Schedule 2 – THE SERVICES

A. Service Specifications

1. Service name	Specialised Neurology Services (Adults)
2. Service specification number	D04/S/a - 250801
3. Date published	August 2025
4. Accountable Commissioner	NHS England Trauma Programme of Care https://www.england.nhs.uk/commissioning/spec-services/npc-crg/group-d/

5. Population and/or geography to be served

5.1 Population covered

This service specification covers the provision of Specialised Neurology Services (adults) and outlines how they work alongside Core Neurology services to deliver care using a population health approach.

Neurology services provide care to people suffering from diseases of the central and peripheral nervous systems. An estimated one-sixth of the UK population have a neurological condition. Neurological conditions encompass a diverse set of conditions from common conditions, such as migraine and epilepsy, to many rarer disorders, such as motor neurone disease, and ultrarare disorders.

Specialised Neurology Services are defined in the https://www.england.nhs.uk/publication/manual-for-prescribed-specialised-services/. This includes Consultant to Consultant neurology referral activity and elective inpatient activity undertaken for the purposes of diagnosis and management.

This document should be reviewed alongside the NHSE ICB Neurology Toolkit, which provides additional guidance on non-specialised aspects of the care pathway and emphasises a collaborative approach across the entire system to deliver seamless care.

Adult neurology services will routinely diagnose and treat individuals aged 16 and older with suspected or confirmed neurological conditions. Children aged between 16-17 years of age may be treated in a paediatric service on a case-by-case basis. People aged between 18 and 25 who are transitioning from paediatric care may require input from paediatric or adolescent specialist services (located in paediatric or adult service providers) depending on the specific needs of the individual.

Diseases of the brain can directly affect cognition, behaviour, and emotion. The interplay between neurological needs and psychiatric needs is complex. Collaborative input from both neurological and mental health services may be necessary for diagnosis and treatment. Depending on age, this mental health input may be from adult mental health services (neuropsychiatry, liaison psychiatry or general adult psychiatry) or child and adolescent mental health services.

5.2 Minimum population size

Specialised Neurology Services should be planned and delivered across populations ranging from 1 to 3.5 million. The planning geographies for Specialised Neurology delivery are referred to in this specification as Integrated Neurology Systems. Their organisation is described within the Service Model.

All individuals should be able to access neurology services equitably. This requires collaboration between NHS hospital trusts and Integrated Care Systems (ICS) to deliver Core Neurology services, defined below, consistently within every ICS, as close to home as safe and feasible.

6. Service aims and outcomes

6.1 Service aims

Adult neurology services aim to provide high quality patient-centred care to improve the quality of life of people with neurological conditions aged 16 and over.

Specialised neurology services must be planned and delivered at population level to ensure equitable access to specialised care.

Neurology services will meet the NHS Triple Aim:

- Promote health and wellbeing including minimising inequalities in access to neurology services and outcomes from neurological care.
- Ensure that services are of high quality.
- Ensure the sustainable and efficient use of resources at population level.

Services will:

- Identify and diagnose individuals with suspected neurological conditions.
- Provide timely access to diagnostics for neurological conditions, meeting the national diagnostic standard of 6 weeks.
- Provide timely access to treatments for neurological conditions, including all commissioned treatments.
- Improve patient and carer experience by providing person-centred care that maximises quality of life.
- Support integrated and responsive care for individuals with long-term conditions through collaboration between hospital and community providers. For patients with complex needs this should be supported by case management where appropriate, working directly with patients and carers.
- Ensure referral for appropriate psychiatric or psychological input to manage cognitive, behavioural, and emotional needs associated with neurological conditions.
- Ensure a planned and managed transition to adult care for children and young people diagnosed in childhood with a neurological condition.
- Work collaboratively with other providers of neurology services to ensure access to all specialised neurology services for their entire catchment population.

Addressing Health Inequalities

Services should be organised on a population health basis across an Integrated Neurology System. Services must ensure that patients:

- have equitable access to general *and* specialised neurology outpatient and inpatient services for the purposes of diagnosis and management.
- have equitable access to all commissioned specialised treatments for neurological conditions.
- have care provided as close to home as possible - with appropriate governance and oversight where necessary from multi-disciplinary teams linked to a Specialised Neurology Centre.

Services should:

- ensure that patients are central to decisions about their care, with consideration of individual access needs and reasonable adjustments.
- take appropriate steps to actively include people from seldom-heard and marginalised groups.
- support access to clinical trials and research in an equitable manner through engagement with Clinical Research Networks

To support inclusion of seldom heard groups, services should work to:

- identify which populations currently experience inequitable access with particular reference to patients with protected characteristics (including learning difficulties and disability) deprivation, ethnicity, pregnancy and maternity and patients within the Justice system.
- identify barriers to access at service level for these populations.
- Have appropriate adaptations.
- implement inclusion measures to improve equity.

6.2 Outcomes

NHS Outcomes Framework Domains & Indicators

Domain 1	Preventing people from dying prematurely
Domain 2	Enhancing quality of life for people with long-term conditions
Domain 3	Helping people to recover from episodes of ill-health or following injury
Domain 4	Ensuring people have a positive experience of care
Domain 5	Treating and caring for people in safe environment and protecting them from avoidable harm

Outcomes and metrics

There are currently no defined clinical outcomes universally applicable across all neurological conditions to be monitored at service level. Clinically appropriate condition-specific outcomes should be monitored on a per-patient basis.

A range of service-level quality metrics are available with regular data collections to support quality monitoring of Specialised Neurology Centres.

The full definition of the quality outcomes and metrics together with their descriptions including the numerators, denominators and all relevant guidance will be accessible at https://www.england.nhs.uk/commissioning/spec-services/npc-crg/spec-dashboards/ following the next scheduled quarterly refresh of the dashboard metadata document.

System-level metrics are available through the NHSE Neurology ICB Dashboard.

Applicable National Standards:

- Providers must ensure that all NICE-approved treatments with legal status (Technology Appraisals and Highly Specialised Technologies) are equitably available to patients within the Integrated Neurology System they serve.

Applicable Local Standards for Specialised Neurology Providers:

- Specialised Providers must ensure the standards of care are delivered, as set out in Annex A
- Specialised Providers must set up care arrangements with linked Neurology Units in District General Hospitals as part of an Integrated Neurology System. The delivery model should facilitate patient care for patients with specialised neurology needs locally within the DGH neurology unit wherever possible, arranging transfer of care (as outpatient or inpatient) only if necessary.
- This must include multidisciplinary team meetings between Specialised Neurology Centres and linked Neurology Units across the defined specialty pathways listed in section 7.1
- The format and frequency of meetings should be organised locally, but no less often than quarterly.
- Specialised Providers must have arrangements with linked Neurology Units in District General Hospitals to ensure patients requiring complex inpatient neurology care can be transferred to specialised inpatient beds when required.

7. Service description

7.1 Service Model

Services must be organised on a population basis to enable equitable access to core and specialised neurology services.

There are 3 categories of neurology service:

Core (non-specialised) Neurology Services:	These are community and secondary care neurology services. They are commissioned by ICBs and should be planned at ICS level. They may be delivered at various locations, including Neurology Units at District General Hospitals (DGHs), Specialised Neurology Centres or in community outreach clinics.

	Core services include: • General neurology outpatients receiving direct referrals from primary care. • Acute and liaison neurology services (supporting non-elective inpatient care) at sites receiving acute medical admissions • Routine neurological investigations (routine neurophysiology, neuroimaging such as CT and MRI). • Community neurotherapy services. • Primary care neurology pathways.
Specialised Neurology Services	These are tertiary services providing diagnostic and treatment support to patients with complex needs who cannot be optimally managed in a Core Neurology Service alone. These services need to be planned at ICS or multi-ICS level. National Standards and Specifications apply and NHS England is accountable for their delivery. These services must be delivered in all Integrated Neurology Systems. This may be at Specialised Neurology Centres or appropriately resourced DGHs as part of an Integrated Neurology System. Subspecialty level multidisciplinary teams (MDTs) and appropriate networked governance are required wherever these services are delivered. **Specialised Services include:** • consultant to consultant referral for specialist opinion on diagnosis and / or management. • subspecialty neurology clinics for long-term complex condition management • some specialised investigations such as inpatient EEG videotelemetry • elective inpatient and day case neurology beds for investigations and management.
Highly Specialised Neurology Services	These are a small number of nationally defined Highly Specialised services that are each delivered by 2-3 centres across England. A full list of these services is available in section 7.9.

Organisation of Neurology Services

The precise delivery infrastructure will vary according to local service structure and geography. However, services must be organised according to the principles below.

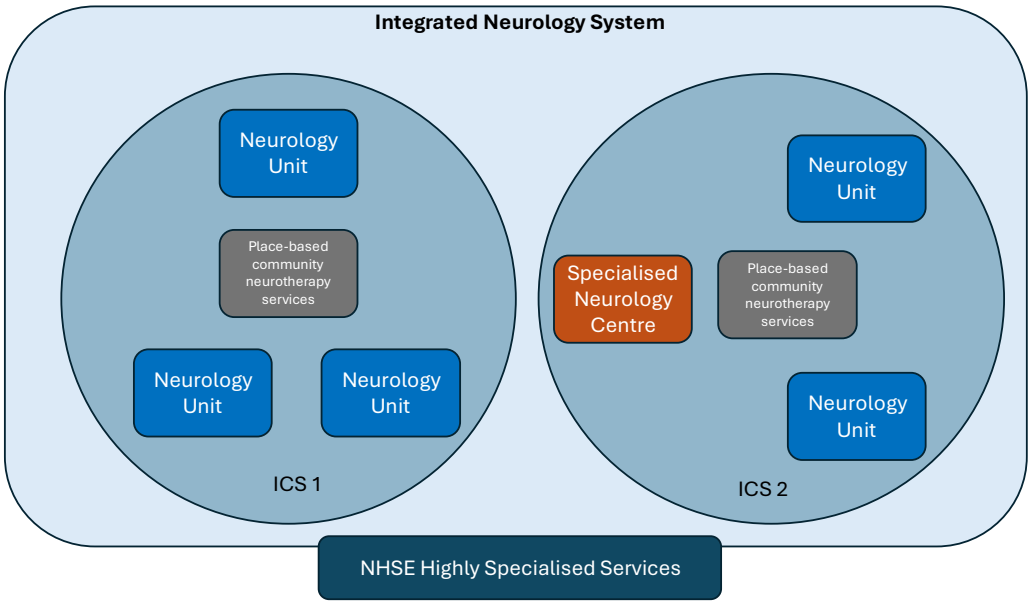


Figure 1

Figure 1 above: An example of an Integrated Neurology System encompassing a Specialised Neurology Centre and local neurology units working together to provide comprehensive care to a defined geographical population. Specialised neurology clinical leadership is provided through the Specialised Neurology Centre.

Integrated Neurology Systems

- An Integrated Neurology System is the overarching geography across which Specialised Neurology Services should be planned.
- An Integrated Neurology System consists of one or more commissioned Specialised Neurology Centres, linked Neurology Units, and linked community neurorehabilitation and disability management services.
- The 2021 GIRFT Neurology Report refers to these operational delivery geographies as “Neuroscience Regions”.
- The catchment population of these systems ranges from 1.0 to 3.5 million and may encompass one or more ICS.
- Services should be organised collaboratively among providers within an Integrated Neurology System, ensuring general neurology clinics and specialist clinics for common neurological conditions are available within every ICS.
- All sites at which general outpatient neurology activity occurs must have explicit pathways in place to ensure patients can consistently access more specialised care at Specialised Neurology Centres if not available locally through networked delivery.
- For commoner neurological conditions subspecialty networks managed by Specialised Neurology Centres should support delivery of these services at sites outside the Specialised Neurology Centre.

Specialised Neurology Centres

- Specialised neurology services are primarily delivered through Specialised Neurology Centres (SNC). The majority of current centres are Regional Neuroscience Centres mostly with co-located neurosurgery units.
- These centres must have access to inpatient elective neurology and day case beds for tertiary investigation and management to serve an Integrated Neurology System.
- These centres are required to support delivery of subspecialty neurology services across an Integrated Neurology System by collaborating with partner organisations to ensure patients beyond their immediate locality (e.g., those accessing care through linked Neurology Units) can access specialised care equitably.
- Specialised Neurology Centres should have defined collaborative working arrangements with Neurology Units at District General Hospitals and community neurorehabilitation services, forming an Integrated Neurology System. This should function as a collaborative system rather than a hub and spoke arrangement (i.e. arrangements should not necessarily require patients to travel to the Specialised Centre for all care).

Neurology Units

- A neurology unit is a neurology service based in a hospital that does not host a commissioned Specialised Neurology Centre.
- There are of 3 types
    - DGH neurology services with onsite inpatient neurology beds
    - DGH neurology services where neurologists are based on site but without inpatient beds
    - DGH neurology services provided through outreach by visiting neurologists from other sites
- Neurology Units in District General Hospitals must have a defined Specialised Neurology Centre with whom they have established links for networked delivery of specialised neurology including premises, tertiary referrals and complex inpatient care when required.

<u>Service Requirements</u>

Core Neurology Services

Core Neurology services including outpatient general neurology services, general ward liaison and acute neurology services, should be accessible at all hospitals taking acute medical admissions (neurology units at district general hospitals and specialised neurology centres). This includes support for acute medical services, such as rapid access admission avoidance clinics or same-day emergency care services.

Patients with neurological conditions account for 10-20% of all acute medical admissions at acute hospital sites. Arrangements should be in place such that these sites:

- Provide access to general neurology outpatient clinics.
- Provide a weekday liaison neurology service that supports the care of patients with neurological conditions admitted through the local acute medical service.

- Have established pathways for specialised care, either at the site or through clearly defined referral and MDT pathways with Specialised Neurology Centres for complex diagnosis and treatment. This should be to defined centres with which there are formal relationships.
- Out of hours neurology advice (which may be remote) is available for inpatients, either through local provision of an on call service or through arrangements with a Specialised Neurology Centre within an Integrated Neurology System.

Sites that host a hyperacute stroke unit delivering thrombolysis for stroke will see significantly higher rates of conveyance for non-stroke acute neurological conditions and should have appropriate staffing, processes and pathways in place for the management of these cases, as well as timely repatriation processes.

Cohorted specialist outpatient neurology clinics for common neurological disorders may be established in some Neurology Units at DGH sites. These clinics group secondary care patients with specific common conditions (e.g., epilepsy or headache) into dedicated sessions, rather than dispersing them across general neurology clinics. This approach fosters local specialist expertise, enhances patient care, and facilitates more efficient collaboration with tertiary services. These clinics differ from consultant-to-consultant referral specialised clinics, which focus on providing diagnostic and management advice for secondary care. While not all sites will have these clinics, access to major subspecialties should be ensured within each Integrated Care System to maintain comprehensive local care.

Specialised Neurology Services:
Specialised Neurology Centres must provide services covering the major groups of neurological conditions listed below.

The major areas of adult specialised neurology activity that must be provided at each Specialised Neurology Centre covered by this specification include access to services for consultant to consultant outpatient specialist advice and specialist elective investigation and treatment services for:

- **Epilepsy** – for assessment and management of refractory epilepsy, including clear pathways for onward referral for advanced therapies such as epilepsy surgery.
- **Movement disorders** – including diagnosis and management of rare or movement disorders and pathways for advanced therapies for Parkinson's disease and other movement disorders.
- **Multiple Sclerosis and other inflammatory disorders of the Central Nervous System** – including clear pathways for access to disease-modifying therapies, delivered as close to home as safe and feasible.
- **Neuromuscular Disorders** – including services for complex Muscle, Myasthenia, Peripheral Nerve and Motor Neurone Diseases.
- **Functional Neurological Disorders** - for assessment, formulation and treatment planning for patients who have not sufficiently benefited from first line management within core neurology services.
- **Cognitive Neurology Services** – for young onset or rare cognitive disorders such as early-onset Alzheimer's disease or Frontotemporal dementias. Local pathways should be in place for interface with local old age psychiatry memory services.

- **Complex Headache** Services - for tertiary diagnosis and management of rare and complex headache disorders, such as refractory trigeminal autonomic cephalalgias, or refractory idiopathic intracranial hypertension. The majority of headache services including delivery of advanced therapies for refractory migraine are not specialised and form part of core neurology services.

Further detail regarding core and specialised neurology care for these service areas is outlined in Annex A.

These should be organised on a multiprofessional and multidisciplinary basis to deliver the service across an Integrated Neurology System. Where this is not possible at an individual Specialised Neurology Centre, there must be clearly established arrangements with an alternative specialised provider for the delivery of care to ensure equity of access. In some cases, MDTs may be required across multiple Specialised Neurology Centres to ensure access to appropriate expertise and governance.

Services required at some centres:

Centres hosting Major Trauma Centres must have pathways in place for assessment and management of Traumatic Brain Injury, working closely with rehabilitation services.

Neuro-oncology pathways including neurology support should be delivered in collaboration with neurosurgery and oncology services in Regional Neuroscience Centres.

The following services are not expected to be available at all sites, but clear pathways and multidisciplinary working with other centres should be in place for the provision of:

- Autonomic neurology services
- Neuro-ophthalmology services (neurological and ophthalmological)
- Neuro-otology services / Audiovestibular medicine
- Neurological sleep services

Clear pathways for referral and support from the following services must be available for:

- Neuropsychiatry
- Liaison Psychiatry
- Neuropsychology
- Neurogenetics – Neurogenetic services are provided through partnership between neurology services and specialist Genetics / Genomics services.
- Rehabilitation for patients with Acquired Brain Injury

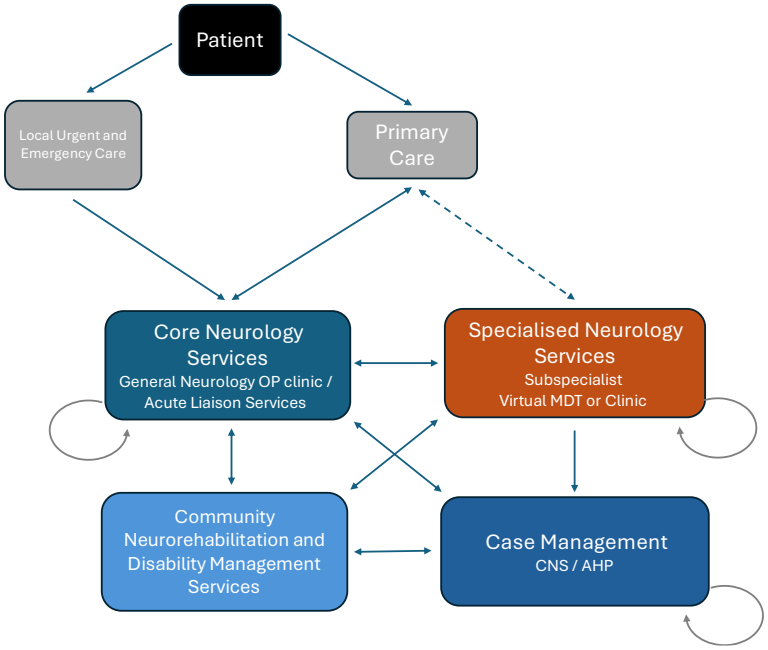
Rare Neurological Conditions

A rare disease is defined as a condition which affects less than 1 in 2,000 people. Most such conditions can be managed within a Specialised Neurology Service. However, for particularly rare conditions, expertise may not be available or feasible at every Specialised Neurology Centre. A supra-regional approach involving fewer centres with specialist expertise may be necessary. Referral processes to such supra-regional specialist units need to ensure equitable access to care. Such services should be organised in accordance with the principles of the UK Rare Diseases Framework.

For a very small number of defined superspecialist neurology services, it is necessary to organise these nationally at 2-3 centres with networked referral and delivery across England through defined national Highly Specialised Services. A full list of these services is available in section 7.9

7.2 Pathways

Overall patient pathway



Primary Care Outpatient Referral Pathways

Patients with neurological conditions will initially present to general practitioners or, in a minority of cases, to emergency departments. All neurology services will accept referrals from primary care for assessment and management of suspected neurological conditions (secondary care referrals).

Services should work collaboratively with general practitioners and primary care to support efficient referral management processes. Not all neurological conditions require secondary care referral. Some, such as mild essential tremor or low-frequency episodic migraine may be adequately managed in primary care alone. All services will have advice and guidance pathways in place to support primary care with secondary care requests and provide more efficient access to neurology expertise without necessarily requiring a formal patient referral or face-to-face consultation.

All providers within Integrated Neurology Systems should work with ICBs to provide clear system-wide management and referral guidance for common neurological conditions, such as migraine, to ensure that limited outpatient capacity is used consistently and appropriately.

Specialised Outpatient Referral Pathways

Specialised neurology outpatient pathways allow access to specific expertise available within a specialised pathway of care, which is not within the scope of the referring clinician's expertise.

Such pathways may be accessed through:

- Consultant to Consultant outpatient referral to a subspecialty service, or direct primary care referral into a Specialised service where this is appropriate.
- Referral into a multi-disciplinary team meeting (MDT meetings), ordinarily including the referrer in the discussion. These MDT meetings are a core part of the delivery of specialist neurology care. They can allow access to specialist expertise earlier in the pathway and reduce delays or unnecessary referrals through traditional outpatient referral pathways. Virtual MDT meetings provide greater accessibility and facilitate more efficient system working.

Pathways for Low Volume High Complexity conditions and treatments

The majority of neurological conditions will be managed within Integrated Neurology Systems, through core neurology services or a Specialised Neurology Centre. All Specialised Neurology Centres will provide services outlined in Section 7.1.

For a small number of low volume, high complexity conditions there may not be sufficient volumes, or sufficiently widespread condition-specific expertise, to provide a service at all 27 Specialised Neurology Centres. For these conditions expertise will be concentrated in a smaller number of centres nationally. It is expected that cases will be discussed at regional and supra-regional MDTs. Access to further specialist expertise if required should be established through referral to identified Specialised Neurology Centres with relevant expertise.

Elective Pathways for Inpatient Admission and Treatment

Specialised Neurology Centres provide inpatient beds for the assessment and management of complex neurological conditions for a regional population.

A core principle of delivery of elective neurology activity is that this should be equitable for the catchment population of the Integrated Neurology System and include mechanisms to ensure neurologists at linked Neurology Units within the Integrated Neurology System are able to obtain elective admission for patients who need it.

To ensure adequate, timely and equitable access to specialised inpatient neurology care, once specialised neurology investigation and treatment is complete, repatriation of care to local secondary care should occur within 48 hours. This includes repatriation to secondary care beds within the same hospital if required.

Early coordination with social care services is required to arrange necessary care packages prior to discharge.

Non-elective (Emergency) Admission Pathways

Patients frequently attend Emergency Departments with a range of neurological symptoms. Many patients will be admitted directly through acute provider trusts into acute medical beds.

Acute and liaison neurology pathways are required at all sites admitting acute medical inpatients to ensure that these patients received timely specialist neurology input to clarify diagnosis, support treatment decisions, expedite discharge and establish ongoing follow up.

In addition, rapid access to acute neurology clinics or Same Day Emergency Care pathways with robust referral criteria should be in place at all providers receiving acute medical admissions to reduce avoidable neurological admissions.

Rehabilitation
Neurology patients should have timely access to the full range of inpatient and outpatient Specialised Neurorehabilitation services. See the Specialised Rehabilitation Service Specification for further information.

Community neurotherapy services, commissioned by ICBs, play an essential role in supporting rehabilitation and reablement for patients with neurological conditions. To ensure comprehensive care, all neurology services should establish clear pathways for seamless two-way communication and collaboration with community neurotherapy services, facilitating ongoing support and continuity of care.

Integrated Physical and Mental Health Care Pathways
Specialised Neurology services must have access to both Neuropsychiatry and Neuropsychology. These services form an integrated part of the multi-professional team managing patients with neurological conditions. This is required to ensure safe care for patients with neuropsychiatric needs in the context of neurodegenerative disorders such as Parkinson's disease and Huntington's disease, acquired brain injury, planning for neurostimulation or epilepsy surgery and functional neurological disorder, among other scenarios.

Service provision is centred on:

- Patients with known or suspected neurological conditions and associated psychiatric and cognitive symptoms.
- Patients with severe and disabling neurological symptoms without identified structural neurological cause.

Specialised regional neuropsychiatry and neuropsychology outpatient services should be available to support complex care at Specialised Neurology Centres. Neuropsychiatry and Neuropsychology services should be available to patients within each Integrated Neurology System to provide equitable access to assessment, treatment and multidisciplinary virtual inreach and expertise to neurology services in Neurology Units that do not have local provision.

There should be clear guidance available from the ICB on appropriate providers with clearly defined pathways for referral. Where neuropsychiatry and neuropsychology liaison services cannot be developed for inpatients in non-specialised settings, consultation-liaison mental health teams and clinical health psychology are appropriately placed to provide mental healthcare during inpatient admissions. These teams should have defined pathways for obtaining neuropsychiatry and neuropsychology expertise for their patients during the inpatient admission.
At the point of discharge from inpatient hospital settings, there should be specified referral pathways into Neuropsychiatry and Neuropsychology outpatient services when indicated to enable integrated, long term specialist care within neurosciences.

Pathways and service models will differ between Integrated Care Systems (ICSs). ICBs should ensure that Neuropsychiatry and Neuropsychology expertise is available to

patients with Neurological conditions. Where there is no local service provision within a neurology service, ICBs should collaborate across multi-ICB geographies to secure service provision.

Pathway for Transition from Paediatric to Adult Services

Many neurological long-term conditions manifest and are diagnosed in childhood, including neurodevelopmental conditions such as cerebral palsy. Services for children and young people are outlined in the national paediatric neurosciences (neurology) and paediatric neurosciences (neurodisability) service specifications. As these children become adults, they will need to be managed by adult services. Transition is the purposeful and planned process of supporting young people to move from children's to adults' services.

Adequate planning and support is required to ensure continuity of care and continued engagement of young people in their health and social care. The process should therefore ensure that young people are equal partners in planning and decision-making and that their preferences and wishes are central throughout transition. NICE guidelines and quality standards for transition should be followed. These recommend that the process of transition into adult services should start by age 13-14 (or as developmentally appropriate) and continue until the young person is embedded in adult services, potentially up to the age of 25.

Close collaboration between paediatric and adult neurology services is required for effective transition. Given the centralised nature of paediatric neurology services in the UK, paediatric services should actively engage with adult neurology services close to the patient's home so that patients transition to more local adult services with proper support and appropriate expertise. Local care enhances access to community services and emergency care, promoting integrated care around the young person.

Pathways for Palliative and End of Life Care

Palliative and end of life care is an essential part of the management of some neurological conditions, particularly neurodegenerative disorders. Neurology services will proactively identify patients approaching the end of life and ensure that they receive appropriate palliative and end of life care (both non-specialist and specialist palliative care). This importantly includes advance care planning – the process of discussing and documenting preferences for medical care in anticipation of a time when they may no longer be able to make their own decisions.

Pathways for pre-pregnancy and perinatal care

Many neurological conditions are more common in women. Furthermore, some neurological conditions may be directly associated with, or have treatments associated with, specific risks during pregnancy and the perinatal period.

In accordance with NICE guidelines, pathways are required with primary care and constituent maternity services to ensure timely access to specialist multi-disciplinary clinics for pre-pregnancy counselling where there are potential implications (e.g. for epilepsy, multiple sclerosis); rapid optimisation of medication in early pregnancy for unplanned pregnancy; and postnatal medications review.

The MDT should include a midwife, obstetrician and neurologist with a special interest in obstetric medicine. For complex cases or where no such MDT exists, care should be co-ordinated with a Maternal Medicine Centre in line with the local Maternal Medicine Network's agreed protocols for management and escalation.

7.3 Networked Delivery

All Providers are required to participate in a networked model of care as part of an Integrated Neurology System linked to one or more Specialised Neurology Centres. This is articulated in Section 7.1.

An Integrated Neurology System will deliver services as part of a co-ordinated, collective whole system approach. This should be explicitly planned on a population health basis to enable equitable access to specialised neurology care for all - irrespective of where they live.

Specialised Neurology Centres should operate as part of a collaborative with ICBs and Trusts forming part of their referring cohort. They must provide system leadership through networked care and MDT support to linked DGHs. They should operate in an integrated care model across tertiary, secondary, primary and community care with formal governance in place.

Networked Delivery of Specialised Neurology Care

The key principles for delivering networked care in Integrated Neurology Systems are:

- Subspecialty Clinical Networks in major neurology subspecialties with multidisciplinary and cross organisational working within the Integrated Neurology System to support optimal care delivery closer to home.
- Multi-disciplinary Complex Case Meetings, managed by Subspecialty Clinical Networks – to support diagnostic and treatment decisions to be made without necessitating consultant to consultant referral and to provide governance for high-risk clinical decisions.
- Delivery of specialist clinics as close to home as safe and feasible, including at Neurology Units in District General Hospitals. These will normally be cohorted specialist secondary care clinics, but may include tertiary consultant-to-consultant referral clinics. This may be through subspecialists employed locally at DGHs or outreach clinics from other sites, supported by subspecialty networks and MDTs.
- Care Coordination and Case Management approaches to provide single points of access to specialised care and individualised care for patients with complex needs requiring multi-professional input.
- Access to Clinical Trials through Clinical Research Networks.

Networked delivery should also support whole pathway and whole life care, through:

- Close working with general paediatric and paediatric neurology services to enable smooth and gradual transition between paediatric and adult services.
- Close working with Community Neurotherapy services to ensure wraparound care, rehabilitation and appropriate disability management.
- Close working with palliative care services and hospices to support personalised palliative and end of life care.

- Close working with Maternal Medicine Centres to ensure co-ordinated specialist care for complex conditions in and around pregnancy.

Networked Governance in Integrated Neurology Systems

Specialised Neurology Centres are responsible for ensuring appropriate governance arrangements are in place within the Integrated Neurology System. They act as a coordinator to ensure appropriate referral pathways are in place to provide consistent access to specialist care, delivered as close to home as possible with regular review by local service providers. Effective and equitable whole system functioning relies on clear lines of communication for outpatient and inpatient referrals, as well as for the repatriation of care with partner neurology units.

Neurologists and allied health professionals should never work in professional isolation. Subspecialty clinical networks and routine MDT working should be established across Integrated Neurology Systems to deliver consistent specialist neurology care.

Specialised Neurology Centres must
- Provide system leadership and coordination
- Ensure access to subspecialty MDT advice as described in Section 7.1
- Support education and workforce development in order to ensure patients can receive care as close to home as possible, including outside the Specialised Neurology Centre

All providers within the Integrated Neurology System must:
- ensure there is a minimum of one identified clinician responsible for network participation for their organisation
- ensure job plans include 2 Programmed Activities (PAs) for continuing professional development and clinical governance activities to deliver networked specialised neurology care.

Governance arrangements must clearly outline how to access care pathways, particularly for managing rarer conditions.

7.4 Essential Staff Groups

Delivery of holistic care for people living with neurological conditions requires multiprofessional input from a wide range of professionals working in a collaborative and flexible manner. The precise workforce strategy taken will depend on local service configurations. However, the following staff groups are essential elements of multidisciplinary neurological teams.

<u>Medical Staff</u>
Consultant medical staff:
- Neurology
    - For Neurology Units at District General Hospitals this will include, at minimum, consultants providing general neurology outpatient activity and liaison neurology (ward referral) support.
    - For Specialised Neurology Centres this will include access to subspeciality expertise in defined subspecialties described in Section 7.2

    - All subspecialty services must have access to an MDT within the centre or wider Integrated Neurology System.
- Neurophysiology
- Access to neuroradiology
- Access to neuropsychiatry
- Access to liaison psychiatry

Within an Integrated Neurology System subspecialty consultant expertise must be available for all common neurological condition groups outlined in section 7.2.

Neurologists and allied medical professionals should never work in professional isolation. Subspecialty networks and routine MDT working should be established across Integrated Neurology Systems to deliver consistent specialist neurology care. In particular, neurologists should have contracts that allocate Programmed Activities (PAs) for continuing professional development and clinical governance specifically to facilitate networked delivery of specialised neurology within an Integrated Neurology System.

The medical workforce also includes training grade medical staff, staff grade doctors and Associate Specialists. These staff play a key role in the sustainable delivery of neurology services.

Nursing Staff

- Ward-based nursing staff for inpatient beds and day case units.
- Clinical Nurse Specialists including Advanced Clinical Practitioner roles supporting case management.
- Outpatient nursing.

Allied Health Professionals

A range of allied health professionals provide key functions within neurology services, including Clinical Neuropsychologists, Clinical Physiologists in Neurophysiology, Neuroradiographers, Dieticians, Neurophysiotherapists, Neuro Occupational Therapists, Neuro Speech and Language therapists, Orthotics.

Additional Professional, Scientific and Technical

Appropriate professional staff, including registered Pharmacists, Psychologists, Social Workers and other roles such as Technicians and Psychological Therapists.

Enhanced and advanced practice

Neurological care can be delivered efficiently through a range of professions across different levels of practice working within integrated multiprofessional teams. Some functions traditionally undertaken by medical staff are delivered effectively and efficiently by other healthcare professionals within appropriate governance frameworks. Advanced Clinical Practitioner roles, Clinical Nurse Specialist and Specialist Therapist roles can support a key case management function for patients with Long Term Neurological Conditions such as MS, Parkinson’s disease, Epilepsy, Neuromuscular disorders and Functional Neurological Disorders.

Allied staff in case management roles should have access to specialist training and development in their roles. They also need appropriate supervision and regular appraisal.

Administrative and management staff
Services will require appropriate operational management and administrative staff to support routine care.

Administrative roles such as Pathway Coordinators working alongside members of the neurology team in case management roles improve efficiency by helping ensure that specialist nursing and therapy staff are focused on patient care and not undertaking basic administrative and coordination tasks.

7.5 Essential equipment and/or facilities

Estate and Facilities

Patients with neurological conditions may experience significant cognitive, communication and mobility disabilities. Clear signage, and adequate wheelchair-accessible space is required throughout. This includes access to disabled toilets and dedicated Changing Places toilet facilities. Interpreter services should be provided where appropriate.

Outpatient Facilities

Appropriate outpatient clinic facilities are required including equipment for neurological examination including fundoscopy.

Neurological conditions often benefit from multiprofessional assessment, and some rooms must have adequate space to facilitate this.

Education and training of health care professionals including trainee neurologists requires adequate space to be made available for this.

Inpatient Facilities

All Specialised Neurology Centres must have dedicated ring-fenced elective inpatient neurology beds for the purposes of complex diagnosis and management of tertiary inpatients. There should be sufficient bed capacity to allow for elective admission for investigation and treatment of cases from linked district general hospital neurology units equitably across the Integrated Neurology System.

Tertiary inpatient beds are distinct from any secondary care level beds which support local non-elective admissions. This ensures equity of access to tertiary neurology services across the wider system. Once specialist tertiary input is complete, patients should be transferred to a secondary care bed in the referring district general hospital, or to a secondary care bed within the tertiary hospital if they are local patients. This ensures continued availability of tertiary beds for regional complex care.

Acute rehabilitation (distinct from dedicated inpatient rehabilitation) during an acute stay is a core part of neurology care. Services must have access to a gym area and appropriate rehabilitation staff and equipment to deliver this.

Day Case Facilities

Specialised Neurology Centres must have access to dedicated elective day case services for management of:

- Infusion therapies for neurological conditions
- Lumbar puncture and CSF studies
- Muscle and nerve biopsies
- Ambulatory assessment and monitoring

Neuroradiology Facilities

All sites admitting patients with neurological conditions should have access to MRI 7 days a week. All Specialised Neurology Centres must have 24 hour a day, 7 day a week access to Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) with 24-hour access to a specialist neuroradiological opinion. The service must have access to high quality, bi-planar digital subtraction angiography. Back-up facilities within the trust must be available in the event of equipment failure, as detailed in the Neurointerventional Services specification.

Neurophysiology Facilities

All sites admitting patients with neurological conditions must have timely access to routine neurophysiology services for both inpatients and outpatients for the purposes of diagnosis, including:

- electroencephalography (EEG) services.
- nerve conduction studies.
- electromyography (EMG) studies.
- evoked potential studies.

Specialised Neurology Centres should additionally have access to:

- 24-hour video EEG (inpatient or ambulatory).

Neurocritical Care Facilities

Specialised Neurology Centres must be provided with appropriate level 3 intensive care beds and level 2 high dependency units (HDU) to allow immediate admission of emergency cases requiring neurocritical care from its own catchment population. These beds must be staffed by consultant neuro-intensivists and intensive care unit (ICU) nurses with specific training and expertise in the care of critically ill neurology patients. See Guidelines for the Provision of Intensive Care Services (GPICS) for further detail on neurocritical care service recommendations.

Other Specialist Treatment Facilities

Specialised Neurology Centres should have timely access to plasmapheresis (plasma exchange) services for the treatment of severe manifestations of autoimmune neurological

disorders. These may be managed by haematology, renal or directly by neurology services. These services may also be available at District General Hospital Neurology Units.

7.6 Inter-dependent Service Components – Links with other NHS services

Other Clinical Neuroscience Services

- Neurosurgery services – co-located or clear pathways for access to:
  - Muscle and nerve biopsy
  - Epilepsy surgery
  - Deep brain stimulation services
  - Neuro-oncology services

- Neurophysiology services (co-located)
  - Routine non-specialised neurophysiology services should deliver access to core neurophysiology investigations. This will include provision of the following investigations:
    - Electroencephalography (EEG)
    - Peripheral Neurophysiology (PN) (including Nerve Conduction Studies (NCS) and Electromyography (EMG)
    - Evoked Potentials (EP).
  - A small number of more specialist or complex investigations will need to be delivered within Specialised Neurology Centres (for example inpatient EEG video telemetry).
  - Services should be organised in line with national standards developed by British Society of Clinical Neurophysiology and Association of Neurophysiological Scientists. Services should be externally accredited with the UKAS "Improving Quality in Physiological Services" (IQIPS) scheme.

- Neuroradiology services (co-located or clear pathways for access)

  - Diagnostic neuroradiology.
  - Interventional neuroradiology.
  - All Specialised Neurology Centres should have access to 24hr/7 day MRI and CT investigations with specialist diagnostic neuroradiology reporting.
  - All Neurology Units should have inpatient access to 24hr/7 day CT and 7hr/7 day MRI investigations reported by general radiologists (as part of core RCR curriculum) with ability to access specialist neuroradiology opinions either via funded visiting reporting neuroradiologists or a funded second opinion pathway with formal documented second opinions. This may be performed on a case by case basis or via a formal regular neurology/neuroradiology MDT.

- Psychiatry services
  - Neuropsychiatry services
  - Liaison Psychiatry services
  - Old Age Psychiatry memory services

- Psychology services
  - Clinical Neuropsychology services – diagnostic and therapeutic
  - Clinical Health Psychology services

- Paediatric neurology and neurodisability services
    - All Specialised Neurology Centres should have clear pathways and processes for transitioning young adult patients living in their catchment area from Paediatric Neurology Services which may be outside the local area.

- Neurogenetics services
    - Clear pathways for genetic and genomic testing and obtaining clinical advice from geneticists should be in place. This should be supported by collaboration through Genomic Medicine Service Alliances.

- Neuropathology services – including access to MDT neuropathology meetings for neuro-oncology and muscle and nerve pathology.

- Pain management services – clear pathways for referral and access

- Specialised Rehabilitation – not necessarily co-located but clear pathways for referral and access should be in place.

- Community Neurorehabilitation and Disability Management
    - Linked through Integrated Neurology Networks.
    - Links to Disability Equipment Services
    - Links to Assisted and Augmented Communication Services

Other key specialities

- Geriatric medicine / Senior Health services - particularly in supporting stroke, Parkinson's disease and dementia care, and for management of frailty. Shared models of working between neurology and geriatric medicine in these areas can maximise the benefits of complementary skillsets.
- Specialist respiratory services, including ventilation and sleep services.
- Specialist cardiology services, including arrhythmia, cardiomyopathy and inherited cardiac conditions services.
- Orthopaedic and complex spinal services (for scoliosis etc).
- Maternity Services
- Adult Learning Disability services

7.7 Additional requirements

Clinical Research

Increasing access to research benefits service users and contributes to local service improvements. Centres delivering neurology care (Core and Specialised Services) should work with local Clinical Research Networks to extend recruitment reach and support patient access to Clinical Trials and other research studies.

7.8 Commissioned providers

The list of currently commissioned Specialised Neurology Centres for the services covered by this specification at the date of publication are as follows:

BARKING, HAVERING AND REDBRIDGE UNIVERSITY HOSPITALS NHS TRUST
BARTS HEALTH NHS TRUST

UNIVERSITY HOSPITALS SUSSEX NHS FOUNDATION TRUST
CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST
HULL UNIVERSITY TEACHING HOSPITALS NHS TRUST
IMPERIAL COLLEGE HEALTHCARE NHS TRUST
KING'S COLLEGE HOSPITAL NHS FOUNDATION TRUST
LANCASHIRE TEACHING HOSPITALS NHS FOUNDATION TRUST
THE LEEDS TEACHING HOSPITALS NHS TRUST
NORTH BRISTOL NHS TRUST
NOTTINGHAM UNIVERSITY HOSPITALS NHS TRUST
OXFORD UNIVERSITY HOSPITALS NHS FOUNDATION TRUST
UNIVERSITY HOSPITALS PLYMOUTH NHS TRUST
ROYAL FREE LONDON NHS FOUNDATION TRUST
NORTHERN CARE ALLIANCE NHS FOUNDATION TRUST
SHEFFIELD TEACHING HOSPITALS NHS FOUNDATION TRUST
SOUTH TEES HOSPITALS NHS FOUNDATION TRUST
UNIVERSITY HOSPITAL SOUTHMAPTON NHS FOUNDATION TRUST
ST GEORGE'S UNIVERSITY HOSPITALS NHS FOUNDATION TRUST
GUY'S AND ST THOMAS' NHS FOUNDATION TRUST
THE NEWCASTLE UPON TYNE HOSPITALS NHS FOUNDATION TRUST
THE WALTON CENTRE NHS FOUNDATION TRUST
UNIVERSITY COLLEGE LONDON HOSPITALS NHS FOUNDATION TRUST
UNIVERSITY HOSPITALS BIRMINGHAM NHS FOUNDATION TRUST
UNIVERSITY HOSPITALS OF NORTH MIDLANDS NHS TRUST
UNIVERSITY HOSPITALS COVENTRY AND WARWICKSHIRE NHS TRUST
NORFOLK AND NORWICH UNIVERSITY HOSPITALS NHS FOUNDATION TRUST

7.9 Links to other key documents

Please refer to the relevant Clinical Reference Group webpages for NHS England Commissioning Policies which define access to a service for a particular group of service users.

Service specifications that are relevant to the Adult Neurology Specification are:

- Neurosurgery (Adults) https://www.england.nhs.uk/wp-content/uploads/2019/02/Neurosurgery-Service-Specification.pdf

- Paediatric Neurosciences (Neurology) https://www.england.nhs.uk/wp-content/uploads/2018/09/E09-S-b-Paediatric-Neurosciences-Neurology.pro_.2013.04.v2.pdf

- Specialised Rehabilitation for patients with highly complex needs (All Ages) https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2014/04/d02-rehab-pat-high-needs-0414.pdf

- Neurointerventional services for acute ischaemic and haemorrhagic stroke https://www.england.nhs.uk/publication/service-specification-neurointerventional-services-for- acute-ischaemic-haemorrhagic-stroke/

- Spinal Cord Injury https://www.england.nhs.uk/wp-content/uploads/2019/04/service-spec-spinal-cord-injury-services-all-ages.pdf

- Specialised services for pain management (adults) https://www.england.nhs.uk/wp-content/uploads/2019/08/Adult-Specialised-Pain-Service-Specification.pdf

- Adult Critical Care https://www.england.nhs.uk/wp-content/uploads/2019/05/220502S-adult-critical-care-service-specification.pdf

- Adult Critical Care Transfer Services https://www.england.nhs.uk/wp-content/uploads/2021/06/220501S-Adult-critical-care-transfer-services.pdf

- Stroke Thrombectomy Service for Acute Ischaemic Stroke - delivered in a non-neuroscience centre. (Adults) https://www.england.nhs.uk/wp-content/uploads/2021/01/1868-Thrombectomy-Service-Specification.pdf

- Metabolic Disorders (Adults) https://www.england.nhs.uk/wp-content/uploads/2013/06/e06-metab-disorders-adult.pdf

NHSE Service Specifications for Highly Specialised Services that are relevant for Neurology Services include:

- https://www.england.nhs.uk/wp-content/uploads/2013/06/a13-behcet-synd-ad-ado.pdf
- https://www.england.nhs.uk/wp-content/uploads/2013/06/b13-comp-neurofib-1.pdf
- https://www.england.nhs.uk/wp-content/uploads/2018/08/Neurofibromatosis-Type-2-service-all-ages.pdf
- https://www.england.nhs.uk/wp-content/uploads/2018/08/Diagnostic-service-for-rare-neuromuscular-disorders-all-ages.pdf (covering Xeroderma Pigmentosum, Trichothiodystrophy and Cockayne Syndrome)
- https://www.england.nhs.uk/wp-content/uploads/2018/08/Diagnostic-service-for-rare-neuromuscular-disorders-all-ages.pdf
- https://www.england.nhs.uk/publication/inherited-white-matter-disorders-diagnostic-and-management-service-iwmd-all-ages/
- https://www.england.nhs.uk/wp-content/uploads/2013/06/e06-lyso-stor-dis-child.pdf
- https://www.england.nhs.uk/wp-content/uploads/2018/08/Neuromyelitis-optica-service-adults-and-adolescents.pdf
- https://www.england.nhs.uk/wp-content/uploads/2018/08/Rare-mitochondrial-disorders-service-all-ages.pdf
- https://www.england.nhs.uk/wp-content/uploads/2018/08/Severe-acute-porphyria-service-all-ages.pdf
- https://www.england.nhs.uk/wp-content/uploads/2013/06/a17-wolfram-serv-all.pdf

Other relevant NHSE Documents:

- https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2019/08/progressive-neuro-toolkit.pdf
- https://gettingitrightfirsttime.co.uk/medical_specialties/neurology/
- https://www.england.nhs.uk/publication/national-stroke-service-model-integrated-stroke-delivery-networks/

NHS RightCare Toolkits

- https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2020/03/rightcare-epilepsy-toolkit-v2.pdf
- https://www.england.nhs.uk/rightcare/2020/03/12/community-rehabilitation-toolkit/
- https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2020/01/rightcare-headache-and-migraine-toolkit-v1.pdf
- https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2019/07/frailty-toolkit-june-2019-v1.pdf

Guidance produced by the National Institute for Health and Care Excellence (NICE)

- https://www.nice.org.uk/guidance/ng127
- https://www.nice.org.uk/guidance/conditions-and-diseases/neurological-conditions
- https://www.nice.org.uk/what-nice-does/our-guidance/about-technology-appraisal-guidance/technology-appraisal-submission-templates-and-supporting-documents
- https://www.nice.org.uk/what-nice-does/our-guidance/about-interventional-procedures-guidance
- NG43 Transition from children's to adults' services for young people using health or social care services https://www.nice.org.uk/guidance/ng43
- NG142 End of life care for adults https://www.nice.org.uk/guidance/ng142
- NG211 Rehabilitation after Traumatic Injury https://www.nice.org.uk/guidance/ng211
- https://www.nice.org.uk/guidance/conditions-and-diseases/neurological-conditions

Documents published by the Department of Health and Social Care

- https://www.gov.uk/government/publications/quality-standards-for-supporting-people-with-long-term-conditions
- https://www.gov.uk/government/publications/uk-rare-diseases-framework

Non-statutory Guidance published by the National Neurology Advisory Group

- https://www.nnag.org.uk/optimum-clinical-pathways

8. Abbreviation and Acronyms

The following abbreviations and acronyms have been used in this document:

- AHP – Allied Health Professionals
- CG – Clinical Guideline (NICE product type)
- CT - Computed Tomography
- DGH – District General Hospital

- ED – Emergency Department
- EEG - Electroencephalography
- EMG – Electromyography (often used to mean nerve conduction studies and EMG)
- FND – Functional Neurological Disorders
- HDU – High Dependency Unit
- HSS – Highly Specialised Services
- HST – Highly Specialised Technology (NICE product type)
- ICB – Integrated Care Board
- ICS - Integrated Care System
- ICU – Intensive Care Unit
- IPG – Interventional Product Guidance (NICE product type)
- MDT – Multi-Disciplinary Team
- MRI - Magnetic Resonance Imaging
- NHS – National Health Service
- NHSE – National Health Service England
- NICE – National Institute for Health and Care Excellence
- QS – Quality Standard (NICE product type)
- TA – Technology Appraisal (NICE product type)

Appendices

Annex A Specialised Neurology Service Specification
Minimum Service Levels for Neurology Subspecialties