

## **Understanding NICE guidance**

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**Information for people who use NHS services**

# **The early management of head injuries**

*NICE 'clinical guidelines' advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive.*

This booklet is about the early care of people with head injuries in the NHS in England and Wales. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence).

The booklet aims to help you understand the care and treatment options that should be available in the NHS. It does not describe the effects of head injuries or the tests or surgery in detail. If you or someone close to you has a head injury, a member of the healthcare team treating it should discuss specific tests and care options with you. There are examples of questions you could ask throughout this booklet to help you with these discussions. Some sources of further information and support are on page 23.



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### **The advice in the NICE guideline covers:**

- what should happen before someone with a head injury reaches hospital
- who should go to hospital
- the checks and tests that should be carried out and the action that should be taken once the test results are known
- the care people should receive if they have been discharged from hospital within 48 hours
- the symptoms that healthcare professionals should watch out for after a head injury
- how information should be exchanged between different healthcare professionals
- the information and advice that should be made available to people with head injuries and their family or carers.

### **It does not specifically look at:**

- the investigations or types of surgery that may be needed.

This guideline is an update of advice on head injury that NICE produced in 2003.

## Care of someone with a head injury

The care of someone with a head injury should take into account their personal needs and preferences. They have the right to be fully informed and to make decisions in partnership with the healthcare team when they are able to do so. To help with this, the healthcare team should give the person (or family or carer in the case of a young child or a person who is unable to communicate) information they can understand and that is relevant to their circumstances. All healthcare professionals should treat individuals with respect, sensitivity and understanding and explain the head injury and the investigations for it simply and clearly.

The information from a healthcare team should include details of the possible benefits and risks of particular investigations or types of surgery. The person (or family or carer) can ask any questions they want to and can always change their mind if the person's condition or circumstances change. Their own preferences are important and the healthcare team should support their choices wherever possible.

Investigations and care, and the information given about them, should take account of any religious, ethnic or cultural needs the people affected may have. It should also take into account any additional factors, such as physical or learning disabilities, sight or hearing problems, or difficulties with reading or speaking English. The healthcare team should be able to arrange an interpreter or an advocate (someone who supports you in putting across your views) if needed.

If people are unable to understand a particular issue or are not able to make decisions for themselves, healthcare professionals should follow the advice that the Department of Health has produced about this. You can find this by going to the Department of Health website ([www.dh.gov.uk](http://www.dh.gov.uk)) and searching for information on 'consent' and 'capacity'.

Sometimes a person who has a serious or potentially serious head injury needs urgent treatment and the medical staff may not have time to fully discuss what is involved with the person or their family or carers beforehand. In these circumstances, detailed discussions and explanations may have to wait.

## About head injuries

Most head injuries are mild and do not lead to hospital admission. A small number of people have a severe injury to their brain.

### Concussion

Many people who go to the emergency department (A&E) of a hospital with a head injury will have been 'knocked out', or concussed. This means they lost consciousness for a short time, but afterwards appeared to be back to normal. Sometimes they cannot recall what happened just before the incident and immediately afterwards. A test may not show up any problems, but there may be tiny areas of damage that cannot be seen (see 'Post-concussion syndrome' in the glossary).

### Coma

A person is said to be in a coma if he or she appears unconscious, unaware and uncommunicative; someone in a coma will not open his or her eyes even in response to pain, and will not speak or respond to spoken instructions.

There are many levels of consciousness between a deep coma and normal consciousness. People with a head injury can fall anywhere between the two. Doctors, nurses, ambulance crews and others looking after people with head injuries use the Glasgow Coma Scale to assess consciousness after a head injury. The scale measures three aspects of consciousness: eye-opening, verbal response (for example, speaking) and the responsiveness of the body (for example, the response to pain). The scale is often summarised as a score which has a maximum level of 15 (normal consciousness) and a lowest level of 3 (severe coma). A special scale is used for babies and children.

### Possible complications

Most complications appear quite quickly after the injury, but problems can show up weeks or months later. This is why a person should be checked regularly in hospital and why they should see their GP after they return home (see 'Leaving the hospital', page 16). If there are problems, it is important to get help and treatment.

The person and their family or carers should be made aware of the signs and symptoms of complications. They should also be given a leaflet that explains these signs and symptoms and what to do if they happen.

The main complications are:

- bleeding inside the skull (called intracranial haemorrhage)
- a build-up of blood and fluid on the surface of the brain (called an extradural or subdural haematoma)
- post-concussion syndrome.

These are explained in more detail in the glossary on page 21.

## What to do if someone has a head injury

- **If you have any concerns about a person who has had a head injury, seek medical advice immediately.**

### Who should go to the emergency department?

After a person injures their head, an ambulance should be called if anything listed in box 1 applies.

#### ***Box 1 Signs that an ambulance should be called (dial 999)***

- Unconsciousness, or lack of full consciousness (for example, problems keeping eyes open).
- Problems understanding, speaking, reading or writing (since the injury).
- Loss of feeling in part of the body (since the injury).
- Problems balancing or walking (since the injury).
- General weakness (since the injury).
- Any changes in eyesight.
- Any clear fluid running from ears or nose.
- A black eye with no obvious damage around the eye.
- Bleeding from one or both ears.
- New deafness in one or both ears.
- Bruising behind one or both ears.
- Any evidence of scalp or skull damage, especially when the skull has been penetrated.
- A forceful blow to the head at speed (for example, a pedestrian hit by a car, a car or bicycle crash, a diving accident, a fall of 1 metre or more, or a fall down more than five stairs).
- A convulsion or fit since the injury.

If a person doesn't have any of the problems in box 1, but has one or more of the things in the next list (in box 2), the injured person should go or be taken to the emergency department straightaway as there is still a risk of complications.

If the person cannot get or be taken to the hospital emergency department safely, an ambulance should be called.

***Box 2 Signs that the person should go or be taken to an emergency department straightaway***

- Any loss of consciousness (being 'knocked out') from which the person has now recovered.
- Any problems with memory of events before or after the injury.
- A headache since the injury that won't go away.
- Any vomiting since the injury.
- Previous brain surgery.
- Has or has had a problem with uncontrollable bleeding or a blood clotting disorder.
- Currently taking medicine that may cause bleeding problems (for example, warfarin).
- Age 65 years or over.
- Irritability or altered behaviour such as being easily distracted, not themselves, no concentration, or no interest in things around them (this is particularly important for infants and children under 5 years).
- The person is drunk or has taken drugs.
- A suspicion that the injury was caused intentionally by the person or by someone else.

## Who should go to their GP?

If the person doesn't have any of the signs listed in boxes 1 and 2, but they or the person looking after them has any worries about the head injury, they should see their GP. The person should also go to their GP's surgery if there is nobody to check they are all right at home.

The GP or whoever sees them (for example, the practice nurse) may send the injured person to the hospital's emergency department if they are concerned. This could be by ambulance, car or public transport. Whichever type of transport is used, the injured person should be accompanied by an adult capable of looking after them (for example, a family member or a carer).

If the GP decides that the injured person can go home, they should give the person (or their carer) some advice about what to do and what symptoms to be aware of over the next few days (see 'Do's and don'ts' and 'Problems after leaving hospital' on pages 17 and 18).

### Questions you might like to ask the GP

- What are the most likely effects of the head injury?
- What should I look out for in the next 48 hours?
- What should I do if any of these things happens?
- Are there likely to be any lasting problems?

*If you think that the care does not match what is described in this booklet, please talk to a member of the healthcare team.*

## At the hospital

When someone with a head injury arrives in the emergency department, staff should check whether airways are blocked, whether breathing is stable and whether there is any bleeding that needs to be controlled. This is known as 'ABC' to emergency department staff – airways, breathing, circulation (bleeding).

If the airways, breathing and bleeding are not causing immediate problems, the injured person should be seen within 15 minutes of their arrival by a triage nurse or doctor who should decide how urgently they need to be dealt with. Someone with a Glasgow Coma Scale score of less than 15 should be assessed immediately. A triage doctor or nurse is one who is trained to assess how seriously a person is injured so that he or she can be treated urgently if necessary.

If the triage doctor or nurse thinks that the person is at high risk of having a significant injury to their brain or neck, the person will be examined more fully. Part of the reason for this is to see whether scans or X-rays are needed urgently. A person assessed as being at low risk should be examined again within an hour of seeing the triage nurse or doctor.

While the person is in the emergency department, staff should try to make them more comfortable (for example, by putting a splint on a broken arm or leg). If the person is in significant pain, they should be given pain relief.

Box 3 lists the factors that hospital staff should consider when deciding whether a person needs to have a neck collar (unless it's not possible for other reasons). The person may already have a neck collar on if they arrived by ambulance or went to see their GP before coming to hospital. A neck collar should stay on until a full assessment of the person shows it is safe to remove it.

### **Box 3 Signs that a person may need a neck collar**

- A Glasgow Coma Scale (GCS) score of less than 15 when first assessed.
- Neck pain or tenderness.
- Signs of a neurological problem (see glossary).
- Abnormal sensation in the arms or legs.
- Any other suspicion of injury to the spine in the neck region.



Based on the emergency department doctor's assessment and examination, the person may either go for tests or be allowed home.

A person should only be allowed to go if they can be taken home safely and there is someone to look after them at home. They should be given some advice about things to do and not to do over the next few weeks. Written information should be provided. This should include the signs and symptoms of ongoing problems that the person and their family or carers should look out for. There should also be advice on what to do if any of these signs or symptoms occur.

## Tests for brain injuries

A CT scan of the head (a 'brain scan') is the usual test if a brain injury is suspected. Box 4 summarises the guidance that hospital staff should follow when deciding whether a person needs a CT scan.

Occasionally a more sophisticated type of scan called magnetic resonance imaging (MRI) is required. MRI scanning does not involve X-rays but uses a very powerful magnetic field to produce detailed pictures of the brain. It takes longer than a CT scan to perform and it can be difficult to get an injured person into the scanner. Although MRI may provide more information than a CT scan, a CT scan provides enough information in most situations. The strong magnetism in an MRI scanner is very dangerous to people with certain medical implants (for example, a pacemaker), and those with metal fragments in their eyes (from grinding metal or welding). There are strict safety checks and an MRI scan should not be performed unless the medical and MRI staff are certain that it is safe to do so.

*Some of the information here may not apply to you. If you have questions about the specific care described and how it relates to you, please talk to a member of your healthcare team.*

## Box 4 Guidance to hospital staff on the need for CT scans or X-rays

### CT scan of the head

#### Adults (16 and older)

If one or more of the following is present or has happened, a CT scan of the head is needed:

- a GCS score less than 13 when first assessed in the emergency department
- a GCS score less than 15 when assessed in the emergency department 2 hours after the injury
- a particular type of skull fracture (an open\* or depressed\* fracture)
- any sign of fracture at the skull base (for example, 'panda' eyes, clear fluid running from ears or nose)
- a seizure or fit after the injury
- any signs of a neurological problem\*
- sick more than once since the injury
- unable to remember events more than 30 minutes before the injury.

A person should have a CT scan if there is some loss of consciousness or memory loss since the injury and he or she:

- is 65 or older, or
- has or has had a problem with uncontrollable bleeding, a blood

#### Children (under 16)

If one or more of the following is present or has happened, a CT scan of the head is needed:

- lost consciousness for more than 5 minutes
- unable to remember what happened before or after the injury and this has lasted more than 5 minutes
- unusually drowsy
- sick three times or more since the injury
- possible deliberate injury
- seizure or fit after the injury (if the child doesn't have epilepsy)
- a GCS score less than 14, or less than 15 for a baby under 1 year, when first assessed in the emergency department
- any sign that the skull may be pushing against the brain
- any sign of fracture at the skull base (for example, 'panda' eyes)
- any signs of a neurological problem\*
- a bruise, swelling or cut on the head bigger than 5 cm in a baby under 1 year of age
- injured in a high-speed road accident as a pedestrian, cyclist or passenger
- fell from a height of more than 3 metres
- injured by an object or projectile travelling at high speed.

<p>clotting disorder, or is currently being treated with warfarin, or</p> <ul style="list-style-type: none"> <li>was injured in a particularly dangerous accident (for example, was hit by a motor vehicle, ejected from a motor vehicle, or fell from a height of more than 1 metre or five stairs).</li> </ul>	
<p><b>X-rays of the bones in the neck</b></p> <p>If one or more of the following is present or has happened, X-rays of the neck are needed:</p> <ul style="list-style-type: none"> <li>neck movement can be assessed and the person cannot actively turn their neck to 45 degrees to the left and right</li> <li>neck movement cannot be safely assessed as there is some neck pain or tenderness along the line of the spine and the person was injured in a particularly dangerous accident (see above for examples)</li> <li>neck movement cannot be safely assessed as there is some neck pain or tenderness along the line of the spine and the person is 65 or older</li> <li>neck movement cannot be safely assessed for other reasons</li> <li>a definite diagnosis is needed urgently.</li> </ul>	<p><b>CT scan of the bones in the neck</b></p> <p><b>Adults and children over 10 years</b></p> <p>If one or more of the following is present or has happened, a CT scan of the bones in the neck is needed:</p> <ul style="list-style-type: none"> <li>GCS score below 13 on first assessment in the emergency department</li> <li>tube inserted to help with breathing</li> <li>it's not possible to X-ray the area involved</li> <li>X-rays are inadequate or not clear</li> <li>X-rays look normal but a fracture is strongly suspected</li> <li>the person is having scans of other areas of their body.</li> </ul> <p><b>Children under 10</b></p> <p>To minimise unnecessary exposure to radiation in young children, CT scans of the bones in the neck should only be carried out if absolutely necessary. Such occasions are:</p> <ul style="list-style-type: none"> <li>the child has a GCS score of 8 or less, or</li> <li>an injury is strongly suspected and the X-rays appear normal or aren't clear or possible because of the position of the injury.</li> </ul>

(GCS = Glasgow Coma Scale; \*see glossary for more information)

## Tests for injuries to the bones in the neck

If damage to the bones in the neck is suspected from the examination, X-rays should usually be used to check. Box 4 summarises the guidance that hospital staff should follow when deciding who needs X-rays.

Sometimes a CT scan of the neck is needed – the reasons for having a CT scan of the neck are also listed in box 4.

MRI is sometimes used to check whether there has been damage to the soft tissues (the ligaments and discs) and/or if there is evidence that the spinal cord or nerves are damaged.

### Questions you might like to ask the healthcare team

- What are the reasons for having the tests?
- What do you think has happened?
- What are the possible problems?
- What will happen next?

## Who gets admitted to hospital?

If the test results come back normal, the injured person can usually go home. But some people with normal results are kept in hospital for observation. This is often because there is no one at home to look after them. It may also be because they are under the influence of alcohol or drugs, they have other injuries (such as broken bones) or health problems, or because they are in shock.

If tests show a possible problem, the person should be admitted to a ward.

Other reasons for admitting a person are:

- they have not returned to a Glasgow Coma Scale score of 15
- they should have had a CT scan but it has not yet been done (either because a scanner was not available or the person did not want a CT scan)
- there are continuing signs of a possible neurological problem
- there are other factors that are causing concern to doctors (for example, effects of alcohol or drugs, other injuries, suspected non-accidental injury)
- general anaesthesia was used during the CT scan and the person has to recover from this.

In some circumstances, a person who comes into the emergency department during the evening or night and needs a CT scan may be admitted to a ward for the night so they have their CT scan the following morning. This may be the case for people who:

- are 65 or older and have had some amnesia or loss of consciousness, or
- had a head injury because of a dangerous accident (see box 4) and have had some amnesia or loss of consciousness, or
- had amnesia of events more than 30 minutes before the accident.

But this should only happen if the doctors don't think the person needs to have an urgent scan for other reasons.

On the ward, regular checks should be made, including shining lights into the person's eyes, and checking their reflexes (see the glossary). Action should be taken quickly if complications develop, so the person should be checked regularly throughout the night.

Most people are allowed home within a day or two after admission. If the person's condition does not improve as expected, further assessment and tests may be carried out and the doctors looking after the injured person may consult a neurosurgeon (a doctor who carries out brain surgery).

If there is a complication or the neurosurgeon considers there are other reasons why the person should have specialist care, the injured person may be transferred to a neuroscience unit. This may be within the same hospital but usually it will be in another hospital, which is often some distance away.

### Questions you might like to ask the healthcare team

- What tests are being done and what are they showing?
- What are you watching out for?
- What is likely to happen next?

## Transfer to another hospital

Decisions to transfer a person with a head injury are not taken lightly because the transfer process could be dangerous. Hospital transfer is done with great care to make sure that no further harm is done. Normally, the person will be transferred by ambulance, but a helicopter may be used for long distances. In an emergency transfer, an experienced doctor who has received training in the transfer of people with a head injury should travel with the person to make it as safe as possible.

The injured person may be given artificial breathing support through a tube during the journey if there is a chance of breathing problems. People who get this type of breathing support should also be given muscle relaxation and appropriate sedation and pain control.

For non-emergency transfers, the patient should be accompanied by appropriate hospital staff.

If a child is being transferred, he or she should be accompanied by staff with experience of moving critically ill children between hospitals.

Families and carers should be fully informed about why the person needs to be transferred, and how this will happen. They should have as much access to the person as is practical during the transfer.

## Operations on the brain

Neurosurgical operations are performed with the aim of avoiding the brain becoming damaged, for example as a result of pressure from a blood clot. Sometimes the need for surgery is urgent and there may not be time to discuss fully beforehand what is involved. In these situations, detailed discussions may have to be left until after the operation. However, the neurosurgeon should explain everything afterwards to the person having the surgery or to their family.

## Support for families and carers

For the injured person's family or carers, suddenly finding themselves in a hospital and dealing with different members of staff can be overwhelming and can cause additional stress. Hospital staff caring for the injured person should introduce themselves to family members or carers and briefly explain what they are doing. A photographic board with the names and titles of professionals in the hospital departments caring for patients with head injury is helpful and should be available.

The presence of familiar friends and relatives at the early stage following admission can be very helpful. The person recovering consciousness can easily be confused by strange faces and the strange environment in which they find themselves. Talking and making physical contact, such as holding hands, can help the recovery process.

Such contact should be encouraged by hospital staff, although it is important that relatives and friends do not feel they have to spend many hours at the bedside – they also need to have a break and sleep from time to time.

It can be a difficult experience for children visiting a brother, sister or parent with a head injury. Hospital staff should recognise this and explain the current situation and possible long-term changes in their parent or sibling in a manner appropriate for the child's age and level of understanding.

Information sheets detailing the nature of head injury and any investigations likely to be used should be available in the emergency department. There should also be a board or area displaying leaflets or contact details for patient support organisations. Voluntary support groups can speak from experience about the real-life impact of head injury and can offer support following discharge from hospital.

## Leaving the hospital

A person will be able to go home when the doctors think it is safe. No one should be discharged until they have normal levels of consciousness, all other problems (such as other injuries) have received attention and there is someone to care for the injured person at home.

All children and infants who have had a scan or an X-ray because of a head injury should be seen by a doctor who has been trained to look for signs of ill treatment before being allowed home.

Before the injured person leaves hospital, someone should speak to them about what to do and what symptoms to look out for in the first few weeks at home (see box 5, which lists some do's and don'ts). This advice should also cover what to do if certain signs and symptoms appear. A leaflet that contains this information and has details of community support services should be provided to the patient.

### Questions you might like to ask the healthcare team

- Why is it okay to be discharged now?
- What should I look out for in the next 48 hours?
- What should I do if any of these things happens?
- Are there likely to be any lasting problems?



## Do's and don'ts for people who have had a head injury

The do's and don'ts are listed in box 5. Carers should make sure the injured person is not alone in the home for the first 48 hours after leaving hospital. They should also make sure there is a telephone nearby and that the person stays within easy reach of medical help. Parents of school-age children should not allow them to return to school until they feel their child has completely recovered from their injury.

### ***Box 5 Do's and don'ts for people who have had a head injury and have been discharged from hospital***

- **Do** make sure you stay within easy reach of a telephone and medical help.
- **Do** have plenty of rest and avoid stressful situations.
- **Don't** stay at home alone for the first 48 hours after leaving hospital.
- **Don't** take any alcohol or drugs.
- **Don't** take sleeping pills, sedatives or tranquillisers unless they are given by a doctor.
- **Don't** play any contact sport (such as rugby or football) for at least 3 weeks without talking to your doctor first.
- **Don't** return to your normal school, college or work activity until you feel you have completely recovered.
- **Don't** drive a car, motorbike or bicycle or operate machinery unless you feel you have completely recovered.

*If you have concerns that you or a loved one are not getting the care described, talk to your local Patient Advice and Liaison Service (PALS) in the first instance. If they are not able to help you, they should refer you to your local Independent Complaints Advocacy Service.*

## **Follow-up in the community**

Everyone who has had a CT scan or been admitted to a ward because of their injury should see their GP within a week of leaving hospital. If the person is still having problems, the GP should be able to arrange an outpatient appointment with someone trained in caring for people after a head injury (for example, a neurologist, clinical psychologist, neurosurgeon or specialist in rehabilitation medicine).

## **Passing on information**

If a person has been to the emergency department because of a head injury, the hospital should inform the person's GP by letter or email within a week.

If a child has had an X-ray or scan, a letter or email should be sent to their GP and their school nurse or health visitor, depending on the child's age.

It should be possible for the person or their carer to read the letter or email that's sent, or they should be given a copy.

## **Problems after leaving hospital**

If a person who has had a head injury gets any of the symptoms listed in box 6 after leaving hospital, they should go straight to their nearest hospital emergency department.

***Box 6 Signs that a person who has been discharged from hospital following a head injury should go or be taken to their nearest emergency department***

- Unconsciousness, or lack of full consciousness (for example, problems keeping their eyes open).
- Any confusion (not knowing where they are, getting things muddled up).
- Any drowsiness (feeling sleepy) that goes on for longer than 1 hour when they would normally be wide awake.
- Any problems understanding or speaking.
- Any loss of balance or problems walking.
- Any weakness in one or both arms or legs.
- Any problems with eyesight.
- Very painful headache that won't go away.
- Any vomiting – being sick.
- Any fits (collapsing or passing out suddenly).
- Clear fluid coming out of the ear or nose.
- New bleeding from one or both ears.
- New deafness in one or both ears.

Carers should also take the injured person to hospital if they are difficult to wake up.

Some people may feel other symptoms during the first few days after discharge, such as a mild headache, feeling sick (without vomiting), dizziness, irritability or bad temper, problems concentrating or problems with memory, tiredness, lack of appetite or problems sleeping. If the person or their carer feels very concerned about any of these symptoms, they should see their GP. If the person is still having problems after 2 weeks, he or she should see their GP for advice and to check that it's okay to carry on driving.

## Long-term problems

Most people recover quickly from their accident and experience no long-term problems. However, a small number of people will have had a serious injury and are likely to have problems (such as physical and mental disability) which require rehabilitation and ongoing treatment. Post-concussion syndrome (see the glossary) can also cause problems for months or much longer after the injury, even if the head injury was a mild one.

Sometimes it is not until the person has returned to school or work that they feel different. They may have memory problems, and forget names, appointments, or where they have put things. They may become easily distracted and have difficulty concentrating, planning and organising. They may feel they cannot achieve anything and become depressed.

People experiencing any of these problems should visit their GP as soon as possible. Support groups can also help.

### Questions you might like to ask the healthcare team (carers, friends and family members)

- What can I/we do to help and support the person?
- Is there any additional support that I/we as carer(s) might benefit from or are entitled to?

## Glossary

**Amnesia** Loss of memory that can happen after a person has had a head injury.

**Coma** A state of unconsciousness from which a person can't be roused.

**Complication** Problem that happens as a result of the injury.

**Concussion** Loss of consciousness for a short time followed by an apparent return to normal.

**Convulsion** A fit or a seizure.

**CT scan** CT stands for computed tomography. A CT scan is a computer-aided X-ray used to provide clear pictures of the brain.

**Depressed skull fracture** A break in the skull where a piece or pieces of bone are pushed in towards the brain.

**Extradural haematoma** A collection of blood on the surface of the brain similar to a subdural haematoma.

**Glasgow Coma Scale** Scale used to assess consciousness after a head injury.

**Intracranial haemorrhage** Bleeding inside the skull. If it happens, it will usually occur within the first few hours after the injury. The bleeding puts pressure on the brain and is very serious unless treated quickly. This includes extradural and subdural haematomas as well as bleeding into the brain itself.

**MRI** MRI stands for magnetic resonance imaging, which is a method of producing sophisticated pictures of any part of the body. It uses magnetic fields and radio waves, not X-rays.

**Neurological problems** Neurological problems happen because the nervous system is not controlling a set of actions in the normal way. They can be a sign that the brain has been damaged. The signs to watch for in a person with a head injury include: problems understanding, speaking, reading or writing (since the injury); loss of feeling in part of the body; problems with balance or walking (since the injury); general weakness (since the injury); any changes in eyesight.

**Neurosurgeon** A brain surgeon.

**Neurosurgery** Operations on the brain.

**Open skull fracture** Where an area of the skull has fractured as a result of the injury and there is a deep cut in the skin over the fracture through which the bone can be seen.

**Post-concussion syndrome** Problems, including headaches, dizziness, poor concentration, memory problems, speaking or listening difficulties, and emotional and behavioural problems, that can happen in the weeks or months after having a head injury. The syndrome is caused by tiny areas of bruising or other damage to the nerve cells in the brain.

**Reflex** An involuntary movement that shows that the nerves are working normally.

**Subdural haematoma** A build-up of blood and fluid on the surface of the brain. A subdural haematoma may be discovered immediately after a head injury but occasionally it can develop more slowly, for example within several days or weeks. The pressure on the brain causes headaches, drowsiness, confusion, speech problems or problems down one side of the body. People with any of these symptoms should return to hospital quickly so they can be treated.

**Triage** A system to prioritise patients according to the seriousness of their injuries.

## More information about head injuries

The organisations below can provide more information and support for people with head injuries. Please note that NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

- Headway – the brain injury association, 0808 800 2244, [www.headway.org.uk](http://www.headway.org.uk)
- The Child Brain Injury Trust, 01869 341075, [www.cbituk.org](http://www.cbituk.org)

NHS Direct online ([www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)) may also be a good starting point for finding out more. Your local Patient Advice and Liaison Service (PALS) may also be able to give you further information and support.

## About NICE

NICE produces advice (guidance) for the NHS about preventing, diagnosing and treating different medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider the best available evidence on the condition and treatments, the views of patients and carers and the experiences of doctors, nurses and other healthcare professionals working in the field. Staff working in the NHS are expected to follow this guidance.

*To find out more about NICE, its work and how it reaches decisions, see [www.nice.org.uk/aboutguidance](http://www.nice.org.uk/aboutguidance)*

*This booklet and other versions of this guideline aimed at healthcare professionals are available at [www.nice.org.uk/CG56](http://www.nice.org.uk/CG56)*

*You can order printed copies of this booklet from the NHS Response Line (phone 0870 1555 455 and quote reference N1332).*