



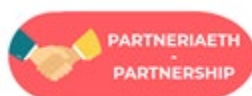
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Pwyllgor Gwasanaethau Iechyd
Arbenigol Cymru (PGIAC)
Welsh Health Specialised
Services Committee (WHSSC)

Specialised Services Commissioning Policy: CP168

Mechanical Thrombectomy for the treatment of acute Ischaemic Stroke

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Version 1.0*



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Policy Statement

Welsh Health Specialised Services Committee (WHSSC) commission Mechanical Thrombectomy for people of all ages with acute Ischaemic Stroke in accordance with the criteria outlined in this document.

In creating this policy, WHSSC has reviewed this clinical condition and the options for its treatment. It has considered the place of Mechanical Thrombectomy in current clinical practice, where scientific research has shown the treatment to be of benefit to patients, (including how any benefit is balanced against possible risks) and whether its use represents the best use of NHS resources.

Disclaimer

WHSSC assumes that healthcare professionals will use their clinical judgment, knowledge and expertise when deciding whether it is appropriate to apply this policy.

This policy may not be clinically appropriate for use in all situations and does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

WHSSC disclaims any responsibility for damages arising out of the use or non-use of this policy.

1. Introduction

This policy has been developed for the planning and delivery of Mechanical Thrombectomy for people with acute ischaemic stroke resident in Wales. This service is only commissioned in NHS Wales by the Welsh Specialised Services Committee (WHSSC) and applies to residents of all seven Health Boards in Wales.

1.1. Plain Language Summary

Mechanical Thrombectomy is one possible treatments for a stroke.

Strokes are caused by:

- a bleed either within the brain (intracerebral haemorrhage), or
- a bleed around the outside of the brain, or
- an interruption to the flow of blood (cerebral infarction).

The most common type of stroke is when an artery (blood vessel) is blocked by a blood clot, cutting off blood flow to part of the brain. This is known as an Ischaemic Stroke. Without a blood supply, brain cells can be damaged or destroyed because they may not receive enough oxygen. Symptoms may include numbness or weakness on one side of the body and problems with balance, speech and swallowing. Symptoms may range from mild and resolve, through to severe strokes that can lead to coma and death.

1.2. Treatments

Existing treatments

Drug treatment known as Thrombolysis is used as soon as possible following the stroke to dissolve the blood clot. This intervention is used in approximately 20% of stroke patients.

Other treatment includes specialised care and rehabilitation.

1.3. Mechanical Thrombectomy

Mechanical Thrombectomy also known as 'Clot Retrieval' aims to restore normal blood flow to the brain by using a device to remove the blood clot blocking the artery. The patient first undergoes a radiological procedure known as a cerebral angiography (a procedure using Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) scanning that shows blood flow through the arteries in the neck and brain) to identify where the blood clot is. For a select group of patients, CT perfusion (CTP) or diffusion weighted MRI imaging can be used.

The clot removal procedure is then undertaken under sedation or general anaesthetic. A thin tube called a catheter is inserted into an artery,

usually in the groin, and fed to the site of the clot. A clot retrieval device is inserted through the catheter, catches the clot, and is then pulled out through the catheter. This restores blood flow and minimises brain tissue damage. When used with other medical treatments such as Thrombolysis and care on a specialist stroke unit/rehabilitation, Mechanical Thrombectomy can significantly reduce the severity of disability caused by a stroke.

1.4. Aims and Objectives

This policy aims to define the commissioning position of WHSSC on the use of Mechanical Thrombectomy for an acute Ischaemic Stroke.

The objectives of this policy are to:

- ensure commissioning for the use of Mechanical Thrombectomy is evidence based
- ensure equitable access to Mechanical Thrombectomy
- define criteria for people with acute Ischaemic Stroke to access treatment
- improve outcomes for people suffering from acute Ischaemic Stroke

1.5. Epidemiology

Stroke is a devastating disease for the patient and family and is estimated to cost the UK NHS around £3bn per year, with additional cost to the economy of a further £4bn in lost productivity, disability and informal care (National Audit Office 2005).

The Sentinel Stroke National Audit Programme (SSNAP), which is a single source of data in Wales, England and Northern Ireland, publishes a range of statistics. It advises that around 20% of patients die within the first year (and the majority of these patients die within the first 3 months) and over 50% of survivors are left with long-term disability. A disproportionately high share of the disability burden arises within the 30-50% of patients with proximal large artery occlusive stroke. Many of these patients will have a mixture of cognitive, mood and physical function problems.

Specifically to Wales, there are around 5000 confirmed stroke events each year and approximately one quarter of these occur in people under the age of 65 years.

Currently, around 12% of all stroke patients receive intravenous thrombolysis and the majority of patients suitable for Thrombectomy will come from this group, with the remainder made up of those for whom intravenous thrombolysis is contraindicated; for example as a result of recent surgery or the patient taking anticoagulants.

NHS England are forecasting that 10% of Stroke patients will be eligible for Thrombectomy, which extrapolated for Wales, would see 500 patients per year eligible when all elements of the service are fully embedded.

1.6. Current Treatment

Currently Wales provides emergency services for stroke patients in 12 hospitals across six health Boards (Powys THB does not provide acute stroke services but accesses from NHS England and Welsh Health boards). All 12 sites listed below provide thrombolysis for patients with an acute, ischaemic stroke.

Twelve Hospitals across Wales providing Acute Stroke Services:

- The Grange University Hospital, Cwmbran
- Prince Charles Hospital, Merthyr
- University Hospital of Wales, Cardiff
- Princess of Wales Hospital, Bridgend
- Morriston Hospital, Swansea
- Prince Philip Hospital, Llanelli
- Withybush Hospital, Haverfordwest
- Glangwili Hospital, Carmarthen
- Bronglais Hospital, Aberystwyth
- Ysbyty Gwynedd, Bangor
- Glan Clwyd Hospital, Rhyl
- Wrexham Maelor Hospital, Wrexham

The current standard treatment in these hospitals is Thrombolysis, which improves functional outcome after stroke but does not reduce mortality. It needs to be given quickly (within 4.5 hours at most) and the sooner it is given the better the outcome.

85% of strokes are ischaemic and up to 20% of people with ischaemic strokes are suitable for and respond to intravenous thrombolysis. Many of those treated with Thrombolysis will see limited benefit because the blood clot is too large and does not completely dissolve. In addition, some patients cannot receive Thrombolysis due to contraindications such as recent surgery or being on anticoagulant (blood-thinning) drugs.

1.7. Proposed Treatment

A Mechanical Thrombectomy performed within six hours of the onset of stroke symptoms or an advanced brain imaging (perfusion or multiphase computed tomography angiography (CTA) indicates substantial salvageable brain tissue and is still present up to 24 hours after the onset of symptoms is an effective treatment, that can reduce brain damage and prevent or limit long term disability.

The group of patients that are likely to benefit from mechanical thrombectomy are those with proximal occlusion of the internal carotid or middle cerebral arteries who present early after the stroke before there is irreversible ischaemic damage to the brain. These patients, often with extensive thrombus, are much less likely to respond to the conventional intravenous thrombolysis and more likely to experience severe disability.

Evidence suggests that the quicker this intervention is delivered the greater the benefits. Other than established intravenous thrombolysis, there are no other acute interventions that have been shown to reduce the area of infarcted brain.

The treatment, which uses a specially designed clot removal device inserted through a catheter into the blocked artery to remove the clot, is undertaken by Interventional Neuro Radiologists in a specialised Neurosciences Centre equipped with a specialist Interventional Radiology suite. For treatments that are successful, length of stay is short but for those who the treatment does not work, patients will require access to specialised stroke rehabilitation, which is commissioned in and by individual Local Health Boards.

1.8. What NHS Wales has decided

WHSSC has carefully reviewed the evidence of Mechanical Thrombectomy for acute Ischaemic Stroke. We have concluded that there is sufficient evidence to fund the use of Mechanical Thrombectomy, within the criteria set out in section 2.1.

1.9. Relationship with other documents

This document should be read in conjunction with the following documents:

- **National Institute of Health and Care Excellence (NICE) guidance**
 - [Mechanical Clot Retrieval for treating acute ischaemic stroke](#). Interventional Procedures Guidance IPG548, February 2016
 - [Stroke and transient ischaemic attack in over 16s: diagnosis and initial management](#). NICE Guideline NG128, May 2019
- **Relevant NHS England policies**
 - Clinical Commissioning Policy: [Mechanical thrombectomy for acute Ischaemic Stroke \(all ages\)](#). NHS England Reference:170033P. March 2018
- **Other published documents**
 - British Society for Neuro Radiologists: [Training Guidance for Mechanical Thrombectomy](#)

2. Criteria for Commissioning

The Welsh Health Specialised Services Committee approve funding of Mechanical Thrombectomy for people with acute Ischaemic Stroke and resident in Wales, in-line with the criteria identified in the policy.

2.1. Inclusion Criteria

Mechanical Thrombectomy will be routinely commissioned for patients, of all ages with proximal occlusion of the internal carotid or middle cerebral arteries who present early after the stroke before there is irreversible ischaemic damage to the brain.

The criteria that needs to be met for treatment are:

1. Offer thrombectomy as soon as possible and within 6 hours of symptom onset, together with intravenous thrombolysis (if not contraindicated and within the licensed time window), to people who have:
 - acute ischaemic stroke **and**
 - confirmed occlusion of the proximal anterior circulation demonstrated by computed tomographic angiography (CTA) or magnetic resonance angiography (MRA)

taking into account the factors in recommendation point 4
(See additional information in point 4.) **[2019]¹**

2. Offer thrombectomy as soon as possible to people who were last known to be well between 6 hours and 24 hours previously (including wake-up strokes):
 - who have acute ischaemic stroke and confirmed occlusion of the proximal anterior circulation demonstrated by CTA or MRA **and**
 - if there is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume

taking into account the factors in recommendation point 4
(See additional information in point 4.) **[2019]**

3. Consider thrombectomy together with intravenous thrombolysis (where not contraindicated and within the licensed time window) as soon as possible for people last known to be well up to 24 hours previously (including wake-up strokes):

¹ <https://www.nice.org.uk/guidance/ng128>

- who have acute ischaemic stroke and confirmed occlusion of the proximal posterior circulation (that is, basilar or posterior cerebral artery) demonstrated by CTA or MRA **and**
- if there is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume

taking into account the factors in recommendation point 4 (See additional information in point 4.) **[2019]**

4. Take into account the person's overall clinical status and the extent of established infarction on initial brain imaging to inform decisions about thrombectomy. Select people who have (in addition to the factors in points 1-3):

- a pre-stroke functional status of less than 3 on the modified Rankin scale **and**
- a score of more than 5 on the National Institutes of Health Stroke Scale (NIHSS). **[2019]**

The NIHSS scale and Modified Rankins score are detailed in Annex iv.

2.2. Exclusion Criteria

- 1) No proximal intracranial large artery occlusion
- 2) No appropriate vascular access or contraindications to arterial puncture
- 3) Intracerebral haemorrhage
- 4) Newly established cerebral infarct

2.3. Continuation of Treatment

Healthcare professionals are expected to review a patient's health at regular intervals to ensure they are demonstrating an improvement to their health due to the treatment being given.

2.4. Acceptance Criteria

The service outlined in this specification is for patients ordinarily resident in Wales, or otherwise the commissioning responsibility of the NHS in Wales. This excludes patients who whilst resident in Wales, are registered with a GP practice in England, but includes patients resident in England who are registered with a GP Practice in Wales.

2.5. Patient Pathway (Annex i)

The model of care includes, the admission of patients to an emergency department in the nearest of the twelve hospitals providing Acute Stroke Services set out in section 1.4.

Patients will undergo the initial investigations including CT angiography (CTA) or magnetic resonance (MR) angiography or in a select group patients, CT perfusion (CTP) or perfusion weighted MRI, who fulfil the inclusion criteria and start treatment with intravenous thrombolysis, as appropriate. Patients who fulfil the inclusion criteria and who present early after the stroke might benefit from having Thrombectomy treatment and should be urgently transferred to the nearest Thrombectomy Centre.

Patients will be discharged from the Thrombectomy Centre to an acute stroke ward within their resident Health Board once they are deemed stable to travel.

2.6. Designated Centres

Currently, patients are able to access Thrombectomy services in:

The Walton Centre NHS Foundation Trust
Lower Lane
Fazakerley
Liverpool
L9 7LJ

University Hospital North Midlands Trust
Royal Stoke University Hospital
Newcastle Road
Stoke-on Trent
ST16 6QG

North Bristol NHS Trust
Southmead Hospital
Southmead Road
Westbury-on-Trym
Bristol
BS10 5NB

Cardiff and Vale University Health Board
University Hospital of Wales
Heath Park
Cardiff
CF14 4XW

2.7. Clinical Outcome and Quality Measures

The Providers must work to written quality standards i.e. NHS England D04SA Neurosciences Specialised Neurology Service Specification and D03SA Neurosurgery (Adult) and provide monitoring information to the lead commissioner.

The following information should be collected:

- Treatment related information:
 - 30 day mortality post treatment
 - Disability at 6 months (Modified Rankin scale, Local Unit) on SSNAP
 - Disease/procedure-related complications such as symptomatic intracranial haemorrhage
 - Disease-associated complications (e.g. lower respiratory tract infections, urinary infections, from SSNAP)
 - Time from onset to Thrombectomy
 - Time from onset to arrival at Thrombectomy Centre
 - Time from arrival to arterial puncture
 - Time from arterial puncture to Thrombectomy
- All patients with stroke admitted to hospital in Wales are included on the Sentinel Stroke National Audit Programme (SSNAP) database, which is used to monitor and audit stroke treatment and outcomes.
- SSNAP record starts on emergency admission and then tertiary centre continues and then local hospital picks it up.
- The centre must enable the patient's, carer's and advocate's informed participation and to be able to demonstrate this.
- SIG Audit and Outcome Day - Thrombectomy
- PREMs/PROMS.

2.8. Responsibilities

Referring Clinicians should:

- Be aware that this treatment is not routinely funded outside the criteria in this policy and refer via the agreed pathway
- discuss all the alternative treatment with the patient
- advise the patient of any side effects and risks of the potential treatment.

3. Evidence

WHSSC is committed to regularly reviewing and updating all of its commissioning policies based upon the best available evidence of both clinical and cost effectiveness.

Two recently published documents were used to inform the WHSSC commissioning policy:

- The NHS England Clinical Commissioning Policy: Mechanical Thrombectomy for acute ischaemic stroke (all ages) published in January 2018 and updated in May 2019²
- Stroke and transient ischaemic attack in over 16s: diagnosis and initial management (2019). The National Institute for Health and Care Excellence³.

An abridged summary of the evidence is provided below:

Sixteen relevant research studies; seven trials, and a further nine systematic literature reviews and meta- analyses (two of which use secondary analyses of pooled trial data) were identified as relevant, and were examined in detail.

All seven trials examined the effects of mechanical thrombectomy on patients who were functioning independently prior to their stroke. All reported strongly positive findings, with the proportion of people who could function independently at 90 days following stroke increasing by between 19-35%. All trials also examined the safety of the mechanical thrombectomy, usually by monitoring total mortality and the probability of an intracranial haemorrhage. None of the trials showed a significant excess of either of these outcomes compared with best medical treatment

The facilities, personnel and equipment required to undertake thrombectomy take time to coordinate. These studies provide valuable insights into the time this takes, measured by time from arrival in a health care facility to arterial puncture. For most patients admitted direct to the thrombectomy hospital site arterial puncture was achieved within an hour and a half of admission (median 81 minutes) and in just under two hours (median 116 minutes) for those requiring transfer to the thrombectomy centre (Goyal et al., 2016).

The trials differed in aspects of their design, including the interventions allowed as best medical therapy. However many examined the effects of adding mechanical thrombectomy to a best medical therapy protocol that included intravenous thrombolysis (which has to be administered within

² <https://www.england.nhs.uk/publication/clinical-commissioning-policy-mechanical-thrombectomy-for-acute-ischaemic-stroke-all-ages/>

³ <https://www.nice.org.uk/guidance/ng128>

4.5 hours of stroke onset), with prompt initiation of further therapy (aiming for clot retrieval within 6 hours). This suggests that these trials can be used to build on established protocols for acute stroke management in Wales, where prompt access to thrombolysis is a mainstay of best medical treatment.

Five systematic literature reviews synthesised the results of the same/similar pool of studies, and reached similar conclusions. The absolute chance of patients being able to function independently at 90 days after stroke were improved by around 20% (19-22%) among those undergoing mechanical thrombectomy compared with controls (Bush et al., 2016, Marmagkiolis et al., 2015, Lambrinos et al., 2016, Touma et al., 2016, Anonymous, 2016). This suggests that for every 4 to 6 patients undergoing thrombectomy following stroke, one more will be able to function independently at 90 days, compared to those that receive thrombolysis alone.

The studies that pooled individual level data gave similar findings. The larger of these calculated median disability scores at 90 days, and concluded that the median score on the Modified Rankin (mR) scale for those who received best medical therapy was 4, i.e. that patients were moderately severely disabled. In contrast, the median score at this time for patients who had also undergone mechanical thrombectomy was 2, i.e. they were able to function independently. Further, using a "differences in differences" approach mechanical thrombectomy increases the odds of being in a less disabled category at 90 days (one point different on the mR scale) by more than two fold (Odds ratio 2.26 $p < 0.0001$) (Goyal et al., 2016).

Pooled analysis allowed other factors to be explored, particularly the significance of time from symptom onset to key events in the treatment pathway, such as decision to treat (randomisation), start of procedure, and restoration of cerebral blood flow. The HERMES study (Saver et al. 2016) identified that the absolute chance of being functionally independent 90 days after thrombectomy diminish by 3.4% with each hour's delay to starting the procedure (arterial puncture), and the probability of a beneficial reduction in decline in disability (one point on the mR scale at 90 days) fell by 5.3% for each hour's delay. Whilst treatment benefits fell, the outcomes for those undergoing thrombectomy were better than those receiving best medical therapy for up to 7 hours from stroke onset (i.e. where arterial puncture could be achieved within this time).

In summary, For every 4 to 6 people with an acute ischaemic stroke who present with an identifiable occlusion in the anterior cerebral circulation who undergo mechanical thrombectomy, one more person will be

functioning independently at three months compared with if they had received intravenous thrombolysis alone.

Rapid treatment is important, as the benefit from mechanical thrombectomy falls by 5.3% for every hour of delay. However, the percentage that can be expected to be independent declines from 50% for thrombectomy within 3 hours to 45% at 4.5 hours, to 40% at 6 hours and to 33% by 8 hours, even with a favourable advanced brain imaging profile in the patients treated beyond 6 hour. Some patients where advanced brain imaging indicates the continuing presence of salvageable brain tissue may still have better outcomes from thrombectomy than best medical treatment alone, even if thrombectomy occurs up to 24 hours after onset (Albers G et al 2018, Nogueira RG et al 2018). There is no evidence to support later treatment in the absence of a favourable advanced brain imaging profile.

Symptomatic intracranial haemorrhage is no more common among people who had thrombectomy (4.4%) than best medical therapy (4.3%). Death rates at 3 months appear lower for those undergoing thrombectomy (15.3%) than for those receiving best medical therapy (18.9%), though these differences were not statistically significant.

Specifically, to ensure that those with the most to gain achieve important benefits, a decision should be made on both thrombolysis and on referral for thrombectomy within 4.5 hours of stroke onset, ideally achieving arterial puncture within 6 hours.

3.1. References

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Anonymous 2016. Mechanical thrombectomy in patients with acute ischemic stroke: A health technology assessment. *Ontario Health Technology Assessment Series*, 16, 1-79.

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Goyal, M., Menon, B. K., Van Zwam, W. H., Dippel, D. W. J., Mitchell, P. J., Demchuk, A. M., et al. 2016. Endovascular thrombectomy after large-

vessel ischaemic stroke: A meta-analysis of individual patient data from five randomised trials. *The Lancet*, 387, 1723-1731.

Jovin TG, Chamorro A, Cobo E et al. Thrombectomy within 8 hours after symptom onset in ischaemic stroke (REVASCAT) DOI: 1056/NEJM0a1503780

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Noguiera RG et al Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct *N Engl J Med* 2018; 378:11-21

Saver, L., Goyal, M., Van, D. A., Menon, K., Majoie, B. L. M., Dippel, W., et al. 2016. Time to Treatment With Endovascular Thrombectomy and Outcomes From Ischemic Stroke: A Meta-analysis. *JAMA: Journal of the American Medical Association*, 316, 1279-1289.

Touma, L., Fillion, K. B., Sterling, L. H., Atallah, R., Windle, S. B. & Eisenberg, M. J. 2016. Stent Retrievers for the treatment of acute ischemic stroke a systematic review and meta-Analysis of randomized clinical trials. *JAMA Neurology*, 73, 275-281

White PM, Bhalla A, Dinsmore J, James M, McConachie N, Roffe C, Young G Standards for providing safe acute ischaemic stroke thrombectomy services (British Association of Stoke Physicians (BASP) September 2015) *Clinical Radiology* 2016;10.1016/j.crad.2016.11.008

3.2. Date of Review

This document is scheduled for review before 2024 where we will check if any new evidence is available. If no new evidence or intervention is available the review date will be progressed.

If an update is carried out the policy will remain extant until the revised policy is published.

4. Equality Impact and Assessment

The Equality Impact Assessment (EQIA) process has been developed to help promote fair and equal treatment in the delivery of health services. It aims to enable Welsh Health Specialised Services Committee to identify and eliminate detrimental treatment caused by the adverse impact of health service policies upon groups and individuals for reasons of race, gender re-assignment, disability, sex, sexual orientation, age, religion and belief, marriage and civil partnership, pregnancy and maternity and language (Welsh).

This policy has been subjected to an Equality Impact Assessment.

The Assessment identifies the potential for adverse impact or missed opportunities to promote equality. A decision was made to proceed with the policy because of the significant patient benefits compared to current treatments. It is believed that the treatment should not be denied to those where a service is available and efforts needs to be concentrated on making the service available to the whole Welsh population.

Annex i Patient Pathways

The model of care includes; the admission of patients to an emergency department in the nearest hospital with a hyperacute stroke unit (HASU); undertake the initial investigations including CT or magnetic resonance (MR) angiography or in a select group patients, CT perfusion (CTP) or diffusion weighted MRI, who fulfil the inclusion criteria; start treatment with intravenous thrombolysis as appropriate; and then transfer urgently those who might benefit from thrombectomy and fulfil the inclusion criteria, to the nearest Thrombectomy Centre.

Patients will be discharged from a Thrombectomy Centre to an acute stroke ward within their resident health board once they are stable to transfer. Health Boards must work with the Thrombectomy Centre to ensure that patients are repatriated in a timely manner in order that patients receive appropriate access to specialised stroke care.

Clinical pathway for Mechanical Thrombectomy for all Centres

Patient with Acute Ischaemic Stroke and significant neurological deficit
MRS(modified Rankin scale) <3
NIHSS (NIH Stroke scale) >5
CT head – No major ischaemic changes or haemorrhage at referral
CTA demonstrates Large vessel occlusion

CT Angiogram (CTA) for patients who present:
with arterial circulation
<6 hours from onset of symptoms
CT Perfusion for patients who present:
>6 hours and <24 hours from onset of symptoms

CTA findings which suggest the need for Intra Arterial Intervention (IAI)
Discuss diagnostics results with INR team in Thrombectomy Centre

All criteria met proceed with the Thrombectomy pathway
Request that the referring team complete online referral proforma using the appropriate centres links - see below. (Service delivery provision is outlined in **Appendix 1 – annex c**)

North Wales Service (Walton)

[Walton Thrombectomy Regional Pathway and Guidelines for referral](#)

South Wales Service (N.Bristol)

[N.Bristol Regional Pathway and Guidelines for referral](#)

Referring Team to activate patient transport

Referring team to decide on level of transport needed and if any escorts are required.

Ring WAST on 999 and request an Emergency transfer for an acute stroke patient

WAST call handlers will ask a series of questions to determine the priority of response, once complete ask the call handler for the priority generated.

If any concern is identified in the level of priority assigned advise the call handler and request a clinical review.

Hold or organise bed for transferred patient to allow for safe repatriation.

Patient received a Thrombectomy if no exclusions following transfer

Repatriation to referring hospital agreed as soon as patient is stable for transfer

Annex ii Codes

Code Category	Code	Description
OPCS-4	L71.2	Percutaneous transluminal embolectomy of artery. This includes:
	Y53	Approach to organ under image control
	Z35	Cerebral artery
ICD-10	I63.9	Cerebral Infarction, unspecified
HRG	YA12Z	Mechanical clot retrieval

Annex iii Abbreviations and Glossary

Abbreviations

SSNAP	Sentinel Stroke National Audit Programme
WHSSC	Welsh Health Specialised Services
PREMS	Patient Related Experience Measures
PROMS	Patient Related Outcomes Measures
CTA	Computed Tomography Angiography
CTP	Computed Tomography Perfusion
CSC	Comprehensive Stroke Centre
MRA	Magnetic Resonance Angiography

Glossary

Welsh Health Specialised Services Committee (WHSSC)

WHSSC is a joint committee of the seven local health boards in Wales. The purpose of WHSSC is to ensure that the population of Wales has fair and equitable access to the full range of Specialised Services and Tertiary Services. WHSSC ensures that specialised services are commissioned from providers that have the appropriate experience and expertise. They ensure that these providers are able to provide a robust, high quality and sustainable services, which are safe for patients and are cost effective for NHS Wales.

Repatriation

The movement of individual patients to an Acute Hospital nearest to their place of residence and/or registered GP.

Transfer

Movement of a patient between Acute Hospitals i.e. into a Tertiary Centre in order to receive specialist care.

Transferring Hospital

In this context, Hospital that provides tertiary services, typically not nearest to the patient's place of residence.

Receiving Hospital

Typically the hospital closest to where the patient lives or their registered GP.

Annex iv Tools to measure the severity of a stroke

The National Institutes of Health Stroke scale (NIHSS)

The NIHSS is used to measure the severity of a stroke. It scores areas such as level of consciousness, vision, sensation, movement, speech and language with a maximum of 42 points representing the most severe symptoms.

The levels of stroke severity on the NIHSS are categorised as:

0	no stroke
5-15	moderate stroke
16-20	moderate/severe stroke
21-42	severe stroke.

Modified Rankin scale (mRS)

This is a functional assessment scale that measures the degree of disability or dependence of people who have suffered a stroke.

The scale runs from perfect health without symptoms to death:

0	No symptoms.
1	No significant disability. Able to carry out all usual activities, despite some symptoms
2	Slight disability. Able to look after own affairs without assistance, but unable to carry out all previous activities.
3	Moderate disability. Requires some help, but able to walk unassisted.
4	Moderately severe disability. Unable to attend to own bodily needs without assistance, and unable to walk unassisted.
5	Severe disability. Requires constant nursing care and attention, bedridden, incontinent.
6	Death

Appendix 1 Repatriation Policy for Mechanical Thrombectomy

1. Introduction

This policy has been adapted for Wales from the south West Stroke Network repatriation policy. It outlines the responsibility of Health Boards and Thrombectomy Centres to receive stroke patients who require repatriation, within twenty four hours of acceptance of referral or earlier where clinically appropriate for transfer.

The policy also outlines the operational pathway for the management of adult patients who require further stroke care closer to home, after thrombectomy treatment and applies to 7 days per week service.

Thrombectomy Centres can experience difficulties in discharging patients from acute specialist beds at the end of a period of care. Problems are often associated with the repatriation of patients back to their referring or local hospital, including patients who have been receiving non-specialist care whilst out of their area of residence.

Timely repatriation is better for patient experience. The effective repatriation of patients is essential to maximising bed utilisation. This maximises accessibility to all users who could benefit from tertiary services.

It is the responsibility of the health system to ensure repatriation happens in a timely manner in order to maximise accessibility to thrombectomy services and maintain patient flow.

WHSSC have identified the need to ensure that the quality of care and transfer protocols are consistent across hospital sites.

Therefore this policy aims to ensure that all stroke patients are repatriated or transferred in a timely manner to the appropriate acute hospital/Health board and that if and when delays arise they are formally recorded and escalated for resolution.

2. Monitoring and Performance Management

Both the receiving and transferring hospital have the responsibility to record any repatriations that have breached the 24 hour/48 hour/72 hour target.

Procedure



The following steps must be completed before a Repatriation request is made:

- A clinical agreement is reached between the lead specialty consultants, or an ST4 level doctor on behalf of a named consultant, at both providers.
- The transferring hospital sends email confirmation of the clinical agreement to repatriate and repatriation form to the clinical site team at the receiving hospital.

The clock starts when the above has been completed, and the clinical site team at the transferring hospital receives email from the receiving hospital.

The clock stops when the patient leaves the transferring hospital.

The latest admission for treatment at the Tertiary Care Centres can be found in annex C, which provides details of the local procedures.

Clinical responsibilities remain with the Thrombectomy Centre until the patient has left the unit.

A patient is considered to have breached the Repatriation threshold if the receiving provider has not made arrangements to receive the patient within 24 hours of clock start.

3. Roles and Responsibilities

3.1 Co-ordinating repatriation

A member of staff at each provider should be responsible for co-ordinating repatriations at all times. Each provider will provide a single point of contact usually a member of the clinical site team (email address and phone number) for all liaison and queries relating to repatriation and the management of patients requiring onward acute care. It is then the responsibility of each Hospital's Clinical site team to ensure communication and liaison with the relevant teams within their hospital.

The decision to repatriate a patient is a clinical decision providing it is safe to transfer. The receiving provider's clinical site team cannot refuse repatriation on clinical grounds.

If no consultant is available, then a member of staff level ST4 or above can lead this process on behalf of the specialty consultant. This must be noted in the 'Repatriation Form' Annex a.

Each provider will nominate a senior consultant to act in the case of disputes regarding clinical acceptance on behalf of the whole hospital.

3.2 Transport

Transport will be organised by the Thrombectomy Centre including any necessary escort arrangements. Transport will be provided by the Welsh Ambulance Service NHS Trust (WAST)⁴.

The Tertiary Centre will contact Welsh Ambulance Service NHS Trust (WAST) via a contact telephone number to repatriate patients (annex c)

Repatriation of patients will only take place between the hours of 8am and 6pm to ensure that patients are not returned to the receiving hospital after hours and that the clerking of the patients admission is undertaken in a timely manner.

A transport protocol is being developed by WAST and will be included as an annex in the policy (annex d), once ratified.

4. Escalation

A patient is considered to have breached the Repatriation threshold if they have not left the Thrombectomy Centre within 24 hours of referral being received by the receiving provider clinical site team.

If the clinical site team at the receiving providers cannot be contacted, the Thrombectomy Centre can escalate this directly to the receiving provider's Director of Operations (in-hours) or the on call manager (OOH), prior to the 24 hour threshold.

If **after 24 hours**, no response or a negative response has been received from the receiving provider, then this must be escalated to both providers' respective Director of Operations or COO.

If **after 48 hours**, no response or a negative response then the COO/Director of Operations must escalate this to their CEO, who is then required to negotiate the repatriation with their counterpart at the receiving hospital, agreeing a timeframe for repatriation.

If the situation remains unresolved **after 72 hours**; for example, if no response or a negative response has been received from the receiving provider, and if no bed has been allocated, the COO/CEO of the Thrombectomy Centre will advise the COO/CEO at the receiving provider that they are sending the patient to their ED and they should ensure the patient is received by the relevant clinical team for on-going care.

If repeated 72hr breaches occur with any specific receiving provider, the Thrombectomy Centre reserves the right to escalate to WHSSC for arbitration.

⁴ [Welsh Ambulance Service NHS Trust - Home](#)

5. Exceptions

If the receiving Health Board is on standby/stood up for a major incident then there can be an agreement to extend the repatriation time threshold by a further 12 hours. This is at the discretion of the COO at the Thrombectomy Centre who will agree any extensions to the timescales. The receiving Health Board cannot decline a repatriation request on any other operational or capacity grounds.

6. Exclusion Criteria

If the patient becomes unwell preventing repatriation the Thrombectomy Centre must inform the receiving Health Board. The clock will be paused and the centre will be required to initiate another repatriation request, once it is clinically safe for the patient to undergo repatriation.

7. Monitoring and reporting arrangements

It is the responsibility of both the transferring and the receiving Hospital to record any repatriations that have breached the 24 hour/48 hour/72 hour target.

The record must include the following metrics:

- Name of the receiving Health Board
- Cause of delay
- Length of time before the patient was finally accepted by the receiving Health Board.
- If 72 hour timeframe was exceeded triggering the transfer of patient as stated in Section 6 of this document.

This information should be reported to WHSSC at the following e-mail address WHSSC.Information@wales.nhs.uk. A template has been provided in Annex b. Performance of Health Boards will be included in the monthly performance reports to Health Board Commissioners.

8. General Responsibilities

The receiving Health Board will arrange for the appropriate placement of the patient within the agreed timeframes. Clinical priority of patients should be considered at all times, and managed accordingly between both providers when co-ordinating the patient transfer.

The time limit for repatriation should also be observed at weekends, with the responsibility lying with the duty consultants, as well as during the week (see also 'Operational Exclusions').

Hospitals should ensure that the constraints imposed by meticillin-resistant staphylococcus aureus (MRSA) or other infection screening do

not prevent them from meeting their obligations under this procedure by delaying an otherwise clinically appropriate and desirable transfer.

Tertiary Centres will make full disclosure of the infection status of patients to the receiving hospital/care setting, and to the patient transport service.

Patient transfer will be accompanied by all relevant clinical and social information included in a discharge summary.

Should a patient clinically deteriorate and no longer be fit to transfer, the Tertiary Centre should inform their counterpart at the receiving Health Board as soon as possible.

It should be the responsibility of each organisation involved to:

- Implement this procedure for the management of patients requiring onward care.
- Ensure each relevant member of staff is aware of their own roles and responsibilities.
- Ensure this procedure is cascaded and made available to each relevant member of staff.
- Ensure the process is smooth and seamless for the patient.
- Ensure that the patient is cared for in the right facility at the right time.

9. Patient and Carer Communication

A patient's relative and/or carer should be properly communicated with and informed where and when the patient is being transferred. Tertiary Centres must ensure that the patient and their family and/or carer are fully informed of the tertiary care, the repatriation process and the transfer of the patient for onward care. Planning for discharge with the patient and their families should take place at the earliest opportunity.

Patients with dementia, clinical risk or safeguarding issues should be highlighted on the repatriation form.

10. Equality Impact Assessment

When undertaking repatriation, the receiving hospital should endeavour to take the patient's ethnic and religious beliefs, together with their need for continuing medical care and their personal social network, into active consideration.

Annex a – Repatriation Form for completion prior to Repatriation requests

Repatriation form – all fields to be completed and sent to receiving Trust Clinical Site Team	
Patient Name:	NHS number:
DOB:	Time and date of clinical acceptance:
Name of transferring consultant:	Name of receiving consultant:
Name of transferring junior doctor (if on behalf of consultant)	Name of receiving junior doctor (if on behalf of consultant)
Accepting specialty:	Bed requirement:
Next of kin name:	Next of kin telephone no:
GP name and address:	Patient home address:
Clinician confirmed receiving Health Board is geographically appropriate for patient?: Yes/No	
Date of and reason for admission:	Time agreed between Health Board Clinical Site Team re: transport and specified time that the bed will be held for.
Risk assessment completed and documented?	Infection Control Status:

Annex b – Template for reporting 24 hour repatriation breaches to WHSSC.Information@wales.nhs.uk

Reporting Repatriation Breaches	
Patient initials	
Name of transferring hospital	
Name of receiving hospital	
Clock start Time Date	
Clock stop Time Date	
Time and date patient transfer completed.	
Total repatriation wait time	
No response after 72 hours: was patient sent directly to receiving Trust?	
Transferring consultant name	
Receiving consultant name	
Specialty	
Reasons for delay	

Annex c - Service Delivery Provision at each centre

North Wales

The Walton Centre NHS Foundation Trust
Lower Lane
Fazakerley
Liverpool
L9 7LJ

Thrombectomy Services for Cheshire/Mersey and North Wales
Monday to Friday 8am to 8pm last call 5pm

Weekends 9am to 5pm last call 2pm – (**Updated 28th April 2021**)

Link to the Walton Centre Guidelines with contact details

[THROMBECTOMY IN ACUTE STROKE - REGIONAL PATHWAY AND GUIDELINES FOR REFERRAL \(1\)](#)

The transfer and repatriation of patients to and from the Tertiary Thrombectomy Unit will be provided by the Emergency Medical Service by making a request via the **North Wales Clinical Contact Centre**.

South Wales

North Bristol NHS Trust
Southmead Hospital
Southmead Road
Westbury-on-Trym
Bristol
BS10 5NB

Thrombectomy Services for Severn Stroke Thrombectomy Service at North Bristol Trust (including South Wales)

There will be a 7 day service operating between the hours of 8am-8pm

The service will accept referrals from **8am to 5pm 7 days per week.**

This is on the condition that the **patient must arrive at Southmead by 6pm** (Updated 28th April 2021).

Link to the North Bristol NHS Trust Guidelines with contact details

[Stroke Thrombectomy Service - For Clinicians](#)

Welsh Ambulance Service NHS Trust (WAST) contact telephone number to repatriate patients is detailed below

**Thrombectomy Booking Request Process
(Within Office Hours 0900-1730 Monday to Friday)**

- Requester to call 0300 1234909
- 365 Team will process the request on Cleric, create a shift and allocate to call sign THROMB1
- Contact ER systems on their 24 contact line 01454 260 177 to make them aware of request. If no answer on above number team to call 07843569451
- Pass details on via "transmit load" on cleric which will send details through to ER systems via Email Andrew.gibson@nhs.net
- Call ER systems to confirm all details received.
- Update spreadsheet log.
- ER systems after journey completion to Email the 365 team with pick up and drop off times for team to update on Cleric.

(Out of Office Hours Saturday/Sunday and after 1730hrs weekdays)

- Requester to call 01633 293 477.
- South and East NEPTS Bed Desk Team to process the request on Cleric, team to create a shift on cleric and allocate to call sign THROMB1
- Contact ER systems on 24 contact line 01454 260 177 to make them aware of request. If no answer on above number team to call 07843569451
- Pass details on via "transmit load" on cleric which will send details through to ER systems via Email Andrew.gibson@nhs.net
- Call ER systems to confirm all details received
- Email 365 team to make them aware – so team can update spreadsheet log when back in office.
- ER systems after journey completion to Email the 365 team with pick up and drop off times for team to update on Cleric.