Screening and Case Detection of Cognitive Impairment

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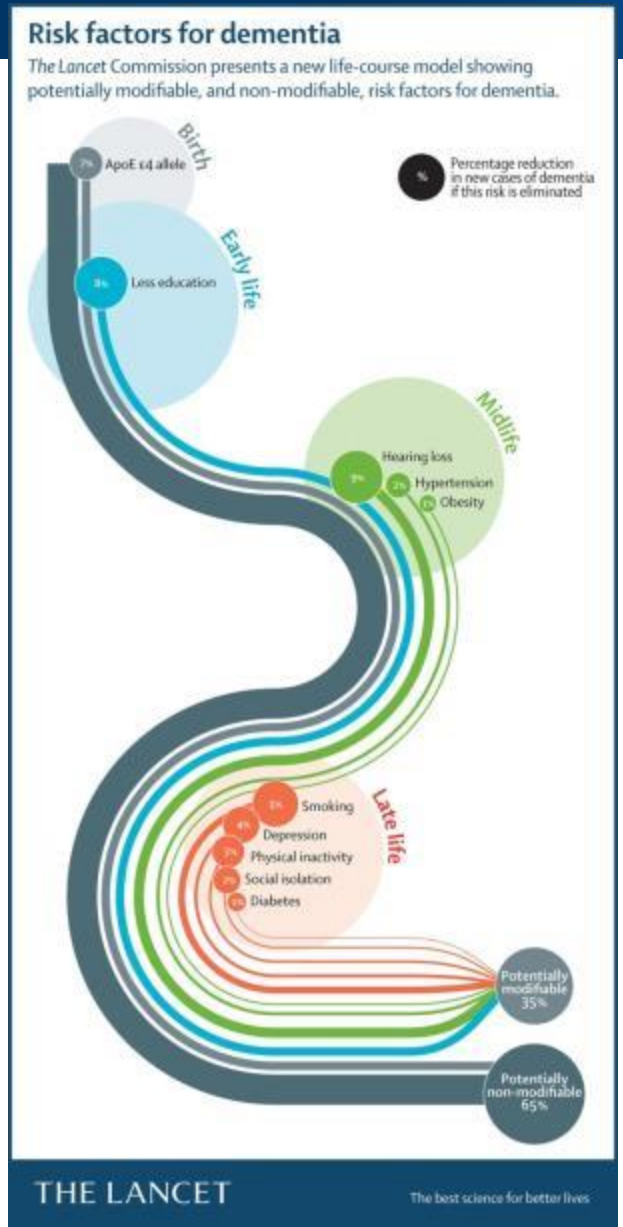
Project ECHO Dementia 6/10/20

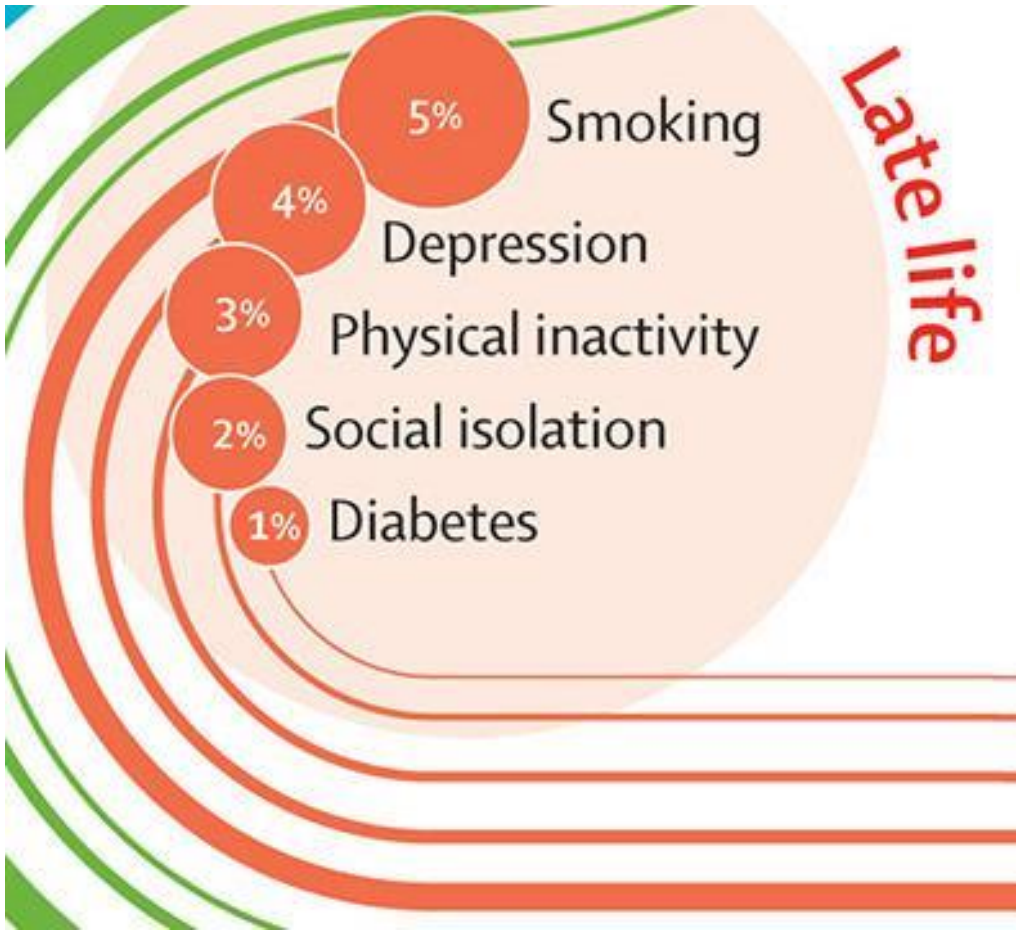
Overview

- Learning Objectives
  - Importance of early detection
  - Tools & measures
  - Opportunities for objective assessment
  - Resources

Lancet Commission

Dementia Prevention, Intervention, and Care Livingston et al., 2017





Importance of Early Detection and Accurate Diagnosis

- Rule out reversible causes, mimicking conditions[1,2]
- Access to resources, supports and services[2]
- Improved management of comorbid conditions[3-5]
- Reduced preventable hospitalizations and emergency room visits[6]
- Clarifying wishes around end-of-life care[6]
- Improved advance and end-of-life care planning[5,6]
- Timing of behavioral interventions and graduated care plans[6-10]

Basic Assessment of Dementia

- Interview/History
- Physical exam
- Neurological exam
- **Cognitive assessment**
- **Functional status**
- Depression assessment
- Laboratory

- Neuropsychological evaluation
- Neuroimaging

- Repeat if unclear
  - 6-12 months

Assessment: Cognitive Screening

- In primary care settings, only <50% of patients with dementia are diagnosed
  - Critical information for other providers/care team members, esp. if the PCP is unavailable

- Better diagnostic aids are needed
  - Accurate
  - Brief
  - Cost effective

Connoly et al, Aging and Mental Health, 2011; Mattson, et al. JAMA; 302(4):385-393.
Lopponen M, et al. Age Ageing 2003;32(6):606-612.

Cognitive Screening- MMSE

- 30 items, 6 domains, 5-10 minutes
- Standard cutoff of 23-24
  - Sensitivity = 66-73%
  - Specificity = 87-92%
  - Positive Predictive Value= 58-67%
- Misclassification rate = 15%
- Age and education effects/norms
  - Sensitivity = 92%
  - Specificity = 96%

The mini mental state examination

Orientation
Year, month, day, date, season _____/5
Country, county, town, hospital, ward (clinic) _____/5

Registration
Examiner names three objects (for example, apple, pen, and table)
Patient asked to repeat objects, one point for each. _____/3

Attention
Subtract 7 from 100 then repeat from result, stop after five subtractions. (Answers: 93, 86, 79, 72, 65)
Alternatively if patient errs on subtraction get them to spell world backwards: D L R O W
Score best performance on either task. _____/5

Recall
Ask for the names of the objects learned earlier. _____/3

Language
Name a pencil and a watch. _____/2
Repeat: 'No ifs, and or buts.' _____/1
Give a three stage command. Score one for each stage (for example, 'Take this piece of paper in your right hand, fold it in half and place it on the table.' _____/3
Ask patient to read and obey a written command on a piece of paper stating: 'Close your eyes.' _____/1
Ask patient to write a sentence. Score correct if it has a subject and a verb. _____/1

Copying
Ask patient to copy intersecting pentagons.
Score as correct if they overlap and each has five sides. _____/1

Total score: _____/30

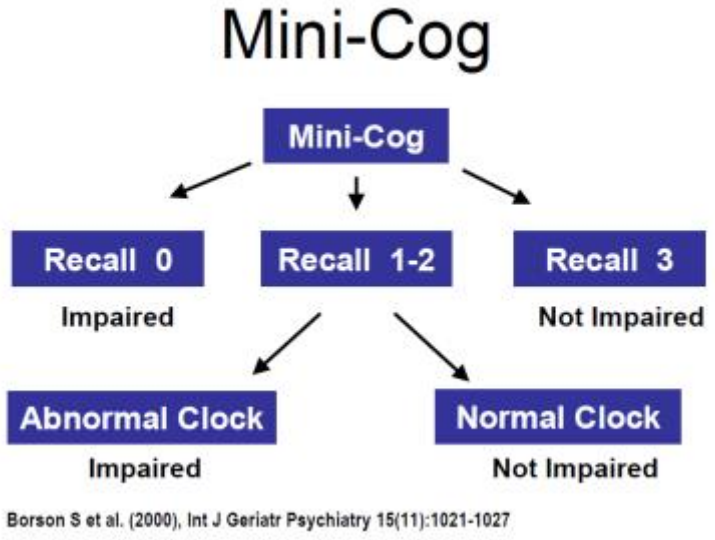
Cognitive Screening- MMSE

- SALSA study (MMSE) (Espino et al., 2001 & 2004; JAGS)
  - Internal consistency depends on scoring
  - Education effects
  - Language ability
  - Neighborhood effects
  - Socioeconomic status

- MMSE False Positive Rates
  - 6% for non-impaired majority
  - 42% for non-impaired minority

Screening: Mini-Cog

- 3-word recall (0-3 points) + Clock (0 or 2 points)
- 2-4 minutes
- Sensitivity= 83%
  - Rule in 13 of 20 possible patients
  - Rule out 18 of 20 healthy patient



Am J Geriatr Psychiatry. 2010 Sep;18(9):759-82. ***Screening and case finding tools for the detection of dementia. Part I: evidence-based meta-analysis of multidomain tests.***

Screening: AD8

- Patient and collateral
  - 0-1 = normal
  - 2+ = likely impaired
- Dementia vs MCI
  - Sensitivity >84%
  - Specificity >80%
  - PPPV >85%
  - NPV >70%
  - AUC = .91

AD8 Dementia Screening Interview

Patient ID#:_____
CS ID#:_____
Date:_____

Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems.	YES, A change	NO, No change	N/A, Don't know
1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking)			
2. Less interest in hobbies/activities			
3. Repeats the same things over and over (questions, stories, or statements)			
4. Trouble learning how to use a tool, appliance, or gadget (e.g., VCR, computer, microwave, remote control)			
5. Forgets correct month or year			
6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills)			
7. Trouble remembering appointments			
8. **Daily** problems with thinking and/or memory			
TOTAL AD8 SCORE			

Adapted from Galvin JE et al, The AD8, a brief informant interview to detect dementia, Neurology 2005:65:559-564

Copyright 2005. The AD8 is a copyrighted instrument of the Alzheimer's Disease Research Center, Washington University, St. Louis, Missouri. All Rights Reserved.

Functional Assessment –FAQ

- Sensitivity and specificity comparable to MMSE
- Rating functional abilities over past 4 weeks
  - Not applicable
  - Normal
  - Some difficulty but does by self
  - Needs assistance
  - Dependent

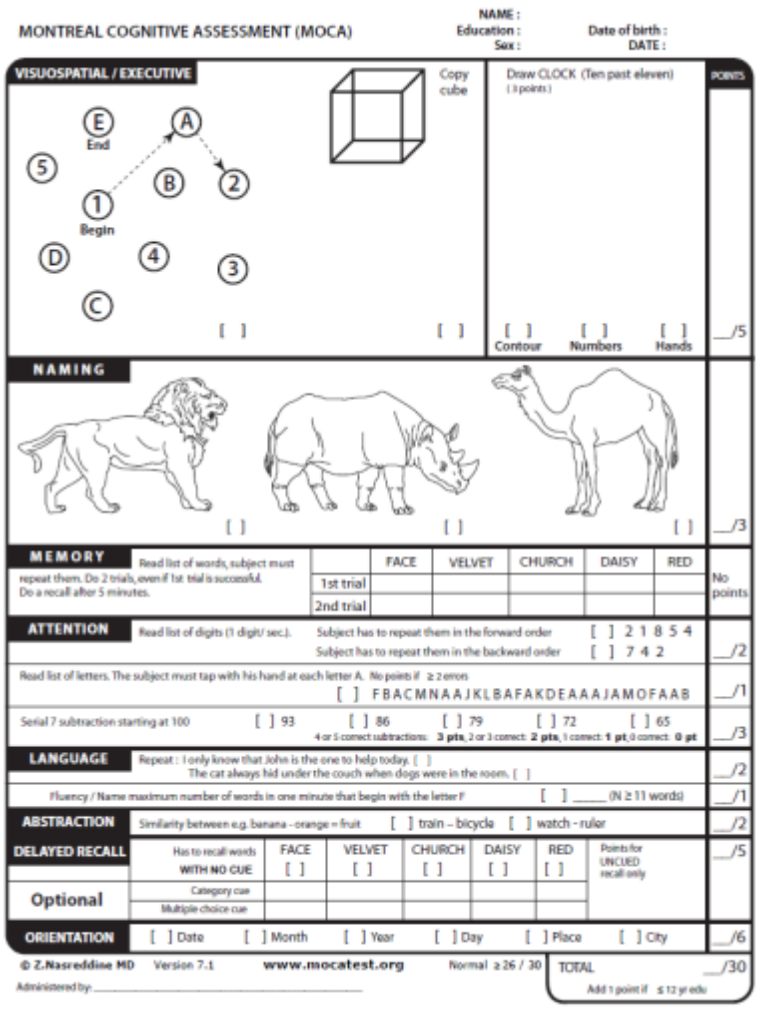
The FAQ Items

- Writing checks, paying bills, balancing checkbooks
- Assembling tax records, business affairs, or papers
- Shopping alone for clothes, household necessities, or groceries
- Playing a game of skill, working on a hobby
- Heating water, making a cup of coffee, turning off stove
- Preparing a balanced meal
- Keeping track of current events
- Paying attention to, understanding, discussing a TV show, book, magazine
- Remembering appointments, family occasions, holidays, medications
- Traveling out of neighborhood, driving, arranging to take buses

Source: Pfeffer RI et al. *J Gerontol*. 1982;15:323-329.

Screening: MoCA

- Better sensitivity (cutoff =26, slightly lower in community setting)
  - MCI
    - MMSE =18%
    - MoCA = 90%
  - AD
    - MMSE = 78%
    - MoCA = 100%.
    - Specificity
      - MMSE = 100%
      - MoCA = 87%



MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME :
Education :
Sex :
Date of birth :
DATE :

VISUOSPATIAL / EXECUTIVE — Copy cube — Draw CLOCK (Ten past eleven) (3 points) — POINTS

E End, A, 5, B, 2, 1 Begin, D, 4, 3, C

[ ] [ ] Contour [ ] Numbers [ ] Hands /5

NAMING

[ ] [ ] [ ] /3

MEMORY — Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION — Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [ ] 2 1 8 5 4. Subject has to repeat them in the backward order [ ] 7 4 2 /2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B /1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65
4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt /3

LANGUAGE — Repeat : I only know that John is the one to help today. [ ]
The cat always hid under the couch when dogs were in the room. [ ] /2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] ____ (N ≥ 11 words) /1

ABSTRACTION — Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler /2

DELAYED RECALL

	Has to recall words WITH NO CUE	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only
Optional	Category cue						
	Multiple choice cue						

/5

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City /6

© Z.Nasreddine MD Version 7.1 www.mocatest.org Normal ≥ 26 / 30

TOTAL /30

Add 1 point if ≤ 12 yr edu

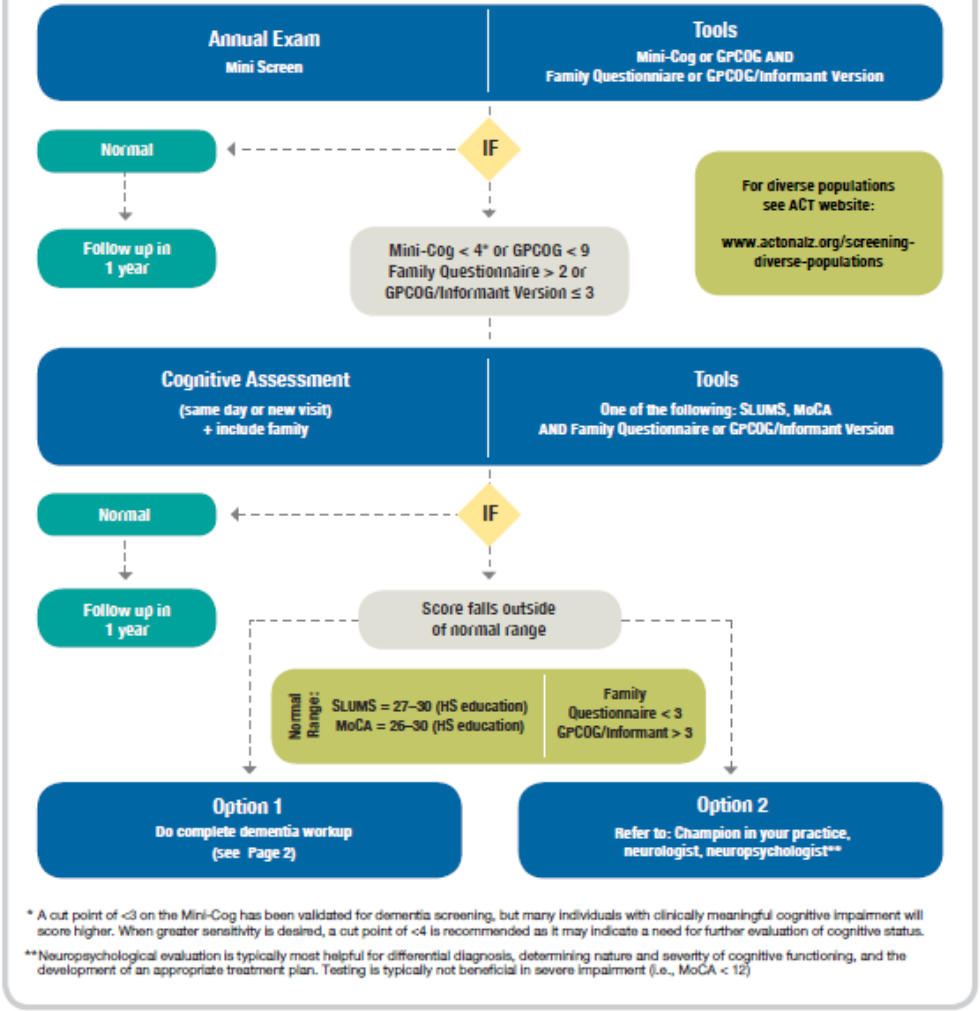
Administered by:

Dementia Action Collaborative Washington State

CLINICAL PROVIDER PRACTICE TOOL

NOVEMBER 2017

COGNITIVE IMPAIRMENT IDENTIFICATION

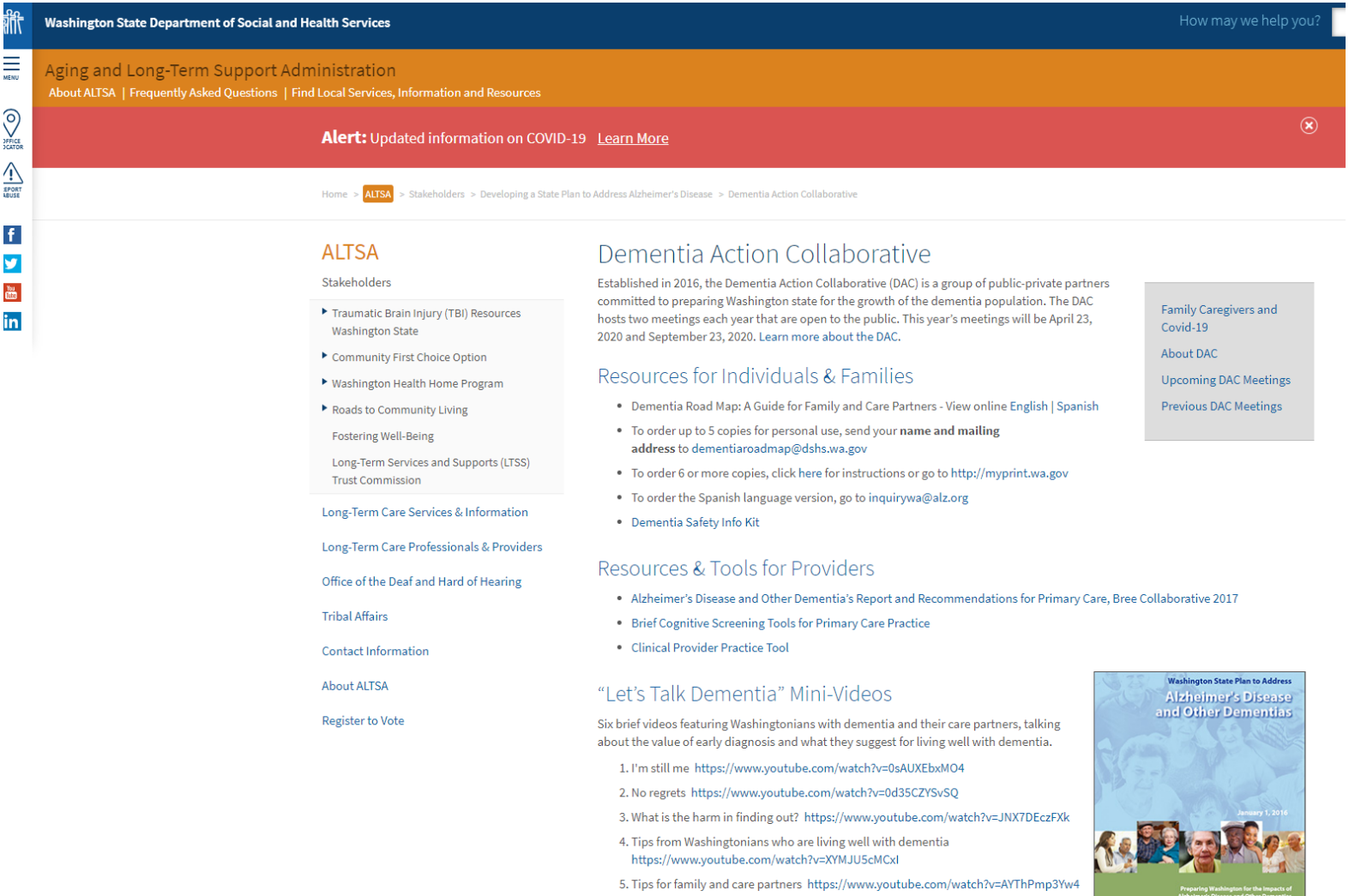


* A cut point of <3 on the Mini-Cog has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. When greater sensitivity is desired, a cut point of <4 is recommended as it may indicate a need for further evaluation of cognitive status.

**Neuropsychological evaluation is typically most helpful for differential diagnosis, determining nature and severity of cognitive functioning, and the development of an appropriate treatment plan. Testing is typically not beneficial in severe impairment (i.e., MoCA < 12)

Resources: Dementia Action Collaborative

- https://www.dshs.wa.gov/altsa/dementia-action-collaborative



Washington State Department of Social and Health Services

How may we help you?

Aging and Long-Term Support Administration

About ALTSA | Frequently Asked Questions | Find Local Services, Information and Resources

Alert: Updated information on COVID-19 Learn More

Home > ALTSA > Stakeholders > Developing a State Plan to Address Alzheimer's Disease > Dementia Action Collaborative

ALTSA

Stakeholders

- Traumatic Brain Injury (TBI) Resources Washington State
- Community First Choice Option
- Washington Health Home Program
- Roads to Community Living
- Fostering Well-Being
- Long-Term Services and Supports (LTSS) Trust Commission

Long-Term Care Services & Information

Long-Term Care Professionals & Providers

Office of the Deaf and Hard of Hearing

Tribal Affairs

Contact Information

About ALTSA

Register to Vote

Dementia Action Collaborative

Established in 2016, the Dementia Action Collaborative (DAC) is a group of public-private partners committed to preparing Washington state for the growth of the dementia population. The DAC hosts two meetings each year that are open to the public. This year's meetings will be April 23, 2020 and September 23, 2020. Learn more about the DAC.

Family Caregivers and Covid-19

About DAC

Upcoming DAC Meetings

Previous DAC Meetings

Resources for Individuals & Families

- Dementia Road Map: A Guide for Family and Care Partners - View online English | Spanish
- To order up to 5 copies for personal use, send your **name and mailing address** to dementiaroadmap@dshs.wa.gov
- To order 6 or more copies, click here for instructions or go to http://myprint.wa.gov
- To order the Spanish language version, go to inquirywa@alz.org
- Dementia Safety Info Kit

Resources & Tools for Providers

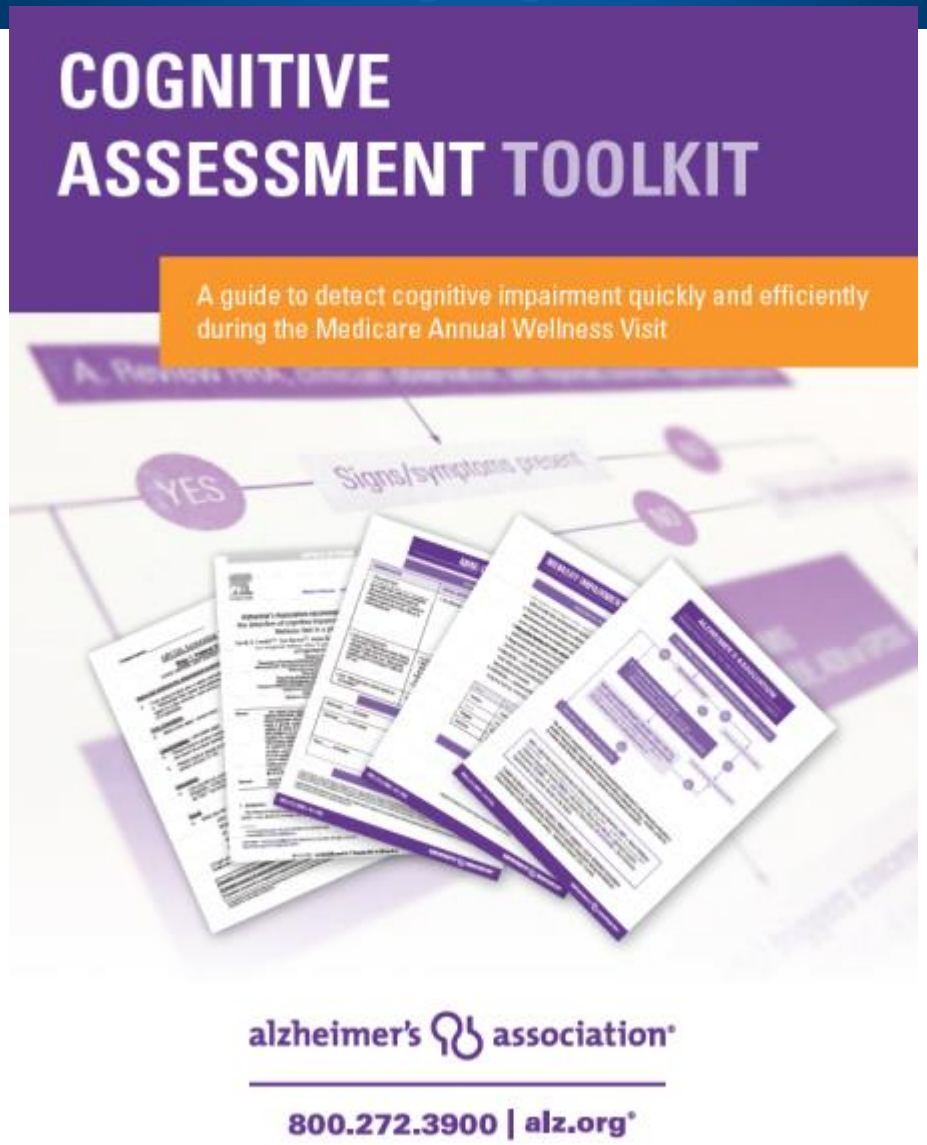
- Alzheimer's Disease and Other Dementia's Report and Recommendations for Primary Care, Bree Collaborative 2017
- Brief Cognitive Screening Tools for Primary Care Practice
- Clinical Provider Practice Tool

"Let's Talk Dementia" Mini-Videos

Six brief videos featuring Washingtonians with dementia and their care partners, talking about the value of early diagnosis and what they suggest for living well with dementia.

1. I'm still me https://www.youtube.com/watch?v=0sAUXEbxMO4
2. No regrets https://www.youtube.com/watch?v=0d35CZYSvSQ
3. What is the harm in finding out? https://www.youtube.com/watch?v=JNX7DEczFXk
4. Tips from Washingtonians who are living well with dementia https://www.youtube.com/watch?v=XYMJU5cMCxI
5. Tips for family and care partners https://www.youtube.com/watch?v=AYThPmp3Yw4

Cognitive Assessment Toolkit



Bree Collaborative

Recommendations Available

http://www.breecollaborative.org/topic-areas/alzheimers/

Recommendations - Diagnosis

Propose two-step process: initial test and follow-up appointment

Current State: Issues with memory and cognition are addressed if they are brought up by the patient or family member(s). The primary care provider may be unsure as to screening tools, Federal or State requirements, or next steps if a patient or family members brings up concerns with memory and may not feel comfortable discussing cognitive issues.

Steps Toward Goal: Screening for at-risk populations, clear clinical pathway for people who screen positive including through the Medicare Annual Wellness visit.

Goal for Usual Care: Healthy adults with mild cognitive impairment (MCI) or dementia are detected at an early stage, targeting early evidence-based interventions. Primary care providers are clear on the value of early detection as well as requirements and feel supported and comfortable truthfully discussing cognitive issues.

Contact Information

Memory and Brain Wellness Center

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

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UW Medicine
HARBORVIEW MEDICAL CENTER

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