

A. Service Specification

Service Specification No:	170034S
Service	Neurointerventional Services for Acute Ischaemic & Haemorrhagic Stroke
Commissioner Lead	<i>For local completion</i>
Provider Lead	<i>For local completion</i>
1. Scope	
<p>1.1 Prescribed Specialised Service</p> <p>This service specification covers the provision of interventional neuroradiology services and should be read alongside the Neurosciences Specialised Neurology Service Specification and Neurosurgery (Adult) Service Specification.</p> <p>1.2 Description</p> <p>Neuroradiology is a subspecialty of radiology which involves the investigation and treatment of patients with neurological diseases. Modern imaging requirements and the development of image guided interventions has resulted in a large increase in neuroradiology workload. It is important that this work is managed safely within a service that is fit for purpose. Important integrated responsibilities include training and education, research and development and close working with colleagues in a wide variety of other specialties through multidisciplinary team (MDT) working.</p>	
2. Care Pathway and Clinical Dependencies	
<p>Imaging in the management of acute and chronic neurological disease is reflected in increased demand for neuroimaging which is now required on a 24/7 basis.</p> <p>A combined interventional neuroradiology service must provide endovascular aneurysm treatment as well as a stroke thrombectomy service. The requirements to do this include:</p> <ul style="list-style-type: none"> • Immediate neurosurgical & neurocritical care support co-located on the same site as the interventional neuroradiology service • Robust arrangements in place to facilitate the discussion of all subarachnoid haemorrhage (SAH) aneurysm cases with a Consultant Neurovascular Neurosurgeon • A functioning neurovascular MDT for case review including morbidity and mortality of SAH cases • Anaesthetic support such that 2 angiography suites can be staffed, if necessary, at the same time during daytime, (when it is much more likely to see two simultaneous treatments requiring intervention.) • 24 hour access to the appropriate diagnostic modalities with staff cover to enable this service to be provided safely and robustly including: <ul style="list-style-type: none"> ○ Immediate/next available slot access to multislice CT (16 slice or greater) dedicated to the neurosciences department ○ 24/7 access to a high field strength MRI scanner with Echo Planar Imaging and multichannel head coils 	

- Additional equivalent CT and MR scanners should be available on site to support downtime and periods of increased demand
- There must be appropriate access to high resolution biplane digital angiographic equipment with rotational 3D capability and appropriate software for image manipulation
- On site access to an appropriate second angiographic facility to cover periods of down time is essential
- There must be appropriate IT infrastructure to include adequate access to home workstations and remote visualisation of imaging studies in support of a hub and spoke neuroscience service models
- Selection of patients for mechanical clot retrieval for treating acute ischaemic stroke should be done by clinicians experienced in the use of thrombolysis for stroke and in interpretation of relevant imaging
- Selected patients must comply with the criteria for treatment within the clinical policy. (insert link)
- The procedure should only be carried out by appropriately trained specialists with regular experience in intracranial endovascular interventions, with appropriate facilities and neuroscience support
- Patients must be cared for on a ward with specialist expertise in the care of acute stroke (either a hyperacute stroke unit (HASU) ward or equivalent)
- Ensuring that early secondary prevention interventions are commenced as appropriate and that advice on secondary prevention is included in handover documentation for patients transferring back to local services. (For patients who are discharged home or to community care the thrombectomy service must ensure that comprehensive secondary prevention assessment, investigation and treatment are arranged).

2.1 Care Pathways

Thrombectomy

Patients will be admitted to their nearest HASU, which will undertake the initial investigations including CT or MR angiography, start treatment with intravenous thrombolysis if that is appropriate and then arrange critical transfer for thrombectomy for those who fulfil the criteria in the published policy. The patient would normally be transferred for local rehabilitation and inpatient care, if needed, within 24-72 hours.

Subarachnoid haemorrhage Patients will be seen in their local emergency departments and either admitted for initial investigations to confirm the diagnosis and then urgently transferred to the neuroscience centre, or if the diagnosis is made in the emergency department, transferred directly to a neuroscience centre. Coiling or surgical clipping of an aneurysm should take place within 48 hours of the haemorrhage or if delayed presentation within 48 hours of presentation. Where patients have residual neurological and or cognitive deficits ongoing treatment will usually be undertaken in the local hospital, preferably on a stroke unit.

All images need to be made immediately available to the neurointerventionist who will be planning and delivering treatment.

Following acceptance for transfer it is the referring unit's responsibility to ensure a safe, rapid transfer, if necessary via ambulance or helicopter, as clinically indicated and according to the time critical nature of the treatment.

Please note that access to treatment will be guided by any applicable NHS England national clinical commissioning policies.

2.2 Interdependence with other services

All interventional neuroradiology centres must be recognised by NHS England as one of their listed centres for interventional neuroradiology and specifically, in accordance with the Neurosciences Specialised Neurology Service Specification and Neurosurgery (Adult) Service Specification, should have regard for the standards for providing safe acute ischaemic stroke thrombectomy services -

British Association of Stroke Physicians (BASP September 2015).

Most patients will be managed on the hyperacute stroke unit after intervention but a proportion will require ICU admission.

Staff

All centres must have sufficient clinicians with appropriate competencies to be able to provide a 24/7 service (an extended hours 7 day service may be acceptable whilst working towards full 24/7 provision.) Most eligible patients will present for treatment between 8 am and midnight.

Any post for aneurysm interventional neuroradiology work should have at least two nominated procedural sessions per week. Neurointerventional operators should undertake a minimum of 40 cerebral endovascular interventions per annum, of which a reasonable proportion are thrombectomy.

Centres must have immediate access to:

- Appropriately trained nurses
- Radiographers
- Anaesthetists & Operating Department Practitioners with neuroscience experience

Stroke pathway requirements (commissioned by CCGs)

HASU Centres will need access to:

- CT angiography 24/7 (extended hours 7 days per week may be acceptable whilst working towards 24/7 access. (HASU will already have access to 24/7 CT)
- Ambulance service agreement for critical patient transfers and
- Acute and stroke rehabilitation services commissioned such that they are available for patients to be transferred back for local care within 24 hours of request by the centre

3. Population Covered and Population Needs

3.1 Population Covered By This Specification This service specification covers all ages.

3.2 Population Needs There are approximately 80,000 stroke admissions in England per year. Currently, around 12% of all stroke patients receive intravenous thrombolysis and the majority of patients suitable for thrombectomy will come from this group. It is estimated that up to 8,000 patients per year are eligible for treatment in England.

3.3 Expected Significant Future Demographic Changes

None identified.

3.4 Evidence Base

The service description and key requirements are based on the Standards for Providing Safe Acute Ischaemic Stroke Thrombectomy Services (September 2015) and the British Society of Neuroradiology guidance: BSNR training guidance for mechanical thrombectomy.

4. Outcomes and Applicable Quality Standards

4.1 Quality Statement – Aim of Service

This service specification has considered the current stroke pathway, the need to ensure that investigations and treatment such as thrombolysis are carried out immediately and without delay, that the clinical commissioning criteria for thrombectomy are applied through the availability of the required imaging and expert assessment and that any intervention itself is provided by specialists with the required training and experience within appropriate units. The specification also recognises

the need for patients having thrombectomy to receive care on HASU wards or equivalent and to ensure that service are planned to ensure prompt transfer back to local inpatient or outpatient specialist rehabilitation services.

The objective is to ensure evidence based commissioning with the aim of improving outcomes for patients who experience a stroke and improve evidence based access to procedures as soon as possible after the onset of stroke symptoms.

- All centres must enter patients onto the Sentinel Stroke National Audit Programme (SSNAP) database, which is used to monitor and audit stroke treatment and outcomes.

NHS Outcomes Framework Domains

Domain 1	Preventing people from dying prematurely	√
Domain 2	Enhancing quality of life for people with long-term conditions	√
Domain 3	Helping people to recover from episodes of ill-health or following injury	√
Domain 4	Ensuring people have a positive experience of care	√
Domain 5	Treating and caring for people in safe environment and protecting them from avoidable harm	√

4.2 Indicators Include:

Number	Indicator	Data Source	Outcome Framework Domain	CQC Key question
Clinical Outcomes				
101	% patients undergoing thrombectomy	Sentinel Stroke National Audit Programme (SSNAP)		
102	30 day mortality post mechanical thrombectomy	SSNAP	1,5	effective
103	Number of patients with post treatment symptomatic intracranial haemorrhage	SSNAP	1235	effective
104	Mean arrival to arterial puncture time	SSNAP	1,2,3,5	effective
105	Median disability score (modified Rankin) at discharge	SSNAP	1,2,3,5	effective

106	Median disability score (mR)at 6 months	SSNAP	2,3	effective
Patient Experience				
201	Patient receive written information	Self-declaration	4,	responsive, caring
202	There is a mechanism for patient feedback	Self-declaration	4	responsive, caring
Structure and Process				
301	There is specialist neurointervention team	Self-declaration	1,3,5,	effective, safe
302	All neurointerventionists meet the minimum required procedures	Self-declaration	1,3,5,	effective, safe
303	There is a 24/7 rota	Self-declaration	1,3,5,	effective, safe
304	There are angiographic facilities	Self-declaration	1,3,5,	effective, responsive
305	There is 24/7 access to diagnostics	Self-declaration	1,3,5,	effective, responsive
306	There are processes in place for rapid transfer and review of imaging	Self-declaration	1,3,5,	effective
307	There are clinical guidelines in place	Self-declaration	1,3,5,	Effective, safe
308	There are patient pathways in place	Self-declaration	1,3,5	effective, safe

5. Applicable Service Standards

5.1 Applicable National Standards

NICE- Mechanical clot retrieval for treating acute ischaemic stroke - Interventional procedures guidance [IPG548]. Published date: February 2016

5.2 Other Applicable National Standards

White P et al. Standards for providing safe acute ischaemic stroke thrombectomy services (September 2015). Clin Radiol 2016;10.1016/j.crad.2016.11.008

Lenthall R et al: BSNR training guidance for mechanical thrombectomy. Clin Radiol 2016; 10.1016/j.crad.2016.11.007

6. Designated Providers (if applicable)

Not applicable

7. Abbreviation and Acronyms Explained

The following abbreviations and acronyms have been used in this document:

MDT - multidisciplinary team - A group of health care workers and social care professionals who are experts in different areas with different professional backgrounds

SAH – Subarachnoid haemorrhage - A type of stroke caused by bleeding on the surface of the brain

CT – Computed Tomography - The use of X-rays and a computer to create detailed images of the inside of the body

MRI - Magnetic resonance imaging - A technique that uses a magnetic field and radio waves to create detailed images of the organs and tissues within the body

HASU- Hyper Acute Stroke Unit

ASU – Acute Stroke Unit

BSNR - British Society of Neuroradiology

SSNAP - Sentinel Stroke National Audit Programme

mR- Modified Rankin scale - This is a functional assessment scale that measures the degree of disability or dependence of people who have suffered a stroke

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