NATIONAL CLINICAL GUIDELINE FOR STROKE

for the United Kingdom and Ireland

2023 edition

Chapter 1

Guideline development

www.strokeguideline.org

Healthcare Improvement Scotland | SIGN
Royal College of Physicians
ROYAL COLLEGE OF PHYSICIANS OF IRELAND
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Contents

1 Guideline development

1.0 Introduction

Purpose of guideline

The National Clinical Guideline for Stroke provides authoritative, evidence-based practice guidance to improve the quality of care delivered to every adult who has a stroke in the United Kingdom and Ireland, regardless of age, gender, type of stroke, location, or any other feature. The guideline is intended for:

- those providing care – nurses, doctors, therapists, care staff;
- those receiving care – patients, their families, their carers;
- those commissioning, providing or sanctioning stroke services;
- anyone seeking to improve the care of people with stroke. **[2023]**

Parties responsible for guideline

The 2023 edition, like the previous editions of this guideline, was produced by the Intercollegiate Stroke Working Party. The Working Party was originally set up by the Royal College of Physicians and is a group of senior representatives from the professional bodies in England, Wales and Northern Ireland involved in stroke care, as well as the voluntary sector and patient voice representatives. For this edition encompassing the whole of the UK and Ireland, the Working Party established a Guideline Development Group with representatives from the Working Party, from the Scottish Intercollegiate Guidelines Network (SIGN) and from the Irish National Clinical Programme for Stroke. Production of the 2023 edition was supported by a project team based at the Sentinel Stroke National Audit Programme (SSNAP), King's College London. More information about contributors to the guideline is in Section 1.9 *Contributors*. **[2023]**

The 2023 guideline is endorsed for use in clinical practice by the Royal College of Physicians of London, the Scottish Intercollegiate Guidelines Network (SIGN) and the Royal College of Physicians of Ireland. **[2023]**

Relationship to guidance from NICE and SIGN

In appraising the updated evidence base the Guideline Development Group has paid close attention to the content of the most recent NICE guidance on stroke:

- NICE guideline [NG128] Stroke and transient ischaemic attack in over 16s: diagnosis and initial management (last updated in 2022) https://www.nice.org.uk/guidance/ng128;
- NICE quality standard [QS2] Stroke in adults (last updated in 2016) https://www.nice.org.uk/guidance/qs2/chapter/Quality-statement-2-Intensity-of-stroke-rehabilitation;
- NICE guideline [CG162] Stroke rehabilitation in adults (last updated in 2013, update due late 2023) https://www.nice.org.uk/guidance/cg162. **[2023]**

This guideline is referred to as SIGN 166 and replaces the following SIGN guidelines:

- SIGN 119: Management of patients with stroke: Identification and management of dysphagia (published 2010, withdrawn 2020);
- SIGN 118: Management of patients with stroke: Rehabilitation, prevention and management of complications, and discharge planning (published 2010, withdrawn 2020);
- SIGN 108: Management of patients with stroke or TIA: Assessment, investigation, immediate management (published 2008, withdrawn 2018). **[2023]**

1.1 Scope

This guideline covers the management in adults (i.e. people aged over 16 years) of:

- stroke (ischaemic stroke and primary intracerebral haemorrhage [ICH]) and transient ischaemic attack (TIA), including ocular or retinal stroke and amaurosis fugax;
- subarachnoid haemorrhage (SAH): immediate management required at an admitting hospital. **[2016]**

The guideline does not cover:

- primary prevention of stroke;
- detailed recommendations on (neuro-)surgical techniques (but the role of surgery is addressed);
- management of children with stroke;
- surgical or neuroradiological interventions for SAH;
- general aspects of healthcare, unless there are specific issues relating to stroke. **[2016]**

2023 edition

The 2023 edition is a partial update of the 2016 edition. The scope of the update is available here. This edition includes updated evidence published since 2015, with literature searches completed up to September 2022 and with some major publications since that date also included. **[2023]**

This 2023 edition of the guideline includes Scotland and the Republic of Ireland for the first time, as well as England, Wales, Northern Ireland, and the Isle of Man. This expansion of the guideline's remit will affect some of the nomenclature, which differs between nations and health systems, and clinicians may need to interpret recommendations in the context of their healthcare system. **[2023]**

1.2 Context and use of this guideline

This guideline relates to those aspects of clinical management that are specific to stroke; it does not seek to address areas of routine clinical practice and good governance such as courtesy and respect for the individual, shared decision making and supporting patient choice, accurate record keeping etc. **[2016]**

This guideline is not intended to overrule regulations or standards concerning the provision of services and should be considered in conjunction with them. In considering and implementing this guideline, users are advised to also consult and follow all appropriate legislation, standards and good practice. **[2023]**

No clinical guideline can account for every eventuality, and recommendations should be taken as statements that inform and guide the clinician, the patient and any other user, and not as rigid rules. The clinician remains responsible for interpreting the recommendations taking into account the circumstances at hand (e.g. medical, psychosocial, cultural) and including competing priorities for the patient and co-morbidities such as frailty, and for considering whether new evidence might exist that could alter the recommendation. In doing so, clinicians should consider Sweeney's three levels of significance when applying the evidence to the person in front of them: statistical significance (is the evidence valid?), clinical significance (does the evidence apply to this clinical situation?) and personal significance (does the evidence apply to this person's particular circumstances and priorities?) (Sweeney et al, 1998). Clinicians can reasonably expect guidelines to be unambiguous about the first and to give guidance about the second, but the third level of significance can only be understood within the relationship between the treating clinician and their patient, and may provide the justification for deviations from recommended management in particular cases. **[2016]**

1.3 Models underpinning guideline development

This guideline has used several models or frameworks to structure its recommendations and layout. In summary these are:

- the Donabedian model (Donabedian, 1978) for considering healthcare: structure, process and outcome;
- the healthcare process: diagnosis, assessment, intervention (treatment and support), and evaluation;
- the WHO international classification of functioning, disability and health (WHO ICF) model (World Health Organization, 1978; Wade & Halligan, 2004);
- time: prevention, acute, post-acute/recovery and long-term. **[2016]**

The WHO ICF model is a useful conceptual framework for disease management, particularly one with such long-term impact as stroke. This framework is articulated in terms of:

- pathology (the disease processes within organs);
- impairment (symptoms/signs; the manifestations of disease in the individual);
- activities (the impact of impairments on the person's usual activities);
- participation (the impact of activity limitations on a person's place in family and society). **[2016]**

1.4 Methodology of guideline development

The same methodology was followed for the 2023 update as for the 2016 edition. It includes seven distinct steps to ensure a thorough and rigorous process. The detailed methodology is available in the methodology overview [here]. The seven steps are:

1. Development of scope (see process and final scope, including research questions, here);
2. Searching the scientific literature (see search strategies here);
3. Selection of studies for inclusion;
4. Assessment of the quality of the evidence (see evidence tables here);
5. Moving from evidence to recommendations;
6. Health economic considerations;
7. External peer review and public consultation (see peer review and public consultation document here, and peer review comments and responses in the peer review report here). **[2023]**

Grading of recommendations and consensus recommendations

As with the 2016 and earlier editions, the methodology followed has:

- not graded recommendations. In many clinical guidelines, recommendations are given a grade which derives entirely from the design of the studies providing the evidence. Methodologically strong evidence for less important interventions gives the linked recommendation an apparently higher priority than an important recommendation where the evidence is weaker. The strength depends solely upon the study design and ignores other important features of the evidence such as its plausibility, generalisability, and the absolute benefit to the total population of people with stroke; **[2016]**
- used quantitative and qualitative evidence where appropriate. In choosing between making a recommendation based on less than perfect evidence and making no recommendation at all, the guideline seeks to guide practice using the best available evidence; **[2016]**
- allowed for recommendations to be developed by consensus:
    - in areas of practice where evidence is absent or of such poor quality or quantity that a recommendation cannot be derived; **[2016]**

- where formal literature searching of a narrowly defined research question would not have adequately encompassed the clinical implications of the topic. (See the methodology guide here for more details). **[2023]**

Strength of recommendations

Depending on the strength of the evidence, recommendations in this guideline are either strong (a treatment or service 'should be provided/offered') or conditional (a treatment 'should be considered' or 'may be considered'). More detail about the wording of recommendations can be found in the methodology overview here. **[2023]**

NICE accreditation

The 2016 edition was accredited by NICE. NICE has agreed to extend the accreditation to the 2023 edition. This applies until December 2023. NICE accreditation processes are changing and the accreditation status of this guideline may change in future. **[2023]**

1.5 Funding and conflicts of interest

Funding for the guideline project team was received from the following external sources on condition that the Guideline Development Group retained complete editorial independence over the guideline development process and content:

- Stroke Association;
- Johnson & Johnson Medical Ltd (through an educational grant agreement);
- Welsh Assembly Government;
- NIMAST (Northern Ireland Multidisciplinary Association for Stroke Teams). **[2023]**

The editors and the Intercollegiate Stroke Working Party wish to express their immense gratitude and appreciation for the financial support granted freely by these organisations, without which production of this edition would not have been possible. **[2023]**

The policy on declarations of interests is here and the interests recorded by guideline contributors are here. **[2023]**

1.6 Treatments not mentioned in this guideline

Users of this guideline should apply the general rule that if an intervention covered by the scope of this guideline is not mentioned, then it is not recommended for use, and commissioners and service planners are not obliged to obtain it for the populations they serve. **[2016]**

1.7 Participation in clinical research

A small number of specific recommendations that patients should not be offered a treatment except 'in the context of clinical trial' have been included. This has been done when there is already some research which leaves uncertainty about the benefits and harms, but there is insufficient evidence to either recommend an intervention, or to avoid its use. **[2016]**

1.8 Licensing and approval of medication

Recommendations in this guideline about the use of specific medicines (and devices) do not specify whether the medicine is licensed or approved by the Medicines and Healthcare products Regulatory

Agency (MHRA) or European Medicines Agency (EMA) for that particular use. It is the responsibility of the individual clinician and their healthcare provider to decide whether to permit the unlicensed/off-label use of medication in their formulary, including by referring to the source data from the appropriate regulator. The Guideline Development Group may have considered it appropriate to recommend medication which has not been licensed for specific situations (e.g. aspirin in acute ischaemic stroke) or is not available in certain jurisdictions (e.g. injectable lipid-lowering therapies in the Republic of Ireland). Additional advice on the use of new and existing medicines is provided by the National Institute for Health and Care Excellence (NICE), which evaluates technologies for the NHS in England and Wales, the Scottish Medicines Consortium (SMC) for NHSScotland and the National Centre for Pharmacoeconomics (NCPE) for the Health Service Executive (HSE) in Ireland. [2023]

1.9 Contributors

The Intercollegiate Stroke Working Party is extremely grateful to the following groups who contributed their time and expertise (considerably above and beyond the usual call of duty) to producing this edition:

- the four guideline editors;
- members of the Guideline Development Group;
- topic group leads;
- members of topic groups and other contributors. **[2023]**

In addition, the Working Party is grateful to all those who contributed to their organisation's peer review of the draft guideline and those who submitted public consultation comments. Finally, the Working Party thanks the members of the stroke guideline project team and SIGN. The guideline would not exist without the hard work of all the contributors, who are listed here. **[2023]**

1.10 Notes on the text

Unchanged text from the 2016 edition is marked **[2016]**. Text is marked **[2023]** when:

- the recommendation and supporting text are new since the 2016 edition;
- the recommendation and supporting text have been updated since the 2016 edition as a result of new evidence;
- the recommendation was reviewed but not amended from the 2016 edition since the new evidence did not support a change. The supporting text has been updated. **[2023]**

The 2016 edition was prepared by the Intercollegiate Stroke Working Party ('Working Party'). The 2023 edition is the responsibility of the Guideline Development Group. In the case of consensus recommendations, sources for 2016 recommendations refer to 'Working Party consensus', whereas sources for 2023 recommendations refer to 'Guideline Development Group consensus'. **[2023]**

Some 2016 text has been changed to ensure it is applicable to Scotland and Ireland as well as to England, Wales and Northern Ireland, without changing the sense. These changes are not marked **[2023]**. **[2023]**

This edition is published online only. Apart from as indicated above, the text from 2016 is unchanged but may be in a different order from the 2016 publication. Sections may also have been re-titled and re-numbered (particularly in the Rehabilitation and Recovery chapter). **[2023]**

Glossary

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.
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.
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.
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.
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.
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

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
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
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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