ASSESSMENT: CAROTID ENDARTERECTOMY- AN EVIDENCE-BASED REVIEW:

This is a summary of the American Academy of Neurology (AAN) evidence-based guideline reviewing all of the evidence on the efficacy of carotid endarterectomy (CE) for stroke prevention in asymptomatic and symptomatic patients with internal carotid artery (ICA) stenosis. This updated statement provides additional clinical scenarios.

Please refer to the full guideline for detailed findings and supporting evidence at *www.aan.com/professionals/practice/index.cfm*

USE OF CAROTID ENDARTERECTOMY IN SYMPTOMATIC PATIENTS

Stenosis (%) ICA angiographic	Recommendation
70-99%	• CE is established as effective for recently symptomatic (within previous 6 months) patients with 70-99% ICA angiographic stenosis (**Level A**).
50-69%	• CE may be considered for patients with 50-69% symptomatic stenosis (**Level B**) but the clinician should consider additional clinical and angiographic variables (**Level C**). *See tables below.* • It is recommended that the patient have at least a five year life expectancy and that the perioperative stroke/death rate should be <6% for symptomatic patients (**Level A**).
<50%	• CE should not be considered for symptomatic patients with <50% stenosis (**Level A**). • Medical management is preferred to CE for symptomatic patients with <50% stenosis (**Level A**).

USE OF CAROTID ENDARTERECTOMY IN ASYMPTOMATIC PATIENTS

Stenosis (%) ICA angiographic	Recommendation
60-99%	• It is reasonable to consider CE for patients between the ages of 40 and 75 years and with asymptomatic stenosis of 60-99% if the patient has an expected five year life expectancy and if the surgical stroke or death frequency can be reliably documented to be <3% (**Level A**). The five year life expectancy is important since perioperative strokes pose an up front risk to the patient and the benefit from CE emerges only after a number of years.

PATIENT VARIABLES TO CONSIDER IN CAROTID ENDARTERECTOMY DECISION-MAKING

Patient variables	Recommendation
Symptomatic women	• Women with 50-69% symptomatic stenosis did not show clear benefit in previous trials (**Level C**).
Patients with hemispheric transient ischemic attack (TIA) or stroke	• Patients with hemispheric TIA or stroke had greater benefit from CE than patients with retinal ischemic events (**Level C**). • Patients operated on within two weeks of their last TIA or mild stroke derive greater benefit from CE (**Level C**).
Progressing neurologic deficit	• No recommendation can be provided regarding the value of emergent CE in patients with a progressing neurologic deficit (**Level U**).

RADIOLOGIC FACTORS TO CONSIDER IN CAROTID ENDARTERECTOMY DECISION-MAKING

Radiologic Factors	Recommendation
Contralateral occlusion in symptomatic patients	Contralateral occlusion is associated with increased operative risk but persistent benefit (**Level C**).
Contralateral occlusion in asymptomatic patients	Contralateral occlusion erases the small benefit of CE in asymptomatic patients (**Level C**).
Near-occlusion in symptomatic patients	CE for patients with angiographic near-occlusion in symptomatic patients is associated with a trend toward benefit at two years but not associated with a clear long-term benefit (**Level C**).

REVIEWED CLINICAL SCENARIOS

Scenario	Recommendation
Peri-operative aspirin	• Symptomatic and asymptomatic patients undergoing CE should be given aspirin (81 or 325 mg/day) prior to surgery and for at least 3-months following surgery to reduce the combined endpoint of stroke, myocardial infarction, and death (**Level A**). • Although data are not available, it is recommended that aspirin (81 or 325 mg/day) be continued indefinitely provided that contraindications are absent. Aspirin at 650 or 1300 mg/day is less effective in the perioperative period. • The data are insufficient to recommend the use of other antiplatelet agents in the perioperative setting.
Recent TIA or non-disabling stroke	• For patients with severe stenosis and a recent TIA or nondisabling stroke, CE should be performed without delay, preferably within two weeks of the patient's last symptomatic event (**Level C**). • There is insufficient evidence to support or refute the performance of CE within four to six weeks of a recent moderate to severe stroke (**Level U**).
CE prior to or concurrent with CABG	• At this time the available data are insufficient to declare either CE before or simultaneous with CABG as superior in patients with concomitant carotid and coronary artery occlusive disease (**Level U**).

Copies of this summary and additional companion tools are available at *www.aan.com/professionals/practice/index.cfm* or through AAN Member Services at (800) 879-1960.

View the following additional AAN stroke and vascular neurology guidelines at http://www.aan.com/professionals/practice/index.cfm

April 2004	Recurrent Stroke in Patients with Patent Foramen Ovale and Atrial Septal Aneurysm
July 2002	Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke
September 1998	Stroke Prevention in Patients with Nonvalvular Atrial Fibrillation
September 1996	Thrombolytic Therapy for Acute Ischemic Stroke Practice Advisory

This guideline summary is evidence-based. The AAN uses the following definitions for the level of recommendation and classification of evidence. *Recommendation Level: *"Level"* refers to the strength of the practice recommendation based on the reviewed literature. **Level A**: Established as effective, ineffective, or harmful for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies.). **Level B**: Probably effective, ineffective, or harmful for the given condition in the specified population. (Level B rating requires at least one Class I study or at least two consistent Class II studies.) **Level C**: Possibly effective, ineffective, or harmful for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.) **Level U**: Data inadequate or conflicting given current knowledge, treatment is unproven.

This is an educational service of the American Academy of Neurology. It is designed to provide members with evidence-based guideline recommendations to assist with decision-making in patient care. It is based on an assessment of current scientific and clinical information, and is not intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on the circumstances involved. Physicians are encouraged to carefully review the full AAN guidelines so they understand all recommendations associated with care of these patients.

AMERICAN ACADEMY OF NEUROLOGY
1080 Montreal Avenue • St. Paul, MN 55116
www.aan.com • *www.thebrainmatters.org*
(651) 695-1940