



## Complete Summary

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### GUIDELINE TITLE

Antithrombotic and thrombolytic therapy for ischemic stroke. In: Sixth ACCP Consensus Conference on Antithrombotic Therapy.

### BIBLIOGRAPHIC SOURCE(S)

Albers GW, Amarenco P, Easton JD, Sacco RL, Teal P. Antithrombotic and thrombolytic therapy for ischemic stroke. Chest 2001 Jan;119(1 Suppl):300S-320S. [160 references] [PubMed](#)

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## SCOPE

### DISEASE/CONDITION(S)

- Acute ischemic stroke
- Cerebral venous sinus thrombosis

### GUIDELINE CATEGORY

Management  
Prevention  
Treatment

### CLINICAL SPECIALTY

Cardiology  
Critical Care  
Emergency Medicine  
Family Practice  
Internal Medicine

Neurology  
Pulmonary Medicine

## INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

- To make recommendations for the use of antithrombotic and thrombolytic therapy in the management and treatment of ischemic stroke for the purpose of reducing mortality, disability, and complications of ischemic stroke
- To make recommendations for the use of antithrombotic therapy in the prevention of ischemic stroke

## TARGET POPULATION

- Adults with or at risk of acute ischemic stroke
- Adults with cerebral venous sinus thrombosis

## INTERVENTIONS AND PRACTICES CONSIDERED

Treatment of acute ischemic stroke

1. Thrombolytic therapy:
  - Intravenous recombinant tissue plasminogen activator with strict adherence to eligibility criteria for use
  - In selected patients, intra-arterial thrombolytic therapy
2. Antithrombotic therapy:
  - Anticoagulation in selected patients
  - Early aspirin therapy
  - Aspirin therapy in combination with low doses of subcutaneous heparin

Note: The following agents are considered but not recommended for the treatment of acute ischemic stroke: streptokinase (except within the confines of a clinical trial), full-dose anticoagulation in hyperacute (<12 hours) stroke patients, subcutaneous heparin and low-molecular-weight heparins or heparinoids.

Secondary Prevention of Deep Venous Thrombosis/Pulmonary/Embolism in Ischemic Stroke Patients

1. Low-dose subcutaneous heparin
2. Low-molecular-weight heparins
3. The heparinoid danaparoid
4. Nonpharmacologic measures:
  - Intermittent pneumatic compression devices
  - Elastic stockings

Prevention of Strokes

1. Aspirin therapy
2. Aspirin in combination with extended-release dipyridamole or clopidogrel

Note: Aspirin in combination with ticlopidine is considered, but not recommended

#### Treatment of Cerebral Venous Sinus Thrombosis

1. Unfractionated heparin or low-molecular-weight heparin
2. Oral anticoagulation

#### MAJOR OUTCOMES CONSIDERED

Efficacy and safety of treatment, as defined by the following:

- Rates of mortality and disability from ischemic stroke
- Rates of deep vein thrombosis and pulmonary embolism secondary to ischemic stroke
- Rates of adverse events from treatment, such as intracerebral hemorrhages
- Relative risk reduction of recurrent stroke and other vascular events (prevention)

## METHODOLOGY

#### METHODS USED TO COLLECT/SELECT EVIDENCE

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

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

The participants reviewed information from an exhaustive review of the literature.

#### 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

The rating scheme framework captures the trade-off between benefits and risks (1 or 2) (see "Rating Scheme for the Strength of the Recommendations") and the methodologic quality of the underlying evidence (A, B, C+, or C).

Grades of evidence for antithrombotic agents:

1A

Methodological strength of supporting evidence: randomized controlled trials without important limitations

1B

Methodological strength of supporting evidence: randomized controlled trials with important limitations (inconsistent results, methodologic flaws\*)

1C+

Methodological strength of supporting evidence: no randomized controlled trials, but randomized controlled trial results can be unequivocally extrapolated; or, overwhelming evidence from observational studies

1C

Methodological strength of supporting evidence: observation studies

2A

Methodological strength of supporting evidence: randomized controlled trials without important limitations

2B

Methodological strength of supporting evidence: randomized controlled trials with important limitations (inconsistent results, methodologic flaws\*)

2C

Methodological strength of supporting evidence: observational studies

\* Such situations include randomized controlled trials with lack of blinding, and subjective outcomes, in which the risk of bias in measurement of outcomes is high; and randomized controlled trials with large loss to follow-up.

## 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

Not stated

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Consensus Development Conference)

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The strength of any recommendation depends on two factors: the trade-off between benefits and risks, and the strength of the methodology that leads to estimates of the treatment effect. The rating scheme used for this guideline captures these factors. The guideline developers grade the trade-off between

benefits and risks in two categories: (1) the trade-off is clear enough that most patients, despite differences in values, would make the same choice; and (2) the trade-off is less clear, and each patient's values will likely lead to different choices.

When randomized trials provide precise estimates suggesting large treatment effects, and risks and costs of therapy are small, treatment for average patients with compatible values and preferences can be confidently recommended.

If the balance between benefits and risks is uncertain, methodologically rigorous studies providing grade A evidence and recommendations may still be weak (grade 2). Uncertainty may come from less precise estimates of benefit, harm, or costs, or from small effect sizes.

There is an independent impact of validity/consistency and the balance of positive and negative impacts of treatment on the strength of recommendations. In situations when there is doubt about the value of the trade-off, any recommendation will be weaker, moving from grade 1 to grade 2.

Grade 1 recommendations can only be made when there are precise estimates of both benefit and harm, and the balance between the two clearly favors recommending or not recommending the intervention for the average patient with compatible values and preferences. Table 2 of the original guideline document summarizes how a number of factors can reduce the strength of a recommendation, moving it from grade 1 to grade 2. Uncertainty about a recommendation to treat may be introduced if the target event that is trying to be prevented is less important (confident recommendations are more likely to be made to prevent death or stroke than asymptomatic deep venous thrombosis); if the magnitude of risk reduction in the overall group is small; if the risk is low in a particular subgroup of patients; if the estimate of the treatment effect, reflected in a wide confidence interval (CI) around the effect, is imprecise; if there is substantial potential harm associated with therapy; or if there is an expectation for a wide divergence in values even among average or typical patients. Higher costs would also lead to weaker recommendations to treat.

The more balanced the trade-off between benefits and risks, the greater the influence of individual patient values in decision making. If they understand the benefits and risks, virtually all patients will take aspirin after myocardial infarction or will comply with prophylaxis to reduce thromboembolism after hip replacement. Thus, one way of thinking about a grade 1 recommendation is that variability in patient values or individual physician values is unlikely to influence treatment choice in average or typical patients.

When the trade-off between benefits and risks is less clear, individual patient values will influence treatment decisions even among patients with average or typical preferences.

Grade 2 recommendations are those in which variation in patient values or individual physician values will often mandate different treatment choices, even among average or typical patients.

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

The rating scheme framework captures the trade-off between benefits and risks (1 or 2) and the methodologic quality of the underlying evidence (A, B, C+, or C) (see "Rating Scheme for the Strength of the Evidence").

Grades of recommendation for antithrombotic agents:

1A

Clarity of risk/benefit: risk/benefit clear

Implications: strong recommendation; can apply to most circumstances, without reservation

1B

Clarity of risk/benefit: risk/benefit clear

Implications: strong recommendation; likely to apply to most patients

1C+

Clarity of risk/benefit: risk/benefit clear

Implications: strong recommendation; can apply to most patients in most circumstances

1C

Clarity of risk/benefit: risk/benefit clear

Implications: intermediate-strength recommendation; may change when stronger evidence available

2A

Clarity of risk/benefit: risk/benefit unclear

Implications: intermediate strength recommendation; best action may differ, depending on circumstances or patients' societal values

2B

Clarity of risk/benefit: risk/benefit unclear

Implications: weak recommendation; alternative approaches likely to be better for some patients under some circumstances

2C

Clarity of risk/benefit: risk/benefit unclear

Implications: very weak recommendation; other alternatives may be equally reasonable

## COST ANALYSIS

While the American College of Chest Physicians conference participants considered cost in deciding on the strength of recommendations, the paucity of rigorous cost-effective analyses and the wide variability of costs across jurisdictions led the guideline developers to take a conservative approach to cost issues. That is, cost considerations influenced the recommendations and the grades of those recommendations only when the gradient between alternatives was very large.

## METHOD OF GUIDELINE VALIDATION

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The initial guidelines were prepared by the chapter committee (the primary authors) and then reviewed separately by the Committee Co-Chairs and methodology experts and finally by the entire group of Consensus Guideline participants.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Please note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary. The recommendations that follow are based on the previous version of the guideline.

Excerpted by the National Guideline Clearinghouse (NGC):

The grading scheme is defined at the end of the Major Recommendations.

1. Acute Ischemic Stroke
  - A. Thrombolytic Therapy

#### Acute Ischemic Stroke Treatment Within 3 h of Symptom Onset

1. The guideline developers recommend administration of intravenous tissue plasminogen activator in a dose of 0.9 mg/kg (maximum of 90 mg), with 10% of the total dose given as an initial bolus and the remainder infused over 60 minutes for eligible patients (see inclusion and exclusion criteria listed below), provided that treatment is initiated within 3 hours of clearly defined symptom onset (grade 1A).
2. The guideline developers recommend strict adherence to eligibility criteria for the use of intravenous tissue plasminogen activator based on the National Institute of Neurological Disorders and Stroke trial protocol (see below for inclusion and exclusion criteria). Therapy should be initiated as soon as possible to optimize benefits (grade 1C+).

#### Remarks:

Inclusion Criteria: Age 18 years or older, clinical diagnosis of stroke with a clinically meaningful neurologic deficit, clearly defined time of onset of <180 minutes before treatment, and a baseline computed tomography showing no evidence of intracranial hemorrhage.

Exclusion Criteria: Minor or rapidly improving symptoms or signs, computed tomography signs of intracranial hemorrhage,

a history of intracranial hemorrhage, seizure at stroke onset, stroke or serious head injury within 3 months, major surgery or serious trauma within 2 weeks, gastrointestinal or urinary tract hemorrhage within 3 weeks, systolic blood pressure >185 mm Hg, diastolic blood pressure >110 mm Hg, aggressive treatment required to lower blood pressure, glucose level <50 mg/dL or >400 mg/dL, symptoms of subarachnoid hemorrhage, arterial puncture at a noncompressible site or lumbar puncture within 1 week, platelet count <100,000 platelets/microliter, heparin therapy within 48 hours associated with elevated activated partial thromboplastin time, clinical presentation suggesting post-myocardial infarction pericarditis, pregnant or lactating women, current use of oral anticoagulants (international normalized ratio >1.7).

3. The guideline developers recommend thrombolytic therapy almost always be withheld in patients with evidence of major early infarct signs (clear evidence of extensive early edema/mass effect) on the pretreatment computer tomography scan (grade 1B).

Remark: Treatment should be supervised by physicians with expertise in stroke management and computer tomography scan interpretation, and tissue plasminogen activator treatment is not recommended if the time of symptom onset is uncertain or if symptoms have been present for >3 hours. Some experts recommend that, if possible, efforts should be made to demonstrate a large artery intracranial occlusion using modern neuroimaging techniques prior to administration of tissue plasminogen activator. Treatment should not be unduly delayed in order to facilitate vascular imaging. Adequate hospital facilities and personnel are required for administration of thrombolytic therapy as well as for monitoring and managing potential complications. Following tissue plasminogen activator administration, blood pressure should be closely monitored and kept <180/105 mm Hg; antithrombotic agents should be avoided for 24 hours.

#### Acute Stroke Treatment Within 3 to 6 hours of Symptom Onset

4. The guideline developers do not recommend use of intravenous tissue plasminogen activator for treatment of acute ischemic stroke of >3 hours but <6 hours in unselected patients (grade 2B). This treatment remains investigational.
5. The guideline developers do not recommend that clinicians use streptokinase for the treatment of acute ischemic stroke except within the confines of a clinical trial (grade 1A).
6. In carefully selected patients with angiographically demonstrated middle cerebral artery occlusion and no signs of major early infarction on the baseline computed tomography scan who can be treated within 6 hours of symptom onset, the

guideline developers recommend the use intra-arterial thrombolytic therapy for ischemic stroke (grade 2B).

#### B. Patients Not Eligible for Thrombolysis

Remark: To our knowledge, no trial has adequately evaluated full-dose anticoagulation in hyperacute (<12 hours) stroke patients. Clinical trials evaluating intravenous heparin for stroke treatment are inconclusive with heterogeneous results. In general, trials of subcutaneous heparin and low-molecular-weight heparins or heparinoids have demonstrated an increase in the risk of major bleeding without any clear benefits.

1. The guideline developers do not recommend full-dose anticoagulation for treatment of unselected patients with ischemic stroke (grade 2B)
2. Clinicians may consider early anticoagulation for treatment of acute cardioembolic and large-artery ischemic strokes and for progressing stroke when the suspected mechanism is ongoing thromboembolism (grade 2B).

Remark: Clinical trials have not adequately evaluated anticoagulation in specific stroke subtypes. For patients with cardioembolic stroke, early anticoagulation is most likely to be beneficial for patients who are at high risk for early recurrent embolism (that, patients with mechanical heart valves, an established intracardiac thrombus, atrial fibrillation associated with significant valvular disease, or severe congestive heart failure).

3. A brain imaging study should be performed prior to initiation of acute anticoagulation to exclude hemorrhage and estimate the size of the infarct. When potential contraindications to anticoagulation are present, such as a large infarction (based on clinical syndrome or brain imaging findings), uncontrolled hypertension, or other bleeding conditions, the guideline developers recommend that clinicians avoid early anticoagulation (grade 1C).
4. The guideline developers recommend early aspirin therapy (160 to 325 milligrams per day) for patients with ischemic stroke who are not receiving thrombolysis or anticoagulation (grade 1A). Aspirin therapy should be started within 48 hours of stroke onset and may be used safely in combination with low doses of subcutaneous heparin for deep venous thrombosis prophylaxis.
5. Deep Venous Thrombosis/Pulmonary embolism Prophylaxis: Because of the increased risk of pulmonary embolism and deep vein thrombosis among ischemic stroke patients, particularly in those with deficits leading to immobility, measures to reduce the risk of deep vein thrombosis and pulmonary embolism are required.
  - a. For acute stroke patients with restricted mobility, the guideline developers recommend that clinicians use prophylactic low-dose subcutaneous heparin or low-

molecular-weight heparins or the heparinoid danaparoid, as long as there are no contraindications to anticoagulation (grade 1A).

- b. In patients with an intracerebral hematoma, the guideline developers recommend that clinicians use low-dose subcutaneous heparin as early as the second day after the onset of the hemorrhage for the prevention of thromboembolic complications (grade 2C).
- c. The guideline developers recommend that clinicians use intermittent pneumatic compression devices or elastic stockings for patients who have contraindications to anticoagulants (grade 1C).

## 2. Stroke Prevention

### A. Antiplatelet Agents

1. Noncardioembolic Cerebral Ischemic Events: The guideline developers recommend that every patient who has experienced a noncardioembolic (atherothrombotic, lacunar, or cryptogenic) stroke or transient ischemic attack and has no contraindication receives an antiplatelet agent regularly to reduce the risk of recurrent stroke and other vascular events. Aspirin, 50 to 325 mg daily; the combination of aspirin, 25 mg, and extended-release dipyridamole, 200 mg twice per day; or clopidogrel, 75 mg daily, are all acceptable options for initial therapy (grade 1A).
2. The combination of aspirin, 25 milligrams, and extended-release dipyridamole, 200 mg twice per day, is more effective than aspirin alone for the prevention of stroke (grade 1A); and, based on indirect comparisons, the combination of aspirin, 25 mg, and extended-release dipyridamole, 200 mg twice per day, may be more effective than clopidogrel, 75 mg (grade 2C), and has a similarly favorable serious adverse effect profile.
3. For patients who are allergic to aspirin, the guideline developers recommend clopidogrel in favor of ticlopidine (grade 2C).

### B. Oral Anticoagulants

1. Inadequate data are available to evaluate the efficacy and safety of oral anticoagulants for prevention of noncardioembolic stroke. However, at international normalized ratios of 3.0 to 4.5, the risk of brain hemorrhage outweighs any potential benefit for stroke prevention. The guideline developers recommend that clinicians do not treat with oral anticoagulation at international normalized ratios of 3.0 to 4.5 (grade 1A).
2. Cardioembolic Cerebral Ischemic Events: The guideline developers recommend that clinicians use long-term oral anticoagulation (target international normalized ratio of 2.5; range, 2.0 to 3.0) for prevention of stroke in atrial fibrillation patients who have suffered a recent stroke or transient ischemic attack (grade 1A).  
Oral anticoagulation is also beneficial for prevention of recurrent stroke in patients with several other high-risk cardiac sources (see chapters on prosthetic heart valves, valvular heart disease, and coronary artery disease). Inadequate clinical trial data are available to support specific recommendations for

minor-risk cardiac sources. In general, the guideline developers recommend antiplatelet agents for these patients (grade 2C).

3. Carotid Endarterectomy: The guideline developers recommend that clinicians give aspirin, 81 to 325 milligrams per day, prior to carotid endarterectomy and following the procedure (grade 1A).

3. Cerebral Venous Sinus Thrombosis
  - A. Cerebral Venous Sinus Thrombosis

The guideline developers recommend that clinicians use unfractionated heparin (grade 1A) or low-molecular-weight heparin (grade 1C) during the acute phase, even in the presence of hemorrhagic infarction caused by the sinus thrombosis, followed by oral anticoagulation for 3 to 6 months (target international normalized ratio of 2.5; range, 2.0 to 3.0; grade 1C).

The rating scheme framework captures the trade-off between benefits and risks (1 or 2) and the methodologic quality of the underlying evidence (A, B, C+, or C).

Definitions:

Grades of recommendations:

1A

Clarity of risk/benefit: risk/benefit clear

Methodological strength of supporting evidence: randomized controlled trials without important limitations

Implications: strong recommendation; can apply to most circumstances, without reservation

1B

Clarity of risk/benefit: risk/benefit clear

Methodological strength of supporting evidence: randomized controlled trials with important limitations (inconsistent results, methodologic flaws\*)

Implications: strong recommendation; likely to apply to most patients

1C+

Clarity of risk/benefit: risk/benefit clear

Methodological strength of supporting evidence: no randomized controlled trials, but randomized controlled trial results can be unequivocally extrapolated; or, overwhelming evidence from observational studies

Implications: strong recommendation; can apply to most patients in most circumstances

1C

Clarity of risk/benefit: risk/benefit clear

Methodological strength of supporting evidence: observation studies

Implications: intermediate-strength recommendation; may change when stronger evidence available

## 2A

Clarity of risk/benefit: risk/benefit unclear

Methodological strength of supporting evidence: randomized controlled trials without important limitations

Implications: intermediate strength recommendation; best action may differ, depending on circumstances or patients' societal values

## 2B

Clarity of risk/benefit: risk/benefit unclear

Methodological strength of supporting evidence: randomized controlled trials with important limitations (inconsistent results, methodologic flaws\*)

Implications: weak recommendation; alternative approaches likely to be better for some patients under some circumstances

## 2C

Clarity of risk/benefit: risk/benefit unclear

Methodological strength of supporting evidence: observational studies

Implications: very weak recommendation; other alternatives may be equally reasonable

\* Such situations include randomized controlled trials with lack of blinding, and subjective outcomes, in which the risk of bias in measurement of outcomes is high; and randomized controlled trials with large loss to follow-up.

## CLINICAL ALGORITHM(S)

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified for each recommendation (refer to "Major Recommendations").

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

Appropriate use of antithrombotic and thrombolytic agents in ischemic stroke patients may reduce the rates and relative risk of ischemic stroke.

In addition, appropriate antiplatelet therapy in selected patients, such as those who have experienced a noncardioembolic stroke or transient ischemic attack, may reduce the risk of recurrent stroke and other vascular events.

#### Subgroups Most Likely to Benefit:

##### Thrombolysis

While patients with severe neurologic deficits at baseline were less likely to have a good outcome regardless of treatment, a subgroup analysis of patients >75 years old with an initial National Institutes of Health Stroke Scale of >20 demonstrated a reduction in death or severe disability with tissue plasminogen activator compared with placebo.

##### Anticoagulation in Treatment of Acute Stroke in Patients not Eligible for Thrombolysis

For patients with cardioembolic stroke, early anticoagulation is most likely to be beneficial for patients who are at high risk for early recurrent embolism (such as, patients with mechanical heart valves, an established intracardiac thrombus, atrial fibrillation associated with significant valvular disease, or severe congestive heart failure).

#### POTENTIAL HARMS

The primary risk of thrombolytic therapy is cerebral hemorrhage. In one study, symptomatic intracerebral hemorrhage occurred in 6.4% of patients receiving tissue plasminogen activator versus .6% of the placebo-treated patients ( $p$  less than 0.001). Despite the increased risk of hemorrhage, patients with severe strokes were more likely to have favorable outcomes if treated with tissue plasminogen activator (adjusted odds ratio, 4.3; 95% confidence interval, 1.6 to 11.9).

## CONTRAINDICATIONS

#### CONTRAINDICATIONS

Thrombolytic therapy is contraindicated in patients with computed tomography signs of intracranial hemorrhage, a history of intracranial hemorrhage, seizure at stroke onset, stroke or serious head injury within 3 months, major surgery or serious trauma within 2 weeks, gastrointestinal or urinary tract hemorrhage within 3 weeks, systolic blood pressure >185 mm Hg, diastolic blood pressure >110 mm Hg, aggressive treatment required to lower blood pressure, glucose level < 50 mg/dL or >400 mg/dL, symptoms of subarachnoid hemorrhage, arterial puncture at a noncompressible site or lumbar puncture within 1 week, platelet count <100,000 platelets/microliter, heparin therapy within 48 hours associated with elevated activated partial thromboplastin time, clinical presentation suggesting post-myocardial infarction pericarditis, pregnant or lactating women, current use of oral anticoagulants (international normalized ratio >1.7), patients with evidence of major early infarct signs (clear evidence of extensive early edema/mass effect) on the pretreatment computer tomography scan.

Early anticoagulation is contraindicated in patients with evidence of a large infarction (based on clinical syndrome or brain imaging findings), uncontrolled hypertension, or other bleeding conditions.

## QUALIFYING STATEMENTS

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#### Interpreting the Recommendations

The authors of these guidelines offer recommendations that should not be construed as dictates by the readers, including clinicians, third-party payers, institutional review committees, and courts. In general, anything other than a 1A recommendation indicates that the chapter authors acknowledge that other interpretations of the evidence and other clinical policies may be reasonable and appropriate. Even grade 1A recommendations will not apply to all circumstances and all patients. For instance, the guideline developers have been conservative in their considerations of cost, and have seldom downgraded recommendations from 1 to 2 on the basis of expense. As a result, in jurisdictions in which resource constraints are severe, alternative allocations may serve the health of the public far more than some of the interventions that the developers designate grade 1A. This will likely be true for all less-industrialized countries. However, a weak recommendation (2C) that reduces resource consumption may be more strongly indicated in less-industrialized countries.

Similarly, following grade 1A recommendations will at times not serve the best interests of patients with atypical values or preferences. For instance, consider patients who find anticoagulant therapy extremely aversive, either because it interferes with their lifestyle (prevents participation in contact sports, for instance) or because of the need for monitoring. For such patients, clinicians may reasonably conclude that following some grade 1A recommendations for anticoagulation will be a mistake. The same may be true for patients with particular comorbidities (such as a recent GI bleed or a balance disorder with repeated falls) or other special circumstances (such as very advanced age).

The guideline developers trust that these observations convey their acknowledgment that no guidelines or recommendations can take into account the often compelling idiosyncrasies of individual clinical circumstances. No clinician and no one charged with evaluating the actions of a clinician should attempt to apply their recommendations in a rote or blanket fashion.

#### Long-term Antithrombotic Therapy for Stroke Prevention

The lack of controlled clinical trials and the heterogeneous nature of the many potential cardiac sources of embolic stroke make it impossible to provide specific guidelines regarding the optimal long-term antithrombotic therapy for stroke prevention. The risk of stroke recurrence must be individually assessed and weighed against the risk of hemorrhagic complications.

## 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  
Safety

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Albers GW, Amarenco P, Easton JD, Sacco RL, Teal P. Antithrombotic and thrombolytic therapy for ischemic stroke. Chest 2001 Jan; 119(1 Suppl):300S-320S. [160 references] [PubMed](#)

### ADAPTATION

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

### DATE RELEASED

2001 Jan

### GUIDELINE DEVELOPER(S)

American College of Chest Physicians - Medical Specialty Society

### SOURCE(S) OF FUNDING

Funding was supplied by DuPont Pharmaceuticals.

### GUIDELINE COMMITTEE

American College of Chest Physicians Consensus Panel on Antithrombotic Therapy

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#### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

#### GUIDELINE STATUS

Please note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

#### GUIDELINE AVAILABILITY

Electronic copies of the updated guideline: Available from the [Chest - The Cardiopulmonary and Critical Care Journal Web site](#).

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

#### AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Sixth ACCP Consensus Conference on Antithrombotic Therapy (2001): quick reference guide for clinicians. Northbrook, IL: ACCP, 2001.

Electronic copies: Available in from the [American College of Chest Physicians Web site](#). (Downloadable files intended for use with Palm OS compatible devices are available.)

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348, or by calling 1 (800) 343-2227.

#### PATIENT RESOURCES

None available

#### NGC STATUS

This summary was completed by ECRI on July 30, 2001. The information was verified by the guideline developer on September 27, 2001.

#### COPYRIGHT STATEMENT

This NGC summary is based on the original guideline, which may be subject to the guideline developer's copyright restrictions.

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Date Modified: 11/15/2004

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