

# U.S. Preventive Services Task Force

## Screening for Asymptomatic Carotid Artery Stenosis: Recommendation Statement

### Summary of Recommendation and Evidence

The USPSTF recommends against screening for asymptomatic carotid artery stenosis in the general adult population (*Table 1*).

#### D recommendation.

See the Practice Considerations section for a description of adults at increased risk.

### Importance

Carotid artery stenosis is atherosclerotic disease that affects extracranial carotid arteries. Asymptomatic carotid artery stenosis refers to stenosis in persons without a history of ischemic stroke, transient ischemic attack, or other neurologic symptoms referable to the carotid arteries. The prevalence of asymptomatic carotid artery stenosis is low in the general population but increases with age.<sup>1</sup> Although asymptomatic carotid artery stenosis is a risk factor for stroke and a marker for increased risk for myocardial infarction, it causes a relatively small proportion of strokes.<sup>2</sup> Stroke is a leading cause of death and disability in the United States.<sup>3</sup>

### USPSTF Assessment of Magnitude of Net Benefit

#### REAFFIRMATION

In 2014, the USPSTF reviewed the evidence for screening for carotid artery stenosis and issued a D recommendation.<sup>4</sup> The USPSTF has decided to use a reaffirmation deliberation process to

update this recommendation.<sup>5</sup> The USPSTF uses the reaffirmation process for well-established, evidence-based standards of practice in current primary care practice for which only a very high level of evidence would justify a change in the grade of the recommendation.<sup>5</sup> In its deliberation of the evidence, the USPSTF considers whether the new evidence is of sufficient strength and quality to change its previous conclusions about the evidence.

Using a reaffirmation process, the USPSTF concludes with moderate certainty that the harms of screening for asymptomatic carotid artery stenosis outweigh the benefits.

See *Table 2* for more information on the USPSTF recommendation rationale and assessment. For more details on the methods the USPSTF uses to determine the net benefit, see the USPSTF Procedure Manual.<sup>5</sup>

### Practice Considerations

#### PATIENT POPULATION UNDER CONSIDERATION

This recommendation applies to adults without a history of transient ischemic attack, stroke, or other neurologic signs or symptoms referable to the carotid arteries.

#### ASSESSMENT OF RISK

Although screening for asymptomatic carotid artery stenosis is not recommended for the general adult population, several factors increase

**See related** Putting Prevention into Practice on page 623.

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**This summary** is one in a series excerpted from the Recommendation Statements released by the USPSTF. These statements address preventive health services for use in primary care clinical settings, including screening tests, counseling, and preventive medications.

**The complete** version of this statement, including supporting scientific evidence, evidence tables, grading system, members of the USPSTF at the time this recommendation was finalized, and references, is available on the USPSTF website at <https://www.uspreventiveservicestaskforce.org/>.

**This series** is coordinated by Kenny Lin, MD, MPH, deputy editor.

**A collection** of USPSTF recommendation statements published in *AFP* is available at <https://www.aafp.org/afp/uspstf>.

## USPSTF

risk for carotid artery stenosis, including older age, male sex, hypertension, smoking, hypercholesterolemia, diabetes, and heart disease.<sup>6</sup> However, there are no externally validated, reliable methods to determine who is at increased risk for carotid artery stenosis or who is at increased risk of stroke when carotid artery stenosis is present.<sup>7-9</sup>

### SCREENING TESTS

Several modalities are proposed for screening for carotid artery stenosis, including carotid duplex ultrasonography, magnetic resonance angiography, and computed tomography angiography. Auscultation for carotid bruits has

been found to have poor accuracy for detecting carotid stenosis or stroke and is not considered a reasonable screening approach.<sup>7</sup> The USPSTF does not recommend screening adults without a history of transient ischemic attack, stroke, or other neurologic signs or symptoms referable to the carotid arteries.

### TREATMENT

Medical and surgical options are available for treatment of carotid artery stenosis. In general, treatment of asymptomatic carotid artery stenosis is directed at systemic atherosclerotic disease and often includes statins, antiplatelet medications, management of hypertension and diabetes,

TABLE 1

### Screening for Asymptomatic Carotid Artery Stenosis: Clinical Summary of the USPSTF Recommendation

<b>What does the USPSTF recommend?</b>	For the general adult population: Do not screen for asymptomatic carotid artery stenosis. <b>Grade D</b>
<b>To whom does this recommendation apply?</b>	This recommendation applies to adults without a history of stroke or neurologic signs or symptoms of a transient ischemic attack.
<b>What's new?</b>	This recommendation is consistent with the 2014 USPSTF recommendation. The USPSTF continues to recommend against screening for carotid artery stenosis in asymptomatic adults.
<b>How to implement this recommendation?</b>	Do not screen. The USPSTF found that the harms of screening for asymptomatic carotid artery stenosis outweigh the benefits. Clinicians should remain alert to the signs and/or symptoms of carotid artery stenosis and evaluate as appropriate.
<b>What are other relevant USPSTF recommendations?</b>	The USPSTF has made other recommendations related to stroke prevention and cardiovascular health. These include: <ul style="list-style-type: none"><li>• Screening for high blood pressure in adults</li><li>• Screening for abdominal aortic aneurysm</li><li>• Interventions for tobacco smoking cessation in adults, including pregnant persons</li><li>• Interventions to promote a healthy diet and physical activity for the prevention of cardiovascular disease:<ul style="list-style-type: none"><li>◦ In adults with cardiovascular risk factors</li><li>◦ In adults without known cardiovascular risk factors</li></ul></li><li>• Aspirin use to prevent cardiovascular disease and colorectal cancer</li><li>• Statin use for the primary prevention of cardiovascular disease in adults</li></ul> These recommendations are available at <a href="https://www.uspreventiveservicestaskforce.org">https://www.uspreventiveservicestaskforce.org</a> .
<b>Where to read the full recommendation statement?</b>	Visit the USPSTF website to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms, supporting evidence, and recommendations of others.

USPSTF = U.S. Preventive Services Task Force.

TABLE 2

### Summary of USPSTF Rationale: Screening for Asymptomatic Carotid Artery Stenosis

Rationale	General adult population
Detection	<ul style="list-style-type: none"> <li>Adequate evidence that duplex ultrasonography has reasonable sensitivity and specificity for detecting clinically relevant carotid artery stenosis. However, duplex ultrasonography yields many false-positive results when screening the general population.</li> <li>Adequate evidence that auscultating the neck for carotid bruits has poor accuracy for detecting clinically relevant carotid artery stenosis.</li> </ul>
Benefits of early detection, intervention, and treatment	<ul style="list-style-type: none"> <li>Inadequate direct evidence that screening for asymptomatic carotid artery stenosis reduces adverse health outcomes such as stroke or mortality.</li> <li>Adequate evidence that treating asymptomatic patients with carotid artery stenosis using carotid endarterectomy or carotid artery angioplasty and stenting provides no to small benefit in reducing adverse health outcomes, including stroke, myocardial infarction, or mortality, compared with current medical therapy.</li> </ul>
Harms of early detection, intervention, and treatment	<ul style="list-style-type: none"> <li>Inadequate direct evidence that screening for asymptomatic carotid artery stenosis can cause harms. However, there are known harms associated with confirmatory testing and interventions.</li> <li>Adequate direct evidence that treating asymptomatic patients with carotid artery stenosis using carotid endarterectomy or carotid artery angioplasty and stenting can cause harms, including stroke or death.</li> <li>The overall magnitude of harms of screening for and treatment of asymptomatic carotid artery stenosis is small to moderate.</li> </ul>
USPSTF assessment	Using a reaffirmation process, the USPSTF concludes with moderate certainty that screening for asymptomatic carotid artery stenosis in the general population has no benefit and may be harmful.

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and lifestyle modification interventions. Surgical procedures designed to improve carotid artery blood flow include carotid endarterectomy, carotid artery angioplasty and stenting, or transartery revascularization. Medical therapy can be used alone or with revascularization procedures.<sup>7</sup> For patients with asymptomatic disease, the harms of surgical interventions compared with appropriate medical therapy appear to outweigh the benefits.

#### OTHER RELATED USPSTF RECOMMENDATIONS

The USPSTF has issued other recommendation statements related to stroke prevention and cardiovascular health. These include:

- Screening for high blood pressure in adults<sup>10</sup>
- Screening for abdominal aortic aneurysm<sup>11</sup>
- Interventions for tobacco smoking cessation in adults, including pregnant persons<sup>12</sup>

• Interventions to promote a healthy diet and physical activity for the prevention of cardiovascular disease:

- In adults with cardiovascular risk factors<sup>13</sup>
- In adults without known cardiovascular risk factors<sup>14</sup>
- Aspirin use to prevent cardiovascular disease and colorectal cancer<sup>15</sup>
- Statin use for the primary prevention of cardiovascular disease in adults<sup>16</sup>

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**The "Updates of Previous Recommendations,"** "Supporting Evidence," "Research Needs and Gaps," and "Recommendations of Others" sections of this recommendation statement are available at <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/carotid-artery-stenosis-screening>.

**The USPSTF** recommendations are independent of the U.S. government. They do not represent the

views of the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Public Health Service.

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