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

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WHAT IS ALZHEIMER'S DISEASE?

- What do you think Alzheimer's disease is?

WHAT IS ALZHEIMER'S DISEASE?

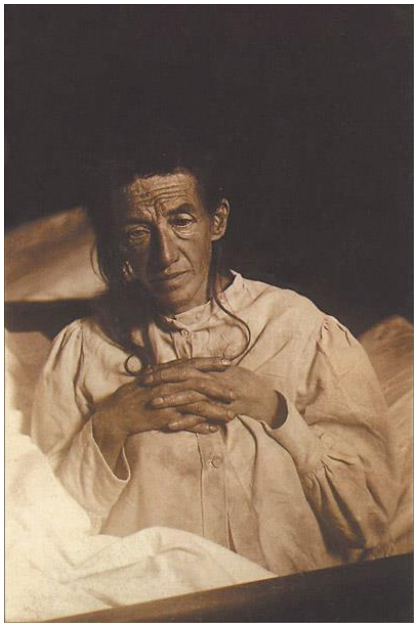
- Alzheimer's is a type of dementia that causes problems with memory, thinking and behavior
- Alzheimer's is the most common form of dementia
- Alzheimer's is not a normal part of aging
- Alzheimer's worsens over time
- Alzheimer's has no current cure, but symptoms are treatable

HISTORY OF ALZHEIMER'S DISEASE

•Alzheimer interviewed a patient, "Auguste D.," a 51-year n 1901, a German psychiatrist named Alois old woman.

- She died in 1906

• Post-death analysis by Dr. Alzheimer of her brain and body led to the first recognized case of "Alzheimer's" disease
  - Shrinking of the cortex
  - Microscopic analysis found fatty deposits in and around the brain cells and dead/dying brain cells
  - In 1910 Emil Kraepelin suggested the disease be called Alzheimer's disease



2011 UPDATE OF DIAGNOSTIC CRITERIA

- Alzheimer's disease progresses on a spectrum with three stages
  - Early, preclinical stage with no symptoms;
  - A middle stage of mild cognitive impairment; and
  - A final stage marked by symptoms of dementia
- Memory loss is not necessarily the 1st/only symptom
- Better understanding of the differences/relationships between Alzheimer's disease and other non-AD dementias
- The potential of biomarkers (an indicator of potential brain disease) to diagnose
  - Still experimental at this time

2011 CRITERIA: NEW STAGES OF ALZHEIMER'S DISEASE (FROM FACTS AND FIGURES)

- "An individual who does not yet have outward symptoms of Alzheimer's but does have some of the early brain changes of Alzheimer's (as detected by brain imaging and other biomarker tests) would be said to have **preclinical Alzheimer's disease**.

- Those who have very mild symptoms but can still perform everyday tasks would be described as having **MCI due to Alzheimer's**.

- Individuals whose symptoms are more pronounced and interfere with carrying out everyday tasks would be said to have **dementia due to Alzheimer's disease**."

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WHAT IS DEMENTIA?

- Dementia is a general term for a decline in mental ability severe enough to interfere with daily life.
- Dementia is not a specific disease. It's an overall term that describes a wide range of symptoms
- Symptoms of dementia can vary greatly
  - At least two of the following core mental functions must be significantly impaired to be considered dementia:
    - Memory*
    - Communication and language
    - Ability to focus and pay attention
    - Reasoning and judgment
    - Visual perception

Taken from http://www.alz.org/what-is-dementia.asp

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**
  - More common than originally thought: up to 50% of cases with Alzheimer's disease are actually mixed dementia

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

IS MILD COGNITIVE IMPAIRMENT DEMENTIA?

- "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
- Amnestic MCI: start to forget important information that would been remembered easily before
- Nonamnestic MCI: impairment in making sound decisions, visual perception

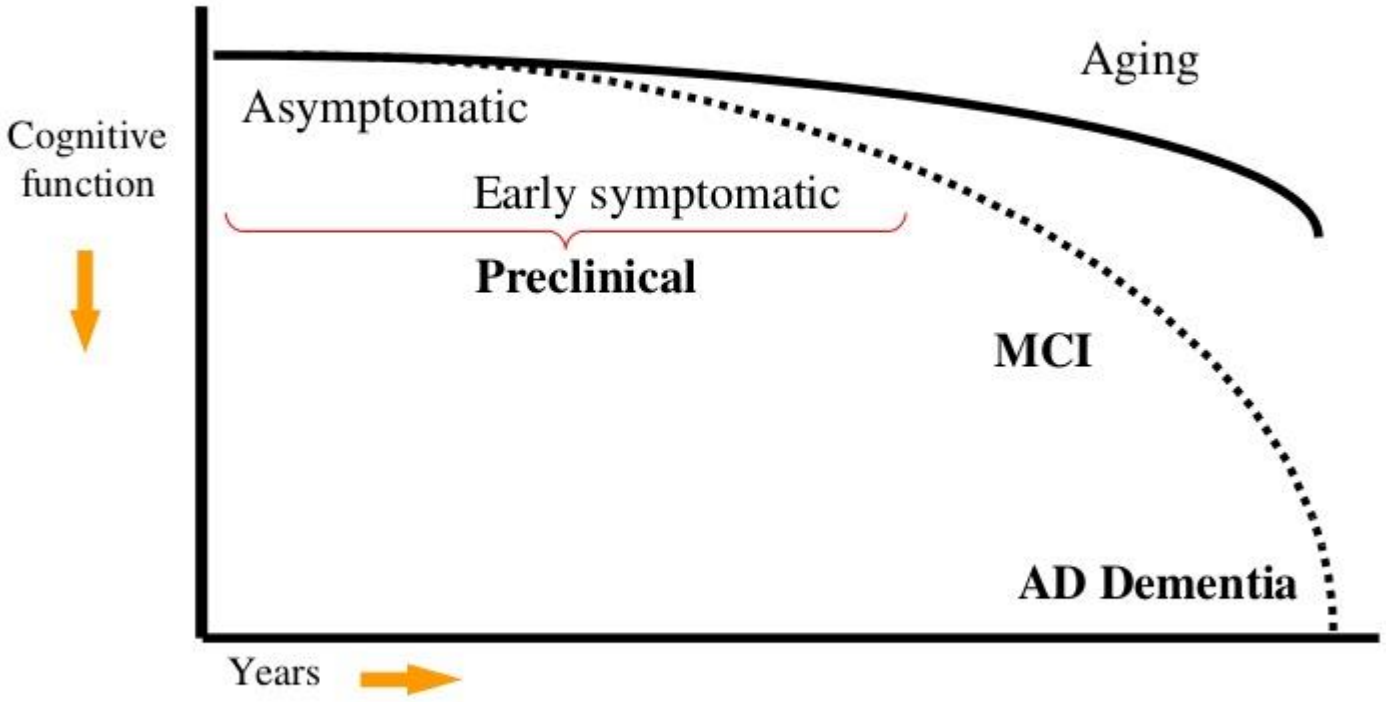
Taken from http://www.alz.org/dementia/mild-cognitive-impairment-mci.asp;

MILD COGNITIVE IMPAIRMENT DIAGNOSIS: 2011 NIA/AA UPDATE

- Like dementia, AD is the most common cause of MCI
- Concern regarding cognitive change, whether by the person, an informant, or clinician
- Impairment on 1 or more cognitive domains
- Preservation of independence in function

Mast & Yochim, 2018

The continuum of Alzheimer's disease



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

ALZHEIMER'S ASSOCIATION'S TEN WARNING SIGNS OF ALZHEIMER'S DISEASE

- Memory loss that disrupts daily life
  - *Problem:* Forgetting recently learned information
  - *Normal:* Occasionally forgetting names or appointments, but remembering them later
- Challenges in planning or solving problems
  - *Problem:* Trouble following a familiar recipe, taking much longer to complete familiar tasks
  - *Normal:* Making occasional errors when balancing a checkbook
- Difficulty completing familiar tasks
  - *Problem:* Trouble driving to a familiar location, remembering the rules of a favorite board game
  - *Normal:* Occasionally needing help with settings on an appliance

TEN WARNING SIGNS CONTINUED

- Confusion with time and place
  - *Problem:* Losing track of dates, forgetting where you are or how you got there, not understanding something unless it is happening immediately
  - *Normal:* Forgetting the day of the week but remembering it later
- Trouble understanding visual images or spatial relationships
  - *Problem:* Difficulty reading, pass a mirror and think someone else is in the room
  - *Normal:* Vision changes related to cataracts
- New problems with words when speaking or writing
  - *Problem:* Trouble following or joining conversations, have problems finding the right word to name something
  - *Normal:* Sometimes having trouble finding the right word

TEN WARNING SIGNS CONTINUED

- Misplacing things and losing the ability to retrace steps
  - *Problem:* Placing things in bizarre places, lose things and cannot retrace the steps to find them, accuse others of stealing
  - *Normal:* Misplacing things from time to time
- Decreased or poor judgment
  - *Problem:* Poor judgment dealing with money, falling for telemarket scams, poor grooming
  - *Normal:* Making a bad decision once in a while
- Withdrawal from work or social activities
  - *Problem:* May withdraw from hobbies or social activities
  - *Normal:* Sometimes feeling weary of work, family, or social obligations

TEN WARNING SIGNS CONTINUED

- Changes in mood or personality
  - *Problem:* Confusion, suspicion, fear, anxious; easily upset when outside of “comfort” zone
  - *Normal:* Developing very specific ways of doing things and become irritable when they are disrupted
- The push towards early detection

Taken from http://www.alz.org/alzheimers_disease_10_signs_of_alzheimers.asp

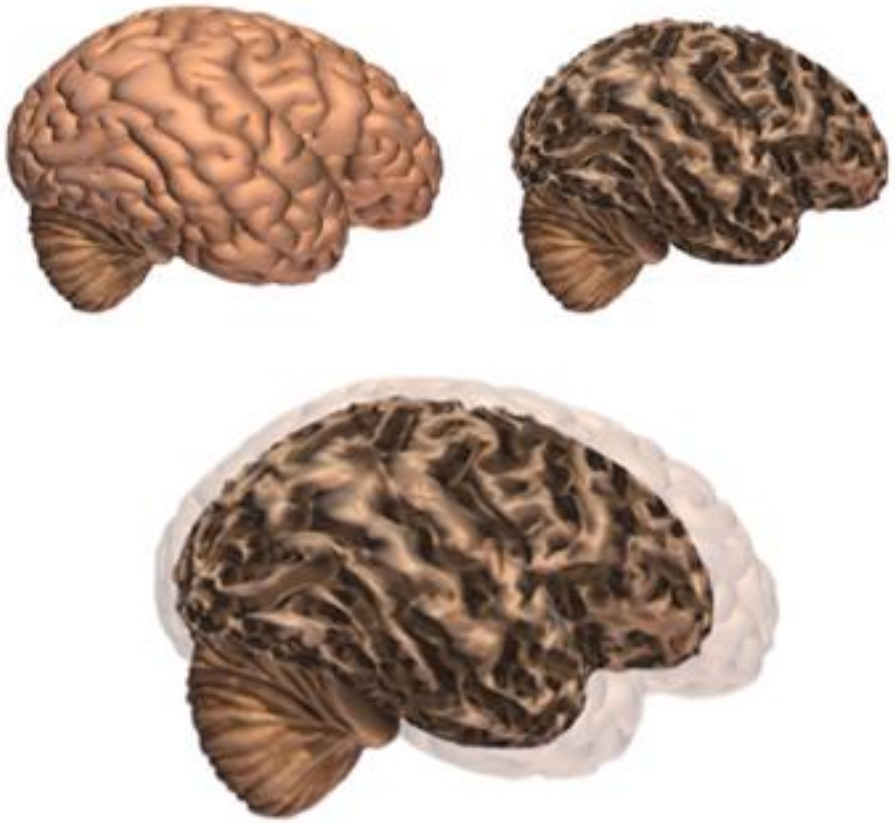
WHY IS EARLY DIAGNOSIS POTENTIALLY IMPORTANT?

- Access to treatment options
- Opportunity to participate in clinical trials
- Engage in lifestyle changes
- Emotional and social benefits
- Time to plan
- May save costs to you and society

Taken from https://www.alz.org/alzheimers-dementia/diagnosis/why-get-checked

VIDEO OF ALZHEIMER'S DISEASE

- Courtesy of the Alzheimer's Disease Education and Referral (ADEAR), National Institutes of Health (https://www.youtube.com/watch?v=NjgBnx1jVIU)



Taken from http://www.alz.org/braintour/alzheimers_changes.asp

DIAGNOSIS OF ALZHEIMER'S DISEASE

- No specific test
- Done to distinguish between other causes of dementia
- Find the right doctor
  - Consult the Alzheimer's Association
  - Referrals: neurologist, psychiatrist, neuropsychologist, geriatrician
- Questions to be prepared for
  - "What kind of symptoms have you noticed?"
  - ""When did they begin?"
  - "How often do they happen?"
  - "Have they gotten worse?"
- Dementia screening tests
  - The problem with internet/home screening tests

DIAGNOSIS OF ALZHEIMER'S DISEASE

- Physical exam and diagnostic tests
  - Diet, medication review, blood pressure, listen to heart and lungs
- Lab tests
  - Blood tests are done to rule out other problems, such as vitamin deficiencies or thyroid disorders
- Neuropsychological testing
  - Can take several hours, but can help detect Alzheimer's disease or similar disorders at earlier stages
  - Assessment of thinking and memory skills (e.g., MMSE, Mini-Cog are a few)
  - Computer-based tests are now validated as well: FDA approved
- Mood assessment
- Brain
  - Doctor can pinpoint visual abnormalities, such as clots, bleeding, or tumors, that can be causing dementia symptoms
  - MRI: uses radio waves and strong magnetic field to create detailed image of your brain
  - CT: X-ray images of your brain that create photographic "slices" of your brain
  - PET: You are injected with low level radioactive material, which binds to chemicals that go to the brain. This helps to show what parts of the brain are less active than others

DIAGNOSIS OF ALZHEIMER'S DISEASE

- Emerging approaches
  - Biomarkers: Measurement of proteins in the blood or spinal fluid
  - Promising, but not yet recommended as part of routine diagnostic procedures by the Alzheimer's Association

IMPORTANT TIPS TO KNOW ABOUT DIAGNOSIS

- Keeping a journal for your loved one
  - Changes that have occurred, for example, those documented in the journal
  - Signs of the disease beyond memory loss, such as behavior and mood changes
  - A list of all the medications and/or herbal remedies the person or you are taking
- Clinical trials
  - Alzheimer's Association's Trial Match: https://www.alz.org/alzheimers-dementia/research_progress/clinical-trials/about-clinical-trials
    - Email TrialMatch@alz.org or call 800.272.3900 (press 1 for clinical trials)

STAGES OF ALZHEIMER'S DISEASE (GLOBAL DETERIORIATION SCALE/FAST)

- Stage 1: No impairment (normal function)
- Stage 2: Very mild cognitive decline (may be normal age-related changes or earliest signs of Alzheimer's disease)
- Stage 3: Mild cognitive decline (early-stage Alzheimer's can be diagnosed in some, but not all, individuals with these symptoms)
- Stage 4: Moderate cognitive decline (Mild or early-stage Alzheimer's disease)
- Stage 5: Moderately severe cognitive decline (Moderate or mid-stage Alzheimer's disease)
- Stage 6: Severe cognitive decline (Moderately severe or mid-stage Alzheimer's disease)
- Stage 7: Very severe cognitive decline (Severe or late-stage Alzheimer's disease)

See Mast and Yochim, 2018

RISK FACTORS

- Head injury
- Advancing age
  - Likelihood doubles every 5 years after the age of 65; approximately 1/3 of individuals 85+ are at risk of having AD
- Family history
  - Those who have a parent, sibling, child with Alzheimer's are more likely to get Alzheimer's
- Genetics
  - Risk genes
    - APOE-e4 (the blueprint for proteins that carry cholesterol in the blood stream)
  - Deterministic genes
    - Amyloid precursor protein (APP), presenilin-1 (PS-1) and presenilin-2 (PS-2)
    - Familial AD: only in 5% of cases
  - Others

RISK FACTORS

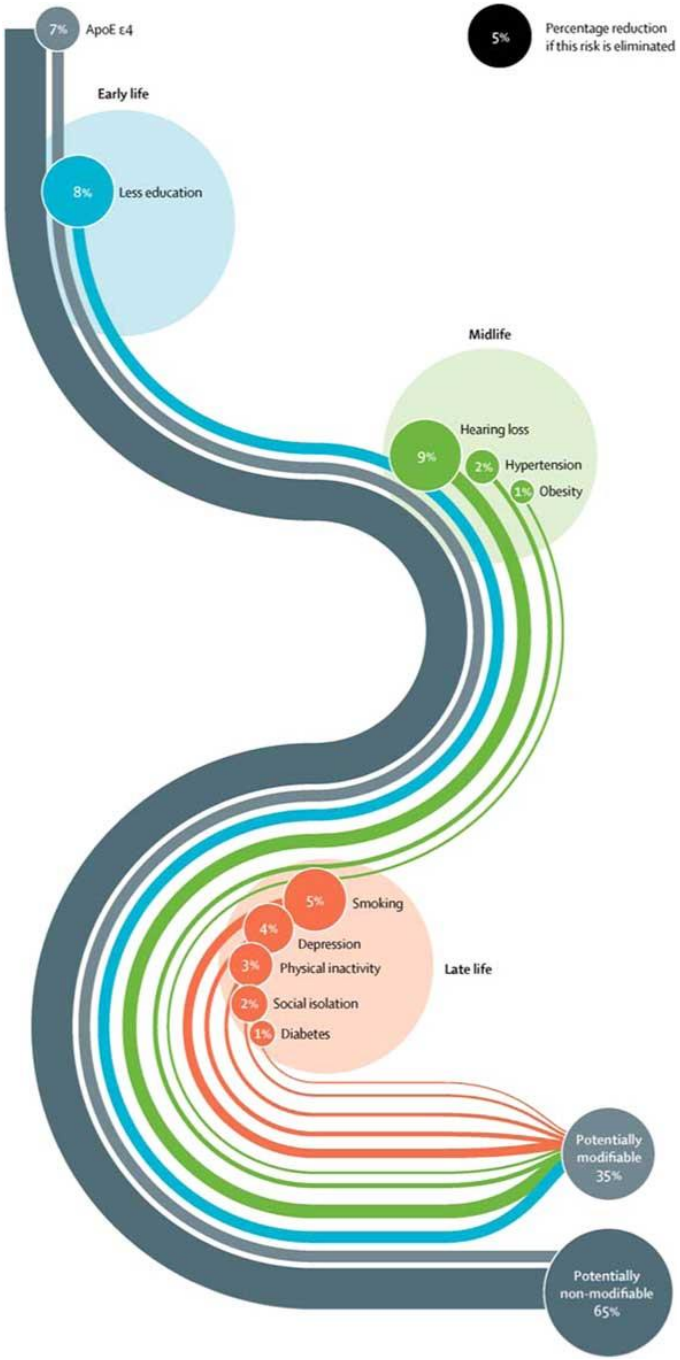
- Gender
  - Women are more likely to get AD than men, since women live longer
- Mild cognitive impairment
- Lifestyle
  - High blood pressure
  - High cholesterol
  - Poorly controlled diabetes
- Race/ethnicity
- Education
  - The more you use your brain, the more synapses you create?
  - Perhaps those with higher education are more likely to “hide” symptomatology
  - Education and its correlation with socioeconomic status

POSSIBLE "PREVENTION?"

- NIH 2010 State of the Science Conference: Preventing Alzheimer's Disease and Cognitive Decline (http://consensus.nih.gov/2010/alz.htm)
- "Currently, firm conclusions cannot be drawn about the association of any modifiable risk factor with cognitive decline or Alzheimer's disease. Highly reliable consensus-based diagnostic criteria for cognitive decline, mild cognitive impairment, and Alzheimer's disease are lacking, and available criteria have not been uniformly applied. Evidence is insufficient to support the use of pharmaceutical agents or dietary supplements to *prevent* cognitive decline or Alzheimer's disease."
- This includes nutritional supplements, herbal preparations, dietary factors, prescription or nonprescription drugs, social or economic factors, medical conditions, toxins, or environmental exposures
- The upshot: not spending large amounts of money on things that might not work

UPDATE: 2015 ALZHEIMER'S ASSSOCIATION FACTS AND FIGURES

- In 2015, the Alzheimer's Association evaluated the state of the evidence on the effects of modifiable risk factors.
- Conclusion: There is stronger evidence that "regular physical activity and management of cardiovascular risk factors (especially diabetes, obesity, smoking and hypertension) reduce the risk of cognitive decline and may reduce the risk of dementia."
- A healthy diet and lifelong learning/cognitive training may also reduce the risk of cognitive decline.
- These findings were largely confirmed by the Institute of Medicine in 2015.
  - Easy to read PowerPoint and Handouts: see https://www.nia.nih.gov/health/brain-health-resource



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TREATMENTS

- There is currently no cure for Alzheimer's disease
- The drugs below may slow symptoms for some period of time for those who take them
- Acetylcholinesterase inhibitors (ACEs)
  - Donepezil (Aricept); Galantamine (Rimanyl/Razadyne); Rivastigimine (Exelon)
  - Enhance levels of neurotransmitters in the brain
  - Don't work for everyone; up to half of the people who take these drugs show no improvement
  - There are side effects, including diarrhea, vomiting, and nausea
- Memantine (Nemenda)
  - First drug approved to treat those in moderate to severe stages
  - "Memantine protects brain cells from damage caused by the chemical messenger glutamate."
  - Sometimes used in combination with ACEs
  - Most common side effect is dizziness, although it may also increase agitation and delusions in some people

Taken from: http://www.alz.org/alzheimers_disease_standard_prescriptions.asp

Treatments-at-a-glance

Generic	Brand	Approved For	Side Effects
donepezil	Aricept	All stages	Nausea, vomiting, loss of appetite and increased frequency of bowel movements.
galantamine	Razadyne	Mild to moderate	Nausea, vomiting, loss of appetite and increased frequency of bowel movements.
memantine	Namenda	Moderate to severe	Headache, constipation, confusion and dizziness.
rivastigmine	Exelon	Mild to moderate	Nausea, vomiting, loss of appetite and increased frequency of bowel movements.
tacrine	Cognex	Mild to moderate	Possible liver damage, nausea, and vomiting.
vitamin E	Not applicable	Not approved	Can interact with antioxidants and medications prescribed to lower cholesterol or prevent blood clots; may slightly increase risk of death.

Taken from: https://www.alz.org/alzheimers-dementia/treatments/medications-for-memory

TREATMENTS FOR BEHAVIORAL SYMPTOMS

- Non-pharmacological approaches are recommended
  - Monitor personal comfort.
  - Avoid being confrontational or arguing about facts.
  - Redirect the person's attention.
  - Allow adequate rest between stimulating events.
  - 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

Taken from: https://www.alz.org/alzheimers-dementia/treatments/treatments-for-behavior

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

Taken from: https://www.alz.org/alzheimers-dementia/treatments/treatments-for-behavior

TREATMENTS OF THE FUTURE?

- Drugs that are in pre-testing phases are at least 4 years away from being available on the market, and must show safety for humans
- See http://en.wikipedia.org/wiki/Alzheimer%27s_disease_research for list of current clinical research efforts
- Also see http://www.clinicaltrials.gov/ct2/results?term=alzheimer for list of National Institute of Health clinical trials

LIVING WITH ALZHEIMER'S DISEASE: FACTS AND FIGURES UPDATE

- 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;"
  - Coordination of care among care providers; physicians;
  - Participation in activities and adult day/respite programs;
  - Engaging in supportive services such as support groups.

MYTHS OF ALZHEIMER'S DISEASE[3]

- "Memory loss is a natural part of aging"
- "Alzheimer's disease is not fatal"
- "Only older people can get AD"
- "Drinking out of aluminum cans or cooking in aluminum pots and pans can lead to Alzheimer's disease"
- "Aspartame causes memory loss"
- "Flu shots increase the risk of Alzheimer's disease"
- "Silver dental fillings increase the risk of Alzheimer's disease"
- "There are treatments available to stop the progression of Alzheimer's disease"

Taken from: http://www.alz.org/alzheimers_disease_myths_about_alzheimers.asp

STATISTICS ON ALZHEIMER'S DISEASE

- More than 5 million people are living with Alzheimer's
- Alzheimer's and dementia triples healthcare costs when compared to spending on other conditions
- Alzheimer's is the sixth leading cause of death in the U.S.
- Approximately every minute, someone develops Alzheimer's disease
- The effects of Alzheimer's disease on family caregivers (over 16 million caregivers, at a value of over $232 billion dollars)

Taken from: http://www.alz.org/alzheimers_disease_facts_and_figures.asp

FUTURE AREAS FOR BREAKTHROUGH

- Early diagnostic techniques: Prevention?
- Personalization of treatments: pharmacological and non-pharmacological with the use of “big data”
- The effects of technological aids
- Growing recognition of Alzheimer’s disease as **the** driving chronic disease among older adults: Need to screen, need to manage, will save costs for healthcare systems
- Caregiving intervention as patient intervention

RESIDENTIAL CARE TRANSITION MODULE

- We are evaluating a psychosocial support program for family members of relatives with memory loss who live in residential long-term care (e.g., nursing home assisted living)
- Trained study counselors provide 6 telephone or web-conference counseling sessions over a 4-month period to family members
- Counselors then provide telephone/web-based support on an ongoing basis as needed for another 8 months
- Family members are asked to complete online or mail surveys initially, at 4 months, at 8 months, and 12 months
- Free to participate
- If you are interested in hearing more, please check “The Residential Care Transition Module” and complete your contact information on the form

CARING FOR A PERSON 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)
- Approximately 200-330 attendees
- Free food!
- Hands-on, relevant talks on issues ranging from stress reduction strategies to financial planning
- Free CEUs
- Virtual library of presentations, resources, and other info
- See http://z.umn.edu/memoryloss for more information
- If you are interested in hearing more, please check “The Caring for a Person with Memory Loss Conference” and complete your contact information on the form


Medicines That May Complicate Thinking
Common medication problems seen in patients with memory loss:
Increased sensitivity to side effects
Difficulty adhering to drug regimens
Decreased ability to recognize and report adverse events
Clinical Practice Guidelines rigidly adhered to
Ex. blood pressure; blood sugars


Global
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THE LUTHERAN HOME ASSOCIATION

QUESTIONS?

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