

NATIONAL CLINICAL GUIDELINE FOR STROKE

for the United Kingdom and Ireland

2023 edition

Chapter 6

Implementation of this guideline

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6 Implementation of this guideline

6.0 Introduction

Clinical guidelines usually focus on how an individual patient should be treated, and draw upon evidence concerning the efficacy, effectiveness and costs of interventions. This chapter brings together key recommendations to guide those responsible for the funding, planning and delivery of services along the entire pathway of stroke care, other than primary prevention. Clinical teams can only provide services that are appropriately planned, staffed and paid for. The recommendations in the *2023 National Clinical Guideline for Stroke* will not provide the anticipated benefits for people with stroke unless organisations that plan and deliver health and social care fully support their implementation. [2023]

The recommendations for policy makers and service providers in this chapter are derived directly from the clinical and organisational recommendations made elsewhere in the guideline. Service design for stroke care should be planned in collaboration between commissioners/service planners, health and social care providers, healthcare professionals and patients and carers. Service planners/commissioners therefore have a critical part to play in the wider implementation of this guideline and the achievement of its aim to improve the care of all people with stroke. [2023]

Partnership working may also be required across geographical boundaries, for example in providing hyperacute stroke care and tertiary neuroscience services. Clinical Networks with an understanding of the complexity of the stroke pathway have brought service planners/commissioners and providers together, and have proved to be successful in quality improvement and service redesign. There needs to be an acknowledgement that investment of resources in one particular part of the pathway, e.g. acute stroke care by health services, may lead to a reduction in demand for services in another part of the pathway, e.g. long-term social care. Service planners/commissioners and health and social care providers need to work closely together to ensure that financial issues do not act as barriers to the provision of seamless, evidence-based care or to achieving better outcomes for people with stroke. [2023]

Service specifications will need to take full account of all the recommendations outlined in the preceding chapters 2-5 of this guideline. Individual contracts should be monitored against the service specification, which should include meaningful process and person-centred outcome measures. All services in all settings should be required to scrutinise their services through national comparative audit, and undertake periodic patient and carer surveys. [2023]

6.1 Overall structure of stroke services

The provision of a well-led, appropriately trained and skilled workforce providing holistic and compassionate care to patients and their families is one of the principal implications of the landmark 2013 report into the failings in hospital care at Mid-Staffordshire NHS Foundation Trust produced by Robert Francis (Francis, 2013), and this needs to be reflected in the services provided to people with stroke in both NHS/HSE and non-NHS/HSE settings. People with stroke present to health services with a broad range of problems, covering all illness domains over a prolonged period of time. Consequently, it is vital to have a service that is organised to respond in a timely and effective way to each person's unique needs as they arise. [2023]

6.1 Recommendations

A Comprehensive stroke services should include the whole stroke pathway from prevention (including neurovascular services) through pre-hospital and acute care, early rehabilitation, secondary prevention, early supported discharge, community rehabilitation, systematic follow-up, palliative care and long-term support. [2023]

- B Comprehensive stroke services should be provided based on an estimate of the needs of the population served, and derived from the best available evidence locally and nationally. **[2016]**
- C Comprehensive stroke services should ensure that:
- people with suspected stroke or TIA are diagnosed and treated urgently, using evidence-based treatments;
 - sufficient provision is made for people with stroke with long-term disability covering the full range of their needs (e.g. nursing, therapy, emotional support, practical support, family/carer support);
 - people with stroke who live in care homes or are unable to leave their own home have equivalent access to specialist stroke services;
 - people with stroke can re-access specialist stroke services when necessary;
 - people dying with stroke receive end-of-life (palliative) care from the acute stroke service and whenever possible in their own homes. **[2023]**
- D A public education and professional training strategy should be developed and implemented to ensure that the public and emergency personnel (e.g. staff in emergency call centres) can recognise when a person has a suspected stroke or TIA and respond appropriately. This should be implemented in such a way that it can be formally evaluated. **[2016]**
- E All those caring for people with stroke should have the knowledge, skills and attitudes to provide safe, compassionate and effective care, especially for vulnerable people with restricted mobility, sensory loss, impaired communication and cognition and neuropsychological problems. **[2016]**
- F People with stroke and their family/carers should be provided with sufficient information about which services are available and how to access them at all stages of the pathway of care. All information should be provided in a format accessible to those with communication disability. **[2016]**
- G Along the pathway of stroke care, there should be:
- protocols between healthcare providers and social services that enable seamless and safe transfers of care without delay;
 - protocols in place that enable rapid assessment and provision of all equipment, aids (including communication aids) and structural adaptations needed by people with disabilities after stroke. **[2016]**
- H The process of care, the patient experience and person-centred outcomes of hospital and community-based stroke services should be monitored and evaluated regularly through participation in national comparative audit. **[2023]**
- I All stroke services should regularly seek the views of those who use their services, and use the findings to design services around the needs of the person with stroke. **[2016]**

6.1 Implications

These recommendations should result in a comprehensive stroke service that is more coherent, responsive and cost-efficient. In some instances there will be costs associated with start-up or with changes in practice, but the evidence indicates that well-organised services deliver better outcomes at approximately the same cost. Early supported discharge services are a good example of this, with costs being transferred out of the hospital sector into community provision. Achieving change consistent with these recommendations will require considerable initial effort and commitment, involving negotiations with many stakeholders including health services, local government, voluntary and community groups, patient and carer groups and private providers. **[2023]**

6.2 Acute stroke services

This section covers aspects of the implementation of high quality acute care that will be of particular relevance to service planners/commissioners for acute hospital services. **[2016]**

6.2 Recommendations

- A Ambulance services, including call handlers, should respond to every person with a suspected acute stroke as a medical emergency. **[2016]**
- B Acute stroke services should provide:
- urgent brain imaging for patients with suspected acute stroke, including the 24/7 provision of CT angiography and perfusion;
 - treatment with thrombolysis for eligible patients with acute ischaemic stroke;
 - an endovascular service for eligible patients with acute ischaemic stroke;
 - a neuroscience service to admit, investigate and manage patients referred with subarachnoid haemorrhage, both surgically and with interventional radiology;
 - a neuroscience service delivering neurosurgical interventions for patients with intracerebral haemorrhage, malignant cerebral oedema, and hydrocephalus;
 - direct admission of patients with acute stroke to a hyperacute stroke unit providing active management of physiological status and homeostasis within 4 hours of arrival at hospital;
 - an acute neurovascular service for the diagnosis and treatment of people with suspected TIA and minor stroke;
 - an acute vascular surgical service to investigate and manage patients with TIA and stroke due to carotid artery stenosis. **[2023]**
- C Acute stroke services should involve the active participation of people with stroke and their family/carers in the planning and evaluation of their services. **[2016]**

6.2 Implications

The provision of comprehensive acute stroke services may require the development of hub-and-spoke models of care (where a few hospitals in a region are designated to provide the hyperacute care for all patients), or telemedicine networks and other forms of cross-site working. The optimal disposition of acute stroke services will depend on the geography of the area served, with the objective of delivering the maximum number of time-critical treatments to the greatest number of people with stroke. Substantial service change will create obligations for service planners/commissioners to consult with people with stroke and the public in accordance with their statutory responsibilities. **[2023]**

6.3 Secondary prevention services

At least one quarter of all strokes are recurrences, and people who have already suffered a stroke or TIA have a 5-year risk of a further vascular event as high as 22.4%, even with modern multiple risk factor treatments (Amarenco et al, 2006; Mohan et al, 2011). Improving risk factor management in this group therefore offers the potential to deliver large reductions in cardiovascular events (Rothwell, 2007), but the incomplete implementation of the evidence for secondary vascular prevention described in this guideline leaves many people at high risk of recurrence and fails to deliver the anticipated benefits for patients and health services (Johnson et al, 2007). It is vital that secondary prevention services are effective and prompt, and support people with stroke and TIA in maintaining their treatments in the long-term. **[2016]**

6.3 Recommendations

- A Healthcare providers should enact all the secondary stroke prevention measures recommended in this guideline. Effective secondary prevention should be assured through a process of regular audit and monitoring. **[2016]**
- B Comprehensive stroke services should:
- identify and treat people’s modifiable vascular risk factors, including symptomatic carotid artery stenosis, as soon as possible;
 - provide all people with stroke or TIA and their family/carers with information and support for treatments and lifestyle changes to reduce their risk of stroke, tailored to their individual needs;
 - liaise with and support general practitioners in the long-term management of risk factors in people with stroke or TIA. **[2023]**
- C The lifestyle recommendations for stroke prevention made in this guideline should be implemented through:
- promoting increased physical activity and a reduction in sedentary behaviour;
 - providing smoking cessation services;
 - working with other organisations to make it easier for people with disabilities to participate in exercise;
 - promoting healthy eating;
 - supporting people who drink alcohol in excess to abstain or maintain their intake within recommended limits. **[2023]**

6.3 Implications

Service planners/commissioners should play an active role in promoting secondary vascular prevention, which is a public health issue as well as being relevant to the individual person with stroke. Addressing medical risk factors and making lifestyle changes are effective in reducing the risk of recurrent stroke, but clinical practice in primary and secondary care needs to support people with stroke to persist with their treatments long-term, something that could be done through annual review of people with stroke or TIA (NICE, 2016) see also [Section 5.1 A comprehensive and personalised approach](#). **[2016]**

6.4 Stroke rehabilitation services

Stroke rehabilitation services should be provided to reduce limitation in activities, increase participation and improve the quality of life of people with stroke using therapeutic and adaptive strategies. With stroke being the third largest cause of disability in the UK (Newton et al, 2015), providing effective rehabilitation is cost-effective in reducing long-term disability and the costs of domiciliary and institutional care. **[2016]**

6.4 Recommendations

- A Stroke rehabilitation services should provide:
- an inpatient stroke unit capable of providing stroke rehabilitation for all people with stroke admitted to hospital;
 - community-based specialist rehabilitation services capable of meeting the specific health, social and vocational needs of people with stroke of all ages, including provision of early supported discharge to enable people with stroke to receive intensive rehabilitation within 24 hours of returning home or moving into a care home;

- services capable of delivering specialist rehabilitation, which best meets the person’s needs in a variety of community settings including their own home, gyms or community centres, or outpatient clinics;
- for the ongoing information needs of people with stroke, including those with aphasia and other communication disabilities.

Such services should be integrated to provide seamless specialist care that is not time-limited. **[2023]**

- B** Stroke rehabilitation services should be capable (from within the service or by referral if the need is particularly complex) of meeting all the needs of people with stroke (e.g. orthotics, specialist seating, equipment provision, management of physical effects such as continence and spasticity, vocational rehabilitation, emotional/psychological support, social care, assistance with benefits). **[2023]**
- C** People with stroke whose mental capacity is impaired should have access to independent specialist advice and support in relation to advocacy. **[2016]**
- D** Stroke rehabilitation services should ensure they have adequate equipment, including the technology requirements for providing telerehabilitation, to enable provision of all the treatments recommended within this guideline. **[2023]**
- E** Stroke rehabilitation services should regularly review their skill mix and methods of delivering rehabilitation to ensure optimisation of resources and clinical effectiveness. **[2023]**

6.4 Implications

Service planners/commissioners will need to ensure that they procure specialist services in relation to the overall population need that are capable of meeting the specific and multiple needs of people with stroke, and that they meet their obligations under the Mental Capacity Act 2005 / Adults with Incapacity (Scotland) Act 2000 / Assisted Decision Making (Capacity) Act 2015 (Ireland) as they relate to people with acquired brain injury including stroke. **[2023]**

6.5 Long-term support services

Stroke is only one of many causes of long-term neurological disability including other conditions such as head injury, dementia and multiple sclerosis. Furthermore, many of the needs of a person with stroke will relate to other co-morbidities such as frailty, osteoarthritis, cognitive impairment or other vascular disease, or other social issues such as loneliness and isolation from mainstream society. These recommendations will inevitably be more general and overlap with other long-term disabling conditions, but emphasise the specific needs of stroke patients. **[2023]**

6.5 Recommendations

- A** Long-term support services should provide:
- routine follow-up of people with stroke six months after hospital discharge and annually thereafter;
 - reassessment and further treatment of people with stroke who are no longer receiving rehabilitation. Services should be accessible from primary or secondary care, social services or by self-referral. **[2016]**
- B** Between health and social services and other agencies, people with stroke should be able to:
- receive the practical and emotional support they need to live with long-term disability (e.g. housing, employment);
 - access suitable social and leisure activities outside their homes;

- receive maintenance interventions (e.g. provision of exercise programmes and peer support) to enhance and maintain health and well-being. **[2016]**
- C Long-term support services should ensure that the family/carers of people with stroke:
- are aware that their needs can be assessed separately;
 - are able to access the advice, support and help they need;
 - are provided with information, equipment and appropriate training (e.g. manual handling) to enable them to care for a person with stroke;
 - have their need for information and support reassessed whenever there is a significant change in circumstances (e.g. if the health of the family member/carer or the person with stroke changes). **[2016]**
- D Advance care planning and community palliative care services should be available for people with stroke with limited life expectancy, and their family/carers, where appropriate. **[2016]**

6.5 Implications

Integrated care from health, social and voluntary sectors can do much to alleviate the personal and social impact of dependency for the person living with the long-term consequences of stroke and their family. The high mortality from severe stroke dictates that access to palliative care services is an important means of relieving suffering for people with stroke and their families, who tend not to view stroke in the same way as other life-threatening or ‘terminal’ conditions. These needs and the interventions to mitigate them should be considered as part of a whole-system approach to physical and cognitive disability in the community, and include the obligations to carers placed upon health and social services under relevant legislation. **[2023]**

Glossary

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| Activities of daily living | Refers to activities that people normally undertake (e.g. bathing, dressing, feeding themselves). |
| Acupuncture | A complementary medicine that involves inserting thin needles into the skin. |
| Acute stroke service | Consists of: a) a comprehensive stroke centre (CSC) providing hyperacute, acute and inpatient rehabilitation including thrombectomy (thrombectomy centre) and neurosurgery; or b) an acute stroke centre (ASC) providing hyperacute, acute and inpatient rehabilitation. All components of a specialist acute stroke service should be based in a hospital that can investigate and manage people with acute stroke and their medical and neurological complications. |
| Aerobic exercise | Low- to moderate-intensity exercise that can be sustained for long periods of time (e.g. cycling, swimming or walking). |
| Agnosia | The inability for a patient to recognise or make proper sense of sensory information. |
| Alteplase | A drug used for thrombolysis. |
| Aneurysm | A bulge in the wall of a blood vessel that is filled with blood. This can burst and cause a haemorrhage. |
| Angiography | A technique that uses X-ray technology to image blood vessels. |
| Anticoagulants | A group of drugs used to reduce the risk of clots by thinning the blood. |
| Antiphospholipid syndrome | Sometimes called 'sticky blood syndrome' because blood clots form too quickly; this is due to antibodies against the body's phospholipid part of every cell in the body. |
| Antiplatelets | A group of drugs used to prevent the formation of clots by stopping platelets in the blood sticking together. |
| Antithrombotics | The generic name for all drugs that prevent the formation of blood clots. This includes antiplatelets and anticoagulants. |
| Aphasia | Communication difficulties after a stroke which can affect a person's speech, processing, reading and writing. |
| Arterial dissection | This is caused as a result of a small tear forming in the lining of the arterial wall. |
| Atherosclerosis | Fatty deposits that harden on the inner wall of the arteries (atheroma) and roughen its surface; this makes the artery susceptible to blockage either by narrowing or by formation of a blood clot. |
| Atrial fibrillation | A heart condition that causes an irregular heartbeat, often faster than the normal heart rate. |
| Audit (clinical) | A method of evaluating the performance of a clinical service against a set of standards/criteria. |
| Bobath therapy | Treatment which aims to use facilitative handling which prioritises normal movement and muscle tone or inhibition of reflex activity rather than maximising practice and patient activity. Also known as neurophysiological or neurodevelopmental treatment. |
| Body mass index (BMI) | An index of body weight corrected for height. |
| Botulinum toxin | A toxin which when injected can relax muscles to reduce spasticity. |
| Cardiovascular disease | Disease of the heart and/or blood vessels. |

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| Care pathway | A tool used by healthcare professionals to define the sequence and timings of a set of tasks or interventions that should be performed for a patient who enters a healthcare setting (e.g. a hospital) with a specific problem. |
| Carotid angioplasty | A surgical procedure that widens the internal diameter of the carotid artery, after it has been narrowed by atherosclerosis. |
| Carotid arteries | Main blood vessels in the neck, which supply oxygenated blood to the brain. |
| Carotid endarterectomy (CEA) | A surgical procedure used to clear the inside of the carotid artery of atheroma. |
| Carotid stenosis | The narrowing of the carotid arteries in the neck. |
| Carotid stenting | Insertion of a tube into the carotid artery in order to prop the artery open and reduce narrowing. |
| Caval filter | A device that is inserted into the veins to prevent a blood clot entering the lungs. |
| Cerebral venous thrombosis | A blood clot that forms within a vein inside the brain. |
| Clinician | A registered healthcare professional such as a doctor, nurse or therapist. |
| Cochrane review | A systematic review of research in health care and health policy that is published in the Cochrane Database of Systematic Reviews. |
| Commissioner (health services) | Person or organisation in some parts of the UK National Health Service (NHS) that decides how to allocate the health budget for a service. |
| Community stroke team, community stroke rehabilitation team | A stroke specialist multidisciplinary team that provides stroke rehabilitation for patients in their own home or other community setting (including care homes and nursing homes). This may be following hospital discharge, after a patient has been discharged from an early supported discharge team or at any point post stroke where rehabilitation needs are identified. The intensity and duration of this service should be determined by patient need. |
| Compensatory strategies | Learning an alternative way of completing a task. |
| Computed tomography (CT) | An X-ray technique used to examine the brain. |
| Confidence interval (CI) | When analysing a research study, this is the range ('interval') of possible results that statisticians are 95% confident the actual result lies between. |
| Constraint-induced movement therapy | Therapy that involves preventing the use of the unaffected side of the body thus forcing the use of the affected side. |
| Cost-effectiveness | The extent to which the benefits of a treatment outweigh the costs. |
| Decompressive hemicraniectomy | A surgical procedure for the treatment of raised pressure inside the brain from fluid, blood or swelling. A piece of skull is removed to allow the brain to swell. |
| Deep vein thrombosis (DVT) | A blood clot that develops in the large veins, usually in the legs. |
| Diabetes, diabetes mellitus | A metabolic disease in which a person has high blood sugar. |
| Diagnostic accuracy | The degree to which a diagnostic (or screening) tool or procedure is able to distinguish between cases and non-cases. See also 'sensitivity' or 'specificity'. |
| Doppler ultrasound | An imaging technique that measures blood flow and velocity through blood vessels. |
| Dysarthria | Difficulty producing clear speech, caused by muscle weakness. |

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| Dyspepsia | Indigestion. |
| Dysphagia | Difficulty in swallowing. |
| Early supported discharge | An intervention delivered by a co-ordinated, stroke specialist, multidisciplinary team that facilitates the earlier transfer of care from hospital into the community and provides responsive (within 24 hours) and intensive stroke rehabilitation in the patient's place of residence (usually over a time-limited period). |
| Endarterectomy | The surgical removal of plaque from a blocked artery to restore blood flow. |
| Face Arms Speech Time (FAST) test | A test used to screen for the possibility of a stroke or a TIA. |
| Fatigue | Physical or mental exhaustion that does not get better through normal periods of rest. |
| Foot-drop | A condition in which the foot hangs limply whilst walking. |
| Gastrointestinal bleeding | Bleeding anywhere between the throat and the rectum. |
| Gastrostomy | A surgical opening into the stomach to enable feeding. |
| Gastrostomy feeding (also tube feeding) | Provision of nutrition and fluids via a tube directly into the gastrointestinal tract. |
| Goal attainment | Rehabilitation goals for particular tasks are set by the patient and therapists together. |
| Haemorrhage | Bleeding caused by blood escaping into the tissues. |
| Haemorrhagic stroke | A stroke that happens when a blood vessel bursts, leading to bleeding in the brain (also called a 'brain haemorrhage'). |
| Healthcare professional | A professional involved in stroke care, such as a doctor, nurse, therapist, or care staff. |
| HEART UK | A cholesterol charity. |
| Hemianopia | Blindness or some loss of vision in one part of the visual field. |
| Homeostasis | Regulation of internal environment (e.g. body temperature regulated at 37°C). |
| Hydrocephalus | A build up of fluid within the skull. |
| Hyperacute stroke unit/centre/service | A stroke unit, centre or service that treats patients in the first 72 hours of symptom onset. |
| Hyperlipidaemia | Raised levels of lipids (cholesterol, triglycerides or both) in the blood serum. |
| Hypertension | Raised blood pressure. |
| Hypertensive encephalopathy | Brain damage caused by raised blood pressure. |
| Hypoglycaemia | Blood sugar levels lower than the normal range. |
| Hypoxia | Blood oxygen levels outside the normal range, e.g. below 95% saturation. |
| Incontinence | Inability to control passing of urine and/or faeces. |
| Infarct | An area of cell death due to a deprived blood supply. |
| Integrated community stroke service | An integrated service that provides early supported discharge and community stroke rehabilitation. |
| International Classification of Functioning, Disability and Health (ICF) | A classification of health used as a framework by the World Health Organization (WHO) to measure health and disability. |

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| Ischaemic stroke | A stroke that happens when a blood clot blocks an artery that is carrying blood to the brain. |
| Lumbar puncture | A diagnostic or therapeutic procedure that involves collection of fluid from the base of the spine. |
| Magnetic resonance imaging (MRI) | A non-invasive imaging technique that allows for detailed examination of the brain. |
| Malnutrition Universal Screening Tool (MUST) | A screening tool consisting of five steps to help identify which adults are malnourished or at risk of malnourishment. |
| Meta-analysis | A statistical technique for combining the results of a number of studies that address the same question and report on the same outcomes to produce a summary result. |
| Mouth care | Also referred to as oral health care. Refers to the promotion and maintenance of a clean oral cavity including the teeth, gums, cheeks, tongue and palate. A clean mouth requires the removal of traces of food and debris and dental plaque. |
| MRI with diffusion-weighted imaging | This type of scan shows areas of recent ischaemic brain damage. |
| Musculoskeletal pain | Pain of the muscles and/or joints. |
| National Institute for Health and Care Excellence (NICE) | A special health authority set up within the NHS to develop appropriate and consistent advice on healthcare technologies, and to commission evidence-based guidelines. Its remit extends in most cases to England, Wales and Northern Ireland. |
| National Institute of Health Stroke Scale (NIHSS) | A score to assess the severity of a stroke. |
| Neuropathic pain | Pain caused by damage to nerves. |
| Orthosis | An appliance used to support or align an area of the body to facilitate movement, or prevent or correct damage. |
| Palliative care | Care that relieves rather than treats symptoms. |
| Pneumonia | An inflammatory condition of the lungs usually caused by infection. |
| Pulmonary embolism | A blood clot in the lungs. |
| Quality of life | Refers to the level of comfort, enjoyment, and ability to pursue daily activities. |
| Quality standard | A standard set (e.g. by NICE) that is used to define whether the quality of care is of a high standard. |
| Randomised controlled trial (RCT) (often 'randomised trial') | A trial in which people are randomly assigned to two (or more) groups: one (the experimental group) receiving the treatment that is being tested, and the other (the comparison or control group) receiving an alternative treatment, a placebo (dummy treatment) or no treatment. The two groups are followed up to compare differences in outcomes to see how effective the experimental treatment was. Such trial designs help minimise experimental bias. |
| Recognition of stroke in the emergency room (ROSIER) | A tool used to establish the diagnosis of stroke or TIA. |
| Rehabilitation | A set of treatments and activities to promote recovery and reduce disability. Rehabilitation treatments are provided by therapists and therapy assistants. |

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| Saturated fat | A type of fat that is commonly found in meat and dairy products as opposed to fats found in plants and fish, which may be unsaturated. |
| Self-efficacy | A person's belief in their own competency. |
| Self-management | Actions and confidence of individuals to manage the medical and emotional aspects of their condition in order to maintain or create new life roles. |
| Sensitivity | The ability of a test to detect a problem. |
| Service planners | Those responsible for planning and sanctioning health services in Ireland. |
| Side effect | An adverse event that occurs because of a therapeutic intervention. |
| SIGN | Scottish Intercollegiate Guidelines Network, an organisation set up to develop evidence-based guidelines. It is part of Healthcare Improvement Scotland and its remit covers Scotland. |
| Spasticity | Increased stiffness of the muscles that occurs in the paralysed limbs after stroke. |
| Specialist | A healthcare professional with the necessary knowledge and skills in managing people with stroke and conditions that mimic stroke, usually by having a relevant further qualification and keeping up to date through continuing professional development. This does not require the healthcare professional exclusively to manage people with stroke, but does require them to have specific knowledge and practical experience of stroke. |
| Specialist team | A group of specialists who work together regularly managing people with stroke and conditions that mimic stroke, and who between them have the knowledge and skills to assess and resolve the majority of problems. At a minimum, any specialist unit, team or service must be able to deliver all the relevant recommendations made in this guideline. This does not require the team exclusively to manage people with stroke, but the team should have specific knowledge and practical experience of stroke. |
| Specificity | The ability of a test to detect the right problem. |
| Splint | A custom or ready-made external device to support a joint or limb in a certain position. |
| Stenosis | Abnormal narrowing of a blood vessel. |
| Stenting | A metal mesh tube is placed in an artery or blood vessel to increase blood flow to an area blocked by stenosis. |
| Stroke | A clinical syndrome, of presumed vascular origin, typified by rapidly developing signs of focal or global disturbance of cerebral functions lasting more than 24 hours or leading to death. |
| Subarachnoid haemorrhage (SAH) | A haemorrhage from a cerebral blood vessel, aneurysm or vascular malformation into the subarachnoid space (the space surrounding the brain where blood vessels lie between the arachnoid and pia mater). |
| Subluxation | An incomplete or partial dislocation of a joint. |
| Systematic review | A way of combining the findings from a variety of different research studies to better analyse whether the studies have provided a convincing answer to a research question. |
| Telemedicine | The use of telecommunication and information technologies in order to provide clinical healthcare at a distance. |
| Tenecteplase | A drug used for thrombolysis. |
| Therapist | In the context of the guideline this includes the allied health professionals (UK) and health and social care professionals (Ireland) involved in stroke care. The main ones are dietitians, occupational therapists, orthoptists, orthotists, physiotherapists, and speech and language therapists. |
| Thrombectomy | The excision of a blood clot from a blood vessel. |

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| Thrombectomy centre | A centre providing thrombectomies without providing acute stroke care. |
| Thrombolysis | The use of drugs to break up a blood clot. An example of a thrombolysis drug is alteplase, also sometimes called tPA. |
| Thrombosis | A formation of a blood clot. |
| Transient ischaemic attack (TIA) | An acute loss of focal cerebral or ocular function with symptoms lasting less than 24 hours and which is thought to be due to inadequate cerebral or ocular blood supply as a result of low blood flow, thrombosis or embolism associated with diseases of the blood vessels, heart, or blood. |
| Tube feeding (also gastrostomy feeding) | Provision of nutrition and fluids via a tube directly into the gastrointestinal tract. |
| Venography | An X-ray test that provides an image of the leg veins after a contrast dye is injected into a vein in the patient's foot. |
| Videofluoroscopy | A test for assessing the integrity of the oral and pharyngeal stages of the swallowing process. It involves videotaping X-ray images as the patient swallows a bolus of barium. |
| Vocational rehabilitation | A co-ordinated plan to optimise a person's ability to participate in paid or voluntary work. |
| Work | Different forms of occupation, including paid employment, vocational training, sheltered, therapeutic or voluntary work, and adult education. |
| Xanthochromia | The yellowish appearance of cerebrospinal fluid that occurs after bleeding into the fluid, usually after subarachnoid haemorrhage. |

Abbreviations and acronyms

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| ABCD2 | Age, blood pressure, clinical features, duration of TIA, and presence of diabetes |
| ADL | Activities of daily living |
| AF | Atrial fibrillation |
| APS | Antiphospholipid syndrome |
| ASC | Acute stroke centre |
| ASPECTS | Alberta Stroke Program Early Computed Tomography Score |
| ASA | Atrial septal aneurysm |
| BADS | Behavioural Assessment of the Dysexecutive Syndrome |
| BMI | Body mass index |
| BOA | Behavioural Outcomes of Anxiety |
| BP | Blood pressure |
| BPPV | Benign paroxysmal positional vertigo |
| CAA | Cerebral amyloid angiopathy |
| CADASIL | Cerebral autosomal dominant arteriopathy with subcortical infarcts and leucoencephalopathy |
| CI | Confidence interval |
| CIMT | Constraint-induced movement therapy |
| COC | Combined oral contraceptive |
| COVID-19 | Coronavirus disease |
| CPAP | Continuous positive airways pressure |
| CPSP | Central post-stroke pain |
| CSC | Comprehensive stroke centre |
| CT | Computed tomography |
| CTA | Computed tomography angiography |
| CVT | Cerebral venous thrombosis |
| DISCs | Depression Intensity Scale Circles |
| DOAC | Direct oral anticoagulant |
| DVA | Driver and Vehicle Agency (Northern Ireland) |
| DVLA | Driver and Vehicle Licencing Agency (England, Scotland, Wales) |
| DVT | Deep vein thrombosis |
| DWI | Diffusion-weighted imaging |
| EADL | Extended activities of daily living |
| ECG | Electrocardiogram |
| ELISA | Enzyme-linked immunosorbent assay |
| EMA | European Medicines Agency |
| FAST test | Face Arm Speech Time test |
| FEES | Fibre-optic endoscopic evaluation of swallowing |
| FLAIR | Fluid attenuated inversion recovery |
| GDG | Guideline Development Group |
| GP | General practitioner |
| HAS-BLED | Hypertension, Abnormal score renal and liver function, Stroke, Bleeding, Labile INRs, Elderly, Drugs or alcohol score |
| HDL | High density lipoprotein |
| HIIT | High intensity interval training |
| HR | Hazard ratio |
| HRT | Hormone replacement therapy |
| HSE | Health Service Executive (Ireland) |
| IAPT | Improving Access to Psychological Therapies |

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| ICF | International Classification of Functioning, Disability and Health |
| ICH | Intracerebral haemorrhage |
| ILR | Implantable loop recorder |
| INR | International normalised ratio (for blood clotting time) |
| IQR | Interquartile range |
| LDL | Low density lipoprotein |
| MCA | Middle cerebral artery |
| mCIMT | Modified constraint-induced movement therapy |
| MDT | Multidisciplinary team |
| MHRA | Medicines and Healthcare Products Regulatory Agency |
| MI | Myocardial infarction |
| MICON | Microbleeds International Collaborative Network |
| MR | Magnetic resonance |
| MRA | Magnetic resonance angiography |
| MRI | Magnetic resonance imaging |
| mRS | Modified Rankin Scale score |
| MSU | Mobile stroke unit |
| MUST | Malnutrition Universal Screening Tool |
| NASCET | North American Symptomatic Carotid Endarterectomy Trial |
| NDLS | National Driver Licence Service (Ireland) |
| NHS | National Health Service (UK) |
| NICE | National Institute for Health and Care Excellence |
| NIHSS | National Institutes of Health Stroke Scale |
| NIMAST | Northern Ireland Multidisciplinary Association of Stroke Teams |
| NMES | Neuromuscular electrical stimulation |
| NNT | Number needed to treat |
| NOAC | Non-vitamin K anticoagulant |
| NSAID | Non-steroidal anti-inflammatory drug |
| OR | Odds ratio |
| OSA | Obstructive sleep apnoea |
| PADL | Personal activities of daily living |
| PAF | Paroxysmal atrial fibrillation |
| PC-ASPECTS | Posterior circulation – Alberta Stroke Program Early Computed Tomography Score |
| PCC | Prothrombin complex concentrate |
| PE | Pulmonary embolism |
| PES | Pharyngeal electrical stimulation |
| PFO | Patent foramen ovale |
| POC | Progestin only contraceptive |
| RBMT | Rivermead Behavioural Memory Test |
| RCP | Royal College of Physicians of London |
| RCT | Randomised controlled trial |
| ROSIER | Recognition of Stroke in the Emergency Room |
| RR | Relative risk |
| SAH | Sub arachnoid haemorrhage |
| SARA | Scale for the Assessment and Rating of Ataxia |
| SBP | Systolic blood pressure |
| SIGN | Scottish Intercollegiate Guidelines Network |
| SLT | Speech and language therapy |
| SMC | Scottish Medicines Consortium |
| SRU | Stroke rehabilitation unit |
| SSNAP | Sentinel Stroke National Audit Programme |
| SSRI | Selective serotonin reuptake inhibitor |

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| SWI | Susceptibility-weighted imaging |
| tDCS | Transcranial direct current stimulation |
| TENS | Transcutaneous electrical nerve stimulation |
| TIA | Transient ischaemic attack |
| TMS | Transcranial magnetic stimulation |
| TOE | Transoesophageal echocardiogram |
| TTE | Transthoracic echocardiogram |
| TULIA | Test of Upper Limb Apraxia |
| VA | Vertebral artery |
| VKA | Vitamin K antagonist |
| VNS | Vagus nerve stimulation |
| VOSP | Visual Object and Space Perception battery |
| VR | Vocational rehabilitation |
| VTE | Venous thromboembolism |
| WHO | World Health Organization |
| WTE | Whole time equivalent |

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