

# Diagnosis and Management of Alzheimer's Disease

6/15/2023

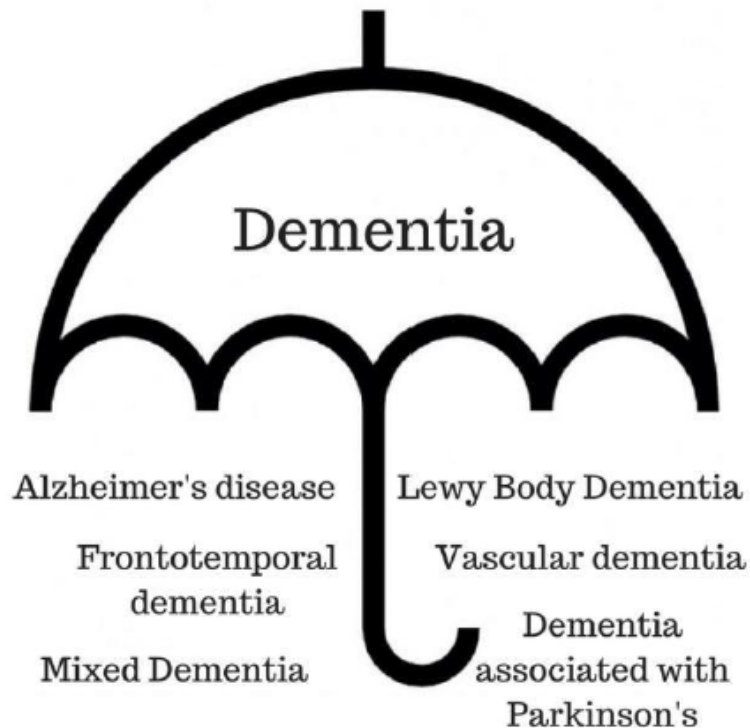
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# WHAT IS DEMENTIA?



# What is Dementia?



- Dementia is not a disease but an umbrella term used to describe memory changes seen in multiple diseases
- A decline in cognition involving one or more areas of memory
  - learning/memory, language, attention, visuospatial, etc.
- Memory change must be a decline from a previous level of function
- It must be severe enough to impact daily living and independence

# What is Dementia?

## Primary Dementia

### Alzheimer Dementia

- Most common type- “classic”
- Most prominent feature: loss of short term memory/recall

### Vascular Dementia

- Associated with damages done to the brain from decreased blood flow.
- Seen with high blood pressure, high cholesterol, diabetes, etc.

### Lewy Body Dementia

- Memory loss associated with psychiatric and motor changes
- Patients commonly have instability and hallucinations

### Frontotemporal Dementia

- Language and behavior subtypes



# What is Dementia?

## Secondary Dementia

### Memory loss as a result of another physical disease or injury

- **Parkinson's Disease**
- **Multiple Sclerosis**
- **Normal Pressure Hydrocephalus**
- **Traumatic Brain Injuries**
- **Anoxic Brain Injuries**
- **Brain Tumors**
- **Chronic Alcohol Use**
- **Hormone Deficiencies**
- **Vitamin Deficiencies or metabolic disorders**

# What is Dementia?

## Mild Cognitive Impairment

### WHAT IS THE DIFFERENCE ?



- Memory Changes that exceeds normal age related changes
- Have not yet impacted daily activities
- Have not yet affected independence
- Does not always progress to dementia
- Symptoms may stay stable for many years
- 10-15% per year progress to dementia (compared to 3-6% of healthy individuals)

# What is Dementia?

## Dementia Mimics



- Polypharmacy
  - side effects related to the use of multiple medications in old age
- Poor Sleep
- Hearing Loss
- Illness/Infections
- Depression

# DIAGNOSIS


## Signs and Symptoms

1. Memory loss that disrupts daily life
2. Challenges in planning or solving problems
3. Difficulty completing 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 in 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 or personality



## What to Expect

### Mini-Mental State Examination (MMSE)

Questions	Maximum Score	Patient's Score
1. "What year is this?" "What is the current season?" "What month is this?" "What is the date today?" "What day of the week is it?" (Score 1 point for each correct answer.)	5	3
2. "Which country are we in right now?" "What state/province are we in?" "What city or town are we in?" "What city or town are we in?" "What's the street address of your home / What's the name of this building?" "On which floor are we located / In which room are we currently located?" (Score 1 point for each correct answer.)	5	4
3. "I'm going to name three words/objects and you need to repeat them. Then remember them because I'm going to ask you to name them again later." (EX: BALL - CAR - MAN / APPLE - PENNY - TABLE)	3	2
4. "Spell WORLD backwards" Answer: D-L-R-O-D-W	3	4
5. "Now, name the three objects/words I asked you to remember." (Give one point for each.)	3	3
6. "What object is this?" Show a wrist watch.	1	1
7. "What object is this?" Show a pencil.	1	0
8. "Repeat this phrase: No ifs, ands, or buts."	1	1
9. "Read the words and then do what it says." (Give the patient/client a sheet of paper with <b>CLOSE YOUR EYES</b> written on it.)	1	1
10. "Take the paper in your right/left hand, fold it in half, and put it on the floor." (Give the patient/client a piece of paper and score 1 for each action taken.)	3	3
11. "Make up and write a complete sentence on a piece paper." (Sentence must contain a verb and noun.)	1	1
12. "Copy this design, please."	1	1
		
<b>TOTAL:</b>	<b>38</b>	<b>24</b>

#### INTERPRETATION OF RESULTS

SCORE	DESCRIPTION	STAGE
30 - 28	normal	could be normal
25 - 26	mild	early
19 - 18	moderate	middle
9 - 8	severe	late

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state": A practical method for grading the clinician. *Journal of Psychiatric Research*, 12(1), 129-138.

<https://carepatron.com>

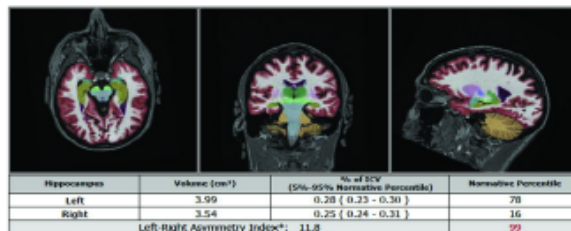
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- > Patients visiting a doctor for memory loss concerns should always have an informant join them to offer additional perspectives or information
- > Dementia and its subtypes are a clinical diagnosis
  - The diagnosis is made off signs and symptoms
  - Additional testing can be done if diagnosis is uncertain after initial evaluations
- > Questions regarding symptoms/day to day life
- > Review of medical history and medications
- > Screening for dementia mimics
- > Brief Memory testing, if needed

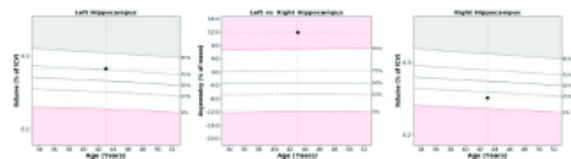
## Additional Testing

### Blood Work

- To assess for reversible causes of memory changes
- Includes, but not limited to:
  - basic electrolytes and blood counts
  - vitamin deficiencies
  - hormone studies
  - infectious processes



AGE-MATCHED REFERENCE CHARTS



### Imaging

- **MRI Brain**
  - Volumetric testing to evaluate for patterns of volume loss/degeneration. Especially hippocampal volume
  - Evaluate for other changes in the brain that could mimic memory loss
- **PET Scan**
  - Most Common: PDG-PET
  - CT Scan
  - Views how glucose is being used in the brain to see if there are areas that are less active.

## Specialized Testing

### Genetic Testing

- Most dementia is not inherited, even when there is a family history
- Different types of dementias are associated with different genes
- Genetic testing is not required for diagnosis
- Genetic testing is not routinely done
- Used if patient had early onset symptoms or when diagnosis remains unclear after extensive workup
- Depending on the concern, it is often recommended to seek genetic counseling for gene testing

### Biomarkers

- A measurable substance that can indicate presence of a disease
- Most common: Amyloid and tau-proteins
- Currently most useful for diagnosis of Alzheimer Dementia
- Can be measured on imaging studies, in blood, or in CSF
  - no FDA approved blood tests
  - a few approved CSF tests
- Also not required for diagnosis or routinely used



# Alzheimer's Disease Management

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1. Lifestyle changes
2. Medical therapy
3. Safety
4. Advanced care planning
5. Caregiving



# Lifestyle changes

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# Lifestyle changes

- Mediterranean style diet
- Exercise 4-5 days per week, 30 minutes at a time
- No smoking, limit alcohol
- Follow with primary care closely to monitor conditions like hypertension, diabetes, and high cholesterol
- Increase social interaction



# Medical Therapy

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# Medical Therapy

## *Acetylcholinesterase inhibitors*

- Medications that increase acetylcholine levels
  - Donepezil (Aricept)
  - Rivastigmine (Exelon)
  - Galantamine (Razadyne)
- These medications provide modest benefit
- Do not reverse or stop progression of Alzheimer's disease, but can help slow the progression
- Side effects: upset stomach

# Medical Therapy

## *NMDA receptor antagonist*

- Medication that block excessive excitation of neurons – thought to be neuroprotective
  - Memantine (Namenda)
- This medication has modest benefit in those with more moderate to severe Alzheimer's disease
- Does not reverse or stop progression of Alzheimer's disease, but can help slow the progression
- Side effects: uncommon - confusion, dizziness, and headache

# Medical Therapy

*Monoclonal antibodies – very new, not yet commercially available in the Puget Sound Region*

- Medications that bind to beta-amyloid protein (plaque)
  - Adacantumab (Aduhelm)
  - Lecanemab (Leqembi)
  - Donanemab
- Recommended to confirm that there is beta amyloid present in the brain prior to initiating treatment – this is done either with lumbar puncture (spinal tap) or by amyloid PET scan (many times not covered by insurance, and can cost upwards of \$3,000)

# Medical Therapy

## *Monoclonal antibodies*

- Effectiveness:
  - Aducanumab: no or very little clinically relevant change in the Clinical Dementia Rating (score that incorporates level of assistance/help with day-to-day activities and memory function)
  - Lecanumab: half point difference in the Clinical Dementia Rating score compared to placebo after 18 months
  - Donanemab: still in the works, more data to come out this summer. Preliminary results suggest reduction in change in Clinical Dementia Rating scores compared to placebo



# Medical Therapy

## *Monoclonal antibodies - Cons*

- Unclear whether benefit as measured in the trials translate into meaningful clinical benefit in real life
- Increased risk of brain swelling and microhemorrhage (bleeding) with headache, confusion, dizziness, and nausea as side effects in 20-40%
- Requires frequent surveillance with brain MRIs, appropriate infrastructure to provide this degree of surveillance as well as increased initial diagnostic testing (lumbar puncture, PET scan facilities etc)
- Cost: estimated around \$75,000/year in consideration of the infusions themselves and surveillance monitoring studies, insurance coverage to be determined. One estimate has suggested lecanemab/ancillary services may cost Medicare up to an additional \$5 billion/year
- Treatment endpoint...? Trials usually measured endpoints at 76-78 weeks
- A recent analysis of 2,870,023 Medicare beneficiaries with symptomatic AD and related disorders identified that 91% of patients diagnosed with AD dementia and 86% of patients with MCI met at least 1 exclusion criterion for the aducanumab trials (e.g., cardiovascular disease, anticoagulation, chronic kidney disease, age >85 years)



# Safety

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## HOME SAFETY CHECKLIST

Individuals living with Alzheimer's disease and other dementias are at increased risk for injury or harm in certain areas of the home. As the disease progresses, they may become unaware of the dangers that exist. Consider taking the following precautions to create a safe environment, which may prevent dangerous situations from occurring and help maximize the person's independence for as long as possible.



### General Home Safety Tips

- Store potentially hazardous items, such as medication, alcohol, matches, sharp objects or small appliances and tools, in a securely locked cabinet.
- Keep all cleaning products, such as liquid laundry pacs and bleach, out of sight or secured to avoid possible ingestion of harmful chemicals.
- Keep the number for the local poison control center handy or saved in your phone in case of emergency.
- Make sure carbon monoxide and smoke detectors and fire extinguishers are available and inspected regularly. Replace batteries twice a year during daylight saving time.
- Remove tripping hazards, such as throw rugs, extension cords and excessive clutter.
- Keep walkways and rooms well lit.
- Secure large furniture, such as book shelves, cabinets or large TVs, to prevent tipping.
- Ensure chairs have arm rests to provide support when going from a sitting to standing position.
- Apply stickers to glass doors at eye level to ensure doors are visible.
- Install a latch or deadbolt either above or below eye level on all doors.
- Remove locks on interior doors to prevent the person living with dementia from locking themselves in.
- Consider removing firearms from the home or storing them in a locked cabinet.
- For more information, contact the **Alzheimer's Association 24/7 Helpline (800.272.3900)**.



## Kitchen

- Use appliances that have an auto shut-off feature.
- Prevent unsafe stove usage by applying stove knob covers, removing knobs or turning off the gas when the stove is not in use.
- Disconnect the garbage disposal.
- Mark food with purchase date; regularly check for and throw away expired items.
- Discard toxic plants and decorative fruits that may be mistaken for real food.
- Remove vitamins, prescription drugs, sugar substitutes and seasonings from the kitchen table and counters.



## Laundry Room

- Clean out lint screens and dryer ducts regularly to prevent fires.
- Consider installing safety locks on washing machines and dryers to prevent inappropriate items being put in or taken out too early.
- Install locks on laundry chutes to avoid temptation to climb into or drop inappropriate items down the chute.
- Keep all cleaning products — such as liquid laundry pacs and bleach — out of sight, secured and in the original (not decorative) storage containers to discourage someone from eating or touching harmful chemicals.



## Bathroom

- Install grab bars for the shower, tub and toilet to provide additional support.
- Set the water temperature at 120 degrees Fahrenheit or less to prevent scalding.
- Apply textured stickers to slippery surfaces to prevent falls.



## Bedroom

- Closely monitor the use of an electric blanket, heater or heating pad to prevent burns or other injuries.
- Provide seating near the bed to help with dressing.
- Ensure closet shelves are at an accessible height so that items are easy to reach, which may prevent the person from climbing shelves or objects falling from overhead.



## Garage and Basement

- Limit access to large equipment, such as lawn mowers, weed trimmers or snow blowers.
- Keep poisonous chemicals, such as gasoline or paint thinner, out of reach.
- Lock and properly store ladders when not in use to prevent a tripping or climbing hazard.
- Remove access to car keys if the individual living with dementia is no longer driving.
- Install a motion sensor on the garage door.
- Mark stairs with bright tape and ensure railings are sturdy and secure to prevent tripping or falls.



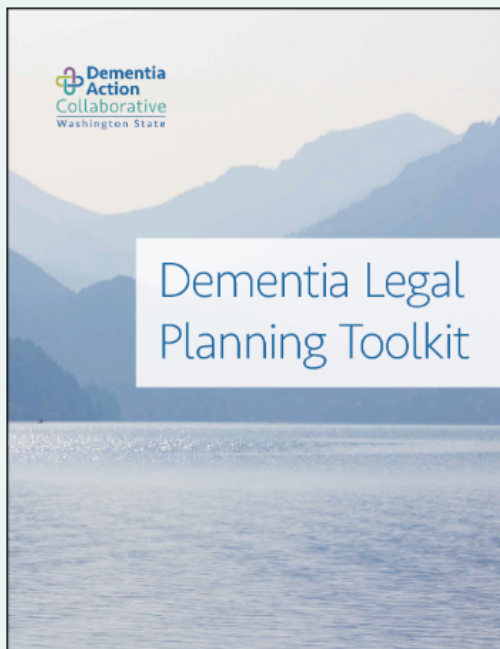
# Advanced Care Planning

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# Advanced Care Planning

*Dementia Action Collaborative – [www.memorylossinfoWA.org](http://www.memorylossinfoWA.org)*

## Legal Planning



People with memory concerns, Alzheimer's or other types of dementia and their loved ones often have questions about planning for their future. The Dementia Legal Planning Toolkit can help you make important financial and health care decisions and give you the legal forms you need. [Click here to download the Dementia Legal Planning Toolkit and related resources.](#)

The Alzheimer's Association also offers legal planning information and resources for people who have been diagnosed with dementia [here](#) and for caregivers [here](#).

### ***Other Legal Resources:***

- **Washington Wills**: A do-it-yourself legal information resource to help you draft your own simple will and other basic estate plan documents.
- **Power of Attorney Forms**: Information and forms to help you designate a Durable Power of Attorney. Available in several languages.
- **Health Care Directive (Living Will)**: Information and forms for you to state what kind of medical treatments you do or do not wish to have if you are terminally ill or become permanently unconscious.
- **Questions and Answers on Guardianship**: General information about how and when a guardian should be appointed.

### ***Financial Planning***

Stress and fear often delay financial planning when Alzheimer's or other dementia is diagnosed. You can reduce stress by **planning ahead**.

Putting financial plans in place now allows the person with dementia to express wishes for future care and decisions. It also gives you time to work through the issues involved in long-term care.





# Caregiving

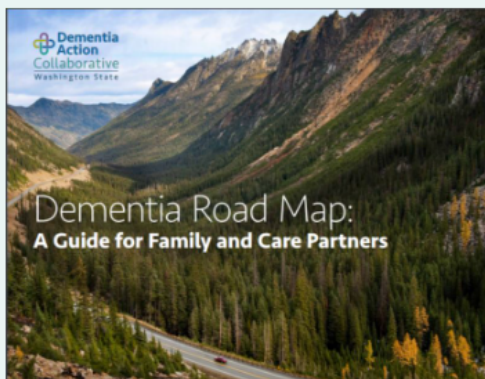
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# Advanced Care Planning

## *Dementia Action Collaborative – [www.memorylossinfoWA.org](http://www.memorylossinfoWA.org)*

### What to Expect

**Tips for Family and Care Partners:** Debbie, Juanita and Les, care partners of loved ones with dementia, share challenges and strategies to help their loved one and themselves.



**The Dementia Road Map: A Guide for Family and Care Partners** offers guidance about what to do when a person experiences changes in memory and thinking, and offers information and tips about what to expect and steps to take if someone in your family has been diagnosed with Alzheimer's or other dementia. Read it online in [English](#) or [Spanish](#). [Click here](#) for instructions on how to order paper copies in either language.

### You Are Not Alone

- [Support groups](#) provide emotional and practical support to caregivers, family members and friends whose loved one has Alzheimer's. Several organizations also provide support groups for people experiencing early stage memory loss.
- Visit the [Alzheimer's Association Caregiver Center](#).
- The [U.S. Department of Veterans Affairs](#) provides local services for veterans with Alzheimer's and

their families.

- [Alzheimer's Disease & Down Syndrome: A Practical Guidebook for Caregivers](#)
- Learn about Washington's [Family Caregiver Support Program](#), which has staff in offices across the state who can provide information, advice and connection to local services to meet your needs. Services are free or low cost.
- [Support for Family Caregivers](#)

### Behavioral Tips

As Alzheimer's and other dementias progress, behaviors change. [Learn about behaviors such as anger, anxiety, depression, sleep issues and more.](#)

### Communication Tips

When people have Alzheimer's disease or another dementia, their ability to communicate gradually declines. Communicating requires patience, understanding and good listening skills. [Learn communication tips for different stages of the disease](#) or [download a brochure](#).



# Questions

- What can we do to prevent dementia?
  - Lifestyle changes (diet, exercise, avoiding tobacco/excess alcohol), closely managing vascular risk factors (hypertension, diabetes, high cholesterol)
- What specific recommendations do you have for Alzheimer's prevention for someone who has 1 APOE4 variant?
  - Whether 1 or 2 copies, we cannot predict whether or not you will develop Alzheimer's disease. You may have a slightly increased risk of eventually developing Alzheimer's, but again this is not a guarantee. We recommend lifestyle changes regardless if you have the APOE4 gene.
- How and when should you have a diagnosis?
  - See your primary care provider or neurologist when you notice signs of memory difficulties, identifying earlier in the course of the disease can give us time to start medications to slow progression and prepare in advance for progression.
- Do you change your routine or activities?
  - Staying physically active is important. Depending on the stage of Alzheimer's, some may need to make accommodations to routines (alternatives to driving, getting help for day to day activities). Establishing a routine can be helpful to prevent episodes of confusion.
- What treatments are available if someone is diagnosed with Alzheimer's, and it's in early stages?
  - Medications to slow progression as detailed previously, as well as lifestyle changes
- How do we recognize dementia, especially in people we don't see every day?
  - Watch for change in memory or change in personality, be sure to ask about whether having any difficulties with tasks at home (managing medications independently etc).