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Access to mechanical thrombectomy for stroke in the UK: the unacceptable postcode lottery

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Over 100 000 people suffer a stroke every year in the UK.[1 2] Ischaemic strokes account for ~85% of all strokes, with a third of these being caused by a large vessel occlusion (LVO).[3] LVO strokes are associated with higher rates of death and severe neurological disability.[4] Mechanical thrombectomy (MT) is a clot retrieval procedure which has revolutionised the treatment of LVO stroke, with a number needed to treat to reduce disability of 3.[5] It is an evidence-based treatment that can save the NHS £47 000 per patient, over 5 years.[6] Given that up to 15% of all stroke patients (~15 000 people) could benefit from this treatment annually in the UK,[7] the return on any investment to deliver this brain-saving treatment is unquestionable. Currently, the percentage of stroke patients receiving MT in the UK falls well below this threshold.

MT has been recommended by national and international guidelines since publication of the landmark thrombectomy trials in 2015.[8–10] In 2019, the NHS long term plan targeted a full roll-out of 24/7 MT by 2022. Despite this, only 4.5% of all stroke patients in the UK receive this intervention[11], with just over half of the Comprehensive Stroke Centres (CSCs) in the UK delivering a 24/7 service. Contemporary high-income European countries have rolled out this intervention much more successfully (figure 1).[12]

National audit data have shown significant geographical variations in MT rates within England, from 1% in the East of England region to 2%–3% in the Northeast, Yorkshire, the Midlands and the Southeast; 4%–6% in the Northwest and Southwest of England and to 10% in London.[11] In Wales, MT rates are 2.6%; in Scotland, 1.4%, and in Northern Ireland, 7.2%.[13 14] In contrast to the UK, Ireland delivers MT to 9.2% of its total stroke population.[15]

Ongoing efforts by NHS England, national health boards and regional stroke leadership teams (integrated stroke delivery networks) have improved MT rates, but there remain significant gaps in cover. Areas that need to be addressed and prioritised include multiprofessional workforce gaps, infrastructure, delivery of networked solutions and a focus on patient pathways.

MT provision requires specialist infrastructure at the CSC/Neuroscience centres (where thrombectomy is performed), of which there are 29 across the UK. This includes access to dedicated biplane angiography suites (allows 2D visualisation) and many CSCs will need two biplanes to create sufficient capacity and resilience. NHS England has prioritised funding for biplane suites and for artificial intelligence (AI) imaging solutions for rapid image transfer and interpretation, with a co-ordinated national strategy. However, this did not include funding for the buildings and estates to house new biplane equipment, which has been a significant barrier at some trusts. Working with regional Integrated Care Boards (ICBs) and Hospital Trusts to untangle these infrastructural issues remains a priority.

Creating fully staffed, round-the-clock, resilient rotas for the multidisciplinary thrombectomy team has been a barrier to providing 24/7 MT. A previous shortage of interventional neuro-radiologists (INRs) who perform the procedure has now been addressed, with a more than doubling in INR numbers from 52 to 128 in the last decade. In addition, new GMC credentialing now provides the opportunity for non-INRs in relevant specialities (eg, neurosurgery or interventional radiology) to train to perform thrombectomy.

However, MT delivery requires a much wider multidisciplinary team, comprising interventional nurses, radiographers, anaesthetists and stroke specialists, with enough team members to run a sustainable 24/7 MT rota. They are crucial to making the MT service safe and effective, and their expansion in numbers requires adequate financial support for business cases at a trust level. The

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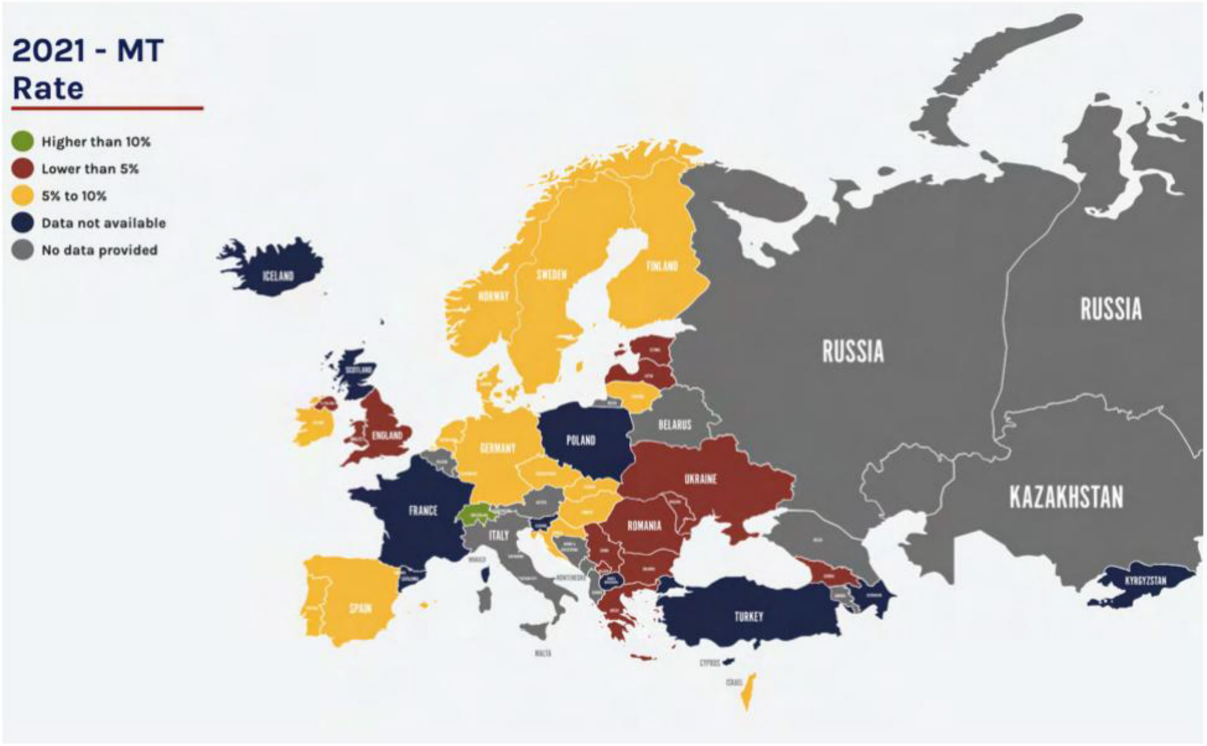


Figure 1 Proportion of ischaemic stroke patients receiving mechanical thrombectomy in Europe. MT, mechanical thrombectomy.

Stroke Association has highlighted major workforce gaps across the stroke pathway, with clear geographical variation akin to that seen with MT delivery rates. In 2021, more than 50% of stroke units had unfilled consultant posts in the UK[16] (or filled by locum doctors), with no evidence that this has improved in 2025. One report has estimated that it takes 4 hours of stroke consultant time per thrombectomy case, when taking the entire pathway from referral through to post-procedure care on the hyperacute stroke unit.[17] In response to this significant shortfall in stroke consultant numbers, the British & Irish Association of Stroke Physicians has prioritised workforce planning in their recently updated 3-year strategy,[18] with a plan to work alongside the recently launched NHS 10-year workforce consultation plan.[19] Focus areas will include new training schemes, increasing attractiveness of the specialty and long-term retention of staff.

Most of the cost of setting up a 24/7 MT service is incurred upfront, to support workforce expansion. An NIHR-funded review found that upfront capital investment of £400 million could allow full implementation of MT across the country including staff and set-up costs, with a long-term saving of £1.3 billion over 5 years.[20] Lessons need to be learnt from cardiac services who were able to increase provision of primary percutaneous coronary intervention (PPCI) from 39% to 90% of ST elevation myocardial infarction patients, over a 3-year period (2008–2011). This was achieved through the work of the cardiac networks, in conjunction with substantial funding of £775 million from the Department of Health and Lottery funding, with £122 million of this allocated towards new cardiac catheter labs.[21]

Thrombectomy in England is funded by specialised commissioning through a tariff system, but there has been no targeted pump priming to support the aforementioned major workforce expansion needed across the MDT. Furthermore, specialised commissioning for MT in England is in a transition period from centralised NHS England control, moving to the relevant regional ICBs. It remains to be seen if adequate prioritisation will be given to MT within a vast list of competing priorities and significant cost improvement plans currently being mandated for each ICB.

In the UK, the majority of eligible patients require a transfer from acute stroke centres (ASCs) (where the stroke is diagnosed) to the CSC where MT is performed. Progress with improving these hyperacute patient pathways remains suboptimal for multiple reasons, including workforce gaps as mentioned and also funding across the stroke pathway (from pre-hospital care through to the ASC and CSC when appropriate). Pathway priorities include prompt imaging and recognition of an LVO; rapid intravenous thrombolysis and referral for thrombectomy to the local CSC; rapid image transfer (typically using AI imaging solutions) and focus on fast 'door-in-door-out' times from the ASC to the CSC. Innovative solutions to hospital transfers, including pre-hospital video-triage, ambulance pitstop models and rapid LVO pre-hospital screening tests are currently being explored, but will also need adequate financial support, as part of this pathway work.

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Working as part of organised stroke networks is essential to address delivery of out of hours services. A networked solution with mutual aid can allow a reduction in geographical treatment black spots. Such networked solutions should be an expectation in each region with 24/7 delivery prioritised by the relevant ICB or regional health board. However, it is equally vital that established centres are robustly staffed to avoid burnout when treating a wider region, with a significant increase in the number of cases requiring intervention out of hours.

Despite compelling and increasing RCT evidence, it is unacceptable that there remains unwarranted variation in MT service delivery, depending on where you live. Cardiac services delivering 24/7 PPCI saw vast improvements within a short 3 year period due to a combination of structural changes as well as substantial upfront investment. The same level of substantial investment has yet to be prioritised for thrombectomy, despite being a decade on from Grade A, Level one evidence for the benefits of MT. Ring-fenced investment for MT services, with regionally led innovative, networked solutions for local populations, is essential for this to move forward. Given that the aggregate societal cost of stroke is more than £26 billion per year, including £8.6 billion for NHS and social care,[22] stroke must remain a political priority to help achieve these goals or we will continue to lag behind our European counterparts and fail to deliver the world-class services our patients deserve.

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