NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Stroke rehabilitation in adults

Draft for consultation, April, 2023

This guideline covers stroke rehabilitation for adults and young people aged 16 and over who have ongoing rehabilitation needs. It aims to improve stroke rehabilitation by making recommendations on common problems and conditions after stroke, assessing rehabilitation needs, planning and managing rehabilitation during and after hospital, and by specifying how stroke units and multidisciplinary stroke teams should be organised. It also covers self-care, including return to work programmes, and supporting people with long-term rehabilitation needs.

NICE has also produced a guideline on the diagnosis and initial management of stroke transient ischaemic attack in over 16s.

Who is it for?

- Healthcare professionals
- Social care practitioners
- Commissioners and providers
- Voluntary organisations
- All adults and young people aged 16 and over who have had a stroke and their families and carers

What does it include?

- the recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the 2023 recommendations and how they might affect practice and services.

- the guideline context.

Information about how the guideline was developed is on the guideline's webpage. This includes the evidence reviews, the scope, details of the committee and any declarations of interest.

New and updated recommendations

We have reviewed the evidence on transfer of care from hospital to community, planning and delivering stroke rehabilitation, telerehabilitation, and several forms of therapy. You are invited to comment on the new and updated recommendations. These are marked as **[2023]**.

You are also invited to comment on recommendations that we propose to delete from the 2013 guideline.

We have not reviewed the evidence for the recommendations shaded in grey (marked **[2013]** or **[2013, amended 2023])**, and cannot accept comments on them. In some cases, we have made minor wording changes for clarification.

See update information for a full explanation of what is being updated.

Full details of the evidence and the committee's discussion on the 2023 recommendations are in the evidence reviews. Evidence for the 2013 recommendations is in the full version of the 2013 guideline.

Contents

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Organising health and social care for people needing rehabilitation after stroke

Stroke units

1.1.1 People who need rehabilitation after stroke should receive it from a specialist stroke service either:

- in a stroke unit and subsequently from a specialist stroke team in the community **or**
- if they have left hospital through early supported discharge, directly from a specialist stroke team in the community. **[2013]**

1.1.2 An inpatient stroke unit should:

- have a dedicated stroke rehabilitation environment
- be led by a core multidisciplinary stroke rehabilitation team (see recommendation 1.1.3) with expertise in working alongside people after stroke, and their families and carers, to manage the changes experienced as a result of stroke
- provide access to other services that may be needed, for example:
  - continence advice
  - dietetics
  - electronic aids (for example remote controls for doors, lights and heating, and communication aids)

  - liaison psychiatry
  - orthotics
  - pharmacy
  - podiatry
  - wheelchair services
- include a multidisciplinary education programme. **[2013]**

The core multidisciplinary stroke rehabilitation team

1.1.3 A core multidisciplinary stroke rehabilitation team should comprise the following professionals with expertise in stroke rehabilitation:

- consultant physicians
- nurses
- physiotherapists
- occupational therapists
- speech and language therapists
- clinical psychologists or clinical neuropsychologists
- orthoptists
- rehabilitation assistants
- social workers. **[2013, amended 2023]**

1.1.4 Throughout the care pathway, document the roles and responsibilities of the multidisciplinary team clearly and communicate these to the person and their family and carers. **[2013]**

Assessing care and support needs

1.1.5 Health and social care professionals should collaborate to ensure a social care assessment is carried out promptly, where needed, before the person who has had a stroke is transferred from hospital to the community. The assessment should:

- identify any ongoing needs of the person, and their family and carers, for example, access to benefits, care needs, housing, participation in everyday and community activities, return to work, transport and access to voluntary services

- be documented, with all needs recorded in the person's health and social care plan and a copy provided to the person who has had a stroke. **[2013]**

1.1.6 Offer training in care (for example, in how to move people and to help them with dressing) to family members and carers who are willing and able to be involved in supporting the person after stroke. **[2013]**

1.1.7 Review family members' and carers' training and support needs regularly (as a minimum at the person's 6-month and annual reviews), acknowledging that these needs may change over time. **[2013]**

Transfer of care from hospital to community, including early supported discharge

1.1.8 Once the person has left hospital after having a stroke, continue their care and rehabilitation for as long as it continues to help them achieve their treatment goals. **[2023]**

1.1.9 Offer early supported discharge to people after stroke who can move from a bed to a chair independently or with assistance, as long as a safe and secure environment can be provided. **[2013]**

1.1.10 Early supported discharge should:

- be part of a multidisciplinary stroke rehabilitation service
- ensure therapy is continued at the same intensity and level of support from skilled staff as is provided in hospital
- not result in a delay in delivery of care. **[2013]**

1.1.11 Before and during early supported discharge:

- provide the person after stroke, and their family and carers, with information about early supported discharge, including details of who to contact if problems arise, to support shared decision making about their care

- assign a member of the early supported discharge team or the stroke rehabilitation service to the person to coordinate their care
- take into account the needs of family members and carers and offer relevant training and support to help reduce caregiver strain, in line with NICE's guideline on supporting adult carers
- be aware, and ensure family members and carers understand, that the person's psychological needs can change after stroke (for identifying and managing psychological problems, see the recommendations on psychological functioning). **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect services, see the rationale and impact section on transfer of care from hospital to community, including early supported discharge.

Full details of the evidence and the committee's discussion are in evidence review A: early supported discharge.

1.1.12 Before transfer from hospital to home or to a care setting, discuss and agree a health and social care plan with the person after stroke, and their family and carers (as appropriate), and provide this to all relevant health and social care providers. **[2013]**

1.1.13 Before transfer of care from hospital to home for people after stroke:

- establish that they have a safe and enabling home environment (for example, check that appropriate equipment and adaptations have been provided before the person returns to their own house or a care home and that carers are supported to help them live independently) **and**
- accompany the person on a home visit unless their abilities and needs can be identified in other ways, for example, by demonstrating independence in all self-care activities, including meal preparation, while in the stroke unit. **[2013]**

1.1.14 On transfer of care from hospital to the community, provide information to all relevant health and social care professionals and the person after stroke. This should include a summary of the person's rehabilitation progress and current goals and details of their:

- diagnosis and health status
- functional abilities (including communication needs)
- care needs, including washing, dressing, help with going to the toilet and eating
- psychological (cognitive and emotional) needs
- medication needs (including the person's ability to manage their prescribed medications and any support they need to do so)
- social circumstances, including carers' needs
- mental capacity regarding the transfer decision
- management of risk, including the needs of vulnerable adults
- plans for follow-up, rehabilitation and access to health and social care and voluntary sector services. **[2013]**

1.1.15 Ensure that people after stroke who are transferred from hospital to care homes receive assessment and treatment from stroke rehabilitation and social care services to the same standard as they would receive in their own homes. **[2013]**

1.1.16 Local health and social care providers should have standard operating procedures to ensure the safe transfer and long-term care of people after stroke, including those in care homes. This should include timely exchange of information between different providers using local protocols. **[2013]**

1.1.17 After transfer of care from hospital, people with rehabilitation needs after stroke (including those in care homes) should be followed up within 72 hours by the specialist stroke rehabilitation team to assess the needs of the person and develop shared management plans. **[2013]**

1.2 Planning and delivering stroke rehabilitation

Screening and assessment

1.2.1 When a person is admitted to hospital after stroke, screen for the following and, if problems are identified, take action as soon as possible to ensure their safety and comfort:

- signs of disorientation
- how they should be positioned
- swallowing function
- how they move (for example, from a bed to a chair)
- pressure area risk
- their continence
- their communication, including their ability to understand and follow instructions and to convey their needs and wishes
- their nutritional status and hydration (follow the recommendations in the NICE guidelines on stroke and transient ischaemic attack in over 16s and nutrition support for adults). **[2013]**

1.2.2 Perform a full medical assessment of the person after stroke, including cognition (attention, memory, spatial awareness, apraxia of speech, perception), vision, hearing, muscle tone, strength, sensation and balance. **[2013]**

1.2.3 Carry out a comprehensive assessment of a person after stroke that both identifies and takes into account:

- their previous functional abilities
- changes to, or impairment of, psychological and neuropsychological functioning relating to:
  - cognitive, emotional or behavioural functioning
  - mental health, including signs indicating an increased risk of suicide (suicidality) such as suicidal thoughts, plans, actions and attempts
  - the way the person is adjusting and coping after stroke
  - communication

- impairment of body functions, including pain
- activity limitations and participation restriction
- environmental factors (social, physical and cultural). **[2013, amended 2023]**

1.2.4 When collecting information from people after stroke on admission and discharge:

- use valid, reliable and responsive tools including the National Institutes of Health Stroke Scale and the Barthel Index
- feed this information back to the multidisciplinary team regularly. **[2013]**

1.2.5 Take into account the impact of stroke on the person's family, friends and carers and, if appropriate, identify sources of support for them. **[2013]**

1.2.6 Inform the family members and carers of people after stroke about their right to a carer's needs assessment. **[2013]**

Setting goals for rehabilitation

1.2.7 Ensure that people after stroke have goals for their rehabilitation that:

- are meaningful and relevant to them
- focus on activity and participation
- are challenging but achievable
- include both short- and long-term elements. **[2013]**

1.2.8 Ensure that goal-setting meetings during stroke rehabilitation:

- are timetabled and held regularly
- involve the person after stroke and, where appropriate, their family and carers, in discussions. **[2013]**

1.2.9 During goal-setting meetings, ensure people after stroke are provided with:

- an explanation of the goal-setting process

- the information they need in a format that is accessible to them (in line the NHS accessible information standard)
- the support they need to make decisions and take an active part in setting goals. **[2013]**

1.2.10 Give people copies of their agreed goals for stroke rehabilitation after each goal-setting meeting. **[2013]**

1.2.11 Review people's goals at regular intervals during their stroke rehabilitation. **[2013]**

Planning rehabilitation

1.2.12 Provide information and support to enable the person after stroke and their family and carers (as appropriate) to actively take part in developing their stroke rehabilitation plan. **[2013]**

1.2.13 Review stroke rehabilitation plans regularly in multidisciplinary team meetings. Time these reviews according to the stage of rehabilitation and the person's needs. **[2013]**

1.2.14 Ensure any documentation is tailored to the person after stroke and, as a minimum, includes:

- the person’s basic details, including contact details and next of kin
- their diagnosis and relevant medical information
- a list of any medicines they are taking or are allergic to
- standardised screening assessments (see recommendation 1.2.1)
- the person's rehabilitation goals
- the multidisciplinary team’s progress notes
- a key contact from the stroke rehabilitation team (including their contact details) to coordinate the person's health and social care needs
- discharge planning information (including accommodation needs, aids and adaptations)
- joint health and social care plans, if developed
- details of follow-up appointments. **[2013]**

Intensity of stroke rehabilitation

1.2.15 Offer people after stroke the following therapies, if needed, for at least 5 days a week:

- physiotherapy for 1 to 2 hours a day
- occupational therapy for at least 45 minutes a day
- speech and language therapy for at least 45 minutes a day. **[2023]**

1.2.16 Where it is agreed with the person after stroke that they are unable, or do not wish, to participate in rehabilitation therapy for the full timings outlined in recommendation 1.2.15, ensure that any therapy needed is still offered for a minimum of 5 days per week. **[2023]**

1.2.17 Before rehabilitation begins, provide information on:

- the benefits of having intensive therapy that starts as soon as possible after a stroke
- what the person can expect from the sessions. **[2023]**

1.2.18 Ensure all rehabilitation sessions:

- include activities linked to the person's goals
- are tailored to any ongoing medical needs, including post-stroke fatigue
- take into account any psychological factors (such as the person's mood or motivation on the day of the session).

  Base the timing, sequencing and content of the sessions on these goals, interests and needs, with the person's agreement. **[2023]**

1.2.19 Involve families and carers in rehabilitation sessions, when appropriate (see NICE's guideline on patient experience in adult NHS services). **[2023]**

1.2.20 Make special arrangements for people after stroke who have communication and cognitive needs (for example, by holding joint speech

and language therapy and physiotherapy sessions for those with communication needs). **[2023]**

1.2.21 When planning or delivering rehabilitation that will take place when the person has left hospital:

- ensure they will be able to attend sessions at the arranged time and location
- take into account any travel needs or issues they may have. **[2023]**

> For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on intensity of stroke rehabilitation.
>
> Full details of the evidence and the committee's discussion are in evidence review E: intensity of rehabilitation.

1.3 Telerehabilitation

1.3.1 Consider telerehabilitation instead of, or as well as, face-to-face therapy, only if:

- the person after stroke agrees to this approach or it is their preferred type of therapy **and**
- it aligns with their rehabilitation goals. **[2023]**

1.3.2 Ensure that anyone taking part in telerehabilitation has the correct equipment and any training or technical support they need to use it. **[2023]**

1.3.3 Monitor people who are taking part in telerehabilitation to ensure they are:

- benefiting from this method of delivering therapy
- not developing symptoms or signs of depression. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on telerehabilitation.

Full details of the evidence and the committee's discussion are in evidence review G: telerehabilitation.

1.4 Providing support and information

1.4.1 Work with the person after stroke, and their family and carers, to identify their information needs and how to deliver this information. Take into account any specific impairments such as aphasia (loss or impairment of the ability to use and comprehend language) and cognitive impairments. Pace the way information is given to allow time for the person to make an emotional adjustment. **[2013]**

1.4.2 Provide information about local resources (for example, leisure, housing, social services and voluntary organisations) that can help support the needs and priorities of the person after stroke and their family and carers. **[2013]**

1.4.3 Review the person's information needs at their 6-month and annual stroke reviews, and at the start and end of any therapy. **[2013]**

See the recommendations on continuity of care and relationships and enabling patients to actively participate in their care in the NICE guideline on patient experience in adult NHS services. For guidance on supporting informal carers, see NICE's guideline on supporting adult carers.

1.5 Cognitive functioning

1.5.1 Screen people after stroke for cognitive impairment. Where cognitive impairment is identified, carry out a detailed assessment using valid, reliable and responsive tools before designing a treatment programme. **[2013]**

1.5.2 Provide education and support for people after stroke, and their families and carers, to help them understand the extent and impact of cognitive impairment, recognising that these may vary over time and in different settings. **[2013]**

Visual inattention

1.5.3 Use standardised assessments and behavioural observation to assess the effect of visual inattention (an inability to orient towards and attend to stimuli, including body parts, on the side of the body affected by stroke) on functional tasks such as mobility, dressing, eating and using a wheelchair. **[2013]**

1.5.4 Use interventions for visual inattention that focus on the relevant functional tasks, taking into account the underlying impairment. For example:

- interventions to help people scan to the neglected side of their visual field, such as brightly coloured lines or highlighter on the edge of the page
- using sounds to alert the person
- repeating tasks such as dressing
- using prism glasses to broaden the field of view. **[2013]**

Memory function

1.5.5 Assess memory and other relevant domains of cognitive functioning (such as executive functions) in people after stroke, particularly where impairments in memory affect everyday activity. **[2013]**

1.5.6 Use interventions for memory and cognitive functions that focus on the relevant functional tasks, taking into account the underlying impairment. Interventions could include:

- increasing the person's own awareness of the memory impairment

- enhancing learning using errorless learning and elaborative techniques (making associations, use of mnemonics and internal strategies related to encoding information such as 'preview, question, read, state, test')
- external aids (for example, diaries, lists, calendars and alarms)
- environmental strategies (using routines and environmental prompts). **[2013]**

Attention function

1.5.7 Assess attention and cognitive functions in people after stroke using standardised assessments. Use behavioural observation to evaluate the impact of any impairment on functional tasks. **[2013]**

1.5.8 Consider attention training for people with attention deficits after stroke. **[2013]**

1.5.9 Use interventions for attention and cognitive functions after stroke that focus on the relevant functional tasks. For example, by minimising distractions and providing prompts related to the task. **[2013]**

1.6 Psychological functioning

1.6.1 Assess the person after stroke for changes to:

- their emotional functioning
- their behaviour
- their mental health including the development of any signs that could indicate an increased risk of suicide (suicidality) such as suicidal thoughts, plans, actions and attempts
- the way they are adjusting and coping after stroke. **[2013, amended 2023]**

1.6.2 When choosing any intervention for problems with emotional functioning, take into account the type or complexity of the person's neuropsychological presentation and relevant personal history. **[2013]**

1.6.3 Support and educate people and their families and carers to help them make an emotional adjustment after stroke, recognising that their

psychological needs may change over time and in different settings. **[2013]**

1.6.4 When new or persisting emotional difficulties are identified at the person's 6-month or annual stroke review, refer them to appropriate services for detailed assessment and treatment. **[2013]**

1.6.5 Manage depression or anxiety in people after stroke who have no cognitive impairment in line with recommendations in the NICE guidelines on depression in adults with a chronic physical health problem and generalised anxiety disorder and panic disorder in adults. **[2013]**

1.7 Fatigue

1.7.1 Consider a standardised, written assessment for fatigue in people after stroke in the early stage of their rehabilitation programme and at their 6-month stroke review. **[2023]**

1.7.2 Consider 1 of the following for the written assessment:

- the Fatigue Severity Scale
- the Fatigue Assessment Scale
- the Modified Fatigue Impact Scale. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on fatigue.

Full details of the evidence and the committee's discussion are in evidence review B: optional tool for the assessment of fatigue.

1.8 Vision

1.8.1 Offer all people after stroke a specialist orthoptic assessment as soon as possible after stroke. **[2023]**

1.8.2 Offer the person a specialist orthoptist assessment:

- before discharge from hospital, if possible **or**

- at an urgent outpatient appointment. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on vision.

Full details of the evidence and the committee's discussion are in evidence review C: routine orthoptist assessment.

1.8.3 Offer eye movement therapy to people who have persisting hemianopia (blindness in 1 half of the visual field of 1 or both eyes) after stroke and who are aware they have the condition. **[2013]**

1.8.4 When advising people with visual problems after stroke about driving, consult the Driver and Vehicle Licensing Agency (DVLA) regulations. **[2013]**

1.9 Hearing

1.9.1 Offer a hearing assessment to all people within the first 6 weeks after stroke. During the assessment, ask the person and their family and carers, about any changes to their hearing since the stroke. **[2023]**

1.9.2 Consider the Handicap Hearing Inventory in the Elderly or Amsterdam Inventory Auditory of Disability questionnaires for the hearing assessment. **[2023]**

1.9.3 Refer people with hearing difficulties for an audiology assessment, in line with NICE's guideline on hearing loss in adults. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on hearing.

Full details of the evidence and the committee's discussion are in evidence review D: optimal tool for hearing assessment.

1.10 Mouth care

1.10.1 Assess oral hygiene in people after stroke using national or local protocols. **[2023]**

1.10.2 Encourage people after stroke to do the following at least twice a day:

- brush their teeth and gums, using an electric or battery-powered toothbrush if needed
- use mouthwash and oral gels including antibacterial and antifungal properties, if needed. **[2023]**

1.10.3 Ensure that a suitably trained healthcare professional, family member or carer delivers or supervises mouth care for people after stroke who cannot, or find it difficult to, follow a mouth care regimen. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on mouth care.

Full details of the evidence and the committee's discussion are in evidence review J: oral hygiene interventions.

1.11 Swallowing

1.11.1 Assess swallowing in people after stroke in line with recommendations in the NICE guideline on stroke and transient ischaemic attack in over 16s. **[2013]**

1.11.2 Provide information for people with dysphagia (difficulty in swallowing) after stroke, and their families and carers, on what the condition is and its risks. **[2023]**

1.11.3 Give families and carers information on how they can help someone who is coughing or choking while eating or drinking. **[2023]**

1.11.4 Support people who have oropharyngeal dysphagia (OPD) to eat and drink as safely as possible, using 1 or more of the following methods (as advised by a dysphagia-trained healthcare professional):

- adaptions to their physical position
- offering thickened fluids
- modifying their diet (for example, changing the texture of the food)
- adapting the way food and drink is served (for example, serving food with different cutlery)
- using compensatory strategies and manoeuvres appropriate for the person (for example, the Mendelsohn manoeuvre). **[2023]**

1.11.5 Review people who are unable to take oral medication and, if it is still required, change either the formulation or the route of administration. **[2023]**

1.11.6 Consider a free water protocol for people with OPD who:

- have been assessed by a dysphagia-trained healthcare professional
- are mobile
- have good mouth care **and**
- have been assessed as having appropriate cognitive ability (see the section on cognitive functioning). **[2023]**

1.11.7 Offer behavioural exercises (for example, chin tuck against resistance) to people with OPD for at least 5 days per week. **[2023]**

1.11.8 Consider physical stimulation (for example, thermal or tactile stimulation) for people with OPD for at least 5 days per week. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on swallowing.

Full details of the evidence and the committee's discussion are in evidence review I: oral feeding.

1.11.9 Ensure people with difficulty swallowing after stroke are supported in following an effective mouth care regimen, in order to decrease the risk of aspiration pneumonia (see the section on mouth care). **[2013]**

1.11.10 Healthcare professionals with relevant skills and training in the diagnosis, assessment and management of swallowing disorders should regularly monitor and reassess people with dysphagia after stroke who are having modified food and liquid until they are stable (this recommendation is from the NICE guideline on nutrition support for adults). **[2013]**

1.11.11 Provide nutrition support to people with dysphagia in line with recommendations in the NICE guidelines on nutrition support for adults and stroke and transient ischaemic attack in over 16s. **[2013]**

1.12 Communication

1.12.1 Screen people for communication difficulties within 72 hours of onset of stroke symptoms. **[2013]**

1.12.2 Each stroke rehabilitation service should devise a standardised protocol to screen for communication difficulties in people after stroke. **[2013]**

1.12.3 Refer people with suspected communication difficulties after stroke to a speech and language therapist for detailed analysis of any impairments and assessment of their impact. **[2013]**

1.12.4 Provide appropriate information, education and training to the multidisciplinary team to enable them to support and communicate effectively with people who have communication difficulties and their family and carers. **[2013]**

1.12.5 Speech and language therapy for people after stroke should be led and supervised by a specialist speech and language therapist working collaboratively with other appropriately trained people (for example, speech and language therapy assistants, carers and friends, or members of the voluntary sector). **[2013]**

1.12.6 Provide opportunities for people with communication difficulties after stroke to have conversations and social contact with people who have the training, knowledge, skills and behaviours to support them. This should be in addition to the opportunities provided by families, carers and friends. **[2013]**

1.12.7 Speech and language therapists should assess people experiencing severe communication difficulties after stroke to see if they could benefit from using a communication aid or other technologies (for example, home-based computer therapies or mobile apps). **[2013]**

1.12.8 Consider a computer-based programme, tailored to individual goals and circumstances in relation to word finding, alongside face-to-face speech and language therapy. **[2023]**

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on communication.

Full details of the evidence and the committee's discussion are in evidence review K: computer-based tools for speech and language therapy.

1.12.9 Provide communication aids to people who could benefit from them after stroke and offer training in how to use them. **[2013]**

1.12.10 Tell people with communication difficulties after stroke about community-based communication and support groups (such as those provided by voluntary organisations) and encourage them to participate in them. **[2013]**

1.12.11 Speech and language therapists should:

- provide individualised therapy for specific communication impairments such as aphasia or dysarthria (difficulty in articulating words)
- help people after stroke to use and enhance their remaining language and communication abilities

- teach other methods of communicating, such as gestures, writing and using communication props
- coach those around the person after stroke (including family members, carers and health and social care staff) to develop supportive communication skills to maximise the person's communication potential
- help people with aphasia or dysarthria, and their family and carers, to adjust to their communication impairment
- support people with communication difficulties to rebuild their identity
- support people to access information that enables decision making. **[2013]**

1.12.12 When persisting communication difficulties are identified at the person's 6-month or annual stroke review, refer them back to a speech and language therapist for detailed assessment, and offer treatment if they could benefit from it. **[2013]**

1.12.13 Help and enable people with communication difficulties after stroke to express their everyday needs and wishes, and support them to understand and participate in both everyday and major life decisions. **[2013]**

1.12.14 Ensure that environmental barriers to communication are minimised for people after stroke. For example, make sure signage is clear and background noise is limited. **[2013]**

1.12.15 Make sure that all written information (including that relating to medical conditions and treatment) is adapted for people with aphasia after stroke. This should include, for example, appointment letters, rehabilitation timetables and menus. **[2013]**

1.12.16 Offer training in communication skills (such as slowing down, not interrupting and using communication props, gestures or drawing) to those who regularly communicate with people who have aphasia after stroke. **[2013]**

1.13 Movement

1.13.1 Provide physiotherapy for people after stroke who have weakness in their trunk or upper or lower limbs, sensory disturbance or balance difficulties that affect their movement. **[2013]**

1.13.2 People with movement difficulties after stroke should be treated by physiotherapists with the relevant skills and training in diagnosis, assessment and management. **[2013]**

1.13.3 Continue to treat people with movement difficulties until they are able to maintain or progress function either independently or with assistance from others (for example, rehabilitation assistants, family members, carers or fitness instructors). **[2013]**

Strength training

1.13.4 Consider strength training for people with muscle weakness after stroke. This could include progressive strength building through increasing repetitions of body weight activities (for example, sit-to-stand repetitions), weights (for example, progressive resistance exercise), or resistance exercise on machines such as stationary cycles. **[2013]**

Fitness training

1.13.5 Encourage people to participate in physical activity after stroke. **[2013]**

1.13.6 Assess people who are able to walk and are medically stable after stroke for cardiorespiratory and resistance training appropriate to their individual goals. **[2013]**

1.13.7 Cardiorespiratory and resistance training for people after stroke should be started by a physiotherapist who can give them instructions on how to continue the programme independently. **[2013]**

1.13.8 If people after stroke choose to continue with an exercise programme independently, ensure physiotherapists supply any necessary information about interventions and adaptations to the provider so they can make sure the programme is:

- safe for the person **and**
- tailored to their needs and goals.

This information may be given through written instructions, telephone conversations or a joint visit with the exercise provider and the person, depending on the needs and abilities of both. **[2013]**

1.13.9 Tell people who are participating in fitness activities after stroke about common, potential problems, such as shoulder pain, and advise them to seek advice from their GP or therapist if these occur. **[2013]**

Wrist and hand splints

1.13.10 Do not routinely offer wrist and hand splints to people with upper limb weakness after stroke. **[2013]**

1.13.11 Consider wrist and hand splints for people at risk after stroke (for example, people who have hands that are immobile due to weakness or high tone), to:

- maintain joint range, soft tissue length and alignment
- increase soft tissue length and passive range of movement
- facilitate function (for example, a hand splint to assist grip or function)
- aid care or hygiene (for example, by enabling access to the palm)
- increase comfort (for example, using a sheepskin palm protector to keep fingernails away from the palm of the hand). **[2013]**

1.13.12 Ensure wrist and hand splints used by people after stroke are fitted by appropriately trained healthcare professionals, and a review plan is established. **[2013]**

1.13.13 Teach the person after stroke and their family and carers how to put the splint on and take it off, care for it and monitor for signs of redness and skin breakdown. Provide a point of contact for the person if concerned. **[2013]**

Electrical stimulation therapy for the upper limb

1.13.14 Do not routinely offer people after stroke electrical stimulation for their hand or arm. **[2013]**

1.13.15 Consider a trial of electrical stimulation therapy as part of a comprehensive rehabilitation programme for people who have evidence of muscle contraction after stroke but cannot move their arm against resistance. **[2013]**

1.13.16 Continue electrical stimulation therapy if the person's strength and their ability to practise functional tasks (for example, maintaining range of movement, or improving grasp and release) is found to be improving. **[2013]**

1.13.17 If a trial of electrical stimulation therapy is appropriate, ensure the treatment is guided by a qualified rehabilitation professional. **[2013]**

Robot-assisted arm training

1.13.18 Do not offer robot-assisted arm training as part of an upper limb rehabilitation programme. **[2023]**

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on robot-assisted arm training.

Full details of the evidence and the committee's discussion are in evidence review M: robot-assisted arm training.

Constraint-induced movement therapy

1.13.19 Consider constraint-induced movement therapy for people after stroke who have movement of 20 degrees of wrist extension and 10 degrees of finger extension. Be aware of potential adverse events (such as falls, low mood and fatigue). **[2013]**

Repetitive task training

1.13.20 Offer people after stroke repetitive task training on a range of activities for upper limb weakness (such as tasks that involve reaching, grasping, pointing, moving and manipulating objects) and lower limb weakness (such as sit-to-stand transfers, walking and using stairs). **[2013]**

Walking therapies and group circuit training

1.13.21 Offer walking training to people after stroke who are able to walk, with or without assistance, to help them build endurance and move more quickly. **[2013]**

1.13.22 Consider treadmill training, with or without body weight support, as an option for people after stroke who are able to walk with or without assistance. **[2013]**

1.13.23 In addition to one-to-one walking therapy for people after stroke who are able to walk, with or without assistance, consider a programme of group circuit training that:

- includes an educational element (for example, advice on preventing falls)
- involves interaction with other participants to create an environment of peer support. **[2023]**

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on walking therapies and group circuit training.

Full details of the evidence and the committee's discussion are in evidence review L: circuit training for walking.

Electromechanical gait training

1.13.24 Offer electromechanical gait training to people after stroke only in the context of a research study. **[2013]**

Ankle–foot orthoses

1.13.25 Consider ankle–foot orthoses (devices that support or correct limb function) for people who have difficulty with swing-phase foot clearance after stroke (for example, tripping and falling) or stance-phase control (for example, knee and ankle collapse or knee hyper-extensions) that affects walking. **[2013]**

1.13.26 Assess the ability of the person to put on the ankle–foot orthosis or ensure they have the support needed to do so. **[2013]**

1.13.27 Assess the effectiveness of the ankle–foot orthosis for the person, in terms of comfort, speed and ease of walking. **[2013]**

1.13.28 Assessment for and treatment with ankle–foot orthoses should only be carried out as part of a stroke rehabilitation programme and performed by qualified professionals. **[2013]**

Electrical stimulation for the lower limb

1.13.29 Follow NICE's interventional procedures guidance on functional electrical stimulation for drop foot of central neurological origin. **[2013]**

Mirror therapy for the upper or lower limb

1.13.30 Consider mirror therapy for people with muscle weakness in their upper or lower limbs after a stroke as part of a rehabilitation programme. **[2023]**

1.13.31 If provided, start mirror therapy within the first 6 months after a stroke. Sessions should be:

- around 30 minutes long, held at least 5 times per week over 4 weeks, **and**
- supervised initially and for longer if necessary. **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on mirror therapy for the upper or lower limb.

Full details of the evidence and the committee's discussion are in evidence review Q: mirror therapy.

1.14 Managing shoulder pain

1.14.1 Provide information for people after stroke and their families and carers on how to prevent pain or trauma to the shoulder if they are at risk of developing shoulder pain (for example, if they have upper limb weakness and spasticity). **[2013]**

1.14.2 Assess people with shoulder pain after stroke to identify the cause and use the results of the assessment to decide how to manage the pain. **[2023]**

1.14.3 Encourage or help the person to adapt their position to help ease shoulder pain. **[2013, amended 2023]**

1.14.4 Consider the following options for managing shoulder pain:

- taping
- neuromuscular electrical stimulation (NMES)
- intra-articular corticosteroid injection
- nerve block (local anaesthetic). **[2023]**

For guidance on managing neuropathic pain see the NICE guideline on neuropathic pain in adults.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on managing shoulder pain.

Full details of the evidence and the committee's discussion are in evidence review O: shoulder pain.

1.15 Spasticity

1.15.1 Provide information on spasticity for people after stroke, and their families and carers, including details about what it is and what will make it better or worse. **[2023]**

1.15.2 Assess whether spasticity in people after stroke is focal (that is, it affects a specific limb or part of a limb) or generalised. **[2023]**

1.15.3 Discuss options for managing focal or generalised spasticity in the person after stroke with the multidisciplinary team. **[2023]**

1.15.4 Offer the following to people after stroke as part of a goal-directed plan to manage focal and generalised spasticity:

- stretching the affected limb or limbs
- splints, when needed (see the section on wrist and hand splints)
- advice on identifying and managing triggers of spasticity. **[2023]**

1.15.5 For people who have focal spasticity of the upper limb after stroke, consider botulinum toxin A (Dysport) at a total dose of 500 units per treatment, spread across injections in different sections of the affected limb. Ensure that:

- people do not receive more than 1 treatment every 3 months **and**
- response to the treatment is monitored and it is stopped if it is not effective. **[2023]**

1.15.6 Consider a trial of neuromuscular electrical stimulation (NMES), functional electrical stimulation (FES) or transcutaneous electrical nerve stimulation (TENS) for people after stroke with focal spasticity. **[2023]**

1.15.7 Consider oral baclofen for people after stroke with generalised spasticity but monitor closely for adverse effects. **[2023]**

1.15.8 Refer people after stroke to a specialist spasticity service if they have:

- ongoing spasticity that has not responded to treatment

- not been able to tolerate other treatments
- complex needs in relation to spasticity (for example, people who need injection into small muscles or who need spasticity-related pain management). **[2023]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on spasticity.

Full details of the evidence and the committee's discussion are in evidence review P: spasticity.

1.16 Self-care

1.16.1 Provide occupational therapy for people after stroke who are likely to benefit from it and to address difficulties with activities of daily living. Therapy may consist of restorative or compensatory strategies.

- Restorative strategies may include:
  - encouraging people with hemisensory inattention (a difficulty in detecting or acting on information on 1 side of their personal space) to attend to the neglected side
  - encouraging people with arm weakness to use both arms
  - establishing a dressing routine for people with difficulties such as poor concentration, hemisensory inattention or dyspraxia (difficulty in planning and executing movement) which make dressing problematic.
- Compensatory strategies may include training people how to:
  - dress one-handed
  - use devices such as bathing and dressing aids. **[2013]**

1.16.2 People who have difficulties in activities of daily living after stroke should have regular monitoring and treatment by occupational therapists with core skills and training in the analysis and management of activities of daily living. Treatment should continue until the person's condition is stable or able to progress independently. **[2013]**

1.16.3 Assess people after stroke for their equipment needs and to see whether their family or carers need training to use the equipment. This assessment should be done by an appropriately qualified professional. Equipment may include hoists, chair raisers and small aids such as long-handled sponges. **[2013]**

Returning to work

1.16.4 Identify any return-to-work issues for the person as soon as possible after stroke. Review these regularly and manage them actively, for example by:

- identifying the physical, cognitive, communication and psychological demands of the job (such as multi-tasking by answering emails and telephone calls in a busy office)
- identifying any problems that affect work performance (for example, physical limitations, anxiety, fatigue preventing attendance for a full day at work, cognitive impairments preventing multi-tasking, and communication problems)
- tailoring interventions (for example, teaching strategies to support multi-tasking or memory difficulties, teaching the use of voice-activated software for people with difficulty typing, and delivery of work simulations)
- providing information about the Equality Act 2010 and support available (for example, an access-to-work scheme)
- workplace visits and liaison with employers to make reasonable adjustments such as provision of equipment and phased return to work. **[2013]**

1.16.5 Consider a referral to a return-to-work programme for people who were working before their stroke. **[2023]**

For a short explanation of why the committee made this recommendation and how they might affect practice, see the rationale and impact section on returning to work.

Full details of the evidence and the committee's discussion are in evidence review H: community participation interventions.

1.16.6 Manage people's return to work or long-term absence after stroke in line with the NICE guideline on workplace health. **[2013]**

1.17 Long-term health and social support

1.17.1 Explain to people after stroke that they can self-refer, usually with the support of a GP or named contact from the stroke rehabilitation service, if they need further help or support. **[2013]**

1.17.2 Provide information so that people after stroke, and their family and carers, can recognise the complications of the condition, including frequent falls, spasticity, shoulder pain and incontinence. **[2013]**

1.17.3 Encourage people to focus on life after stroke and help them to achieve their goals. This may include:

- helping them to participate in community activities, such as shopping, civic engagements, sports and leisure pursuits, visiting their place of worship and joining stroke support groups
- supporting their social roles, for example, in work, education, volunteering, leisure activities, within their family and with sexual relationships
- providing information about transport and driving (including DVLA requirements; see the UK Government's web page on stroke and driving). **[2013]**

1.17.4 Manage incontinence after stroke in line with the NICE guidelines on urinary incontinence in neurological disease and faecal incontinence in adults. **[2013]**

1.17.5 Review the health and social care needs of people after stroke, and the needs of their carers, at 6 months and then annually. These reviews

should cover participation in activities of everyday life to ensure that people's goals are met. **[2013]**

For guidance on the secondary prevention of stroke, see the recommendations in NICE's guidelines on cardiovascular disease, hypertension in adults, type 2 diabetes in adults and atrial fibrillation. For advice on prescribed medications, follow NICE's guideline on medicines adherence.

Community participation programmes

1.17.6 Consider a referral for people after stroke, and their families and carers (if appropriate), to community participation programmes that are suited to the person's rehabilitation goals. **[2023]**

For a short explanation of why the committee made this recommendation and how it might affect practice see the rationale and impact section on community participation programmes.

Full details of the evidence and the committee's discussion are in evidence review H: community participation interventions.

Terms used in this guideline

This section defines terms that have been used in a particular way for this guideline.

Apraxia

Difficulty in controlling the muscles for speech because of damage to the brain, which can affect speech or changes in the rhythm or rate of speaking.

Assessment

A detailed process that aims to define the nature and impact of an impairment and devise a treatment plan.

Early supported discharge

A service for people after stroke that allows transfer of care from an inpatient environment to a primary care setting to continue rehabilitation.

Free water protocol

A set of principles that aim to provide people with dysphagia who are suspected to have, or known to be at risk of, aspiration with the option of consuming unthickened water between mealtimes. The key principles include:

- drinking water between meals but at least 30 minutes after eating and drinking
- consuming thickened fluids at mealtimes
- thorough mouth care must be completed before drinking
- medications must not be provided with thin water
- compensatory swallowing strategies may still be continued
- supervision is required if the person after stroke is impulsive or cannot participate without support.

A free water protocol may not be appropriate for people who are medically unstable, have respiratory compromise or degenerative neurological conditions, are immobile or unable to sit fully upright, have a strong cough reflex to water, have impaired cognition or have an oral or dental infection.

Liaison psychiatry

A speciality of general psychiatry that supports people with mental health problems while they are being treated for physical health problems, usually in hospital.

Screening

A process of identifying people with particular impairments. People can then be offered information, further assessment and appropriate treatment. Screening may be performed as a precursor to more detailed assessment.

Stroke rehabilitation service

A service designed to deliver stroke rehabilitation either in hospital or in the community.

Stroke unit

An environment in which multidisciplinary stroke teams deliver care in a dedicated ward which has a bed area, dining area, gym, and access to assessment kitchens.

Telerehabilitation

Rehabilitation delivered through remote methods rather than face-to-face interaction between the person after stroke and the healthcare professional. Components can include interventions, supervision, education, consultations and counselling. This may be delivered in real time (synchronous) or with delay where immediate response is not required (asynchronous).

Recommendations for research

Key recommendations for research

1 Intensity of rehabilitation – therapy for 7 days a week

What is the clinical and cost effectiveness of delivering rehabilitation for 7 days a week compared to 5 days a week for people after a stroke? **[2023]**

> For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on intensity of stroke rehabilitation.
>
> Full details of the evidence and the committee's discussion are in evidence review E: intensity of rehabilitation.

2 Intensity of rehabilitation – psychological therapy

What is the clinical and cost-effectiveness of more intense cognitive and psychological therapy compared to usual care for people after a stroke? **[2023]**

> For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on intensity of stroke rehabilitation.
>
> Full details of the evidence and the committee's discussion are in evidence review E: intensity of rehabilitation.

3 Tool for assessing fatigue in people with communication difficulties

For people after stroke with communication difficulties, what is the optimal tool for assessing fatigue? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on fatigue.

Full details of the evidence and the committee's discussion are in evidence review B: optimal tool for fatigue.

4 Computer-based speech and language therapy

What is the clinical and cost effectiveness of computer-based tools to treat speech (dysarthria) and all domains of language (aphasia) for people with communication difficulties after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on communication.

Full details of the evidence and the committee's discussion are in evidence review K: computer-based tools for speech and language therapy.

5 Management of shoulder pain by cause

For people with different causes of shoulder pain after stroke, what is the clinical and cost effectiveness of interventions in reducing pain? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on managing shoulder pain.

Full details of the evidence and the committee's discussion are in evidence review O: shoulder pain.

Other recommendations for research

Tools for fatigue

What is the clinical and cost effectiveness of the Fatigue Severity Scale, Fatigue Assessment Scale and Modified Fatigue Impact Scale in informing the management of fatigue in people after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on fatigue.

Full details of the evidence and the committee's discussion are in evidence review B: optimal tool for fatigue.

Handheld hearing screeners

What is the clinical and cost effectiveness, and the diagnostic test accuracy, of using handheld hearing screeners to assess hearing in people after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on hearing.

Full details of the evidence and the committee's discussion are in evidence review D: optimal tool for hearing.

Prevalence of hearing problems

What is the prevalence of hearing problems after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on hearing.

Full details of the evidence and the committee's discussion are in evidence review D: optimal tool for hearing.

Intensity of rehabilitation – swallowing therapy

What is the clinical and cost effectiveness of more intense swallowing therapy compared to usual care for people after a stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on intensity of stroke rehabilitation.

Full details of the evidence and the committee's discussion are in evidence review E: intensity of rehabilitation.

Self-management

What is the clinical and cost effectiveness of self-management interventions for people after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on self-management.

Full details of the evidence and the committee's discussion are in evidence review F: self-management.

Impact of telerehabilitation on cognition and mood

What is the impact of telerehabilitation on cognition and mood for people after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on telerehabilitation.

Full details of the evidence and the committee's discussion are in evidence review G: telerehabilitation.

Swallowing – neurostimulation

What is the clinical and cost effectiveness of neurostimulation (pharyngeal electrical stimulation, transcranial direct current stimulation, transcranial magnetic stimulation) to improve swallowing in people with oropharyngeal dysphagia after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on swallowing.

Full details of the evidence and the committee's discussion are in evidence review I: oral feeding.

Swallowing – neuromuscular electrical stimulation

What is the clinical and cost effectiveness of neuromuscular electrical stimulation (NMES) to improve oesophageal dysphagia after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on swallowing.

Full details of the evidence and the committee's discussion are in evidence review I: oral feeding.

Swallowing – acupuncture

What is the clinical and cost effectiveness of acupuncture to improve swallowing in people with oropharyngeal dysphagia after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on swallowing.

Full details of the evidence and the committee's discussion are in evidence review I: oral feeding.

Music therapy

What is the clinical and cost effectiveness of music therapy for people after a first stroke or recurrent strokes? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on music therapy.

Full details of the evidence and the committee's discussion are in evidence review N: music therapy.

Diagnostic assessment to inform management of shoulder pain

What is the clinical and cost effectiveness of diagnostic assessment to decide the choice of management for shoulder pain after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on managing shoulder pain.

Full details of the evidence and the committee's discussion are in evidence review O: shoulder pain.

Spasticity – acupuncture and electroacupuncutre

What is the clinical and cost effectiveness of acupuncture and electroacupuncture to treat spasticity in people who have had a stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on spasticity.

Full details of the evidence and the committee's discussion are in evidence review P: spasticity.

Spasticity – botulinum toxin A

What is the clinical and cost-effectiveness of BOTOX, Dysport and Xeomin compared to each other and usual care for people with focal spasticity after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on spasticity.

Full details of the evidence and the committee's discussion are in evidence review P: spasticity.

Spasticity – electrotherapy

What is the clinical and cost effectiveness of neuromuscular electrical stimulation (NMES), transcutaneous electrical stimulation (TENS) and functional electrical stimulation (FES) compared to usual care for people who have spasticity after a stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on spasticity.

Full details of the evidence and the committee's discussion are in evidence review P: spasticity.

Groups that benefit from mirror therapy

Which groups of people benefit from mirror therapy after stroke? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on mirror therapy.

Full details of the evidence and the committee's discussion are in evidence review Q: mirror therapy.

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice or services.

Transfer of care from hospital to community, including early supported discharge

Recommendations 1.1.8 and 1.1.11

Why the committee made the recommendations

Qualitative evidence showed that rehabilitation support after hospital is sometimes withdrawn after a set period of time, when the person feels this is too early and that they need more rehabilitation. The committee recognised that some people feel abandoned, but also that therapist time is not unlimited and must be used effectively. The committee weighed up these factors and recommended that rehabilitation therapies should be continued for as long as they are providing benefit in relation to the goals of the person after stroke.

Early supported discharge is recommended for some people after a stroke in the 2013 NICE guideline. New evidence confirmed that early supported discharge had the clinically important benefit of reducing physical dependency (the need for support with activities at home such as transfers, mobility and washing) as well as length of hospital stay. It was also found to either improve, or have no negative impact on,

health-related quality of life and reduce psychological distress. The evidence showed no difference between early supported discharge and usual care in mortality, the person or carer's quality of life or the Caregiver Strain Index (which is used to assess carers' wellbeing). It also made no difference to hospital readmission rates. A clinically important harm was seen in increasing falls. However, this was reported in a limited number of studies and the committee noted that this did not cause an increase in the rates of hospital readmission. The published evidence also suggested that early supported discharge was cost effective when compared to usual care.

Early supported discharge was found to work best when there was effective coordination between all services involved in the care of the person after stroke. Better coordination between services led to reduced mortality and levels of physical dependency, when compared to usual care. Those which did not coordinate as well reported higher rates of mortality and no reduced levels of physical dependency, when compared to usual care.

The committee looked at qualitative evidence that found that people after stroke, their families and carers, and healthcare professionals all saw early supported discharge as beneficial. They all saw it as an opportunity for the person go home and be in a familiar setting sooner and a way of motivating the person by providing new challenges, and they found it made no difference to the intensity of the therapy on offer (when delivered appropriately). The evidence highlighted a number of factors that make early supported discharge more effective for people after stroke. Many of these were already captured in the 2013 NICE guideline but some important ones were not, so the committee agreed to list these factors.

How the recommendations might affect services

Current systems for early supported discharge vary, and some places do not have dedicated early supported discharge coordinators. Some parts of the country provide better access to early supported discharge service than others. Changes will therefore be required to improve access to services, but the way services work may need to change, and the degree of change needed will vary between services depending on what they currently provide. Offering care and rehabilitation to people who have had a stroke, and have left hospital, for as long as they continue to benefit

in relation to their treatment goals is considered current practice and so is not expected to have a significant resource impact.

Return to recommendations

Intensity of stroke rehabilitation

Recommendations 1.2.15 to 1.2.21

Why the committee made the recommendations

Evidence showed more intensive physiotherapy improved quality of life and activities of daily living. The optimal intensity of physiotherapy was found to be between 1 and 2 hours a day for at least 5 days per week, with the proviso that there may be days when the person is not able to take part for the full duration. People recovering from stroke, and their families and carers, also felt strongly that more intensive physiotherapy would be useful in helping them to recover faster, especially if this was delivered early on after stroke (in the first 6 months). Although longer physiotherapy sessions will require more resources, they were still found to be cost-effective for the NHS.

The committee also reviewed evidence to see whether longer occupational therapy and speech and language therapy sessions could be beneficial, but this was too limited to recommend any increase in the timings. However, there was nothing to suggest that the intensity should be reduced below the currently recommended timings of at least 45 minutes a day, 5 days per week. The recommendations did not distinguish between people with and without communication difficulties as the committee agreed that, with regards to the intensity of therapy, the available evidence could be applied to both groups.

Qualitative studies revealed several factors that could encourage or prevent people in fully participating in rehabilitation therapies. These were supported by the personal experiences of committee members and were included in the recommendations to encourage effective delivery of rehabilitation.

How the recommendations might affect practice

Current practice is inconsistent. The 2013 guideline recommended that people should initially be offered at least 45 minutes of each relevant stroke rehabilitation therapy for a minimum of 5 days a week. However, this is not always provided to all people after stroke. Therefore, there may need to be a change in current practice to ensure that the recommended timings of occupational therapy and speech and language therapy, while they remain the same, are provided consistently.

The recommendations increase the amount of physiotherapy that is provided for 5 days a week from at least 45 minutes to a minimum of 1 to 2 hours. This will need a change in practice and extra resources, although this will be balanced out by long-term health benefits and potential care savings.

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Telerehabilitation

Recommendations 1.3.1 to 1.3.3

Why the committee made the recommendations

The committee looked at evidence comparing telerehabilitation, both alone and as an addition to face-to-face sessions. Telerehabilitation was found to be beneficial in improving activities of daily living and quality of life. However, the committee also stressed that telerehabilitation should only be used if it is the person's preferred option and that the relationship between the therapist and the person after stroke is maintained, with the option of using in-person therapy instead if needed. As with face-to-face therapy, telerehabilitation needs to be directed at the goals of the person after stroke, as agreed by the therapist and the person. The committee also wanted to emphasise that people and their carers should be able to use any equipment required for telerehabilitation and should receive training on using it if necessary.

Some detrimental effects were also noticed in some people who had telerehabilitation, particularly in their mood. The reasons for this are unknown. On balance, the committee concluded that telerehabilitation could help some people but

that those who receive it should be monitored carefully for symptoms or signs of depression.

How the recommendations might affect practice

The recommendation reflects current practice as a number of stroke services are already being delivered via telerehabilitation, with its usage increasing in many areas of practice since the start of the COVID-19 pandemic. The committee agreed there would be no large changes to current practice although this would depend on the type of information and communication technology used. In some areas, the recommendations could lead to an increase in telerehabilitation as an alternative to face-to-face appointments.

The resource impact of this will probably be neutral. Some people will need extra equipment at home (although this equipment may be reused over time) and some resource will be needed to train and support people after stroke and carers who will use it. Currently telephone calls and videoconferencing are widely used for rehabilitation and require low or no additional resources, while virtual reality (VR) programmes or interactive games are less commonly used and could incur a higher resource impact if used as an adjunct to usual care. Telerehabilitation will lead to savings in travel costs and could be a more efficient use of therapists' time.

Return to recommendations

Self-management

Why the committee did not make any recommendations

The committee did not make any recommendations for self-management interventions (which focus on empowering the person after stroke to manage their own symptoms, for example through components like problem-solving, goal-setting, decision-making, self-monitoring or using coping strategies) because they were not found to be more clinically effective than other interventions. This was supported by the committee’s own experiences of self-management interventions, although some committee members did report having positive personal experiences of using them. The committee therefore agreed these could still play a useful role in supporting the health of people after stroke but further studies were needed into the benefits, and

the effective components and optimal frequency, of self-management programmes. They made a research recommendation in this area.

Fatigue

Recommendations 1.7.1 and 1.7.2

Why the committee made the recommendations

People often experience fatigue after stroke and find its effects disabling. While more research is needed on specific treatments for fatigue, the committee agreed that a standardised, written assessment would:

- help with identifying and characterising the symptom
- help ensure the rehabilitation team take fatigue into account when setting goals for people after stroke
- provide a clear baseline measurement for treatment trials.

The Fatigue Assessment Scale, Fatigue Severity Scale and Modified Fatigue Impact Scale were found to be valid and reliable tools that were easy to use and effective in discriminating between the physical, cognitive and mood disorders that can interact with fatigue. The committee agreed any of these 3 could be used to assess fatigue while the person was taking part in their rehabilitation programme in primary or secondary care, or during their 6-month stroke review. The committee did not specify when the first assessment should take place as this could not be determined from the evidence they reviewed. However, they agreed it should not be done too quickly after the person's stroke since fatigue level may be changing rapidly at that stage, but should be done soon enough to help plan ongoing rehabilitation. The timing will need to be determined on an individual basis.

How the recommendations might affect practice

Current practice is inconsistent. Only some services assess fatigue and there is no standardised measurement tool. The recommendation to consider an assessment for fatigue during rehabilitation and the 6-month review may require a change from current practice by many providers. The Fatigue Assessment Scale, Fatigue Severity Scale and Modified Fatigue Impact Scale are short assessments that can be filled in by the person after stroke, so the associated costs will be low.

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Vision

Recommendations 1.8.1 and 1.8.2

Why the committee made the recommendations

No evidence was identified in the review. However, the committee made conclusions based on their experience and knowledge of evidence that could not be identified in the protocol for the review. Many people experience problems with their eyesight after stroke. These are often identified by stroke units during either an examination by an orthoptist or an assessment carried out by another healthcare professional using basic screening or a validated screening tool. There was a lack of evidence for assessing vision problems after stroke. However, the committee agreed that, based on its experience and knowledge, these issues were more likely to be identified during an orthoptist assessment when compared to other forms of assessment. Significant issues that are missed initially are often identified at a later stage, but by this time they may have already affected the person's quality of life and their ability to fully participate in stroke rehabilitation. There are also potential safety risks, including the possibility of driving accidents.

The committee's preference was for people to be assessed by an orthoptist before they left hospital, but they recognised this might not be possible in many units at present and, if this was recommended, it would cause significant delays at discharge. Therefore they agreed that when it was not possible to carry out an assessment before discharge, people should be given an urgent referral for an outpatient appointment where they would have the same assessment.

How the recommendations might affect practice

Current practice is inconsistent across the country, as many stroke units do not have a designated orthoptist. Therefore, the recommendation will lead to a change in practice. However, the time required and costs involved in offering an orthoptic assessment on the stroke unit is the same as that for assessment using basic screening and validated screening tools.

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Hearing

Recommendations 1.9.1 to 1.9.3

Why the committee made the recommendations

Many people have hearing problems after stroke which often go undetected and can significantly impact on their quality of life and ability to engage with their rehabilitation. The committee agreed that hearing problems should be identified as soon as possible. However, it may be difficult to do this adequately in the period immediately after admission when the person's condition has not stabilised, and when they may be in a relatively noisy hospital environment. Taking this into account, the committee agreed by consensus that all people should be offered a hearing assessment within the first 6 weeks following stroke. This should involve discussions with the person, which should also include family members and carers as they often identify hearing problems too.

The committee looked at evidence from a small study that compared the diagnostic accuracy of 4 types of assessment – 2 types of hearing questionnaires, a handheld hearing screener and a combination of 1 questionnaire and a handheld hearing screener. All 4 options were found to be effective in ruling out hearing problems, but none were as accurate as audiologist's assessment in diagnosing hearing difficulties after stroke. The committee agreed to include the details of the questionnaires used in the study as these are not expensive and could help identify people who need further assessment. However, they did not recommend handheld hearing screeners as an option because of their cost and a lack of availability. They instead made a recommendation for further research into their clinical and cost effectiveness, and diagnostic accuracy.

The committee agreed that an audiologist should carry out a comprehensive assessment of any suspected hearing problems experienced by people after stroke. An audiologist should conduct the assessment as this is standard practice and they are the professional with the skills, experience and access to the tools required to conduct the assessment.

How the recommendations might affect practice

Current practice is inconsistent. Hearing assessments after stroke are not standardised and often do not include the use of a questionnaire, so this may lead to a change in practice.

Return to recommendations

Mouth care

Recommendations 1.10.1 to 1.10.3

Why the committee made the recommendations

The committee agreed by consensus that mouth hygiene should be formally assessed. There are different protocols available for this that were not compared in the evidence review, so the committee agreed to recommend the use of local or national protocols.

The type and frequency of mouth care varied across studies, but they all showed reductions in mortality in people who received some form of standardised oral hygiene regimen compared with those who received usual care. Some studies also found mouth care interventions reduced cases of pneumonia, gingivitis and oral infections. The evidence on frequency of mouth care was less clear although most of the studies used a twice-daily mouth care regimen, which the NHS recommends for all people. The specific components of the mouth care regimen differed across the studies but none involved the use of a manual brush alone and most included an electric or battery-powered toothbrush and mouthwash. Oral gel with antibacterial or antifungal properties was also shown to help reduce mortality and occurrence of pneumonia in a study carried out in an NHS setting.

Mouth care was supervised by trained healthcare professionals in all studies. The committee agreed it should be delivered or supervised, when needed, by people with appropriate training including family members or carers.

How the recommendations might affect practice

The recommendations reflect current best practice. For some people these recommendations will not change current practice (for example, people who are able

to follow a more intensive mouth care regimen). However, the level of care provided to people who find it difficult to follow a more intensive regimen is currently inconsistent, so these recommendations are likely to involve a change in practice for many providers. Healthcare professionals may also need additional time to supervise or help deliver mouth care more frequently for some people, including those who will be using additional interventions such as electric toothbrushes, mouthwash and oral gels with antibacterial or antifungal properties. There will also be an additional cost in purchasing these items for services that do not currently use them.

Return to recommendations

Swallowing

Recommendations 1.11.2 to 1.11.8

Why the committee made the recommendations

Dysphagia can be distressing for people after stroke and their family members and carers. Based on their expertise and experience, the committee agreed it would be useful to provide information about the condition and advice on what to do if someone is having difficulties while eating and drinking.

One study with 204 participants found that some adaptations could reduce mortality, chest infections and improve oropharyngeal dysphagia (OPD). Based on this limited amount of evidence and the committee's expert opinion, the committee recommended that one or more of these adaptations can support safe swallowing. They also agreed that medication should be reviewed and, if necessary, the formulation or route of administration of any oral medication should be changed so the person can continue to receive treatment.

The evidence for the free water protocol was limited to 2 small studies (with a total of 34 participants) which found that this approach led to no difference in the occurrence of chest infections and hydration compared to usual care. Based on its expert opinion however, the committee agreed it could be an option for some people after stroke, because it could help them to drink more if they do not want to drink thickened fluids. The free water protocol is only suited to people who:

- are mobile, so they can get a drink when they need it
- have no major cognitive issues, so they can judge when it is safe to drink and get help if they have difficulties
- have good mouth care, so that they do not have anything in their mouth that could cause them harm if they aspirate on water during the process.

The committee noted that behavioural exercises and physical stimulation are effective in reducing mortality, chest infections and aspiration caused by OPD, and can help people to return to a normal diet. They agreed that there was a substantial amount of evidence to support the use of behavioural exercises, but there was only a limited amount of evidence to support using physical stimulation. However, they noted that both treatments were commonly used as usual care across all the evidence. They noted that on average both types of intervention were provided for 30 minutes a day, 5 days a week, for 2 to 4 weeks, during the acute and subacute periods after stroke. Based on this and taking into account the evidence reviewed for the intensity of stroke rehabilitation section of the guideline, they agreed that behavioural exercises should be offered for at least 5 days a week to achieve these benefits. However, they took into account the limited evidence for physical stimulation and agreed this should only be considered as an option for people with OPD.

On evaluating other treatments, the committee noted that neuromuscular electrical stimulation (NMES) was found to improve quality of life, reduce dysphagia and chest infections, and help people to return to normal diet. The evidence on the effect of NMES on mortality was uncertain due to small trial sizes and short follow-up times. The committee noted that, while there was a clinically important harm in the evidence, this was unlikely to be related to the use of NMES because the intervention was found to reduce dysphagia and chest infections and it was unlikely that the intervention would cause death in another way. Taking into account the absence of quality of life data required to conduct health economic modelling, the potential high cost of the intervention, the size of the trials and the low quality evidence, the committee agreed further research is required before this could be recommended. The evidence on other interventions was insufficient. Therefore, the

committee made research recommendations to gather more information about the use of NMES, neurostimulation and acupuncture.

How the recommendations might affect practice

Some recommendations are consistent with current practice, including the use of adaptations to support people with eating and drinking. Others will lead to a change in current practice. Increasing the intensity of behavioural exercise and physical stimulation from the previously recommended 3 days a week to 5 days will likely have a cost implication.

Return to recommendations

Communication

Recommendation 1.12.8

Why the committee made the recommendation

The evidence for computer-based tools for speech and language therapy varied in quality, with significant uncertainty due to the complexity of the interventions, and a risk of bias and imprecision. However, clinically important benefits were seen for word finding when interventions focused on, or included this, as a component. The overall cost-effectiveness of the therapy was uncertain, but data from a large UK-based study demonstrated that the intervention was cost effective when it focused on word finding. The committee agreed computer-based therapy aimed at improving word finding skills could be given in addition to face-to-face speech and language therapy rather than instead of it, as this was the approach taken in the majority of the studies. However, the therapy would need to be adapted to the person's needs (for example, with activities that include words that are important to them).

The committee did not recommend the use of computer-based tools for other goals relating to speech and language therapy but instead made a recommendation for further research.

How the recommendation might affect

Computer-based therapy is not routinely used by speech and language therapists in the NHS, so this recommendation could lead to a change in practice.

Return to recommendations

Robot-assisted arm training

Recommendation 1.13.18

Why the committee made the recommendation

Extensive studies have shown that robot-assisted arm training can improve arm strength, including grip strength. However, the committee were not convinced the clinical benefits of using such devices outweighed those achieved by physiotherapy of similar intensity. The evidence also found robot-assisted arm training did not improve arm function or the ability to complete daily activities – improvements the committee agreed would be more important to people after stroke. The studies did not reveal any other benefits to using these devices, for example, in improving measures of quality of life or activities of daily living, or in the incidence of spasticity.

These devices are expensive to purchase and maintain, and a large study found their use was not cost effective. In view of this, and the wide range of studies that showed they had limited clinical benefits, the committee decided not to recommend their use.

How the recommendation might affect practice

Currently, only a small number of stroke units have access to robot-assisted arm training devices and this recommendation should reduce or discourage their use. Overall, it is unlikely that the recommendation will lead to a widespread change in current practice.

Return to recommendation

Walking therapies and group circuit training

Recommendation 1.13.23

Why the committee made the recommendation

The evidence base for group circuit training was large and there was considerable variation in group sizes and participant-to-staff ratios, as well as the type, duration and intensity of the exercises on offer. The number of staff involved was uncertain. It

was not possible to recommend the optimal number of staff who should be involved as this was not consistently reported across studies. The quality of the evidence was also low because of the small size of trials and risk of bias. However, the committee agreed there was enough evidence to recommend group circuit training as an option for people after stroke in addition to one-to-one walking therapy.

Some of the training in the studies included an educational element, such as advice on self-management, preventing falls or avoiding further strokes by controlling blood pressure and cholesterol levels. People who took part in programmes that included an educational element experienced greater improvements in walking and balance, compared to programmes without this element. This evidence was supported by the personal experience of some committee members, who also emphasised the positive effect of interacting with other people who have had a stroke. They agreed this peer support helps people to know what to expect from their rehabilitation, share solutions to problems and engage more with their therapy.

Overall, studies showed group circuit training, with or without an educational element, improved 6-minute walk test scores (a measure of how far the person can walk). An outcome indicated people who took part in group circuit training with an educational element did not perform as well at the 6-minute walk test, but the committee noted that the baseline values were different between the groups that included an educational element and groups that did not, which may explain the result. Some evidence also suggested people could walk faster and found it easier to complete daily tasks after attending group circuit training. Clinically important harms in adverse events were noted in groups receiving circuit training with an educational element, but the committee noted that the events were unlikely to be related to the circuit training itself.

As the studies showed there were potential benefits and there was no evidence of any harm caused by the training, the committee agreed that group circuit training could be considered in addition to individual therapy, if it included educational and peer support elements. Since there was some inconsistency in results (probably due to the variation in the content of the group training) they agreed it could be considered as an option for people after stroke, rather than something to be offered to everyone able to walk with or without assistance.

How the recommendation might affect practice

There is variation in the availability of group circuit training across current practice, so additional resources (including staff training costs) may be needed to introduce it in some areas. The committee agreed that circuit training can be delivered by band 4 or 5 physiotherapists, as well as physiotherapy assistants, suggesting that these interventions were unlikely to incur large additional costs and so would likely be cost effective. The educational requirement for this training may also impact on resources.

Return to recommendations

Mirror therapy for the upper or lower limb

Recommendations 1.13.30 and 1.13.31

Why the committee made the recommendations

The committee reviewed studies about mirror therapy that varied in setting, time period after stroke and the participants' affected limbs. In some cases, mirror therapy was also combined with other therapies. Despite these differences, the studies showed mirror therapy led to improved outcomes for people after stroke, especially in their activities of daily living, which was still the case after their 6-month follow-up. The committee agreed these improvements should be among the main goals for this type of treatment. They also recommended that mirror therapy could be used for the upper and lower limb, and provided as part of a rehabilitation programme, as this was the approach taken in many of the studies.

As the studies generally included people in the acute or subacute period after stroke, the committee agreed mirror therapy should ideally begin within 1 month of stroke. However, it could be of benefit in the months after stroke due to the brain's increasing ability to rewire itself. The committee noted that, if offered, mirror therapy should be provided on a frequent basis, so people experience its full benefits. They suggested sessions of around 30 minutes, 5 days per week, for at least 4 weeks, as this was the average length and frequency reported in the studies.

The committee agreed that a member of the stroke rehabilitation team, for example a physiotherapist or occupational therapist, should supervise mirror therapy at first with

a focus on explaining how it will work and what the person can expect from it. This was supported by a lay member on the committee who said they initially found mirror therapy 'somewhat alien and confusing' but, after further training from an occupational therapist, saw it as extremely beneficial. The committee agreed some people, for example those with cognitive difficulty, may need more supervision but others can complete the therapy alone, either in hospital or once home (with a loaned mirror).

The committee were unable to specify which groups of people would benefit from this therapy the most as the studies involved varied populations. Therefore, they made a recommendation for further research.

How the recommendations might affect practice

Mirror therapy is a recognised therapy but is not used as standard throughout the NHS. It is often used at the discretion or preference of healthcare professional as part of other therapy sessions. These recommendations would therefore require a change to current practice for some stroke units.

Additional resources may be required because healthcare professionals will need time to provide initial training and then to supervise the therapy for some people for around 4 weeks. However, it is expected that most people will be able to continue with mirror therapy unsupervised after initial training. There may be additional costs for stroke units if they need to purchase additional mirrors, especially if they are being given to people to take home. However, it is expected that these could be returned and reused.

Return to recommendations

Music therapy and interventions

Why the committee did not make any recommendations

The committee acknowledged that the evidence for music therapy and interventions showed they could have some benefit, but this was too limited to recommend their use by the NHS. Published studies were limited and difficult to compare because of the:

- small number of participants
- lack of cost effectiveness data
- use of varied outcome measures, which differed between studies but all lacked patient- and carer-specific outcome measures
- prominent use of a no-treatment comparison (or usual care provided to both groups, with the intervention group receiving additional music therapy offered)
- diverse type of audio and music on offer.

Based on this, the committee made a recommendation for further research. In particular, they highlighted the need for larger, pragmatic randomised controlled trials that compare music therapy or interventions with another social activity as a control, and where both types of intervention are provided for an equal amount of time. The committee also agreed there was a need for more studies to investigate whether music therapy and interventions improve patient-centred outcomes such as the ability to take part in everyday activities and participate socially, and should also evaluate the cost effectiveness of such therapy.

Managing shoulder pain

Recommendations 1.14.2 and 1.14.4

Why the committee made the recommendations

Post-stroke shoulder pain can be caused by a variety of factors (for example, glenohumeral joint subluxation, spasticity of shoulder muscles, impingement, soft tissue injury, rotator cuff tears, glenohumeral capsulitis or biceps tendonitis) which will differ between people. Moreover, the contributing factors can change over time. None of the interventions used in the studies were found to have a strong or consistent benefit, although the evidence was limited because it did not explore the underlying causes of shoulder pain. The committee recognised it was often difficult to identify the cause of shoulder pain in people after stroke, so they made a research recommendation directed at identifying the most useful tests to establish the causes of shoulder pain after stroke.

A small number of studies found some treatments to be beneficial. Taping, NMES, intra-articular corticosteroid injections and nerve blocks all showed evidence of clinically important reductions in pain and improvements in shoulder function. The committee agreed that these interventions could be treatment options as long as the cause of the person's shoulder pain had been taken into account.

How the recommendations might affect practice

All the recommended interventions for shoulder pain, except NMES, are already widely used in the NHS. NMES is just 1 of several treatment options and it is unlikely to be required for many people. The recommendations are therefore unlikely to lead a major change in practice.

Return to recommendations

Spasticity

Recommendations 1.15.1 to 1.15.8

Why the committee made the recommendations

The committee agreed it was important to differentiate between generalised and focal spasticity (spasticity focused on a particular limb or part of a limb) since the latter is more likely to benefit from treatment aimed at a specific area. Most of the available evidence was on focal spasticity, particularly of the upper limb.

Spasticity can be a difficult condition to treat and the committee agreed that people after stroke, and their families and carers, should be provided with information about it. The multidisciplinary stroke rehabilitation team should also be involved in individual plans for managing focal and generalised spasticity. They also agreed on the basis of their experience that spasticity can be managed through several interventions that have been widely used for a long time, for example stretches of affected limbs and education on how to avoid triggers.

For focal spasticity, the committee looked at the evidence for different types of botulinum toxin A, including Dysport, BOTOX and Xeomin. Only Dysport was found to be both cost effective and beneficial in terms of both reducing spasticity and improving activities of daily living. However, it was only cost effective if:

- it was used in the upper limb at a dose of 500 units per treatment session with injections spread across multiple points in the affected limb as necessary
- it was given at intervals of no less than 3 months and
- repeat injections were based on an assessment of need and discontinued if ineffective.

The committee looked at 3 forms of electrical stimulation therapy for focal spasticity: Functional Electrical Stimulation (FES), NMES and Transcutaneous Electrical Stimulations (TENS). All were found to reduce spasticity and improve the ability to use the affected limb when compared to usual care. NMES and TENS also showed benefits in comparison to sham or placebo treatment. However, improvements were modest and the reported benefits in the studies available to the committee were seen in time periods of less than 6 months rather than over the long-term. There was insufficient data to recommend 1 treatment over another. The 3 treatments are currently available in the NHS, particularly TENS which is widely used for various conditions, so the committee agreed they could be options for management of focal spasticity.

There was limited evidence on treatments for generalised spasticity, and only 1 study examining oral medicines was identified. However, the committee noted that oral baclofen and tizanidine have been used for this condition for many years. Oral baclofen is more commonly used, while tizanidine is used more by specialists. Therefore, the committee recommended that oral baclofen could be trialled for generalised spasticity. However, they noted that the medicine can sometimes be too effective in reducing muscle tone and can actually impair function more than the original spasticity. They therefore agreed it should only be used with close monitoring for adverse effects. They did not recommend tizanidine due to limited, low-quality evidence that did not show a clinically important effect.

The committee were also aware that people may need other treatment (such as intrathecal baclofen) because they have complex needs, or spasticity that is difficult to manage. There was insufficient evidence to recommend these treatments, so the committee used consensus to recommend that people should be referred to specialised units that are experienced in using them.

Evidence showed acupuncture for treating spasticity improved some, but not many, outcomes. The committee also noted this treatment is not widely available. They did not recommend its use but made a recommendation for further research.

How the recommendations might affect practice

Measures such as splinting, stretching and offering advice on how to avoid triggers are routinely used in current practice. Botulinum toxin A is widely used, but the current recommendation based on cost effectiveness data suggests that only a particular form and dose should be used. This will be cost saving for the NHS. Electrical stimulation therapy is also widely available and, although most units do not have access to all 3 forms, this recommendation will have a minimal effect on practice. Oral baclofen is a widely available, low-cost medicine, so this recommendation should not alter practice. These recommendations will not change practice for multidisciplinary teams, which already discuss spasticity in team meetings and are aware of the potential need to refer some people to a specialist.

Return to recommendations

Returning to work

Recommendation 1.16.5

Why the committee made the recommendation

A single study from South Africa (which was reviewed as part of the evidence for community participation programmes), whose participants took part in a focused return-to-work programme led by a physiotherapist and occupational therapist, found there were clinically important benefits to returning to work. Based on this, the committee made a consensus decision to recommend referral to return-to-work programmes, where available, for those wishing to resume work after stroke.

How the recommendation might affect practice

This recommendation may increase the demand for return-to-work programmes for people after stroke.

Return to the recommendation

Community participation programmes

Recommendation 1.17.6

Why the committee made the recommendation

Community participation programmes, which aim to improve people's access to activities in community after stroke, can cover a wide range of interests and activities. The content of each programme and the degree to which healthcare professionals are involved in running or overseeing them also varies. The most common form of activity in the evidence reviewed by the committee involved some type of group-based physical exercise, but programmes may also cover art or music activities. In general, people were found to benefit from these programmes in terms of measures of quality of life although, as expected, these benefits varied due to differences between the programmes used in the studies. Members of the committee also had positive experiences of taking part in these programmes and agreed they were of value to people after stroke. The committee therefore agreed people could be referred to a community programme if there was one available which met their needs. They also agreed family members and carers could be referred as well because they may experience social isolation as a consequence of caring and access to these programmes could improve their quality of life and reduce caregiver strain.

How the recommendation might affect practice

Current practice is inconsistent across the country, with some programmes commissioned by the NHS and delivered by charities, and others delivered purely by charities with funding from grants. Availability and programme type also varies. This recommendation may increase the demand for community participation programmes for people after stroke.

Return to the recommendation

Context

Stroke can have a devastating impact on the lives of people, their families and carers. Morbidity from stroke is the single largest cause of complex impairments and

limitations on activity. Mood disturbance, cognitive difficulties and fatigue are particular issues that exacerbate other problems and impede overall recovery.

Although stroke is one of the biggest causes of death in the UK, most people survive a first stroke. Thanks to improvements in organised stroke care and new acute treatments, the overall survival rate from first stroke has improved over the past 10 years. This has led to increases in the number of people in the community who need comprehensive post-stroke care and rehabilitation.

This guideline was first published in 2013. Since then there have been changes the way stroke services have been developed and the evidence base for stroke rehabilitation has grown.

Modern stroke care starts immediately after the onset of stroke symptoms. Most acute care is delivered within stroke units as part of organised stroke services. Post-acute care can be delivered in secondary or primary care, often by teams working across organisational boundaries.

Within such services, specialist multidisciplinary teams of appropriately skilled professionals work together to deliver goal-directed rehabilitation with the aim of helping people to maximise function, minimise their pain and distress, and enable them to live as independently as possible.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE webpage on stroke and transient ischaemic attack.

For details of the guideline committee see the committee member list.

Update information

We have reviewed the evidence on rehabilitation for people who have had a stroke.

Recommendations are marked **[2023]** if the evidence has been reviewed.

Recommendations that have been deleted, or changed without an evidence review

We propose to delete some recommendations from the 2013 guideline. Table 1 sets out these recommendations and includes details of replacement recommendations. If there is no replacement recommendation, an explanation for the proposed deletion is given.

For recommendations shaded in grey and ending **[2013, amended 2023]** we have made changes that could affect the intent without reviewing the evidence. Yellow shading is used to highlight these changes, and reasons for the changes are given in table 2.

For recommendations shaded in grey and ending **[2013]**, we have not reviewed the evidence. In some cases minor changes have been made – for example, to update links, or bring the language and style up to date – without changing the intent of the recommendation. Minor changes are listed in table 3.

See also the 2013 NICE guideline and supporting documents.

Table 1 Recommendations that have been deleted

Recommendation in 2013 guideline	Comment
Members of the core multidisciplinary stroke team should screen the person with stroke for a range of impairments and disabilities, in order to inform and direct further assessment and treatment. (1.1.5)	This recommendation has been deleted because this is discussed in later recommendations (1.2.1 and 1.2.2).
Hospitals should have systems in place to ensure that: • people after stroke and their families and carers (as appropriate) are involved in planning for transfer of care, and carers receive training in care (for example, in moving and handling and helping with dressing) • people after stroke and their families and carers feel adequately informed, prepared and supported • GPs and other appropriate people are informed before transfer of care	The components of this recommendation are covered in recommendations 1.1.11, 1.1.12, 1.1.13 and 1.1.14

• an agreed health and social care plan is in place, and the person knows whom to contact if difficulties arise • appropriate equipment (including specialist seating and a wheelchair if needed) is in place at the person's residence, regardless of setting. (1.1.10)	
Offer initially at least 45 minutes of each relevant stroke rehabilitation therapy for a minimum of 5 days per week to people who have the ability to participate, and where functional goals can be achieved. If more rehabilitation is needed at a later stage, tailor the intensity to the person's needs at that time (for intensity of therapy for dysphagia, provided as part of speech and language therapy, see recommendation 1.7.2). (1.2.16)	Replaced by: Offer people after stroke the following therapies, if needed, for at least 5 days a week: • physiotherapy for 1 to 2 hours a day • occupational therapy for at least 45 minutes a day • speech and language therapy for at least 45 minutes a day. (1.2.15).
Consider more than 45 minutes of each relevant stroke rehabilitation therapy 5 days per week for people who have the ability to participate and continue to make functional gains, and where functional goals can be achieved. (1.2.17)	This recommendation has been deleted as 1.2.15 specifies that therapy should be provided for at least 5 days a week for a minimum of the time specified. Recommendation 1.2.17 states that timing, sequencing and content of the sessions should be based on the person's needs.
If people with stroke are unable to participate in 45 minutes of each rehabilitation therapy, ensure that therapy is still offered 5 days per week for a shorter time at an intensity that allows them to actively participate. (1.2.18)	Replaced by: Where it is agreed with the person after stroke that they are unable, or do not wish, to participate in rehabilitation therapy for the full timings outlined in recommendation 1.2.15, ensure that any therapy needed is still offered for a minimum of 5 days per week. (1.2.16)
Screen people after stroke for visual difficulties. (1.6.1) Refer people with persisting double vision after stroke for formal orthoptic assessment. (1.6.2)	Replaced by: Offer all people after stroke a specialist orthoptic assessment as soon as possible after stroke. (1.8.1) Offer the person a specialist orthoptist assessment: • before discharge from hospital, if possible or • at an urgent outpatient appointment. (1.8.2)
Offer swallowing therapy at least 3 times a week to people with dysphagia after stroke who are able to participate, for as long as they continue to make functional gains. Swallowing therapy could include compensatory strategies, exercises and postural advice. (1.7.2)	Replaced by: Offer behavioural exercises (for example, chin tuck against resistance) to people with OPD for at least 5 days per week. (1.11.7) Consider physical stimulation (for example, thermal or tactile stimulation)

	for people with OPD at least 5 days per week. (1.11.8)
The aim of electrical stimulation should be to improve strength while practising functional tasks in the context of a comprehensive stroke rehabilitation programme. (1.9.17)	This recommendation has been deleted because it was a recommendation without an action and so was considered redundant.
Ensure that appropriate equipment is provided and available for use by people after stroke when they are transferred from hospital, whatever the setting (including care homes). (1.10.4)	This recommendation has been deleted because the provision of equipment is considered in recommendation 1.1.13 and so this was considered duplication.
Provide advice on prescribed medications in line with recommendations in the NICE guideline on medicines adherence. (1.11.7)	This recommendation has been deleted because it was thought that this doesn't address a specific problem for people after stroke.
Research recommendation: In people after stroke what is the clinical and cost effectiveness of intensive rehabilitation (6 hours per day) versus moderate rehabilitation (2 hours per day) on activity, participation and quality of life outcomes?	This recommendation has been deleted because the committee agreed that this was answered sufficiently for the review that was conducted.

Table 2 Amended recommendation wording (change to intent) without an evidence review

Recommendation in 2013 guideline	Recommendation in current guideline	Reason for change
A core multidisciplinary stroke rehabilitation team should comprise the following professionals with expertise in stroke rehabilitation: • consultant physicians • nurses • physiotherapists • occupational therapists • speech and language therapists • clinical psychologists • rehabilitation assistants • social workers. (1.1.3)	A core multidisciplinary stroke rehabilitation team should comprise the following professionals with expertise in stroke rehabilitation: • consultant physicians • nurses • physiotherapists • occupational therapists • speech and language therapists • clinical psychologists or clinical neuropsychologists • orthoptists • rehabilitation assistants • social workers. (1.1.3)	The guideline recommends a routine orthoptist assessment for all people after stroke and so this necessitates their inclusion in the multidisciplinary team. The rationale for this is given in the recommendations on vision (section 1.8). The committee acknowledged clinical neuropsychologists could also be included in the multidisciplinary team.

A comprehensive assessment of a person with stroke should take into account: • their previous functional abilities • impairment of psychological functioning (cognitive, emotional and communication) • impairment of body functions, including pain • activity limitations and participation restrictions • environmental factors (social, physical and cultural). (1.2.3)	Carry out a comprehensive assessment of a person after stroke that both identifies and takes into account: • their previous functional abilities • changes to, or impairment of, psychological and neuropsychological functioning relating to: ○ cognitive, emotional or behavioural functioning ○ mental health, including signs indicating an increased risk of suicide (suicidality) such as suicidal thoughts, plans, actions and attempts ○ the way the person is adjusting and coping after stroke ○ communication • impairment of body functions, including pain • activity limitations and participation restriction • environmental factors (social, physical and cultural). (1.2.3)	The committee wanted to highlight developments in the understanding of mental health since the publication of the 2013 guideline. The recommendation was changed to ensure that this was taken into account.
Assess emotional functioning in the context of cognitive difficulties in people after stroke. Any intervention chosen should take into consideration the type or complexity of the person's neuropsychological presentation and relevant personal history. (1.5.1)	Assess the person after stroke for changes to: • their emotional functioning • their behaviour • their mental health including the development of any signs that could indicate an increased risk of suicide (suicidality) such as suicidal thoughts, plans, actions and attempts or • the way they are adjusting and coping after stroke. (1.6.1)	The committee wanted to highlight developments in the understanding of mental health since the 2013 version of the guideline was published. The recommendation was changed to ensure that this was taken into account.

	When choosing any intervention for emotional functioning, take into account the type or complexity of the person's neuropsychological presentation and relevant personal history. (1.6.2)	
Manage shoulder pain after stroke using appropriate positioning and other treatments according to each person's need. (1.9.21)	Encourage or help the person to adapt their position to help ease shoulder pain. (1.14.3) Consider the following options for managing shoulder pain: • taping • NMES • intra-articular corticosteroid injection • nerve block (local anaesthetic). (1.14.4)	The committee agreed that the position required may be different for each person and so specifying a position would not be appropriate, but that working with the person to achieve this was important, hence 1.14.3. The committee completed an evidence review and could specify the treatments that could be provided in this version of the guideline, hence 1.14.4.

1 **Table 3 Minor changes to recommendation wording (no change to intent)**

Recommendation numbers in current guideline	Comment
Recommendations 1.1.1 to 1.1.6, 1.1.5, 1.1.6, 1.1.9, 1.1.10, 1.1.13, 1.1.17, 1.2.1, 1.2.4, 1.2.5, 1.2.8, 1.2.9, 1.12.2 to 1.2.14, 1.4.1, 1.4.3, 1.5.1 to 1.5.4, 1.5.6, 1.5.9, 1.6.3, 1.12.3, 1.12.7, 1.12.9, 1.12.11 to 1.12.14, 1.12.16, 1.13.1 to 1.13.3, 1.13.7, 1.13.8, 1.13.12, 1.13.15, 1.13.16, 1.13.17, 1.13.20, 1.13.22, 1.16.1 to 1.16.4, 1.17.1 to 1.17.3, 1.17.5.	Recommendations have been updated in line with the current NICE style for recommendations, including editing them in the direct style, or to reflect current practice, where possible. Yellow highlighting has not been applied to these changes.

2