

Diseases Causing Dementia, Masquerading Conditions and Red Flags



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Presentation Objectives

At the conclusion of this presentation, the participant will provide better patient care through an increased ability to:

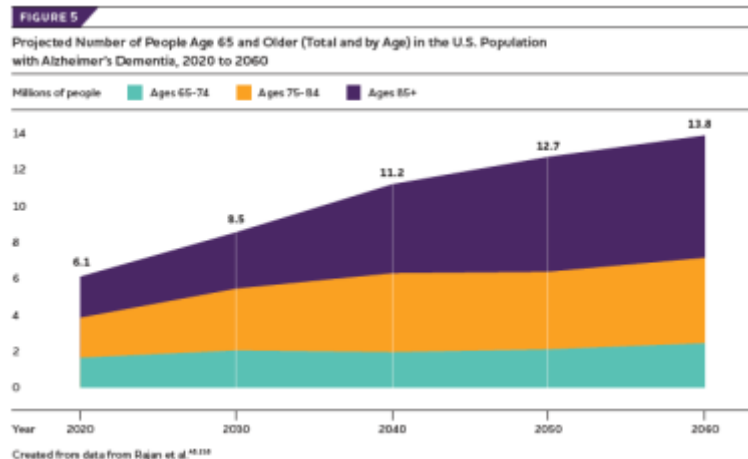
- Recognize sensory, medical, and psychiatric conditions that may impact cognition
- Describe objective measures for conditions associated with cognitive impairment and dementia (i.e., depression, sleep apnea, alcohol)
- Identify and detect the most common causes for dementia

2021 US Facts and Figures

- 6,200,000 Americans with Alzheimer's
- 5,000,000 with MCI
 - 50% due to AD
- 15,000,000 with SCI

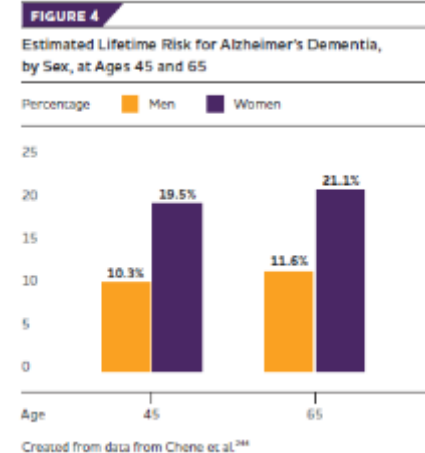
- 11.3% general risk after age 65
 - 65-74 = 5.3%
 - 75-84 = 13.8%
 - 82+ = 34.6%

- 45% with a diagnosis
 - <50% disclosed
 - <50% of providers with standard protocols



Differential Risk Factors

- Significant gender disparities
 - ~66% of PlwD are women
 - 1 in 5 for women, 1 in 10 for men
 - Biological?
 - Survival bias?
 - APOE-4 and estrogen?
 - Education, occupation and health behaviors?



- Significant racial and ethnic disparities
 - 2:1 for older Blacks
 - 1.5:1 for older Hispanics
 - ?:1 for American Indian/Alaska Natives
 - Issues of “ethnic gloss”
 - Importance of comorbid conditions, socioeconomic, health care literacy, access, adversity, discrimination, poverty, stress, structural and institutional racism

TABLE 3
Percentage of African Americans and European Americans with Specified APOE Pairs

| APOE Pair | African Americans* | European Americans* |
|-----------|--------------------|---------------------|
| e3/e3 | 45.2 | 63.4 |
| e3/e4 | 28.6 | 21.4 |
| e3/e2 | 15.1 | 10.2 |
| e2/e4 | 5.7 | 2.4 |
| e4/e4 | 4.5 | 2.4 |
| e2/e2 | 0.7 | 0.2 |

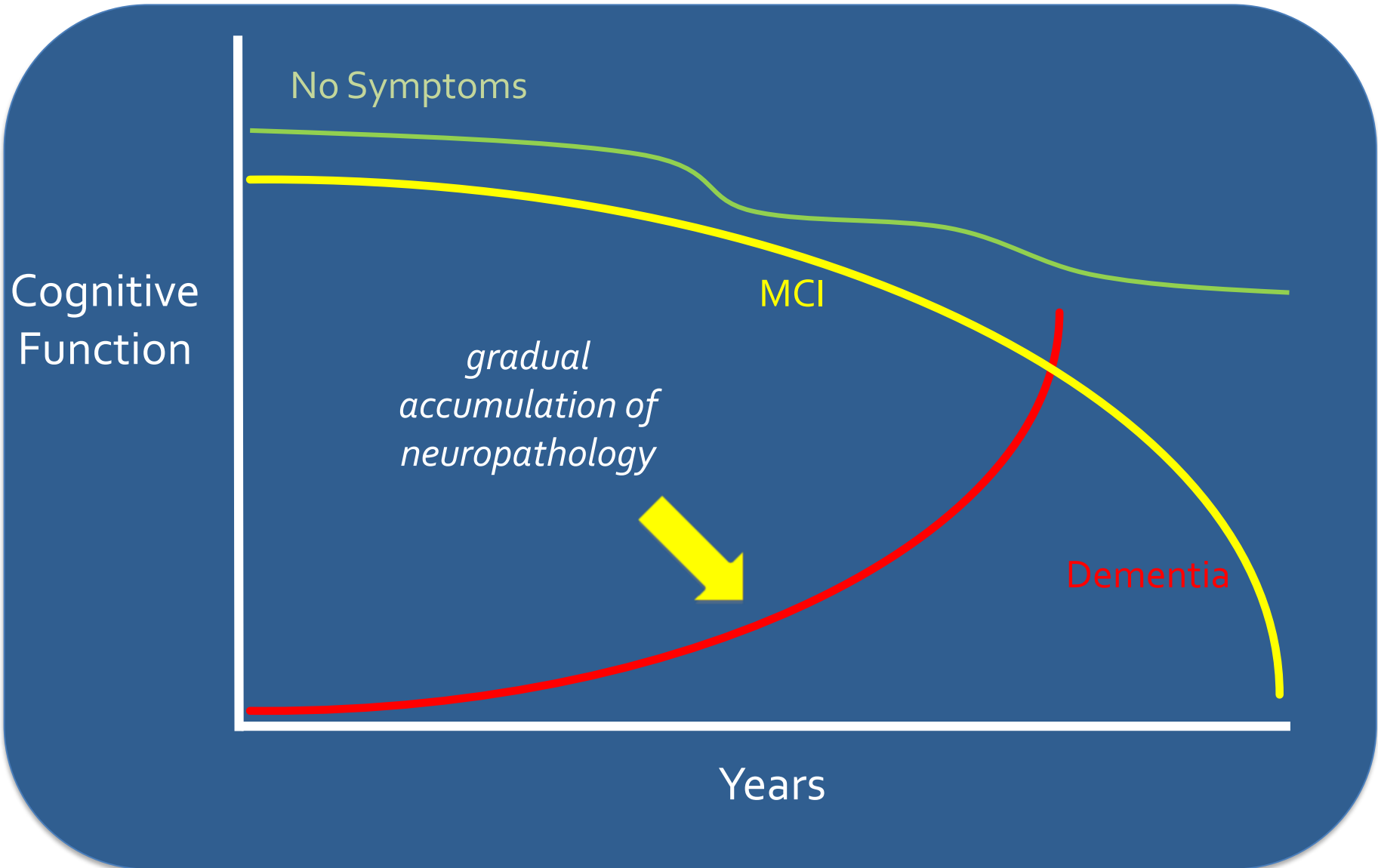
Alzheimer's in Washington State



- 120,000 cases in WA
 - 16.7% increase by 2025
- 3rd leading cause of death
 - 8th highest rate in the US
 - Mortality rate= 47.1
 - 16% increase during COVID-19
- Who provides care?
 - 295,000 unpaid caregivers
 - 132 geriatricians (399 needed to serve 10% of those 65+)
 - 426,000,000 hours = \$9.6 billion
 - \$250 million in additional health care costs



What's Normal, What's Not?



Masquerading Conditions/Rule Outs

- Hearing and vision loss
 - Assess, have a Pocket Talker and readers available
- Metabolic
 - CBC, CMP, B12 (maybe MMA), thyroid, vit. D
- Medication side effects/Polypharmacy
 - Anticholinergics (esp. OTC- diphenhydramine and doxylamine)
 - Narcotics/Opiates
 - Benzos, antidepressants, sleep medications
 - Resource- Beers Criteria (GSA, 2019)
 - Resource- Appropriate Prescribing, Trang Le, PharmD
 - Part 1 - <https://youtu.be/5WXVenbmBeU>
 - Part 2 - <https://youtu.be/E1h5jOWdX30>
- Delirium
 - UTI/infection
 - Organ failure
 - Sodium/potassium/electrolytes
 - Medications

Masquerading Conditions/Rule Outs

- Sleep disorders (OSA, RBD, PLMD)
 - STOP-BANG
 - Epworth Sleepiness Scale
- Alcohol, marijuana, other drugs
 - AUDIT
- Depression (i.e., pseudodementia)/Anxiety
 - PHQ-2/PHQ-9, GAD-7; GDS-15, GAI-SF
- Other medical conditions
 - Normal Pressure Hydrocephalus
 - Seizure disorders

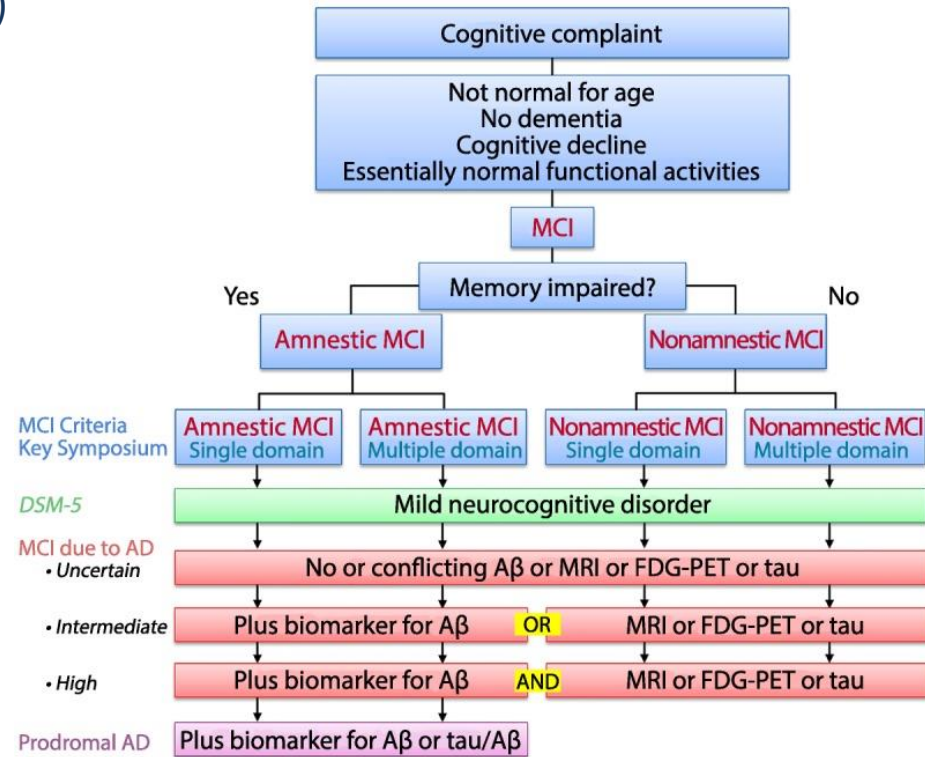
Dementia, Delirium & Depression

| Features | Dementia | Delirium | Depression |
|-------------------------------------|--------------------------|--------------------------|--------------|
| Memory problems | Yes (storage and recall) | Yes (storage and recall) | Yes (recall) |
| Onset | Gradual | Acute | Gradual |
| Mood disturbance | Possible | Possible | Yes |
| Disorientation | Possible | Yes | No |
| Sleep disturbance | Possible | Yes | Yes |
| Fluctuating symptoms throughout day | Yes | Yes | No |
| Progression | Gradual | Fast | Either |
| Somatic complaints | Possible | No | Yes |
| Apathy or anhedonia | Yes | Yes | Possible |

Adapted from Downing et al., 2013.

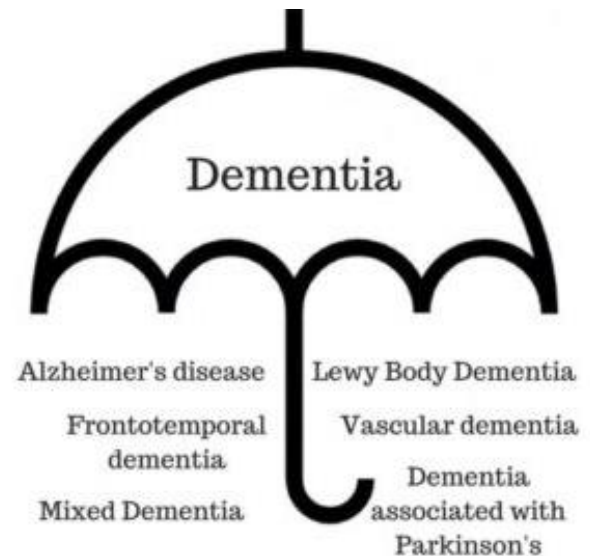
Mild Cognitive Impairment

- Memory or cognitive complaints/impairment
 - ~1.5+ SD difference (norm vs. premorbid)
- Otherwise intact function
- Not all MCI progresses to dementia
 - ~10% revert to normal aging
- aMCI ~10% /year convert to AD
- Multiple Domain MCI
 - Alzheimer’s disease
 - Vascular Dementia/Mixed (VCI)
 - Normal aging
- Single non-memory domain MCI
 - Frontotemporal Dementia
 - Lewy Body Dementia
 - Alzheimer's Dementia



Dementia

- Acquired, significant decline in at least one cognitive domain
 - Subjective appraisal or observation
 - Objective findings
- Impairments impact function and independence
- Not due to other conditions
 - Medical problems
 - Delirium
 - Psychosis
 - Substances



Dementia: Common Etiologies

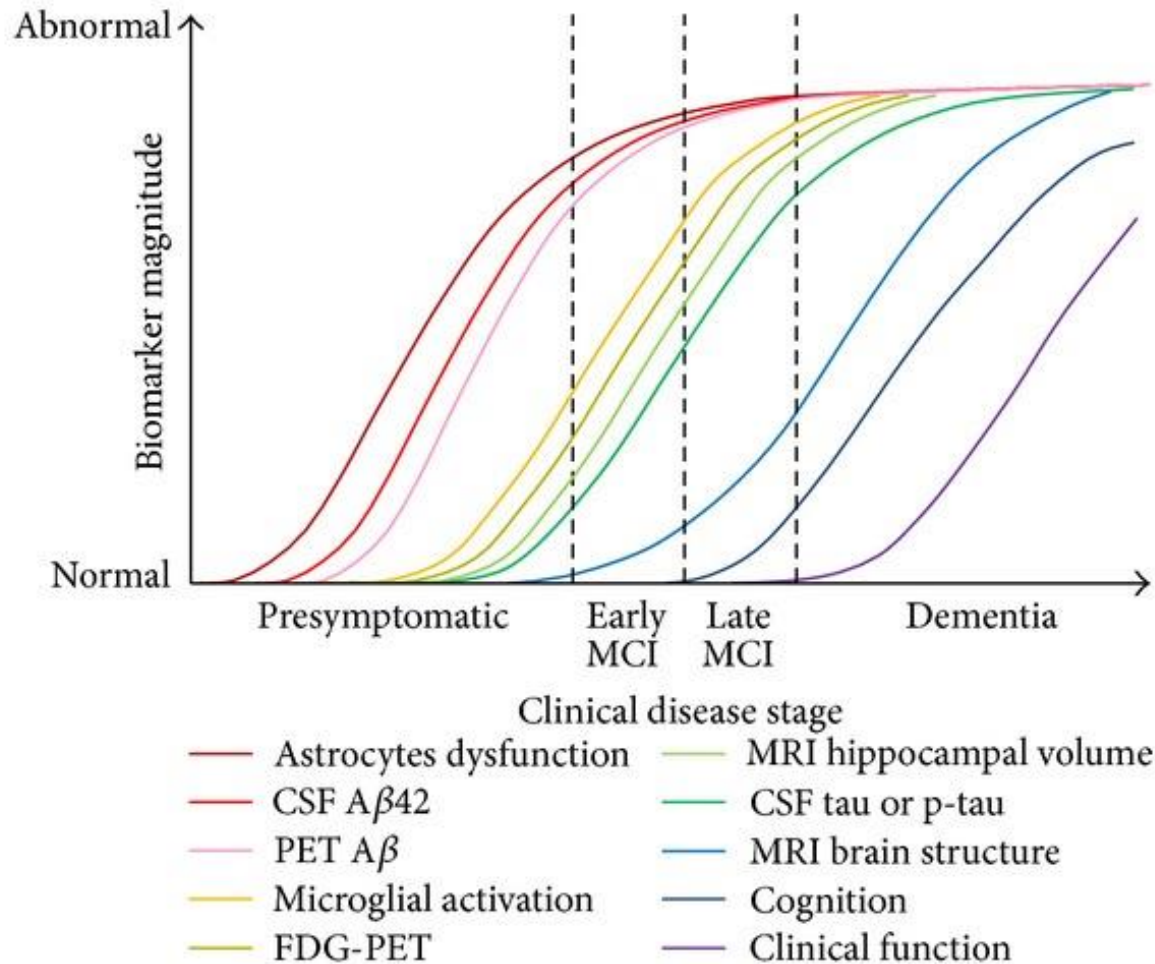
| | Alzheimer's Disease | Vascular Dementia | Dementia with Lewy bodies | Frontotemporal Dementia |
|--------------------|---|---|--|---|
| Prevalence | 60–80% | 15-30% | 12-20% | 10-15% |
| Early Symptoms | Memory loss Executive dysfunction Aphasia Apraxia Apathy/Depression Poor insight | Slow processing speed Poor attention Less memory impairment Poor acquisition/learning Apathy/Depression | Visual hallucinations Muscle rigidity Parkinsonism Tremors Fluctuating cognition Visuospatial problems Memory loss | Behavioral issues Personality change Attention problems Executive dysfunction Language problems |
| Cortical Changes | Temporal (medial) Parietal Frontal | Cortical Subcortical Lesion-specific | Parietal/Occipital Frontal Temporal | Frontal Temporal (anterior) |
| Course | Progressive, gradual | Progressive, gradual or stepwise | Progressive, fluctuations | Progressive, rapid |
| Associated Factors | Beta-amyloid (plaques) Tau (tangles) | Microvascular ischemic Hemorrhagic infarct Ischemic infarct Hypoperfusion | Alpha-synuclein (Lewy bodies) | Tau TDP-43 |

Dementia: Deeper Dives

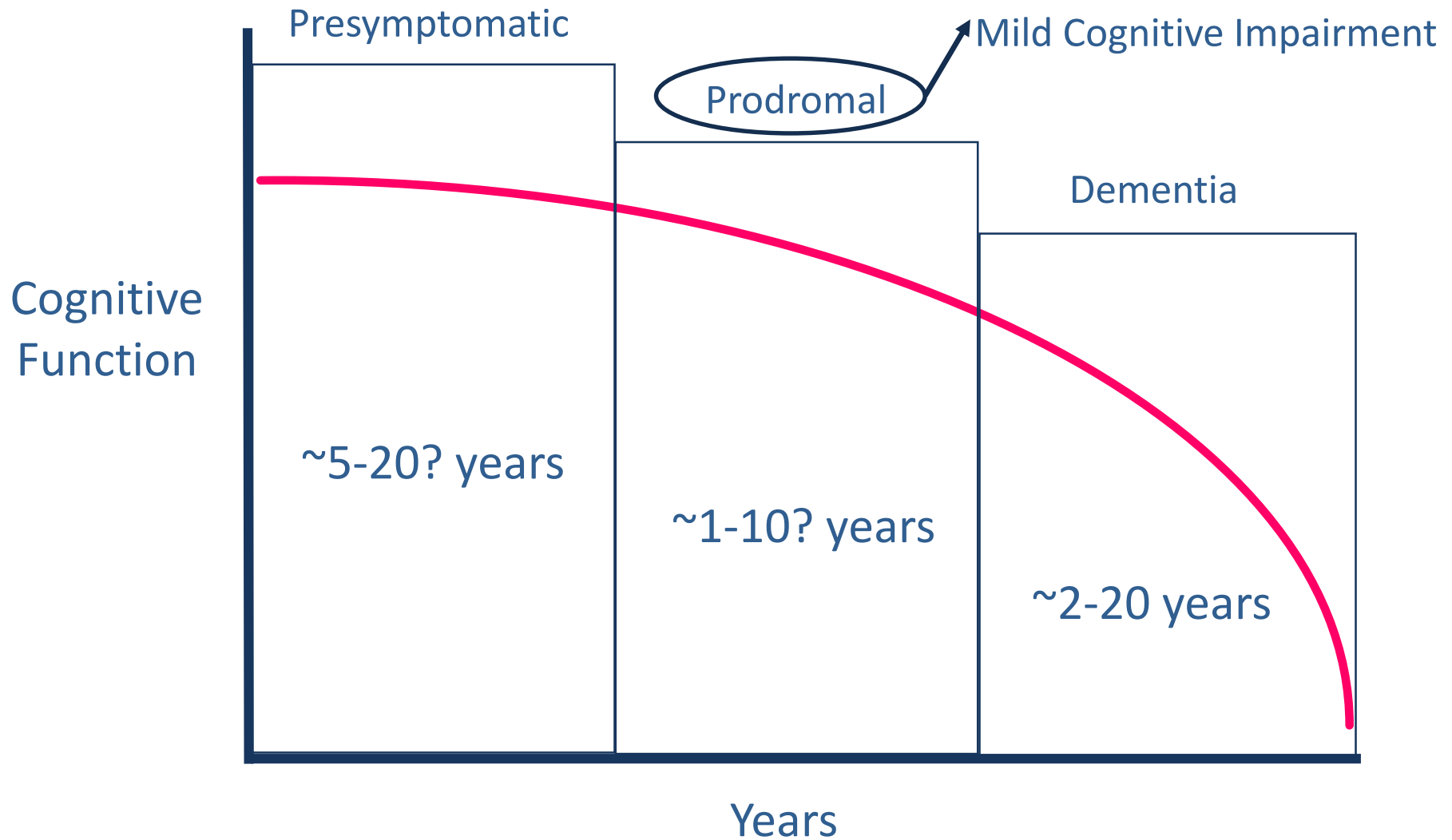
Visit our website for Project ECHO Dementia Session Resources (Presentations and Slides)
<https://depts.washington.edu/mbwc/resources/echo>

- **Mild Cognitive Impairment**, Barak Gaster, MD
 - <https://www.youtube.com/watch?v=JRGRSMYbymA>
- **An Overview of Dementia Etiologies**, Carolyn Parsey, PhD
 - <https://youtu.be/vwvsFGEFqfs>
- **Vascular Cognitive Impairment**, Nancy Isenberg, MD
 - <http://youtu.be/CWDE9rNMcN0>
- **Dementia with Lewy Bodies**, Carolyn Parsey, PhD:
 - <https://youtu.be/8sEy9uazqdk>
- **Frontotemporal Dementia**, Kimiko Domoto-Reilly, MD
 - <https://www.youtube.com/watch?v=LiALQX0Eu8I>

Early Detection and Intervention



Progression of Alzheimer's Disease



Mixed Dementia

- Rule, not the exception
 - 98% of early onset cases with 2 pathologies
 - 100% of late onset cases with 3 pathologies
 - Cerebral amyloid angiopathy = 79-86%
 - Lewy Body disease = 42-49%
 - Differences for amygdala predominant LBD
- Mixed AD and VaD
 - Most frequent form of mixed dementia in late onset
 - 65% vs 39%
 - 28% in dementia clinics
 - >50% in community samples
 - Periventricular lesions in 90% of AD cases

Red Flags & Reasons for Referral

- Early onset (<age 65)
- Atypical onset/course
- Unusual neurological symptoms
- Neuropsychiatric symptoms
 - Hallucinations
 - Fluctuations
 - Behavioral and psychiatric
 - Sensory/motor/gait

Resources/References

- Pocket Talker
 - <https://williamsav.com/pocketalker-personal-amplifier/>
- Beers Criteria
 - <https://agsjournals.onlinelibrary.wiley.com/doi/full/10.1111/jgs.15767>
- STOP-BANG
 - Chung F, Abdullah HR, Liao P. STOP-Bang Questionnaire: A Practical Approach to Screen for Obstructive Sleep Apnea. *Chest*. 2016 Mar;149(3):631-8.
- Epworth
 - <https://epworthsleepinessscale.com/about-the-ess/>
- AUDIT
 - <https://auditscreen.org/>
- PHQ-2/PHQ-9
 - Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care*. 2003 Nov;41(11):1284-92.
- GAD-7
 - Spitzer RL, Kroenke K, Williams JBW, Löwe B. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Arch Intern Med*. 2006;166(10):1092–1097. doi:10.1001/archinte.166.10.1092
- GDS-15
 - <https://web.stanford.edu/~yesavage/GDS.htm>
- GAI-SF
 - Byrne GJ, Pachana NA. Development and validation of a short form of the Geriatric Anxiety Inventory--the GAI-SF. *Int Psychogeriatr*. 2011 Feb;23(1):125-31.



Thank you for your attention!



Questions?

Contact Information

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<https://depts.washington.edu/mbwc/>

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