

# EARLY DETECTION OF DEMENTIA

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## *MAKING THE CASE AND USING THE TOOLS*

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1

## DISCLOSURES

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- Current funding from the Centers for Disease Control, National Institutes of Health (NIA, NIMHD)
  - Honoraria for advising on dementia capable health systems – Biogen, Genentech
  - Copyright holder, Mini-Cog©
  - No financial conflicts to disclose

2

## WHAT EARLY DETECTION IS...AND ISN'T!

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- Early detection of dementia means:
  - Recognizing cognitive impairment when it's present and impairing everyday functioning, and
  - Before a crisis occurs
- It's different from diagnostic evaluation for a specific cause or disease

3

## WHY EARLY DETECTION OF DEMENTIA MATTERS

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- With progression, dementia becomes a 'dominant condition', affecting the person, the family, and their friends
- Increases risks to health and safety
- Changes the context of health care
  - Patients gradually lose agency
  - Family/friend partners become health care managers at home
- We can't manage what we can't see

4

Missed diagnoses  
Unnecessary crises  
Accidents/injuries

Medication errors  
Caregiver stress, poor health  
Family breakdown

***Dementia Affects All Aspects of Health Care***

Poor chronic disease control  
Discontinuity of care  
Delirium

Surgical complications  
Inappropriate treatment choices  
Preventable hospitalizations, complications, readmissions

5

## IS DEMENTIA EVALUATION IMPORTANT? WHAT CLINICIANS AND FAMILIES SAY.

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- Early/timely diagnosis means a chance to think ahead, reduce complications and crises, manage symptoms, support quality of life, and provide continuity of care and support.
- Online survey using a standardized questionnaire about 8 perceived benefits and 8 perceived risks of diagnosing dementia.
- 4 case scenarios – MCI (isolated memory impairment +/- patient complaint), mild-moderate dementia, moderate-severe dementia with behavioral symptoms, severe dementia + behavioral problems
- N=719 (183 general practitioners, 176 cognitive disorder specialists, 281 other health care professionals, e.g. speech therapists, and 79 family care partners of people living with dementia.

Garnier-Crussard A et al. JAD 2019.

6

## BENEFITS VS RISKS OF EVALUATING A PERSON FOR DEMENTIA

8 POTENTIAL BENEFITS	8 POTENTIAL RISKS
Respect for person's right to know	Normal aging changes treated as abnormal
Decisions about future care (ACP, proxy/DPOA)	Diagnostic uncertainty
Drug therapies for symptoms	Reaction to dx (depression, anxiety, suicide)
Non-pharmacological therapies	Negative impact on relative
Proactive care planning and management	Absence of disease-modifying treatment
Education about disease/course	Lack of access to diagnostic expertise
Support for care partner coping/skills for care	Low access to stage-specific services
Clinical trials/research	Stigma, social isolation/rejection

7

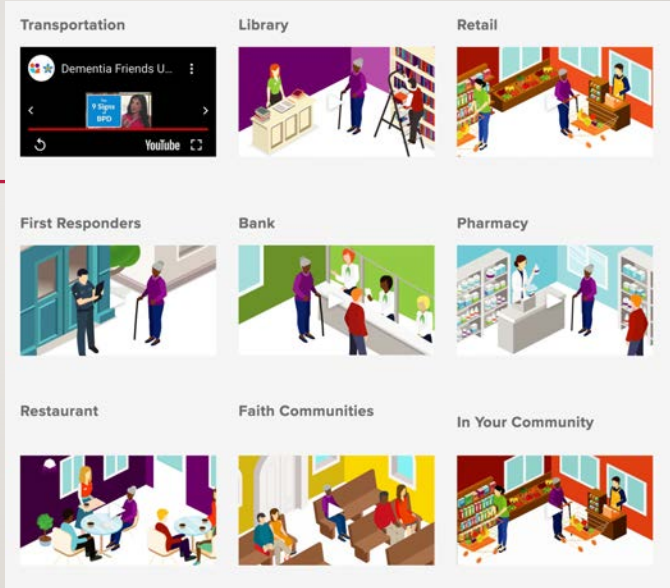
## RESULTS

- > 80% of all respondents considered *detecting cognitive impairment and initiating a workup* relevant across all stages.
- *Perceived benefits outweighed risks* for all respondent groups and all stages.
- For MCI - mild memory loss without significant functional impairment, fewer GPs and other health professionals (~60%) considered workup to be relevant than did specialists and family care partners (~75%)
- For severe dementia – fewer in all respondent groups considered diagnostic evaluation relevant (42% for GPs, 53% for specialists, 62% for other providers, 71% for family care partners)

8

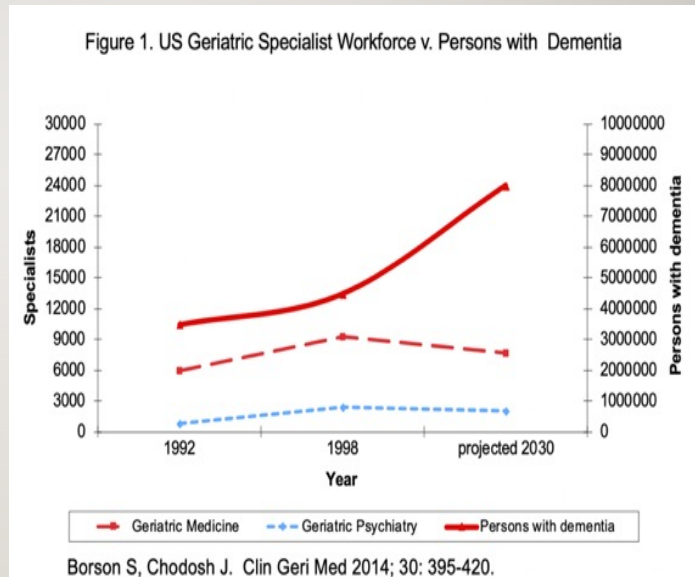
Detection can happen anywhere...

But diagnosis requires a health care professional!



9

### WHO OWNS DEMENTIA?



10

## WHO DETECTS, WHO DIAGNOSES?

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### PRIMARY CARE PROVIDERS

*85% of first diagnoses*

*80% of ongoing care*

- Under-detection
- Late diagnosis, equity issues
- Dx often 'NOS'
- Low uptake of CMS dementia care benefits, inequities
- No reportable quality measure

### MEMORY DISORDER SPECIALISTS

*15% of first diagnoses*

*<10% of ongoing care*

- More standardized assessment
- No person-centered comprehensive care model
- No defined role or relationship with primary care

Yang et al. *J Am Med Dir Assoc* 2016; Drabo et al. *Alzheimer's Dement* 2019

11

## SHOULD WE SCREEN OLDER PEOPLE FOR DEMENTIA?

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- It's important to detect dementia! Specialists, advocacy organizations, and ordinary people agree.
- It's only obvious at more severe stages ~ half of affected individuals are diagnosed.
- Detection is improved by use of screening tools.
- The US Preventive Services Task Force doesn't currently endorse universal screening.
  - Because no studies have asked whether screening changes clinical decisions or patient/family outcomes. The argument is not about importance of detection – it's about how to get there.
- Federal legislation supports early detection: The BOLD Act of 2018 directed the Centers for Disease Control to establish a Public Health Center of Excellence on Early Detection of Dementia (2020).
- Medicare Annual Wellness Visit requires "detection of any cognitive impairment."

12

## SCREENING FOR DEMENTIA

IN YOUR PRACTICE	WITH YOUR PATIENT
Choose tools	Start the conversation – brain health matters!
Plan workflow	Normalize the process
Clarify responsibilities	Clarify expectations – screen, not a diagnosis
Set roles, train staff	Provide results
Monitor quality	Schedule appropriate follow up, include family

13

## CHOOSING COGNITIVE IMPAIRMENT SCREENING TOOLS

- **PREPARE**
  - Consider your patient population – language, education, social disadvantage
  - Consider vision and hearing problems – they add cognitive load, but can be addressed if recognized
  - Consider anxiety and depression – may interfere with effort, attention, concentration (esp. longer, more detailed tests); some proxy screeners include changes directly caused by mood disorder
  - Consider the practice context - screeners should be brief, accessible, easy to score

14

## TWO WAYS TO SCREEN + SOME EXAMPLES

SCREEN THE PATIENT	ASK THE CARE PARTNER
Mini-Cog	Functional Activities Questionnaire (FAQ)
Memory Impairment Screen (MIS)	Informant Questionnaire/Cognitive Decline in the Elderly (IQCODE)
St Louis University Memory Screen (SLUMS)	AD-8

*Using both types builds understanding, engages patient and family as partners with you.*

15

Mini-Cog®

**Instructions for Administration & Scoring**  
 ID: \_\_\_\_\_ Date: \_\_\_\_\_

**Step 1: Three Word Registration**

Look directly at person and say "Please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are [select a list of words from the versions below]. Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing). The following and other word lists have been used in one or more clinical studies.<sup>1,2</sup> For repeated administrations, use of an alternative word list is recommended.

Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Banana	Leader	Village	River	Captain	Daughter
Sunrise	Season	Kitchen	Nation	Garden	Heaven
Chair	Table	Baby	Finger	Picture	Mountain

**Step 2: Clock Drawing**

Say "Next, I want you to draw a clock for me. First, put in all of the numbers where they go! When that is completed, say 'Now, set the hands to 10 past 11.'" Use preprinted circle (see next page) for this exercise. Repeat instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

**Step 3: Three Word Recall**

Ask the person to recall the three words you stated in Step 1. Say "What were the three words I asked you to remember? Record the word list version number and the person's answers below."

Word List Version: \_\_\_\_\_ Person's Answers: \_\_\_\_\_

**Scoring**

Word Recall: _____ (0-3 points)	1 point for each word spontaneously recalled without cueing.
Clock Draw: _____ (0 or 2 points)	Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., 12, 3, 6 and 9 are in anchor positions with no missing or duplicate numbers). Hands are pointing to the 11 and 2 (11:10). Hand length is not scored. Inability or refusal to draw a clock (abnormal) = 0 points.
Total Score: _____ (0-5 points)	Total score = Word Recall score + Clock Draw score. A cut point of <3 on the Mini-Cog <sup>®</sup> 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.

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16



### MEMORY IMPAIRMENT SCREEN (MIS)

**Instructions for Administration**

- Show patient a sheet of paper with the 4 items to be recalled in 24-point or greater uppercase letters (on other side), and ask patient to read the items aloud.
- Tell patient that each item belongs to a different category. Give a category cue and ask patient to indicate which of the words belongs in the stated category (eg, "Which one is the game?"). Allow up to 5 attempts. Failure to complete this task indicates possible cognitive impairment.
- When patient identifies all 4 words, remove the sheet of paper. Tell patient that he or she will be asked to remember the words in a few minutes.
- Engage patient in distractor activity for 2 to 3 minutes, such as counting to 20 and back, counting back from 100 by 7, spelling WORLD backwards.
- FREE RECALL** — 2 points per word: Ask patient to state as many of the 4 words he or she can recall. Allow at least 5 seconds per item for free recall. Continue to stop if no more words have been recalled for 10 seconds.
- CUED RECALL** — 1 point per word: Read the appropriate category cue for each word not recalled during free recall (eg, "What was the game?").

Word	Cue	Free recall (2 pts.)	Cued Recall (1 pts.)
Checkers	Game		
Sawyer	Dish		
Telegram	Message		
Red Cross	Organization		

**Scoring**

**The maximum score for the MIS is 8.**

- 5-8: No cognitive impairment
- < 4: Possible cognitive impairment



17

### VAMC SLUMS EXAMINATION

Questions about this assessment tool? E-mail [aging@slu.edu](mailto:aging@slu.edu)

Name \_\_\_\_\_ Age \_\_\_\_\_

Is the patient alert? \_\_\_\_\_ Level of education \_\_\_\_\_

1. What day of the week is it?
2. What is the year?
3. What state are we in?
4. Please remember these five objects. I will ask you what they are later.  
Apple Pen Tie House Car
5. You have \$100 and you go to the store and buy a dozen apples for \$3 and a tricycle for \$20.  
1. How much did you spend?  
2. How much do you have left?
6. Please name as many animals as you can in one minute.  
1. 0-4 animals    2. 5-9 animals    3. 10-14 animals    4. 15+ animals
7. What were the five objects I asked you to remember? I point for each one correct.
8. I am going to give you a series of numbers and I would like you to give them to me backwards. For example, if I say 42, you would say 24.  
1. 87    2. 648    3. 8537
9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.  
2. Hour markers okay  
3. Time correct
10. Please place an X in the triangle. 
11. Which of the above figures is largest? 
11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.  
Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.
1. What was the female's name?  
2. When did she go back to work?  
3. What work did she do?  
4. What state did she live in?

**TOTAL SCORE**

HIGH SCHOOL EDUCATION		SCORING		LESS THAN HIGH SCHOOL EDUCATION	
27-30	NORMAL	27-30	NORMAL	27-30	NORMAL
21-26	MILD NEUROCOGNITIVE DISORDER	21-26	MILD NEUROCOGNITIVE DISORDER	20-24	MILD NEUROCOGNITIVE DISORDER
1-20	DEMENZA	1-20	DEMENZA	1-19	DEMENZA

CLINICIAN'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. The Saint Louis University Mental Status (SLUMS) Examination for detecting mild cognitive impairment and dementia is more sensitive than the Mini-Mental Status Examination (MMSE) - A pilot study. *Am J Geriatr Psychiatry*. 14:900-10, 2006.

18

### Functional Activities Questionnaire

**Administration**

Ask informant to rate patient's ability using the following scoring system:

- Dependent = 3
- Requires assistance = 2
- Has difficulty but does by self = 1
- Normal = 0
- Never did [the activity] but could do now = 0
- Never did and would have difficulty now = 1

1.	Writing checks, paying bills, balancing checkbook	
2.	Assembling tax records, business affairs, or papers	
3.	Shopping alone for clothes, household necessities, or groceries	
4.	Playing a game of skill, working on a hobby	
5.	Heating water, making a cup of coffee, turning off stove after use	
6.	Preparing a balanced meal	
7.	Keeping track of current events	
8.	Paying attention to, understanding, discussing TV, book, magazine	
9.	Remembering appointments, family occasions, holidays, medications	
10.	Traveling out of neighborhood, driving, arranging to take buses	
TOTAL SCORE:		

**Evaluation**

Sum scores (range 0-30). Cut-point of 9 (dependent in 3 or more activities) is recommended to indicate impaired function and possible cognitive impairment.

Pfeffer, R.L., Kurosaki, T.T., Harrah, C.H. Jr., Chance, J.M., & Filos, S. (1982). Measurement of functional activities in older adults in the community. *Journal of Gerontology*, 37(3), 323-329. Reprinted with permission of Oxford University Press.

19

### SHORT FORM OF THE INFORMANT QUESTIONNAIRE ON COGNITIVE DECLINE IN THE ELDERLY (SHORT IQCODE)

Now we want you to remember what your friend or relative was like 10 years ago and to compare it with what he/she is like now. 10 years ago would be (year). Here are situations where a person has to use his/her memory or intelligence. For each one, we want you to indicate whether this has improved, stayed the same or gotten worse over the past 10 years. Note the importance of comparing his/her present performance with 10 years ago. So, if 10 years ago this person always forgot where he/she had left things, and he/she still does, then this would be considered "Hasn't changed much". Please indicate the changes you have observed by circling the appropriate answer.

Compared with 10 years ago how is this person at:	1	2	3	4	5
1. Remembering things about family and friends e.g. occupations, birthdays, addresses	Much improved	A bit improved	Not much change	A bit worse	Much worse
2. Remembering things that have happened recently	Much improved	A bit improved	Not much change	A bit worse	Much worse
3. Recalling conversations a few days later	Much improved	A bit improved	Not much change	A bit worse	Much worse
4. Remembering his/her address and telephone number	Much improved	A bit improved	Not much change	A bit worse	Much worse
5. Remembering what day and month it is	Much improved	A bit improved	Not much change	A bit worse	Much worse
6. Remembering where things are usually kept	Much improved	A bit improved	Not much change	A bit worse	Much worse
7. Remembering where to find things which have been put in a different place from usual	Much improved	A bit improved	Not much change	A bit worse	Much worse
8. Knowing how to work familiar machines around the house	Much improved	A bit improved	Not much change	A bit worse	Much worse
9. Learning to use a new gadget or machine around the house	Much improved	A bit improved	Not much change	A bit worse	Much worse
10. Learning new things in general	Much improved	A bit improved	Not much change	A bit worse	Much worse
11. Following a story in a book or on TV	Much improved	A bit improved	Not much change	A bit worse	Much worse
12. Making decisions on everyday matters	Much improved	A bit improved	Not much change	A bit worse	Much worse
13. Handling money for shopping	Much improved	A bit improved	Not much change	A bit worse	Much worse
14. Handling financial matters e.g. the pension, dealing with the bank	Much improved	A bit improved	Not much change	A bit worse	Much worse
15. Handling other everyday arithmetic problems e.g. knowing how much food to buy, knowing how long between visits from family or friends	Much improved	A bit improved	Not much change	A bit worse	Much worse
16. Using his/her intelligence to understand what's going on and to reason things through	Much improved	A bit improved	Not much change	A bit worse	Much worse

20

**The AD8: The Washington University Dementia Screening Test**  
*("Eight-item Interview to Differentiate Aging and Dementia")*

**Administration**  
 The questions are given to the respondent on a clipboard for self-administration or can be read aloud to the respondent either in person or over the phone. It is preferable to administer the AD8 to an informant, if available. If an informant is not available, the AD8 may be administered to the patient.  
 When administered to an informant, specifically ask the respondent to rate change in the patient.  
 When administered to the patient, specifically ask the patient to rate changes in his/her ability for each of the items, *without* attributing causality.  
 If read aloud to the respondent, it is important for the clinician to carefully read the phrase as worded and give emphasis to note changes due to cognitive problems (not physical problems).  
 There should be a one second delay between individual items.  
 No timeframe for change is required.

**Scoring**  
 The final score is a sum of the number items marked "Yes, A change".

**Interpretation of Results**  
 0-1: Normal cognition  
 2 or greater: Impairment in cognition

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., 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			
<b>TOTAL AD8 SCORE</b>			

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21

**INTRODUCING THE PROCESS AND  
 ADMINISTERING THE MINI-COG**

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22



23

Screening helps identify high risk for the same poor health outcomes as a dementia diagnosis

Everyday disability

Risk of medication mismanagement

Delirium

Low health literacy

Impaired driving

Missed appointments

Hospitalizations, readmissions

Length of hospital stay

Nursing home placement

Long-term mortality

Surgical complications

24

## Cognitive Impairment Doubles Readmissions in Heart Failure

*Mini-Cog Performance: Novel Marker of Post Discharge Risk Among Patients Hospitalized for Heart Failure*  
 Apurva Patel, MD; Roosha Parikh, MD; Erik H. Howell, MD; Eileen Hsich, MD;  
 Steven H. Landers, MD, MPH; Eiran Z. Gorodeski, MD, MPH  
*Circ Heart Fail 2015; 8:8-16*

N= 720 patients hospitalized for heart failure  
 23% impaired (Mini-Cog <3/5)  
 HR for composite 6-month outcome (death or first readmission) = 2.01 (1.61-  
 2.50) p<0.0001

25

## Identifying older adults at risk for perioperative neurocognitive decline

- Surgical/anesthesia guidelines recommend simple preoperative cognitive screening.
- Expert interprofessional management for at-risk patients is needed.
- Goal:
  - to test feasibility of routine cognitive screening in a busy preoperative assessment clinic
  - to establish a clinical pathway for at-risk older adults

Decker et al. JAGS 2020.

26

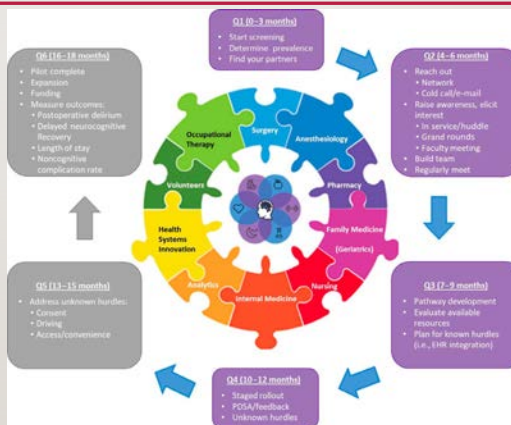
## MAIN RESULTS

- N = 1803 screened, 21% impaired (Mini-Cog)
- Anesthesiologists identified ~50% by interview
- Interprofessional team designed a clinical pathway with the goal of reducing post-operative cognitive decline

Decker et al. JAGS 2020

27

## THE CLINICAL PATHWAY: DESIGN AND IMPLEMENTATION TIMEFRAME



Decker et al. JAGS 2020

28

## THINK ABOUT YOUR OWN SCREENING PLAN: START WITH THE 'WHY'! HERE IS THE HOW.

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IN YOUR PRACTICE	WITH YOUR PATIENT
Choose tools	Start the conversation – brain health matters!
Plan workflow	Normalize the process
Clarify responsibilities	Clarify expectations – screen, not diagnosis
Set roles, train staff	Provide results
Monitor quality	Schedule appropriate followup, include family

29

## CONSIDER YOUR SETTING

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- What approach fits your patients/practice/setting?
- Comfortable doing an initial evaluation for dementia yourself?
- Easy access to cognitive disorder specialists? If so, have you agreed on who, when, and why to refer?
- Considered or already implemented care management in your practice?
- Moving toward value-based care, or already there?

30

## MEDICARE BENEFITS ENABLE IMPROVEMENT IN DEMENTIA DETECTION AND CARE

<b>Annual Wellness Visit – free to patients; G0438 (initial) and G0439 (subsequent). Health Risk Assessment and Personalized Prevention Plan</b>	
<b>Early detection</b>	<ul style="list-style-type: none"> <li>Elicit concerns, assess for cognitive impairment</li> <li>If present, prepare for brain health evaluation</li> <li>Create personalized prevention plan</li> </ul>
<b>Cognitive Assessment and Care Planning Visit – 99483</b>	
<b>Personalized care plan</b>	<ul style="list-style-type: none"> <li>9 elements; requires care partner (independent historian, care at home)</li> <li>Sets goals and framework for continuity of care</li> </ul>
<b>Chronic Care Management – 99490 (20 min), 99487 (60 min), 99489 (+30 min more)</b>	
<b>Continuity of care</b>	<ul style="list-style-type: none"> <li>Customized levels to account for complexity</li> <li>Adherence and goal tracking and re-setting</li> <li>Care coordination across settings, sites, providers</li> <li>24/7 access to care team member for urgent problems</li> </ul>

31

## ANNUAL WELLNESS VISIT IMPROVES DEMENTIA DETECTION, PROMOTES EQUITY

- Participants
  - 324,385 fee-for-service Medicare beneficiaries
  - No dementia diagnosis when AWW began (2011)
- Method
  - Instrumental variable: county level uptake of Welcome to Medicare – controls for provider willingness to use AWW
- Result
  - AWW increased likelihood of new dementia diagnosis within 6 months
  - Differential benefit by race/ethnicity
    - HRs - White 2.3, Black 2.2, Asian 4.8, Hispanic 6.4)

Lind et al. *Health Serv Res* 2021

32



## UPTAKE OF MEDICARE BENEFITS THAT SUPPORT BETTER DEMENTIA DETECTION AND CARE

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VISIT TYPE	FIRST DATA YEAR	MOST RECENT DATA YEAR
Annual Wellness Visit (older adults)	8% (2011)	32% (2018)
Cognitive Assessment and Care Planning (PLWD)	<0.05% (2017)	0.96% (2019)
Chronic Care Management (PLWD)	n/a	6.7% (2019)

Jacobson et al, *Health Aff* 2020; Hargraves, *Health Care Cost Institute*; Zissimopoulos *in prep*; Reddy et al. *Ann Fam Med* 2020

33

## IMPLEMENTING DEMENTIA DETECTION AS PART OF ROUTINE CARE OF OLDER PEOPLE

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34

# IMPLEMENTATION ROADMAP FOR ALZHEIMER'S AND DEMENTIA CARE

Co-created by S Borson, P Carlson, P Coon 2017-2021 with support from PCORI

