



Department of Health & Human Services, Centers for Medicare & Medicaid Services

# LTSS Research

## Cognitive Assessment Tools

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## Introduction

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Alzheimer's disease and related dementias (ADRD) are a serious concern in Indian Country due to the rapid increase of the population over 65 years of age among the American Indian and Alaska Native (AI/AN) population, and health and economic disparities that put AI/AN's at higher risk for developing ADRD (Griffin-Pierce et al., 2008). Recent reports suggest that the prevalence of ADRD may be higher in AI/AN than in other groups (Chen & Panegyres, 2016; Mayeda, Glymour, Quesenberry, & Whitmer, 2016). Additionally, there is a lack of culturally appropriate cognitive assessment tools to improve detection of cognitive impairments among AI/ANs. Cultural and linguistic diversity among AI/AN communities makes creating a universal cognitive assessment challenging (Griffin-Pierce et al., 2008).

Although efforts have been initiated in other indigenous populations, at present no cognitive assessment tools have been validated for use with AI/AN populations (Jervis & Manson, 2002; LoGiudice, Smith, & Thomas, 2006; Gleason, 2017; Winchester, 2017). Until adapted cognitive assessments are developed, clinicians must rely on cultural sensitivity and awareness of the population being served when selecting appropriate methods of monitoring cognitive behavior. This document provides an overview of cognitive assessment tools and presents six tools that can be adapted for use in Indian Country.

## Cultural Considerations

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Using a method that is appropriate for the community to screen and test for dementia helps to reduce an inaccurate assessment due to bias when using cognitive assessment tools. A health care provider may inaccurately attribute a language barrier as poor cognitive function. Similar misattributions can occur secondary to an individual's low education level, physical limitations, or cultural differences (Cordell et al., 2013). Considering sociocultural factors or involving family in the process supports the individual to feel comfortable and perform their best. Caregiver training ensures consistent monitoring and awareness of the signs and symptoms of dementia, which can be reported to the provider once cognitive ability has diminished or during routine check-ins (Gleason, 2017). Further, training in cultural sensitivity and local cultures increases awareness about an individual's history and preferred language or practices that could otherwise be misinterpreted (Winchester, 2017).

## Cognitive Assessment Tools

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Brief cognitive assessment tools are used to identify cognitive impairments and determine whether a full dementia evaluation is needed to assess for a possible dementia syndrome. The assessment results can prompt further testing or be used in conjunction with interview and other observational data to support a clinical diagnosis of dementia. Providers may use multiple screening tools to effectively assess cognitive function or track progress overtime. While there is a consensus that dementia recognition and diagnosis is valuable, there is currently not a consensus recommendation for population based screenings for dementia.

Importantly, caregivers and family members can contribute to a more accurate assessment of an individual's cognitive abilities, as they may be aware of subtle changes. Several cognitive assessment tools include participation from caregivers and

family members. For example, the General Practitioner Assessment of Cognition (described in the next section) includes a short interview with a caregiver or family member.

In the next section, highlight commonly used tools based on a 2013 Alzheimer's Association report and interviews conducted with subject matter experts who work in Indian Country (Cordell et al., 2013). These profiles list the tools advantages, disadvantages, and availability in [Table 1](#) through [Table 6](#). The profiles do not represent an exhaustive list of available monitoring tools, nor are these tools preferred over others.

## Cognitive Assessment Profiles

Table 1. Mini-Cog

### Mini-Cog

The Mini-Cog cognitive screening test measures short-term recall and clock drawing. Short-term recall is the ability to hold a small amount of information in the mind for a short period of time. For short-term recall, the patient is asked to listen and repeat three words and to then recall the words later. For the clock drawing test, the patient is asked to draw a clock. Visual and spatial problems are common early signs of dementia, and those with dementia will frequently misspace numbers on the clock.

**Administer time:** about 2–4 minutes

**Advantages identified by the Alzheimer's Association:**

- Developed for and validated in primary care and multiple languages/cultures
- little or no education, language, or race bias
- Short administration time

**Disadvantages identified by the Alzheimer's Association:**

- Use of different word lists for short-term recall test may affect failure rates, depending on familiarity with words
- Some study results based on longer tests with Mini-Cog elements are reviewed independently

**Available at:** <http://geriatrics.uthscsa.edu/tools/MINICog.pdf>

Table 2. Memory Impairment Screen

### Memory Impairment Screen (MIS)

MIS measures a four-item recall. The patient is asked to place four words into four categories and to then say the words 2 to 3 minutes later.

**Administer time:** about 4 minutes

**Advantages identified by the Alzheimer’s Association:**

- Verbal memory test (no writing or drawing)
- Little or no education bias

**Disadvantage identified by the Alzheimer’s Association:**

- Does not test working memory, mental flexibility, self-control, or ability to identify visual and spatial relationships

**Available at:** [https://www.alz.org/documents\\_custom/mis.pdf](https://www.alz.org/documents_custom/mis.pdf)

Table 3. General Practitioner Assessment of Cognition

### General Practitioner Assessment of Cognition (GPCOG)

The GPCOG cognitive screening tool includes recall and clock drawing. GPCOG also includes a caregiver or family member interview (informant interview) that reviews the patient’s working memory, mental flexibility, and self-control. Working memory is short-term memory used to accomplish a task, like remembering a grocery list. Mental flexibility is being able to switch from thinking about one thing to another.

**Screening administer time:** about 2–5 minutes

**Informant interview administer time:** about 1–3 minutes

**Advantages identified by the Alzheimer’s Association:**

- Developed for and validated in primary care
- Informant component is useful when initial complaint is informant-based
- Little or no education bias

**Disadvantages identified by the Alzheimer’s Association:**

- Patient component scoring is limited to pass/fail
- Informant component alone has limited accuracy
- Lacks data on any language/culture biases

**Available at:** <http://gpcog.com.au/>

Table 4. Montreal Cognitive Assessment

## Montreal Cognitive Assessment (MoCA)

The MoCA cognitive test detects mild cognitive impairment by measuring clock drawing, working memory, mental flexibility, abstract thinking, and self-control.

**Administer time:** about 10–15 minutes<sup>1</sup>

### Advantages identified by the Alzheimer’s Association:

- Designed to test for mild cognitive impairment
- Tests visuospatial thinking, naming, memory, attention, language, abstract Thinking (categorizing objects), and short-term recall

### Disadvantages identified by the Alzheimer’s Association:

- Lacks studies in general practice settings
- Education bias of 12 years or more
- Limited use and evidence

**Available at:** [http://www.mocatest.org/wp-content/uploads/2015/tests-instructions/MoCA-Test-English\\_7\\_1.pdf](http://www.mocatest.org/wp-content/uploads/2015/tests-instructions/MoCA-Test-English_7_1.pdf)

Table 5. Saint Louis University Mental Status

## Saint Louis University Mental Status (SLUMS)

The SLUMS tool is a cognitive test produced by the U.S. Department of Veterans Affairs. It consists of 11 items and measures orientation, short-term memory, and attention and includes a clock drawing test and figure recognition.

**Administer time:** about 7 minutes<sup>2</sup>

### Advantages identified by the Alzheimer’s Association

- No education biases
- Tests orientation, attention, numeric calculation, recall, verbal fluency, executive function (clock drawing), figure recognition (naming), and recall of contextual verbal information (story)

### Disadvantages identified by the Alzheimer’s Association

- Limited use and evidence
- Studied in U.S. Department of Veterans Affairs geriatric clinic, which works with largely White male patient population

**Available at:**

[http://medschool.slu.edu/agingsuccessfully/pdfsurveys/slumsexam\\_05.pdf](http://medschool.slu.edu/agingsuccessfully/pdfsurveys/slumsexam_05.pdf)

<sup>1</sup> Nasreddine, et al., 2005

<sup>2</sup> Tariq et al., 2006

Table 6. Mini-Mental State Examination

## Mini-Mental State Examination (MMSE)

The MMSE cognitive test, introduced in 1975, assesses orientation, word recall, attention, and visuospatial thinking.

**Administer time:** about 10 minutes<sup>3</sup>

### Advantages identified by the Alzheimer's Association

- Most widely used and studied worldwide
- Often used as reference for comparative evaluations of other assessments
- Required for some drug insurance reimbursements

### Disadvantages identified by the Alzheimer's Association

- Education, age, language, and culture bias
- Ceiling effect (highly educated impaired subjects pass)
- Must be purchased
- Most effective when individual has at least moderate cognitive impairment

**Available at:** <https://www.parinc.com/>

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<sup>3</sup> Pradier et al., 2014

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