

# Prehospital biomarker and phone call-based detection for ischaemic stroke thrombectomy

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## Plain English summary of protocol

### Background and study aims

For some people who have a serious type of stroke called 'large vessel occlusion stroke (LVO)', an emergency operation called 'thrombectomy' is needed to remove a blood clot blocking an artery in the brain. The faster the thrombectomy is received, the better the chances of recovery. However, thrombectomy is very specialised and only available in certain regional hospitals.

Currently there are no specific assessments or tests that ambulance staff can use to work if LVO stroke is happening or if an urgent operation may be needed. Consequently, most patients with LVO stroke suitable for thrombectomy must be transferred to a specialised regional hospital after tests (e.g brain scans) at their local hospital. This takes extra time to get to thrombectomy. This research is evaluating whether a new ambulance assessment is sufficiently accurate for future use. The assessment is for identifying people who have LVO stroke and may need thrombectomy. It consists of a fingerprick blood test (called 'LVOne test') and telephone communication between ambulance and hospital staff. The fingerprick test measures two blood chemicals called 'd-dimer' and 'GFAP' and earlier research conducted in hospitals suggests that together these chemicals indicate LVO stroke. Other previous research has demonstrated that ambulance to hospital communicated clinical information has value for recognising people who need thrombectomy.

### Who can participate?

Adults (aged 18 years and over) considered to be suffering from an acute stroke when assessed by ambulance staff.

### What does the study involve?

Participants will undergo the new ambulance assessment which consists of a portable fingerprick blood test and telephone communication between ambulance and hospital staff. Following arrival at hospital, data will be collected about health symptoms, tests conducted, and treatments provided. Data will be analysed to determine how well the new ambulance assessment works to identify people with LVO stroke who may need thrombectomy.

### What are the possible benefits and risks of participating?

This research is being conducted to determine whether a new ambulance assessment is

sufficiently accurate for future use. There are no direct benefits to individuals who take part in the study, however it is hoped that care for future patients will be improved as a result of the research.

Where is the study run from?

North East Ambulance Service (UK)

Northumbria Specialist Emergency Care Hospital (UK)

When is the study starting and how long is it expected to run for?

July 2025 to June 2026

Who is funding the study?

Small Business Research Initiative for Healthcare (UK)

Who is the main contact?

Dr Lisa Shaw, [lisa.shaw@newcastle.ac.uk](mailto:lisa.shaw@newcastle.ac.uk)

## Contact information

### Type(s)

Public, Scientific

### Contact name

Dr Lisa Shaw

### ORCID ID

<https://orcid.org/0000-0002-3435-9519>

### Contact details

Newcastle University

Newcastle upon Tyne

United Kingdom

NE2 4HH

+44 1912086779

[lisa.shaw@newcastle.ac.uk](mailto:lisa.shaw@newcastle.ac.uk)

### Type(s)

Principal investigator

### Contact name

Prof Chris Price

### Contact details

Newcastle University

Newcastle upon Tyne

United Kingdom

NE2 4HH

+44 1912086779

[c.i.m.price@newcastle.ac.uk](mailto:c.i.m.price@newcastle.ac.uk)

# Additional identifiers

## Clinical Trials Information System (CTIS)

Nil known

## Integrated Research Application System (IRAS)

356128

## Protocol serial number

CPMS68443

# Study information

## Scientific Title

PREhospital biomarker and phone call-based detection for ischaemic stroke thrombectomy

## Acronym

PRONTO

## Study objectives

The primary objective is to determine the diagnostic accuracy of the LVOOne test for identification of large vessel occlusion stroke, when the test is used in the pre-hospital setting.

A secondary objective is to determine the diagnostic accuracy of the LVOOne test combined with specific clinical information communicated from ambulance practitioners to stroke teams for identification of patients suitable for direct admission to a thrombectomy centre.

## Ethics approval required

Ethics approval required

## Ethics approval(s)

submitted 16/05/2025, North East Newcastle and North Tyneside 1 (NHSBT Newcastle Blood Donor Centre, Holland Drive, Newcastle upon Tyne, NE2 4NQ, United Kingdom; +44 2071048384; newcastlenorthtyneside1.rec@hra.nhs.uk), ref: 25/NE/0109

## Study design

Observational cohort study

## Primary study design

Observational

## Study type(s)

Diagnostic

## Health condition(s) or problem(s) studied

Suspected stroke

## Interventions

This prospective observational cohort study is evaluating a lateral flow fingerprick blood test (called 'LVOOne test') in combination with telephone communication of clinical information

between ambulance and hospital staff. The lateral flow fingerprick test measures blood levels of d-dimer and glial fibrillary acidic protein (GFAP).

### **Intervention Type**

Other

### **Primary outcome(s)**

Sensitivity, specificity, positive and negative predictive values for identification of LVO stroke calculated from the fingerprick blood test result and reference standard tests

### **Key secondary outcome(s)**

Secondary objectives/analyses will examine the accuracy of the fingerprick test combined with specific clinical information communicated from ambulance practitioners to stroke teams for identification of patients suitable for direct admission to a thrombectomy centre

### **Completion date**

30/06/2026

## **Eligibility**

### **Key inclusion criteria**

Study trained ambulance practitioners will be asked to undertake the LVO test and communicate clinical information to hospital on patients that fulfil the following criteria:

1. Being attended in the community after a 999 call
2. Being attended in a geographical region where ambulance conveyance is to a hospital participating in the study
3. Aged 18 years or over
4. Alert, Responds to Voice or Responds to Pain on the AVPU scale
5. New acute stroke suspected
6. FAST clinical symptom score of  $\geq 1$
7. Stroke symptoms begun within the last 6 hours (i.e. onset time is known and within the last 6 hours or the patient is known to have been symptom free within the last 6 hours)
8. Not been an inpatient in hospital or had an emergency hospital attendance within the last 7 days

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Lower age limit**

18 years

### **Sex**

All

**Key exclusion criteria**

Been an inpatient in hospital or had an emergency hospital attendance within the last 7 days

**Date of first enrolment**

21/07/2025

**Date of final enrolment**

30/06/2026

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre****Northumbria Healthcare NHS Foundation Trust**

North Tyneside General Hospital

Rake Lane

North Shields

United Kingdom

NE29 8NH

**Study participating centre****North East Ambulance Service**

Bernicia House

Goldcrest Way

Newburn Riverside

Newcastle Upon Tyne

United Kingdom

NE15 8NY

**Sponsor information****Organisation**

Northumbria Healthcare NHS Foundation Trust

**ROR**

<https://ror.org/01gfeyd95>

# Funder(s)

## Funder type

Government

## Funder Name

Small Business Research Initiative for Healthcare (UK)

# Results and Publications

## Individual participant data (IPD) sharing plan

The data-sharing plans for the current study are unknown and will be made available at a later date

## IPD sharing plan summary

Data sharing statement to be made available at a later date