ECHO IDAHO

Alzheimer's Disease and Related Dementias

Managing Cognitive Health in Primary Care: Early Detection and Intervention

May 27, 2025

J. Audie Black, PhD, ABN

Board-Certified Neuropsychologist

Idaho Neuropsychology, PLLC

None of the planners or presenters for this educational activity have relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

This publication was made possible by NU58DP007507 from Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Department or CDC. [ECHO Idaho] [2025]

University of Idaho
School of Health and Medical Professions

Project ECHO

Learning Objectives

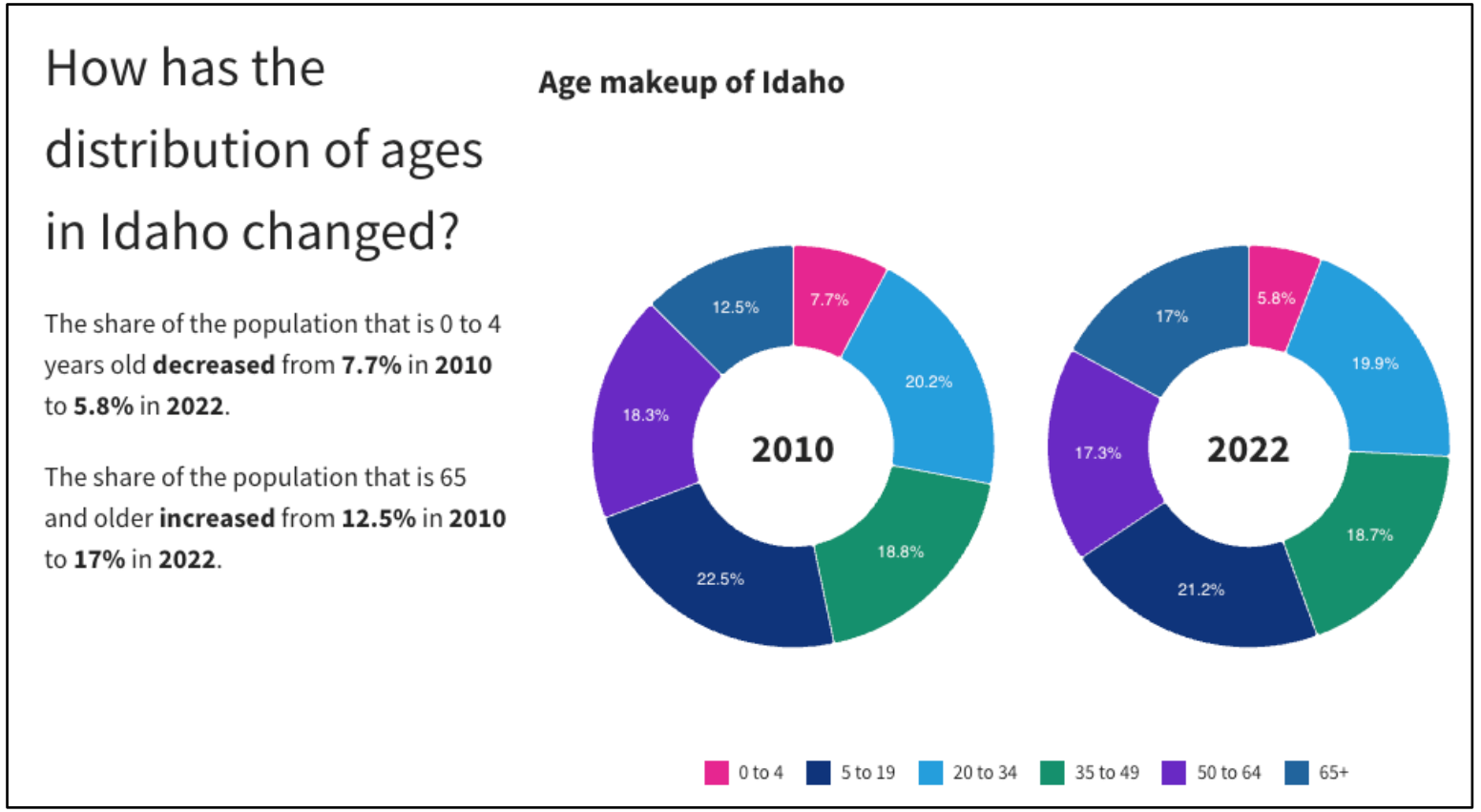
- Understand strengths/weaknesses between three common cognitive screeners (MoCA, SLUMS, and MMSE) for primary care settings
- Recognize impact of base rates on screening accuracy
- Consider next steps after a positive cognitive screen
- Appreciate evidence-based interventions for MCI

Idaho's (*Rapidly*) Changing Population

- Per US Census Bureau:

  2023 Estimated pop: 1.96MM
  - 65+ years old: ~17% (~333k)
  - Females: 49.6%
  - White: 92.6%

- 65+ year-olds fastest growing demographic in ID, increased 68.5% since 2010



-Reproduced from USAFACTS

University of Idaho School of Health and Medical Professions

Project ECHO

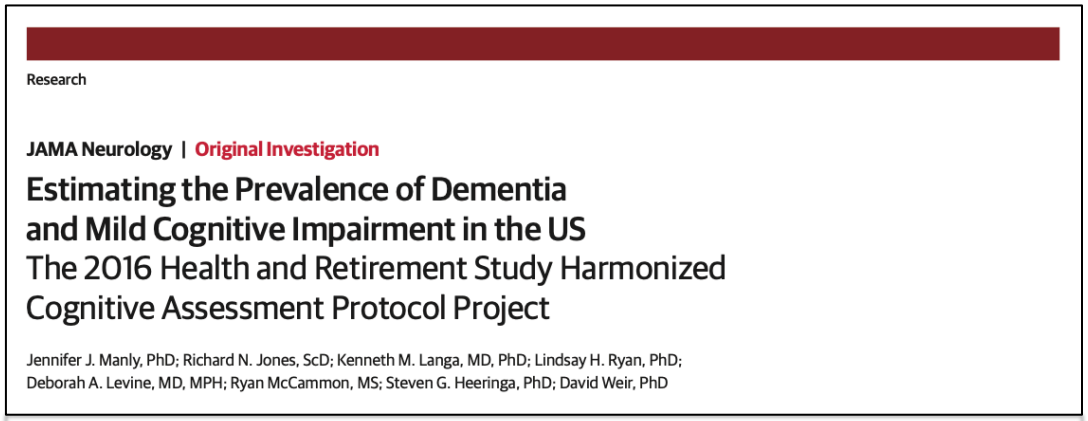
Scope of the challenge

- Jennifer Manly and colleagues (2022) nationally-representative study of dementia and mild cognitive impairment (MCI):
  - N = 3,496 participants, 65+ years old (Mean = 76.4, SD=7.6)
  - all completed comprehensive neuropsych evaluation
    - 10% dx'ed with dementia; another 22% with MCI
    - Each 5-year age difference:
      - dementia weighted OR = 1.95
      - MCI weighted OR = 1.17

- In Idaho, this would translate into:

  ~33.3k having dementia (any type) and

  ~73.25k with MCI


Research

JAMA Neurology | Original Investigation

Estimating the Prevalence of Dementia and Mild Cognitive Impairment in the US
The 2016 Health and Retirement Study Harmonized Cognitive Assessment Protocol Project

Jennifer J. Manly, PhD; Richard N. Jones, ScD; Kenneth M. Langa, MD, PhD; Lindsay H. Ryan, PhD; Deborah A. Levine, MD, MPH; Ryan McCammon, MS; Steven G. Heeringa, PhD; David Weir, PhD

University of Idaho
School of Health and Medical Professions

Project ECHO

Choosing the Right Screening Tool

- Accurate, efficient cognitive screening is essential for Idaho's aging population, however…. measures vary in sensitivity, time, and scope

Tool	Time	MCI Cutoff	Dementia Cutoff	Notes
MoCA	10–12 min	≤25	≤20–22	High sensitivity, best for MCI (Ciesielska et al., 2016; Trzepacz et al., 2015)
SLUMS	7–10 min	≤26 (HS grad)	≤20 (HS grad)	Adjusts for education; more sensitive than MMSE (Tariq et al., 2006; Spencer et al., 2022)
MMSE	5–7 min	≤27	≤23–24	Familiar but limited for early detection (Trzepacz et al., 2015)

Sensitivity, Specificity, and Base Rates

- **Sensitivity** = how well a test catches those *with* the condition (true positives)

- **Specificity** = how well a test rules out those *without* the condition (true negatives)
  → These do **not** change with setting

- But in **real-world clinics**:
  - **Positive Predictive Value (PPV)** and **Negative Predictive Value (NPV) do** depend on the **base rate** (prevalence of disease)

  - In **Primary Care**, where overall prevalence of MCI / dementia is relatively low:
    - **PPV drops** → more false positives
    - **NPV rises** → negatives are more trustworthy

  - In **Memory Clinics**, where prevalence is high:
    - **PPV rises** → more true positives are likely with the same cut score

Sensitivity, Specificity, and Base Rates (cont.)

- **Recommendation:**
  - In primary care, use tools with **higher sensitivity** (like MoCA or SLUMS) to **minimize false negatives** — even if some false positives occur. These can be clarified later through follow-up evaluation.
  - The cost of missing early cognitive impairment is greater than flagging a patient for monitoring or referral to specialist.
  - *PSA: Ensure that staff administering these tools are formally trained on them, not just self-learning how to give these tests…*

- **Remember**: these are <u>screening tools, not diagnostic tests</u>

Importance of Assessing Daily Functioning

- Impairments first appear in **instrumental activities of daily living (IADLs)** — especially **complex, multistep, cognitively demanding tasks**, such as:
  - Managing medications
  - Paying bills or taxes
  - Cooking complex meals
  - Driving and navigating
  - Managing appointments or technology

- Even subtle alterations in these functions can signal **clinically meaningful changes**, even when screening test scores look “mild.”

Why Collateral Input Is Essential

- **Anosognosia** — the neurologically-based lack of awareness of one's own deficits — is common in dementia and present in **up to 60% of individuals with MCI**, particularly those on a trajectory toward Alzheimer’s disease (e.g., Starkstein et al., 2006).
  - The patient may genuinely **believe they're functioning normally**
  - **Family, friends, or caregivers often provide more accurate data** on early cognitive or functional decline

- When a patient screens positive or raises concern, **ask to speak with someone who knows them well**, either during the visit or via follow-up call.

What to do after cognitive screening?

Screen Result	Recommended Actions
Positive (Below Cutoff)	- Confirm clinical context (onset, progression) - Obtain collateral history (could use AD8, FAQ) - Rule out reversible causes: labs, meds, mood, sleep - Assess IADLs: finances, meds, driving - Refer to neuropsychology if diagnosis/function unclear - Consider geriatrics/neurology if rapid decline or neuro signs - Educate patient/family: lifestyle modifications, safety, planning
Borderline (Near Cutoff or MCI-range without functional loss)	- Clarify concern: self vs caregiver vs clinical - Check for subtle functional changes - Screen for depression, sleep apnea, sensory issues - Counsel on cognitive health (exercise, diet, etc.) - Follow and re-screen at routine intervals
Negative (Above Cutoff, No Concerns)	- If no patient or caregiver concern: reassure - Encourage cognitive wellness: routine activity, heart-healthy diet, socialization - Repeat screening annually or if new concern arises - Educate on modifiable risk (per AAN, USPSTF guidelines) - Consider closer monitoring if high-risk (e.g., family history)

Quick Review

Role, Benefits, and Challenges of Neuropsych Testing…

University of Idaho
School of Health and Medical Professions

Project ECHO

Consensus Statements on Neuropsych

Screening for Cognitive Impairment in Older Adults (USPSTF, 2020)	"Many different brief screening tests for cognitive impairment are available. [...] A positive screening test result should lead to additional testing that can include blood tests, radiology examinations, and a medical and neuropsychologic evaluation to confirm the diagnosis of dementia and determine its subtype." (Pg. 758)
Quality Improvement in Neurology: MCI Quality Measurement Set (AAN, 2019)	"When there is ample evidence for concern, a more comprehensive neuropsychological assessment is appropriate, given that cognitive screening measurement strategies are limited by generally low sensitivity and specificity rates, whereas gold standard neuropsychological test batteries are more sensitive and specific."

NP often very helpful for:

- Possibility of early-onset dementia (e.g., FTD, AD) in younger patients
- Concerns regarding atypical dementias (e.g., fvAD → bvAD/DexAD, PCA-AD, lvPPA, CBS-AD)
- Challenging differential diagnoses
- High functioning individuals
- Mismatch between reported fx and cognitive screening
- Extra-clinical needs (e.g., medico-legal assessment of functional capacities), examples:
    - Capacity for independent living
    - Testamentary Capacity
    - Contractual Capacity

NP is least helpful for:

- Pts in acute delirium (consult can be useful, but not full testing)
- Individuals who are severely impaired (e.g., MoCA/SLUMS = 8/30)
- Clear-cut diagnosis, relatively clear staging
    - Documenting just to document; referring to do ‘something’
- Functional assessments provide sufficient data for treatment planning
- Non-English speaking patients (Idaho specific due to lack of sufficiently trained providers in multi-cultural, -lingual evaluations); potential for harms to outweigh benefits

Logistical Conundrums

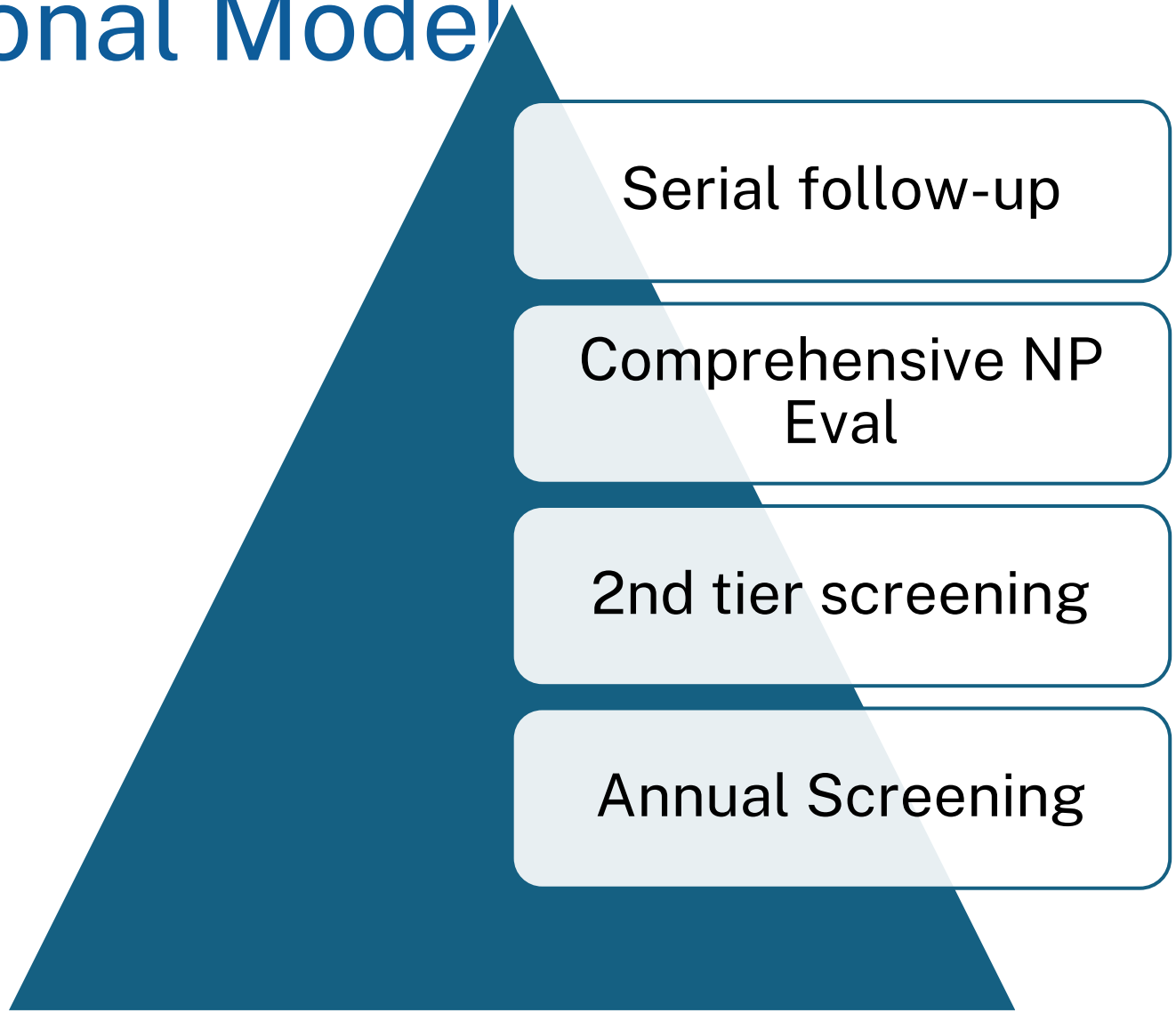
- Neuropsychological testing is:
  - Resource intensive
    - Time consuming
    - Relatively expensive
  - Only one piece in the puzzle – takes a team

- Limited by # of providers
  - Limited access to NP testing in many parts of the state
  - Freq. extensive wait-lists

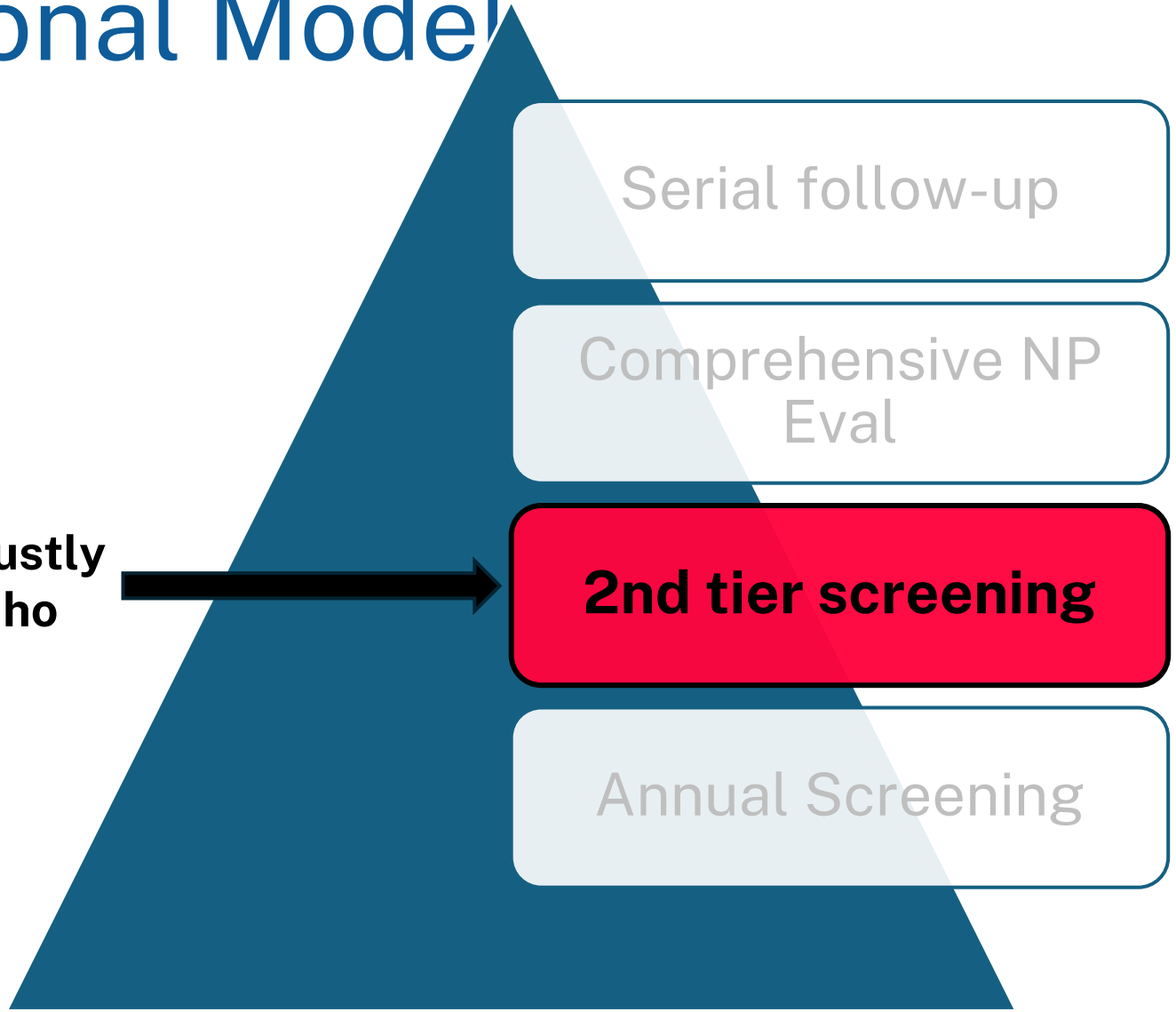
University of Idaho School of Health and Medical Professions

Project ECHO

Aspirational Model



Aspirational Model



Needs to be robustly developed in Idaho

Back to Primary Care Setting

Confirmed MCI, Now What?

- **Suggested framing with pts/family:**
  - *"This isn't dementia, but it means there are more thinking changes than expected for normal aging. The good news is we have a window of opportunity. There are real, evidence-based interventions that can potentially slow progression and support long-term independence."*

- **Evaluate and treat potentially contributing medical factors**

- Also, focus on **modifiable lifestyle factors** (e.g., Livingston et al., 2020)

Modifiable Lifestyle Risk Factors

- **Routine, Moderate Exercise**
  - **Potentially most effective single lifestyle intervention**
  - Aerobic + resistance training = best outcomes
  - 150+ min/week of moderate intensity improves executive function and memory
  - Mechanisms: ↑ BDNF, ↑ cerebral perfusion, ↓ vascular risk
  - **Meta-analytic results** (e.g., Northey et al., 2018) :
    → Moderate effect size for cognition across multiple domains

- **Diet: Mediterranean or MIND Diets**
  - Emphasis on green leafy veg, berries, fish, olive oil, nuts, whole grains
  - These two diets have been associated with significant reduction of risk for further cognitive decline in high adherence groups (e.g., Morris et al., 2015; Fekete et al., 2025)

Modifiable Lifestyle Risk Factors (cont.)

- **Sleep Optimization**
  - Address insomnia, circadian disruption, **screen for OSA**
  - Treating OSA in MCI improves memory and attention (e.g., Ancoli-Israel et al., 2008)

- **Social Connection**
  - Loneliness is a known risk factor for cognitive decline
  - Encourage participation in community, spiritual, or volunteer activities

- **Hearing Loss**
  - Treat hearing loss — per the **Lancet Commission**, it's one of the most potent *modifiable* risk factors for later-life dementia (Livingston et al., 2020)

References

Ancoli-Israel, S., Palmer, B. W., Cooke, J. R., Corey-Bloom, J., Fiorentino, L., Natarajan, L., ... & Loredo, J. S. (2008). Cognitive effects of treating obstructive sleep apnea in Alzheimer's disease: A randomized controlled study. *Journal of the American Geriatrics Society, 56*(11), 2076–2081.

Ciesielska, N., Sokołowski, R., Mazur, E., Podhorecka, M., Polak-Szabela, A., & Kędziora-Kornatowska, K. (2016). Is the Montreal Cognitive Assessment (MoCA) test better suited than the Mini-Mental State Examination (MMSE) in mild cognitive impairment (MCI) detection among people aged over 60? *Psychiatria Polska, 50*(5), 1039–1052.

Dementia Performance Measurement Set (2011). https://www.aan.com/globals/axon/assets/9493.pdf

Fekete, M., Varga, P., Ungvari, Z., Fekete, J. T., Buda, A., Szappanos, Á., Lehoczki, A., Mózes, N., Grosso, G., Godos, J., Menyhart, O., Munkácsy, G., Tarantini, S., Yabluchanskiy, A., Ungvari, A., & Győrffy, B. (2025). The role of the Mediterranean diet in reducing the risk of cognitive impairement, dementia, and Alzheimer's disease: a meta-analysis. *GeroScience*, 10.1007/s11357-024-01488-3. Advance online publication.

Idaho population by year, county, race, & more. USAFacts. (2024, March 19). https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/state/idaho/

Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., ... & Mukadam, N. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *The Lancet, 396*(10248), 413–446.

References

Manly, J. J., Jones, R. N., Langa, K. M., Ryan, L. H., Levine, D. A., McCammon, R., Heeringa, S. G., & Weir, D. (2022). Estimating the prevalence of dementia and mild cognitive impairment in the US. *JAMA Neurology*, *79*(12), 1242.

Morris, M. C., Tangney, C. C., Wang, Y., Sacks, F. M., Bennett, D. A., & Aggarwal, N. T. (2015). MIND diet slows cognitive decline with aging. *Alzheimer's & Dementia, 11*(9), 1015–1022.

Northey, J. M., Cherbuin, N., Pumpa, K. L., Smee, D. J., & Rattray, B. (2018). Exercise interventions for cognitive function in adults older than 50: A systematic review with meta-analysis. *British Journal of Sports Medicine, 52*(3), 154–160.

Owens, D. K., Davidson, K. W., Krist, A. H., Barry, M. J., Cabana, M., Caughey, A. B., Doubeni, C. A., Epling, J. W., Kubik, M., Landefeld, C. S., Mangione, C. M., Pbert, L., Silverstein, M., Simon, M. A., Tseng, C.-W., & Wong, J. B. (2020). Screening for cognitive impairment in older adults. JAMA, 323(8), 757. https://doi.org/10.1001/jama.2020.0435

Petersen, R. C., Lopez, O., Armstrong, M. J., Getchius, T. S., Ganguli, M., Gloss, D., ... & Rae-Grant, A. D. (2018). Practice guideline update summary: Mild cognitive impairment—report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology. *Neurology, 90*(3), 126–135.

References

Spencer, R. J., Noyes, E. T., Bair, J. L., & Ransom, M. T. (2022). Systematic review of the psychometric properties of the Saint Louis University Mental Status (SLUMS) examination. *Clinical Gerontologist, 45*(3), 454–466.

Starkstein, S. E., Jorge, R., Mizrahi, R., & Robinson, R. G. (2006). Insight and danger in Alzheimer's disease. *European Journal of Neurology, 13*(5), 455–460.

Trzepacz, P. T., Hochstetler, H., Wang, S., Walker, B., & Saykin, A. J. (2015). Relationship between the Montreal Cognitive Assessment and Mini-Mental State Examination for assessment of mild cognitive impairment in older adults. *BMC Geriatrics, 15*, 107.

U.S. Census Bureau quickfacts: Idaho. (n.d.-a). https://www.census.gov/quickfacts/fact/table/ID/PST045222