

***SHAKEN BABY  
SYNDROME  
(INFLICTED TRAUMATIC  
BRAIN INJURY):  
SAFEGUARDING  
CHILDREN AND YOUNG  
PEOPLE***

***Revised June 2006***

**Safeguarding Children and Young People  
North East England  
Regional Inter-agency Procedures**

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## **BIBLIOGRAPHY/FURTHER READING**

## **ACKNOWLEDGEMENTS**

This inter-agency document is one of a number of documents commissioned by the regional Association of Directors of Social Services Children's Group in the North East and supported by the Commission for Social Care Inspection (CSCI), the North East Area Child Protection Committees (ACPCs), the Local Safeguarding Children Boards (LSCBs) and their constituent agencies.

In order to produce the documents, a regional project was initiated and sustained by a multi-agency partnership working across the twelve local authority areas in the North East of England. Extensive inter-agency consultation took place on the draft documents, with the final versions being amended on the basis of the responses.

Thanks are due to everyone involved, either in the project or reading the drafts and responding to them. Particular thanks for producing this document goes to Stockton Area Child Protection Committee.

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## **PREFACE**

### **Status of the Document**

The procedure in this document applies to all staff of agencies represented on the Area Child Protection Committees (ACPCs) and Local Safeguarding Children Boards (LSCBs) in the North East of England. Staff of these agencies should:

- Comply with the procedures contained in this document, unless there are exceptional reasons, which should be recorded.
- Take account of the rest of the contents.

ACPCs/LSCBs and their constituent agencies should ensure that any other inter-agency or internal procedures/guidance/protocols are consistent with this document.

### **Principles**

- All children and young people should be safe and able to develop to their full potential.
- The needs of the child or young person are paramount and should underpin all work to safeguard children.
- All children and young people deserve the opportunity to achieve their full potential.
- All children and young people have the right to be safeguarded from harm and exploitation whatever their:
  - Race, religion, nationality, first language or ethnicity
  - Gender or sexuality
  - Age
  - Health, physical or learning disability
  - Location or placement
  - Criminal behaviour, where this applies
  - Political or immigration status.
- Responsibility for the protection of children and young people must be shared because they are safeguarded only when all relevant agencies and individuals accept responsibility and co-operate with one another.
- Statements or allegations about abuse or neglect, made by children and young people, must always be taken seriously.
- The wishes and feelings of children and young people, which are vital elements in assessing risk and formulating protection plans, must always be sought and given weight, according to the level of understanding of the child or young person.
- No child or young person should be allowed to feel responsible for actions taken by professionals, nor for the outcomes.
- During enquiries, the involvement and support of those who have parental responsibility for, or regular care of a child or young person, should be encouraged and facilitated, unless doing so compromises that enquiry or the immediate or long term welfare of the child or young person.

“The basic requirement that children are kept safe is universal and cuts across cultural boundaries. Every child living in this country is entitled to be given the protection of the law, regardless of his or her background. Cultural heritage is important to many people, but it cannot take precedence over standards of childcare embodied in law. Every organisation concerned with the welfare and protection of children should have mechanisms in place to ensure equal access to services of the same quality, and that each child, irrespective of colour or background, should be treated as an individual requiring appropriate care.”

#### **Victoria Climbié Inquiry Report 2003**

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## **1. LEGISLATION - MAIN ACTS**

Children and Young Persons Act 1933 Section 1

Offences Against the Persons Act 1861

Children Act 1989 Section 17

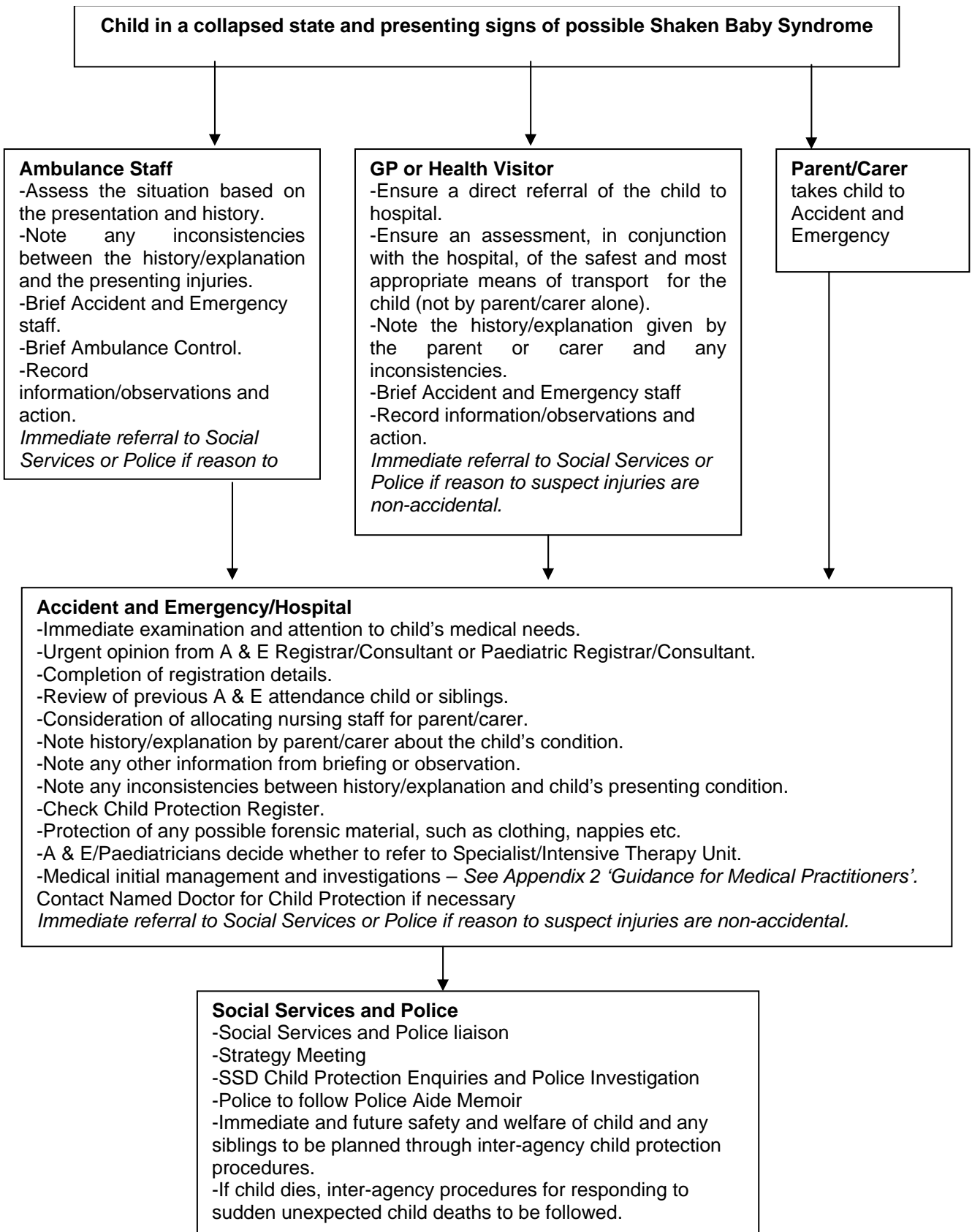
Children Act 1989 Section 47

See Appendix 1 for further information.

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## 2. INTER-AGENCY PROCEDURES

### 2.1 Inter-agency Flowchart Possible Shaken Baby Syndrome



## **2. INTER-AGENCY PROCEDURES**

### **2.1 Inter-agency Flowchart Possible Shaken Baby Syndrome**

See Inter-agency Flowchart on previous page.

### **2.2 Information Sharing**

Matters of information sharing, confidentiality and data protection are covered in the Government guidance 'What to do if you're worried a child is being abused' (and in the summary version of the same document).

### **2.3 Meaning of Shaken Baby Syndrome**

Shaken Baby Syndrome is a collective term for the internal head injuries a baby or young child sustains from being violently shaken. It is a descriptive term of how injuries may have occurred and not a medical diagnosis. Similar other terms include:

- Inflicted Traumatic Brain Injury
- Battered Child Syndrome
- Inflicted Head Trauma
- Shaken Impact Syndrome
- Shaking Injury
- Whiplash Infant Syndrome
- Whiplash-shaking injury

Violent shaking can cause a range of serious injuries to a baby or small child, which are often fatal. These injuries are mainly to the head but there may also be injuries to the body.

From a medical, social care and judicial perspective, the main interest is the consequence of any non-accidental injuries in terms of treatment, investigation, identifying who may be responsible and safeguarding the child and any siblings from further harm.

Note that the terms 'baby', 'infant' and 'child' are used inter-changeably throughout this document.

### **2.4 Initial Possible Signs of Shaken Baby Syndrome**

The child is in a collapsed state and presenting some or a combination of the following:

- Lethargy
- Irritability
- Abnormal movements or seizures
- Drowsiness
- Increased or decreased muscle tone
- Vomiting
- Poor feeding
- Irregular breathing
- Apnoea (stopping breathing)

Further information about symptoms is contained in Appendix 2: Guidance for Medical Practitioners.

## **2.5 Ambulance Service Procedures**

Ambulance staff will:

- Assess the situation based on the presentation and history.
- Note any inconsistencies between the history/explanation and the presenting injuries.
- Brief Accident and Emergency staff.
- Brief Ambulance Control.
- Record in detail what the parents/carers have said.
- Record other relevant information, observations and actions.

If there is reason to believe that the child's injuries are non-accidental, an immediate referral is to be made to Social Services or the Police, via Ambulance Control.

The referral should be followed in writing to Social Services, within 48 hours.

## **2.6 GP or Health Visitor Procedures**

If a child with the described symptoms or a combination of symptoms is presented to the GP or Health Visitor, he or she is to:

- Ensure a direct referral of the child to hospital.
- Ensure an assessment, in conjunction with the hospital, of the safest and most appropriate means of transport for the child – this should not be by the parents/carers alone.
- Record in detail what the parents/carers have said.
- Record other relevant information, observations and actions.
- Note any apparent inconsistencies between the history/explanation and the presenting injuries.
- Brief Accident and Emergency staff.
- Record the information, observations and actions.

If there is reason to believe that the child's injuries are non-accidental, an immediate referral is to be made to Social Services or the Police.

The referral should be followed in writing to Social Services, within 48 hours.

## **2.7 Accident and Emergency/Hospital Medical and Nursing Staff Procedure**

Accident and Emergency staff must ensure:

- Immediate examination of the child and attention to the child's medical needs.
- Urgent opinion is sought from Accident and Emergency Registrar/Consultant or Paediatric Registrar/Consultant.
- Completion of registration details
- A review of any previous Accident and Emergency attendance by the child or siblings.
- Consideration of allocating nursing staff to care for the parents/carers.
- The taking of the history from the parents/carers in relation to the child's condition.
- They note and record any other information from briefing or observation, particularly the detail of what is being said by the parents/carers.
- They note any inconsistencies between the history/explanation/other information and the child's presenting condition.

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- A check to the Child Protection Register.
- Protection of any possible forensic material, such as clothing, nappies etc, particularly blood samples taken before further medical intervention.

**Medical practitioners should particularly note Appendix 2: Guidance for Medical Practitioners.**

## **2.8 Child Protection Considerations for Hospital Staff**

- A history/explanation should be sought from the parents/carers.
- The history/explanation given by the parents/carers should be assessed for consistency with the injuries.
- If there is any doubt a Paediatric opinion should be sought.
- When injuries follow genuine accidents, the child is normally presented promptly and there is a clear history of an accident.
- When injuries are non-accidental, there may be delay in seeking medical advice (although on occasion a delay may follow an accident where the parents had initially thought the infant was alright).
- When injuries are non-accidental, the history may be vague or unwitnessed.

Account should also be taken of associated risk factors, which include:

- Child or siblings on the Child Protection Register
- Previous history of sudden infant death or apparent life threatening events in the family
- Very young parents
- Parents suffering from addictive behaviour
- Parents showing odd behaviour, for example, very aggressive
- A history of domestic violence
- If the child appears to be failing to thrive.

If required, consultation should take place with the Named Doctor for Child Protection.

If at any point during the course of admission, examination, treatment or tests etc., there is reason to suspect that the injuries to the child are non-accidental, an immediate referral is to be made to Social Services or the Police, irrespective of the time or day.

The referral should be followed in writing to Social Services within 48 hours.

## **2.9 Social Services and Police Procedures**

On receipt of a referral indicating that an infant or child is suffering from possible Shaken Baby Syndrome, there must be immediate liaison between Social Services and Child Protection Police Officers/Child Protection Police Unit.

In line with local Inter-agency Child Protection Procedures, Social Services will hold an inter-agency Strategy Meeting. Attendance, as a minimum, should include:

- Social Services Team Manager/Emergency Duty Team

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- Consultant Paediatrician/Consultant Community Paediatrician
- Child Protection Police Officers/Child Protection Police Unit/Duty Inspector

Other relevant professionals should attend/be contacted as appropriate.

The referrer's information should be available for the Strategy Meeting.

In a situation of suspected Shaken Baby Syndrome, Social Services and the Police will work jointly, with Social Services undertaking a child protection enquiry (s47 enquiry) and the Police undertaking an investigation.

During the Strategy Meeting there is to be joint planning in relation to the Social Services enquiry and the Police investigation. The meeting will also consider the safety and welfare needs of any siblings or other children involved.

The Police will work to the ACPO guidelines.

Thereafter the immediate and future long-term welfare and safety needs of the child and any siblings will be subject to child protection procedures as given in local Inter-agency Child Protection Procedures.

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### **3. INFORMATION TO ASSIST GOOD PRACTICE**

#### **3.1 Background to Shaken Baby Syndrome**

The following information is taken from the Shaken Baby Syndrome Resource Website [www.sbs-resource.org](http://www.sbs-resource.org)

Shaken Baby Syndrome (also referred to as Shaken Baby/Shaken Impact Syndrome, Battered Child Syndrome, Whiplash Infant Syndrome, SBS) poses great challenges both in diagnosis and in the frequently consequent legal process.

Shaken Baby Syndrome is not new as such, it is simply that the ability to diagnose it is new. If one thinks of Shaken Baby Syndrome as a particular form of the Battered Child Syndrome, then it is probably fair to say that it is a form of abuse that had been suspected for some time but only really 'came of age' with the invention of the CT scanner, which has the ability to show trauma within the skull in a way that was not really possible before.

The name most associated with the development of the diagnosis is John Caffey, a Radiologist. His description of the 'Whiplash Infant Syndrome' was crucial. He described the condition as typically having a (or collection of) subdural haematoma(s), retinal haemorrhages, fractures of the metaphyseal ( long bones of the limbs ) bones, rib fractures and little or no sign of external trauma to the head. A case with all these features is considered the easiest to diagnose, as there are very few accidents that could produce this constellation of injuries.

#### **3.2 How Shaking Causes the Injuries**

Infants are vulnerable in ways that adults and older children aren't. The most common method of shaking seems to be to grip the child around the torso and literally shake it backwards and forwards (although sometimes they may be grabbed around the ankles or legs).

The fierce grip around the torso can cause rib-fractures; limb fractures occur when the limbs flail around due to the uncontrolled movement. Simple weight factors mean it is very difficult to do this to an adult. As far as the most serious injury goes, the most significant factor seems to be relative head size and the weakness of the neck. In an adult the head forms around 2% of the total body weight and the neck musculature is well developed, in an infant the head forms around 10% of that weight and the neck is undeveloped in comparison.

An infant's head has very little ability to resist the motion imparted when it is assaulted in this fashion. The adult shakes the infant, and as the head whiplashes backward and forward, this imparts motion to the brain within the skull and this causes the damage.

#### **3.3 Research Problems**

Most scientific theory has, sooner or later, to be validated by experiment and/or observation of the phenomenon in action. Ethically this is almost impossible with Shaken Baby Syndrome, for obvious reasons.

Experiments using models of babies have the problem of replicating the brain itself. While they may answer questions about the forces that act on the head, they do not answer the question of how those forces actually act on the tissues of our most complex organ. Research into Shaken Baby Syndrome has always to overcome these problems, and many

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ingenious methods and sophisticated mathematical models have been applied, but the problem remains.

Whether Shaken Baby Syndrome is a bigger problem than it was before, whether better diagnostic tests have made for more cases (because previously it went undetected), or whether it simply has a higher media profile, the fact is that Shaken Baby Syndrome cases are not going to go away.

### **3.4 The Extent of the Problem**

This is really an unknown, although there are better estimates all the time. The best estimates seem to suggest there are roughly 150-200 shaking cases annually in the UK, and around 900-1300 in the USA. Estimates of the number of infants who die as a result range from one third to one half, with the majority of the remainder suffering some form of long-term problems, often very severe impairment. These sorts of numbers will always remain estimates, but short of deliberate murder, there is not a much more dangerous thing for an infant than being violently shaken. Recent research has concluded that:

- As little as two or three violent shakes may be enough to damage the brain of an infant under six months of age,
- The critical issue is the amount of rotational movement the brain undergoes.

### **3.5 Difficulties of Proving Shaken Baby Syndrome**

Shaken Baby Syndrome cases are often difficult to prove because few things are absolutely certain. That is a problem for prosecutors and may lead to perpetrators escaping justice. The other side is that Shaken Baby Syndrome is equally difficult to disprove for an innocent defendant, and has led to miscarriages of justice.

Legally, these cases almost always proceed on an accusation of abuse stemming from Doctors. Where Doctors draw the line between certainty and ambiguity as to what exactly happened to cause the injuries to the child, and when they happened, will always be the core issue of Shaken Baby Syndrome cases. It is a matter of the state of medical science, the use and/or abuse of scientific method, the degree of certainty required of doctors before they decide, and what bounds the judicial system sets on all these factors.

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## **APPENDIX 1: LEGISLATION – FURTHER INFORMATION**

### **1. Children and Young Persons Act 1933 Section 1**

This Act makes it an offence for any person of 16 or over, in respect of a child for whom they have responsibility, to wilfully assault, ill-treat, neglect, abandon or expose the child in a manner likely to cause him “unnecessary suffering or injury to health, including injury or, or loss of, sight or hearing or limb, or organ of the body and any mental derangement.

### **2. Offences Against the Person Act 1861**

This Act makes it an offence to cause another person various forms of harm, including grievous bodily harm, unlawful wounding and actual bodily harm.

### **3. Children Act 1989 Section 17**

A child is defined as ‘in need’ by Section 17 of the Children Act 1989 if:

- he or she is unlikely to achieve or maintain, or to have the opportunity of achieving or maintaining, a reasonable standard of health or development without the provision for him/her of services **or**
- his/her health or development is likely to be significantly impaired, or further impaired, without the provision for him/her of such services **or**
- S/he is disabled.

### **4. Children Act 1989 Section 47**

Where a local authority has reasonable cause to suspect that a child who lives, or is found, in their area is suffering, or is likely to suffer, significant harm, the authority shall make, or cause to be made, such enquiries as they consider necessary to enable them to decide whether they should take any action to safeguard or promote the child’s welfare.

‘Harm’ is defined as ill treatment, which includes sexual abuse, physical abuse and forms of ill-treatment which are not physical, for example:

- emotional abuse or
- impairment of health (physical or mental) or
- impairment of development (physical, intellectual, emotional, social or behavioural)

This may include seeing or hearing the ill treatment of another (s120 Adoption and Children Act 2002).

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## **APPENDIX 2: SUGGESTED MODEL FOR GOOD PRACTICE FOR MEDICAL PRACTITIONERS**

Source Dr P. Morrell, Consultant Paediatrician, James Cook University Hospital, Middlesbrough 2005.

### **1. Prevention**

Injuries to small babies may provide a window of opportunity to prevent more severe head injuries. Babies presenting with less severe injuries can have hidden head injuries. Babies with acute inflicted head injury may have evidence of old injury when they are diagnosed.

### **2. History of Head Injury but No Injury Seen**

Sometimes, children, especially babies, are brought to the A and E Department with a history of a head injury but no injury is seen. Although this may simply indicate appropriate anxiety, it may also be a call for help from parents who are struggling. It is important to take this seriously and examine the baby properly. As with head injuries generally it is advisable to refer all babies under four months to the Paediatric Department.

### **3. Symptoms of Shaken Baby Syndrome**

In addition to the presenting symptoms that led to medical attention being sought, examination may reveal one or more of the following:

- Bruises in unusual locations
- Bruising to the upper arms
- Developmental delay (if more chronic)
- Evidence of neglect
- Failure to thrive (if more chronic)
- Fractures
- Increasing head circumference
- Intracranial injury (this should be considered in any baby presenting with unexplained seizures or abnormal movements)
- Metaphyseal fractures of the long bones and posterior rib fractures
- Neurological abnormalities
- Pallor or unexplained anaemia
- Raised anterior fontanelle
- Retinal haemorrhages (present in between 75% and 90% of shaken babies)
- Skull fracture (if there has been sufficient impact)
- Subdural haematoma (but there may also be subarachnoid or intraventricular bleeding)
- Torn frenulum

### **4. Medical Investigations**

The initial investigation should be an urgent CT brain scan (acute haemorrhage is seen more easily on CT scan than on MRI scan).

If there is a very high level of suspicion but the CT scan is normal then an MRI scan should be considered because this may show smaller areas of bleeding and may also show parenchymal injuries.

If either of the above tests show cranial injury then the following should be done:

- MRI brain scan, if not already performed (this should be done within the first 7 to 10 days and repeated 14 days later after discussion with radiologists).
- Skeletal survey, looking particularly for metaphyseal fractures and posterior rib fractures. The skeletal survey should be repeated at 14 days and may be supplemented with an isotope bone scan.
- Ophthalmology referral (this should be undertaken by an experienced Paediatric Ophthalmologist). It is very helpful to have photographs if there is retinal bleeding. Discuss with the Ophthalmologist.
- Full clotting screen (remember to take a family history of any bleeding disorders).
- Full blood count to exclude such disorders as leukaemia or thrombocytopenia.
- Blood culture and consider CSF culture.
- Biochemical profile looking specifically for hypernatraemia and dehydration.
- C-reactive protein or other markers of sepsis.
- Metabolic screening. Glutaric aciduria is a rare cause of subdural bleeding and is associated with fronto-temporal atrophy. There may also be retinal haemorrhages. All babies with subdural haemorrhages should have urine for organic acids and acylcarnitines. If the radiological findings suggest this diagnosis, then investigation for glutaric aciduria should be discussed with a Paediatrician with an interest in metabolic disorders. Galactosemia may also be associated with subdural bleeds, it is usually clear from the history but in small babies it is worthwhile sending urine for reducing substances (if the baby is on milk).
- Review of neonatal notes. Subdural haemorrhage can follow a traumatic delivery and rarely a normal delivery. This possibility needs to be considered in the very young baby. Record when vitamin K was given and whether oral or intramuscular.

## 5. Skull fractures:

Points to remember:

- The risk of a skull fracture after falls of 1 metre is about 1% (NICE Guidance 2003).
- Accidental skull fractures tend to be simple, parietal, linear fractures (unless there is a history of major trauma such as a road traffic accident or a very long fall).
- Skull fractures due to abuse tend to be complex, depressed, wide (or 'growing') and involve more than one bone.

## 6. Other Forms of Head Injury

This may include signs of such trauma, for example bruising to the head and swelling around the head.

- Infants below the age of one year should have a skull x-ray.
- Infants should have a Paediatric opinion. In all other cases, a Paediatric opinion should be considered.
- Assess the history – ensure that the history given is consistent with the injury. If any doubt then ask for a paediatric opinion, especially in infants. The Named Doctor for Child Protection may be contacted for a discussion.
- If the skull x-ray shows a fracture then the child should have a CT brain scan.

- In infants, the eyes should be examined looking for retinal haemorrhages.
- The child should be thoroughly examined for any other injuries such as bruising. If found then an explanation needs to be sought for the injury.
- Babies below the age of four months should be assessed in the Paediatric Department.
- Remember to inform the Health Visitor and GP by phone on discharge even if there are no child protection concerns, because there are often home safety issues.

## 7. NICE Guidelines

The guidance in 'Head Injury: Triage, assessment, investigation and early management of head injury in infants, children and adults' National Institute for Clinical Excellence (NICE 2003) should be followed.

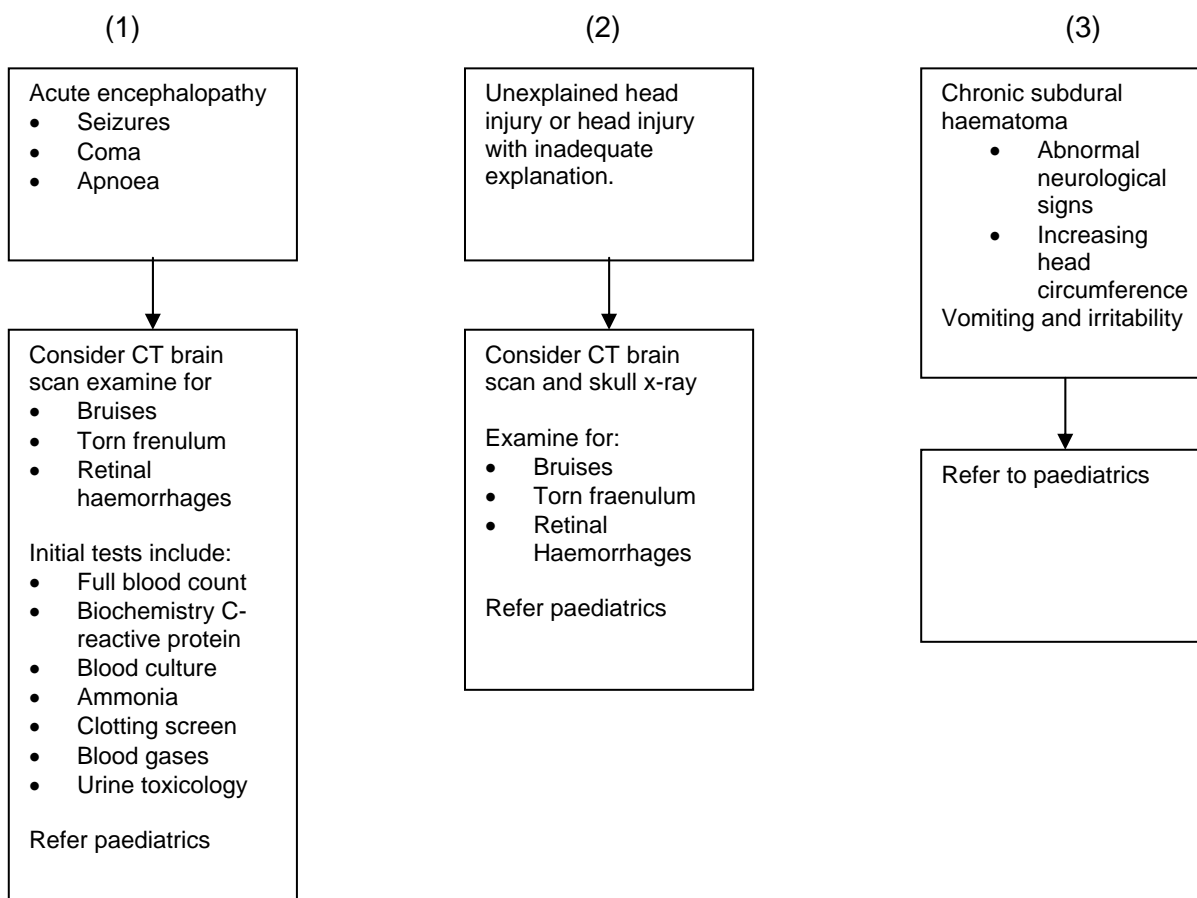
The full document can be accessed at [www.nice.org.uk](http://www.nice.org.uk)

## 8. Flow Chart for Initial Management

Points to remember:

- This is a relatively rare condition.
- The vast majority of infants affected are below the age of one year.

There are three main modes of presentation which are outlined below with a suggested **initial** plan of management.





### **APPENDIX 3: POLICE: ACPO GUIDELINES ON SHAKEN BABIES**

#### ***Police officers should refer to the Association of Chief Police Officers (ACPO) Guidelines on Shaken Babies.***

Some children are seriously injured, as a result of a violent shaking incident.

Expert paediatric assessment should quickly reveal the presence of retinal or subdural haemorrhages, bruising or other head injuries.

These are invariably difficult investigations that need to involve highly specialised techniques for evidence gathering.

As a guide, some of the specialised techniques which should be employed include:

- Full skeletal survey, from head to finger and toe tips, properly interpreted by a paediatric radiologist.
- Thorough ophthalmologic examination including specialised retinal photography.
- If the child is on life support, MRI and CT scans, ensuring that the machine is set up for brain matter.
- Video reconstruction of any alleged event leading to the child becoming ill, with last carer using a weighted doll.

This is not an exhaustive list, and techniques change and improve regularly, hence advice is available from the National Crime Faculty (NCF) list of experts.

A great deal of the evidence used in any prosecution will be from medical and scientific experts. Investigating police officers must maintain a clear dialogue with medical professionals, and ensure each party understands exactly what is needed and why it is needed.

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## APPENDIX 4: GLOSSARY

**Anterior** Front

**Apnoea** Short-term cessation of breathing.

**Arachnoid** A delicate membrane attached to the innermost layer around the brain by web-like fibres that allow for movement of cerebrospinal fluid

**Cerebral oedema** Swelling of the brain.

**Cranium** Part of the skull that encloses the brain, brain-case.

**Diffuse axonal injury** Shearing of the nerve fibres in the white matter of the brain secondary to severe head trauma.

**Dura** Tough fibrous membrane that surrounds the brain and is attached to the inner surface of the skull.

**Epidural haemorrhage** Bleeding between the dura and the skull.

**Fontanelle** Soft spot on head of infants.

**Forensic** Of legal interest or importance; applying medical facts to legal issues.

**Frenulum** Small fold of tissue between upper gum and inside of top lip.

**Galactosemia** Rare genetic metabolic disorder.

**Intracranial pressure** Pressure inside the cranial cavity (head).

**Metaphyseal** Pertaining to the transitional areas between the shaft and end of a long bone.

**Neuroimaging** Radiology studies of the brain and/or spine.

**Ophthalmologist** Physician specialising in diseases and defects of the eye.

**Posterior** Back

**Radiograph** Standard X-ray films

**Rotation** turning or movement of a body around its axis.

**Skull** bones of the head including the lower jaw and face.

**Subdural Haemorrhage** Bleeding between the arachnoid and the dura.

**Thrombocytopenia** Presence of relatively few platelets in blood.

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