*Extract from -* [*EBI\_Guidance\_List3\_0523.pdf (aomrc.org.uk)*](https://ebi.aomrc.org.uk/wp-content/uploads/2023/03/EBI_Guidance_List3_0523.pdf)

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**Asymptomatic carotid artery stenosis screening**

The carotid arteries (major blood vessels in the neck) can become narrowed by deposition of fatty substances in the arterial wall (atherosclerotic plaque build-up). Narrowing can cause symptoms, such as a Transient Ischaemic Attack (TIA) or ischaemic stroke (where blood supply to the brain is reduced). However, only 8% of all ischaemic strokes are caused by narrowed carotid arteries. Often the narrowing (stenosis) causes no symptoms.

The EBI programme looked at the evidence for and against imaging (screening) the carotid arteries of patients who had no symptoms. Based on the evidence, the EBI programme proposes that patients without symptoms should not be referred for imaging. If a patient is found to have narrowed arteries, they do not require follow up if they continue to have no symptoms. However, if a patient does have symptoms or evidence of an ischaemic event in the brain, they should be referred for a duplex ultrasound of the arteries as the first-line investigation.

The EBI programme proposes clear, evidence-based criteria for use across England.

**Clinical overview**

Extracranial internal carotid stenosis, narrowing of the lumen of the internal carotid arteries, is most commonly attributed to atherosclerotic plaque formation and may present symptomatically as a Transient Ischaemic Attack (TIA) or ischaemic stroke. Carotid artery stenosis is thought to be the cause of approximately 8% of all ischaemic strokes. However, in some cases asymptomatic carotid artery stenosis may be identified as either an incidental finding on imaging or in individuals with known vascular disease, such as coronary atherosclerosis, peripheral arterial disease, abdominal aortic aneurysm or contralateral carotid stenosis. Asymptomatic carotid artery stenosis is defined as luminal narrowing in the absence of a history of TIA, ischaemic stroke, or other neurological signs or symptoms attributable to carotid artery disease.

Investigation of carotid artery stenosis may involve use of carotid duplex ultrasound, CT angiography and MR angiography. However, the increased risks of ionising radiation and adverse reactions to intravenous contrast mean CT and MR-based imaging would be more suitable for second line imaging to define the anatomy in more detail, rather than as a screening method. Carotid duplex ultrasound is a non-invasive method used to measure blood flow through the carotid arteries. It enables quantification of the degree of luminal narrowing with atherosclerotic disease, based on the North American Symptomatic Carotid Endarterectomy Trial (NASCET) measurements. A meta-analysis identified that duplex ultrasound in the detection of greater than 50% angiographic stenosis of the internal carotid arteries has a sensitivity and specificity of 98% and 88% respectively compared to angiography.

**Guidance**

This guidance applies to those 18 years and over.

— Screening for carotid artery stenosis should NOT be performed in asymptomatic individuals

— There is no indication for asymptomatic screening even in patients with known peripheral vascular disease

— Other than to risk stratify patients for coronary intervention, there is no indication for asymptomatic screening of the carotid arteries in patients undergoing other forms of cardiac surgery — There is no routine indication for follow up for asymptomatic patients with carotid artery stenosis.

Please note that this guidance is intended as a standard threshold for access. However, if you/ your patient falls outside of these criteria, the option to apply for an Individual Funding Request is still available to you.

**Rationale for recommendation**

The Royal College of Physicians’ 5th National Clinical Guideline for Stroke (2016) recommended against screening for asymptomatic carotid artery disease and recommended that surgery or angioplasty/stenting for asymptomatic coronary artery disease should not be routinely performed unless as part of a clinical trial.

The United States Preventative Services Task Force in 2014 recommended against screening for asymptomatic carotid artery stenosis amongst the general population. This guidance was reaffirmed in 2021 following a comprehensive review which identified that, within the general population, the risks of harm from screening for asymptomatic carotid artery stenosis outweigh the benefits.

In a general population, duplex ultrasound screening may yield many false-positive results. This is also supported by The European Society for Vascular Surgery guidelines. These guidelines note that an unselected screening of patients aged >80 years for severe stenosis (>70%) would be <2% which is not clinically effective. This yield would be even less in a younger screened population.

Additionally, there is no evidence that patients diagnosed with peripheral vascular disease benefit from undergoing carotid artery stenosis screening for this indication only. There is no clear evidence for being able to risk stratify an asymptomatic patient population for carotid artery stenosis screening.