



## Complete Summary

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### GUIDELINE TITLE

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.

### BIBLIOGRAPHIC SOURCE(S)

Petersen RC, Stevens JC, Ganguli M, Tangalos EG, Cummings JL, DeKosky ST. 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;56(9):1133-42. [47 references]

### GUIDELINE STATUS

This is the current release of the guideline.

According to the guideline developer, this guideline has been reviewed and is still considered to be current as of October 2003. This review involved new literature searches of electronic databases followed by expert committee review of new evidence that has emerged since the original publication date.

## COMPLETE SUMMARY CONTENT

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## SCOPE

### DISEASE/CONDITION(S)

- Dementia
- Alzheimer's disease

### GUIDELINE CATEGORY

Diagnosis  
Screening

### **CLINICAL SPECIALTY**

Family Practice  
Geriatrics  
Internal Medicine  
Neurology  
Psychiatry

### **INTENDED USERS**

Physicians

### **GUIDELINE OBJECTIVE(S)**

To determine whether screening different groups of elderly individuals in a general or specialty practice is beneficial in detecting dementia

### **TARGET POPULATION**

Persons with mild cognitive impairment

### **INTERVENTIONS AND PRACTICES CONSIDERED**

#### **General Cognitive Screening Instruments**

1. Mini-Mental State Examination (MMSE)
2. Kokmen Short Test of Mental Status
3. Memory Impairment Screen
4. 7-Minute Screen

#### **Brief Focused Screening Instruments**

1. Clock Drawing Test
2. Time and Change Test

#### **Neuropsychologic Batteries**

1. Neuropsychologic Battery
2. Mattis Rating Scale
3. Halifax Mental Status Scale
4. Fuld Object Memory Test

#### **Informant-Based Instruments**

1. Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)
2. Clinical Dementia Rating (CDR)
3. Blessed Dementia Rating Scale (BDRS)

## MAJOR OUTCOMES CONSIDERED

- Rates of conversion to dementia for persons classified as having mild cognitive impairment
- Sensitivity and specificity of screening instruments for detection of dementia/cognitive impairment
- Positive and negative predictive values of screening instruments for detection of dementia/cognitive impairment

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
Hand-searches of Published Literature (Secondary Sources)  
Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

*Panel selection.* The Quality Standards Subcommittee identified two team leaders to select committee members to participate in the creation of one or more practice parameters on dementia. The committee determined that three practice parameters were needed: Detection of Dementia, Diagnosis of Dementia, and Management of Dementia. The three practice parameter committees coordinated their literature searches to include key words such as specific forms of dementia and databases that interrelate the three topics. All panel members provided comprehensive disclosures of any real or potential conflicts of interests.

*Literature review process.* Search terms. Key and index words used were as follows: dementia, pre-senile dementia, senile dementia, vascular dementia, Alzheimer's disease, early detection, early diagnosis, early stages, early symptoms, health screening, psychologic screening inventory, geriatric assessment, longitudinal studies, retrospective studies, mild cognitive impairment, Mini-Mental State Examination, cognitive impairment, cognitive assessment, and memory tests.

Databases. MEDLINE, EMBASE, Current Contents, Psychological Abstracts, Psych Info, Cochrane Database, and CINAHL Database were searched.

Inclusion/exclusion criteria and process. For the searches, the authors of the guideline sought studies in all languages; however, other types of studies were limited to English only. Studies were restricted to human subjects. Longitudinal prospective studies that evaluated mildly impaired subjects and followed them to detect cognitive impairment from 1991 to early 2000 were reviewed. The authors of the guideline also examined reviews and their bibliographies published from 1994 to November 1999 to identify additional articles. In addition, the authors of the guideline evaluated studies of clinical testing instruments that could be used to identify subjects with cognitive impairment.

Number and disposition of articles. The authors of the guideline identified 1,933 abstracts, which yielded 120 articles. Application of appropriate

inclusion/exclusion criteria yielded 74 articles that provided the evidence for this parameter.

## **NUMBER OF SOURCE DOCUMENTS**

74

## **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Weighting According to a Rating Scheme (Scheme Given)

## **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

### **Classification of Evidence**

*Class I.* Evidence provided by one or more well-designed, randomized, controlled clinical trials, including overviews (meta-analyses) of such trials.

*Class II.* Evidence provided by well-designed, observational studies with concurrent controls (e.g., case control or cohort studies).

*Class III.* Evidence provided by expert opinion, case series, case reports, and studies with historical controls.

## **METHODS USED TO ANALYZE THE EVIDENCE**

Review of Published Meta-Analyses  
Systematic Review with Evidence Tables

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

Data extraction items. Articles were reviewed by at least two individuals and selected items were coded onto a data extraction form that had the following information: type of article, focus of article (e.g., diagnosis of dementia, early dementia), number of subjects, sex, subject selection method, method of patient characterization, screening instruments used, final diagnostic classification, gold standard for final diagnostic classification, quality of diagnostic methods, formal diagnostic criteria used, diagnostic criteria for Alzheimer's disease (if applicable), age of population studied (if study dealt with test or instrument), name and value, sensitivity, specificity, positive predictive value, negative predictive value, and final classification of evidence.

Classification of evidence. Each article was assigned to a class of evidence based on a priori definitions. The class of evidence determined whether or not study results were ultimately translated into Standards, Guidelines, or Options.

Development of evidence tables. For all articles, evidences tables were developed. These tables indicate the author and year of the study, level of evidence, main purpose of the study, population, intervention, outcome measure, and result.

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Not stated

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

### **Levels of Recommendation**

*Standard.* 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.)

*Guideline.* Recommendation for patient management that reflects moderate clinical certainty. (Usually requires Class II evidence or a strong consensus of Class III evidence.)

*Option.* Strategy for patient management for which clinical utility is uncertain (inconclusive or conflicting evidence or opinion).

## **COST ANALYSIS**

A formal cost analysis was not performed and published cost analyses were not reviewed.

## **METHOD OF GUIDELINE VALIDATION**

External Peer Review  
Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

The guidelines were approved by the American Academy of Neurology Quality Standards Subcommittee on November 11, 2000, by the American Academy of Neurology Practice Committee on January 6, 2001, and by the American Academy of Neurology Board of Directors on February 24, 2001.

# **RECOMMENDATIONS**

## **MAJOR RECOMMENDATIONS**

*Classification of evidence ratings, I-III, and the levels of recommendations (Standard, Guideline, Option) are defined at the end of the "Major Recommendations" field.*

1. Does the presence of mild cognitive impairment predict the development of dementia?

*Conclusion:* Studies indicate that individuals characterized as being cognitively impaired but not meeting clinical criteria for dementia or

Alzheimer's disease (mild cognitive impairment) have a high risk of progressing to dementia or Alzheimer's disease. If the figures for incident Alzheimer's disease from the general population are used (Table 4 in the original guideline document), one can see that the rates range from 0.2% in the 65 to 69 year age range to 3.9% in the 85 to 89 year range. The studies of mild cognitive impairment indicate that the rate of progression to dementia of Alzheimer's disease is between 6 and 25% per year.

*Practice Recommendation:* Patients with mild cognitive impairment should be recognized and monitored for cognitive and functional decline due to their increased risk for subsequent dementia **(Guideline)**.

2. Does screening at-risk subjects with a specific instrument in a specific setting accurately lead to the diagnosis of dementia?

#### General Cognitive Screening Instruments

*Conclusion:* General cognitive screening instruments, which include the Mini-Mental State Examination, 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.

*Practice Recommendation:* General cognitive screening instruments (e.g., Mini-Mental State Examination) should be considered for the detection of dementia in individuals with suspected cognitive impairment **(Guideline)**.

#### Brief Focused Screening Instruments

*Conclusion:* 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.

*Practice Recommendation:* 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 **(Option)**.

#### Neuropsychologic Batteries

*Conclusion:* 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.

*Practice Recommendation:* Neuropsychologic batteries should be considered useful in identifying patients with dementia, particularly when administered to a population at increased risk of cognitive impairment **(Guideline)**.

#### Informant-based Batteries

*Conclusion:* 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.

*Practice Recommendation:* Interview-based techniques may be considered in identifying patients with dementia, particularly in a population at increased risk for cognitive impairment **(Option)**.

### **Definitions:**

#### **Classification of Evidence**

*Class I.* Evidence provided by one or more well-designed, randomized, controlled clinical trials, including overviews (meta-analyses) of such trials.

*Class II.* Evidence provided by well-designed, observational studies with concurrent controls (e.g., case control or cohort studies).

*Class III.* Evidence provided by expert opinion, case series, case reports, and studies with historical controls.

#### **Levels of Recommendation**

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*Option.* Strategy for patient management for which clinical utility is uncertain (inconclusive or conflicting evidence or opinion).

### **CLINICAL ALGORITHM(S)**

None provided

## **EVIDENCE SUPPORTING THE RECOMMENDATIONS**

### **TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The recommendations are based on a review of the literature. The type of supporting evidence is identified and graded for each recommendation on the early detection of dementia (see "Major Recommendations" field).

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

Improved detection of dementia in persons with signs of mild cognitive impairment

### POTENTIAL HARMS

Not stated

## QUALIFYING STATEMENTS

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This statement is provided as an educational service of the American Academy of Neurology. It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use specific procedures. Neither is it intended to exclude any reasonable alternative methodologies. The American Academy of Neurology recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all the circumstances involved.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

### IMPLEMENTATION TOOLS

Patient Resources  
Quick Reference Guides/Physician Guides

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Staying Healthy

### IOM DOMAIN

Effectiveness

## IDENTIFYING INFORMATION AND AVAILABILITY

### **BIBLIOGRAPHIC SOURCE(S)**

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### **ADAPTATION**

Not applicable: Guideline was not adapted from another source.

### **DATE RELEASED**

2001 May (reviewed 2003)

### **GUIDELINE DEVELOPER(S)**

American Academy of Neurology - Medical Specialty Society

### **SOURCE(S) OF FUNDING**

American Academy of Neurology (AAN)

### **GUIDELINE COMMITTEE**

Quality Standards Subcommittee

### **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

*Authors:* R.C. Petersen, PhD, MD; J.C. Stevens, MD; M. Ganguli, MD, MPH; E.G. Tangalos, MD; J.L. Cummings, MD; and S.T. DeKosky, MD

### **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

All panel members provided comprehensive disclosures of any real or potential conflicts of interest.

### **ENDORSER(S)**

American Association of Neuroscience Nurses - Professional Association  
American Geriatrics Society - Medical Specialty Society

### **GUIDELINE STATUS**

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## **GUIDELINE AVAILABILITY**

Electronic copies: Available from the [American Academy of Neurology \(AAN\) Web site](#).

Print copies: Available from the AAN Member Services Center, (800) 879-1960, or from AAN, 1080 Montreal Avenue, St. Paul, MN 55116.

## **AVAILABILITY OF COMPANION DOCUMENTS**

The following are available:

- AAN guideline summary for clinicians: detection, diagnosis and management of dementia. St. Paul (MN): American Academy of Neurology, 2001. Electronic copies: Available from the [American Academy of Neurology \(AAN\) Web site](#). See the related QualityTool summary on the [Health Care Innovations Exchange Web site](#).
- AAN guideline development process. St. Paul (MN): American Academy of Neurology. Electronic copies: Available from the [AAN Web site](#).

## **PATIENT RESOURCES**

The following is available:

- AAN guideline summary for patients and their families: Alzheimer's disease guidelines. St. Paul (MN): American Academy of Neurology. 4 p.

Electronic copies: Available in Portable Document Format (PDF) from the [American Academy of Neurology \(AAN\) Web site](#). See the related QualityTool summary on the [Health Care Innovations Exchange Web site](#).

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## **NGC STATUS**

This NGC summary was completed by ECRI on February 12, 2002. The information was verified by the guideline developer on September 22, 2003.

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