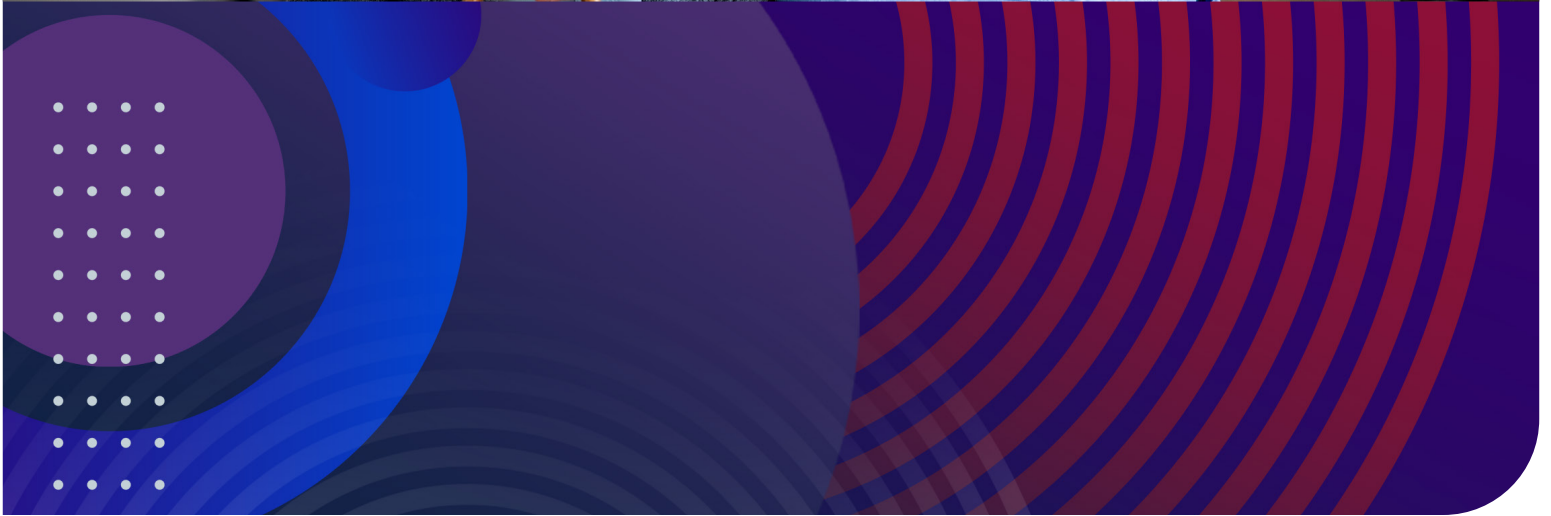


Diagnostic Excellence of Dementia and Cognitive Impairment in the Surgical Setting: Toolkit



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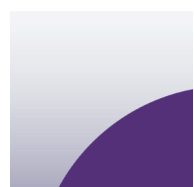
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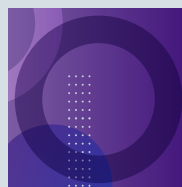
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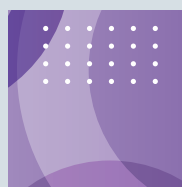
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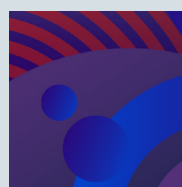
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Why complete a preoperative cognition assessment?

Brain health is important to older adults. Assessing the brain's function, or cognition, helps the surgical team to determine how to best support an older adult's mental abilities around an operation.

Assessment for cognitive impairment is vitally important so that processes and support measures can be implemented to support the patient through their peri-operative course. In the preoperative setting, a positive screening test allows the entire team managing the patient to implement supportive care pathways to prevent adverse outcomes and improve postoperative recovery.



Who should undergo a preoperative cognition assessment?

All patients 75 years and older prior to inpatient operations should receive cognitive screening preoperatively. This will allow the patient to perform at their baseline status without feeling the stressful effect of an operation or illness which does affect the cognitive screening test results. This is most feasible prior to elective operations.

In the urgent and emergent surgical settings, cognitive screening should be completed within 48 hours of the operation. The team needs to recognize that cognition test results will be negatively impacted by the operation and illness.



Script for Clinic Team Talking to Patient about Screening Cognition

Example 1: "We want to make the results of surgery the best they can be. Just like we look at the health of your heart and lungs before surgery, we plan to look at the health of your brain, or mental function, before surgery. To do this, we need to give you a quick evaluation which includes answering questions and performing tasks. Based on our findings, we will best be able to support your brain's health after the operation."

Example 2: "Before you have surgery, we want to check for things that might cause challenges during and after your surgery. For this, we want to leave no stone unturned. This evaluation will tell us about your brain's health. It will, for example, help us determine whether we should avoid certain medications during and after surgery."

Example 3: "Issues that affect your brain health may put you at risk for changes in mental status after surgery. This evaluation will help us understand if you may have an increased risk for these changes so we can better prevent this from happening."



What is the best cognitive screening tool to use?

Choosing the appropriate preoperative cognition screening test varies by institution. There is no single definitive test to recommend for preoperative screening. These tests do not diagnose neurocognitive disorders and, thus, patients should not be assigned a diagnosis of dementia based solely on these screens. Instead, they provide information for your provider to determine if more extensive cognitive evaluation or testing is necessary. The results also allow for patient risk stratification and mitigation of possible post-operative complications such as delirium. These tests involve answering questions and performing tasks. The purpose is to assess memory, attention and thinking processes. The patient does not need to prepare in any way for taking a cognitive screening test.

Also, when planning for cognitive assessment, the team needs to recognize factors that could affect a patient's ability to participate in testing. A patient's primary language, cultural background, education level, learning ability and health conditions (such as hearing or vision loss) all could affect their ability to participate and could alter the results. It is important to evaluate whether the standard screening tool utilized by the team will be appropriate for an individual patient, or if an alternative should be considered. Certain screening tools have been adapted for cultural and linguistic contexts and should be utilized when appropriate.

Preoperative Cognitive Screening Toolkit



Overview of Screening Tools

Four validated cognitive screening tools are summarized as part of this toolkit. Many additional validated cognitive screening tools exist which could be used for the older adult surgical population.

As previously mentioned, it is important to note that these screening tools may perform differently based on a patient's cultural, linguistic, and educational backgrounds. Screening tools vary in their level of linguistic and educational bias. Some of the tools listed have been translated into additional languages, which are further detailed in the summary of each screening tool included in this kit. It is important for surgeons and other clinicians to reflect on the applicability and utility of any screening tool within their given patient population, and to be mindful of the variability in results based on diverse factors.

Click the links or scan the QR codes below to access other resources to identify commonly used screening tools for cognition:

American Geriatric Society Cognition Toolkit



Alzheimer's Association Cognitive Assessment Toolkit



Cognition Screening Tools – In Person

- Mini-Mental State Examination (MMSE)*
- Montreal Cognitive Assessment (MoCA)*
- Mini-Cog*
- Short Test of Mental Status (STMS).
- Saint Louis University Mental Status (SLUMS).
- Addenbrooke's Cognitive Examination-Revised (ACE-R).

Cognition Screening Tools – Telephone

- Six-Item Cognitive Assessment Screen (6-CIT)*
- Telephone Montreal Cognitive Assessment (T-MoCA).

Cognition Screening Tools – Patient/Caregiver (i.e., Self) Assessment

- The Eight-item Informant Interview to Differentiate Aging and Dementia (AD8).

***Included in current cognitive screening toolkit.**



Mini-Mental State Exam (MMSE)

The Mini-Mental State Exam (MMSE) is the most widely used screening test in both the clinical and research settings for assessing cognitive impairment in older adults. The MMSE measures the cognitive domains of orientation, repetition, verbal recall, attention, calculation, language, and visual construction.

Click the links or scan the QR codes below to access the Mini-Mental State Exam (MMSE); 1st and 2nd editions:

Mini Mental Status Exam (MMSE)



Mini Mental Status Exam, 2nd Edition (MMSE-2)



Preparation:

- The patient needs to have adequate vision and hearing.
- A pen and watch are necessary to complete the task.

Components:

Examples of components of the MMSE test include:

- Repeating three words.
- Calculation of serial sevens (taken away from 100).
- Spelling word WORLD backward.
- Writing and drawing.

Interpretation:

The MMSE is scored out of a possible 30 points.

- A score above 24 is considered a negative screen.
- A score of 24 or lower is considered a positive screen and the patient should be considered for referral for more detailed neuropsychological testing.

Time to Complete:

- 10 minutes administration time.

Strengths:

- Most widely used, studied, and validated cognitive assessment tool.

Weaknesses:

- Test is under copyright and is not freely accessible.
- Biases include age and educational effects.

Accuracy:

- For dementia: sensitivity 85%, specificity 90%.
- For mild cognitive impairment: sensitivity 63%, specificity 65%.

Languages:

- MMSE is available in 60+ languages.
- MMSE-2 is available in 9 languages.



Montreal Cognitive Assessment (MoCA)

The Montreal Cognitive Assessment (MoCA) is the most widely used screening test which is known to be particularly good at detecting mild cognitive impairment. The MoCA measures the cognitive domains of memory, executive functioning, attention, language, visuospatial and orientation.

Click the links or scan the QR codes below to access the Montreal Cognitive Assessment (MoCA) screening test and to access the MoCA website:

MoCA Paper Version



MoCA Digital Version



MoCA Website



Preparation:

- A version of the MoCA was developed for vision and hearing-impaired older adults.
- The MoCA test sheet and a pencil are necessary to complete.

Components:

Examples of components of the MoCA test include:

- Drawing a line for trail making.
- Copying a drawing of a cube.
- Draw a clock.
- Read list of words and repeat words.
- Repeat a sentence.
- Define similarity between words.

Interpretation:

The MoCA is scored out of a possible 30 points.

- A score above 25 is considered a negative screen.
- A score of 18 to 25 suggests mild cognitive impairment.
- A score of 10 to 17 suggests moderate cognitive impairment.
- As score less than 10 points suggests severe cognitive impairment.

Time to Complete:

- 15 minutes administration time.

Strengths:

- Works well as a screening tool for both mild cognitive impairment and dementia.
- The test can be administered on a mobile tablet with an app.
- Formal online education on administering the tool is available.

Weaknesses:

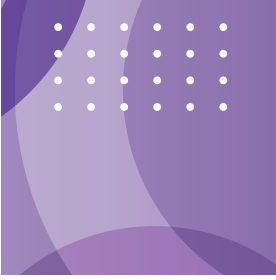
- Overemphasizes memory in assessment.
- Bias includes educational effects.

Accuracy:

- For dementia: sensitivity 93%, specificity 96%.
- For mild cognitive impairment: sensitivity 72%, specificity 75%.

Languages:

- Paper version is available in 70+ languages.
- Digital version is available in 11 languages.



Mini-Cog

The Mini-Cog is recognized as one of the fastest and simplest screening tools for cognitive impairment. The Mini-Cog measures the cognitive domains of cognitive function, language, visual-motor skills and executive function.

Click the link or scan the QR code below to access the Mini-Cog screening tool:

Mini-Cog



Preparation:

- The mini-cog is not accessible for vision or hearing-impaired older adults.
- Sheet of paper and a pencil are necessary to complete.

Components:

Components of the Mini-Cog test:

- Three item recall (1 point for each recalled word).
- Clock draw (2 points for normal clock, 0 points for abnormal clock).

Interpretation:

The Mini-Cog is scored out of a possible 5 points.

- A score of 2 or less indicates higher likelihood of cognitive impairment.
- As score of 3 or above indicates a lower likelihood of cognitive impairment.

Time to Complete:

- Less than 5 minutes administration time.

Strengths:

- Easy to administer.
- Rapid screening tool.
- Online step by step training with video examples available.

Weaknesses:

- Not as accurate as other screening tools.
- Scoring of the clock draw is vulnerable to different interpretations.

Accuracy:

- For dementia: sensitivity 76%, specificity 73%.
- For mild cognitive impairment: sensitivity 52%, specificity 80%.

Languages:

- Available in 22 languages.



Six-Item Cognitive Assessment Screen (6-CIT)

The Six-Item Cognitive Assessment Screen (6-CIT) is a brief cognitive screening test which is unique because it has been validated to complete via phone call. The 6-CIT measures the cognitive domains of orientation, episodic memory, and attention.

Click the link or scan the QR code below to access the Six-Item Cognitive Assessment (6-CIT) screening test:

6-CIT



Preparation:

- The 6-CIT is accessible for visual impaired older adults but not hearing-impaired older adults.
- The 6-CIT is administered verbally, and no other supplies are needed.

Components:

Components of the 6-CIT test:

- Counting backwards from 20.
- State months of year backward.
- Learning an address.

Interpretation:

The 6-CIT is scored out of a possible 28 points.

- A score of 0 to 7 is normal.
- A score of 8 or 9 is suggestive of mild cognitive impairment.
- A score of 10 to 28 suggests a positive screen for cognitive impairment.

Time to Complete:

- Less than 5 minutes administration time.

Strengths:

- Able to be completed by phone call.
- Easy and rapid to administer.

Weaknesses:

- Not as accurate as other screening tools.
- Scoring of the clock draw is vulnerable to different interpretations.

Accuracy:

- For dementia: sensitivity 80%, specificity 79%.
- For mild cognitive impairment: sensitivity 80%, specificity 69%.

Languages:

- Available only in English.



Your Patient Screens Positive: Now What?

Patients who screen positive for cognitive impairment will benefit from care pathways to mitigate risk for postoperative delirium and other complications:

- Evaluate for the presence of potentially inappropriate, or Beers Criteria, medications, and opportunities for safe, appropriate deprescribing. Ideally, this is done in partnership with the patient's primary care physician. Collaboration with a pharmacist is also helpful.
- Consider depression screening to evaluate for this potentially reversible cause of cognitive decline.
- Consider whether a family member or caregiver should also be present for any patient education such as pre/post-operative instructions.
- Inform the anesthesia team of this patient's elevated cognitive risks, so they can implement any necessary adjustments to the intraoperative anesthetic plan.
- Plan to apply postoperative delirium preventive measures such as:
 - Opioid sparing-multimodal analgesia and minimizing anticholinergics.
 - Frequent reorientation of the patient and early engagement of the family at bedside.
 - Early mobilization as able.
 - Maintaining day/night cycle by limiting nighttime interruptions wherever possible.
- Inform the patient's primary care physician of the abnormal screen to facilitate follow-up evaluation and support for the patient and family.