



Complete Summary

GUIDELINE TITLE

Practice parameter: diagnosis of dementia (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology.

BIBLIOGRAPHIC SOURCE(S)

Knopman DS, DeKosky ST, Cummings JL, Chui H, Corey-Bloom J, Relkin N, Small GW, Miller B, Stevens JC. Practice parameter: diagnosis of dementia (an evidence-based review): report of the quality standards subcommittee of the American Academy of Neurology. *Neurology* 2001 May 8;56(9):1143-53. [147 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 February 2004. 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.

It updates a previously released version: Practice parameter for diagnosis and evaluation of dementia. Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology* 1994 Nov;44(11):2203-6.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

- Dementia, including vascular dementia, dementia with Lewy bodies, and frontotemporal dementia
- Creutzfeldt-Jakob disease
- Alzheimer's disease

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Family Practice
Geriatrics
Internal Medicine
Neurology
Pathology
Psychiatry
Radiology

INTENDED USERS

Physicians
Psychologists/Non-physician Behavioral Health Clinicians

GUIDELINE OBJECTIVE(S)

To update the 1994 practice parameter for the diagnosis of dementia in the elderly

TARGET POPULATION

Elderly patients (over age 65) undergoing an initial assessment for dementia

INTERVENTIONS AND PRACTICES CONSIDERED

Use of Diagnostic Criteria for Dementia

1. *Diagnostic and Statistical Manual*, 3rd edition, revised (DSM-III-R) definition of dementia and criteria for Alzheimer's disease
2. *Diagnostic and Statistical Manual*, 4th edition (DSM-IV) definition of dementia
3. National Institute of Neurologic, Communicative Disorder and Stroke-Alzheimer's Disease and Related disorders Association (NINCDS-ADRDA) Work Group definitions of dementia and criteria for Alzheimer's disease
4. Hachinski Ischemic Index criteria for diagnosis of cerebrovascular disease in dementia
5. Consortium for dementia with Lewy bodies diagnostic criteria
6. Consensus diagnostic criteria for frontotemporal dementia
7. Clinical criteria for Creutzfeldt-Jakob disease

Structural Neuroimaging for Differential Diagnosis of Dementing Illness

(Note: linear or volumetric magnetic resonance imaging and computed tomography are considered but not recommended)

1. Noncontrast computed tomography
2. Noncontrast magnetic resonance imaging

Functional Neuroimaging (Note: these tests are considered but not recommended for routine use)

1. Single-photon emission computed tomography (SPECT)
2. Positron emission tomography (PET)

Other Laboratory Tests

1. Genetic testing, such as apolipoprotein E (APOE) genotyping, testing for tau mutations or Alzheimer's disease gene mutations (considered but not recommended)
2. Immunoassay for cerebrospinal fluid 14-3-3 protein in diagnosis of Creutzfeldt-Jakob disease
3. Other cerebrospinal fluid markers or biomarkers (considered but not recommended)

Screening for Comorbid Conditions

1. Screening for depression using validated instruments, e.g. Geriatric Depression Scale, Centers for Epidemiologic Studies Depression Scale, and Hamilton Depression Scale
2. Screening for vitamin B₁₂ deficiency
3. Screening for hypothyroidism
4. Screening for syphilis (considered but not routinely recommended)

MAJOR OUTCOMES CONSIDERED

- Reliability of current criteria for diagnosis of dementia
- Accuracy of current criteria to establish diagnosis for the prevalent dementias
- Accuracy of laboratory tests in the clinical diagnosis of dementia (sensitivity, specificity, positive predictive value of tests)
- Incidence of comorbidities in elderly patients undergoing initial assessment for dementia

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

Literature review process. A literature search was conducted using MEDLINE, Excerpta Medica, and BIOSIS. The search included articles published from January 1985 through November 1999. The search strategy sought only studies published in English and studies on human disease. The principal search term was dementia. Other terms entered into the search included neuroimaging, diagnostic techniques, diagnostic imaging, biologic markers, cerebrospinal fluid, diagnostic errors, differential diagnosis, and neuropsychologic tests. The original search yielded 1,175 articles of which approximately 300 articles were identified as relevant to the search questions. For articles on Alzheimer's disease, the authors of the guideline included only those based on more than 25 patients. For the less common dementias, there was no minimal sample size. An additional 300 articles not identified by the literature search strategy, including ones published after the initial search was conducted, were submitted by committee members or obtained from bibliographies of articles identified in the search.

NUMBER OF SOURCE DOCUMENTS

300

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

- I. Evidence provided by a well-designed prospective study in broad spectrum of persons with the suspected condition, using a "gold standard" for case definition, in which test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy.
- II. Evidence provided by a well-designed prospective study of a narrow spectrum of persons with the suspected condition, or a well designed retrospective study of a broad spectrum of persons with an established condition (by "gold standard") compared with a broad spectrum of controls, in which test is applied in blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy.
- III. Evidence provided by a retrospective study in which either persons with the established condition or controls are of a narrow spectrum, and in which test is applied in a blinded evaluation.
- IV. Any design in which test is not applied in blinded evaluation OR evidence provided by expert opinion alone or in descriptive case series (without controls).

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Definitions for Practice Recommendations Based on Classification of Evidence

Standard. Principle for patient management that reflects a high degree of clinical certainty (usually this requires Class I evidence that directly addresses the clinical question, or overwhelming Class II evidence when circumstances preclude randomized clinical trials).

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

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

Practice Advisory. Practice recommendation for emerging and/or newly approved therapies or technologies based on evidence from at least one Class I study. The evidence may demonstrate only a modest statistical effect or limited (partial) clinical response, or significant cost–benefit questions may exist. Substantial (or potential) disagreement among practitioners or between payers and practitioners may exist.

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

In addition to the review and final approval by the Quality Standards Subcommittee and the Practice Committee of the American Academy of Neurology, this Practice Parameter was reviewed by American Academy of Neurology members who had identified themselves as interested reviewers, by the Geriatric and Behavioral Neurology Sections of the American Academy, by representatives of the American Geriatrics Society, and by representatives of the Alzheimer’s Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Classification of evidence ratings, I-IV, and the definitions for practice recommendations based on classification of evidence (Standard, Guideline, Practice Option, Practice Advisory) are defined at the end of the "Major Recommendations" field.

Diagnostic Criteria

Are the current criteria for the diagnosis of dementia reliable?

- The *Diagnostic and Statistical Manual*, 3rd edition, revised (DSM-III-R) definition of dementia, which is identical to *Diagnostic and Statistical Manual*, 4th edition (DSM-IV) definition, is reliable and should be used routinely (**Guideline**).

Are current diagnostic criteria able to establish a diagnosis for the prevalent dementias (Alzheimer's disease, vascular dementia, dementia with Lewy bodies, frontotemporal dementia, prion diseases)?

- The National Institute of Neurologic, Communicative Disorders and Stroke–Alzheimer's disease and Related Disorders Association (NINCDS-ADRDA) for the diagnosis of probable Alzheimer's disease or the *Diagnostic and Statistical Manual*, 3rd edition, revised (DSM-III-R) criteria for dementia of the Alzheimer's type (DAT) should be routinely used (**Guideline**).
- The Hachinski Ischemic Index criteria may be of use in the diagnosis of cerebrovascular disease in dementia (**Option**).
- The Consortium for dementia with Lewy bodies (DLB) diagnostic criteria may be of use in clinical practice (**Option**).
- The Consensus diagnostic criteria for frontotemporal dementia (FTD) may be of use in clinical practice (**Option**).
- Clinical criteria for Creutzfeldt-Jakob disease (CJD) should be used in rapidly progressive dementia syndromes (**Guideline**).

Laboratory Tests

Do laboratory tests improve the accuracy of clinical diagnosis of dementing illness?

- Structural neuroimaging with either a noncontrast computed tomography or magnetic resonance scan in the initial evaluation of patients with dementia is appropriate. (**Guideline**).
- Linear or volumetric magnetic resonance or computed tomography measurement strategies for the diagnosis of Alzheimer's Disease and are not recommended for routine use at this time (**Guideline**).
- For patients with suspected dementia, single photon emission computed tomography (SPECT) cannot be recommended for routine use in either initial or differential diagnosis as it has not demonstrated superiority to clinical criteria (**Guideline**).

- Positron emission tomography (PET) imaging is not recommended for routine use in the diagnostic evaluation of dementia at this time **(Guideline)**.
- Genetic testing of patients with suspected dementia with Lewy bodies and Creutzfeldt-Jakob disease is not recommended **(Guideline)**.
- Routine use of apolipoprotein E (APOE) genotyping in patients with suspected Alzheimer's disease is not recommended at this time **(Guideline)**.
- There are no other genetic markers recommended for routine use in the diagnosis of Alzheimer's disease **(Guideline)**.
- Testing for tau mutations or Alzheimer's disease gene mutations is not recommended for routine evaluation in patients with frontotemporal dementia at this time **(Guideline)**.
- There are no cerebrospinal fluid or other biomarkers recommended for routine use in determining the diagnosis of Alzheimer's disease at this time **(Guideline)**.
- The cerebrospinal fluid 14-3-3 protein is useful recommended for confirming or rejecting the diagnosis of Creutzfeldt-Jakob disease in clinically appropriate circumstances **(Guideline)**.

Screening for Comorbid Diseases

What comorbidities should be screened for in elderly patients undergoing an initial assessment for dementia?

- Depression is a common, treatable comorbidity in patients with dementia and should be screened for **(Guideline)**.
- B₁₂ deficiency is common in the elderly, and B₁₂ levels should be included in routine assessments of the elderly. **(Guideline)**.
- Because of its frequency, hypothyroidism should be screened for in elderly patients. **(Guideline)**.
- Unless the patient has some specific risk factor or evidence of prior syphilitic infection, or resides in one of the few areas in the United States with high numbers of syphilis cases, screening for the disorder in patients with dementia is not justified **(Guideline)**.

Definitions:

Classification of Evidence

- I. Evidence provided by a well-designed prospective study in broad spectrum of persons with the suspected condition, using a "gold standard" for case definition, in which test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy.
- II. Evidence provided by a well-designed prospective study of a narrow spectrum of persons with the suspected condition, or a well designed retrospective study of a broad spectrum of persons with an established condition (by "gold standard") compared with a broad spectrum of controls, in which test is applied in blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy.
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- IV. Any design in which test is not applied in blinded evaluation OR evidence provided by expert opinion alone or in descriptive case series (without controls).

Practice Recommendations Based on Classification of Evidence

Standard. Principle for patient management that reflects a high degree of clinical certainty (usually this requires Class I evidence that directly addresses the clinical question, or overwhelming Class II evidence when circumstances preclude randomized clinical trials).

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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 diagnosis of dementia.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate use of diagnostic criteria and laboratory tests for dementia
- Appropriate recognition and treatment of depression, B₁₂ deficiency, and hypothyroidism, which are common comorbid conditions in elderly patients with dementia

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The statement of this guideline 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 a specific procedure. 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 of the circumstances involved.
- The purpose of the current practice parameter is to highlight and to update major areas of current interest and investigation in the diagnosis of dementia in the elderly. It is not intended to serve as a comprehensive review of the differential diagnosis of dementia.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm
Patient Resources
Personal Digital Assistant (PDA) Downloads
Quick Reference Guides/Physician Guides
Resources

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

Getting Better
Living with Illness

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 2004)

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: D.S. Knopman, MD; S.T. DeKosky, MD; J.L. Cummings, MD; H. Chui, MD; J. Corey-Bloom, MD, PhD; N. Relkin, MD, PhD; G.W. Small, MD; B. Miller, MD; and J.C. Stevens, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Committee members disclosed any real or potential conflicts of interest.

ENDORSER(S)

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

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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 encounter kit for dementia: a multi-media, web-based algorithm. Available from the [American Academy of Neurology \(AAN\) Web site](#).
- AAN summary of evidence-based guideline for clinicians: detection, diagnosis and management of dementia. St. Paul (MN): American Academy of Neurology. 2 p. Electronic copies: Available in Portable Document Format (PDF) from the [AAN Web site](#). See the related QualityTool summary on the [Health Care Innovations Exchange Web site](#).
- Practice parameter: diagnosis of dementia. American Academy of Neurology. 2001. 16 p. Available for personal digital assistant (PDA) download from the [AAN 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 are available:

- AAN guideline summary for patients and their families: Alzheimer's disease. St. Paul (MN): American Academy of Neurology. 2 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](#).

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the

authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on February 12, 2002. The information was verified by the guideline developer on September 5, 2003.

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