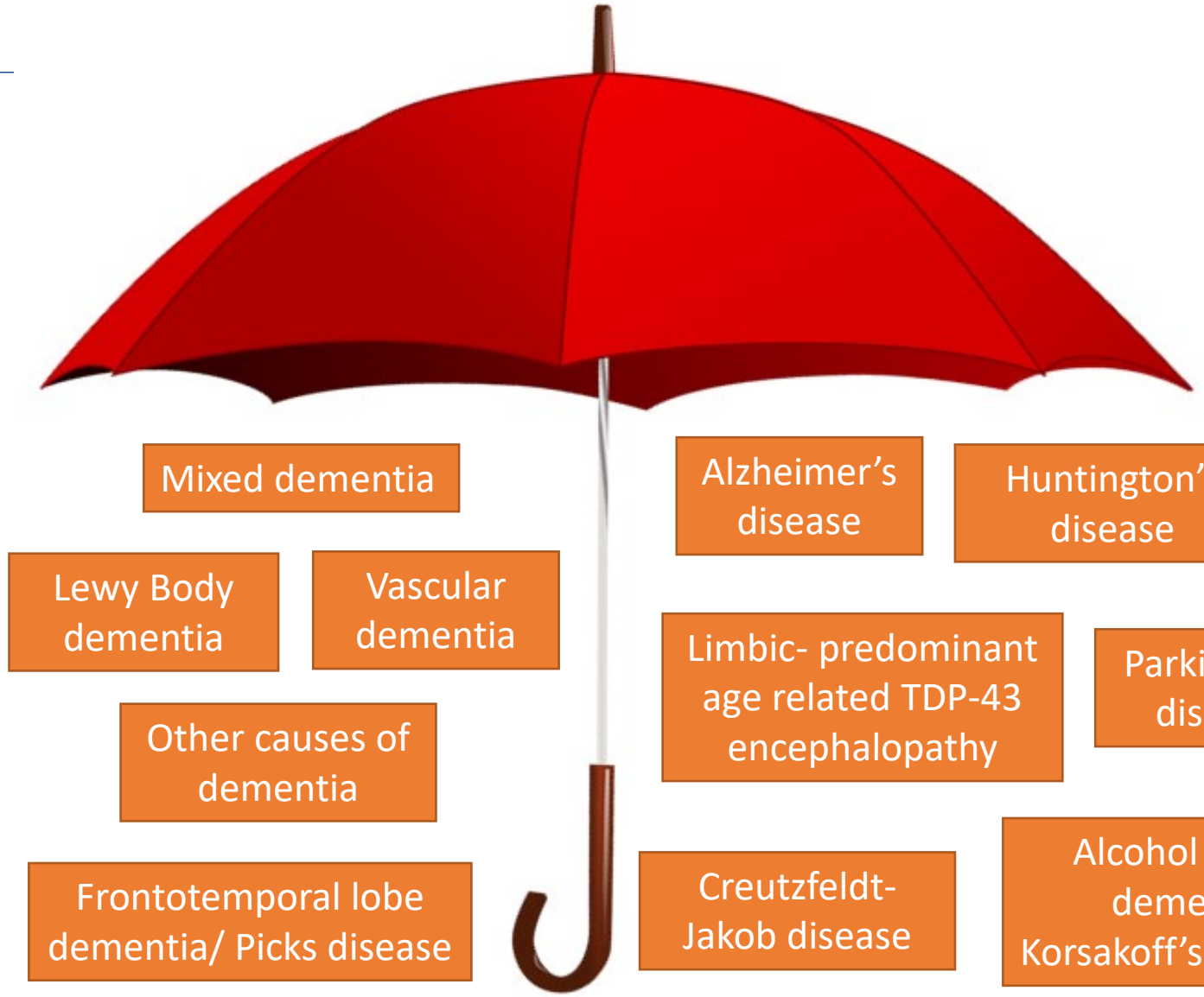
- Memory Loss
- Confusion
- Disorientation to time or place
- Getting lost in familiar locations
- Changes in speech and language
- Trouble with time/sequencing
- Poor judgement/problem solving
- Changes in sleep and appetite
- Mood/personality/behavior changes
- Changes in self care, hygiene
- Difficulty performing familiar tasks
- Fluctuating abilities
- Diminished insight

Adapted from Alzheimer's Association, 2019

What is Dementia?

- Decline in mental functioning
- More severe then age related difficulties
- Interferes with daily activities and social relationships

Causes of Dementia



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Why is Timely Detection Important?

1. Improve management of other health conditions
2. Reduce ineffective, expensive, crisis-driven use of healthcare resources
3. Improve quality of life
    - Individuals can participate in decisions regarding their future care
    - Decrease burden on family and caregivers
4. Allows for early interventions to promote a safe, pleasant lifestyle and support independence

Mittelman et al., 2006

Cognitive Assessment Tools

Wide range of options

- Mini-Cog™© (MC)
- St. Louis University Mental Status Exam™© (SLUMS)
- Montreal Cognitive Assessment© (MoCA) (need to be trained and certified to deliver)
- Mini-Mental State Exam© (MMSE)
- Rowland Universal Dementia Assessment© (RUDAS)
- Self-administered Gerocognitive Exam© (SAGE)
- NTG-Early Detection Screen for Dementia ©
- Brief Interview for Mental Status (BIMS)

Borson et al., 2000; Folstein et al., 1975; Nasreddine 2005; Tariq et al., 2006

Care and Treatment

- Put less emphasis on medication and more on psychosocial interventions (environment and person-to-person)
- Involve individual, family, caregivers, professionals and others
- Connect individuals and families to local agencies or organizations
- Refer every time, at any stage of disease, and for every kind of dementia

Mood and Behavioral Symptoms

- Behavioral and psychological symptoms are common
- Up to 80% of nursing home residents have dementia [1].
- Nearly all individuals with dementia will experience mood or behavioral symptoms during the course of their illness
- Up to 90% of individuals with developmental disabilities and a diagnosis of dementia exhibit behavioral and psychological symptoms [2].

1. Ferri et al., 2005; Jeste et al., 2008
2. Rajal Devshi 1,*, 2015

Defining Behaviors

Behaviors can have negative outcomes

- Decreased quality of life
- Increased hospital length of stay
- Increased system-wide cost
- Increased caregiver distress, depression, burnout
- Premature nursing home placement
- Can lead to increased mortality

Jeste et al., 2008; Finkel et al., 1996

Common Dementia-Related Behaviors

- Repeating Questions
- Anger, Anxiety, Agitation
- Daytime Sleeping/ Night-time Wakefulness
- Wandering, Pacing, Shadowing
- Apathy
- Resisting Care
- Aggression (yelling, hitting, biting)
- Socially Inappropriate Behaviors
- Delusions
- Hallucinations

Considerations

Ask: Is this behavior really a problem?

- Is it hurting anyone?
- Who is it bothering or causing a problem for?

Help care partners/caregivers recognize some Recognize some behaviors are common

- Avoid: unrealistic, non-dementia expectations, arguing, correcting, rushing
- Advise: Take a deep breath, slow down, step back, simplify, smile, redirect, reassure, try again later

Causes

Causes of Challenging Behaviors

Physical Health (Medical)

- Pain
- Urinary tract infection
- Illness

Environment

- Unfamiliar surroundings
- Over/under stimulation

Other

- Communication
- Unrealistic expectations
- Unmet needs/boredom
- Task-related frustrations
- Emotional health

Unmet Physical Needs as Causes of Behaviors

- Fatigue
- Hunger or thirst
- Need to use the bathroom
- Discomfort (joint pain, constipation, skin rubbing against objects)
- Brain changes leading to loss of self-control, hallucinations, delusions
- Adverse side effects/interactions of medications
- Impaired vision or hearing, leading to misinterpretation

Environmental Causes for Behaviors

- Sensory overload - too much noise, activity, people, or clutter
- Sensory deprivation - too little to see, touch, or do
- Change in schedule or routine
- Unfamiliar place
- Sudden movements, startling noises
- Feeling lost and overwhelmed in large spaces
- Lighting

Other Causes of Behaviors

- Feeling lost, insecure, forgotten if caregiver is not visible
- Instructions unclear or too complicated
- Activity perceived as too childlike, insulting
- A need for reassurance as expressed by repetitive questioning
- Lack of social support
- Changes in routine
- People who do not understand dementia
- People who do not tolerate the changes brought about by dementia
- People who do not accommodate the person's needs

Interventions

Reduce Behavioral Symptoms

Ask:

- Who?
- What?
- When?
- Where?
- Why?
- Has anything recently changed?

Keep in mind:

- Behavior is communication
- Communication impacts behavior

Step 1: Define Behavior

Examples

- Attention seeking behaviors
- Verbal outbursts
- Aggression during care
- Hitting, pushing, kicking
- Sexual disinhibition
- Restless movements, pacing, rocking
- Calling out

Step 2: Categorize Target Symptom

Mood Symptoms

- Anxiety
- Feeling down, unhappy, (dysphoria)
- Irritability
- Mood swings (lability)

Psychosis

- Delusions
- Hallucinations

Aggression

- Delusions
- Hallucinations

Step 3: Identify Reversible Causes (Part 1)

- Delirium
- Untreated medical illness (e.g., UTI)
- Medication side effects, polypharmacy
- Environmental triggers
- Undiagnosed psychiatric illness
- Inexperienced caregivers
- Unrealistic expectations
- Unmet needs

Step 3: Identify Reversible Causes (Part 2)

Common root causes:

- Anxiety, fear or uncertainty
- Touch or invasion of personal space
- Loss of control, lack of choice
- Lack of attention to personal needs or wishes
- Frustration, grief, due to loss of function or ability
- Pain or fear of pain

Step 3: Identify Reversible Causes (Part 3)

Common root causes:

- Meaning, purpose
- Over/under stimulation
- Safety
- Environmental stressors

Caregiver reactions

- Limited knowledge about disease process or behaviors

Step 4: Interventions (Part 1)

Common root causes:

- ***Who*** is involved/present
- ***What*** description, be specific
- ***When*** time dependent? Only in the morning? Late afternoon? Triggers?
- ***Where*** location specific?
- ***Why*** what happens right before, right afterwards? (What do people who know the person the best think is the cause?)
- Has anything recently changed?
- Standardized behavioral approaches

Step 4: Interventions (Part 2)

Common root causes:

- Validate → Join → Distract
- Understand that behavior = communication

Ask themselves:

- Is this really a problem, and for whom?
- What is the feeling or underlying message this behavior is trying to communicate?
- How can I address this underlying need?
- How long will this solution last?

Step 4: Interventions (Part 3)

Activity planning

- Tap into preserved capabilities and previous interests
- Involve repetitive motion

Communication

- Slow down
- Offer simple choices
- Help individual find his or her own words
- Remove clutter
- Minimize distractions
- Establish routines

Caregiver support

- Practice self care
- Minimize confrontation/ arguing
- Identify support network

Gitlin, et al., 2012

Pharmacological Interventions

- Dementia medications
- Antidepressants
- Antipsychotics
- Discuss with health care provider
- Pharmacogenomics

Behavioral Intervention Tools Interventions

Multiple methods are available

Similarities between intervention methods

What was the behavior?

What are some possible causes?

What can be done?

Take an action

Did it work?

DICE: A Systematic Approach to Management of Behavioral Symptoms

Step 1: Describe and define the behavior

- What is the target symptom?

Step 2: Investigate

- Are there reversible causes?
- Is everyone safe?

Step 3: Create treatment plan

- Non-pharmacological
- Pharmacological

Step 4: Evaluate

Kales HC. JAGS 2014

IDEA! Strategy: Caregiver tip sheet: Identify

An approach to help you figure out why a behavior is happening and what you can do about it

IDentify the behavior

- What is the behavior that is difficult for you to deal with? Be specific.
- Can you see it? Does it bother others? When does it happen? Who's around when it occurs?

IDEA! Strategy: Caregiver tip sheet: Explore

Explore what may be causing the behavior

Understand the cause of the behavior

- **HEALTH:** is the person taking a new medication, getting sick or in pain?
- **ENVIRONMENT:** is it too noisy? Is it too hot? Is the place unfamiliar
- **TASK:** is the activity to hard for them now?
- **COMMUNICATION:** is it hard for the person to understand what your saying?

Understand the meaning of the behavior to the person

- Does the person feel confused, scared, nervous, unhappy, or bored?
- Does the person feel like they are being treated like a child?
- Are there things that remind the person of something that they used to do when they were younger like go to work or pick up the children from school?

IDEA! Strategy: Caregiver tip sheet: Adjust

Adjust what can be done

You are the one who will need to change, the person cannot. Try different things. Pay attention to the persons feelings. Practice being calm, gentle, and reassuring.

- Address what is causing the behavior
- Keep tasks and activities simple
- Keep the home as calm as possible
- Speak slowly and gently- try not to say to much at once
- Do not argue- agree and comfort the person whether the person is right or wrong
- Find meaningful, simple activities so the person isn't bored

IDEA! Strategy: Caregiver tip sheet: Accept

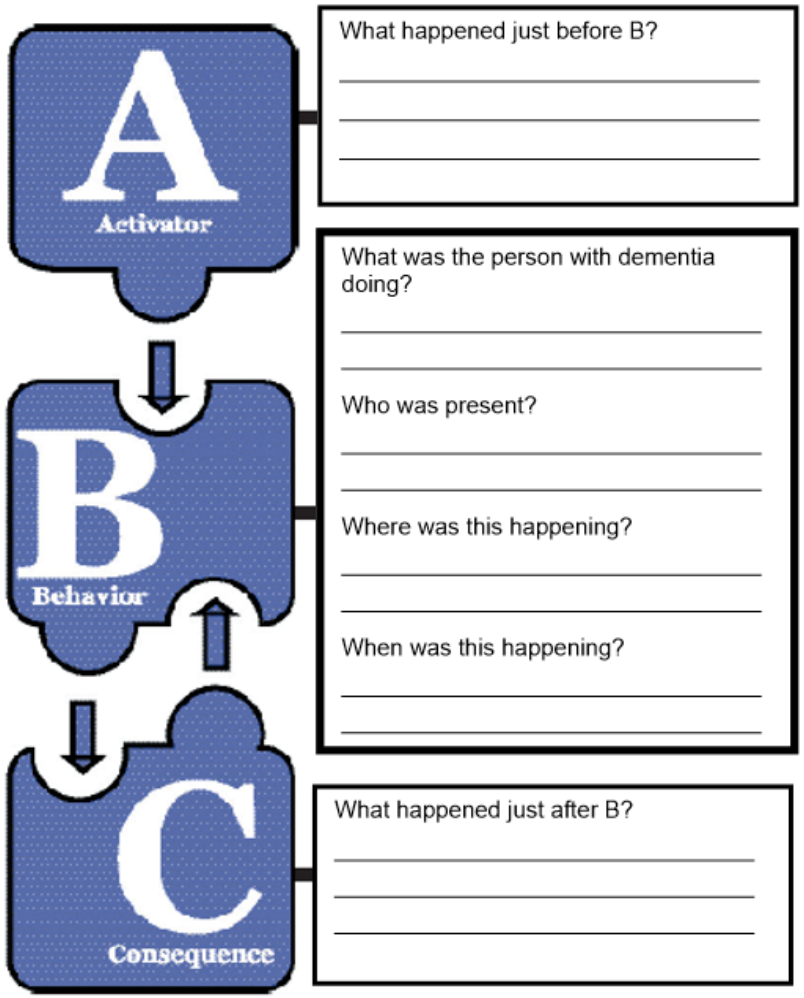
Distract or redirect by:

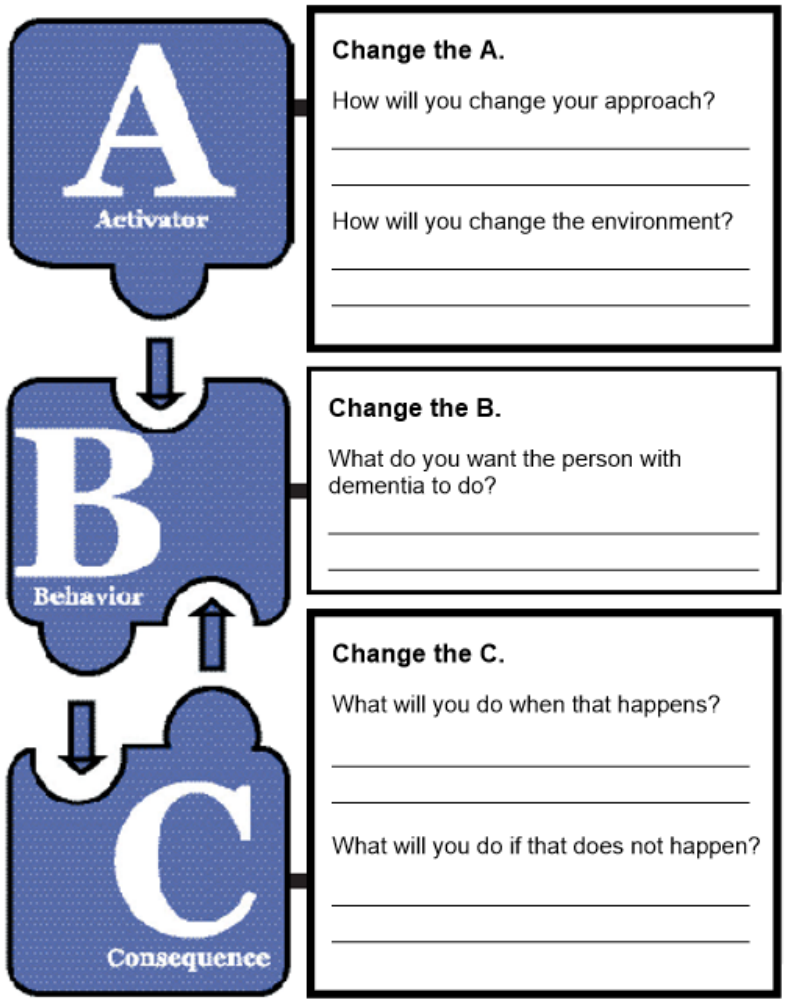
- Offering something they like to eat
- Watching a TV show or listening to music
- Asking for their help with a simple activity
- Leading them to a different room

Accept the behavior

- Some behaviors you may need to accept rather than change
- If there are not safety concerns and it doesn't bother the person, you may need to find ways to live with it

Linda Teri, University of Washington ABC's





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Maximize Abilities

Identify & focus on remaining strengths

- Social skills, motor memory, spirituality, talents, interests, & abilities

Identify/treat co-existing conditions that may worsen symptoms or lead to poor outcomes

- Diabetes, high blood pressure, sleep issues

Offer strategies to reduce behavioral symptoms

- Communication strategies, wellness and social engagement, routine

Activity planning

- Plan for meaningful and engaging activities throughout the day
- Examine past work and leisure activities for ideas
- Ensure task is not too complicated or too simple
- Provide reminiscence activities
- Simulate household activities such as folding towels, or cleaning
- Consider music activities: Play preferred music, watch musicals, and dance
- Consider nature activities: Bird watching and gardening
- Simple crafts and hobbies
- Outings
- Faith based activities

Communication

- Treat the person with dignity and respect
- Watch your body language and tone of voice
- Avoid arguing and reasoning
- Speak slowly and clearly
- Approach the person from the front
- Position yourself at eye level
- Avoid questioning the person
- Use repetition
- Allow time in between sentences for the person with dementia to process
- Eliminate negative words such as “no” or “but”
- Use statements that contain seven or fewer words
- Use visual cues such as pointing
- Avoid confusing and vague statements

Simplify Environment

Create	small intimate spaces
Provide	regular routines
Maintain	consistent staffing
Choose	appropriate lighting
Reduce	distractions
Minimize	clutter

Resources

Caregiver Support

- Caregiver education about dementia
- Help caregiver develop coping skills
- Respite
- Referrals to resources e.g., BRI Care Consultation
- Family meetings
- Encourage the caregiver to accept help
- Make the call yourself if necessary
- Support groups
- Identify others who can assist in a caregiving role

Assessing Caregiver/Family Needs

Be alert for signs of:

- Burnout
- Depression
- Neglected self-care
- Abuse

Promote

- Respite services
- Support groups
- Activities to optimize health and well-being

Refer to community resources for support

Alzheimer's Los Angeles Caregiver Tip Sheets

Caregiver Tip Sheets

Bathing

People with Alzheimer's disease or dementia may be afraid of bathing or uneasy with having someone help them with bathing. Sometimes they worry about falling or can have trouble knowing which is the hot versus the cold water faucets.

WHY DOES THIS HAPPEN?

People with Alzheimer's or dementia might:

- afraid of falling
- feeling uneasy getting undressed in front of you
- scared or confused
- feeling helpless

WHAT CAN YOU DO?

PREPARE THE BATHROOM IN ADVANCE

- make sure the room is calm and warm
- run the water so it is not too hot or too cold
- don't use bright lights if possible

MAKE THE BATHROOM SAFE

- use a non-slip mat in the tub or shower as a bath mat
- consider a tub seat
- fill the tub with only 4 inches of water
- remove things that may be dangerous such as razors, nail clippers, hair dryer, etc.
- watch carefully — don't leave him or her alone

ALLOW TIME & BE POSITIVE

- allow your person to enjoy it... if he or she finds bath time relaxing
- stay calm
- be direct... "Your bath is ready now"
- instead of "Do you want to take a bath?" give one step directions
- "Let's wash your left arm... good!, now your other one" be patient... don't rush

BE REALISTIC

- don't argue or get frustrated... a daily bath may be too much
- consider a sponge bath instead of a tub bath
- show what you need from them... pretend to wash your arm so that he or she can copy

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Caregiver Tip Sheets

Communication

People with Alzheimer's or dementia can lose their ability to speak clearly and understand what you are saying. This can be frustrating both for the person with Alzheimer's and for you.

WHY DOES THIS HAPPEN?

People with Alzheimer's or dementia might have changes in their brains that cause them to:

- have a tough time finding the right word
- lose their train of thought
- have problems following a conversation
- not be able to understand what you are saying
- speak only in their native or first language

WHAT CAN YOU DO?

USE SHORT SENTENCES & SIMPLE WORDS

- give short, one sentence answers
- offer one step directions
- slowly repeat instructions or sentences if not understood the first time
- be patient and positive, even when it takes a long time to answer
- try not to remind them that they forgot or already told you something
- ask a question and offer a simple choice of answers such as "What do you want for dinner? Fish or chicken?"
- ask questions that can be answered with yes or no
- try not to use "baby talk" or a "baby voice"
- avoid negative words. Instead of "Don't go out that door!" try "Let's go this way!" and gently guide the person away

FOCUS THEIR ATTENTION ON YOU

- get on their eye level
- call the person by name
- remove distractions — turn off TV, go to a quiet room
- pay attention to your tone, how loudly you are speaking and your body language — which often "speak" louder than words
- be an active listener — make eye contact, nod your head

OTHER IDEAS TO TRY

- put up signs or pictures to explain what is in the room or cabinet
- have the person's hearing tested to make sure they can hear
- use a chalk or white board to write the schedule for the day or the answers to frequently asked questions
- respond to the person's feelings or emotions, not only to words
- if conversation is hard but you want to do something together, try listening to music or looking at old family photos

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Driving

Over time, driving gets harder for people with Alzheimer's or dementia. At some point they will need to stop driving and this can be very hard for them. It feels like a loss of freedom for both drivers and family members, yet SAFETY is most important.

WHY DOES THIS HAPPEN?

People with Alzheimer's or dementia may be unsafe when they:

- don't follow traffic signs
- go too fast or too slow
- become angry at others in the car or other drivers
- hit curbs
- cross over lanes
- confuse the brake and gas pedals
- forget where they are going
- get lost going places they know

WHAT CAN YOU DO?

KEEP AN EYE OUT

- watch for parking or traffic tickets
- look for new scratches, marks, or dents on the car
- listen for complaints about other drivers or how the car operates

HELP THEM STOP DRIVING

- ask the doctor to tell them they can no longer drive
- make sure the doctor files a report to alert the Department of Motor Vehicles (DMV) of the dementia diagnosis
- have a close friend or a minister, priest, or rabbi ask your person to stop driving
- tell them someone else will drive them to the store or appointments
- ask others for help... deliver meals, pick up prescriptions, or just to visit

BE CREATIVE

- hide the keys
- park the car out of sight
- remove the battery or starter wire
- say the car is in the shop
- get in the car first so you can be the driver
- give a set of keys that look like the old keys but won't start the car
- make having someone else drive sound like fun

FINALLY

- sell the car... it saves money on gas, insurance, and repairs that can be used for taxis, Uber, LYFT, or paying someone to drive

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Alzheimer's Los Angeles Caregiver Tip Sheets

Anger, Frustration & Fighting

Anxiety

Bathing

Communication

Driving

Getting Lost

Hallucinations

Hygiene

Keeping Home Safe

Medications

Paranoia

Planning

Repeating

Resistance

Routines

Stress

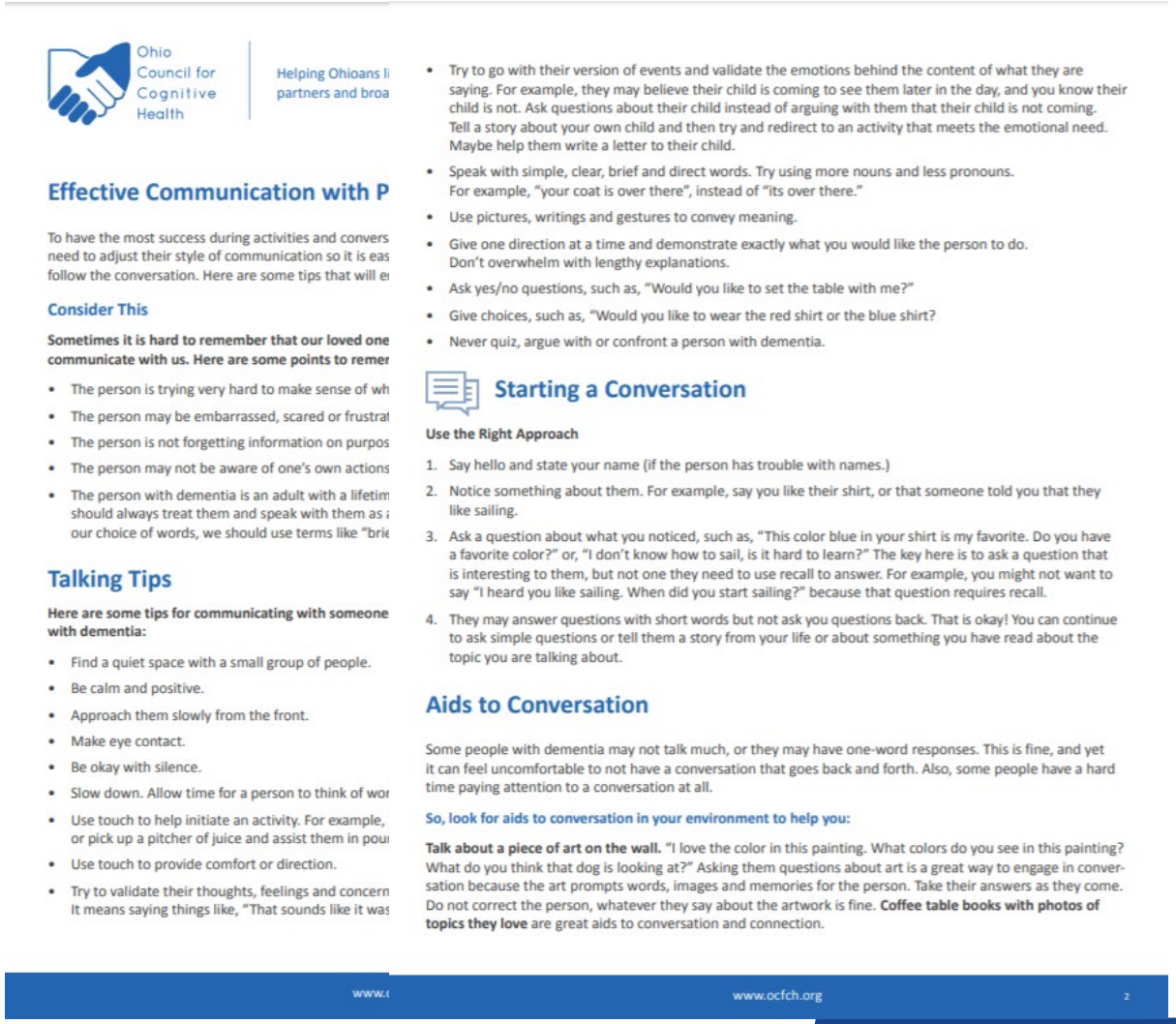
Sundowning

Toileting

Ohio Council for Cognitive Health: Tip Sheets

Use the link to find Quick Tip Resources such as:

- Effective Communication with People Living with Dementia
- Understanding Responsive Behaviors Related to Dementia
- Walking About (a.k.a Wandering)



Ohio Council for Cognitive Health

Helping Ohioans li
partners and broa

Effective Communication with P

To have the most success during activities and convers
need to adjust their style of communication so it is eas
follow the conversation. Here are some tips that will e

Consider This

**Sometimes it is hard to remember that our loved one
communicate with us. Here are some points to remer**

- The person is trying very hard to make sense of wh
- The person may be embarrassed, scared or frustrat
- The person is not forgetting information on purpos
- The person may not be aware of one's own actions
- The person with dementia is an adult with a lifetim
should always treat them and speak with them as
our choice of words, we should use terms like "brie

Talking Tips

**Here are some tips for communicating with someone
with dementia:**

- Find a quiet space with a small group of people.
- Be calm and positive.
- Approach them slowly from the front.
- Make eye contact.
- Be okay with silence.
- Slow down. Allow time for a person to think of wo
- Use touch to help initiate an activity. For example,
or pick up a pitcher of juice and assist them in pou
- Use touch to provide comfort or direction.
- Try to validate their thoughts, feelings and concern
It means saying things like, "That sounds like it was
- Try to go with their version of events and validate the emotions behind the content of what they are saying. For example, they may believe their child is coming to see them later in the day, and you know their child is not. Ask questions about their child instead of arguing with them that their child is not coming. Tell a story about your own child and then try and redirect to an activity that meets the emotional need. Maybe help them write a letter to their child.
- Speak with simple, clear, brief and direct words. Try using more nouns and less pronouns. For example, "your coat is over there", instead of "its over there."
- Use pictures, writings and gestures to convey meaning.
- Give one direction at a time and demonstrate exactly what you would like the person to do. Don't overwhelm with lengthy explanations.
- Ask yes/no questions, such as, "Would you like to set the table with me?"
- Give choices, such as, "Would you like to wear the red shirt or the blue shirt?
- Never quiz, argue with or confront a person with dementia.

Starting a Conversation

Use the Right Approach

1. Say hello and state your name (if the person has trouble with names.)
2. Notice something about them. For example, say you like their shirt, or that someone told you that they like sailing.
3. Ask a question about what you noticed, such as, "This color blue in your shirt is my favorite. Do you have a favorite color?" or, "I don't know how to sail, is it hard to learn?" The key here is to ask a question that is interesting to them, but not one they need to use recall to answer. For example, you might not want to say "I heard you like sailing. When did you start sailing?" because that question requires recall.
4. They may answer questions with short words but not ask you questions back. That is okay! You can continue to ask simple questions or tell them a story from your life or about something you have read about the topic you are talking about.

Aids to Conversation

Some people with dementia may not talk much, or they may have one-word responses. This is fine, and yet it can feel uncomfortable to not have a conversation that goes back and forth. Also, some people have a hard time paying attention to a conversation at all.

So, look for aids to conversation in your environment to help you:

Talk about a piece of art on the wall. "I love the color in this painting. What colors do you see in this painting? What do you think that dog is looking at?" Asking them questions about art is a great way to engage in conversation because the art prompts words, images and memories for the person. Take their answers as they come. Do not correct the person, whatever they say about the artwork is fine. **Coffee table books with photos of topics they love** are great aids to conversation and connection.

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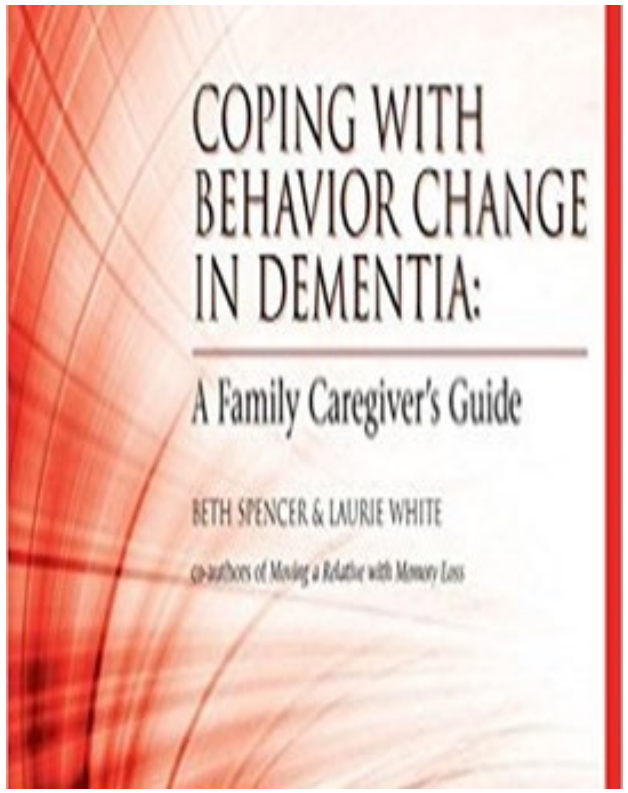
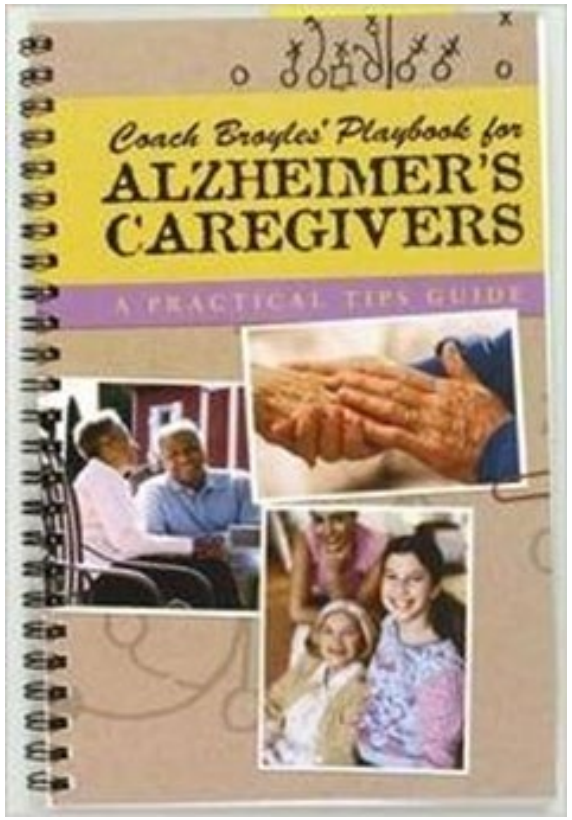
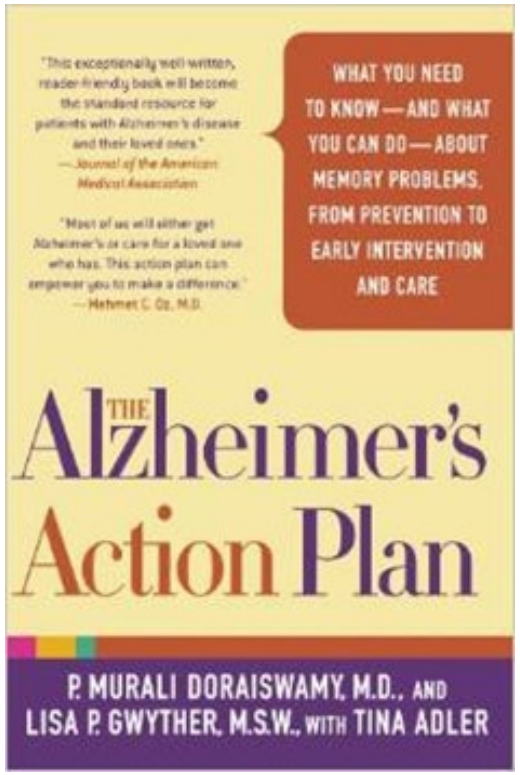


Coping with Behavior Change in Dementia: A Family Caregiver's guide



Coach Broyles' Playbook for Alzheimer's Caregivers



The Alzheimer's Action Plan

TABLE 1: POTENTIAL NONPHARMACOLOGIC STRATEGIES*

Targeted Behavior by Presenting Dementia Stage	Select Nonpharmacologic Strategies[a]
ild cognitive impairment	
Forgetfulness about taking medication	Evaluate capacity for taking medications independently Use assistive aids (calendar to remind of time for medication, checklists, pill dispenser[b]) Supervise medication taking and secure medications
General forgetfulness; disorientation to time	Use memory aids (calendar or white board showing current date) Simplify daily routines
oderate dementia	
Falling and poor balance	Use a fall alert system if patient can remember to activate[b] Consider referral to occupational therapy for home safety evaluation and removal of tripping hazards Minimize alcohol intake Consider referral to physical therapy for simple balance exercise
Hearing voices or noises (especially at night)	Evaluate hearing and adjust amplification of hearing aids[b] Evaluate quality and severity of auditory disturbances[b] If hallucinations are judged to be present, evaluate whether they present an actual threat to safety or function in deciding whether or not to use antipsychotic treatment[b]
Inability to respond to emergency (difficulty calling for help)	Educate caregiver about need to supervise patient[b] Inform neighbors, fire department, and police of situation Develop emergency plan involving others if possible
Leaving the home; wandering outdoors	Outfit with an ID bracelet (eg, Alzheimer Safe Return Program) or badge with patient's name and address[b] Notify police and neighbors of patient's condition[b] Identify potential triggers for elopement and modify them
Memory-related behavior (eg, disorientation or confusion with object recognition)	Label needed objects Remove unnecessary objects to reduce confusion with tasks Present a single object at a time as needed Keep all objects for a task in a labeled container (eg, grooming)
Nighttime wakefulness, turning on lights, awaking caregiver, feeling insecure at night	Evaluate sleep routines[b] Evaluate environment for temperature, noise, light, shadows, level of comfort, or other possible disturbances Eliminate caffeinated beverages (starting during the afternoon)[b] Create a structured schedule that includes exercise and activity engagement throughout the day[b] Limit daytime napping[b] Address daytime loneliness and boredom that may contribute to nighttime insecurities[b] Implement good sleep hygiene[b] Use nightlight[b] Hire nighttime assistance to enable caregiver to sleep[b] Create a quiet routine for bedtime that includes calming activity, calming music
Repetitive questioning	Respond using a calm, reassuring voice[b] Use calm touch for reassurance Inform patient of events as they occur (vs indicating what will happen in near or far future) Structure daily routines Provide meaningful activities during the day to engage patient Use distraction

trategies are potential approaches used in randomized clinical trials but are not exhaustive. A suggested strategy may be effective for one patient but not another. Any single strategy may not have been evaluated for effectiveness for use with all dementia patients with the same presenting behavior. These strategies should only be considered once a thorough assessment has been completed (Figure, steps 2 and 3).
trategies discussed, considered, or implemented by Mr P's physician and caregiver.

View enlarged table:

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FIGURE 1: SCREENING, IDENTIFYING AND MANAGING BEHAVIORAL SYMPTOMS IN PATIENTS WITH DEMENTIA*

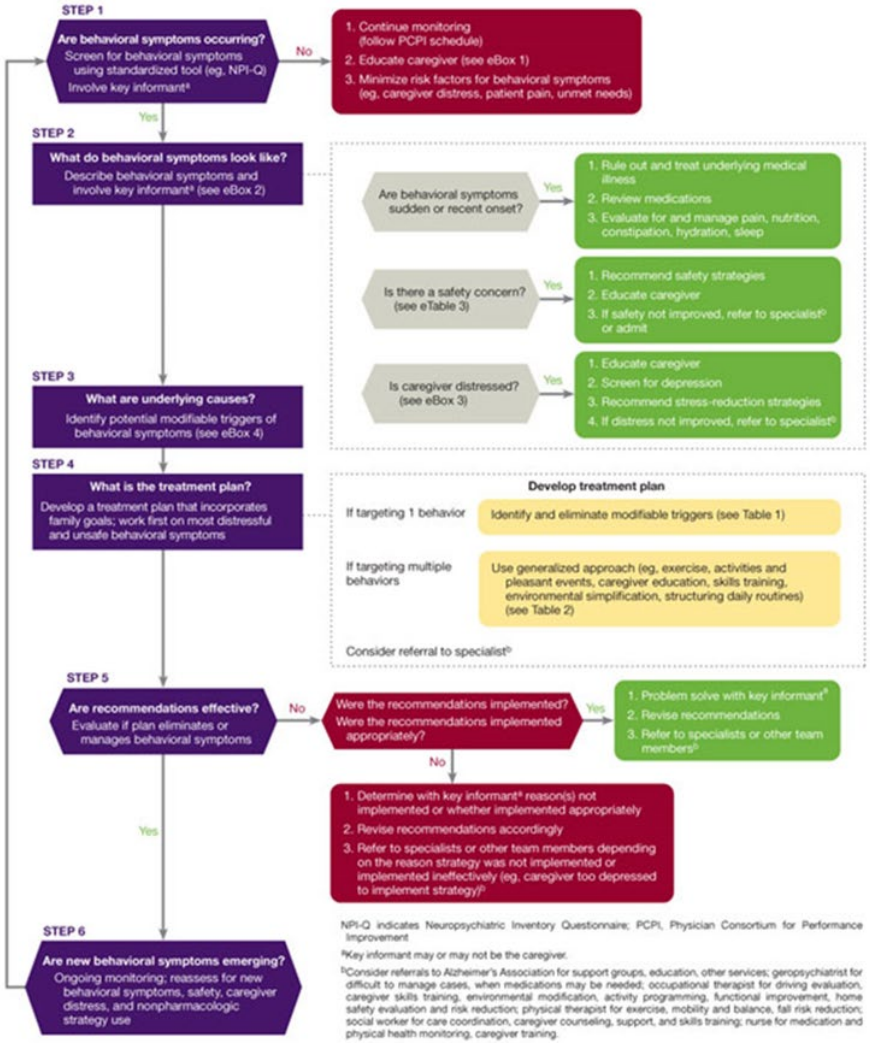

*Figure from Gitlin LN, Kales, HC, Lyketsos CG. Nonpharmacologic management of behavioral symptoms in dementia. *JAMA*. 2012; 308(19):2020-2029. Used by permission. © 2012 American Medical Association. All rights reserved.

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TABLE 2: GENERAL NONPHARMACOLOGIC STRATEGIES FOR MANAGING BEHAVIORAL SYMPTOMS*

Domain	Key Strategies[a]
Activities	Introduce activities that tap into preserved capabilities and previous interests Introduce activities involving repetitive motion (washing windows, folding towels, putting coins in container) Set up the activity and help patient initiate participation if necessary
Caregiver education and support	Understand that behaviors are not intentional Relax the rules (eg, no right or wrong in performing activities/tasks as long as patient and caregiver are safe) Consider that with disease progression, patient may have difficulty initiating, sequencing, organizing, and completing tasks without guidance and cueing Concur with patient's view of what is true and avoid arguing or trying to reason or convince Take care of self; find opportunities for respite; practice healthy behaviors and attend preventive physician visits Identify and draw upon a support network
Communication	Allow patient sufficient time to respond to a question Provide 1- to 2-step simple verbal commands Use a calm, reassuring tone Offer simple choices (no more than 2 at a time) Avoid negative words and tone Lightly touch to reassure, calm, or redirect Identify self and others if patient does not remember names Help patient find words for self-expression
Simplify environment	Remove clutter or unnecessary objects Use labeling or other visual cues Eliminate noise and distractions when communicating or when patient is engaging in an activity Use simple visual reminders (arrows pointing to bathroom)
Simplify tasks	Break each task into very simple steps Use verbal or tactile prompt for each step Provide structured daily routines that are predictable

[a] Strategies are potential approaches used in randomized clinical trials but are not exhaustive. A suggested strategy may be effective for one patient but not another. Any single strategy may not have been evaluated for effectiveness for use with all dementia patients with the same presenting behavior. These strategies should only be considered once a thorough assessment has been completed (Figure, steps 2 and 3).

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Case Studies

Case Study 1

Jane Smith is 76 years old. She lives in the home of her daughter (age 51) and the daughter's husband. The daughter and husband have three adult children, living out of the house. Janes daughter has concerns that Jane is quick to take offense at almost any suggestion from her. Jane resists taking showers, claiming she does not need a shower that day. There have been occasions when Jane has gone almost two weeks without bathing. Furthermore, when making suggestions to Jane, the mother often responds with belittling things about the daughter ("you are fat;" "you are stupid;" "you never did have good sense"). Jane's daughter says she would like to keep her mother at home; but says she does not how much longer she can go on in her caregiving role. Jane's daughter says that she has been told that Jane has dementia – she does not know if it is Alzheimer's disease or another cause of dementia. She knows that mother takes "a pill and a patch for Alzheimer's," as well as "something for her blood pressure and sleep."

Case Study 2

Tom Baker is 51 years old. He works part-time at the local grocery store and shares a group home with four other males, ranging in ages of 40-50 years old, who also live with Down Syndrome. Tom's father is 89 years old, serves as Tom's primary source of support, including guardianship, and lives in his own home in the same town as Tom. One adult sibling also lives nearby, while two other adult siblings reside in neighboring states. Tom's father has concerns about Tom's recent weight loss, refusal to talk and participate in usual activities and states that Tom is crying a lot. Tom's father stated that Tom can't seem to remember how to do simple things around the house anymore and on one recent occasion, struck out at the group home manager. He is worried that if this continues much longer, Tom will not be able to remain in the group home that he has always loved. Tom's father states he is concerned about his own health conditions and the added care responsibility this will likely place on his other three children. Tom's father says that a year ago, a doctor told him that Tom "most likely has Alzheimer's." This was about the same time that his wife, Tom's mother, was diagnosed with cancer. Sadly, she died one month ago. Tom takes daily prescription medication for his thyroid and arthritis, and occasionally takes over-the-counter medications for heartburn and constipation.

Case Study 3

John Jones is 68 years old. He lives by himself. His son has concerns that his father has begun getting lost while driving to familiar places. The son reports he was somewhat aware his father was having this problem, but it all became clearly apparent when he received a midnight call from the police two towns away. The police officer said his father had enlisted help at a gas station, appearing confused and frightened, saying he got lost going to the grocery store that afternoon and could not find his way home. The son says his father was diagnosed with vascular dementia two years ago; but he seemed to be getting along fine until now. The father has resisted telling the son his financial business, handling his bills and investments. The son is worried because when he went to pick up his father, the son began talking about driving cessation and maybe moving to a nursing home. They got into an argument in the car, his father said there was no way he was going to stop driving and that the son should “stay out of” his business. The son said he is not sure what to do.

Case Study 4

Mary Johnson is 87 years old. She lives with her husband, who is also 87. The husband has concerns that his wife is refusing to leave the house to visit with their friends and family. She sleeps 10 to 12 hours a day; and gets up only when prodded to by her husband. She used to take care of the house and do all the cooking, but now will “go to the kitchen and stand there” unless he tells her what to do. He says he “knows she can do better, if only she would try.” He says he is feeling frustrated and wants to know how to make her understand that she needs to “use it or lose it.” The husband said his wife used to be very active and cheerful – working outside the home, taking care of the family, and paying all the bills. He said she was diagnosed with an unnamed dementia four years ago.

Case Study 5

Helen Rogers is 83 years old. She lives with her daughter, who moved from out of state to take care of her mother in the mother's house. Helens daughter has concerns that mother is "constantly" moving around the house and rummaging through her belongings. She empties out her closet and drawers, folding and re-folding the clothes. She gets up on a step stool to empty out the kitchen cupboards, washes the shelves, and puts the items back. Helen was diagnosed with an unnamed dementia 7 years ago. The daughter moved home after receiving reports of her mother leaving the house at nighttime, knocking on neighbors' doors. She was also under-weight from poor nutrition; and the doctor said the mother's health was suffering from not taking her medications appropriately.

Thank You

Contact: CTA

References

- Alzheimer's Disease & Down Syndrome: A Practical Guidebook for Caregivers. (n.d.). Retrieved May 28, 2020, from https://www.ndss.org/about-down-syndrome/publications/caregiver-guide-order-form/
- Alzheimer's Disease Facts and Figures 2019, www.alz.org/media/documents/alzheimers-facts-and-figures-2019-r.pdf.
- Borson S;Scanlan J;Brush M;Vitaliano P;Dokmak A;, B. (2000). The Mini-Cog: A Cognitive 'Vital Signs' Measure for Dementia Screening in Multi-Lingual Elderly. Retrieved May 28, 2020, from https://pubmed.ncbi.nlm.nih.gov/11113982/
- Broyles, John F. Coach Broyles' playbook for Alzheimer's caregivers : a practical tips guide. Fayetteville, AR : University of Arkansas, 2006, www.broylesfoundation.org/store/.
- Devshi, R., Shaw, S., Elliott-King, J., Hogervorst, E., Hiremath, A., Velayudhan, L., . . . Bandelow, S. (2015, December 2). Prevalence of Behavioural and Psychological Symptoms of Dementia in Individuals with Learning Disabilities. Retrieved May 28, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4728475/
- Doraiswamy, Murali P., and Lisa Gwyther. The Alzheimer's Action Plan. 2009, www.amazon.com/The-Alzheimers-Action-Plan-Know/dp/0312538715.
- Ferri, C., Prince, M., Brayne, C., Brodaty, H., Fratiglioni, L., Ganguli, M., . . . Alzheimer's Disease International. (2005, December 17). Global prevalence of dementia: A Delphi consensus study. Retrieved May 28, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2850264/
- Finkel SI;Costa e Silva J;Cohen G;Miller S;Sartorius N;. (1996). Behavioral and Psychological Signs and Symptoms of Dementia: A Consensus Statement on Current Knowledge and Implications for Research and Treatment. Retrieved May 28, 2020, from https://pubmed.ncbi.nlm.nih.gov/9154615/
- Folstein MF, Folstein SE, & McHugh PR (1975). "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res, Nov 12(3):189-98.

References Continued

- Gitlin, L., Kales, H., & Lyketsos, C. (2012, November 21). Nonpharmacologic management of behavioral symptoms in dementia. Retrieved May 28, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711645/
- Jeste, D., Blazer, D., Casey, D., Meeks, T., Salzman, C., Schneider, L., . . . Yaffe, K. (2008, April). ACNP White Paper: Update on use of antipsychotic drugs in elderly persons with dementia. Retrieved May 28, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2553721/
- Mittelman MS, Haley WE, Clay OJ, & Roth DL;, M. (2006). Improving Caregiver Well-Being Delays Nursing Home Placement of Patients With Alzheimer Disease. Retrieved May 28, 2020, from https://pubmed.ncbi.nlm.nih.gov/17101889/
- Nasreddine ZS;Phillips NA;Bédirian V;Charbonneau S;Whitehead V;Collin I;Cummings JL;Chertkow H;. (2005). The Montreal Cognitive Assessment, MoCA: A Brief Screening Tool for Mild Cognitive Impairment. Retrieved May 28, 2020, from https://pubmed.ncbi.nlm.nih.gov/15817019/
- Spencer, Beth, and Laurie White. Coping with Behavior Change in Dementia: A Family Caregiver's Guide. 1 ed., 2015, www.amazon.com/Coping-Behavior-Change-Dementia-Caregivers/dp/0692385444
- Tariq SH;Tumosa N;Chibnall JT;Perry MH;Morley JE;. (2006). Comparison of the Saint Louis University Mental Status Examination and the Mini-Mental State Examination for Detecting Dementia and Mild Neurocognitive Disorder--A Pilot Study. Retrieved May 28, 2020, from https://pubmed.ncbi.nlm.nih.gov/17068312/
- Minnesota Act on Alzheimer’s. (2017). Best Practices to Simplify and Optimize Dementia Care for Health Care Providers (PowerPoint Presentation).
- Minnesota Act on Alzheimer’s. (2017). Best Practices for Optimizing Dementia Care for Care Coordinators (PowerPoint Presentation).
- Minnesota Act on Alzheimer’s. (2017). Managing Dementia Through the Continuum (PowerPoint Presentation).

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Managing and Preventing Acute Delirium

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Summa Health

Preventing and Managing Delirium

By:
Amanda Harvan NP
Sue Fosnight RPh, BCGP, BCPS

Objectives

By the end of this presentation the listener should be able to:

- Identify preventive measures to reduce the incidence and severity of acute delirium in at-risk populations
- Develop strategies for effectively managing acute delirium in clinical settings

Background

Dementia vs Delirium

Dementia

- Gradual/step-wise onset
- Progressive and disabling
- Needs chronic management

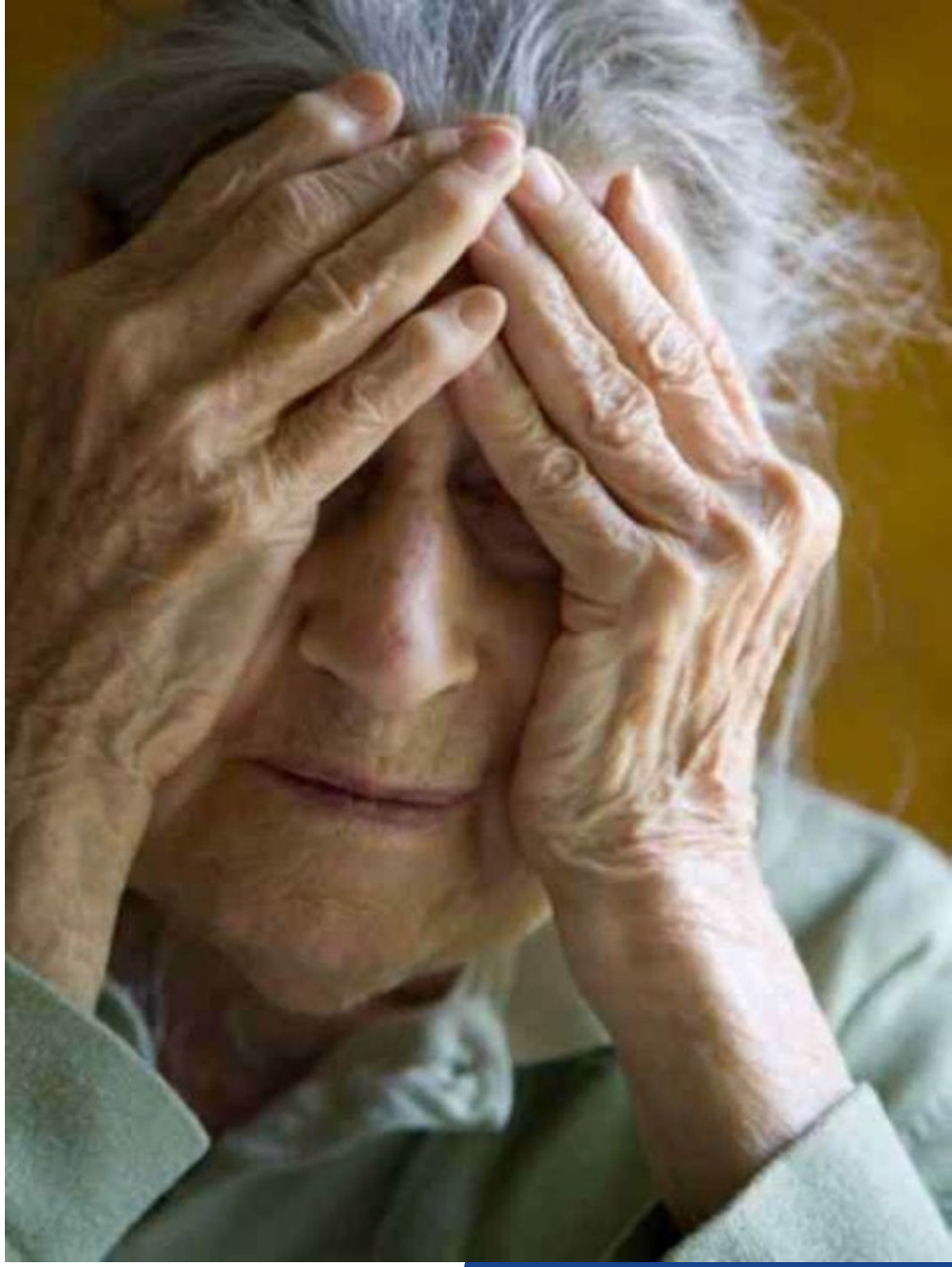
Delirium

- Sudden onset
- Generally has a cause
  - infection, reaction to medication, problem with kidneys, low oxygen, etc.
- Can fluctuate a lot over hours/days
- Needs acute intervention

Delirium

A.K.A.

- Encephalopathy
- Acute Confusional State
- Altered Mental Status
- Acute Brain Failure
- Acute Organic Brain Syndrome



Delirium

Incidence and Prevalence

- Present upon admission in 10-31% of hospitalized older adults
- Develops in an additional 30% of hospitalized older adults. Risk of post-op delirium varies by surgery (highest with abdominal and cardiac surgeries ~50%)
- ICU delirium prevalence data ranges from 20% to 80+%

Delirium

Definition (DSM V)

- Disturbance in attention or cognition
- Acute onset
- Change from baseline
- Fluctuating severity
- Not fully explainable by chronic psychiatric disorder
- Level of impairment does not occur in the context of coma

Types of Delirium

HyPERactive

Predominantly RESTLESS and AGITATED

Increased Motor Activity

Loss of Control of Activity

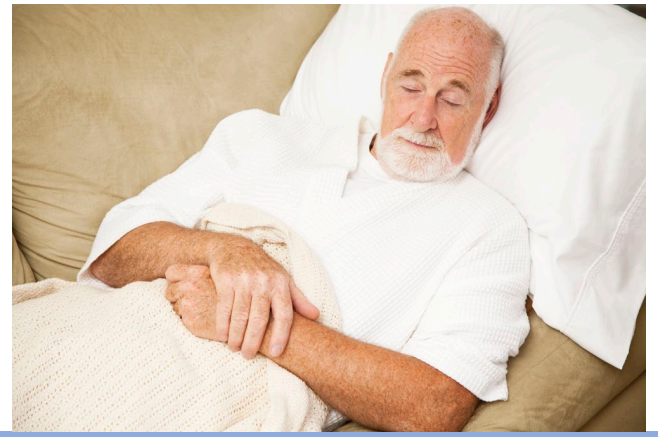
Restlessness

Wandering

Mixed

Evidence of BOTH types in the previous 24 hours

HyPOactive



Predominantly DROSWY and INACTIVE

Decreased Activity

Decreased Action Speech

Decreased Speed of Speech

Decreased Amount of Speech

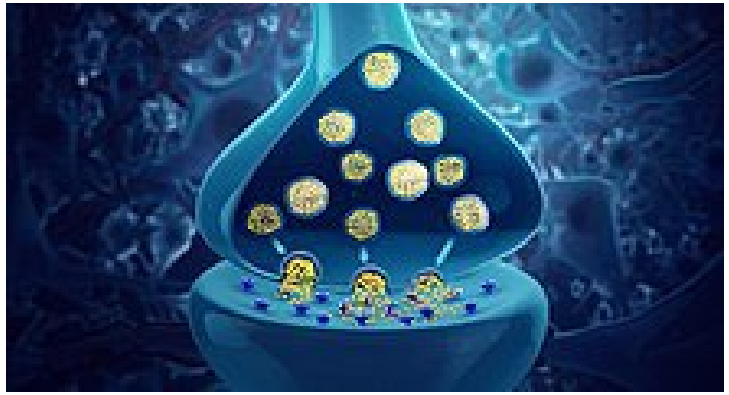
Reduced Awareness of Surroundings

Listlessness

Delirium

Pathophysiology

- Not fully understood
- Hypotheses include:
  - Neurotransmitter changes
  - Inflammatory response
  - Changes in blood-brain barrier permeability
  - Reduction in cerebral oxidative metabolism
  - Increased activity of the hypothalamic-pituitary adrenal axis



Delirium

Etiology

- Interactions between individual's predisposing factors "vulnerability," and precipitating factors.
- Vulnerable older adult may easily develop delirium with a minor event such as a UTI.
- Person with few or no risk factors require multiple precipitating events before cognitive reserves are overwhelmed and delirium develops.

Delirium

Predisposing Risk Factors

- Advanced age
- Frailty
- Dementia
- Multiple co-morbities
- Polypharmacy
- Alcohol excess (or withdrawal)
- Renal impairment
- Malnutrition
- Visual impairment
- Decreased hearing

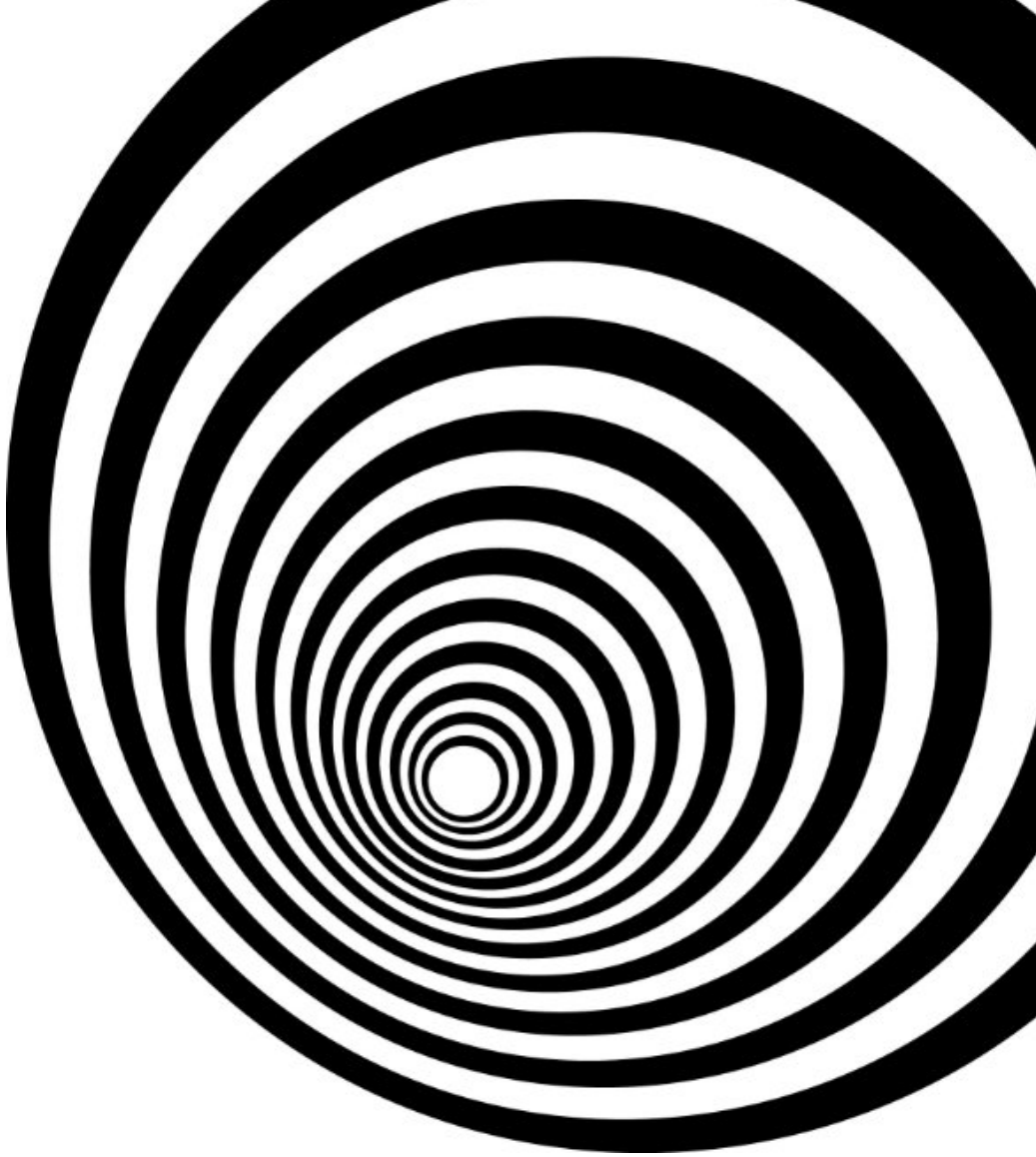
Precipitating Risk Factors

- Infection
- Dehydration
- Constipation
- Urinary retention
- Medications
- Electrolyte disturbances
- Hypoxia, Hypercarbia
- Pain
- Neurologic insults
- Organ failure
- Surgery
- Tethers
- Severity of Illness

Delirium

Outcomes

- Often not resolved by discharge
- Increased morbidity & mortality both inpatient and after discharge
- Worsening functional & cognitive decline
- Increased rates of dementia
- Increased length of stay
- Increased rates of admission to extended care facilities
- Increased caregiver burden
- Costs Medicare about $164 billion per year (as of 2011)
  - $32.9 billion per year for elective surgeries alone (Gou et al 2023)



Those Most at Risk for Delirium

Cognitively Impaired patients

Older patients

Intensive Care patients

Surgery Patients

Patients at end of life

Creative Commons: Assessed 10-1-24

Marcantonio ER. N Engl J Med. 2017 Oct 12;377(15):1456-1466..

Devlin J et.al. Crit Care Med. 2018 ;46:e825-e873

Pisani MA. Arch Intern Med 2007; 167: 1629-1634

Breitbart W. JAMA 2008; 300; 2898-2910

Delirium Prevention

Delirium Prevention – Non-Pharmacologic

Address Sleep

- Increase daytime activity
- Insomnia Order Set
- "Quiet at Night" kits
- Avoid nighttime waking for vitals, meds, etc
- Minimize daytime napping
- Turn off screens before bed
- Avoid caffeine after 4pm
- Make room dark, quiet and comfortable temperature

Delirium Prevention – Non-Pharmacologic

Address Mobility

- PT/OT
- Have assistive devices available
- Scheduled/supervised ambulation times
- Up to chair for meals/time during the day

Delirium Prevention – Non-Pharmacologic

Address Sensory Impairment

- Ensure hearing aids are IN and WORKING
- Ensure patients have their glasses on

Delirium Prevention – Non-Pharmacologic

Address Cognition and Stimulation

- Use orienting tools (clock, calendar, window, walks)
- Provide diversional activities
  - Coloring
  - Word search
  - Figdet blankets
  - Folding
  - TV?
  - Think outside of the box
- Avoid OVERstimulation

Delirium Prevention – Non-Pharmacologic

Address Elimination

- Assess for constipation
- Assess for urinary retention

Delirium Prevention – Non-Pharmacologic

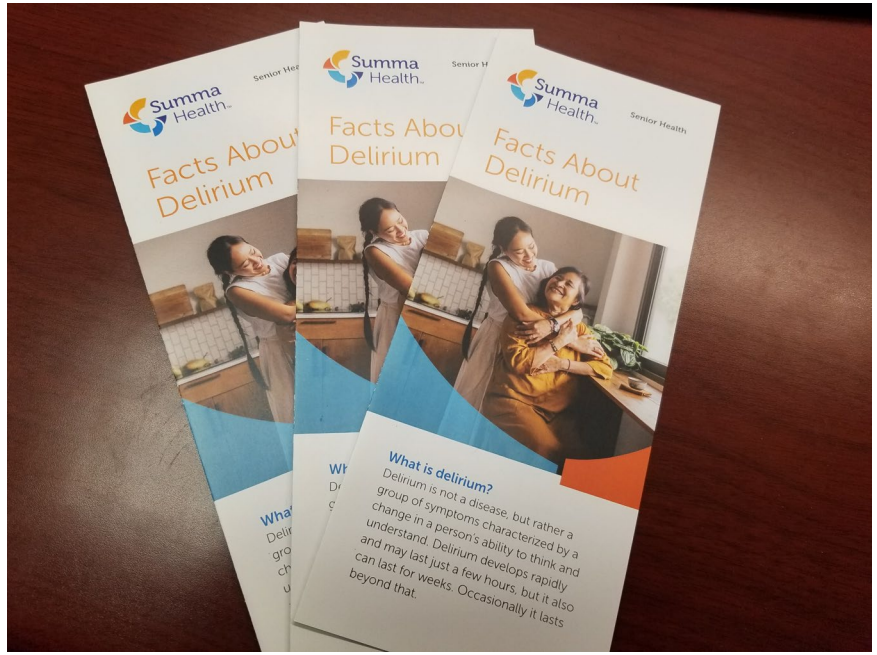
Address Hydration/Nutrition

- Encourage fluids with hourly checks, med passes and meals
- Encourage PO intake
- Assist with ordering and eating
- Consider hand over hand feeding

Delirium Prevention – Non-Pharmacologic

Provide Education to Patients and Families

- Brochures
- Encourage family participation



Delirium Prevention – Pharmacological: Wean when Stopping Medications that Cause Withdrawal

Common Medications Associated with Withdrawal

Alcohol
Benzodiazepines
Gabapentin/Pregabalin
Baclofen
Barbituates
Muscle Relaxants
Opioids
SSRIs/SNRIs/Tricyclic Antidepressants
Antipsychotics
Dopamine Agonists
Nicotine

Delirium Prevention – Pharmacological: Wean Medications that Cause Withdrawal

Weaning suggestions for common medications causing withdrawal

Benzodiazepines –wean by 25% every 2 weeks until decreased by 50%, then 10% or less per week

Gabapentin and Pregabalin -wean by 20% every week or 25% every 2 weeks

Baclofen- wean by 25% every 2 weeks

Muscle relaxants- wean slowly – no data available for further suggestions

SSRIs and SNRIs- decrease dose by 50% every 3 to 5 days, or some recommend 25% every 2 weeks

Opioids- decrease dose by 5% to 20% every 4 weeks or decrease dose by 10% every week to month

Robertson S, et.al. . Am Fam Physician. 2023 Sep;108(3):260-266
Athavale A, et.al. Aust Prescr. 2023;46:80-85.
Brendan J. Drugs Aging. 2018 Jun;35(6):493-521.
Pottie K. Canadian Family Physician 2018; 64: 339-351
Dosing and Titration of Opioids: How Much, How Long, and How and When to Stop? (cdc.gov)
https://www.fda.gov/Drugs/DrugSafety/SafeUseInitiative/default.htm, Accessed 9-21-24

Bainum TB.Pharmacotherapy 2017; 37:1231-1240
Mah L. J Am Geriatr Soc 2013; 61: 1635-37.
Tran KT. Bipolar Disorder 2005 7:302-4.
Tint A. J Psychopharmacol. 2008;22:330-2.

Summa Health

Delirium Prevention – Avoid Medications that may Precipitate Delirium in those at Risk

Anticholinergics
New Benzodiazepines
New Non-benzodiazepine Receptor Agonists
Antipsychotics
Muscle Relaxants-due to anticholinergic effects
New High doses of Opioids
Corticosteroids
High dose H2 antagonists
Suspect any medication with CNS effects

2023 American Geriatrics Society Beers Criteria Update Expert Panel. J Am Geriatr Soc 2023; 71: 2052-2083

Medications that may Precipitate Delirium in those at Risk

Anticholinergics

- Aggravates imbalance of cholinergic and dopaminergic system that occurs in delirium
- Over 600 medications have some anticholinergic effects-if on more than one anticholinergic medications additive effects are seen
  - Anticholinergic Burden Score- calculates additive effect of anticholinergics
- Recommend to avoid anticholinergics when at risk for delirium (i.e: hospitalized) , even if tolerating previously

Song LX, et.al. Medicine (Baltimore). 2024 ; 28;103(26):e38745. doi: 10.1097/MD.0000000000038745. PMID: 38941370.
Mueller A, et.al. J Clin Anesth. 2020;61:109632. doi: 10.1016/j.jclinane.2019.10963
Fox C, et.al. J Am Geriatr Soc 2011; 59:1477–1483
Gareri P, et. Al. Arch Gerontol Geriatr 2007; Suppl 1: 199-206
Han L, et.al. Arch Intern Med 2001; 161: 1099-1105
Agostini JV, et. al.Arch Intern Med 2001; 161: 2091-2097

Common Medications Reported to have High Anticholinergic Effects

Antidepressants

amitriptyline (Elavil)

doxepin (Sinequan) >6mg/day

imipramine (Tofranil)

desipramine (Norpramin)

nortriptyline (Pamelor)

paroxetine (Paxil)

Muscle Relaxants

methocarbamol (Robaxin)

cyclobenzaprine (Flexeril)

orphenadrine (Norflex)

carisoprodol (Soma)

chlorzoxazone (Parafon)

Metaxalone (Skelexin)

Antihistamines

diphenhydramine (Benadryl)

hydroxyzine (Vistaril)

chlorpheniramine (ChorTrimeton)

Anti-emetics

promethazine (Phenergan)

prochlorperazine (Compazine)

thiethylperazine (Torecan)

trimethobenzamide (Tigan)

Antipsychotic Agents

chlorpromazine (Thorazine)

thioridazine (Mellaril)

loxapine (Loxitane)

clozapine (Clozaril)

olanzapine (Zyprexa)

perphenazine (Trilafon)

trifluoperazine (Stelazine)

atropine/belladonna (B&O supps)

hyoscamine (Levsin)

flavoxalate (Urispas)

dicyclomine (Bentyl)

benzotropine (Cogentin)

Oxybutynin XL (Ditropan)

2023 American Geriatrics Society Beers Criteria Update Expert Panel. J Am Geriatr Soc 2023; 71: 2052-2083.

Chew ML. J Am Geriatr Soc 2008; 56: 1333-1341

Barr J, et.al. Crit Care Med. 2013 ;41:263-306

Campanelli CM, et. al. J Am Geriatr Soc. 2012 ; 60: 616–631

Hydroxyzine for Generalized Anxiety Disorder

Design

Cochrane Review of Double blind randomized controlled trials (RCT)

- **5 studies reviewed with 884 participants**
- **Looked at efficacy and acceptability**

Results

- **Efficacy :** Hydroxyzine is more effective than placebo for GAD OR= 0.30, (95% CI 0.15 to 0.58)
- **Tolerability:** No difference compared to placebo OR=1.00, (95% CI 0.63 to 1.58)
- **Compared to benzodiazepines and buspirone**
  - Efficacy: hydroxyzine vs chlordiazepoxide: OR= 0.75, (95% CI 0.35 to 1.62)- no significant difference
  - Efficacy: hydroxyzine vs buspirone OR=0.76, (95% CI 0.40 to 1.42)- no significant difference
- Hydroxyzine was associated with a higher rate of sleepiness/drowsiness than the active comparators OR=1.74, (95% CI 0.86 to 3.53).
- **"No recommendations in older patients can be made"**

Guaiana G , et.al. Cochrane Database Syst Rev. 2010 Dec 8;(12):CD006815. doi: 10.1002/14651858.CD006815.pub2. PMID: 21154375.

Hydroxyzine for Anxiety in Older Adults

Study	Design	Age Range Years old	Oldest Age Years old	Notable Exclusions
Rickets 1970	Double Blind RCT	Not known	Not known	Patients with strong character disorders, sociopathic tendencies, or evidence of schizophrenia excluded
Goldberg 1973	Double Blind RCT	18-60	60	Patients with glaucoma
Darcis 1995	Double Blind RCT	18-65	65	Patients with depression , cardiovascular, hepatic, or renal disorders, patients on opioids
Lader 1998	Double Blind RCT	18-65	65	major depression,, alcohol abuse, organic or psychotic disorders.
Liorica 2002	Double Blind RCT	18-65	65	major depressive episode, psychotic or delusional disorders within the preceding 3 years, concomitant chronic diseases, closed-angle glaucoma , central nervous system treatment within the last week preceding inclusion, need for psychotherapy.
Houze-Cerfon 2021	Double Blind RCT	29-65	65	

Alternatives to Anticholinergics

For :	Common Alternatives:
Spasms	Lowest effective dose for shortest effective time
Allergies	Loratadine, Saline nasal spray If acute allergic reaction: lowest effective dose for shortest effective time
Incontinence	Mirabegron, Darifenacin, Solifenacin, Trospium
Parkinson's Disease	Rasagaline, Levodopa/carbidopa
Insomnia	Non-pharmacological methods, Ramelteon, Melatonin, Suvorexant
Depression	Duloxetine, Sertraline, Mirtazapine, Venlafaxine
Anxiety	Duloxetine, Sertraline, Buspirone, Pregabalin, Gabapentin
Psychosis	Atypical antipsychotics
Pain	Acetaminophen, Diclofenac gel, lidocaine cream or patch, Capsacian cream Gabapentin, Pregabalin, Heat, Ice
Nausea	Ondansetron; Use lowest effective dose for shortest effective time

Delirium Prevention – Medications that may Precipitate Delirium in those at Risk

Benzodiazepines

-Multiple studies show an association with prolongation and worsening symptoms of delirium

-Two Cochrane Reviews: One states no evidence for efficacy of benzodiazepines in non-alcoholic delirium ; Another found no evidence for use of benzodiazepines in delirium

-Guidelines recommend to avoid use in patients with delirium…but these are used in patients with benzodiazepine or alcohol withdrawal

Li Y, et.al. Cochran Database Syst Rev 2020; Feb 28;2(2):CD012670. doi: 10.1002/14651858.CD012670.pub2.
Lonergan E. Cochrane Database Syst Rev. 2009;(4):CD006379
Devlin J, et. al. Crit Care Med. 2018 46:e825-e873

Alternatives to Benzodiazepines

Acute Anxiety

-Pregabalin or gabapentin?- not FDA approved

Chronic Anxiety:

A Selective Serotonin Reuptake Inhibitor(SSRI)

Sertraline (Zoloft)- not FDA approved

Serotonin-Norepinephrine Reuptake Inhibitor (SNRI))

Duloxetine (Cymbalta)

Buspirone (Buspar)

Gabapentin/Pregabalin? –not FDA approved

“Pregabalin for generalized anxiety disorder: an updated systematic review and meta-analysis”

Design

Systematic Review and Meta-analysis using Prisma Guidelines

- 8 randomized placebo controlled trials comparing pregabalin to placebo for GAD

  4 randomized trials comparing pregabalin to benzodiazepines for GAD

  Efficacy Rating : Hamilton Anxiety Rating Scale (HAMA)

  Safety Rating : Drop Out Rates

Results

- Pregabalin vs Placebo (age range 35-72 years old)
  - Significant improvement in HAMA with pregabalin use versus placebo (Standard Mean Difference (SMD)= 0.37 (95% CI= 0.30-0.44)
  - No difference in drop out rates in pregabalin vs placebo group: 0.87 (95% CI = 0.72-1.05)
- Pregabalin vs Benzodiazepine (Age range 35-42 years old)
  - No significant difference in HAMA with pregabalin use versus benzodiazepine SMD= 0.04 (95% CI= -0.06-0.14)
  - Drop out rates lower in pregabalin group: 0.58 (95% CI= 0.39-0.84)

. Generoso, MB, et.al. International Clinical Psychopharm 2017;32:49–55

Pregabalin for Anxiety Disorder: Since the meta-analysis

33 Patients receiving pregabalin in cognitive behavior unit (ages 55-97 years old had significant lower benzodiazepine use (78.8% vs 33.3%, P = 0.001)

J Clin Psychopharmacol 2019;39: 261–263

New warning on pregabalin: Concern for respiratory depression in those with respiratory disease, those on other respiratory depressants, and in older patients

Lexicomp, Accessed 9-28-24

Delirium Prevention – Medications that may Precipitate Delirium in those at Risk

Analgesia - Too little or Too much

-Pain is a risk factor for delirium

-Guidelines recommend to use A1 approach (analgesia first) : Treat pain before treating agitation

Creative Commons: Assessed 9-30-24

Devlin J, et. al. Crit Care Med. 2018 46:e825-e873

Delirium Prevention – Medications that may Precipitate Delirium in those at risk

High Risk Insomnia Medications

Benzodiazepines

-examples: lorazepam, alprazolam, temazepam

Non-benzodiazepine Receptor Agonists

-examples: zolpidem, zaleplon,eszoplicone

Anticholinergics

-examples: diphenhydramine, amitriptyline

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Delirium Prevention – Medications that may Prevent Delirium in those at risk

Melatonin Agonists(Melatonin and Ramelteon) and Orexin Antagonists(Suvorexant and Lemborexant

-Meta-analysis of 33 randomized controlled trials (RCTs) studies showed a significant preventive effect of melatonin receptor agonists on delirium (risk ratio = 0.65, $p < 0.01$. Additionally, melatonin receptor agonist were associated with a significant reduction in mortality rate (risk ratio = 0.90, $p = 0.02$)

-Meta-analysis of 14 RCTs show significant decrease in delirium with melatonin/ramelteon use in critical care patients (RR 0.66 95%CI =0.50–0.88, p=0.004) and non-significant decrease in surgical patients (RR 0.51 95% CI 0.25–1.03, p 0·06) and general med-surg patients (RR 0.88 95% CI 0.15–5.31, p=0.89)

-Meta-analysis of 11 RCTs looking at post op delirium after use of melatonin agonist indicated that the melatonin agonist group had a significantly lower occurrence of delirium than the placebo group (risk ratio = 0.70, 95% confidence interval: 0.51-0.97, $P < 0.05$

-Meta-analysis of 4 retrospective case control trials and three randomized controlled trials using suvorexant as prevention for delirium showed a reduced incidence of delirium (OR=0.30; P<.001)

Restrospective or observational trials showing benefit with lemborexant

Jiang LS, et.al . Aging Clin Exp Res. 2023 Nov;35(11):2323-2331.
Wasa M, et.al. Gen Hosp Psychiatry. 2023 Nov-Dec;85:71-79.
Khaing K, et.al. Psychiatr Res. 2021 ;133:181-190.
Shu Xu,et.al. Medicine (Baltimore). 2020 Jul 24;99(30):e21043
Matsuoka A, et.al. J Clin Psychiatry. 2022 Nov 7;84(1):22m14471. doi: 10.4088/JCP.22m14471. PMID: 36350599.

Delirium Prevention – Medications that may Prevent Delirium in those at risk

Antipsychotics: Tested but not Effective

Meta-analysis of 14 Randomized Controlled trials

-No significant difference in incidence of delirium or duration of delirium

Creative Commons Accessed 9-3024

Oh ES, et.al.. Ann Intern Med. 2019;1;171(7):474-484.

Delirium Prevention – Medications that may Prevent Delirium in those at risk

Dexmedetomidine

Systemic Review with a meta-analysis including 13 randomized controlled studies indicated the use of dexmedetomidine perioperatively versus control significantly reduced post –op delirium in patients that had non-cardiac surgery (RR: 0.60; 95%CI: 0.46 to 0.77, P =0.0001)

Meta-analysis including 16 randomized controlled trials indicated perioperative dexmedetomidine versus control group (other sedatives, placebo, or normal saline significantly reduced the incidence of postoperative delirium in patients undergoing cardiac surgery (RR 0.57; 95% CI 0.41-0.79; P = 0.0009)

Meta-analysis including 18 studies indicated that postoperative administration of dexmedetomidine significantly reduced the risk of post-op delirium compared with normal saline, or peri-operative dexmedetomidine

Meta-analysis of 77 studies found the use of dexmedetomidine during mechanical ventilation compared to other sedatives decreased the risk of delirium (RR 0.67, 95% CI 0.55 to 0.81)

Major side Effects: Bradycardia and Hypotension

.

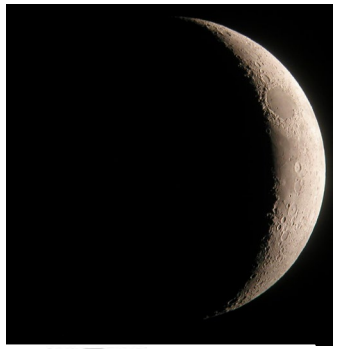
Qin C, et.al. J Clin Anesth. 2021 Oct;73:110308. doi: 10.1016/j.jclinane.2021.110308
Zhuang X, et.al. BMC Anesthesiol. 2024;24:332. doi: 10.1186/s12871-024-02715-2. PMID: 39289619; PMCID: PMC11406813.
Shang L,et.al. Ann Pharmacother. 2023 Mar;57(3):221-231. doi: 10.1177/10600280221106622. Epub 2022 Jul 9. PMID: 35815719.
Lewis K, et.al. Intensive Care Med. 2022 Jul;48(7):811-840

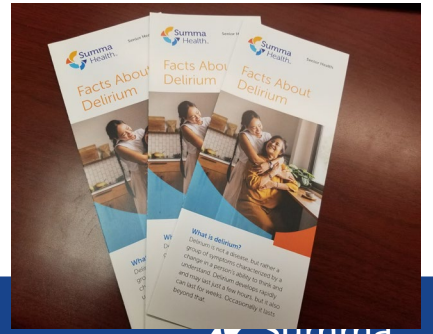
Managing Delirium

Delirium Treatment – Non-Pharmacologic

Surprise! It's the Same as Prevention!

- Sleep
- Mobility
- Sensory Impairment
- Cognition and Stimulation
- Elimination
- Hydration and Nutrition
- Family Involvement





Delirium Treatment – Pharmacologic

Address possible causes

- Medication focused review:
  - Medication withdrawal
  - Anticholinergic usage
  - Appropriate pain regimen
  - Appropriateness of other other CNS medications
  - Other
    - Glucose control
    - Electrolytes, metabolic disturbances
    - Appropriateness of antibiotic regimen

Use an A1 approach- (Analgesia first) –Treat pain before treating agitation

Add antipsychotic agent only when necessary

- If patient is at risk of harming self or others

Creative Commons: Assessed 10-1-24

Marcantonio E, N Engl J Med. 2017;377 :1456-1466.

Delirium Treatment – Pharmacologic

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There are no FDA approved Medications

Antipsychotics

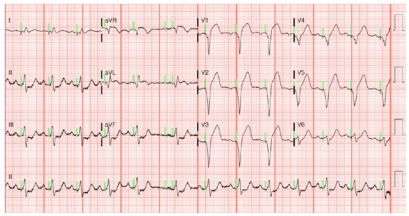
- FDA public health advisory
  - Boxed warning in labeling states that these medications are not approved in behavior symptoms in elderly patients with dementia due to an increase in mortality with use
  - Reserve for patients that behavior would threaten own safety or safety of other or behavior interferes with essential therapy
  - Wean off as behavior becomes controlled
- Approximately 75% of delirium patients respond to antipsychotic therapy

Marcantonio E, N Engl J Med. 2017;377 :1456-1466.

Delirium Treatment – Pharmacologic: Antipsychotics

Haloperidol is most studied antipsychotic

- It has low anticholinergic effects
- Inouye dosing for patients on Med-Surg floors: Loading dose: 0.5 mg to 1 mg, IM may repeat after 30-60 min until response (manageable but alert patient) or until dose of 5 mg is reached then maintenance dose of 0.5 mg IM or po q4-6 hours prn
- Cautions
  - QTc Prolongation and risk for Torsades de Pointes
    - Especially with high doses
    - Especially with IV use
    - Discontinue if QTc >500 msec
    - Discontinue if QTc increased by >25%
  - EPS symptoms
    - Many antipsychotics are contraindicated in patients with Parkinson's disease
    - Quetiapine, clozapine, and pimavanserin are acceptable



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Inouye S. N Engl J Med 2006; 354: 1157-1165

Delirium Treatment – Pharmacologic: Atypical Antipsychotics

All are off-label use

-Prefer to use those with low anticholinergic effects

-Lower dose needed for delirium versus schizophrenia or psychosis

Some QTc Prolongation and risk for Torsades de Pointes occurs with all

Differentiating Second Generation Antipsychotics for use in Delirium

Name Usual Dose	Usual Starting Dose for Delirium	Anticholiner-gic Effect	EPS effects	Qtc Effects	Pertinent Dose Forms	Seizures	Ortho-stasis	Sedation	Glucose Abnormality
Quetiapine 400 – 800 mg	12.5 mg q12hrs	++ (but likely lower due to very low doses we use)	+	++	tablet	++	++	+++	++
Risperidone 2-8 mg	0.5 mg q12hrs	+	++	++	-tablet -disintegrating tablet	+	++	++	++
Olanzapine 10 -20 mg	2.5 mg- 5 mg daily	++	+	++	-tablet -disintegrating tablet -IM injection (Warning with benzos)	++	++	+++	+++
Aripiprazole 10-15 mg	2.5 mg daily	+	+	+	-tablet	+	++	+	+
Ziprasidone 80-160 mg	20 mg q12 hrs	+	+	+++	tablet- with food IM injection	+	++	++	+
Asenapine SL 20 mg	?	+	++	++	SL	+	++	++	++

https://psychiatryonline.org/doi/10.1176/appi.books.9780890424841

Delirium Treatment – Pharmacologic

Alternatives when QTc is high

Benzodiazepines : Avoid if able

- Cochrane Review: States no evidence for efficacy of benzodiazepines in non-alcoholic delirium

Valproate : Limited evidence published

Li Y, et.al. Cochran Database Syst Rev 2020; Feb 28;2(2):CD012670. doi: 10.1002/14651858.CD012670.pub2.
Lonergan E. Cochrane Database Syst Rev. 2009;(4):CD006379
Swayngim R, et.al.J Pharm Pract. 2024 Feb;37(1):118-122.

Delirium Emerging Treatment? – Pharmacologic

Dexmedetomidine

Review of randomized controlled trials and non-randomized controlled trials using dexmedetomidine to treat delirium

> In six studies, dexmedetomidine was associated with a lower prevalence of delirium after treatment (OR, 0.39; 95% CI, 0.20- 0.76; P=0.006) and a shorter time until delirium resolved (-23.25hrs; 95% CI-45.28 to -1.21; P=0.04) compared with other drugs.

The Tranquil study: Randomized ,double-blind, placebo-controlled study in progress to investigate the efficacy and safety of sublingual dexmedetomidine in older adults with dementia and agitation

Liu X, et.al. Minerva Anestesiol. 2021;87(1):65-76.
Murphy KS, et.al .J Am Geriatr Soc. 2024 Sep 19. doi: 10.1111/jgs.19196. Epub ahead of print. PMID: 39295447.

Questions?

Creative Commons: Assessed 10-1--24

Thank You

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Summa Health Senior Health Symposium: **Session 9**

Complex Care Institute

Palliative Care | Senior Health | Pastoral Care | Complex Care Clinic | Pain Stewardship

Case Study and Panel Discussion

Jennifer Drost, D.O.
Medical Director, Senior Health
Summa Health System

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THANK YOU


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