Check Up from the Neck Up: Assessing Cognition in Older Adults

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ACKNOWLEDGEMENTS

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Minnesota Area Geriatric Education Center (MAGEC)
Grant #UB4HP19196
Director: Robert L. Kane, MD
Associate Director: Patricia A. Schommer, MA
Objectives

After attending this webinar, you will be able to:

- Describe the value of timely detection of cognitive impairment and dementia
- Administer, score, and interpret at least one objective cognitive assessment tool
- Discuss cognitive assessment results and next steps with patients and providers
Challenges and Opportunities
Aging Population with Increased Dementia

Projected number of people 65+ years old in the U.S. with Alzheimer’s disease (2010-2050)

One in nine people age 65+ has Alzheimer’s.

One-third of people age 85+ have Alzheimer’s.

Patients with Dementia

• A population with complex care needs

  - 2.5 chronic conditions (average)
  - 5+ medications (average)
  - 3 times more likely to be hospitalized

Many admissions from preventable conditions, with higher per person costs

• Indisputable correlation between chronic conditions and costs

Diagnostic Awareness

Percent of Seniors Diagnosed with Condition Who Have Had Their Diagnosis Shared With Them

- Alzheimer's Disease: 45%
- Four Most Common Cancers* (Breast, Lung, Prostate, and Colorectal): 93%
- Cardiovascular Disease: 90%
- High Blood Pressure: 83%

*Breast, Lung, Prostate, and Colorectal

Alzheimer’s Association Facts and Figures 2014; Alzheimer’s Association HOPE for Alzheimer’s ACT Fact Sheet
**Myth:** People don’t want to know they have Alzheimer’s disease

**Studies Agree:**

Most people want to know.
Rational for Timely Detection

1. Improved management of co-morbid conditions

2. Reduce ineffective, expensive, crisis-driven use of healthcare resource

3. Improve quality of life
   - Patients can participate in decisions
   - Decrease burden on family and caregivers

4. Intervene to promote a safe and happy environment that supports independence
## Increasing Cost of Inaction

<table>
<thead>
<tr>
<th>Activity</th>
<th>Recognition +</th>
<th>Recognition -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Duration (Day)</td>
<td>6.7</td>
<td>7.5</td>
</tr>
<tr>
<td>30 day Post Hospital Mortality</td>
<td>4.8%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Discharged Home</td>
<td>31.5%</td>
<td>45.2%</td>
</tr>
<tr>
<td>Driving</td>
<td>11.6%</td>
<td>22.1%*</td>
</tr>
<tr>
<td>Managing Medications</td>
<td>14.9%</td>
<td>40.4%*</td>
</tr>
<tr>
<td>Managing Finances</td>
<td>7.3%</td>
<td>20.1%*</td>
</tr>
<tr>
<td>Preparing Hot meals</td>
<td>10.8%</td>
<td>34.1%*</td>
</tr>
</tbody>
</table>

*Adjusted P value < 0.05

Boustani et al, J Hospital Med 2010; Amjad H et al, JAGS 2016
Knowledge Check

What is the greatest risk factor for Alzheimer’s disease?

a. History of vascular disease
b. Family history
c. Age
d. Diabetes
Knowledge Check

What is the greatest risk factor for Alzheimer’s disease?

a. History of vascular disease
b. Family history
c. Age
d. Diabetes
Detecting Cognitive Impairment
Clinical Provider Practice Tool

- Easy button workflow for:
  1. Identification
  2. Dementia work-up
  3. Treatment / care

www.actonalz.org/provider-practice-tools
Objective Measures

• Wide range of options
  – Mini-Cog™ (MC)
  – Mini-Mental State Exam© (MMSE)
  – St. Louis University Mental Status Exam™ (SLUMS)
  – Montreal Cognitive Assessment™ (MoCA)
  – Rowland Universal Dementia Assessment (RUDAS)

• All but MMSE free, in public domain, and online

Borson et al., 2000; Folstein et al., 1975; Nasreddine 2005; Tariq et al., 2006
Administration Best Practices

• Do not:
  – Use the words “test” or “memory”  
    • Instead: “We’re going to do something next that requires some concentration”
  – Allow patient to give up prematurely or skip questions
  – Deviate from standardized instructions
  – Offer multiple choice answers
  – Be soft on scoring  
    – Score ranges already padded for normal errors
    – Deduct points where necessary – be strict
Administration Best Practices

• Never use the words “dementia” or “Alzheimer’s disease”
  – Screening tools are not diagnostic
  – Using these terms is premature at this stage and can contribute to anxiety/fear

• Avoid
  – Being unnecessarily wordy
  – Over-explaining or rationalizing the process

• **DO:**
  – Focus on health and well-being
  – Smile, be relaxed, practiced, comfortable
Cognitive Impairment Identification Flow Chart

Annual Exam
Mini Screen

Tools
Mini-Cog or GPCOG AND Family Questionnaire (if family available)

IF

Normal
Follow up in 1 year

Mini-Cog < 4* or GPCOG < 9 Family Questionnaire > 2

For diverse populations see ACT website:
www.actonalz.org/screening-diverse-populations
Mini-Cog™

Contents

• Verbal Recall (3 points)
• Clock Draw (2 points)

Advantages

• Quick (2-3 min)
• Easy
• High yield (executive fx, memory, visuospatial)

Subject asked to recall 3 words
Leader, Season, Table +3

Subject asked to draw clock, set hands to 10 past 11 +2

Borson et al., 2000
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. For repeated administrations, use of an alternative word list is recommended.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Banana</td>
<td>Leader</td>
<td>Village</td>
<td>River</td>
<td>Captain</td>
<td>Daughter</td>
</tr>
<tr>
<td>Sunrise</td>
<td>Season</td>
<td>Kitchen</td>
<td>Nation</td>
<td>Garden</td>
<td>Heaven</td>
</tr>
<tr>
<td>Chair</td>
<td>Table</td>
<td>Baby</td>
<td>Finger</td>
<td>Picture</td>
<td>Mountain</td>
</tr>
</tbody>
</table>

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 (11:00). 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™ 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.
Mini-Cog

Pass
• ≥ 4

Fail
• 3 or less

NOTE: 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.

Borson et al., 2000; Borson, Scanlan, Chen et al., 2003; Borson, Scanlan, Watanabe et al., 2006; Lessig, Scanlan et al., 2008; McCarten, Anderson et al., 2011; McCarten, Anderson et al., 2012; Tsoi, Chan et al., 2015
Mini-Cog Research

• Performance unaffected by education or language
  • Borson Int J Geriatr Psychiatry 2000

• Sensitivity and specificity similar to MMSE
  • Borson JAGS 2003

• Does not disrupt workflow & increases rate of diagnosis in primary care
  • Borson JGIM 2007

• Failure associated with inability to fill pillbox
  • Anderson et al The Consultant Pharmacist 2008
Mini-Cog Improves Physician Recognition

Mini-Cog: Sam

http://youtu.be/CRQEnhdb0w
Mini-Cog Scoring: Sam
Mini-Cog Scoring: Sam

Introductory Script:

➤ We are going to take a quick look at your memory. Some people think this task is easy and others find it more challenging. Just do the best you can.

➤ I am going to give you 3 words to try and remember. Listen carefully and repeat these words back to me when I’m finished: **Leader, Season, Table** (Repeat words if necessary to make sure patient has registered each one. Do not warn them that you will ask for the words again later).

➤ *(Fold paper in half so circle is facing patient).* Now, I want you to make a clock for me by putting in all the numbers where they are supposed to go. Then, set the time for 10 past 11. *(Repeat instructions as needed – this is not a memory test. If patient cannot complete the clock in 3 minutes, move on to next step).*

➤ Now, what were those 3 words I asked you to remember earlier?

**Mini-Cog Scoring:**

Word recall 1/3

Clock draw 0/2

Total 1/5

**Screen FAIL:** 0 – 3  
**Screen PASS:** 4 – 5

Word recall: 1 point for each word spontaneously recalled without cueing.

Clock draw: 0 or 2 points. To obtain credit, all numbers must be in correct sequence and position (e.g., 12, 3, 6, and 9 in anchor positions) with no missing or duplicate numbers. Two hands point toward 11 and 2 (length of hands does not matter).
How many points is this clock worth?

a. 0 points
b. 1 point
c. 2 points
Knowledge Check

How many points is this clock worth?

a. 0 points
b. 1 point
c. 2 points
Knowledge Check

How many points is this clock worth?

a. 0 points
b. 1 point
c. 2 points
How many points is this clock worth?

- a. 0 points
- b. 1 point
- c. 2 points
Cognitive Impairment Identification Flow Chart

Cognitive Assessment
(same day or new visit) + include family

IF

Follow up in 1 year

Score falls outside of normal range

<table>
<thead>
<tr>
<th>Normal Range:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLUMS = 27–30 (HS education)</td>
</tr>
<tr>
<td>MoCA = 26–30 (HS education)</td>
</tr>
<tr>
<td>Kokmen STMS = 29–30</td>
</tr>
<tr>
<td>MMSE/MMSE-2 = 27–30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Family Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3</td>
</tr>
</tbody>
</table>

Option 1
Do complete dementia workup (see provider checklist)

Option 2
Refer to: Champion in your practice, neurologist, neuropsychologist**
SLUMS

VAMC
SLUMS Examination

Questions about this assessment tool? E-mail aging@slu.edu.

Name_____________________________ Age ____________________________

Is 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.
   0  How much did you spend?
   1  How much do you have left?
6. Please name as many animals as you can in one minute.
   0  0-4 animals  1  5-9 animals  2  10-14 animals  3  15+ animals
7. What were the five objects I asked you to remember? 1 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.
   0  87  1  649  1  8537
9. This is a clock face. Please put in the hour markers and the time at
   ten minutes to eleven o’clock.
   0  Hour markers okay
   1  Time correct

Tariq et al., 2006
<table>
<thead>
<tr>
<th></th>
<th>High School Diploma</th>
<th>Less than 12 yrs education</th>
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</thead>
<tbody>
<tr>
<td><strong>Pass</strong></td>
<td>&gt; 27</td>
<td>&gt; 25</td>
</tr>
<tr>
<td><strong>Fail</strong></td>
<td>26 or less</td>
<td>24 or less</td>
</tr>
</tbody>
</table>

MoCA

MONTREAL COGNITIVE ASSESSMENT (MOCA)

VISUOSPATIAL / EXECUTIVE

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

POINTS

Copy cube

Draw CLOCK (Ten past eleven)
(3 points)

Contour
Numbers
Hands

---

NAMING

---

[ ]

Nasreddine et al., 2005
MoCA

Pass
• ≥ 26

Fail
• 25 or less

Nasreddine 2005
MoCA: Sam

http://youtu.be/ryf8SG0NQLQ?list=UUOPv8U5bHcdDCm4edmQDY9g
Alternative Tools

• Virtually all tools based upon a euro-centric cultural and educational model

• Consider: country and language of origin, type/quality/length of education, disabilities (visual, auditory, motor)

• Alternative tools may be less biased

• More information
  – Screening Diverse Populations on the ACT website
FAMILY QUESTIONNAIRE

We are trying to improve the care of older adults. Some older adults develop problems with memory or the ability to think clearly. When this occurs, it may not come to the attention of the physician. Family members or friends of an older person may be aware of problems that should prompt further evaluation by the physician. Please answer the following questions. This information will help us to provide better care for your family member.

In your opinion does ______________________ have problems with any of the following? Please circle the answer.

1. Repeating or asking the same thing over and over? Not at all Sometimes Frequently Does not apply
2. Remembering appointments, family occasions, holidays? Not at all Sometimes Frequently Does not apply
3. Writing checks, paying bills, balancing the checkbook? Not at all Sometimes Frequently Does not apply
4. Deciding what groceries or clothes to buy? Not at all Sometimes Frequently Does not apply
5. Taking medications according to instructions? Not at all Sometimes Frequently Does not apply

Relationship to patient ______________________
(spoouse, son, daughter, brother, sister, grandchild, friend, etc.)

www.actonalz.org/pdf/Family-Questionnaire.pdf
Knowledge Check

Research has demonstrated that failing the Mini-Cog is associated with the inability to:

a. Fill a pill box
b. Drive a car
c. Balance a checkbook
d. Follow a recipe
Knowledge Check

Research has demonstrated that failing the Mini-Cog is associated with the inability to:

a. Fill a pill box
b. Drive a car
c. Balance a checkbook
d. Follow a recipe
Communicating Cognitive Assessment Results
• Regardless of a passing or failing score, explain the patient’s test result by first reminding them of the assessment purpose

“The purpose of this task was to check on the health of the brain and determine if there is any need for further evaluation of your thinking or memory.”
Scripting: Passing Score

• “You obtained a **normal** score on this measure, which is good news. No additional action is needed.”

• “However, if you have concerns about your thinking or memory, talk to your provider.”
• Nurse/Allied health professional:
  – “Your doctor will review the results with you today during your visit.”
Scripting: Failing Score

• Physician/Provider:
  – “Your score on the measure was a little low today. Have you been having any trouble with your memory lately?”
  – “I would like you to schedule a follow-up appointment with me (or neurology, the memory clinic, psychiatry, etc.) on your way out so we can take a closer look at your memory. This is an important part of your care and an important part of staying healthy.”
  – Enter order for follow-up/referral
“Today we did a brief exam to check on the health of the brain. Your score on this measure was a little low. This is like getting blood work back that is outside the normal range. We should follow-up on this. I am going to send you to a specialist so we can determine what this means and what we should do about it.”
Clinical Provider Practice Tool

- Easy button workflow for:
  1. Identification
  2. Dementia work-up
  3. Treatment / care

www.actonalz.org/provider-practice-tools
Questions
ACKNOWLEDGEMENTS

This presentation was created by ACT on Alzheimer’s, an award-winning, nationally recognized, volunteer-driven collaborative seeking to create supportive environments for everyone touched by Alzheimer’s disease and to prepare Minnesota for its impacts.

ACT on Alzheimer’s®
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Lead Presentation Authors: Terry Barclay, PhD and Michelle Barclay, MA

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Visit www.actonalz.org/provider-practice-tools for more information and to access supportive tools and resources.
References & Resources

References & Resources


• Silverstein NM & Maslow K (Eds.) (2006). Improving Hospital Care for Persons with Dementia. New York: Springer Publishing CO.


References & Resources


Alzheimer’s Association

- Living with Alzheimer’s – Mid Stage: [https://www.alz.org/documents_custom/middle-stage-caregiver-tips.pdf](https://www.alz.org/documents_custom/middle-stage-caregiver-tips.pdf)
- Living with Alzheimer’s – Late Stage: [https://www.alz.org/documents_custom/late-stage-caregiver-tips.pdf](https://www.alz.org/documents_custom/late-stage-caregiver-tips.pdf)
- Trial Match: [http://www.alz.org/research/clinical_trials/find_clinical_trials_trialmatch.asp](http://www.alz.org/research/clinical_trials/find_clinical_trials_trialmatch.asp)
References & Resources

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- Caring for a Person with Alzheimer’s Disease:  http://www.nia.nih.gov/sites/default/files/caring_for_a_person_with_alzheimers_disease_0.pdf
- Coach Broyles Playbook on Alzheimer’s:  http://www.caregiversunited.com
- Honoring Choices Minnesota:  http://www.honoringchoices.org - broken
- MN Health Care Home Care Coordination Tool Kit:  http://www.health.state.mn.us/healthreform/homes/collaborative/lcdocs/cliniccarecoordtoolkit.pdf - broken
- Montreal Cognitive Assessment (MoCA)  http://www.mocatest.org
- Next Step in Care:  http://www.nextstepincare.org
- Physician Orders for Life Sustaining Treatment (POLST):  http://www.polst.org
References & Resources

• St. Louis University Mental Status (SLUMS) examination
  http://medschool.slu.edu/agingsuccessfully/pdfs-surveys/slumsexam_05.pdf


• Zarit Caregiver Burden Interview: http://www.uconn-aging.uchc.edu/patientcare/memory/pdfs/zarit_burden_interview.pdf