



**Greater Manchester  
Neurorehabilitation & Integrated  
Stroke Delivery Network**

# **Compliance with the National Clinical Guideline for Stroke (2023) by Greater Manchester inpatient and community stroke services**

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## 1. Executive summary

- Network led audit of all Greater Manchester inpatient and community stroke teams conducted September-November 2024 for compliance with applicable recommendations within the National Clinical Guideline for Stroke 2023

### *Compliance by section and by team*

- Stroke units have greater compliance with applicable guideline recommendations than Community Stroke Teams (CST) in Sections 2 (Organisation of stroke services) and 5 (Long term support and secondary prevention), with similar levels between service types for Section 4 (Rehabilitation and recovery)
- Hyper Acute Stroke Units (HASU) have greater compliance than District Stroke Centres (DSC) for Section 3 (Acute care)
- All teams fully or partially meet the vast majority of applicable recommendations
- 19% of all teams fully comply with  $\geq 85\%$  of applicable recommendations (19% stroke units; 8% CSTs)
- 29% fully comply with 75-84% of recommendations (25% stroke units; 31% CSTs)
- 52% fully comply with  $\leq 74\%$  of recommendations (19% stroke units; 54% CSTs)

### *Section 2 (Organisation of stroke services)*

- Greater Manchester is 100% fully compliant with all recommendations deemed applicable at a regional level
- At a team level, full compliance is 52-92% for stroke units (average 75% HASUs; 72% DSCs) and 39-91% for CSTs (average 46%)
- Recommendations with poor compliance include: 2.5 Resources - inpatient stroke services; 2.8 Transfers of care from hospital – community stroke rehabilitation; 2.11 Psychological care – organisation and delivery
- All HASUs provide 7 day hyper acute therapy (except 6 days OT at Fairfield General)
- Acute/rehabilitation – 25% of stroke units provide 7 day services for all therapies; 11% offer PT and OT 6/7 days/week and 63% of teams deliver 5 day therapy only

### *Section 2 (hyper acute staffing 2.5B)*

- Therapy - 2 HASUs well-staffed with one understaffed for PT and OT
- Nursing - 1 HASU understaffed for qualified nurses; 2 are close to requirements
- Other professions - No core team has a Clinical Psychologist or Orthoptist (one has minimal cover). 2 HASUs have access to sufficient dietetics with 1 supported by a generalist service

### *Section 2 (acute/rehabilitation staffing 2.5B)*

- Therapy – No stroke unit meets  $\geq 85\%$  of the recommendation for all three therapies, with half  $\leq 74\%$  for PT/OT/SLT. Use of Rehabilitation Assistant roles is not included in audit
- Nursing – All stroke units meet or exceed the recommendations for total nurses, however, half do not have sufficient qualified staff
- Other professions - 38% of stroke units have not Clinical Psychologist, with staffing insufficient in the others. Poor access to Dietitians and Orthoptists in most stroke units

### *Section 2 (Community 2.8F)*

Therapy – Half of teams have PT ≥85% of recommendation. 30% are staffed ≥85% for OT, SLT and Rehabilitation Assistants.

Clinical Psychology – All but two CSTs have a post but most teams are well below recommended staffing levels

Nursing – All have a post but only one staffed sufficiently

Other professions – Only two CSTs have access to a dedicated Social Worker in the core team. Access to medical support by all teams is poor or non-existent.

### *Section 3 (Acute care)*

- Overall compliance is very good for care delivered in HASUs, (>90%) with DSCs 63-100% (average 81%)

### *Section 4 (Rehabilitation and recovery)*

- Compliance is similar between stroke units 47-84% (average 71%) and CSTs 61-86% (average 73%)
- Recommendations with poor compliance include: 4.1 Rehabilitation potential
- 4.5 Remotely delivered therapy and telerehabilitation; 4.13 Sex; 4.17 Motor impairment; 4.18 Arm function; 4.22 Walking; 4.26 Swallowing; 4.39 Anxiety, depression and psychological distress

### *Section 5 (Long term support and secondary prevention)*

- Compliance by stroke units is good in many teams 66-98% (average 86%) with CSTs faring less well 50-87% (average 66%)
- Recommendations with poor compliance include: 5.14.2 Hormone replacement therapy; 5.23 Physical exercise; 5.27 Further rehabilitation

## **2. Context**

The National Clinical Guideline for Stroke for the UK and Ireland provides authoritative, evidence-based practice guidance to improve the quality of care delivered to every adult who has a stroke. The guideline was updated in 2023 and provides a comprehensive range of recommendations in the following areas:

- Organisation of stroke services
- Acute care
- Rehabilitation and recovery
  - Principles of rehabilitation
  - Activity and participation
  - Motor recovery and physical effects of stroke
  - Psychological effects of stroke
  - Communication and language
  - Sensory effects of stroke
- Long term support and secondary prevention

The network last audited the region's inpatient and community stroke services in 2017 against the previous version of the guideline. In May 2023, following release of the update, it audited staffing levels in all teams (i.e. recommendations 2.5B and 2.8F). It was agreed that a full audit would be conducted in 2024 to allow services the opportunity to respond to new or updated recommendations.

During September-November 2024, the network audited its 8 stroke units and 13 community stroke teams against all applicable recommendations in sections 2-5 of the guideline.

Recommendations in sections 2-5 were reviewed by the network and determined to be applicable to:

- All teams
- Comprehensive Stroke Centre (CSC) only
- Comprehensive Stroke Centre and Primary Stroke Centres (PSC) i.e. Hyper Acute Stroke Units (HASU)
- All stroke units i.e. Comprehensive, Primary and District Stroke Centres (DSC)
- Community Stroke Teams (CST) only

14 recommendations in section 2 relating to the organisation of stroke services have been assessed by the network at a Greater Manchester level. 5 recommendations (mainly related to 6 month reviews) offered a “Not Applicable” option for CSTs where this activity is undertaken by the Stroke Association. Compliance for these teams has adjusted to take this into account.

Teams self-assessed themselves for each applicable guideline recommendation as a snapshot to determine if they are:

- Fully compliant with all aspects of the recommendation relevant to their team
- Partially compliant if complying with only part/some aspects of the recommendation all of the time, or fully complying less than 90% of the time
- Not compliant

RAG ratings have been applied to support easier interpretation of data with 85-100% designated green; 75-84% amber and 0-74% red.

The information in this report will be used by the network to help benchmark the region’s stroke services across the care pathway. It will help identify guideline recommendations with poor compliance by teams and highlight where work needs to be focused to collectively improve the consistency and quality of stroke service provision. Teams will also be able to review their own compliance to inform local improvement plans.

### **3. Results and analysis**

#### **3.1. Compliance by guideline section**

The table below includes all recommendations at a team level excluding section 2.5B and 2.8F on staffing levels as these have been calculated separately.

Stroke units have greater full compliance with guideline recommendations than CSTs in sections 2 (Organisation of stroke services) and 5 (Long term support and secondary prevention), with similar levels between team types for section 4 (Rehabilitation and recovery). HASUs have greater full compliance than DSCs for section 3 (Acute care).

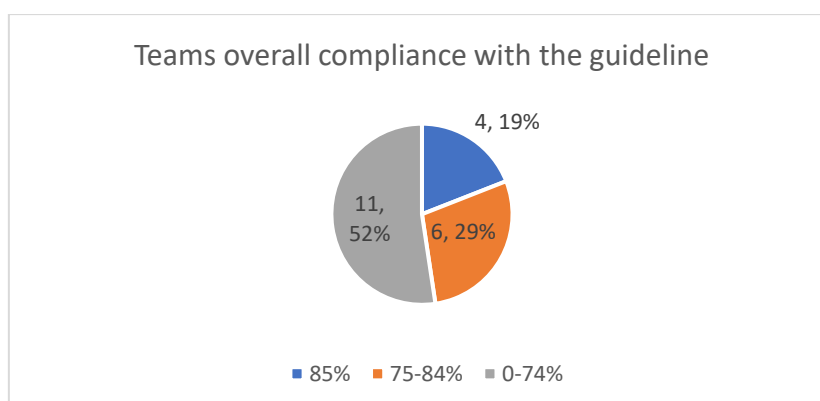
Section 3 (Acute care) has the greatest compliance and section 5 (Longer term support and secondary prevention) is also well complied with by stroke units, but with more variation in community.

Section 2 (Organisation of services) and section 4 (Rehabilitation and recovery) are less well complied with overall by teams although average around 75%.

Encouragingly, most teams at least partially meet the vast majority of guideline relevant to them, with recommendations not complied with in each section between 3-8%.

Green = 85-100%; Amber = 75-84%; Red = 0-74%.

<b>Section 2: Organisation of stroke services</b>		<b>Average full compliance (%)</b>	<b>Average partial compliance (%)</b>
Total number of recommendations	76		
Total applicable recommendations GM level	14	100	0
Total applicable recommendations CSC & PSC	54	75	21
Total applicable recommendations DSC	52	72	21
Total applicable recommendations CST	46	64	29
<b>Section 3: Acute care</b>		<b>Average full compliance (%)</b>	<b>Average partial compliance (%)</b>
Total number of recommendations	86		
Total applicable recommendations CSC	86	95	5
Total applicable recommendations PSC	80	91	9
Total applicable recommendations DSC	24	81	16
<b>Section 4: Rehabilitation &amp; recovery</b>		<b>Average full compliance (%)</b>	<b>Average partial compliance (%)</b>
Total number of recommendations	240		
Total applicable recommendations CSC & PSC & DSC	237	73	17
Total applicable recommendations CST	207	75	17
<b>Section 5: Long term support and secondary prevention</b>		<b>Average full compliance (%)</b>	<b>Average partial compliance (%)</b>
Total number of recommendations	91		
Total applicable recommendations CSC & PSC & DSC	86	86	12
Total applicable recommendations CST	30	66	23



4/21 (19%) of all teams fully comply with ≥85% of applicable recommendations - 3/8 (19%) of stroke units and 1/13 (8%) of CSTs. 6/21 (29%) of all teams fully comply with 75-84% of application recommendations - 2/8 (25%) of stroke units and 4/13 (31%) of CSTs. 11/21 (52%) of all teams were only able to fully comply with ≤74% recommendations - 3/8 (19%) of stroke units and 7/13 (54%) of CSTs.

In community, the ability to fully meet recommendations may be linked to levels of investment in services which varies across the region as CSTs are locally funded. There is also variation in Transient Ischaemic Attack (TIA) services provided by stroke units, as contracts are locally agreed and not part of the Greater Manchester inpatient stroke pathway and tariff.

### **3.2. Section 2: Organisation of stroke services**

Greater Manchester is 100% fully compliant with all 14 recommendations applicable at a regional rather than team level (2.3 B-E & 2.4 A-J).

For the other 76 recommendations applicable at a team level, compliance varies between teams ranging from 52-92% for stroke units (average 75% for HASUs; 72% DSCs) and 39-91% in CSTs (average 46%).

Recommendations with poor compliance include:

- 2.5 Resources - inpatient stroke services
- 2.8 Transfers of care from hospital – community stroke rehabilitation
- 2.11 Psychological care – organisation and delivery

Appendix 1 has further detail on recommendations where 50% or fewer teams are fully compliant.

#### **3.2.1. Staffing levels in services**

Section 2 includes 2 recommendations on staffing levels for stroke units (2.5B) and CSTs (2.8F). These are presented below including data on how many days a week therapy is provided (not in the guideline).

Teams provided staffing data for funded posts which may include vacancies. Total nursing has also been calculated as teams often have more unqualified than qualified staff compared to the recommended ratios of hyper acute 80:20 (qualified:unqualified) and acute/rehabilitation 65:35.

##### *Hyper acute*

All HASUs provide 7 day therapy services (except OT at 1 HASU). 1 HASU provides 7 day services for acute stroke patients as well as hyper acute.

##### *Acute/rehabilitation*

Only 1 stroke unit offers 7 day services across all three therapies, with 3 others offering PT and OT 6 or 7 days a week. 4 stroke units provide only 5 day services.

##### *Hyper acute*

Therapy – 2 HASUs meet ≥85% of the recommended levels for therapy, with one understaffed for PT and OT.

Nursing – 1 HASU is understaffed for qualified nurses with the others close to required levels.

Other professions - No team offers appropriate Clinical Psychology or Orthoptics support. Two have access to sufficient dietetics with one supported by a generalist service.

### *Acute/rehabilitation*

Therapy – No team meets  $\geq 85\%$  of recommendation for all three therapies, with One site achieving for two with OT and SLT, and two units for one - SLT. Therapy staffing levels are low on many units, with 3 having levels in all three professions  $\leq 74\%$ . The guideline does not take into account the use of Rehabilitation Assistant roles who support qualified therapists on all stroke units.

Nursing – All stroke units meet or in many cases exceed the recommended levels of staffing for total nurses, however, 4 units do not have sufficient qualified staff, especially Tameside General.

Other professions – 3 teams do not have a Clinical Psychologist, with the other 5 units only complying 19-52% of recommended staffing levels. 6 teams have access to a Dietitian within the core team at 18-89% of recommended levels. 1 unit does not have access to dietetics, with 1 unit supported by a generalist service. 1 team is currently running a pilot for visual impairment and have a new stroke Orthoptics service. 3 other units have access to a specialist ranging from 28-58% although 4 teams have no dedicated support.

### *Community*

Therapy – 6/13 (46%) CSTs have PT staffing  $\geq 85\%$  of recommended staffing levels, with 2 teams ranging 75-84% and the rest 44-68%. 4/13 (31%) of services are staffed  $\geq 85\%$  for OT, with the remainder between 30-70%. 4/13 (31%) of teams are staffed  $\geq 85\%$  for SLT, with 3 CSTs 75-84% and the remaining teams 29-73%. 4/13 (31%) of teams are  $\geq 85\%$  of recommended levels for Rehabilitation Assistants, with 1 on 75% and the rest 50-69%.

Clinical Psychology – 11/13 (85%) of teams have a post within the core team with 2 teams  $\geq 85\%$  of recommended staffing and another at 79%. The remaining teams with a Psychologist range 23-57% of required levels.

Nursing – Only 1 team has sufficient nurses. All other teams have a post but at only 30-74% of recommended levels

Other professions – Only 2 teams have a dedicated Social Worker in the core team (1 CSNRTs was part of a pilot) although teams may be supported from outside of the core team. 8 teams have no access to a dedicated Doctor and the remainder have minimal support between 1-30% of recommended staffing.

## **3.3. Section 3: Acute care**

This section has 86 recommendations, of which 24 apply to DSCs as well as to HASUs. Overall compliance is very good for care delivered in HASUs reflecting the advances made since the re-organisation of the region's services. Full compliance by HASUs is 90-95% with DSCs between 63-100% (average 81%).

Appendix 1 has further detail on recommendations where 50% or fewer teams are fully compliant.

## **3.4. Section 4: Rehabilitation and recovery**

This is the largest section in the guideline encompassing six domains of care. There are 240 recommendations, with almost all applicable to stroke units and 207 relevant

for community. Full compliance is similar between stroke units 47-84% (average 71%) and CSTs 61-86% (average 73%).

Recommendations with poor compliance include:

- 4.1 Rehabilitation potential
- 4.5 Remotely delivered therapy and telerehabilitation
- 4.13 Sex
- 4.17 Motor impairment
- 4.18 Arm function
- 4.22 Walking
- 4.26 Swallowing
- 4.39 Anxiety, depression and psychological distress

Appendix 1 has further detail on recommendations where 40% or fewer teams are fully compliant.

### **3.5. Section 5: Long term management and secondary prevention**

This section has 91 recommendations, with 86 relevant to stroke units and 30 applicable to community. Compliance by stroke units is good in many teams ranging 66-98% (average 86%) with CSTs faring less well overall at 50-87% (average 66%).

Recommendations with poor compliance include:

- 5.14.2 Hormone replacement therapy
- 5.23 Physical exercise
- 5.27 Further rehabilitation

Appendix 1 has further detail on recommendations where 50% or fewer teams are fully compliant.



#### 4. Appendix 1. Poorly complied with recommendations

The recommendations highlighted below are where 50% or fewer teams fully comply (section 2, 3 and 5) and where 40% or fewer teams fully comply for section 4 due to the very large number of recommendations.

#### Section 2: Organisation of stroke services

##### All teams

	2.6	2.8	2.8	2.8	2.8	2.11	2.11	2.11
	A People with acute stroke who can not be admitted to hospital should be seen by the specialist team at home or as an outpatient within 24 hours for diagnosis, treatment, rehabilitation, and risk factor management at a standard comparable to that for inpatients.	A Hospital inpatients with stroke who have mild to moderate disability should be offered early supported discharge, with treatment at home beginning within 24 hours of discharge.	I Members of the early supported discharge and community stroke rehabilitation services should be involved in hospital discharge planning and decision making by attending stroke unit multidisciplinary team meetings.	L People with stroke who are dependent in personal activities (e.g., dressing, toileting) should be offered a transition package before being transferred home that includes: visits or leave at home prior to the final transfer of care; training and education for their carers specific to their needs; telephone advice and support for three months.	M Before the transfer of care for a person with stroke from hospital to home (including a care home) they should be provided with: a named point of contact for information and advice; personalised written information in an appropriate format about their diagnosis, medication, and management plan.	B Services for people with stroke should offer psychological support to all patients regardless of whether they exhibit specific mental health or cognitive difficulties, and use a matched care model to select the level of support appropriate to the person's needs.	E Services for people with stroke should provide screening for mood and cognitive disturbance within six weeks of stroke (in the acute phase of rehabilitation and at the transfer of care into post-acute services) and at six and 12 months using validated tools and observations over time.	G Services for people with stroke should consider a collaborative care model for the management of people with moderate to severe neuropsychological problems who have not responded to high-intensity psychological interventions or pharmacological treatments. This care model should involve collaboration between the GP, primary and secondary physical health services and case management, with supervision from a senior mental health professional and should include long-term follow-up.
% full	14	29	43	43	48	48	43	48
% partial	38	57	38	48	43	48	52	38
% not	48	14	19	10	10	5	5	14

##### Stroke unit only

	2.5	2.5
	B A hyperacute, acute and rehabilitation stroke service should provide specialist medical, nursing, and rehabilitation staffing levels matching the recommendations in Table 2.5 in the guideline	J A stroke rehabilitation unit should have a single multidisciplinary team including specialists in: medicine; nursing; physiotherapy; occupational therapy; speech and language therapy; dietetics; clinical psychology/neuropsychology; social work; orthotics; with timely access to rehabilitation medicine, specialist pharmacy, orthotics, specialist seating, assistive technology and information, advice and support (including life after stroke services) for people with stroke and their family/carers.
% full	13	50

% partial	88	50
% not	0	0

### Community teams only

	2.8	2.8
	D Therapy provided as part of early supported discharge should be at the same intensity as would be provided if the person were to remain on a stroke unit.	F A multidisciplinary service providing early supported discharge and community stroke rehabilitation should adopt a minimum core team structure staffing levels matching the recommendations in Table 2.8 in the guideline
% full	15	0
% partial	69	69
% not	15	31

## Section 3: Acute care

### All stroke units

	3.2	3.2
	A Patients with acute focal neurological symptoms that resolve completely within 24 hours of onset (i.e. suspected TIA) should be given aspirin 300 mg immediately unless contraindicated and assessed urgently within 24 hours by a stroke specialist clinician in a neurovascular clinic or an acute stroke unit.	G For patients with suspected TIA in whom brain imaging cannot be undertaken within 7 days of symptoms, MRI (using a blood-sensitive sequence, e.g. SWI or T2*-weighted imaging) should be the preferred means of excluding haemorrhage.
% full	38	50
% partial	50	50
% not	13	0

### Hyper Acute Stroke Units only

	3.4	3.5	3.6
	E Patients with stroke with a delayed presentation for whom reperfusion is potentially indicated should have CT or MR perfusion as soon as possible (at most within 1 hour of arrival at hospital). An alternative for patients who wake up with stroke is MRI measuring DWI-FLAIR mismatch.	B Patients with acute ischaemic stroke, regardless of age or stroke severity, who were last known to be well more than 4.5 hours earlier, should be considered for thrombolysis with alteplase if: – treatment can be started between 4.5 and 9 hours of known onset, or within 9 hours of the midpoint of sleep when they have woken with symptoms AND – they have evidence from CT/MR perfusion (core-perfusion mismatch) or MRI (DWI-FLAIR mismatch) of the potential to salvage brain tissue (see Table 3.5.1 below). This should be irrespective of whether they have a large artery occlusion and require mechanical thrombectomy.	G The DIAGRAM score (or its components: age; intracerebral haemorrhage location; CTA result where available; and the presence of white matter low attenuation [leukoaraiosis] on the admission non-contrast CT) should be considered to determine the likelihood of an underlying macrovascular cause and the potential benefit of intra-arterial cerebral angiography.
% full	33	33	33

% partial	67	67	67
% not	0	0	0

## Section 4: Rehabilitation & Recovery

### Principles of rehabilitation

	4.1	4.1	4.2	4.5	4.5	4.5	4.5	4.5	4.5
	<p>G Statistically derived tools which predict future functional capacity should be considered to guide expectations of treatment or to predict risk: Tools should only be applied in the population and phase of stroke within which the tool was developed; Clinicians need to be trained to understand the limitations of tools, and how to use the tools effectively.</p>	<p>J People with stroke should receive a holistic annual review conducted by a professional with a broad range of skills and knowledge across physical, psychological and social domains. Those for whom new or ongoing stroke rehabilitation goals can be identified and agreed should be referred to stroke services for further rehabilitation.</p>	<p>A People with motor recovery goals undergoing rehabilitation after a stroke should receive a minimum of 3 hours of multidisciplinary therapy a day (delivered or supervised by a therapist or rehabilitation assistant focused on exercise, motor retraining and/or functional practice), at least 5 days out of 7, to enable the range of required interventions to be delivered at an effective dose. Rehabilitation programmes should be individualised to account for comorbidities, baseline activity levels, post-stroke fatigue, tolerance, goals and preferences. Therapy can be paced throughout the day, to accumulate at least 3 hours of motor/functional therapy; For people unable to tolerate 3 hours of therapy a day, the barriers to doing so should be fully assessed and actively managed with strategies to ensure they are able to participate in therapy and be active as far as possible; People undergoing rehabilitation after a stroke should be supported to remain active for up to 6 hours a day (including therapist-delivered therapy), for example through the use of open gyms, self-practice, carer-assisted practice, engaging in activities of daily living, and activities promoting cardiovascular fitness.</p>	<p>A People undergoing rehabilitation after stroke should be considered for remotely delivered rehabilitation to augment conventional face-to-face rehabilitation. Telerehabilitation programmes should: be personalised to the individual's goals and preferences; be used when it is considered to be the most beneficial option to promote recovery and should not be used as a substitute for essential in-person rehabilitation; be monitored and adapted by the therapist according to progress towards goals; be supplemented with face-to-face reviews and include the facility for contact with the therapist as required.</p>	<p>B People receiving rehabilitation after stroke should have an assessment of their ability to use assistive technology and programmes and equipment should be adapted accordingly.</p>	<p>C Stroke services should ensure adequate technology is available to enable access to telerehabilitation for people with stroke (this could be resourced via grants, community health services, library loan services etc.)</p>	<p>D People with stroke receiving telerehabilitation should be trained and supported in the use of the appropriate technology.</p>	<p>E Stroke rehabilitation staff who are recommending the use of telerehabilitation devices should be trained in their use, technological specification and limitations. This should include the review of technologies for appropriateness, safety and information governance (storage of personal data).</p>	<p>F Therapists should promote engagement and adherence to telerehabilitation through a coaching style relationship with the person with stroke.</p>
% full	24	25	0	29	38	0	29	24	33
% partial	38	38	71	33	43	48	33	48	29
% not	38	38	29	38	19	52	38	29	38

*Activity & participation*

	4.13	4.13	4.15
	A People with stroke should be asked, soon after discharge and at their 6-month and annual reviews, whether they have any concerns about sex. Partners should also have an opportunity to raise any problems.	B People with sexual dysfunction after stroke who want further help should be: assessed for treatable causes including a medication review; reassured that sexual activity is N contraindicated after stroke and is extremely unlikely to precipitate a further stroke; assessed for erectile dysfunction and the use of a phosphodiesterase type 5 inhibitor (e.g. sildenafil); advised against the use of a phosphodiesterase type 5 inhibitor for 3 months after stroke and/or until blood pressure is controlled; referred to a professional with expertise in psychosexual problems if sexual dysfunction persists.	F Authorised healthcare professionals should provide a statement of fitness to work (e.g. 'fit Ne') to support people to return to work, including recommended alterations to work patterns, tasks undertaken or environment.
% full	31	24	8
% partial	62	43	15
% not	8	33	77

*Motor recovery & physical effects*

	4.17	4.17	4.17	4.18	4.18	4.18	4.18	4.21
	C Clinicians should screen for, prescribe and monitor exercise programmes for people with stroke, e.g. using a 6 minute walk test or shuttle test. Programmes should be individualised to the person's goals and preferences. Screening equipment (such as treadmills, ECG and blood pressure monitors) should be available, and clinicians should liaise with other services that offer exercise-based rehabilitation (e.g. cardiac or pulmonary rehabilitation) with regard to integrating screening and exercise resources.	E People with stroke should be offered cardiorespiratory training or mixed training once they are medically stable, regardless of age, time since stroke and severity of impairment. Facilities and equipment to support high-intensity (greater than 70% peak heart rate) cardiorespiratory fitness training (such as bodyweight support treadmills and/or static/recumbent cycles) should be available; The dose of training should be at least 30-40 minutes, 3 to 5 times a week for 10-20 weeks; Programmes of mixed training (medium intensity cardiorespiratory [40%-60% of heart rate reserve] and strength training [50-70% of one-repetition maximum]) such as circuit training classes should also be available at least 3 days per week for 20 weeks; Exercise aimed at increasing heart rate should be used for those with more severe weakness, such as using arm cycles or seated exercise groups; The choice of programme should be guided by patients' goals and preferences and delivery of the programme individualised to their level of impairment and goals.	F People with respiratory impairment and at risk of pneumonia after stroke should be considered for respiratory muscle training using a threshold resistance trainer or flow-oriented resistance trainer. Training should be carried out for at least 20 minutes per day, 3 days per week for 3 weeks; The relevant clinicians (nurses, speech and language therapists, physiotherapists and support staff) should be trained in how to use the training equipment.	B People with stroke who have at least 20 degrees of active wrist extension and 10 degrees of active finger extension in the affected hand should be considered for constraint-induced movement therapy.	C People with wrist and finger weakness which limits function after stroke should be considered for functional electrical stimulation applied to the wrist and finger extensors, as an adjunct to conventional therapy. Stimulation protocols should be individualised to the person's presentation and tolerance, and the person with stroke, their family/carers and clinicians in all settings should be trained in the safe application and use of electrical stimulation devices.	H People with mild-moderate arm weakness after stroke may be considered for transcutaneous vagus nerve stimulation in addition to usual therapy. Implanted vagus nerve stimulation should only be used in the context of a clinical trial.	I People with reduced arm function after a stroke may be considered for robot-assisted movement therapy to improve motor recovery of the arm as an adjunct to usual therapy, preferably in the context of a clinical trial.	C People at high risk of falls after stroke should be offered a standardised assessment of fragility fracture risk as part of their stroke rehabilitation.

% full	14	5	5	24	33	5	10	19
% partial	71	67	29	52	52	19	5	48
% not	14	29	67	24	14	76	86	33

	4.21	4.22	4.22	4.23.2	4.23.3	4.24	4.26	4.26	4.26
	D People with stroke with symptoms of vitamin D deficiency, or those who are considered to be at high risk (e.g. household) should be offered calcium and vitamin D supplements.	D People who cannot walk independently after stroke should be considered for electromechanical-assisted gait training including body weight support.	E People with stroke who are able to walk (albeit with the assistance of other people or assistive devices) and who wish to improve their mobility at any stage after stroke should be offered access to equipment to enable intensive walking training such as treadmills or electromechanical gait trainers. To achieve this, training needs to be at 60-85% heart rate reserve (by adjustment of inclination or speed) for at least 40 minutes, three times a week for 10 weeks.	B People who continue to experience musculoskeletal pain should be offered pharmacological treatment with simple analgesic medication. Paracetamol, topical non-steroidal anti-inflammatory drugs (NSAIDs) or transcutaneous electrical nerve stimulation (TENS) should be offered before considering the addition of opioid analgesics.	E People with inferior shoulder subluxation within 6 months of hemiplegic stroke should be considered for neuromuscular electrical stimulation, unless contraindicated. The stimulation protocol should be individualised to the person's presentation and tolerance. The person with stroke, their family/carers and clinicians in all settings should be trained in the safe application and use of electrical stimulation devices.	J People with spasticity in their wrist or fingers who have been treated with botulinum toxin may be considered for electrical stimulation (cyclical/neuromuscular electrical stimulation) after the injection to maintain range of movement and/or to provide regular stretching as an adjunct to splinting or when splinting is not tolerated.	A Patients with acute stroke should have their swallowing screened, using a validated screening tool, by a trained healthcare professional within four hours of arrival at hospital and before being given any oral food, fluid or medication.	I People with dysphagia after stroke may be considered for neuromuscular electrical stimulation as an adjunct to behavioural rehabilitation where the device is available and it can be delivered by a trained healthcare professional.	J Patients with tracheostomy and severe dysphagia after stroke may be considered for pharyngeal electrical stimulation to aid decannulation where the device is available and it can be delivered by a trained healthcare professional.
% full	38	29	5	38	14	33	38	14	19
% partial	50	14	38	52	57	33	63	10	5
% not	13	57	57	10	29	33	0	76	76

**Psychological effects of stroke**

	4.39	4.39	4.40
	G People with stroke should be offered one-to-one motivational interviewing or problem-solving therapy, adapted as necessary for people with aphasia or cognitive impairment, as part of a multidisciplinary rehabilitation approach to prevent depression.	K People with depression after stroke may be considered for non-invasive brain stimulation in the context of a clinical trial.	E Members of the stroke multidisciplinary team should receive training in psychological care including apathy, at levels appropriate to the stepped care and matched care models.
% full	38	10	38
% partial	38	0	48

% not	25	90	14
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## Section 5: Long term management & secondary prevention

### All teams

	5.23	5.23	5.23	5.23
	C People with stroke should be offered cardiorespiratory training or mixed training regardless of age, time since having the stroke, and severity of impairment. Facilities and equipment to support high-intensity (greater than 70% peak heart rate) cardiorespiratory fitness training (such as bodyweight support treadmills, or static or recumbent cycles) should be available; The dose of training should be at least 30-40 minutes, 3 to 5 times a week for 10-20 weeks; Programmes of mixed training (medium intensity cardiorespiratory [40%-60% of heart rate reserve] and strength training [50-70% of one-repetition maximum]) such as circuit training classes should also be available at least 3 days per week for 20 weeks; The choice of programme should be guided by patients' goals and preferences and delivery of the programme individualised to their level of impairment and goals.	D People with stroke or TIA who are at risk of falls should engage in additional physical activity which incorporates balance and co-ordination, at least twice per week.	F Physical activity programmes for people with stroke or TIA may be delivered by therapists, fitness instructors or other appropriately trained people, supported by interagency working where possible. When delivered outside statutory health services, physical fitness training should be delivered by professionals with appropriate education and training in stroke and exercise (e.g. Chartered Institute for the Management of Sport and Physical Activity [CIMSPA]-endorsed exercise professionals or clinical exercise physiologists).	H Stroke services should consider working with other established rehabilitation services, such cardiac or pulmonary rehabilitation, to develop exercise-based programmes and ensure access to equipment and screening protocols.
% full	14	43	38	24
% partial	62	52	57	52
% not	24	5	5	24

### All stroke units

	5.14.2	5.14.2	5.15	5.25	5.27	5.27	5.27	5.27
	A Post-menopausal women with ischaemic stroke or TIA who wish to start or continue hormone replacement therapy should receive advice based on the overall balance of risk and benefit, taking account	B Post-menopausal women with ischaemic stroke or TIA should N be offered hormone replacement therapy for second	A People with stroke or TIA should be screened for obstructive sleep apnoea with a valid clinical screening tool. People who screen positive who are suspected of having sleep apnoea should be referred for specialist respiratory/sleep	F Unless advised to do so for other medical conditions, people with stroke or TIA should N routinely supplement their diet with: B vitamins or folate; vitamins A, C, E or selenium; calcium with or	A People with stroke, including those living in a care home, should be offered a structured, holistic review of their individual needs by a healthcare professional with appropriate knowledge and skills, using an appropriate mode of communication (e.g. face-to-face, by telephone or online). This review should cover physical, neuropsychological and social needs, seek to identify what matters most to the person, and be undertaken at 6 months after stroke, or earlier if requested by the person with stroke. At this 6-month review, the reviewer should discuss with the	B People with stroke who have further needs identified at a 6-month or subsequent review should be considered for intervention or referral for health or social care assessment if: new health or social care needs are identified; existing health or social care needs have escalated; further rehabilitation goals related to specific physical,	C People with stroke who have further needs identified at a 6-month or subsequent review that do N require health or social care input should be provided with information about or referred to other appropriate services to address their needs (e.g. community-based support groups provided by voluntary or statutory services). Healthcare professionals should discuss with the person	D Healthcare professionals providing 6-month or subsequent reviews of people with stroke should maintain an up-to-date overview of appropriate health and social care services, and other service providers (e.g. community support groups

	of the woman's preferences.	ry vascular prevention.	medicine assessment.	without vitamin D.	person with stroke who would be best placed to undertake the next review at 1 year post-stroke (or at another point in time, depending on the person's needs), as well as the agreed mode of communication. This review should be offered annually thereafter (or at another point in time, if requested by the person with stroke), for as long as a need for ongoing review continues and on request thereafter.	psychological, vocational, family or social needs can be identified and agreed; risk factors or co-morbidities are identified that would lead to deterioration if no action were taken.	if they could facilitate the transition with their agreement (e.g. by providing relevant information to the service, or by a scheduling a joint session).	and local councils) to facilitate transitions to other services as required.
% full	33	33	50	33	15	38	46	38
% partial	5	5	50	5	31	8	0	8
% not	0	0	0	0	23	23	23	23

*Community only*

	5.1
	D People with stroke or TIA who are receiving medication for secondary prevention should: receive information about the reason for the medication, how and when to take it and common side effects; receive verbal and written information about their medicines in an appropriate format; be offered compliance aids such as large-print labels, non-childproof tops and dosette boxes according to their level of manual dexterity, cognitive impairment, personal preference and compatibility with safety in the home; be aware of how to obtain further supplies of medication; have their medication regularly reviewed; have their capacity to take full responsibility for self-medication assessed (including cognition, manual dexterity and ability to swallow) by the multidisciplinary team as part of their rehabilitation prior to the transfer of their care out of hospital.
% full	46
% partial	23
% not	31