



## Complete Summary

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### GUIDELINE TITLE

Practice parameter: treatment of the child with a first unprovoked seizure: report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society.

### BIBLIOGRAPHIC SOURCE(S)

Hirtz D, Berg A, Bettis D, Camfield C, Camfield P, Crumrine P, Gaillard WD, Schneider S, Shinnar S. Practice parameter: treatment of the child with a first unprovoked seizure: report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society. *Neurology* 2003 Jan 28;60(2):166-75. [66 references] [PubMed](#)

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## SCOPE

### DISEASE/CONDITION(S)

First time unprovoked seizures, including partial seizures as well as generalized onset tonic-clonic or tonic seizures (not including absence, myoclonic and atonic seizures)

### GUIDELINE CATEGORY

Evaluation  
Prevention  
Risk Assessment  
Treatment

### CLINICAL SPECIALTY

Family Practice  
Neurology  
Pediatrics

## INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

To review published literature and present evidence-based practice recommendations relevant to the decision to begin treatment with antiepileptic drugs (AED) after a child or adolescent experiences a first unprovoked seizure

## TARGET POPULATION

Children and adolescents with a first unprovoked seizure

This parameter does not include the following populations:

- Neonates
- Children diagnosed with epilepsy
- Children with a known immediate precipitating head trauma
- Children with previously diagnosed central nervous system (CNS) infection, tumor, or other known acute precipitating causes such as hypoglycemia
- Children with febrile seizures

## INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Risk Assessment

Individualized assessment of risks and benefits of antiepileptic drug therapy, taking into account the risk and potential consequences of seizure recurrence, risk of side effects of therapy, medical issues, and patient/family preferences

Prevention/Treatment

Antiepileptic drugs (AED), such as carbamazepine, phenytoin, valproic acid, and phenobarbital

## MAJOR OUTCOMES CONSIDERED

- Risks of seizure recurrence after first seizure
- Seizure recurrence rate
- Risks and side effects of treatment with antiepileptic drugs (AEDs)

## 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

A literature search was performed including Ovid Medline and Ovid Biosys and Current Contents for relevant articles published from 1980 to 2001 using the following key words: treatment, antiepileptics, medications, therapy, management, epilepsy, seizures, convulsions, child, newborn, and adolescent. Standard search procedures were used, and subheadings were applied as appropriate. These searches produced 948 titles of journal articles. Titles and abstracts were reviewed for content regarding first unprovoked seizures in children and adults. Articles from the searches were identified as relevant, and additional articles from the references in these primary articles were included. Articles pertaining to children with both first seizures and established epilepsy were included but were excluded if they did not report data from either children or adults who had experienced only a single seizure.

#### NUMBER OF SOURCE DOCUMENTS

Not stated

#### 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

Evidence classification scheme of the American Academy of Neurology:

##### Rating of Therapeutic Article

Class I: Prospective, randomized, controlled clinical trial with masked outcome assessment, in a representative population. The following are required:

- a. Primary outcome(s) is/are clearly defined.
- b. Exclusion/inclusion criteria are clearly defined.
- c. Adequate accounting for dropouts and crossovers with numbers sufficiently low to have minimal potential for bias
- d. Relevant baseline characteristics are presented and substantially equivalent among treatment groups, or there is appropriate statistical adjustment for differences.

Class II: Prospective matched group cohort study in a representative population with masked outcome assessment that meets a–d above or a randomized, controlled trial in a representative population that lacks one criterion a–d.

Class III: All other controlled trials (including well-defined natural history controls or patients serving as own controls) in a representative population, where outcome assessment is independent of patient treatment.

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion.

## METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

## DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Each article containing data regarding treatment was reviewed and classified by two or more reviewers. Abstracted data included numbers of subjects, study design, ages, seizure types, whether first seizures only or a mixture of single and multiple seizures, seizure recurrences, types of treatment, side effects, and measurement of compliance and length of follow-up. Methods of data analysis and power were noted when available.

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Translation of Evidence to Recommendations

Level A rating requires at least one convincing Class I study or at least two consistent, convincing Class II studies.

Level B rating requires at least one convincing Class II study or overwhelming Class III evidence.

Level C rating requires at least two convincing Class III studies.

Rating of Recommendation

A = established as effective, ineffective, or harmful for the given condition in the specified population.

B = probably effective, ineffective, or harmful for the given condition in the specified population.

C = possibly effective, ineffective, or harmful for the given condition in the specified population.

U = data inadequate or conflicting. Given current knowledge, treatment is unproven.

## 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

Draft guidelines were reviewed for accuracy, quality, and thoroughness by the American Academy of Neurology (AAN) members, topic experts, and pertinent physician organizations.

Final guidelines were approved by the Quality Standards Subcommittee on April 16, 2002, the Practice Committee on August 3, 2002, and the American Academy of Neurology Board of Directors on October 19, 2002. This statement was published in *Neurology* 2003;60:166-175.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Definitions of the ratings of recommendations (A, B, C, U), translation of evidence to recommendations (A-C), and rating of therapeutic articles (Class I-IV) are provided at the end of the "Major Recommendations" field.

#### Recommendations

The decision as to whether or not to treat with antiepileptic drugs (AED) following a first unprovoked seizure in a child or adolescent must be based on a risk-benefit assessment that weighs the risk of another seizure (both the statistical risk of recurrence and the potential consequences of a recurrence) against the risk (cognitive, behavioral, and physical as well as psychosocial) of chronic AED therapy. This decision must be individualized and take into account both medical issues and patient and family preference. Therefore, the following recommendations are made for children and adolescents who have experienced a first seizure:

1. Treatment with AED is not indicated for the prevention of the development of epilepsy (Level B).
2. Treatment with AED may be considered in circumstances where the benefits of reducing the risk of a second seizure outweigh the risks of pharmacologic and psychosocial side effects (Level B).

Definitions:

Rating of Recommendation

A = established as effective, ineffective, or harmful for the given condition in the specified population.

B = probably effective, ineffective, or harmful for the given condition in the specified population.

C = possibly effective, ineffective, or harmful for the given condition in the specified population.

U = data inadequate or conflicting. Given current knowledge, treatment is unproven.

#### Translation of Evidence to Recommendations

Level A rating requires at least one convincing Class I study or at least two consistent, convincing Class II studies.

Level B rating requires at least one convincing Class II study or overwhelming Class III evidence.

Level C rating requires at least two convincing Class III studies.

#### Rating of Therapeutic Article

Class I: Prospective, randomized, controlled clinical trial with masked outcome assessment, in a representative population. The following are required:

- a. Primary outcome(s) is/are clearly defined.
- b. Exclusion/inclusion criteria are clearly defined.
- c. Adequate accounting for dropouts and crossovers with numbers sufficiently low to have minimal potential for bias
- d. Relevant baseline characteristics are presented and substantially equivalent among treatment groups, or there is appropriate statistical adjustment for differences.

Class II: Prospective matched group cohort study in a representative population with masked outcome assessment that meets a–d above or a randomized, controlled trial in a representative population that lacks one criterion a–d.

Class III: All other controlled trials (including well-defined natural history controls or patients serving as own controls) in a representative population, where outcome assessment is independent of patient treatment.

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion.

#### CLINICAL ALGORITHM(S)

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

- These guidelines are intended to assist physicians in clinical decision making regarding the treatment of a child with a first unprovoked seizure.
- Treatment after a first unprovoked seizure appears to decrease the risk of a second seizure, but there are few data from studies involving children. There appears to be no benefit of treatment with regard to the prognosis for long-term seizure remission.

### POTENTIAL HARMS

Antiepileptic drugs (AED) may cause systemic side effects such as rash, hirsutism, and weight gain. Severe reactions such as hepatic toxicity, bone marrow toxicity, and Stevens–Johnson syndrome cannot be anticipated and require early recognition of symptoms. Side effects of antiepileptic drugs occurring in children include effects on behavior and higher cortical function, which are often dose related and may be under-recognized. Dose-related side effects may be highest initially and amenable to dosage reduction, but this may also limit the potential effectiveness of antiepileptic drugs. If the patient is a teenage girl who may become pregnant, the risk of teratogenicity is an additional consideration.

Refer to the original guideline document for more details regarding behavioral, cognitive, and systemic side effects.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- Before any treatment decisions are approached, it is critical to determine whether the event is truly a seizure and whether it is the child's first. A detailed history from a reliable observer and careful medical history and neurological examination may provide information allowing the physician to rule out nonepileptic events.
- Although treatment after a first unprovoked seizure appears to decrease the risk of a second seizure, there are few data from studies involving only children.
- This statement is provided as an educational service of the American Academy of Neurology (AAN) and the Child Neurology Society (CNS). 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 and Child Neurology Society recognize that specific patient decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

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

### IOM CARE NEED

Getting Better  
Staying Healthy

### IOM DOMAIN

Effectiveness  
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

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### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2003 Jan 28

### GUIDELINE DEVELOPER(S)

American Academy of Neurology - Medical Specialty Society  
Child Neurology Society - Medical Specialty Society

### SOURCE(S) OF FUNDING

American Academy of Neurology (AAN)

#### GUIDELINE COMMITTEE

Quality Standards Subcommittee of the American Academy of Neurology  
Practice Committee of the Child Neurology Society

#### COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

American Academy of Neurology Quality Standards Subcommittee Members: Gary Franklin, MD, MPH (co-chair); Catherine Zahn, MD (co-chair); Milton Alter, MD, PhD (ex officio); Stephen Ashwal, MD; Richard M. Dubinsky, MD; Jacqueline French, MD; Gary H. Friday, MD; Michael Glantz, MD; Gary Gronseth, MD; Deborah Hirtz, MD; Robert G. Miller, MD; David J. Thurman, MD, MPH; and William J. Weiner, MD

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#### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

#### ENDORSER(S)

American Academy of Pediatrics - Medical Specialty Society  
American Epilepsy Society - Disease Specific Society

#### GUIDELINE STATUS

This is the current release of the guideline.

#### GUIDELINE AVAILABILITY

Electronic copies: A list of American Academy of Neurology (AAN) guidelines, along with a link to a Portable Document Format (PDF) file for this guideline, is available at the [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 is available:

- AAN guideline development process [online]. St. Paul (MN): American Academy of Neurology.

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

#### PATIENT RESOURCES

None available

#### NGC STATUS

This summary was completed by ECRI on February 6, 2004.

#### COPYRIGHT STATEMENT

This NGC summary is based on the original guideline, which is copyrighted by the American Academy of Neurology.

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Date Modified: 11/15/2004

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