



## NATIONAL GUIDELINE CLEARINGHOUSE™ (NGC) GUIDELINE SYNTHESIS

### ALZHEIMER'S DISEASE AND RELATED DEMENTIAS. PART I. SCREENING

#### Guidelines

1. American Academy of Neurology (AAN). [Practice parameter: Early detection of dementia: mild cognitive impairment \(an evidence-based review\): Report of the Quality Standards Subcommittee of the American Academy of Neurology.](#) Neurology 2001 May 8 (Reaffirmed 2003);56(9):1133-42. [47 references]
2. Registered Nurses Association of Ontario (RNAO). [Screening for delirium, dementia and depression in older adults.](#) Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2003 Nov. 88 p. [53 references]
3. United States Preventive Services Task Force (USPSTF). [Screening for dementia: recommendation and rationale.](#) Ann Intern Med 2003 Jun 3;138(11):925-6. [68 references]

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#### INTRODUCTION:

A direct comparison of American Academy of Neurology (AAN), Registered Nurses Association of Ontario (RNAO), and United States Preventive Services Task Force (USPSTF) recommendations for screening for dementia is provided in the tables, below. The USPSTF guideline updates the 1996 recommendations contained in the *Guide to Clinical Preventive Services*, second edition.

Some guidelines are broader in scope than others. In addition to addressing screening for dementia, the RNAO guideline addresses screening for depression and delirium. RNAO also makes education and organizational recommendations. The AAN guideline includes recommendations for future research. In formulating its recommendations, RNAO reviewed the 1996 edition of the USPSTF guideline and USPSTF reviewed the conclusions of AAN.

[Table 1](#) compares the scope of each of the guidelines. [Table 2](#) compares recommendations for screening for dementia, including whom to screen and screening methods and tools. [Table 3](#) compares the potential benefits and harms associated with the implementation of each guideline.

The level of evidence supporting the major recommendations is also identified. The definitions of the rating schemes used by AAN, RNAO and USPSTF are included in [Table 4](#). Following the content comparison tables, the areas of agreement and differences among the guidelines are identified.

**Abbreviations:**

- AAN, American Academy of Neurology
- AD, Alzheimer's disease
- MMSE, Mini-Mental State Examination
- RNAO, Registered Nurses Association of Ontario
- USPSTF, United States Preventive Services Task Force

<b>TABLE 1: COMPARISON OF SCOPE AND CONTENT</b>	
<b>Objective And Scope</b>	
<b>AAN (2001)</b>	To determine whether screening different groups of elderly individuals in a general or specialty practice is beneficial in detecting dementia
<b>RNAO (2003)</b>	To improve the screening assessment of older adult clients for delirium, dementia, and depression
<b>USPSTF (2003)</b>	<ul style="list-style-type: none"> <li>• To summarize the current USPSTF recommendations on screening for dementia and the supporting scientific evidence</li> <li>• To update the 1996 recommendations contained in the Guide to Clinical Preventive Services, Second Edition</li> </ul>
<b>Target Population</b>	
<b>AAN (2001)</b>	Older adults with mild cognitive impairment
<b>RNAO</b>	Older adults

<b>(2003)</b>	
<b>USPSTF (2003)</b>	<p>Older adults seen in primary care, or those in whom cognitive impairment or deterioration is suspected, based on direct observation, patient report, or concerns raised by family members, friends or caretakers</p> <p><b>Note:</b> The USPSTF <b>did not</b> review evidence on screening individuals with mild cognitive impairment, a condition not associated with functional impairment but that sometimes progresses to dementia.</p>
<b>Intended Users</b>	
<b>AAN (2001)</b>	Physicians
<b>RNAO (2003)</b>	Advanced Practice Nurses Nurses
<b>USPSTF (2003)</b>	Advanced Practice Nurses Allied Health Personnel Nurses Physician Assistants Physicians
<b>Interventions And Practices Considered</b>	
<b>AAN (2001)</b>	<ol style="list-style-type: none"> <li>1. Whom to screen for dementia</li> <li>2. Dementia screening instruments <ol style="list-style-type: none"> <li>a. General cognitive screening instruments</li> <li>b. Focused cognitive screening instruments</li> <li>c. Neuropsychologic batteries</li> <li>d. Informant-based instruments</li> </ol> </li> </ol> <p><i>Recommendations for future research are included in the guideline but not discussed in this synthesis.</i></p>
<b>RNAO (2003)</b>	<ol style="list-style-type: none"> <li>1. Whom to screen for dementia, delirium and depression</li> <li>2. Distinguishing between delirium, dementia, and depression</li> <li>3. Dementia screening instruments <ol style="list-style-type: none"> <li>a. Standardized cognitive assessment tools</li> </ol> </li> <li>4. Referral</li> </ol> <p><i>Nursing education and organizational/policy recommendations are included in the guideline but not discussed in this synthesis.</i></p>
<b>USPSTF (2003)</b>	<ol style="list-style-type: none"> <li>1. Whom to screen for dementia</li> <li>2. Dementia screening instruments <ol style="list-style-type: none"> <li>a. Patient-based cognitive assessment tools</li> <li>b. Informant-based functional impairment screening</li> </ol> </li> </ol>

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<b>TABLE 2: COMPARISON OF RECOMMENDATIONS FOR SCREENING FOR DEMENTIA</b>	
<b>Whom to Screen</b>	
<b>AAN (2001)</b>	<p><u>Screening Asymptomatic Individuals</u></p> <ul style="list-style-type: none"> <li>• <u>There was insufficient data to make any recommendations regarding cognitive screening of asymptomatic individuals.</u></li> </ul> <p><u>Screening At-Risk Subjects</u></p> <ul style="list-style-type: none"> <li>• Patients with mild cognitive impairment should be recognized and monitored for cognitive and functional decline due to their increased risk for subsequent dementia <b>(Guideline)</b>.</li> </ul>
<b>RNAO (2003)</b>	<p><b>Recommendation 1</b></p> <p>Nurses should maintain a high index of suspicion for delirium, dementia, and depression in the older adult. <i>(Strength of Evidence B)</i></p> <p><b>Recommendation 2</b></p> <p>Nurses should screen clients for changes in cognition, function, behaviour, and/or mood, based on their ongoing observations of the client and/or concerns expressed by the client, family, and/or interdisciplinary team, including other specialty physicians. <i>(Strength of Evidence C)</i></p> <p><b>Recommendation 8</b></p> <p>Nurses should screen for suicidal ideation and intent when a high index of suspicion for depression is present and seek an urgent medical referral. Further, should the nurse have a high index of suspicion for delirium, an urgent medical referral is recommended. <i>(Strength of Evidence C)</i></p>
<b>USPSTF (2003)</b>	<p>The USPSTF concludes that the evidence is insufficient to recommend for or against routine screening for dementia in older adults. <b>I recommendation.</b></p>

	<p><b>Clinical Considerations</b></p> <ul style="list-style-type: none"> <li>• Although current evidence does not support routine screening of patients in whom cognitive impairment is not otherwise suspected, clinicians should assess cognitive function whenever cognitive impairment or deterioration is suspected, based on direct observation, patient report, or concerns raised by family members, friends, or caretakers.</li> </ul>
<p><b>Screening Methods and Tools</b></p>	
<p><b>AAN (2001)</b></p>	<p><u>General Cognitive Screening Instruments</u></p> <ul style="list-style-type: none"> <li>• General cognitive screening instruments (e.g., MMSE) should be considered for the detection of dementia in individuals with suspected cognitive impairment <b>(Guideline)</b>.</li> </ul> <p>General cognitive screening instruments, which include the MMSE, Kokmen Short Test of Mental Status, 7-Minute Screen, and Memory Impairment Screen, are useful for the detection of dementia when used in patient populations with an elevated prevalence of cognitive impairment either due to age or presence of memory dysfunction.</p> <p><u>Brief Focused Screening Instruments</u></p> <ul style="list-style-type: none"> <li>• Brief cognitive assessment instruments that focus on limited aspects of cognitive function (i.e., Clock Drawing Test, Time and Change Test) may be considered when screening patients for dementia <b>(Option)</b>.</li> </ul> <p>Recently, attempts have been made to develop useful screening tools that can be administered in a brief time frame. Caution must be exercised because of the limited scope of these tools.</p> <p><u>Neuropsychologic Batteries</u></p> <ul style="list-style-type: none"> <li>• Neuropsychologic batteries should be considered useful in identifying patients with dementia, particularly when administered to a population at increased risk of cognitive impairment <b>(Guideline)</b>.</li> </ul> <p>Neuropsychologic batteries are useful instruments in identifying patients with dementia, particularly when administered to an increased-risk (by virtue of memory impairment) population. Those neuropsychologic instruments that emphasize memory function are most useful.</p>

	<p><u><i>Informant-based Instruments</i></u></p> <ul style="list-style-type: none"> <li>• Interview-based techniques may be considered in identifying patients with dementia, particularly in a population at increased risk for cognitive impairment <b>(Option)</b>.</li> </ul> <p>Interview-based techniques (i.e., Blessed Dementia Rating Scale, Clinical Dementia Rating, Informant Questionnaire on Cognitive Decline in the Elderly) may be useful in identifying patients with dementia, particularly when administered to patients who are at increased risk of developing dementia by virtue of age or memory impairment. These instruments emphasize the importance of obtaining information concerning the cognitive and functional status of persons from an informed source.</p>
<p><b>RNAO (2003)</b></p>	<p><b>Recommendation 2</b></p> <p><b><i>Discussion of Evidence</i></b></p> <p>There is much discussion in the literature on the important role of family and caregivers as part of history taking. Studies confirm that a collateral history should be obtained from a reliable informant, since the client with delirium, dementia and/or depression may lack insight into their illnesses and their cognitive changes may limit the validity of self-report. One group of researchers concludes that relatives and caregivers can accurately identify cognitive decline, and their concerns must always be taken seriously. Another group of researchers note that reports from relatives vary greatly, depending on the relationship with the client. For example, spouses report lower levels of impairment than younger family members. Other studies expand on this theme, suggesting that information from informants can be obtained through interviews, as well as completion of rating scales.</p> <p><b>Recommendation 3</b></p> <p>Nurses must recognize that delirium, dementia, and depression present with overlapping clinical features and may coexist in the older adult. <i>(Strength of Evidence B)</i></p> <p><b>Recommendation 4</b></p> <p>Nurses should be aware of the differences in the clinical features of delirium, dementia, and depression and use a structured assessment method to facilitate this process. <i>(Strength of Evidence C)</i></p> <p><b>Recommendation 5</b></p> <p>Nurses should objectively assess for cognitive changes by using one or more standardized tools in order to substantiate clinical observations.</p>

	<p><i>(Strength of Evidence A)</i></p> <p>This list is not inclusive, and the tools are to be considered suggestions only. The evidence does not support a specific tool, and the RNAO development panel does not consider one tool superior to another.</p> <ul style="list-style-type: none"> <li>• MMSE</li> <li>• Clock Drawing Test</li> <li>• Neecham Confusion Scale</li> <li>• Confusion Assessment Method Instrument (CAM)</li> <li>• Cornell Scale for Depression</li> <li>• Geriatric Depression Scale</li> <li>• Suicide Risk in the Older Adult</li> </ul> <p>Refer to the guideline document for additional details of screening instruments.</p> <p><b>Recommendation 6</b></p> <p>Factors such as sensory impairment and physical disability should be assessed and considered in the selection of mental status tests. <i>(Strength of Evidence B)</i></p>
<p><b>USPSTF (2003)</b></p>	<p><b>Clinical Considerations</b></p> <ul style="list-style-type: none"> <li>• The MMSE is the best-studied instrument for screening for cognitive impairment. When the MMSE is used to screen unselected patients, the predictive value of a positive result is only fair. The accuracy of the MMSE depends upon a person's age and educational level: using an arbitrary cut-point may potentially lead to more false-positives among older people with lower educational levels, and more false-negatives among younger people with higher educational levels. Tests that assess functional limitations rather than cognitive impairment, such as the Functional Activities Questionnaire, can detect dementia with sensitivity and specificity comparable to that of the MMSE.</li> </ul> <p><b>Accuracy and Reliability of Screening Tests</b></p> <p>Screening tests used for dementia are either direct cognitive tests of patients or functional assessments using patients and others as informants. Most screening tests have been evaluated in studies with small sample sizes, and the populations of patients on whom screening instruments have been tested have varied greatly, making it difficult to determine the overall performance of screening tests for dementia. The best evidence is available for a cognitive test—the Mini-Mental Status Examination (MMSE)—from studies in primary care settings that used standardized diagnostic instruments (e.g., the DSM-IV) as a "gold standard."</p>

	<p>Other cognitive screening tests, such as the Short Portable Mental Status Questionnaire, Clock Drawing Test, Modified MMSE, Mini-Cog, Hopkins Verbal Learning Test, and the 7-minute screen are promising, but have not been adequately evaluated in primary care settings.</p> <p><i>Informant-based Functional Tests</i></p> <p>Some informant-based functional tests, such as the Functional Activities Questionnaire (FAQ), the Informant Questionnaire of Cognitive Decline in the Elderly (IQCODE), and the Instrumental Activities of Daily Living (IADL) Questionnaire, have also been tested. The sensitivity and specificity of FAQ is reported to be 90%. The functional test instruments offer the advantages of "everyday relevance", acceptability by subjects, adaptability to various types of patients, administrative ease, longitudinal perspective, and cross-cultural portability. The primary limitations of these tests are that not all patients have caregivers and that some functions (e.g., cognition) are not tested. Most importantly, few methodologically sound studies regarding the accuracy of these questionnaires in primary care settings have been completed.</p> <p><i>Genetic Testing</i></p> <p>Testing for genetic mutations may eventually prove useful in screening individuals at risk for Alzheimer's disease. There are, however, limited population-based data regarding the absolute risk of dementia among individuals having a positive genetic test. Thus the potential benefits and harms of testing for an individual patient are uncertain. Finally, the ethical issues in genetic testing for dementia are unresolved.</p>
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<b>TABLE 3: BENEFITS AND HARMS</b>	
<b>Benefits</b>	
<b>AAN (2001)</b>	Improved detection of dementia in persons with signs of mild cognitive impairment
<b>RNAO (2003)</b>	Enabling the nurse to recognize and provide timely screening for delirium, dementia, and depression may result in improved outcomes for the client.
<b>USPSTF (2003)</b>	The USPSTF found good evidence that some screening tests have good sensitivity but only fair specificity in detecting cognitive impairment and dementia.
<b>Harms</b>	

<b>AAN (2001)</b>	Not stated
<b>RNAO (2003)</b>	Not stated
<b>USPSTF (2003)</b>	The harms of dementia screening have not been systematically examined. Both false-positive and true positive results could have adverse psychological effects on patients, but USPSTF found few studies that address these outcomes. In one study of patients undergoing a detailed assessment of mental function, fewer than 5% found the screening itself distressing, intrusive or depressing; no studies were found of patient attitudes towards more limited tests of cognitive function such as the MMSE. Once screening identifies an individual with low cognitive function, clinicians have some concern over the disclosure of information to patients regarding their dementia status. The USPSTF found several case reports of suicide in patients with newly diagnosed Alzheimer's disease, but found no evidence of this potential adverse event in screening studies. A diagnosis of dementia could have effects on a patient's autonomy, but the USPSTF found no evidence supporting this concern. More established risks of receiving the diagnosis of dementia are difficulty obtaining medical or life insurance, or acceptance into assisted-living communities.

**TABLE 4: EVIDENCE RATING SCHEMES AND REFERENCES**

<b>AAN (2001)</b>	<p><b>Classification of Evidence</b></p> <p><i>Class I.</i> Evidence provided by one or more well-designed, randomized, controlled clinical trials, including overviews (meta-analyses) of such trials.</p> <p><i>Class II.</i> Evidence provided by well-designed, observational studies with concurrent controls (e.g., case control or cohort studies).</p> <p><i>Class III.</i> Evidence provided by expert opinion, case series, case reports, and studies with historical controls.</p> <p><b>Levels of Recommendation</b></p> <p><i>Standard.</i> Principle for patient management that reflects a high degree of clinical certainty. (Usually requires Class I evidence that directly addresses clinical questions or overwhelming Class II evidence when circumstances preclude randomized clinical trials.)</p> <p><i>Guideline.</i> Recommendation for patient management that reflects</p>
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	<p>moderate clinical certainty. (Usually requires Class II evidence or a strong consensus of Class III evidence.)</p> <p><i>Option.</i> Strategy for patient management for which clinical utility is uncertain (inconclusive or conflicting evidence or opinion).</p>
<p><b>RNAO (2003)</b></p>	<p><b>Definitions:</b></p> <p><b>Strength of Evidence A:</b> Requires at least two randomized controlled trials as part of the body of literature of overall quality and consistency addressing the specific recommendations.</p> <p><b>Strength of Evidence B:</b> Requires availability of well conducted clinical studies, but no randomized controlled trials on the topic of recommendations.</p> <p><b>Strength of Evidence C:</b> Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality.</p>
<p><b>USPSTF (2003)</b></p>	<p><b>Definitions:</b></p> <p>The Task Force grades its <b>recommendations</b> according to one of 5 classifications (A, B, C, D, I) reflecting the strength of evidence and magnitude of net benefit (benefits minus harms):</p> <p><b>A</b></p> <p>The USPSTF strongly recommends that clinicians provide [the service] to eligible patients. The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.</p> <p><b>B</b></p> <p>The USPSTF recommends that clinicians provide [this service] to eligible patients. The USPSTF found at least fair evidence that [the service] improves important health outcomes and concludes that benefits outweigh harms.</p> <p><b>C</b></p> <p>The USPSTF makes no recommendation for or against routine provision of [the service]. The USPSTF found at least fair evidence that [the service] can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.</p>

	<p><b>D</b></p> <p>The USPSTF recommends against routinely providing [the service] to asymptomatic patients. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.</p> <p><b>I</b></p> <p>The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing [the service]. Evidence that [the service] is effective is lacking, of poor quality, or conflicting and the balance of benefits and harms cannot be determined.</p> <p>The Task Force grades the <b>quality of the overall evidence</b> for a service on a 3-point scale (good, fair, poor):</p> <p><b>Good</b></p> <p>Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.</p> <p><b>Fair</b></p> <p>Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.</p> <p><b>Poor</b></p> <p>Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.</p>
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## **GUIDELINE CONTENT COMPARISON**

The American Academy of Neurology (AAN), Registered Nurses Association of Ontario (RNAO), and United States Preventive Services Task Force (USPSTF) present recommendations for screening for dementia and provide explicit reasoning behind their judgments. All three organizations rank the level of evidence for each major recommendation.

The guidelines differ somewhat in scope. While AAN and USPSTF address only screening for dementia, RNAO also addresses screening for delirium and depression (including suicidal ideation) and reviews differential and overlapping

clinical features of the three conditions. In addition, RNAO provides nursing education and organizational and policy recommendations. AAN discusses research needs related to screening for dementia.

The RNAO guideline is intended for nurses, the AAN guideline for physicians, and the USPSTF guideline for physicians and other medical professionals. Nonetheless, the content of the guidelines is fairly similar, with the exception that the RNAO guideline incorporates discussion particularly relevant to nursing practice.

## **Areas of Agreement**

### *Whom to Screen*

AAN, RNAO and USPSTF are in general agreement regarding whom to screen, with all three guidelines recommending screening only individuals who are at increased risk for dementia. USPSTF points out that most screening tests for dementia have a low predictive value in general populations and unselective screening may have adverse effects (e.g., labeling effects and unnecessarily subjecting patients to further tests). USPSTF therefore recommends that screening be reserved for patients in whom cognitive impairment or deterioration is suspected based on direct observation, patient report, or concerns raised by family members, friends or caretakers. AAN notes that there is insufficient data to make recommendations regarding the screening of asymptomatic individuals. They do however find sufficient evidence to support a recommendation for screening individuals with mild cognitive impairment as defined by the following criteria: memory complaint, objective memory impairment, normal general cognitive function, intact activities of daily living, and not demented. RNAO recommends screening for individuals suspected of having changes in cognition, function, behavior and/or mood based on the nurse's observation of the client or concerns expressed by the client, family or health professionals.

### *Screening Methods and Tools*

The three guidelines agree that observation and/or interview of either the patient or informants are useful for identifying dementia. RNAO states that clinical interview/observation is the most effective method for detecting dementia. USPSTF points out the need for clinicians to be alert to suggestive signs and symptoms in their older patients.

The guidelines also agree that cognitive screening instruments are useful, although no specific screening tool is clearly superior. RNAO notes that a general cognitive screening instrument, the Mini-Mental State Exam (MMSE), is the most widely used assessment tool and USPSTF notes it is the best studied tool. Both AAN and USPSTF point out that the MMSE has limitations as a screening tool in general population assessments, but has better predictive value in populations of individuals at risk. According to USPSTF, MMSE scores are affected by age, education and ethnicity, making it difficult to apply a uniform cutoff point. AAN indicates that brief cognitive assessment instruments that focus on limited aspects of cognitive function also may be considered for screening purposes. A number of general and focused cognitive screening instruments are discussed in the three guidelines. USPSTF states that tests that assess functional limitations rather than cognitive impairment can detect dementia with sensitivity and specificity

comparable to that of the MMSE. Finally, although screening instruments can be useful, the AAN guideline cautions that diagnosis of dementia should not be based on results of screening tests alone. The RNAO guideline agrees, stressing that screening tools can augment, but not replace a comprehensive "head to toe" nursing assessment.

### **Areas of Differences**

There are no significant areas of differences between the three guidelines.

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