

# 2023 exceptional surveillance of Stroke and transient ischaemic attack in over 16s: diagnosis and initial management (NICE guideline 128)

## Surveillance proposal

We will not update [recommendation 1.2.3](#) on carotid imaging in [Stroke and transient ischaemic attack in over 16s: diagnosis and initial management \(NG128\)](#).

### *Reasons for the decision*

An individual patient data (IPD) meta-analysis was highlighted to NICE suggesting that intraplaque haemorrhage (IPH) identified using magnetic resonance imaging (MRI) scans is a strong predictor of future strokes. Although the IPD analysis suggests that IPH is a strong predictor of future stroke, currently there is no evidence of its impact on patient management and outcomes.

However, an ongoing trial which utilises IPH data for risk classification and management decisions on carotid endarterectomy has been identified which may provide further patient outcomes evidence.

A survey of topic experts also suggested that an update at this time is unnecessary, unless there is intelligence suggesting carotid MRI scans are being used (inappropriately) in the NHS. Currently, MRI scans are not commonly used. Topic experts suggested that although IPH data may provide additional data about risk and reclassification of selected groups of patients, there is no evidence to support making clinical management decisions based on this information. Moreover, the resource implications of using MRI are high.

Therefore, the guideline will not be updated at this time. We will continue to monitor the ongoing trials in this area.

## ***Reason for the exceptional review***

We have been asked to review whether the guideline recommendations should be updated based on an IPD meta-analysis suggesting that IPH identified through MRI scans is a strong predictor of future strokes ([Schindler 2020](#)).

## ***Methods***

The exceptional surveillance process consisted of:

- Considering the new evidence that triggered the exceptional review.
- Considering the evidence used to develop the guideline.
- Feedback from topic experts. The topic experts provided feedback on the utility of carotid MRI and IPH data within the NHS.
- Considering ongoing trials.
- Assessing the new evidence and information from topic experts' feedback against current recommendations to determine whether to update sections of the guideline, or the whole guideline.

## ***Information considered in this exceptional surveillance review***

### **Evidence considered for the exceptional review**

We considered an IPD meta-analysis ([Schindler 2020](#)), which pooled data from 7 cohort studies. This analysis included 560 patients with symptomatic carotid stenosis and 136 patients with asymptomatic carotid stenosis, with a total of 1121 observed patient years.

The analysis compared the risk of ipsilateral ischaemic stroke (primary outcome) between patients with and without IPH, adjusted for clinical risk factors. 51.6% of patients with symptomatic carotid stenosis and 29.4% of patients with asymptomatic carotid stenosis had IPH. A total of 66 ipsilateral stroke episodes occurred in these cohorts.

Among patients with symptomatic carotid stenosis, multivariate analysis identified IPH (HR: 11.0; 95% CI: 4.8 to 25.1) and a severe degree (70% to 99%) of stenosis (HR: 3.3; 95% CI: 1.4 to 7.8) as independent predictors of

ipsilateral stroke. Annualised event rates of ipsilateral stroke were 9.0% versus 0.7% (<50% stenosis), 18.1% versus 2.1% (50% to 69% stenosis), and 29.3% versus 1.5% (70% to 99% stenosis) in those with IPH versus those without IPH.

### **Topic expert feedback**

Five topic experts with a special interest in stroke completed an online questionnaire: 1 professor of neurology, 1 clinical lead for stroke, 1 professor of ageing and stroke medicine; 1 professor of public health and primary care and 1 clinical nurse specialist.

The topic experts suggested that carotid MRI is seldom used for patients with stroke or transient ischaemic attack (TIA) for the following reasons:

- There are significant access issues. One expert noted that it is only used when consistent or timely access to carotid doppler imaging is unavailable, while another mentioned that it is not available in their local area.
- Although carotid MRI may provide additional information for risk classification in certain patient groups (e.g., those with less than 50% carotid artery stenosis), there is currently no evidence that it impacts treatment decisions or outcomes.
- The impact of carotid MRI on patient outcomes remains unclear. Currently, there is no randomised controlled trial (RCT) or test-and-treat trial evidence to suggest that performing urgent surgery on patients identified through this imaging technique is beneficial.

There is no consensus on the usefulness of carotid MRI, and considerations provided suggest that an update is unnecessary for the time being:

- One expert thought that recommendations about carotid MRI could improve service organisation and overall access to imaging services.
- One expert suggested that recommendations to prevent overuse may be helpful, but this is not a priority unless there is widespread use.
- Another expert suggested that no recommendations should be made without further research and evidence available.

## **Ongoing trials**

To our knowledge, no test-and-treat trials have been conducted using IPH or carotid MRI data, nor have any RCTs been conducted where the selection of the patient group is based on IPH findings instead of the NASCET (North American Symptomatic Carotid Endarterectomy Trial) or European Carotid Surgery Trial (ECST) criteria.

The topic experts helped to identify 1 relevant ongoing RCT ([ESCT-2](#)). This trial aims to compare the effectiveness of immediate surgery (endarterectomy) in combination with optimised medical treatment versus optimised medical treatment alone for patients with carotid stenosis  $\geq 50\%$  who have a low to intermediate risk of stroke. The study hypothesis is that patients treated with optimised medical therapy may no longer require additional carotid revascularisation, as medical therapy has significantly improved since the publication of [NASCET](#) in 1999. By utilising IPH data to improve risk prediction of future strokes in patients with carotid stenosis, some patients may be able to avoid undergoing surgery.

## ***Information considered when developing the guideline***

Carotid imaging was reviewed when the guideline was developed in 2008, but only ultrasound evidence was considered at that time. The selection criteria used for NASCET and ECST criteria indirectly informed [recommendation 1.2.3](#) about carotid imaging and [recommendations 1.2.4 to 1.2.6](#) about urgent carotid endarterectomy.

The use of MRI or other imaging techniques to detect IPH was not considered in the 2019 and 2022 updates.

## ***Other relevant NICE guidance***

There is currently no other NICE guidance in this area.

## ***Equalities***

The topic experts' feedback mentioned potential inequalities related to age and ethnicity.

Concerns have been raised about access for people who live in rural areas. These tend to have smaller district general hospitals, fewer imaging resources, and an older population. As people who had a stroke or TIA are unable to drive and public transport is lacking in rural areas, it is challenging for them to have to travel great distances to attend a clinic or get a scan.

An equalities and health inequalities assessment was completed during this surveillance review. See [Appendix A](#) for details.

### ***Overall proposal***

We will not update [recommendation 1.2.3](#) on carotid imaging in [Stroke and transient ischaemic attack in over 16s: diagnosis and initial management \(NG128\)](#).

Although there is evidence that IPH detected using MRI scans can predict stroke risk, there is no conclusive evidence on how this information impacts clinical decision-making and patient outcomes

A survey of topic experts supports the decision not to update the current guideline recommendation, as carotid MRI scans are not routinely used in clinical settings due to limited availability and lack of evidence supporting their clinical utility.

We will monitor the ongoing trial for the impact of IPH data on patient outcomes.