South East Scotland Hyperacute Stroke Decision Aid

Date effective from:	January 2025	**Review date:**	January 2028
Approved by:	NHS Lothian Stroke Consultants Meeting		
Approval Date:	05.02.2025		
Author/s:	Aoife Duignan (ST5 Stroke) and Fergus Doubal (Consultant)		
Document Owner/s::	Amanda Barugh (Clinical Director, Medicine of the Elderly and Stroke)		
Target Audience:	Clinicians assessing patients with hyperacute stroke symptoms		
Supersedes:	n/a		
Keywords (min. 5):	Thrombolysis, Thrombectomy, Stroke, Ischaemic Stroke, Haemorrhagic Stroke, Stroke Imaging, Hyperacute Stroke		

Version Control

Date	Author	Version/Page	Reason for change
26/2/25	Aoife Duignan, Fergus Doubal	1	First issued

Contents

1.0 Introduction

This guidance has been developed to support clinical teams to assess patients presenting with symptoms consistent with acute stroke. Hospitals across South East Scotland (including NHS Lothian, NHS Fife, NHS Borders and NHS Forth Valley) have varied access to initial imaging. The availability of thrombectomy also continues to be developed.

This guidance is intended to apply to patients attending hospitals within NHS Lothian and South east Scotland (NHS Borders, Fife, Forth Valley) for patients presenting out of hours (defined as outwith 9-5 Monday to Friday, weekends and public holidays) although the information may be useful for patients presenting in hours too. It is intended to supplement local pathways.

This guidance has been developed to reflect the National Clinical Guideline for Stroke in the UK and Ireland[1]. It is intended to allow clinicians to make decisions about which imaging may be required to allow patients to receive hyperacute stroke treatment, and to identify those for whom hyperacute stroke treatment may not be indicated.

Supplementary guidance has been developed in conjunction with the Royal Infirmary of Edinburgh Emergency Medicine team. This is intended to support clinicians in gathering initial information to discuss patients with the stroke team and to discuss hyperacute therapies with patients and families. This is contained in Appendix 1.

2.0 South East Scotland Hyperacute Stroke Decision Aid

See pages 4-5 of this document.

South East Scotland Hyperacute Stroke Decision Aid

Stroke Hotline 0131 536 1019
Mon-Fri 5pm-9am and all weekend

Does the patient have symptoms of a disabling stroke?

Is ability to see/eat/walk/talk/dress/follow instructions affected?
Isolated facial weakness is not usually disabling.

Disabling Symptoms	Non-Disabling Symptoms
Each site has local guidance on thrombectomy availability and transfer times. - If thrombectomy is available – follow pathway below. - If thrombectomy not available – see overleaf. Once you have requested appropriate imaging, **phone the stroke hotline** while the patient is being transferred to scan.	**Not for hyperacute treatment unless disabling symptoms develop** Request CT head Manage via local pathways **If patient develops disabling symptoms follow the pathway** If patient is discharged within 24 hours of symptom onset, provide appropriate worsening advice.

Thrombectomy is available

CT perfusion is available

When did symptoms onset?

<9 hours from last well OR <9 hours from midpoint of sleep OR unknown recent onset	9-24 hours from last well OR 9-24 hours from midpoint of sleep	>24 hours from last well OR >24 hours from midpoint of sleep
Consider thrombolysis and thrombectomy Request CT head, CTA and CTP **Phone stroke hotline**	**Consider thrombectomy** Request CT head, CTA and CTP **Phone stroke hotline**	**Not for hyperacute treatment** Request CT head Manage via local pathways

CT perfusion is not available

When did symptoms onset?

<4.5 hours from last well OR <6 hours from last well for basilar stroke	4.5-12 hours from last well OR 6-12 hours from last well for basilar stroke	>12 hours from last well
Consider thrombolysis and thrombectomy Request CT head and CTA **Phone stroke hotline**	**Consider thrombectomy** Request CT head and CTA **Phone stroke hotline**	**Not for hyperacute treatment** Request CT head Manage via local pathways **Reassess if CTP becomes available within 24 hours of last well or midpoint of sleep: repeat CT head, CTA and request CTP and phone stroke hotline if appropriate.**

Thrombectomy is not available

CT perfusion is available

When did symptoms onset?		
<4.5 hours from last well	4.5-9 hours from last well OR <9 hours from midpoint of sleep OR unknown recent onset	>9 hours from last well or midpoint of sleep
Consider thrombolysis Request CT head **Phone stroke hotline**	**Consider thrombolysis** Request CT head, CTA and CTP **Phone stroke hotline**	**Not for hyperacute treatment** Request CT head Manage via local pathways **Reassess if thrombectomy becomes available within 24 hours of last well or midpoint of sleep: repeat CT head and request CTA and CTP and phone stroke hotline if appropriate.**

CT perfusion is not available

When did symptoms onset?	
<4.5 hours from last well OR <6 hours from last well for basilar stroke	All other patients
Consider thrombolysis Request CT head Request CTA if basilar stroke suspected **Phone stroke hotline**	**Not for hyperacute treatment** Request CT head Manage via local pathways **Reassess if CTP and/or thrombectomy available within 24 hours of last well or symptom onset: request repeat CT head and CTA and CTP and phone stroke hotline if appropriate.**

Intracerebral Haemorrhage

If intracerebral haemorrhage is identified on CT, follow ICH guidance including blood pressure lowering and reversal of anticoagulation where indicated. Consider neurosurgery, haematology and critical care input.

Repeat Imaging

If there is uncertainty about repeating imaging if thrombectomy/CTP becomes available and patient remains eligible, seek local senior advice in first instance. If there is still uncertainty, contact stroke hotline to discuss.

Definitions

CTA: CT angiogram aortic arch to intracranial vessels

CTP: CT perfusion scan of brain. CT perfusion imaging (and CTA) will be reported in each health board. If you are unsure if it is available, your CT radiographer should be able to advise you.

Last Well: Last well refers to the time the patient was last free of stroke symptoms.

Midpoint of sleep

The midpoint of sleep is the point halfway between when a patient went to sleep and when they woke up. Colour in the boxes between bedtime and wake time and count halfway from bedtime to wake time. The window of treatment is then calculated from this point.

1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100

3.0 References

1. National Clinical Guideline for Stroke for the UK and Ireland. London: Intercollegiate Stroke Working Party; 2023 May 4. Available at: www.strokeguideline.org.

4.0 Acknowledgements

We are grateful for the input from the Stroke, Emergency Medicine and Interventional Neuroradiology teams. In particular, we thank Dr Flora Hay (ACCS IM) who designed the Quick Reference Guide, supported by Dr Seona Corbett. We are also grateful for the expertise of Dr Jonathan Downer (Interventional Neuroradiology), Dr Richard O'Brien (Stroke), Dr Deepa Rangar (Medicine of the Elderly), Dr Rosemary Andrews (ACCS EM), Dr Ed James (Emergency Medicine), Prof Alasdair Gray (Emergency Medicine), Zara Tumblety (Stroke ANP) and Trish Elder- Gracie (Stroke ANP).

5.0 Appendix 1

5.1 Hyperacute Stroke Quick Reference Guide RIE

See pages 8 and 9 of this document

HYPERACTE STROKE QUICK REFERENCE GUIDE RIE

Stroke Hotline 0131 536 1019 – Ask for Thrombolysis/Thrombectomy Consultant

Thrombectomy availability at RIE: Monday to Sunday 08:00 – 17:00

- **Request imaging as per hyperacute stroke guidance (CT RIE 23797)**
- **Get IV access and send bloods urgently including an INR or point of care INR for patients on warfarin**
- **Call Stroke Hotline whilst awaiting scan result with the below information**

Information to Gather for Phoning Stroke

Try to get collateral from family, paramedics, staff

- When was the patient last well?
- Onset of symptoms

If wakeup stroke, when did the patient go to sleep and wake up? (presumed onset is the middle of their sleep)

- HPC, including… *(*These are factors to consider when deciding to thrombolyse)*
  - *Any history to suggest SAH (thunderclap headache)?
  - *Any seizure at stroke onset?
  - *Any rapid improvement in their neurology?
- PMH including…
  - *Prior stroke? If so when?
  - *Diabetes?
  - *Severe liver disease?
  - *Possible pregnancy?
  - *Bacterial endocarditis or pericarditis?
  - *Any head injuries in the past 3 months?
  - *Any GI or urinary bleeding in the past 3 weeks?
  - *Any invasive procedures or significant trauma in the past 14 days?
  - *Any arterial puncture at a non-compressible site in the past 14 days?
- Medications, allergies
  - *Antiplatelets?
  - *Anticoagulants?
- Functional status
- Examination and calculate NIHSS (see QR code for MDcalc link)

(If seeing a patient in ED Resus, there is a pink Stroke protocol that outlines the NIHSS)

- Anaesthetic considerations (if for thrombectomy): when did the patient last eat, any history of anaesthetic issues, any known airway difficulties?
- Most recent blood pressure: _____ / _____
- Most recent glucose: _____

NIHSS

Contraindications to Thrombolysis

- Recent intracranial bleeding
- On Warfarin and INR > 1.6
- On DOAC and taken within last 48 hours
- Treatment dose low molecular weight heparin (LMWH) in last 24 hours

Contraindications to Thrombectomy

- Significant dependence on others
- If in doubt discuss with the stroke consultant

Useful Numbers

CT RIE 23797
CT DCN 50836
Interventional neuroradiology 07976067252
Stroke nurse 07904367811
Anaesthetics (DCN) Bleep #8519
DCN coordinator 50790

HYPERACTE STROKE QUICK REFERENCE GUIDE RIE

Thrombolysis Discussion

Procedure: Your relative has had a stroke, caused by a blood clot in one of the vessels that supplies blood to the brain. We can offer them a treatment called thrombolysis, which breaks down / dissolves the clot, and should improve blood flow and oxygen to the part of the brain affected by their stroke.

Benefit: With thrombolysis, more people recover with milder symptoms, and fewer will need help with tasks such as personal care. The level of care people need may be less.

Risk
- NIHSS 0-4: Thrombolysis carries a 1-2% risk of brain bleeding which can be fatal.
- NIHSS 5-15: Thrombolysis carries a 2-3% risk of brain bleeding which can be fatal.
- NIHSS >15: Thrombolysis in severe stroke carries a 5% risk of brain bleeding which can be fatal.

Alternative: Not to thrombolyse.
- NIHSS 0-4: Without thrombolysis many people recover with mild symptoms, but a small number will need personal care.
- NIHSS 5-15: Without thrombolysis some people will recover with mild symptoms, but many people will have either severe symptoms, or need care at home or in a nursing home
- NIHSS >15: Without thrombolysis few people will be independent again. Most people will need care in a nursing home, or die of their stroke.

Recommendation: We have discussed your case with the stroke specialist, who recommends…

Thrombectomy Discussion

Procedure: You/your relative has had a large stroke, caused by a blood clot in one of the vessels that supplies blood to the brain. We can offer them a treatment called thrombectomy, a type of surgery performed under general anaesthetic. A wire will be passed into one of the blood vessels in the leg or wrist. This wire is fed up to reach the blood vessel in the brain where the clot is. On the end of the wire is a small device that either sucks or pulls out the clot, restoring blood flow to that part of the brain.

Benefit: One in every three to four patients who has thrombectomy will be less disabled and dependent on care. 80% of thrombectomy procedures are successful at improving blood flow to the brain.

Risks:
- 1% risk of brain blood vessel rupture during the procedure
- 3% risk of worsening the stroke
- 2% risk of complications from accessing large blood vessels in the leg or wrist requiring blood transfusion or surgery

Alternative: Do nothing or perform thrombolysis without thrombectomy.

Recommendation: We have discussed your case with the stroke specialist, who recommends