


# ALZHEIMER'S DISEASE. WHAT IT IS, AND WHAT CAN BE DONE



JOSEPH E. GAUGLER, PH.D.

Robert L. Kane Endowed Chair In Long-Term Care & Aging

Director, Center for Healthy Aging and Innovation

Director, BOLD Public Health Center of Excellence on Dementia Caregiving

# ACKNOWLEDGMENTS



# WHAT IS ALZHEIMER'S DISEASE?

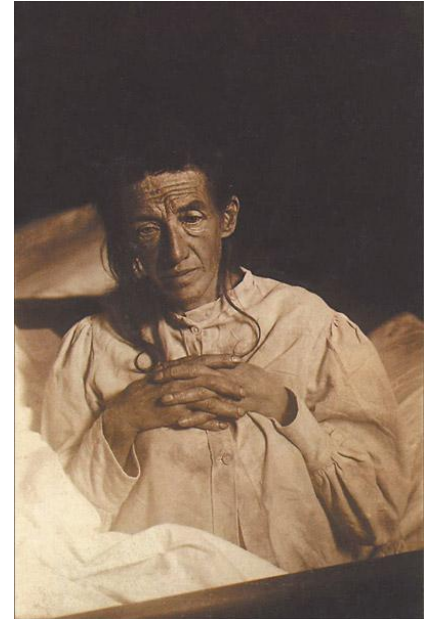
- What do you think Alzheimer's disease is?

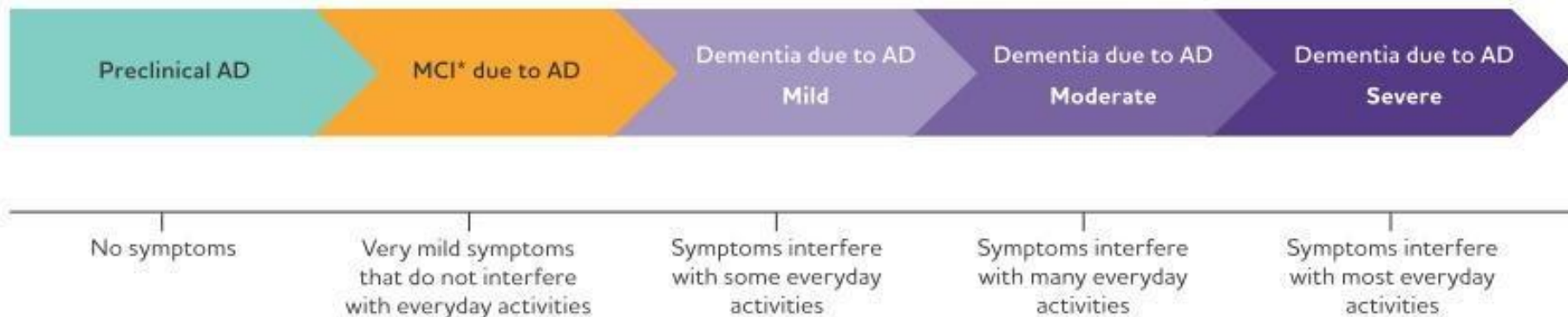
# WHAT IS ALZHEIMER'S DISEASE?

- Alzheimer's is a type of dementia that causes problems with memory, thinking and behavior
- Alzheimer's is the most common form of dementia
- Alzheimer's is not a normal part of aging
- Alzheimer's worsens over time
- Alzheimer's has no current cure, but symptoms are treatable

# HISTORY OF ALZHEIMER'S DISEASE

- Alzheimer's Disease is named after Dr. Alois Alzheimer
- In 1906, Dr. Alzheimer saw changes in the brain tissue of a woman who had died of an unusual mental illness.
  - Her symptoms included memory loss, language problems, and unpredictable behavior.
- After she died, Dr. Alzheimer examined her brain and body. This led to the first known case of “Alzheimer's” disease
  - He found many abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary, or tau, tangles).
  - In 1910 Emil Kraepelin suggested the disease be called Alzheimer's disease





From Alzheimer's Association Facts and Figures, 2021 (in preparation)

# WHAT IS MILD COGNITIVE IMPAIRMENT?

- “A decline in cognitive function that is not normal aging but is also not severe enough to impair daily living and warrant a diagnosis of dementia” (Mast & Yochim, 2018)
- 15-20% of persons over age 65 have MCI
- Those with MCI are more likely to develop AD, but not always

Taken from <http://www.alz.org/dementia/mild-cognitive-impairment-mci.asp>

# WHAT IS DEMENTIA?

- Group of symptoms, not single disease
- Caused by damage to brain cells
- Alzheimer's Disease most common cause (problems with memory, thinking and behavior)
- Vascular dementia 2<sup>nd</sup> most common cause
- Interferes with daily life
- Irreversible, degenerative
- Other illnesses may complicate



# WHAT IS DEMENTIA?

- *More than memory loss*
- Expect
  - Changes in cognition
  - Personality changes
  - Impaired judgment
  - Inability to perform activities of daily living (ADLs)

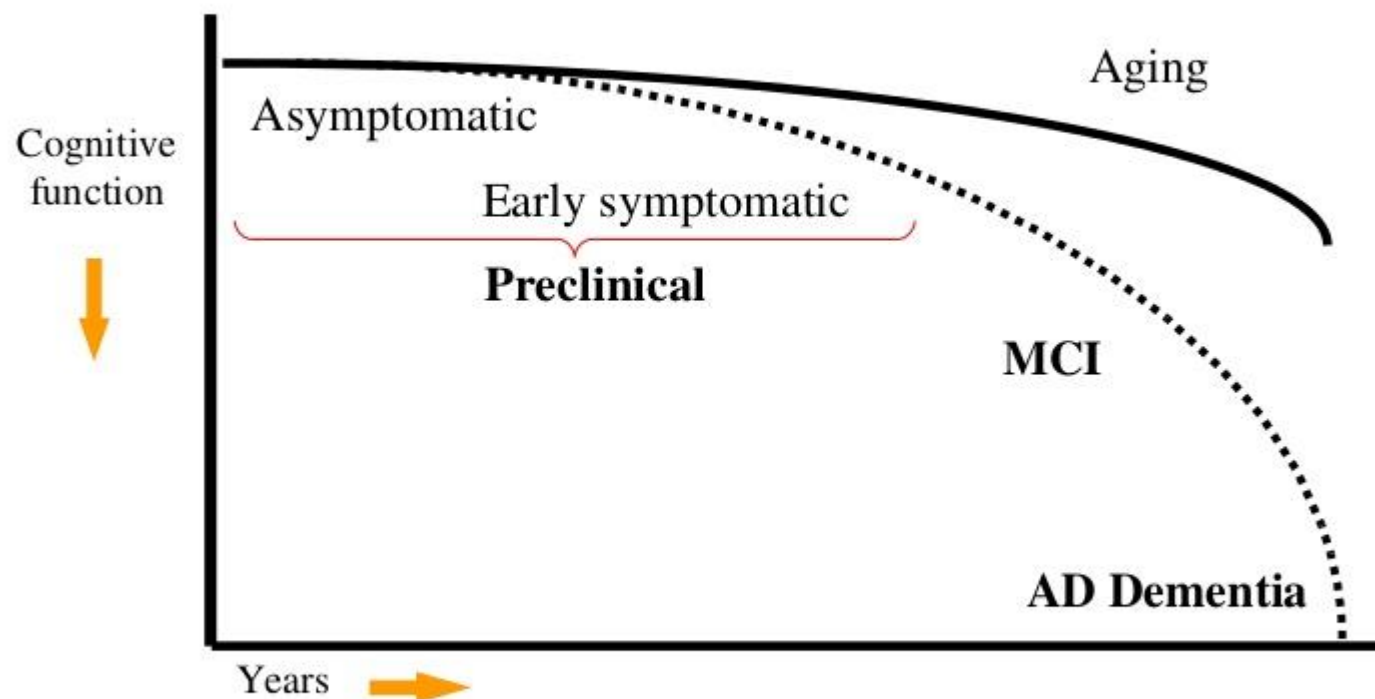


# OTHER TYPES OF DEMENTIA

- **Frontotemporal dementia**
  - Group of that primarily affect the frontal and temporal lobes of the brain — the areas generally associated with personality, behavior and language
- **Dementia with Lewy Bodies**
  - Type of progressive dementia that leads to a decline in thinking, reasoning and independent function
- **Mixed dementia**
  - Multiple studies indicate that most cases diagnosed with Alzheimer's disease are mixed dementia

Taken from <http://www.alz.org/dementia/fronto-temporal-dementia-fts-symptoms.asp>;  
<http://www.alz.org/dementia/dementia-with-lewy-bodies-symptoms.asp>

# The continuum of Alzheimer's disease



Sperling et al *Alzheimer & Dementia* 2011  
NIA-AA Preclinical Workgroup

# VIDEO OF ALZHEIMER'S DISEASE

<https://www.youtube.com/watch?v=0GXv3mHs9AU&t=115s>

# Top 10 Warning Signs of Alzheimer's

- 1. Memory loss that disrupts daily life**
- 2. Challenges in planning or solving problems**
- 3. Difficulty completing familiar tasks at home, at work or at leisure**
- 4. Confusion with time or place**
- 5. Trouble understanding visual images and spatial relationships**
- 6. New problems with words in speaking or writing**
- 7. Misplacing things and losing the ability to retrace steps**
- 8. Decreased or poor judgment**
- 9. Withdrawal from work or social activities**
- 10. Changes in mood and personality**

# 1. Memory loss that disrupts daily life

## Alzheimer's

- Forgetting recently learned information
- Forgetting important dates or events
- Asking for the same information over and over
- Relying on memory aids (e.g., reminder notes or electronic devices) or family members for things they used to handle on their own

## Age-related Change

- Sometimes forgetting names or appointments
- A-HA moment: remembering later



## 2. Challenges in planning or solving problems

### Alzheimer's

- Changes in ability to develop and follow a plan
- Changes in ability to work with numbers
- Trouble following a familiar recipe
- Trouble keeping track of monthly bills
- Difficulty concentrating
- Taking much longer to do things than before

### Age-related Change

- Making occasional errors when balancing a checkbook



# 3. Difficulty completing familiar tasks at home, at work or at leisure

## Alzheimer's

- Completing daily tasks
- Driving to a familiar location
- Managing a budget at work
- Remembering the rules of a favorite game

## Age-related Change

- Occasionally needing help to use the settings on a microwave or to record a television show





## 4. Confusion with time or place

### **Alzheimer's**

- Losing track of dates, seasons and the passage of time
- Trouble understanding something if it is not happening immediately
- Sometimes forgetting where they are or how they got there

### **Age-related Change**

- Getting confused about the day of the week but figuring it out later



# 5. Trouble understanding visual images and spatial relationships

## Alzheimer's

- Vision problems
- Difficulty reading
- Trouble judging distance
- Difficulty determining color or contrast (may cause problems with driving)

## Age-related Change

- Vision changes related to cataracts



## 6. New problems with words in speaking or writing

### **Alzheimer's**

- Trouble following or joining a conversation
- Stop in the middle of a conversation and have no idea how to continue
- Repeat themselves
- Struggle with vocabulary
- Problems finding the right word
- Call things by the wrong name

### **Age-related Change**

- Sometimes having trouble finding the right word



# 7. Misplacing things and losing the ability to retrace steps

## Alzheimer's

- Putting things in unusual places
- Losing things, unable to retrace their steps to find them again
- Accusing others of stealing

## Age-related Change

- Misplacing things from time to time and retracing steps to find them



## 8. Decreased or poor judgment

### **Alzheimer's**

- Changes in judgment or decision-making
- Less attention to grooming or hygiene

### **Age-related change?**

- Making a bad decision once in awhile



# 9. Withdrawal from work or social activities

## Alzheimer's

- Withdraw from hobbies, social activities, work projects or sports
  - Trouble keeping up with a favorite sports team
  - Trouble remembering how to complete a favorite hobby
  - Avoid being social

## Age-related Change

- Sometimes feeling weary of work, family and social obligations



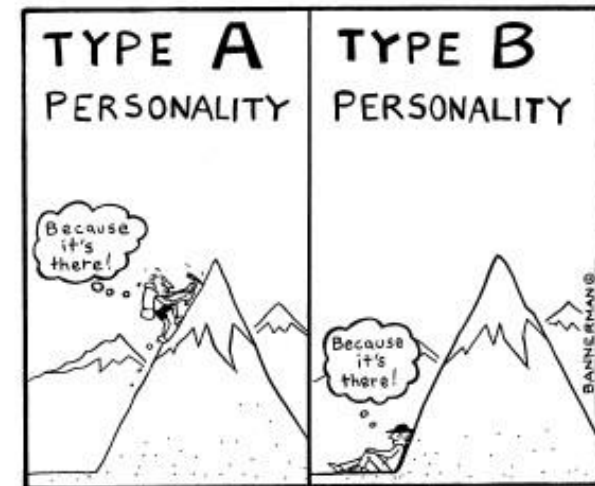
# 10. Changes in mood and personality

## Alzheimer's

- Mood and personality changes
  - Confusion
  - Suspicion
  - Depression
  - Fearfulness
  - Anxiousness
- Easily upset at home, at work, with friends, or in places out of comfort zone

## Age-related Change

- Developing very specific ways of doing things and becoming irritable when a routine is disrupted.



# DIAGNOSIS OF ALZHEIMER'S DISEASE

- No specific test
- Distinguishes between other causes of dementia
- Find the right doctor
  - Consult the Alzheimer's Association
  - Referrals: neurologist, psychiatrist, neuropsychologist, geriatrician





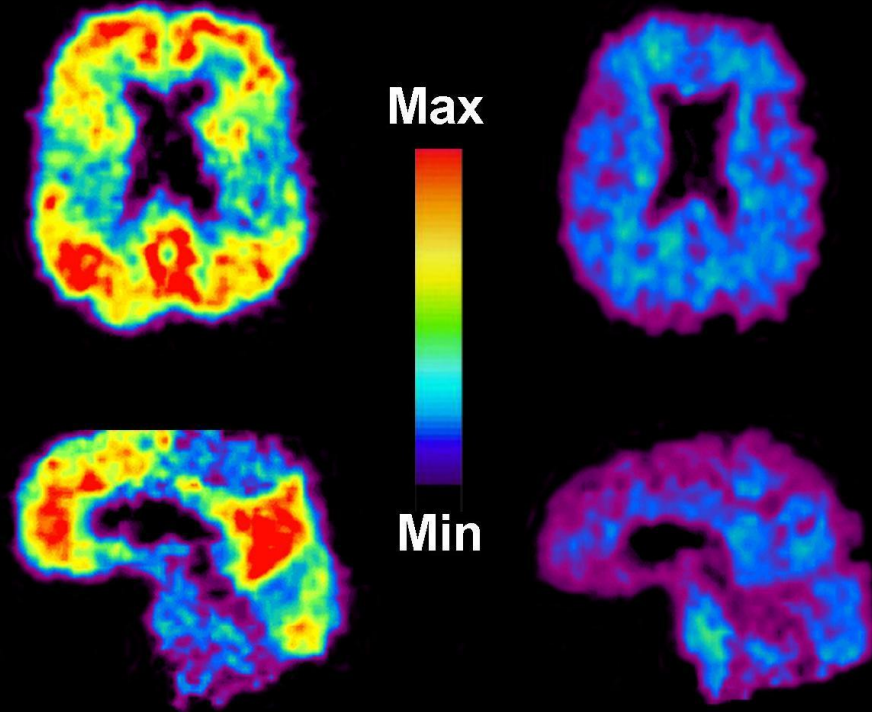
# DIAGNOSIS OF ALZHEIMER'S DISEASE

- Physicians can often determine if someone has dementia (e.g., via brief screening tools), but cannot determine the *cause* of dementia
- A referral to a specialist such as a neurologist is often needed to conduct a full diagnostic procedure, including:
  - Medical and family history
    - Psychiatric, cognitive change, and behavioral change history
  - Family/other proxy perspectives about observed changes in cognition and behavior
  - Physical, neurological, problem-solving, memory, and other cognitive tests
  - Blood testing and brain imaging
    - To rule out other causes of dementia symptoms (e.g., brain tumor, vitamin deficiencies)
  - In some circumstances, using PET imaging of the brain to find out if the individual has high levels of beta-amyloid.
    - If levels are normal, it indicates that Alzheimer's is likely not the cause of dementia.

From Alzheimer's Association 2021 Facts and Figures, in preparation

# AD

# Control



## PiB PET SCANS



University of Pittsburgh  
*PET Amyloid Imaging Group*

# DIAGNOSIS OF ALZHEIMER'S DISEASE

- In some circumstances, a lumbar puncture to determine the levels of beta-amyloid and certain types of tau in cerebrospinal fluid
  - Normal levels would suggest Alzheimer's is not the cause of dementia
  - More work is needed on biomarkers on the population level

# RISK FACTORS

- Traumatic Brain/Head injury
- Advancing age
- Genetics
- Depression
- Family history
  - Those who have a parent, sibling, child with Alzheimer's are more likely to get Alzheimer's
- Cardiovascular Disease Risk Factors
  - Smoking
  - Obesity
  - Diabetes
  - Hypertension



# Reducing Risk



Stay mentally active

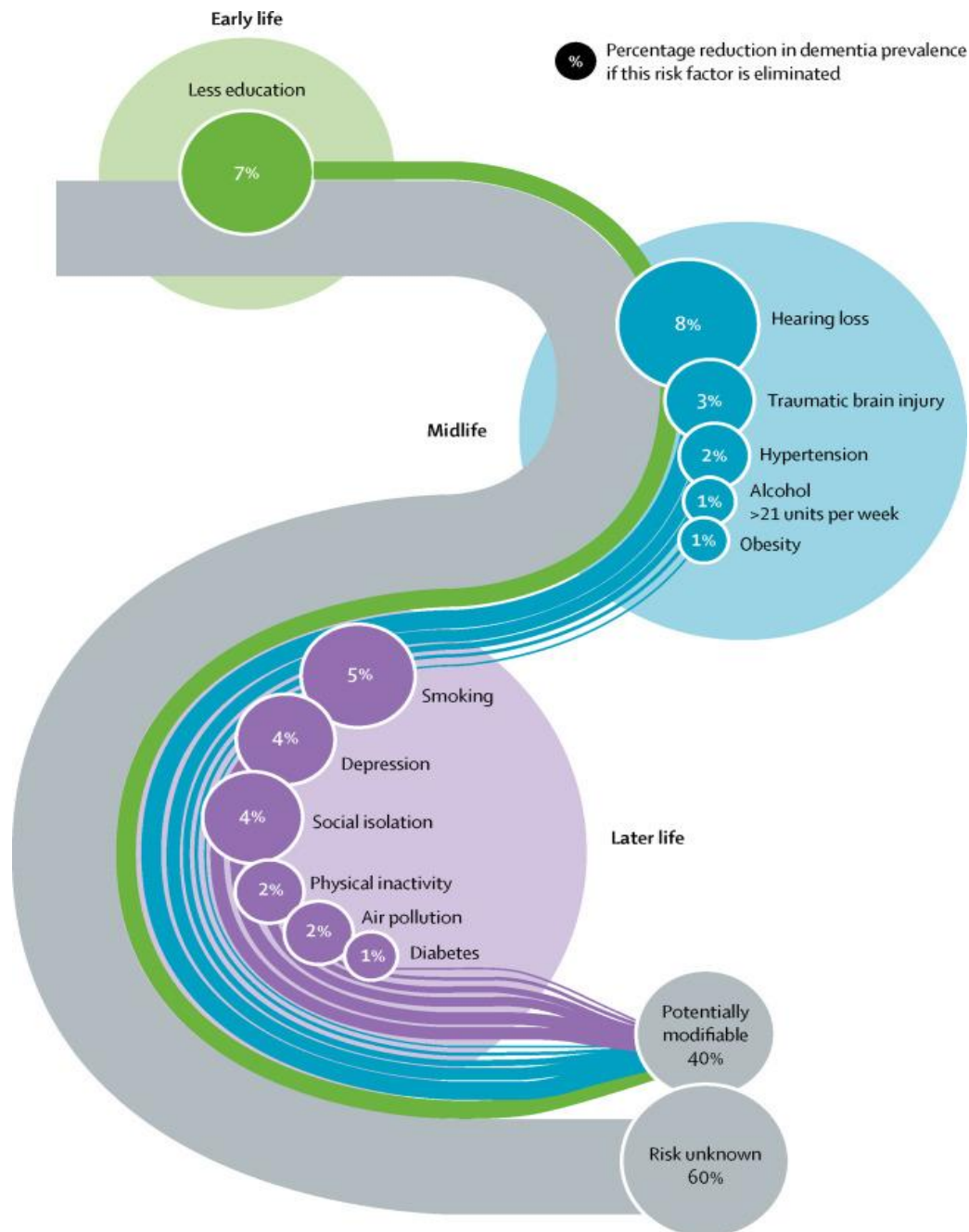


Remain socially involved



Adopt a brain healthy diet

- Cognitive engagement
- Social engagement
  - Stress Reduction
    - Nutrition
    - Exercise



# TREATMENTS

- *There is currently no cure for Alzheimer's disease*
- Medications that may help:
  - Acetylcholinesterase inhibitors (ACEs)
    - Donepezil (Aricept); Galantamine (Rimanyl/Razadyne); Rivastigimine (Exelon)
    - Side effects include: diarrhea, vomiting, and nausea
  - Memantine (Nemenda)
    - First drug approved to treat those in moderate to severe stages
    - Side effects include: dizziness, increase agitation and delusions in some people

# ADUCANUMAB/ADUHELM

- Recently approved by the FDA: Emergency use authorization
- A controversial decision reflecting both the clear need but also lack of sufficient evidence of benefits
- Unlike other drug treatments, aducanumab reduces the amount of beta-amyloid of the brain
- No compelling evidence that removal of beta-amyloid improves cognitive function
- Also, use of aducanumab increases risk for amyloid-related imaging abnormalities (ARIA), which includes brain swelling and small brain bleeding.
- Cost concerns
- See also:  
<https://bolddementiacaregiving.org/resource-library/#external-resources>



# TREATMENTS OF THE FUTURE?

- See

<http://www.clinicaltrials.gov/ct2/results?term=alzheimer> for list of National Institute of Health clinical trials

# TREATMENTS FOR BEHAVIORAL SYMPTOMS

- Non-pharmacological approaches are endorsed as front-line treatment
  - Monitor personal comfort.
  - Simplify communication.
  - Redirect the person's attention.
  - Allow time for rest between activities.
  - Provide a security object.
  - Acknowledge requests, and respond to them.
  - Look for reasons behind each behavior.
  - Explore various solutions.
  - Don't take the behavior personally.



# TREATMENTS FOR BEHAVIORAL SYMPTOMS

- Antipsychotic drugs are recommended only in the following situations:
  - Behavioral symptoms are due to mania or psychosis
  - The symptoms present a danger to the person or others
  - The person is experiencing inconsolable or persistent distress, a significant decline in function or substantial difficulty receiving needed care

# FINGER

- Researchers are studying whether intervening on multiple risk factors simultaneously is more effective at reducing risk than addressing a single risk factor.
- A multi-domain intervention, called the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) showed promise in slowing cognitive decline among high risk individuals.
- FINGER included nutritional guidance, physical exercise, cognitive training, social activities and management of vascular and metabolic risk factors.
- See: <https://www.alz.org/wwfingers/overview.asp>

# ACTIVE MANAGEMENT OF ALZHEIMER'S DISEASE

- Active management of Alzheimer's and other dementias can improve quality of life through all stages of the disease. This includes:
  - “Appropriate use of available treatment options.
  - Effective management of coexisting conditions.
  - Providing family caregivers with effective training in managing the day-to-day life of the care recipient.
  - Coordination of care among physicians, other health care professionals and lay caregivers.
  - Participation in activities that are meaningful to the individual with dementia and bring purpose to his or her life.
  - Having opportunities to connect with others living with dementia; support groups and supportive services are examples of such opportunities.
  - Becoming educated about the disease.
  - Planning for the future.”

Taken from the Alzheimer's Association 2021 Facts and Figures, in preparation

## **Common Components Of Best-Practice Models For Dementia Care**

### **Component**

Make a formal diagnosis using a standardized instrument and with input from a family member

Evaluate the patient for treatable causes of cognitive impairment or excess disability

Consider referral to a specialty memory care practice

Educate the patient and family about the diagnosis and care options

Accept the caregiver-care recipient dyad as the target of care

Refer the patient to relevant community support services

Regularly assess the patient for problem behaviors and train the caregiver in identifying and managing these behaviors

Discuss goals of care

Discuss driving and home safety

Consider cognition enhancing drugs

Regularly reassess the psychoactive side effects of prescription and nonprescription medications and alcohol and other substance abuse

Facilitate regular cognitive, physical, and social activity

Detect and treat vascular risk factors

Manage the patient's comorbid conditions in the context of dementia

Track the patient's outcomes and adjust goals of care as appropriate

Taken from Callahan et al., 2014

# CARING FOR PEOPLE WITH MEMORY LOSS CONFERENCE

- Free annual community education conference held at the University of Minnesota
  - Held Saturday after Memorial Day
  - Joseph E. Gaugler, PhD, organizer (612-626-2485; [gaug0015@umn.edu](mailto:gaug0015@umn.edu))
- Approximately 200-330 attendees
- Free food!
- Hands-on, relevant talks on issues ranging from stress reduction strategies to financial planning
- CEUs for purchase (\$50 for 6-7 contact hours)
- Virtual library of presentations, resources, and other info
- See <http://z.umn.edu/memorylossconference> for more information
- If you are interested in hearing more, please check “The Caring for People with Memory Loss Conference” on your evaluation form

# FREE COACHING

- An opportunity to received additional education, support, and skills related to memory loss care
  - Example topics: communication issues, behavior and personality changes, self-care
- For families or professionals
- Confidential calls from 8AM to 8PM M-F
- Coaches
  - Robyn Birkeland, PhD
- If interested, please check the box on the evaluation form



# CARES® ON-LINE EDUCATIONAL MODULES

- We are offering the award-winning, online education modules on dementia care developed by HealthCareInteractive® for free
- A value from \$200-\$600
- For professionals and families
- Please check the box on the evaluation form and we will connect you to this free training opportunity!



## **Memory Concerns and Driving Study**

Researchers are studying the effects of a coaching and educational program to support people who have memory loss plan for and adjust to driving retirement.

### **CarFreeMe™\* study includes:**

- 6-8 video or telephone sessions with a trained coach
- 3 surveys over 6 months
- A final interview, if selected

### **Who can join?**

- People with memory loss who are planning for or adjusting to driving retirement
  - And/or their family member

### **You can earn:**

- \$25 per survey (up to \$75)
- An additional \$25 for a final interview, if selected

### **For more information**

Contact the study team at

[carfreeme@umn.edu](mailto:carfreeme@umn.edu)

(612) 440 - 2697

<https://www.sph.umn.edu/research/projects/carfreeme/>



# Questions?

Thank you for attending!

**Joseph E. Gaugler, PhD**

612-626-2485

[gaug0015@umn.edu](mailto:gaug0015@umn.edu)

Slides and presentation recording will be made available on:

<https://mngwep.umn.edu/dementia-resources>

<https://www.sph.umn.edu/research/projects/ltc/outr each/>



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