Local Coverage Determination (LCD): Noninvasive Cerebrovascular Studies (L34221)

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Contractor Information

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LCD Information

Document Information

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<tr>
<td><strong>LCD Title</strong></td>
<td>Noninvasive Cerebrovascular Studies</td>
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<td><strong>Proposed LCD in Comment Period</strong></td>
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Original Effective Date
For services performed on or after 10/01/2015

Revision Effective Date
For services performed on or after 10/01/2019

Revision Ending Date
N/A

Retirement Date
N/A
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<th>AMA CPT / ADA CDT / AHA NUBC Copyright Statement</th>
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<tr>
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**CMS National Coverage Policy**

Title XVIII of the Social Security Act, §1862(a)(1)(A) allows coverage and payment for only those services that are considered to be medically reasonable and necessary.

Title XVIII of the Social Security Act, §1833(e) prohibits Medicare payment for any claim, which lacks the necessary information to process the claim.


Noninvasive Tests of Carotid Function.


CMS Manual System, Pub. 100.02, Medicare Benefit Policy Manual, Chapter 15, §80.6.1 - Definitions (treating physician, treating practitioner, testing facility and order.

**Coverage Guidance**

**Coverage Indications, Limitations, and/or Medical Necessity**

Noninvasive cerebrovascular arterial studies are used to identify possible problems in structure or flow of the carotid artery and other cerebrovasculature. There are a wide variety of these tests that measure various anatomical and physiological aspects of carotid function.

In vascular ultrasound, a transducer directs high-frequency sound waves through layers of tissue of the artery or vein being tested. When these waves strike red blood cells (RBCs) moving through the bloodstream, their frequency changes in proportion to the flow velocity of the RBCs. Recording of these waves permits detection of arterial and venous obstruction.

**Duplex Scan**

This procedure combines high resolution B-mode real-time imaging with Doppler ultrasound and spectral analysis. The scan provides anatomic and hemodynamic information regarding the cervical carotid arteries. Data regarding percent stenosis and characterization of atheromatous plaque are provided. Color-flow Doppler is used to enhance conventional data acquisition.

**Physiologic Studies**

This term implies functional measurement procedures including Doppler ultrasound studies, ocular pneumoplethysmography, blood pressure measurement, transcutaneous oxygen tension measurements and/or plethysmography. A complete study includes pressure measurements and an additional physiologic technique (e.g., Doppler waveforms or plethysmography). Plethysmography implies volume measurement procedures including air, impedance or strain gauge methods.

**Transcranial Doppler**

Pulsed Doppler ultrasound is used to interrogate the intracranial vasculature of the Circle of Willis. Its value has been established in detecting severe stenoses in the major intracranial arteries, assessing patterns and extent of collateral circulation in patients with known regions of severe stenosis or occlusion and evaluating and following patients with vasoconstriction particularly after subarachnoid hemorrhage.

"The use of a simple hand-held or other Doppler device that does not produce hard copy output, or that produces a record that does not permit analysis of bidirectional vascular flow, is considered to be part of the physical examination of the vascular system and is not separately reported." (End of Quote) (CPT 2007, p 398)

Noninvasive vascular studies include the patient care required to perform the studies, supervision of the studies, and interpretation of study results, with copies for patient records of hard copy output with analysis of all data, including bi-directional vascular flow or imaging when provided.
Indications for Cerebrovascular Evaluation:

2. Amaurosis fugax.
3. Focal cerebral or ocular transient ischemic attacks (i.e., localizing symptoms, weakness of one side of the face, slurred speech, weakness of a limb). Visual transient ischemic attacks are defined as retinal or hemispheric visual field deficits and not temporary blurred vision.
4. Drop attack or syncope is a rare indication primarily seen with vertebrobasilar or bilateral carotid artery disease. Incoordination or limb dysfunction should be grouped with unilateral weakness of the face or extremities.
5. Subclavian steal syndrome.
7. Follow-up after a carotid endarterectomy.
8. Re-evaluation of existing carotid stenosis.
10. Preoperative evaluation of patients scheduled for major cardiovascular surgical procedures.
11. Evaluation of nonhemispheric or unexplained neurologic symptoms.
13. Evaluation of suspected dissection

Indications considered investigational for TCD (Transcranial Doppler) include:

1. Migraine or headaches.
2. Dizziness not associated with localizing symptoms. It is important to note that dizziness and giddiness alone are not usual indications unless associated with other localizing signs and symptoms. Episodic dizziness with symptoms typical of transient ischemic attacks may indicate reasonableness and necessity, especially when other more common sources (e.g., postural hypotension or transiently decreased cardiac output as demonstrated by cardiac event monitoring) have been previously excluded.
3. Monitoring during carotid endarterectomy, cardiopulmonary bypass and other cerebrovascular and cardiovascular intervention and surgical procedures.
4. Evaluation of patients with dilated vasculopathies such as fusiform aneurysms.
6. Evaluating children with various vasculopathies such as sickle cell disease, moya-moya and neurofibromatosis.
7. As an aid to differentiate vertebrobasilar from carotid symptoms.

TCD studies may be necessary for:

1. Detection and evaluation of the hemodynamic effects of severe stenosis or occlusion of the extracranial (greater than or equal to 60% diameter reduction) and major basal intracranial arteries (greater than or equal to 50% diameter reduction).
2. Assessing patterns and extent of collateral circulation in patient with known region of severe stenosis or occlusion.
7. Detecting arteriovenous malformation and studying their supply arteries and flow pattern.

While TCD is indicated for the evaluation of intracranial hemodynamic abnormalities in patients with suspected brain death, it would be expected that (EEG for cerebral death evaluation) will be primarily used in the diagnosis of brain death.

Indications not reasonable and necessary for TCD include:
2. Assessment of familial and degenerative disease of the cerebrum, brainstem, cerebellum, basal ganglia and motor neurons.
3. Evaluation of infectious and inflammatory conditions.
4. Psychiatric disorder.
5. Epilepsy.
6. Routine evaluation of cerebrovascular symptoms and signs.

Noninvasive studies are reasonable and necessary only if the outcome will potentially impact the clinical course of the patient. For example, if a patient is (or is not) going to proceed on to other diagnostic and/or therapeutic procedures regardless of the outcome of the non-invasive vascular procedures, the studies are not medically necessary. That is, if it is obvious from the findings of the history and physical examination that the patient is going to proceed to angiography, then non-invasive vascular studies are not medically necessary.

**Recommendations For Follow-up Studies:**

1. Stenosis of 20-50% (diameter reduction), annual study.
2. Stenosis of 50-79% every six months.
3. Stenosis of 80-99% surgery is usually recommended.
4. After carotid endarterectomy, repeat examinations are allowed at six weeks, six months, 12 months and yearly thereafter. Post operatively follow-up studies should be unilateral unless signs and symptoms provide indications for a bilateral procedure.

The following are not acceptable methods for reimbursement: Thermography, mechanical oscillometry, inductance plethysmography, capacitance plethysmography, photoelectric plethysmography, pulse-delay oculoplethysmography, carotid phonoangiography and other forms of bruit analysis are included in the reimbursement for the office visit. Also, periorbital photoplethysmography and light reflection rheography are not covered services because of lack of documentation in the current literature for reasonableness and necessity.

All other codes not listed in the "ICD-10-CM Codes That Support Medical Necessity" section of the Billing and Coding: Noninvasive Cerebrovascular Studies article (A57199) will be denied without additional information to warrant reasonableness and necessity. Studies will be denied if they are determined to be screening studies, were duplicative of other vascular studies or were not needed to make management decisions.

Compliance with the provisions in this policy is subject to monitoring by post payment data analysis and subsequent medical review.

**Summary of Evidence**

N/A

**Analysis of Evidence**
(Rationale for Determination)

N/A
General Information

Associated Information

**Documentation Requirements:** The provider must ensure documentation showing reasonableness and necessity of the procedures are kept on file and made available upon request by the Medicare carrier.

When using syncope as an indication, it is necessary to document that other more common causes have been ruled out.

The accuracy of noninvasive vascular diagnostic studies depends on the knowledge, skills and experience of the technologist and physician performing and interpreting the study. It is recommended that noninvasive vascular studies either be rendered in a physician's office by/or under the direct supervision of persons credentialed in the specific type of procedure being performed or performed in laboratories accredited in the specific type of evaluation. Noninvasive vascular studies done in an IDTF facility or vascular laboratory are subject to the rules and regulations governing the facility.

This A/B MAC is not a credentialing body; therefore, this LCD will recommend certification, but not recommend certifying bodies.

When the documentation does not meet the criteria for the service rendered or the documentation does not establish the medical necessity for the services, such services will be denied as not reasonable and necessary.

When requesting a written redetermination (formerly appeal), providers must include all relevant documentation with the request.

**Sources of Information**


5. Carrier Medical Directors and Consultants

**NOTE: Some of the websites used to create this policy may no longer be available.**

**Bibliography**
## Revision History Information

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<th>REVISION HISTORY EXPLANATION</th>
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<td>10/01/2019</td>
<td>R9</td>
<td>10/01/2019: At this time 21st Century Cures Act will apply to new and revised LCDs that restrict coverage which requires comment and notice. This revision is not a restriction to the coverage. LCD was converted to the &quot;no-codes&quot; format.</td>
<td>• Revisions Due To Code Removal</td>
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<td>10/01/2019</td>
<td>R8</td>
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<td>R4</td>
<td>ICD-10 Update to add: H34.8110, H34.8111, H34.8112, H34.8120, H34.8121, H34.8122, H34.8130, H34.8131, H34.8132, H34.8190, H34.8191, H34.8192, I60.2, I72.5, I72.6, I77.70, I77.75, I77.76, I77.77, T85.123A, T85.123D, T85.123S, T85.193A, T85.193D, T85.193S,T85.625A, T85.625D, T85.625S, T85.635A, T85.635D, T85.635S effective 10/01/2016.</td>
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**Associated Documents**

**Attachments**

N/A

Created on 09/27/2019. Page 8 of 9
Related Local Coverage Documents

Article(s)
A57199 - Billing and Coding: Noninvasive Cerebrovascular Studies

Related National Coverage Documents

N/A

Public Version(s)

Updated on 09/19/2019 with effective dates 10/01/2019 - N/A
Updated on 09/05/2018 with effective dates 10/01/2018 - 09/30/2019
Updated on 08/30/2017 with effective dates 10/01/2017 - 09/30/2018

Some older versions have been archived. Please visit the MCD Archive Site to retrieve them.

Keywords

- cerebral
- ischemia
- Noninvasive
- cerebrovascular
- studies