Carotid Endarterectomy (CEA) - Single Service

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Cardiovascular Disease
Guideline Name: Carotid Endarterectomy (CEA) (Single Service)

Literature review current through: 4/5/2024
Document last updated: 4/5/2024
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Carotid Endarterectomy (CEA)

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** Patients who present with symptomatic recurrent extracranial carotid artery occlusive disease AFTER a prior carotid endarterectomy (CEA) may be candidates for redo CEA, transfemoral carotid stenting (CAS), or trans-carotid artery revascularization (TCAR).
- **Recommended Clinical Approach:** Patients with asymptomatic extracranial carotid artery occlusive disease may be candidates for CEA to reduce the risk of stroke. Patients with symptomatic extracranial carotid artery occlusive disease may be candidates for CEA to minimize the risk of recurrent stroke.
- **Exclusions:** Patients with symptomatic external carotid artery (ECA) stenosis (in the setting of an ipsilateral internal carotid artery occlusion) may benefit from ECA revascularization. Carotid revascularization is not for patients with severe disability caused by cerebral infarction that precludes preservation of helpful function.[1] Except in extraordinary circumstances, carotid revascularization by either CEA or CAS is not recommended when atherosclerosis narrows the lumen by less than 50%. Carotid revascularization is not for patients with chronic total occlusion of the ipsilateral internal carotid artery.[1]

Medical Necessity Criteria

Indications

➔ **Carotid Endarterectomy (CEA)** is appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient is symptomatic (defined as a stroke or TIA within 6 months) with **ALL** of the following[2-3]:
  - Ipsilateral moderate (50%–69%) to severe (70-99%) extracranial internal carotid artery stenosis as documented by **ANY** of the following[4]:
    - ◆ Catheter-based imaging; **OR**

        - ◆ Non-invasive imaging (e.g., carotid duplex scan, magnetic resonance angiogram [MRA], or CT angiogram [CTA]); **AND**
    - Acceptable institution and surgeon complication rate of less than 6%; **OR**
- ◆ The patient never had a stroke or TIA or had one more than 6 months ago and **ALL** of the following are **TRUE**[2-3]:
    - There is documentation that the patient prefers surgery over medical management and risk factor modification; **AND**
    - Acceptable institution and surgeon complication rates (less than 3%); **AND**
    - Acceptable long-term survival (greater than or equal to 5 years); **AND**
    - Greater than or equal to 70% stenosis of a surgically accessible extracranial carotid artery.[2-3]

Non-Indications

- ➔ **Carotid Endarterectomy (CEA)** is not appropriate if **ANY** of the following is **TRUE**:
    - ◆ The patient is at high-risk for perioperative complications, including **ANY** of the following:
        - Left ventricular ejection fraction less than 30%; **OR**
        - NYHA class III/IV heart failure; **OR**
        - Severe coronary artery disease (CAD); **OR**
        - Severe pulmonary disease; **OR**
    - ◆ Severe disability caused by cerebral infarction that precludes preservation of useful function.[1]

Level of Care Criteria

Inpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
35301	Carotid thromboendarterectomy by neck incision

Medical Evidence

Vasavada et al. (2023) conducted a review to compare carotid endarterectomy (CEA) and carotid artery stenting (CAS) using research conducted between 2015 and the present, with a reference to a study conducted over a decade ago. The study employs the PICOS criteria (population, intervention, control, outcome, and study designs) to establish inclusion and exclusion criteria. It conducts a meta-analysis and systematic review using both quantitative and qualitative approaches. Results indicate that CEA demonstrates better outcomes in terms of stroke events and the combined incidence of stroke or death, with statistically significant differences noted. Conversely, CAS shows a lower incidence of myocardial infarctions compared to CEA. Overall, CEA appears to be more effective in reducing stroke events and the combined incidence of stroke or death, while CAS is associated with fewer cases of myocardial infarctions.[5]

Mohd et al. (2023) analyze treatment modalities encompassing medical and surgical options such as CEA and CAS. The selection between surgical intervention and conservative management hinges on individual patient characteristics and risk profiles. The authors review the pathophysiology of carotid artery stenosis, associated risk factors, the importance of timely diagnosis and treatment, and the approaches of CEA and CAS. Evidence indicates that CEA offers notable advantages to patients with moderate to severe stenosis. Efficacy appears limited in patients exhibiting less than 50% stenosis. CEA demonstrates pronounced efficacy among patients with severe stenosis, particularly in cases of high-grade severity. The advantage of CEA diminishes with prolonged intervals following the initial ischemic event, with a more notable effect observed in female patients. Recent guidelines for secondary stroke prevention recommend scheduling CEA within a two-week window for individuals who have encountered a transient ischemic attack (TIA) or minor stroke.[6]

AbuRahma et al. (2022) performed a meta-analysis of the guidelines published by the Society for Vascular Surgery. The guidelines were based on several randomized trials comparing CEA and CAS. Since then, additional studies and systematic reviews have been published to reaffirm the importance of medical management alongside surgical interventions. Key areas were explored, including whether CEA is preferred over maximal medical therapy for low-risk patients and if CEA is favored over transfemoral CAS for low-surgical risk patients with symptomatic carotid artery stenosis greater than 50%. The guidelines also address the timing of carotid intervention for patients presenting with acute stroke, screening for carotid

artery stenosis in asymptomatic patients, and the optimal sequence of intervention for patients with combined carotid and coronary artery disease (CAD). The primary treatment for symptomatic low-risk surgical patients (with stenosis of 50% to 99% and asymptomatic patients with stenosis of 70% to 99%) is CEA, although recent guidance by CMS expanded coverage to standard surgical risk individuals by removing the limitation of coverage to only high surgical risk individuals.[7] The perioperative CEA risk of stroke and death in asymptomatic patients should be less than 3% to ensure benefits. For patients with recent stable stroke, carotid revascularization is considered appropriate for those with greater than 50% stenosis and should be performed once the patient is neurologically stable after 48 hours but less than 14 days after symptom onset. Routine screening for asymptomatic carotid artery stenosis in patients without cerebrovascular symptoms or significant risk factors is not recommended, unless significant stenosis is detected. For patients requiring both CEA and coronary artery bypass grafting, CEA is suggested before or concurrent with coronary artery bypass grafting to reduce the risk of stroke and stroke/death potentially. The sequencing of intervention depends on clinical presentation and institutional experience.[8]

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