Carotid Intimal-Medial Thickness

**Description of Procedure or Service**

Ultrasonographic measurement of carotid intimal-medial thickness (CIMT) refers to the use of B-mode ultrasound to determine the thickness of the two innermost layers of the carotid artery wall, the intima and the media. Detection and monitoring of intimal-medial thickening (atherosclerosis) may provide an opportunity to intervene earlier in the atherogenic disease and/or monitor disease progression.

Coronary heart disease (CHD) accounts for 27% of all deaths in the United States. Established major risk factors for coronary heart disease have been identified by the National Cholesterol Education Program Expert Panel. These risk factors include elevated serum levels of low-density lipoprotein (LDL) cholesterol, total cholesterol and reduced levels of high-density lipoprotein (HDL) cholesterol. Other risk factors include a history of cigarette smoking, hypertension, family history of premature coronary heart disease and age.

The third report of the National Cholesterol Education Program Adult Treatment Panel establishes various treatment strategies to modify the risk of coronary heart disease, based in part on target goals of LDL cholesterol. Pathology studies have demonstrated that levels of traditional risk factors are associated with the extent and severity of atherosclerosis. However, at every level of risk factor exposure, there is substantial variation in the amount of atherosclerosis, presumably related to genetic susceptibility and the influence of other risk factors. There has been interest in identifying a technique that can measure and monitor atherosclerosis that reflects the pathogenic endpoint of coronary heart disease risk factors.

The carotid arteries can be well visualized by ultrasonography, and ultrasonographic measurements of the thickness of carotid intimal-medial (IMT) have been investigated as a technique to identify and monitor subclinical atherosclerosis. B-mode ultrasound is most commonly used to measure carotid IMT. The intimal-medial thickness is measured and averaged over several sites in each carotid artery. Imaging of the far wall of each common carotid artery yields more accurate and reproducible IMT measurements than imaging of the near wall. Two echogenic lines are produced which represent the lumen-intima interface and the media-adventitia interface. The distance between these two lines constitutes the IMT.

**Regulatory Status**

In February 2003, SonoCalc® (SonoMetric Health, LLC, Bountiful, UT) was cleared for marketing by the U.S. Food and Drug Administration (FDA) through the 510(k) process. The FDA determined that this software was substantially equivalent to existing image display products for use in the automatic measurement of the IMT of the carotid artery from images obtained from ultrasound systems. Subsequently, several other devices have been approved through the 510(k) process.

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**File Name:** carotid_intimal_medial_thickness  
**Origination:** 12/2006  
**Last CAP Review:** 10/2015  
**Next CAP Review:** 10/2016  
**Last Review:** 10/2015
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***Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.

Policy

Carotid Intimal-Medial Thickness measurement is considered investigational for all applications. BCBSNC does not provide coverage for investigational services or procedures.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Carotid Intimal-Medial Thickness Measurement is covered

Not Applicable

When Carotid Intimal-Medial Thickness Measurement is not covered

Ultrasonographic measurement of carotid artery intimal-medial thickness (IMT) as a technique of identifying subclinical atherosclerosis is considered investigational for use in the screening, diagnosis, or management of atherosclerotic disease.

Policy Guidelines

Some studies correlate increased carotid intima-medial thickness (CIMT) with many other commonly used markers for risk of coronary heart disease (CHD) and with risk for future cardiovascular events. While a 2012 meta-analysis of individual participant data by Lorenz et al found that CIMT was associated with increased cardiovascular events, CIMT progression over time was not associated with increased cardiovascular event risk. In a systematic review by Peters et al (2012), the added predictive value of CIMT was modest, and the ability to reclassify patients into clinically relevant categories was not demonstrated. The results from these studies and others demonstrate the predictive value of CIMT is uncertain, and the predictive ability for any level of population risk cannot be determined with precision.

In addition, available studies do not define how use of CIMT in clinical practice improves outcomes. There is no scientific literature that directly tests the hypothesis that measurement of CIMT results in improved patient outcomes and no specific guidance on how measurements of CIMT should be incorporated into risk assessment and risk management. The existing evidence is therefore insufficient to determine the impact of this technology on net health outcome.

The U.S. Preventive Services Task Force (USPSTF, 2009) stated that there was insufficient evidence to recommend the use of carotid intima-media thickness to screen asymptomatic individuals with no history of CHD to prevent CHD events.

A 2013 guideline on the assessment of cardiovascular risk from the American College of Cardiology and the American Heart Association (ACC/AHA) does not recommend CIMT for routine risk assessment of a first atherosclerotic cardiovascular disease event. ACC/AHA Class III: no benefit, LOE: B. This differs from the previous 2010 version of the ACC/AHA guidelines for assessment of cardiovascular risk, which indicated CIMT might be reasonable for assessing
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cardiovascular risk in intermediate risk asymptomatic adults.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina website at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: 93895, 0126T

CPT 93880 describes bilateral duplex scan of extracranial arteries. Because of the detailed measurement involved in calculating carotid intimal-medial thickness, providers may elect to submit these claims with a --22 modifier (unusual procedural service). In addition, linking the CPT code to the ICD-9 code V81.0 (special screening for cardiovascular disease) may help identify claims.

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources


An Independent Licensee of the Blue Cross and Blue Shield Association
Carotid Intimal-Medial Thickness


Specialty Matched Consultant Advisory Panel review 10/2010

National Institutes of Health (NIH). Using Differences in Peripheral Blood Leukocyte Gene Expression to Determine Cardiovascular Disease Risk. Clinical Trial #NCT00613158

National Institutes of Health (NIH). Early Detection of Atherosclerosis: a Randomized Trial in the Primary Prevention of Cardiovascular Diseases. (PRIMARIA). Clinical Trial #NCT00734123

National Institutes of Health (NIH). Intima-Medial Thickness Guidance of Primary Prevention in Relatives of Patients With Early onSet Atherosclerosis (IMPRESS). Clinical Trial #NCT01330602


Specialty Matched Consultant Advisory Panel review 10/2011


Specialty Matched Consultant Advisory Panel review 10/2012


Specialty Matched Consultant Advisory Panel review 10/2013

Medical Director review 10/2013


Carotid Intimal-Medial Thickness

Medical Director review 11/2014


Medical Director review 7/2015

Specialty Matched Consultant Advisory Panel review 10/2015

Medical Director review 10/2015

Policy Implementation/Update Information

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tr>
<td>12/11/06</td>
<td>New Policy issued. Ultrasonographic measurement of carotid artery intima-media thickness (IMT) is considered investigational as a technique of identifying and monitoring subclinical atherosclerosis. (adn)</td>
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<tr>
<td>11/19/07</td>
<td>Specialty Matched Consultant Advisory Panel review meeting 10/29/07. Policy accepted as written. (adn)</td>
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Policy renamed: Carotid Intimal-Medial Thickness Study

<table>
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<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>7/20/09</td>
<td>Policy name changed from Common Carotid Intima-Media Thickness Study to Carotid Intimal-Medial Thickness Study. Description section revised. Policy statement revised to read: &quot;BCBSNC does not provide coverage for carotid intimal-medial thickness studies. It is considered investigational.&quot; Statement in the When Not Covered section was revised to read: &quot;Ultrasonographic measurement of carotid artery intimal-medial thickness (IMT) as a technique of identifying subclinical atherosclerosis is considered investigational for use in the screening, diagnosis, or management of atherosclerotic disease.&quot; Coding information added to the Billing/Coding section. (adn)</td>
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<td>12/7/09</td>
<td>Specialty Matched Consultant Advisory Panel review meeting 10/30/09. No change to policy statement.(adn)</td>
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<td>6/22/10</td>
<td>Policy Number(s) removed (amw)</td>
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<tr>
<td>8/30/11</td>
<td>References updated. Policy Guidelines updated. No changes to Policy Statements. (mco)</td>
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<td>9/4/12</td>
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8/27/13 References updated. No changes to Policy Statements. (mco)

11/12/13 Specialty Matched Consultant Advisory Panel review 10/2013. Medical Director review 10/2013. Removed the word “Study” from the policy title. Policy Statement revised to state: “Carotid Intimal-Medial Thickness measurement is considered investigational for all applications. BCBSNC does not provide coverage for investigational services or procedures.” Policy intent is unchanged. (mco)

8/26/14 References updated. Policy Guidelines updated. No changes to Policy Statement. (mco)


1/26/16 Specialty Matched Consultant Advisory Panel review 10/29/2015. Medical Director review 10/2015. (td)

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.