NICE National Institute for Health and Care Excellence

NICE guideline

Suspected neurological conditions: recognition and referral

NICE guideline
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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline is the basis of QS198.

Overview

This guideline covers the initial assessment of symptoms and signs that might indicate a neurological condition. It helps non-specialist healthcare professionals to identify people who should be offered referral for specialist investigation.

Who is it for?

- Non-specialist healthcare professionals in primary and secondary care
- Healthcare professionals in neurology departments
- People with suspected neurological conditions, their families and carers

Recommendations for adults aged over 16

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

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

1.1 Blackouts in adults

1.1.1 Refer urgently adults with new-onset blackouts (transient loss of consciousness), accompanied by features that are strongly suggestive of epileptic seizures, for neurological assessment in line with the recommendation for people with suspected epilepsy in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s.

1.1.2 Do not routinely refer adults with blackouts if there are clear features of vasovagal syncope, even if associated with brief jerking of the limbs. See the recommendation on diagnosing uncomplicated faint in the section on no further immediate management required in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.2 Dizziness and vertigo in adults

Sudden-onset dizziness with a focal neurological deficit

1.2.1 For adults with sudden-onset dizziness and a focal neurological deficit such as vertical or rotatory nystagmus, new-onset unsteadiness or new-onset deafness:

- if the person has diabetes, check for and treat hypoglycaemia
- if the person does not have diabetes, or treating hypoglycaemia does not resolve the symptoms, and benign paroxysmal positional vertigo or postural hypotension do not account for the presentation, refer immediately to exclude posterior circulation stroke, in line with the NICE guideline on stroke and transient ischaemic attack in over 16s.

Sudden-onset acute vestibular syndrome

1.2.2 For adults with sudden-onset acute vestibular syndrome (vertigo, nausea or vomiting and gait unsteadiness), a HINTS (head-impulse–nystagmus–test-of-skew) test should be performed if a healthcare professional with training and experience in the use of this test is available.

1.2.3 For adults with sudden-onset acute vestibular syndrome who have had a HINTS test:

- be aware that a negative HINTS test makes a diagnosis of stroke very unlikely
- refer immediately for neuroimaging if the HINTS test shows indications of stroke (a normal head impulse test, direction-changing nystagmus or skew deviation).

1.2.4 Refer immediately adults with sudden-onset acute vestibular syndrome in whom benign paroxysmal positional vertigo or postural hypotension do not account for the presentation, in line with local stroke pathways, if a healthcare professional with training and experience in the use of the HINTS test is not available.

Sudden-onset dizziness with no imbalance or focal neurological deficit

1.2.5 Be aware that dizziness in adults with no imbalance or other focal neurological deficit is unlikely to indicate a serious neurological condition.

Vertigo on head movement

1.2.6 For adults with transient rotational vertigo on head movement:

- Offer the Hallpike manoeuvre to check for benign paroxysmal positional vertigo (BPPV) if a healthcare professional trained in its use is available. If there is no healthcare professional trained in the Hallpike manoeuvre available, refer in accordance with local pathways.
- If BPPV is diagnosed, offer a canalith repositioning manoeuvre (such as the Epley manoeuvre) if a healthcare professional trained in its use is available and if the person does not have unstable cervical spine disease. If there is no healthcare professional trained in a canalith repositioning manoeuvre available, or the person has unstable cervical spine disease, refer in accordance with local pathways.
- Be aware that BPPV is common after a head injury or labyrinthitis.

Vestibular migraine

1.2.7 Be alert to the possibility of vestibular migraine (migraine-associated vertigo) in adults who have episodes of dizziness that last between 5 minutes and 72 hours and a history of recurrent headache.

Recurrent dizziness as part of a functional neurological disorder

1.2.8 Be aware that, for adults who have been diagnosed with a functional neurological disorder by a specialist, recurrent dizziness might be part of the disorder and the person might not need re-referral if there are no new neurological signs. New symptoms or signs in adults who have been diagnosed with a functional neurological disorder by a specialist should be assessed as described in the relevant sections of this guideline.

1.2.9 Advise adults with recurrent dizziness and a diagnosed functional neurological disorder that their dizziness will fluctuate and might increase during times of stress.

Dizziness with altered consciousness

1.2.10 Refer adults with recurrent fixed-pattern dizziness associated with alteration of consciousness to have an assessment for epilepsy in line with the NICE guideline on epilepsies.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on dizziness and vertigo in adults.

Full details of the evidence and the committee's discussion are in the full guideline.

1.3 Facial pain, atraumatic

Facial pain with persistent facial numbness or abnormal neurological signs

1.3.1 Refer adults with facial pain associated with persistent facial numbness or abnormal neurological signs for neuroimaging using a suspected cancer pathway referral.

Unilateral facial pain triggered by touching the face (trigeminal neuralgia)

1.3.2 Refer adults with unilateral facial pain that is triggered by touching the affected part of the face (trigeminal neuralgia) and is refractory to treatment, in line with the NICE guideline on neuropathic pain in adults.

Scalp tenderness or jaw claudication suggestive of temporal arteritis

1.3.3 For adults with scalp tenderness or jaw claudication suggestive of

temporal arteritis, consider blood tests and follow local pathways for suspected giant cell (temporal) arteritis. Be aware that a normal ESR (erythrocyte sedimentation rate) does not exclude a diagnosis of giant cell arteritis.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.4 Gait unsteadiness

Sudden-onset unsteady gait

1.4.1 For recommendations on assessing sudden-onset unsteady gait in adults, see the NICE guideline on stroke and transient ischaemic attack in over 16s.

Rapidly progressive unsteady gait (gait ataxia)

1.4.2 Refer adults with rapidly (within days to weeks) progressive unsteady gait (gait ataxia) for neurological assessment using a suspected cancer pathway referral.

Gradually progressive unsteady gait (gait ataxia)

1.4.3 Refer adults with gradually progressive unsteady gait (gait ataxia) for neurological assessment and:

- take an alcohol history and follow the recommendations in the NICE guideline on alcohol-use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence
- check thyroid function
- check for vitamin B12 and folate deficiency

- consider serological testing for gluten sensitivity as recommended in the NICE guideline on coeliac disease.

Difficulty initiating and coordinating walking (gait apraxia)

1.4.4 Refer adults who have difficulty initiating and coordinating walking (gait apraxia) to neurology or an elderly care clinic to exclude normal pressure hydrocephalus.

1.4.5 For adults with unsteadiness of gait who are at risk of falling, follow the recommendations on multifactorial falls risk assessment in the NICE guideline on falls in older people, and consider referring to a falls prevention team.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.5 Handwriting difficulties

1.5.1 Refer adults who have sudden-onset difficulty with handwriting that has no obvious musculoskeletal cause for a neurological assessment according to local stroke pathways.

1.5.2 Ask adults who have difficulty with handwriting that has no obvious musculoskeletal cause to demonstrate their handwriting and:

- if they have a problem with generating language rather than hand function, refer for neurological assessment
- if their handwriting is small and slow, consider referring for possible Parkinson's disease
- if their difficulty is specific to the task of handwriting and examination shows no other abnormalities, consider referring for possible focal dystonia.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.6 Headaches in adults

For advice on referral for headaches in adults, see the NICE guideline on headaches in over 12s.

1.7 Limb or facial weakness in adults

Sudden-onset limb weakness

1.7.1 Be aware that sudden-onset weakness, even in restricted distribution (for example, sudden hand weakness), may be caused by a stroke or transient ischaemic attack. See the NICE guideline on stroke and transient ischaemic attack in over 16s for recommendations on assessing sudden-onset limb or facial weakness in adults.

Rapidly progressive symmetrical limb weakness

1.7.2 Refer immediately adults with rapidly (within 4 weeks) progressive symmetrical limb weakness for neurological assessment and assessment of bulbar and respiratory function.

Severe low back pain together with other symptoms

1.7.3 Refer immediately, in line with local pathways, adults who have severe low back pain radiating into the leg and new-onset disturbance of bladder, bowel or sexual function, or new-onset perineal numbness, to have an assessment for cauda equina syndrome.

Rapidly progressive weakness of a single limb or hemiparesis

1.7.4 Refer adults with very rapidly (within hours to days) progressive weakness of a single limb or hemiparesis for investigation, including neuroimaging, using a suspected cancer pathway referral, in line with the recommendation on brain and central nervous system cancers in adults in the NICE guideline on suspected cancer.

Slowly progressive limb or neck weakness

1.7.5 For adults with slowly (within weeks to months) progressive limb or neck weakness:

- refer for an assessment for neuromuscular disorders, in line with the recommendations on recognition and referral in the NICE guideline on motor neurone disease
- refer urgently if there is any evidence of swallowing impairment
- refer immediately if there is breathlessness at rest or when lying flat.

Lower limb claudication symptoms

1.7.6 Be aware that lower limb claudication symptoms in adults with adequate peripheral circulation might be caused by lumbar canal stenosis and need specialist assessment and imaging.

Recurrent limb or facial weakness as part of a functional neurological disorder

1.7.7 Be aware that, for adults who have been diagnosed with a functional neurological disorder by a specialist, recurrent limb weakness might be part of the disorder and the person might not need re-referral if there are no new neurological signs. New symptoms or signs in adults who have been diagnosed with a functional neurological disorder by a specialist should be assessed as described in the relevant sections of this guideline.

1.7.8 Advise adults with limb or facial weakness ascribed to a functional neurological disorder that their limb or facial weakness might fluctuate and evolve over time and might increase during times of stress.

Compression neuropathy

1.7.9 For adults with clear features of compression neuropathy of the radial nerve, common peroneal nerve or ulnar nerve and no features of a nerve root lesion (radiculopathy):

- refer to orthotic services for a splint
- review the symptoms after 6 weeks, and refer for neurological assessment if there is no evidence of improvement.

  For adults with features of radiculopathy, see the section on cervical or lumbar radiculopathy.

1.7.10 Advise adults with compression neuropathy to avoid any activity that might lead to further pressure on the affected nerve.

Bell's palsy

1.7.11 Do not routinely refer adults with an uncomplicated episode of Bell's palsy (unilateral lower motor neurone pattern facial weakness affecting all parts of the face and including weakness of eye closure) and no evidence of another medical condition such as middle ear disease.

1.7.12 Advise adults with Bell's palsy about eye care, and explain that Bell's palsy improves at different rates and maximum recovery can take several months.

1.7.13 Consider referring adults with Bell's palsy who have developed symptoms of aberrant reinnervation (including gustatory sweating or jaw-winking) 5 months or more after the onset of Bell's palsy for neurological assessment and possible treatment.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on limb or facial weakness in adults.

Full details of the evidence and the committee's discussion are in the full guideline.

1.8 Memory failure and cognitive deterioration

Memory problems in adults aged under 50

1.8.1 For adults aged under 50 with memory problems and no other neurological signs:

- do not routinely refer if brief testing shows memory function to be normal and symptoms are consistent with concentration difficulties
- be aware that memory problems or concentration difficulties can be caused by:
  - recreational, and some prescription, drugs
  - alcohol
  - affective disorders
  - stress.

  For more information, see initial assessment in non-specialist settings in the NICE guideline on dementia.

Memory problems as part of an anxiety disorder or a functional neurological disorder

1.8.2 Be aware that, for adults who have an anxiety disorder or have been diagnosed with a functional neurological disorder by a specialist, memory problems and concentration difficulties might be part of the disorder and the person might not need re-referral if there are no new neurological signs. New symptoms or signs in adults who have been diagnosed with a

functional neurological disorder by a specialist should be assessed as described in the relevant sections of this guideline.

Concentration difficulties associated with myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome or fibromyalgia

1.8.3 Do not routinely refer adults for neurological assessment if they have concentration difficulties associated with myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome or fibromyalgia.

Progressive memory problems

1.8.4 For guidance on referring adults with progressive memory problems, see initial assessment in non-specialist settings in the NICE guideline on dementia.

Dense amnesia

1.8.5 Do not routinely refer adults with a single episode of dense amnesia (inability to recall the recent past or form new memories) if:

- the episode lasts less than 8 hours **and**
- there is complete recovery **and**
- there are no features suggestive of an epileptic seizure (see seizure markers for suspected epilepsy in the NICE guideline on transient loss of consciousness ['blackouts'] in over 16s).

  Advise the person that they have probably had an episode of transient global amnesia and that the recurrence rate is low.

1.8.6 Refer adults with recurrent episodes of dense amnesia to have an assessment for epileptic amnesia.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on memory failure and cognitive deterioration.

Full details of the evidence and the committee's discussion are in the full guideline.

1.9 Posture distortion in adults

Dystonia

1.9.1 Suspect cervical dystonia in adults who have persistent abnormalities of head or neck posture, with or without head tremor, especially if the symptom improves when the person touches their chin with their hand.

1.9.2 Do not offer cervical imaging to evaluate suspected cervical dystonia in adults.

1.9.3 Be aware that dystonia in adults can affect other parts of the body (for example, it can cause writer's cramp or in-turned posture of the foot).

1.9.4 Refer adults with suspected dystonia to have an assessment for diagnosis and possible botulinum toxin treatment.

Dystonia as a side effect of medications

1.9.5 Be aware that antipsychotic and antiemetic medicines can trigger or exacerbate dystonia in adults.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on posture distortion in adults.

Full details of the evidence and the committee's discussion are in the full guideline.

1.10 Sensory symptoms including tingling or numbness in adults

Numbness and weakness

1.10.1 Assess sudden-onset transient unilateral numbness in adults in line with the NICE guideline on stroke and transient ischaemic attack in over 16s.

1.10.2 Refer immediately adults with rapidly progressive (within hours to days) symmetrical numbness and weakness or imbalance to have a neurological assessment.

Sensory disturbances

1.10.3 Refer urgently adults with recurrent, brief (less than 2 minutes), fixed-pattern disturbances of sensation to have an assessment for epilepsy.

1.10.4 Refer adults with persistent, distally predominant altered sensation in the limbs, and brisk deep tendon reflexes, to have an assessment for possible brain or spine disease.

1.10.5 Suspect migraine with aura in adults who have sensory symptoms that occur with or without headache and:

- are fully reversible **and**
- develop over at least 5 minutes **and**
- last between 5 and 60 minutes.

For recommendations on diagnosing and managing migraine with aura, see the NICE guideline on headaches in over 12s.

1.10.6 For adults with persistent, distally predominant ('stocking' or 'glove and stocking') altered sensation in the limbs and depressed deep tendon reflexes:

- be alert to the possibility of peripheral neuropathy and consider checking:
  - vitamin B12 deficiency
  - thyroid function
  - for evidence of coeliac disease in line with the NICE guideline on coeliac disease
  - renal function
  - blood glucose
  - ESR (erythrocyte sedimentation rate)
  - alcohol consumption, using a tool such as AUDIT (Alcohol Use Disorders Identification Test), in line with the NICE guideline on alcohol-use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence
- if no causes of peripheral neuropathy are found, refer for neurological assessment.

Numbness and tingling as part of a functional neurological disorder

1.10.7 Be aware that, for adults who have been diagnosed with a functional neurological disorder by a specialist, recurrent numbness and tingling might be part of the disorder and the person might not need re-referral if there are no new neurological signs. New symptoms or signs in adults who have been diagnosed with a functional neurological disorder by a specialist should be assessed as described in the relevant sections of this guideline.

1.10.8 Advise adults with tingling and a diagnosis of functional neurological disorder that the tingling might fluctuate and evolve over time and could increase at times of stress.

Carpal tunnel syndrome

1.10.9 Refer in line with local pathways if symptoms of carpal tunnel syndrome are severe or persistent after initial management.

Numbness, tingling or pain in the outer thigh

1.10.10 Reassure adults with unilateral or bilateral numbness, tingling or pain in the distribution of the lateral cutaneous nerve of the thigh (meralgia paraesthetica) that the condition is benign and might improve spontaneously. Consider referring for pain management only if the symptoms are severe.

Cervical or lumbar radiculopathy

1.10.11 Do not routinely refer adults with symptoms of cervical radiculopathy that have remained stable for 6 weeks or more unless:

- pain is not controlled with analgesics **or**
- the symptoms are disabling **or**
- one of the following factors is present:
  - age under 20
  - gait disturbance
  - clumsy or weak hands or legs
  - brisk deep tendon reflexes (triceps and lower limbs)
  - extensor plantar responses
  - new-onset disturbance of bladder or bowel function.

1.10.12 Do not routinely refer adults with symptoms of lumbar radiculopathy that have remained stable for 6 weeks or more unless pain is not controlled with analgesics or symptoms are disabling, in line with the NICE guideline on low back pain and sciatica in over 16s.

Tingling or sensory disturbances on waking from sleep

1.10.13 Do not routinely refer adults with recurrent episodes of tingling or sensory disturbance in the limbs that are present on waking from sleep and last less than 10 minutes.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on sensory symptoms including tingling or numbness in adults.

Full details of the evidence and the committee's discussion are in the full guideline.

1.11 Sleep disorders in adults

Insomnia

1.11.1 Offer advice on sleep hygiene to adults with insomnia.

1.11.2 Do not routinely refer adults with insomnia, jerks on falling asleep or isolated brief episodes of sleep paralysis.

Symptoms that suggest new-onset epileptic seizures

1.11.3 Refer urgently adults with symptoms suggestive of new-onset epileptic seizures in sleep for neurological assessment in line with the NICE guideline on epilepsies.

Excessive sleepiness and narcolepsy

1.11.4 For adults with excessive sleepiness:

- use the Epworth score together with history of obstructive symptoms in sleep to assess the likelihood of sleep apnoea
- refer in accordance with local policy

- if appropriate, offer advice on weight reduction, alcohol consumption and smoking cessation, in line with NICE guidance on obesity, alcohol-use disorders and smoking and tobacco.

1.11.5 Refer adults with narcolepsy, with or without cataplexy, for neurological assessment.

Sleep behaviour disorders

1.11.6 Consider referring adults with persistent symptoms suggestive of sleep behaviour disorders (such as agitated or violent movements that are more complex than a simple jerking motion) for neurological assessment.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on sleep disorders in adults.

Full details of the evidence and the committee's discussion are in the full guideline.

1.12 Smell or taste problems

Distorted sense of smell or taste

1.12.1 Be aware that sudden-onset distortion of sense of smell or taste in adults is rarely associated with structural neurological abnormality and usually resolves within a few months.

Smell or taste hallucinations

1.12.2 Refer adults with transient, repetitive smell or taste hallucinations to have a neurological assessment for epilepsy.

Loss of sense of smell or taste

1.12.3 Consider neuroimaging for adults with unexplained loss of sense of smell or taste that lasts more than 3 months.

1.12.4 Do not routinely refer adults with loss of sense of smell or taste and normal neuroimaging.

1.12.5 Do not routinely refer adults who lose their sense of smell or taste immediately after a head injury.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on smell or taste problems.

Full details of the evidence and the committee's discussion are in the full guideline.

1.13 Speech, swallowing and language problems in adults

Sudden-onset speech or language disturbance

1.13.1 Refer immediately adults with sudden-onset speech or language disturbance to have an assessment for a vascular event, in line with local stroke pathways and following the recommendations in the NICE guideline on stroke and transient ischaemic attack in over 16s. **[amended July 2019]**

Progressive slurred or disrupted speech

1.13.2 For adults with progressive slurred or disrupted speech:

- refer for an assessment for neuromuscular disorders, in line with the recommendations on recognition and referral in the NICE guideline on motor neurone disease
- refer urgently if there is any evidence of swallowing impairment
- refer immediately if there is breathlessness at rest or when lying flat.

Dysphonia

1.13.3 Consider referring adults with isolated and unexplained persistent dysphonia (a quiet, hoarse or wobbly voice) to have an assessment for laryngeal dystonia (involuntary contractions of the vocal cords) if hoarseness caused by structural abnormality or malignancy has been excluded by ear, nose and throat examination.

1.13.4 Be aware that persistent dysphonia in adults may be a presenting symptom of a neurological condition such as Parkinson's disease. For recommendations on the diagnosis and management of Parkinson's disease, see the NICE guideline on Parkinson's disease in adults.

Word-finding difficulties as part of an anxiety disorder or a functional neurological disorder

1.13.5 Be aware that anxiety disorder and functional neurological disorders are the most common causes of minor word-finding difficulties in adults, and people with a diagnosis of anxiety disorder or functional neurological disorder made by a specialist might not need a referral.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.14 Tics and involuntary movements in adults

Tics

1.14.1 Do not routinely refer adults with tics (involuntary movements that can be temporarily suppressed at the expense of mounting inner tension) unless the tics are troublesome or accompanied by additional progressive neurological symptoms.

1.14.2 Consider referring adults with a tic disorder for psychological therapy if the disorder distresses them.

1.14.3 Consider referring adults who have completed psychological therapy for a tic disorder to have a neurological assessment if their symptoms are severe and the disorder continues to distress them, but tell the person that:

- there are not many medicines available to treat a tic disorder
- the medicines that are available don't always work well and can have serious side effects.

Involuntary movements

1.14.4 Do not routinely refer adults with isolated involuntary movements of the eyelid unless the movements:

- cause involuntary tight eye closure of both eyes (blepharospasm) **or**
- have persisted for more than 3 months.

1.14.5 In adults with involuntary movements of the face, neck, limbs or trunk that cannot be temporarily suppressed by mental concentration:

- refer for neurological assessment **or**
- refer to neurology or an eye clinic, according to local provision, if the person has involuntary tight eye closure of both eyes (blepharospasm).

1.14.6 Do not routinely refer adults with small involuntary muscular twitches (fasciculations) unless these are associated with muscle wasting and weakness or muscle rigidity.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on tics and involuntary movements in adults.

Full details of the evidence and the committee's discussion are in the full guideline.

1.15 Tremor in adults

Tremor suggesting Parkinson's disease

1.15.1 Refer adults with suspected parkinsonian tremor, other asymmetric tremor, or tremor associated with stiffness, slowness, balance problems or gait disorders for neurological assessment before treatment, in line with the NICE guideline on Parkinson's disease in adults.

Essential tremor

1.15.2 Suspect essential tremor in an adult with symmetrical postural tremor and no symptoms of parkinsonism.

1.15.3 In adults with suspected essential tremor:

- review regular medication
- check thyroid function
- assess alcohol consumption using a tool such as AUDIT (Alcohol Use Disorders Identification Test), in line with the NICE guideline on alcohol-use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence.

  Refer for neurological assessment only if the symptoms are disabling and first-line treatment as specified in the BNF is ineffective or not tolerated.

1.15.4 Consider referring adults with troublesome tremor of the head to a movement disorder clinic.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.16 Information and support

1.16.1 Follow the principles in the NICE guidelines on patient experience in adult NHS services and shared decision making in relation to communication (including different formats and languages), information, shared decision making and continuity of care.

1.16.2 Advise adults with suspected neurological conditions to:

- check the government's information on driving with medical conditions to find out whether they might have a condition that needs to be notified to the DVLA (Driver and Vehicle Licensing Agency)
- consider telling their employer, school or college if their symptoms might affect their ability to work or study.

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

Full details of the evidence and the committee's discussion are in the full guideline.

Recommendations for children aged under 16

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

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

1.17 Attention, concentration and memory problems

Attention, concentration and memory problems related to epilepsy

1.17.1 Refer urgently children who present with discrete episodes of loss of awareness (mid-activity vacant spells) or of attention and concentration difficulty, in line with the NICE guideline on epilepsies.

1.17.2 Be aware that medicines commonly used to treat epilepsy in children can adversely affect concentration and memory.

Concentration or memory difficulties that interfere with learning or behaviour

1.17.3 Refer children with concentration or memory difficulties that interfere with learning, school progress or behaviour to community paediatric or paediatric neurodevelopmental services for assessment.

1.17.4 Be aware that some children with attention and concentration difficulties do not have hyperactivity.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on attention, concentration and memory problems.

Full details of the evidence and the committee's discussion are in the full guideline.

1.18 Blackouts and other paroxysmal events

Blackouts and vacant spells

1.18.1 Refer urgently children with new-onset blackouts (transient loss of consciousness) accompanied by seizure markers for neurological assessment, in line with the recommendation for people with suspected epilepsy in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s.

The committee agreed that the recommendation for people with suspected epilepsy in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s is applicable to children aged under 16.

1.18.2 Refer urgently children with mid-activity vacant spells or behavioural outbursts associated with altered consciousness or amnesia for the events to have a paediatric assessment.

Blackouts in children under 12 years

1.18.3 Refer urgently all children aged under 12 years with blackouts for paediatric assessment.

Vasovagal syncope

1.18.4 Do not routinely refer children aged over 12 years with blackouts if there are clear features of vasovagal syncope, even if associated with brief jerking of the limbs, in line with the recommendation on diagnosing uncomplicated faint in the section on no further immediate management required in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s.

Blackouts, seizures or amnesia after a head injury

1.18.5 For children who have blackouts, seizures or amnesia for events after a head injury, follow the recommendations on pre-hospital assessment, advice and referral to hospital in the NICE guideline on head injury.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on blackouts and other paroxysmal events.

Full details of the evidence and the committee's discussion are in the full guideline.

1.19 Confusion, acute

1.19.1 For children with unexplained acute confusion:

- arrange an emergency transfer to hospital **and**
- measure blood glucose.

1.19.2 Be aware that acute confusion in children can be a symptom of meningitis, encephalitis or poisoning. If infection is suspected, follow the recommendations in the NICE guideline on sepsis for identifying people with suspected sepsis and face-to-face assessment of people with suspected sepsis.

1.19.3 For children with acute confusion who have a non-blanching rash or other signs or symptoms suggestive of meningococcal septicaemia,

follow the recommendations on suspected meningococcal disease (meningitis with non-blanching rash or meningococcal septicaemia) in the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

For other signs and symptoms of meningococcal septicaemia, see bacterial meningitis and meningococcal septicaemia in children and young people – symptoms, signs and initial assessment in the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.20 Dizziness and vertigo in children

Dizziness with no accompanying symptoms or signs

1.20.1 Be aware that isolated dizziness in children is unlikely to be a symptom of a brain tumour if there are no accompanying symptoms or signs.

1.20.2 Be aware that dizziness in children is often a symptom of migraine and may be the predominant feature.

Dizziness in older children

1.20.3 Be aware that in older children (usually aged over 8 years), dizziness related to change in posture is often caused by postural hypotension.

Dizziness caused by middle ear infection or effusion

1.20.4 In children with dizziness, examine the ears for any signs of infection, inflammation or eardrum perforation.

Recurrent dizziness

1.20.5 For children with recurrent episodes of dizziness:

- consider referring for cardiological assessment if there are any factors that might suggest a cardiac cause, such as blackouts (transient loss of consciousness), a family history of cardiomyopathy or unexplained sudden death, or palpitations
- if there are episodes of dizziness with a fixed symptom pattern, be alert to the possibility of epilepsy as the cause and follow the recommendations in the NICE guideline on epilepsies.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on dizziness and vertigo in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.21 Headaches in children

For recommendations on headaches or migraine in children aged over 12 years, see the NICE guideline on headaches in over 12s.

Headaches in children under 12 years

1.21.1 Refer immediately children aged under 12 years with headache for same-day assessment, according to local pathways, if they have any one of the following:

- headache that wakes them at night
- headache that is present on awakening in the morning
- headache that progressively worsens
- headache triggered or aggravated by coughing, sneezing or bending down

- headache with fever and features of meningism
- headache associated with vomiting
- headache associated with ataxia
- headache associated with change in conscious level or pervasive lethargy
- headache occurring within 5 days of a head injury
- headache associated with squint or failure of upward gaze ('sunsetting').

Headaches in children under 4 years

1.21.2 Refer urgently all children aged under 4 years with headache for neurological assessment.

Recurrent headaches and migraines

1.21.3 Perform or request fundoscopy for all children with recurrent headache and refer urgently for neurological assessment if there are abnormalities.

1.21.4 For all children with recurrent headache:

- be aware that hypertension might be the cause
- measure the child's blood pressure and check the measurement against blood pressure reference ranges adjusted for age and height
- refer children if headaches are consistently worsened by upright posture and relieved by lying down.

1.21.5 Do not routinely refer children with migraine unless it is affecting their school life, social life or family activities, or they have one of the features listed in recommendation 1.21.1.

1.21.6 Be aware that emotional stress is a strong trigger of migraine and chronic, daily headache in children. Ask the child and their parent or carer about specific learning problems, bullying at school and stress in the family.

1.21.7 Ask about analgesic use in children with recurrent headache to ensure that medicine use is not excessive and to assess the likelihood of medication overuse headache. See the NICE guideline on headaches in over 12s for more information on medication overuse headache.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.22 Head shape or size abnormalities

Children with dysmorphic features and developmental delay

1.22.1 Refer urgently to paediatric services children with dysmorphic features and developmental delay.

Children aged under 4 years

1.22.2 For all children aged under 4 years with suspected abnormal head shape or size:

- take 3 consecutive measurements of the child's head circumference at the same appointment, using a disposable paper tape measure
- plot the longest of the 3 measurements on a standardised growth chart, corrected for gestational age
- if the child's head circumference is below the 2nd centile, refer for paediatric assessment.

  Offer follow-up measurements if needed, according to clinical judgement and taking the child's age into account.

1.22.3 For children with a head circumference measurement that differs by 2 or more centile lines from a previous measurement on a standardised growth chart (for example, an increase from the 25th to the 75th centile,

or a decrease from the 50th to the 9th centile):

- refer to paediatric services for assessment and cranial imaging to exclude progressive hydrocephalus or microcephaly **or**
- refer immediately to paediatric services if the child also has any of the following signs or symptoms of raised intracranial pressure:
  - tense fontanelle
  - sixth nerve palsy
  - failure of upward gaze ('sunsetting')
  - vomiting
  - unsteadiness (ataxia)
- headache. **[amended July 2019]**

1.22.4 For children with a head circumference above the 98th centile that has not changed by more than 2 centile lines from the previous measurement on a standardised growth chart, who are developing normally and who have no symptoms of raised intracranial pressure:

- note the head size of the biological parents, if possible, to check for familial macrocephaly
- if familial macrocephaly is likely, do not routinely refer the child in the absence of any other problem.

Babies aged under 1 year with plagiocephaly

1.22.5 For babies aged under 1 year whose head is flattened on one side (plagiocephaly):

- be aware that positional plagiocephaly (plagiocephaly caused by pressure outside the skull before or after birth) is the most common cause of asymmetric head shape

- measure the distance between the outer canthus of the baby's eye and the tragus of their ear on each side
- if the measurements differ, confirm positional plagiocephaly and do not routinely refer if the baby is developing normally
- if the measurements are the same, suspect unilateral premature closure of lambdoid suture and refer to paediatric services.

1.22.6 Advise parents or carers of babies with positional plagiocephaly that it is usually caused by the baby sleeping in one position and can be improved by changing the baby's position when they are lying, encouraging the baby to sit up when awake, and giving the baby time on their tummy.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on head shape or size abnormalities.

Full details of the evidence and the committee's discussion are in the full guideline.

1.23 Hypotonia ('floppiness')

1.23.1 For babies aged under 1 year with acute-onset hypotonia (floppiness), examine the baby for signs of cardiac failure, enlargement of the liver or kidneys, pyrexia or an altered level of consciousness, and refer immediately to paediatric services.

1.23.2 For babies aged under 1 year with hypotonia (floppiness) that has been present for weeks or months:

- if the baby is weak (for example, with feeding and breathing difficulties), refer urgently to paediatric services **or**
- if the baby is not weak and has no signs of intercurrent illness, consider referring in line with the recommendations on looking for signs of cerebral palsy in the NICE guideline on cerebral palsy under 25s.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on hypotonia ('floppiness').

Full details of the evidence and the committee's discussion are in the full guideline.

1.24 Limb or facial weakness in children

Sudden-onset or progressive limb or facial weakness

1.24.1 Refer immediately children with sudden-onset or rapidly progressive (hours to days) limb or facial weakness for neurological assessment.

1.24.2 Refer urgently children with progressive limb weakness for neurological assessment.

Limb weakness as part of a developmental disorder

1.24.3 Refer children with limb weakness that is part of a developmental disorder to paediatric services, in line with the recommendations on looking for signs of cerebral palsy in the NICE guideline on cerebral palsy under 25s.

Boys with limb weakness

1.24.4 For boys with limb weakness, see the recommendations on boys with motor development delay and motor development regression.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on limb or facial weakness in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.25 Motor development delay or regression, and unsteadiness

New-onset gait abnormality

1.25.1 Refer immediately children with new-onset gait abnormality to acute paediatric services.

Motor development delay

1.25.2 Refer children to a child development service, and consider referring for physiotherapy or occupational therapy, in line with the recommendations in the NICE guideline on cerebral palsy in under 25s, if they:

- are not sitting unsupported by 8 months (corrected for gestational age) **or**
- are not walking independently by 15 months (girls) or 18 months (boys) (corrected for gestational age) **or**
- show early asymmetry of hand function (hand preference) before 1 year (corrected for gestational age).

1.25.3 If the child is a boy, consider measuring creatinine kinase level to exclude Duchenne muscular dystrophy before the boy has had a specialist review.

Motor development regression

1.25.4 Refer children with motor development regression to a paediatric neurodevelopmental service or paediatric neurology depending on locally agreed pathways.

1.25.5 If the child is a boy, consider measuring creatinine kinase level to exclude Duchenne muscular dystrophy before the boy has had a specialist review.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on motor development delay and unsteadiness.

Full details of the evidence and the committee's discussion are in the full guideline.

1.26 Posture distortion in children

Children with a recent head or neck trauma

1.26.1 Refer immediately children with abnormal neck posture and a recent head or neck trauma to an emergency department for assessment, and follow the recommendations on cervical spine immobilisation in the section on initial assessment and care in the NICE guideline on head injury, and the recommendation on spinal immobilisation in the section on assessment for spinal injury in the NICE guideline on spinal injury.

Children with no recent trauma

1.26.2 In children with abnormal neck posture, check whether painful cervical lymphadenopathy is the cause.

1.26.3 Refer children who develop abnormal limb posture that has no apparent musculoskeletal cause for neurological assessment.

1.26.4 Be aware that abnormal head tilt in children can be a symptom of posterior fossa tumour.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on posture distortion in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.27 Sensory symptoms such as tingling or numbness in children

Tingling together with other symptoms

1.27.1 Refer urgently children who have tingling accompanied by other peripheral nervous system symptoms such as weakness, bladder dysfunction or bowel dysfunction for neurological assessment.

1.27.2 Be aware that tingling in children may be the first symptom of an acute polyneuropathy (Guillain–Barré syndrome) or other neuro-inflammatory conditions. If the child has features suggesting motor impairment, refer urgently for neurological assessment.

Isolated tingling, altered sensation or paraesthesia

1.27.3 Refer children with isolated tingling, altered sensation or paraesthesia for neurological assessment if the symptoms are episodic and are not associated with compression of a nerve. For more information, see the recommendations on diagnosis and investigations in the NICE guideline on epilepsies.

Temporary tingling caused by nerve compression or hyperventilation

1.27.4 Do not routinely refer children for neurological assessment of temporary tingling or numbness if there is a clear history of the symptom being triggered by activities known to cause nerve compression, such as carrying a heavy backpack or sitting with crossed legs.

1.27.5 Be aware that in children, hyperventilation is a common cause of transient tingling in the limbs.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on sensory symptoms such as tingling or numbness in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.28 Sleep disorders in children

Symptoms suggesting possible respiratory failure

1.28.1 Refer urgently children with neuromuscular disorders who have early-morning headaches or new-onset sleep disturbance for a respiratory assessment.

Sleep disorders suggesting nocturnal seizures

1.28.2 Refer urgently children who have symptoms suggestive of new-onset epileptic seizures in sleep for neurological assessment.

Narcolepsy

1.28.3 Refer children with symptoms suggestive of narcolepsy, with or without cataplexy, for neurological assessment or a sleep clinic assessment according to local pathways.

Sleep disorders suggesting sleep apnoea

1.28.4 Refer children with symptoms of sleep apnoea to ear, nose and throat or paediatric respiratory services, as appropriate, and offer advice on weight loss if the child is obese.

Night terrors in children aged over 5 years

1.28.5 Refer children aged over 5 years with new-onset night terrors and children with night terrors that persist after age 12.

Night terrors and other sleep disturbances in children aged under 5 years

1.28.6 Reassure parents or carers of children aged under 5 years who have night terrors, repetitive movements, sleep talking or sleep walking that these are common in healthy children and rarely indicate a neurological condition.

1.28.7 Offer advice on sleep hygiene to parents or carers of children with insomnia, and consider referring to a health visitor if the child is aged under 5 years.

Sleep disorders in children with neurodevelopmental disorders or learning disabilities

1.28.8 Consider referring children with sleep disorders associated with neurodevelopmental disorders or learning disabilities to community paediatric services.

Sleep disorders as a result of gastro-oesophageal reflux or constipation

1.28.9 Be aware that sleep disorders in children may be a symptom of gastro-oesophageal reflux or constipation. See the recommendations on diagnosing and investigating gastro-oesophageal reflux disease in the NICE guideline on gastro-oesophageal reflux disease in children and young people, and the NICE guideline on constipation in children and young people.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on sleep disorders in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.29 Speech problems in children

New-onset slurred or disrupted speech

1.29.1 Refer urgently children with new-onset slurred or disrupted speech that is not attributable to prescribed medicines, recreational drugs or alcohol for neurological assessment.

Problems with speech development in children aged over 2 years

1.29.2 Consider referring children aged over 2 years with abnormal speech development to speech and language services.

1.29.3 Be aware that delay or regression in speech and language in children can be a symptom of autism. Follow the recommendations in the NICE guideline on recognition, referral and diagnosis of autism spectrum disorder in under 19s for recognising children and young people with possible autism and referring children and young people to the autism team.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on speech problems in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.30 Squint

New-onset squint with loss of red reflex

1.30.1 Refer immediately children with new-onset squint that occurs together with loss of red reflex in one or both eyes to ophthalmology services. (Also see recommendations on childhood cancers in NICE's guideline on suspected cancer.)

New-onset squint with ataxia, vomiting or headache

1.30.2 Refer immediately children with new-onset squint that occurs together with ataxia, vomiting or headache to acute paediatric services.

Paralytic squint

1.30.3 Refer urgently children with paralytic squint for neurological assessment, even in the absence of other signs and symptoms of raised intracranial pressure.

Non-paralytic squint

1.30.4 Refer children with non-paralytic squint to ophthalmology services.

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

Full details of the evidence and the committee's discussion are in the full guideline.

1.31 Tics and involuntary movements in children

Sudden-onset involuntary movements

1.31.1 Refer immediately children who have sudden-onset chorea, ataxia or dystonia for neurological assessment.

Tics

1.31.2 Do not routinely refer children with simple motor tics that are not troublesome to the child.

1.31.3 Advise parents or carers of children with a tic disorder to discuss the disorder with the child's school, emphasising that the tic is an involuntary movement and the child should not be reprimanded for it.

1.31.4 Do not offer medicine for motor tics in children without specialist referral and advice (see recommendation 1.31.6).

1.31.5 Be aware that tics and stereotypies (repetitive or ritualistic movements such as body rocking) are more common in children with autism or a learning (intellectual) disability.

1.31.6 For children with a tic disorder that has a significant impact on their quality of life, consider referring according to local pathways, as follows:

- referral to mental health services if the tic disorder is associated with symptoms of anxiety or obsessive compulsive behaviour
- referral to the neurodevelopmental team if the tic disorder is associated with symptoms suggestive of autism or attention deficit hyperactivity disorder
- referral for neurological assessment if the tic disorder is severe.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale section on tics and involuntary movements in children.

Full details of the evidence and the committee's discussion are in the full guideline.

1.32 Tremor in children

Tremor of sudden onset or with accompanying neurological signs or symptoms

1.32.1 Refer urgently children presenting with tremor for neurological assessment if:

- they have additional neurological signs or symptoms such as unsteadiness **or**
- the onset of the tremor was sudden.

Postural tremor

1.32.2 Be aware that isolated postural tremor in children may be a side effect of sodium valproate or a beta-adrenergic agonist.

1.32.3 Consider thyroid function tests for children with postural tremor and other symptoms or signs suggestive of thyroid overactivity.

1.32.4 Refer children with postural tremor for occupational therapy only if the tremor is affecting activities of daily living such as writing, eating or dressing.

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

Full details of the evidence and the committee's discussion are in the full guideline.

Terms used in this guideline

Refer immediately

To be seen by the specialist service within a few hours, or even more quickly if necessary.

Refer urgently

To be seen by the specialist service within 2 weeks.

Refer

A routine referral.

Consider referring

Consider a routine referral.

Dizziness

A subjective sensation of spinning (vertigo) or a more vague sensation of unsteadiness, and sometimes a feeling of light-headedness or pre-syncope.

Functional neurological disorder

A condition in which people experience neurological symptoms in the absence of any identifiable causative physical or structural abnormality.

Radiculopathy

Irritation or damage to a nerve root as it exits the spinal canal. It is most commonly caused by mechanical compression from a prolapsed intervertebral disc or degenerative arthritis of the spine. Less frequently, an infection such as herpes zoster or Lyme disease is the

cause. Symptoms include neck or low back pain radiating into a limb, tingling (paraesthesia), reduced or absent deep tendon reflex(es) and weakness in the distribution of the nerve root.

Suspected cancer pathway referral

Person to receive a diagnosis or ruling out of cancer within 28 days of being referred urgently by their GP for suspected cancer. For further details, see NHS England's webpage on faster diagnosis of cancer.

Rationale: recommendations for adults aged over 16

These sections briefly explain why the committee made the recommendations for adults. They link to details of the evidence and a full description of the committee's discussion.

Blackouts in adults

Recommendations 1.1.1 and 1.1.2

Why the committee made the recommendations

The committee agreed that the NICE guideline on transient loss of consciousness ('blackouts') in over 16s provides comprehensive recommendations on recognition and referral.

Return to recommendations

Dizziness and vertigo in adults

Recommendations 1.2.1 to 1.2.10

Why the committee made the recommendations

The committee used their knowledge and experience, together with evidence, to develop the recommendations on dizziness and vertigo in adults.

Sudden-onset dizziness with a focal neurological deficit

Evidence showed that sudden-onset dizziness is more likely to indicate a serious neurological condition if it is accompanied by imbalance and a focal abnormality. The committee confirmed that this is in line with their own clinical experience. They noted that these symptoms can also be caused by hypoglycaemia, and that prompt treatment of hypoglycaemia can reduce neurological damage.

Sudden-onset acute vestibular syndrome

The committee acknowledged the difficulty in differentiating between benign peripheral vertigo and the potentially more serious central vertigo that indicates a possible posterior circulation stroke. They agreed that a rapid bedside test would be a valuable addition to practice and could reduce unnecessary scans.

There is evidence showing that the accuracy of the bedside HINTS (head-impulse–nystagmus–test-of-skew) test is broadly similar to that of MRI in identifying people who have had a stroke and ruling out stroke in those who haven't. However, this accuracy is achieved only if the test is carried out by someone who has training and expertise in its use and interpretation. The committee noted that the HINTS test is non-invasive and would avoid the need for scans in people with a negative HINTS examination. To ensure that all people with stroke are identified promptly, the committee agreed that an immediate referral should be made if there is no healthcare professional with training in the HINTS test available.

Sudden-onset dizziness with no imbalance or focal neurological deficit

Evidence showed that dizziness on its own is less likely to indicate a serious neurological condition than dizziness accompanied by other symptoms or signs. The committee confirmed that this is in line with their own clinical experience. They agreed that dizziness is a common and often self-limiting symptom and that this recommendation will help to reduce unnecessary referrals.

Vertigo on head movement

The committee's clinical experience has shown that for many people, positional vertigo is rapidly relieved by a canalith repositioning manoeuvre such as the Epley manoeuvre. The committee agreed that this is a simple, low-risk and effective intervention that can be offered in primary care.

Vestibular migraine

The committee agreed that the diagnostic criteria for vestibular migraine (vertigo associated with migraine) issued by the International Headache Society would be useful to aid recognition of this condition in primary care.

Recurrent dizziness as part of a functional neurological disorder

In the committee's experience, symptoms caused by a functional neurological disorder can mimic symptoms caused by a physical neurological disorder. Dizziness is a common example of such a symptom. The committee thought it important to make a recommendation highlighting this to enable non-specialists to recognise when recurrent dizziness can be managed as part of a functional neurological disorder, rather than a symptom needing referral for neurological investigation.

Dizziness with altered consciousness

The committee noted that epilepsy can sometimes present as recurrent fixed-pattern dizziness associated with alteration of consciousness.

Return to recommendations

Facial pain, atraumatic

Recommendations 1.3.1 to 1.3.3

Why the committee made the recommendations

Although atraumatic facial pain is a common symptom, no evidence on associated features that might indicate a need for referral was identified. The committee used their knowledge and experience to highlight signs and symptoms that might indicate a need for referral.

Facial pain with persistent facial numbness or abnormal neurological signs

The committee agreed that facial pain together with persistent numbness or abnormal neurological signs should be referred urgently for neuroimaging to exclude a possible infiltrative or intracranial mass lesion.

Unilateral facial pain triggered by touching the face (trigeminal neuralgia)

The committee agreed that trigeminal neuralgia can be managed in primary care, following the recommendations in the NICE guideline on neuropathic pain in adults. A lack of response indicates that specialist review of the diagnosis and treatment is needed.

Scalp tenderness or jaw claudication suggestive of temporal arteritis

The committee noted that temporal arteritis can be difficult to diagnose. Left untreated, it can lead to permanent neurological damage, so the committee thought it important that temporal arteritis is always considered as a possible cause of facial pain and headache in older people.

Return to recommendations

Gait unsteadiness

Recommendations 1.4.1 to 1.4.5

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on gait unsteadiness.

Sudden-onset unsteady gait

The committee agreed that sudden onset of an unsteady gait could indicate a vascular event such as a stroke, and therefore people with this symptom should be referred urgently, in line with the NICE guideline on stroke and transient ischaemic attack in over 16s.

Rapidly progressive unsteady gait (gait ataxia)

The committee noted that this is an unusual symptom that could indicate a number of underlying conditions, including a brain tumour, an infection or a paraneoplastic presentation of an ovarian, lung or breast cancer. Because of the seriousness of these conditions, the committee agreed that people with this symptom should be referred urgently for specialist investigation.

Gradually progressive unsteady gait (gait ataxia)

The committee agreed that referral is important to identify treatable causes of a gradually progressive unsteady gait. The committee also agreed that it would be useful to highlight simple measures that can be taken while waiting for an appointment in secondary care.

Checking and addressing alcohol consumption, gluten sensitivity and thyroid function can aid management of associated conditions and help to inform diagnosis.

Difficulty initiating and coordinating walking (gait apraxia)

The committee agreed that raising awareness of normal pressure hydrocephalus as a possible cause of gait apraxia is important because it is easily overlooked and can sometimes be treated.

Return to recommendations

Handwriting difficulties

Recommendations 1.5.1 and 1.5.2

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on handwriting difficulties.

Although the committee thought that isolated handwriting difficulty is an unusual stroke presentation, they agreed that it is important to consider the possibility of stroke if handwriting difficulty occurs very suddenly.

The committee noted that difficulties with handwriting are not a common presentation in primary care and it can be difficult for non-specialists to recognise when they indicate an underlying neurological disorder.

Return to recommendations

Limb or facial weakness in adults

Recommendations 1.7.1 to 1.7.13

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external

experts, to develop the recommendations on limb or facial weakness in adults.

Sudden-onset limb weakness

In the committee's experience, sudden-onset weakness that is restricted to a single limb is sometimes incorrectly attributed to a compression neuropathy or a musculoskeletal cause. They agreed that stroke or transient ischaemic attack should be suspected in all cases of sudden-onset limb or facial weakness.

Rapidly progressive symmetrical limb weakness

The committee agreed that rapidly progressive symmetrical limb weakness can indicate a potentially life-threatening neuromuscular disorder or cervical myelopathy. These disorders can affect the respiratory muscles and cause respiratory failure. Their presenting features can be difficult to recognise in the early stages of the disorder.

Severe low back pain together with other symptoms

The committee agreed that these symptoms can indicate cauda equina syndrome, which is a medical emergency.

Rapidly progressive weakness of a single limb or hemiparesis

The committee agreed that this symptom can indicate potentially serious neurological disease and needs to be assessed urgently.

Slowly progressive limb or neck weakness

The committee agreed that recognition and referral of slowly progressive limb or neck weakness is covered in the NICE guideline on motor neurone disease. If the weakness is accompanied by symptoms such as problems with swallowing or breathing, an urgent referral is needed.

Lower limb claudication symptoms

The committee agreed that lower limb discomfort that comes on after walking and improves with rest (claudication), and that has no vascular cause, might indicate lumbar canal stenosis. If the pain is severe or disabling, a specialist assessment is indicated and

this may be carried out by an extended scope practitioner, neurosurgeon or orthopaedic surgeon.

Recurrent limb or facial weakness as part of a functional neurological disorder

The committee noted that recurrent episodes of limb weakness are not uncommon in people with functional neurological disorders. They agreed that in these cases, referral after each episode of limb weakness is not necessary.

The committee agreed that reassuring adults about the nature of the underlying condition will help to allay their concerns and reduce requests for referrals.

Compression neuropathy

In the committee's experience, compression neuropathies can be recognised on the basis of a history of prolonged pressure on the nerve and the pattern of weakness and numbness. They usually resolve spontaneously within 6 weeks, although a splint might be needed for support during recovery. Reducing recurrent pressure or trauma on the affected nerve aids recovery.

Bell's palsy

The committee agreed that uncomplicated Bell's palsy can be diagnosed and managed in primary care. They thought it important that people with this condition know that recovery time can vary and that recovery might not be complete. Referral for specialist treatment can be beneficial for people who develop troublesome symptoms after recovering from Bell's palsy.

Return to recommendations

Memory failure and cognitive deterioration

Recommendations 1.8.1 to 1.8.6

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external

experts, to develop the recommendations on memory failure and cognitive deterioration. They reviewed evidence on specific tools for brief memory testing but no evidence to support a recommendation on specific tools was identified.

Memory problems in people aged under 50

The committee agreed that, although difficulties with memory are common in people aged under 50, neurodegenerative disorders affecting memory are rare. Brief memory testing and knowledge of common causes of memory difficulties can reassure the clinician that referral is not needed. No evidence on the diagnostic accuracy of different tools for brief memory testing was identified so the committee agreed not to recommend any specific tests.

Memory problems as part of an anxiety disorder or a functional neurological disorder

The committee noted that difficulty concentrating is a common symptom in people with an anxiety disorder or a functional neurological disorder. It often presents as a problem with memory.

Concentration difficulties associated with myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome or fibromyalgia

The committee pointed out that difficulties with memory and concentration are common in myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome or fibromyalgia, and that these symptoms can be managed as part of the management of those conditions.

Progressive memory problems

The committee agreed that the NICE guideline on dementia provides advice on referring adults with progressive memory problems.

Dense amnesia

The committee thought it important to raise awareness of transient global amnesia, which presents as a single episode of dense amnesia with complete recovery and no features of epilepsy, and has a very low recurrence rate. The committee wanted to help non-

specialists differentiate this from transient epileptic amnesia, which is recurrent and needs further investigation.

Return to recommendations

Posture distortion in adults

Recommendations 1.9.1 to 1.9.5

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on posture distortion in adults.

Dystonia

The committee wanted non-specialists to be aware that cervical dystonia is diagnosed on the basis of clinical features, and that imaging is unnecessary and can delay treatment. They also wanted to raise awareness of the wide range of ways in which dystonia can present, such as only during the performance of certain tasks or in certain parts of the body.

The committee discussed the possible misinterpretation of dystonia affecting neck and foot posture as an orthopaedic problem, leading to unnecessary orthopaedic referrals. They made a specific recommendation for neurological referral to ensure that dystonia caused by an underlying neurodegenerative condition, or by medication, is identified and managed. If the dystonia is idiopathic, treatment can be offered.

Dystonia as a side effect of medications

The committee wanted to point out that dystonia is a side effect of some widely used antipsychotic and antiemetic medicines. It typically occurs within a few days of starting the medicine. In these cases, the prescriber of the medicine should review it.

Return to recommendations

Sensory symptoms including tingling or numbness

in adults

Recommendations 1.10.1 to 1.10.13

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on sensory symptoms including tingling or numbness in adults. Although evidence was reviewed, none that could support recommendations was identified.

Numbness and weakness

The committee agreed that transient unilateral numbness of sudden onset should be managed in line with the NICE guideline on stroke and transient ischaemic attack in over 16s.

The committee emphasised the immediate risk posed by rapidly progressive symmetrical numbness, which might indicate a post-infective polyneuropathy (Guillain–Barré syndrome) or transverse myelitis and can be difficult to recognise in the early stages.

Sensory disturbances

Although the committee agreed that recurrent, brief, fixed-pattern sensory disturbances are not the most common presentation of epilepsy, they thought referral would be important so as not to miss this important diagnosis.

The committee agreed that persistent, distally predominant altered sensation in the limbs in a person with brisk deep tendon reflexes might indicate a lesion in the brain or spinal cord. In a person with depressed reflexes, it is more likely to indicate a neuropathy.

The committee wanted to raise awareness of the possibility of migraine in people with some types of sensory symptoms, and noted that the NICE guideline on headaches in over 12s provides recommendations on recognition and referral for migraine.

The committee also wanted to encourage non-specialists to explore the possibility of peripheral neuropathy as a cause of sensory symptoms before referral. They thought this would help to ensure that people with these symptoms are referred to the correct service, which may be neurological or non-neurological.

Numbness and tingling as part of a functional neurological disorder

The committee noted that transient sensory symptoms are common in people with a functional neurological disorder. They considered that these symptoms might not need neurological assessment.

The committee agreed that people with a functional neurological disorder might benefit from knowing that their symptoms are likely to fluctuate and evolve with time.

Carpal tunnel syndrome

The committee noted that carpal tunnel syndrome is common and many regions have established management pathways that might not involve neurological services.

Numbness, tingling or pain in the outer thigh

The committee agreed that this is a common condition that usually improves with time, and might benefit from weight loss.

Cervical or lumbar radiculopathy

In the committee's experience, cervical and lumbar radiculopathies usually settle spontaneously within a few weeks. However, the committee thought it important to highlight features that might suggest a more serious underlying condition and need further investigation.

Tingling or sensory disturbances on waking from sleep

The committee noted that this symptom is usually caused by compression related to sleeping posture and resolves rapidly without treatment.

Return to recommendations

Sleep disorders in adults

Recommendations 1.11.1 to 1.11.6

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on sleep disorders in adults.

Insomnia

The committee agreed that difficulty sleeping and brief involuntary movements in sleep are common and benign, and do not indicate a neurological problem.

Symptoms that suggest new-onset epileptic seizures

The committee highlighted the substantial risk of sudden unexpected death in epilepsy (SUDEP) in people who have epileptic seizures during sleep. They therefore emphasised the need for prompt investigation for people with this symptom.

Excessive sleepiness and narcolepsy

The committee thought it important that people with excessive sleepiness are offered assessment for sleep apnoea so that they can be referred in line with local policies and pathways for the management of this condition. They agreed that the Epworth score is a well-established measure of sleep apnoea suitable for use by non-specialists.

Although narcolepsy and cataplexy are rare conditions, the committee thought it important to highlight them to raise awareness among non-specialists.

Sleep behaviour disorders

The committee observed that sleep behaviour disorders vary in severity and on rare occasions can endanger life if they cause a person to undertake potentially harmful behaviours while asleep. They agreed that complex and severe sleep behaviour disorders need further assessment, and that the clinical judgement of the non-specialist is the best means of determining whether to offer further assessment to an individual.

Return to recommendations

Smell or taste problems

Recommendations 1.12.1 to 1.12.5

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on smell or taste problems.

Distorted sense of smell or taste

In the committee's experience, sudden-onset distortion of sense of smell or taste is usually idiopathic. The committee wanted to reassure non-specialists that this symptom is unlikely to indicate a neurological condition.

Smell or taste hallucinations

The committee agreed that brief, repetitive smell or taste hallucinations can be caused by temporal lobe epilepsy. They noted that this symptom is not likely to be associated with a brain tumour.

Loss of sense of smell or taste

The committee noted that loss of sense of smell or taste is a fairly common reason for referral to neurological services, but rarely has a serious neurological cause. They therefore thought that neuroimaging is not usually needed.

The committee agreed that an exception to this is a loss of sense of smell or taste that can't be attributed to a rhinological cause, normal ageing or neurodegenerative disease, and lasts longer than 3 months.

The committee discussed loss of smell or taste after a head injury. They noted that this is common and does not indicate more extensive brain injury. Loss of sense of smell after a head trauma is not treatable and is often permanent.

Return to recommendations

Speech, swallowing and language problems in adults

Recommendations 1.13.1 to 1.13.5

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on speech, swallowing and language problems in adults.

Sudden-onset speech or language disturbance

The committee agreed that sudden-onset speech or language disturbance could indicate a vascular event.

Progressive slurred or disrupted speech

The committee noted that slurred or disrupted speech can indicate serious underlying neurological disease, such as motor neurone disease or myasthenia gravis. Although the prognosis in motor neurone disease is not greatly influenced by early diagnosis, it is important to consider other diagnoses such as myasthenia gravis, which is highly treatable.

Dysphonia

The committee agreed that a quiet or wobbly voice (dysphonia) can be a symptom of laryngeal dystonia, which is potentially treatable.

The committee also wanted to raise awareness of dysphonia as a possible presenting symptom of Parkinson's disease.

Word-finding difficulties as part of an anxiety disorder or a functional neurological disorder

The committee agreed that minor word-finding difficulties are a very common presentation in anxiety disorder and functional neurological disorders.

Return to recommendations

Tics and involuntary movements in adults

Recommendations 1.14.1 to 1.14.6

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on tics and involuntary movements in adults.

Tics

The committee agreed that tics are relatively common and, on their own, are benign. Treatment and management options are limited so there is little value in referring to secondary care. The committee noted that tic disorders are often accompanied by anxiety and distress that might be relieved by psychological therapy. If this is not effective and the tics are very severe or socially disabling, the committee thought that neurological referral to explore further treatment options might be beneficial.

Involuntary movements

The committee observed that involuntary movements (such as in chorea) are often mistaken for tics. Unlike tics, involuntary movements cannot be voluntarily suppressed and if they are severe or persistent, might benefit from treatment.

Small, involuntary muscle twitches are usually benign, and are especially common in the calf muscles. If accompanied by weakness, muscle wasting or muscular rigidity (stiffness), they could indicate neuromuscular disease. Otherwise, the committee considered that it is usually sufficient to reassure the person.

Return to recommendations

Tremor in adults

Recommendations 1.15.1 to 1.15.4

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on tremor in adults. Although evidence was reviewed, none that could support recommendations was identified.

Tremor suggesting Parkinson's disease

The committee observed that a unilateral or predominantly unilateral tremor, especially if more prominent at rest and accompanied by slowness, is particularly suggestive of Parkinson's disease.

Essential tremor

The committee wanted to help non-specialists differentiate essential tremor from parkinsonian tremor. They noted that essential tremor is usually bilateral and does not affect muscle tone or speed of movement. They thought that essential tremor can usually be managed in primary care.

The committee agreed that troublesome head tremor can often be controlled using treatments available in a movement disorder clinic.

Return to recommendations

Information and support

Recommendations 1.16.1 and 1.16.2

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on information and support. They agreed that this guideline covers a very broad population, and that it is unwise to give guidance on people's specific information and support needs before a diagnosis has been made. They therefore included information that might usefully be given to people presenting with neurological symptoms in the relevant recommendations, and highlighted the NICE guideline on patient experience in adult NHS services.

The committee agreed that healthcare professionals should advise people about the impact of neurological conditions on driving. They noted that people are free not to reveal health issues to their employer, school or college, but that employers and others who have this information are better able to make adjustments to help the person continue their work or studies.

Return to recommendations

Rationale: recommendations for children aged under 16

These sections briefly explain why the committee made the recommendations for children. They link to details of the evidence reviews and a full description of the committee's discussion.

Attention, concentration and memory problems

Recommendations 1.17.1 to 1.17.4

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on attention, concentration and memory problems.

Attention, concentration and memory problems related to epilepsy

The committee noted that concentration and memory problems are common in children who have diagnosed or undiagnosed epilepsy. They agreed that, in a child not diagnosed with epilepsy, episodes of loss of awareness, attention or concentration might be unrecognised absence seizures that need further investigation.

In children already diagnosed with epilepsy, the committee discussed drowsiness caused by anti-epileptic medicines, especially in higher doses or if more than one medicine is being taken. Children and their parents or carers can be advised about this, and it might be possible to adjust doses to reduce the effect on concentration and memory.

Concentration or memory difficulties that interfere with learning or behaviour

The committee agreed that concentration and memory difficulties that interfere with a child's learning should have further assessment to avoid unscheduled healthcare visits for learning difficulties in the future.

The committee discussed the common perception of children with attention and concentration problems as having hyperactive, noisy and destructive behaviour. Such children readily come to the attention of primary care, school and paediatric neurodevelopmental services. The committee wanted to ensure that children who do not have hyperactivity but do have significant attention and concentration problems are also recognised. Because they do not behave in a disruptive manner, these children may not be identified promptly, and may later present with learning difficulties.

Return to recommendations

Blackouts and other paroxysmal events

Recommendations 1.18.1 to 1.18.5

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on blackouts and other paroxysmal events. Although evidence was reviewed, none that could support recommendations was identified.

Blackouts and vacant spells

Blackouts in children can be caused by neurological disorders, predominantly epilepsy, cardiac disorders or simple syncope. The committee observed that, even with a clear first-hand description of the event, it is not always possible to make a confident diagnosis without specialist assessment and investigations. The committee agreed that the recommendation for people with suspected epilepsy in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s is applicable to children aged under 16.

Vacant spells – often called absences – as a result of epilepsy in children can be difficult to distinguish from day-dreaming and loss of concentration, and need further assessment.

Blackouts in children under 12 years

The committee agreed that all children under 12 with blackouts or transient loss of consciousness should be referred for urgent assessment because history and examination do not always allow a diagnosis to be made confidently and there are a number of potentially serious causes that need to be excluded.

Vasovagal syncope

Vasovagal syncope is common in young people, and is often inappropriately referred because of concern that it represents seizures. The committee considered that the recommendation on vasovagal syncope in the NICE guideline on transient loss of consciousness ('blackouts') in over 16s is applicable to children aged 12 to 15 years.

Blackouts, seizures or amnesia after a head injury

Transient loss of consciousness after a head injury in children is usually immediate or within a few minutes. Much-delayed paroxysmal events after head injury in children – days or weeks later – are rare but warrant urgent referral for neurological assessment. The committee considered that the recommendations on pre-hospital assessment, advice and referral to hospital in the NICE guideline on head injury should be followed.

Return to recommendations

Confusion, acute

Recommendations 1.19.1 to 1.19.3

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on acute confusion.

Acute confusion in a child can be a symptom of a severe neurological illness such as meningitis, intracranial haemorrhage, raised intracranial pressure, or drug or alcohol poisoning. The committee agreed that all children presenting with acute confusion should be transferred to hospital immediately by the quickest means available. Hypoglycaemia can present with acute confusion and therefore blood glucose should be measured as soon as possible to avoid delays in diagnosis and treatment for the child once in hospital care. This will also save time for paramedic services.

Return to recommendations

Dizziness and vertigo in children

Recommendations 1.20.1 to 1.20.5

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on dizziness and vertigo in children.

Dizziness with no accompanying symptoms or signs

The committee wanted to reassure non-specialists that dizziness without any other symptoms is very unlikely to indicate a brain tumour. Brain tumours usually present with symptoms such as headache, nausea and vomiting, ataxia or drowsiness.

The committee also thought non-specialists should consider the possibility of migraine as a cause of dizziness. They agreed that clinical judgement should be used to determine the care pathway for children with dizziness and migraine.

Dizziness in older children

The committee thought that non-specialists should bear in mind the possibility of postural hypotension, which is common in children aged over 8 years. They noted that postural hypotension might not be present at the time of examination and cannot always be excluded by measuring blood pressure.

Dizziness caused by middle ear infection or effusion

The committee agreed that middle ear infection and middle ear effusion can be a cause of dizziness in children. They noted that the child may have fever, pain and diminished hearing, or a recent history of these, and that the eardrum might appear red and inflamed or bulging.

Recurrent dizziness

The committee identified recurrent dizziness in children as a red flag that warrants investigation once postural hypotension has been excluded. Cardiac dysrhythmias, although rare, can be a cause of dizziness, may be associated with exercise, and are

potentially serious.

Return to recommendations

Headaches in children

Recommendations 1.21.1 to 1.21.7

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on headaches in children. Although evidence was reviewed, none that could support recommendations was identified.

Headaches in children under 12 years

The committee considered that children under 12 with headache and any of the 'red flag' symptoms detailed in this recommendation need immediate assessment, because these symptoms could indicate significant intracranial pathology, including a brain tumour.

Headaches in children under 4 years

The committee agreed that headache in a child aged under 4 years is an unusual symptom and, when present, has a high chance of being associated with a significant intracranial disease. Because the child is unable to articulate clearly what is wrong, parents may report excessive crying, a high-pitched cry or excessive irritability.

Recurrent headaches and migraines

The committee agreed that examination of the retinal fundus to identify disc swelling is essential for children with recurrent headache. They acknowledged that not all non-specialists have the skills needed for retinal fundus examination so they recommended that this could be requested, for example, from an ophthalmologist or optician.

The committee discussed raised blood pressure as a rare cause of headaches in children. The headaches may be accompanied by dizziness, vomiting or blurred vision. Because normal blood pressure changes with age and body height, they recommended that

measurements of blood pressure in children are compared with standardised blood pressure charts adjusted for age and height.

Headaches that are relieved by lying down might indicate spontaneous intracranial hypotension. Although this condition is rare, the committee agreed that children with this symptom would benefit from referral and treatment.

The committee accepted that migraine is common in children and does not usually need referral. They agreed that stress can trigger migraines or chronic headaches. They also noted that overuse of analgesics can cause recurrent headaches.

Return to recommendations

Head shape or size abnormalities

Recommendations 1.22.1 to 1.22.6

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on head shape or size abnormalities. Although evidence was reviewed, none that could support recommendations was identified.

Children with dysmorphic features and developmental delay

The committee discussed a number of rare syndromes that involve premature closure of cranial sutures in association with other dysmorphic features, including disorders of facial growth and limb deformities. The investigation and management of these disorders is highly specialised and complex. The committee recommended urgent referral because early surgical intervention can be beneficial for these children.

Children aged under 4 years

The committee noted that abnormalities of head shape or size are most likely to indicate disorders of brain growth or raised intracranial pressure in children aged under 4 years, so measurement of head circumference is important in this age group if abnormalities are suspected. They agreed that GPs and health visitors should adopt standardised methods to measure head circumference and chart head growth, to ensure that accurate and

consistent measurements are available to guide referral decisions.

Babies aged under 1 year with plagiocephaly

Babies frequently have a preferred lying position with their head to one side. This can lead to positional plagiocephaly, a benign condition in which one side of the head is flattened. The committee discussed how measuring the distance between the tragus of the ear and the outer canthus of the eye is a useful adjunct to clinical inspection and can help to reassure parents or carers. However, the committee acknowledged that this is not an absolute discriminator. Clinical assessment is always subjective and there is no test, short of imaging (rarely justified in plagiocephaly), that is infallible. Therefore, if there is uncertainty, referral for specialist assessment is advisable.

Return to recommendations

Hypotonia ('floppiness')

Recommendations 1.23.1 and 1.23.2

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on hypotonia ('floppiness').

The committee thought it important to highlight potential causes of hypotonia so that babies with a possible serious disorder of cardiac, renal or liver function are referred immediately to paediatric services.

The committee noted that babies who exhibit unexplained floppiness together with weakness are much more likely to have an underlying progressive disorder of the nervous system and need urgent referral.

Return to recommendations

Limb or facial weakness in children

Recommendations 1.24.1 to 1.24.4

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on limb or facial weakness in children.

Sudden-onset or progressive limb or facial weakness

In the committee's view, sudden or rapidly progressive limb or facial weakness in a child is usually a symptom of a pathology that needs immediate neurological investigation or management because the child's condition can deteriorate rapidly.

Limb weakness as part of a developmental disorder

The committee noted that cerebral palsy is the most common chronic motor disorder that affects children, but other genetic and medical disorders can have a similar presentation. They agreed that the recommendations in the NICE guideline on cerebral palsy in under 25s should be followed.

Boys with limb weakness

See the rationale on early diagnosis of Duchenne muscular dystrophy.

Return to recommendations

Motor development delay and unsteadiness

Recommendations 1.25.1 to 1.25.5

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on motor development delay and unsteadiness. Although evidence on creatine kinase testing for Duchenne muscular dystrophy was reviewed, none that could support recommendations was identified.

New-onset gait abnormality

The committee agreed that new-onset gait abnormality could indicate trauma, infection,

appendicitis or a hip abnormality, so these children need to be referred immediately.

Motor development delay

Although most children with motor development delay are simply at the slower end of the normal range of acquisition of motor skills, a small number will have a neurodevelopmental disorder such as muscular dystrophy or cerebral palsy. Assessment is relatively quick and the committee's view was that it is worth referring these children to a child development service to screen for problems and, in most cases, reassure parents. The committee agreed that the NICE guideline on cerebral palsy in under 25s provides further advice on referral for these children.

Early diagnosis of Duchenne muscular dystrophy is especially important so that the family can be offered genetic counselling. Creatinine kinase measurement is an inexpensive, routine test that can help identify this condition. If the test result is negative, Duchenne muscular dystrophy is unlikely.

Motor development regression

The committee agreed that specialist investigation of motor development regression is best carried out by a paediatric neurodevelopmental service or paediatric neurology because of the complexity of the investigations needed.

Return to recommendations

Posture distortion in children

Recommendations 1.26.1 to 1.26.4

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on posture distortion in children.

Children with a recent head or neck trauma

Abnormal neck posture in a child who has had a recent head or neck trauma can indicate

instability of cervical spine through bony or ligamentous injury, so the committee agreed that the child should be referred to an emergency department immediately, and immobilisation applied in line with the recommendations in the NICE guidelines on head injury and spinal injury.

Children with no recent trauma

The committee noted that an abnormal neck posture might be the result of painful enlarged lymph nodes that are a common presentation and can be managed in primary care.

The committee agreed that the most common cause of abnormal limb posture in children is pain or injury. If there is no history of an associated acute event or obvious musculoskeletal cause, the child needs to be referred to exclude progressive causes that need treatment.

The committee noted that abnormal head tilt can present before other typical symptoms of posterior fossa tumours, such as ataxia, vomiting and headaches. This finding is sometimes dismissed, leading to delay in diagnosis, and the committee therefore considered it useful to draw attention to the possibility.

Return to recommendations

Sensory symptoms such as tingling or numbness in children

Recommendations 1.27.1 to 1.27.5

Why the committee made the recommendations

The committee used their knowledge and experience to develop the recommendations on sensory symptoms including tingling or numbness in children. Although evidence was reviewed, none that could support recommendations was identified.

Tingling together with other symptoms

Tingling together with other peripheral nervous system symptoms might indicate

pathology affecting the spinal cord. It is not easy to recognise this pathology on clinical examination, so the committee agreed that children with these symptoms need to be referred urgently.

Tingling can also be the first symptom of Guillain–Barré syndrome which, although relatively rare, can affect respiratory function through motor impairment, so the committee agreed that children with tingling and features suggesting motor impairment need to be referred urgently.

Isolated tingling, altered sensation or paraesthesia

The committee noted that transient, fixed-pattern sensory symptoms that are not associated with compression of a nerve can indicate epilepsy and that children with these symptoms should be referred. The NICE guideline on epilepsies provides advice on diagnosis and investigations for epilepsy.

Temporary tingling caused by nerve compression or hyperventilation

The committee agreed that temporary tingling of this nature is commonly caused by carrying heavy objects or over-breathing, and these children do not need to be referred.

Return to recommendations

Sleep disorders in children

Recommendations 1.28.1 to 1.28.9

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on sleep disorders in children.

Symptoms suggesting possible respiratory failure

The committee noted that in children with neuromuscular disorders such as Duchenne muscular dystrophy, headaches on awakening in the morning can be an early sign of respiratory failure caused by hypoventilation during sleep. These children are also more

susceptible to sleep apnoea and other breathing disorders caused by decreased muscle tone in the muscles of the airway.

Sleep disorders suggesting nocturnal seizures

The committee agreed that nocturnal seizures are a risk factor for sudden unexpected death in epilepsy (SUDEP) and need prompt investigation. They acknowledged that it can be difficult to identify nocturnal epileptic seizures, but highlighted that red flags are a stereotyped pattern of behaviour during the episode, an episode that starts as a focal seizure and then becomes generalised, or difficulty rousing the child after the episode.

Narcolepsy

The committee agreed that narcolepsy is a condition that is easily missed in children. It can present as daytime drowsiness, falling asleep in unusual circumstances, or as poor school performance and poor concentration. Diagnosis, assessment and management are best achieved by a service with experience of this condition, so the committee recommended referral to neurological services.

Sleep disorders suggesting sleep apnoea

The committee observed that sleep apnoea is not uncommon in babies and young children and might be caused by gastro-oesophageal reflux or intercurrent infection. In older children, it can be a result of enlarged tonsils and adenoids. Obesity can also cause sleep apnoea in children. They concluded that children with symptoms of sleep apnoea should be referred to determine the cause, and advice on weight loss should be offered for those who are obese.

Night terrors in children aged over 5 years

The committee noted that new-onset night terrors are unusual in children aged over 5 years, and could indicate epilepsy. For this reason, they agreed that new-onset night terrors in children of this age, as well as children in whom night terrors continue after age 12, should be referred.

Night terrors and other sleep disturbances in children aged under 5 years

The committee recognised that clinicians are aware that sleep disturbance is common in

childhood and often resolves as the child gets older. However, reassuring parents that sleep disturbances are a normal part of development might help to reduce the pressure for an unnecessary referral. Referring children aged under 5 years to a health visitor may be helpful.

Sleep disturbances in children with neurodevelopmental disorders or learning disabilities

The committee thought that that children with neurodevelopmental disorders or learning disabilities should be considered separately because referral to paediatric services may not be appropriate given the prevalence of sleep problems in these children. They agreed that clinical judgement should be used.

Sleep disorders as a result of gastro-oesophageal reflux or constipation

The committee thought it useful to point out that sleep disturbances might also be caused by gastro-oesophageal reflux or constipation, and agreed that the NICE guidelines on these conditions in children would be helpful.

Return to recommendations

Speech problems in children

Recommendations 1.29.1 to 1.29.3

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on speech problems in children.

New-onset slurred or disrupted speech

The committee agreed that new-onset slurred or disrupted speech not attributable to medicines, recreational drugs or alcohol can indicate an acute or progressive neurological disorder or epilepsy, and therefore children with this symptom need urgent neurological assessment.

Problems with speech development in children aged over 2 years

The committee noted that problems with speech development are a very common presentation. They discussed the appropriate age for referral, noting that there is a wide range within which development can be considered normal. They therefore agreed that referrals should not be made before the age of 2 years. Until that age, development may be within normal limits, and speech difficulties may resolve unaided.

Return to recommendations

Squint

Recommendations 1.30.1 to 1.30.4

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on squint.

New-onset squint with loss of red reflex

The committee agreed that referral should be immediate as new-onset squint with loss of red reflex in one or both eyes can indicate a retinoblastoma, or other progressive pathology of the eye. Additionally, following post publication feedback, NICE felt it was important to highlight that a new-onset squint with loss of red reflex in one or both eyes may also indicate a neurological condition associated with raised intracranial pressure or a brain tumour.

New-onset squint with ataxia, vomiting or headache

New-onset squint presenting with accompanying symptoms such as ataxia, vomiting or headache can indicate raised intracranial pressure. The committee agreed that children presenting with squint and any of these symptoms should be referred immediately.

Paralytic squint

Intracerebral tumour or inflammation can present with restriction of movement of one or both eyes, so the committee agreed that this symptom should trigger urgent referral.

Non-paralytic squint

In a non-paralytic squint, the child retains the ability to move both eyes fully in all directions. In the absence of any other signs or symptoms such as loss of red reflexes, ataxia, vomiting or headaches, the committee agreed that this symptom warrants a routine referral to ophthalmology.

Return to recommendations

Tics and involuntary movements in children

Recommendations 1.31.1 to 1.31.6

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on tics and involuntary movements in children.

Sudden-onset involuntary movements

The committee agreed that sudden onset of chorea, ataxia or dystonia in a child can be a symptom of a progressive neurological disease such as a space-occupying lesion, a metabolic disturbance, a degenerative condition, a para-infectious condition such as rheumatic fever, or drug-induced, so all children with this symptom should be referred immediately.

Tics

The committee agreed that most simple motor tics resolve on their own. Parents or carers often find them concerning and reassurance can be helpful. The committee added that referral might be helpful for children with tics that significantly impair quality of life, because drug treatment or habit reversal therapy can be helpful.

Return to recommendations

Tremor in children

Recommendations 1.32.1 to 1.32.4

Why the committee made the recommendations

The committee used their knowledge and experience, together with validation by external experts, to develop the recommendations on tremor in children.

Tremor of sudden onset or with accompanying neurological signs or symptoms

The committee agreed that children with these symptoms or signs need to be referred for assessment because tremor can be the initial symptom of a space-occupying lesion in children if its onset is sudden or it is accompanied by other neurological signs or symptoms.

Postural tremor

The committee discussed tremor as a side effect of sodium valproate or a beta-adrenergic agonist, or a result of hyperthyroidism, and agreed that these should be considered possible causes of isolated tremor in children taking these medicines.

Because tremor is rarely caused by a progressive neurological condition, the committee thought that effective management of the tremor should be the priority. They noted that occupational therapists have the skills to assess how the tremor affects the child's home and school life.

Return to recommendations

Context

Around 10% of visits to GPs and hospital emergency departments are made by people with symptoms or signs associated with neurological conditions. Many of these people will need referral to a specialist for diagnosis and treatment, but others can have their condition managed in primary care.

Currently there is a lack of support to help non-specialists identify when a referral for specialist investigation of neurological symptoms or signs should be made. This has led to delays in referral for people with treatable or potentially serious neurological conditions, and unnecessary referrals for others. Although many specialist professional and charitable bodies have produced guidance on specific neurological conditions, there is a need for overarching guidance that covers a wide range of neurological symptoms and signs.

This guideline provides recommendations on clinical assessment in non-specialist settings and indications for referral to specialist care (including referral for people with existing neurological conditions). The guideline focuses on the signs and symptoms that are most frequently under- or over-referred, or cause uncertainty among non-specialists. In some recommendations, additional educational information is provided to help guide non-specialists. If a sign or symptom is covered by other NICE guidance, a cross-referral to that guidance is included.

Because of a lack of published evidence in this area, the recommendations are largely based on the guideline committee's knowledge and experience. Some recommendations were also reviewed by external experts. Detailed information on how the recommendations were developed is in the methods section of the full guideline.

Finding more information and committee details

You can see everything NICE says on this topic in the NICE Pathway on neurological conditions.

To find NICE guidance on related topics, including guidance in development, see the NICE webpage on neurological conditions.

For full details of the evidence and the guideline committee's discussions, see the full guideline. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice see resources to help you put NICE guidance into practice.

Update information

October 2023: We updated recommendations 1.3.1, 1.4.2 and 1.7.4 in line with NHS England's standard on faster diagnosis of cancer.

July 2019: We changed the timing of referral from urgent to immediate for adults with sudden-onset speech or language disturbance and for children under 4 years with a change in head circumference and signs or symptoms of raised intracranial pressure (see recommendations 1.13.1 and 1.22.3).

Minor changes since publication

October 2021: In recommendation 1.30.1, we added a cross-reference to NICE's guideline on suspected cancer. We also updated the rationale for this recommendation to clarify that new-onset squint with loss of red reflex may indicate a neurological condition associated with raised intracranial pressure or a brain tumour. See the surveillance report for more information.

In recommendation 1.16.1, we added a link to NICE's guideline on shared decision making.

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