Injuries in Non Mobile Infants Protocol

Contents

1. Introduction

Aim of protocol: the aim is to provide frontline practitioners and managers with a knowledge base and strategy for the assessment, management and referral of children who are not independently mobile who present with injuries or otherwise suspicious marks; bleeding from the nose / mouth; fractures (which may present as a swelling e.g. on the head or with reduced movement of a limb); possible non accidental head injury (NAHI) or a burn / scald. It does not reiterate the process to be followed once a referral to Children's Services has been made. For this, practitioners must consult the Pan-Dorset Safeguarding Children Procedures - Referrals.

Target Staff:

Front line practitioners in health: GPs including sessional and locum doctors, primary care staff including practice nurses, health visitors, school nurses, district nurses and midwives, community staff allied to medicine; clinicians in GP out of hours services, walk-in centres, minor injury units and emergency departments; all community and hospital paediatric clinical staff; nurse practitioners; ambulance clinicians, chemists and dentists.

<u>Other Front line staff</u>: Social workers and social work assistants, including out of hours services, children's centres, nursery and playgroup staff, child minders, police officers. Teachers, teaching assistants, residential staff (for children with disability).

Rationale for protocol:

An injury to a non-mobile child must never be interpreted in isolation. The assessment must be multiagency and must include the medical, developmental and social history, a full clinical examination and relevant investigations. It is the responsibility of children's social care to lead the multiagency investigation in conjunction with the paediatrician and to decide whether the circumstances of the case and the explanation for the injury are consistent with an innocent cause or not. While some injuries to this group of children may occur accidentally this is much less common than in mobile children (Appendix 3 provides a useful research base to enhance practitioner knowledge). Particular concern should be noted if the history is inconsistent with the injury, inconsistent over time, vague or based on supposition about what "must have" happened or there are repeated incidents. Depending on the nature of the presenting medical problem there may need to be some flexibility about how the investigation proceeds e.g. in terms of scene management but this can be considered at the strategy discussion.

Serious case reviews both locally and nationally have noted cases where there was an undue reliance on the medical assessment and a lack of curiosity about the broader family situation. This can result in children being left in situations of high risk.

2. Definition

Not Independently Mobile:

i. an infant or young child who is not yet crawling, bottom shuffling, pulling to stand, cruising or walking independently.
ii. An older child with a similar lack of independent mobility due to severe disability. The policy does not apply to children who are independently mobile in a wheelchair and who can communicate verbally or non-verbally to give an account of how they sustained an injury.

3. Recommended Action for non-mobile infants

While the guidance recognises that practitioner judgement and responsibility have to be exercised at all times, it errs on the side of robust risk management by requiring that:

All not independently mobile children* with bruising, a burn or scald or any other injury should be urgently referred to Paediatrics AND to Children's Social Care **on the day the injury is noted**.

Guidance for referrers – see flow charts 2&3.

Guidance for paediatricians and social workers – see flow chart 1

See also:

- appendix 1 for information about types of clinical presentation.
- appendix 2 for information about NICE guidance
- appendix 3 for research basis for this protocol

All not independently mobile children with bleeding (including oronasal bleeding), a swelling of the head or a reduction in movement of a limb (which may indicate a fracture at that site) should be discussed **on the same day** with a consultant paediatrician. There should be a low threshold for referring to both Paediatrics and Children's Social Care.

See Flow chart 5.

It is not always easy to identify with certainty a skin mark as a bruise or a burn. Practitioners should take action in line with this protocol if they suspect that the observed skin mark could be a bruise or burn or could be the result of injury or trauma. Practitioners must err on the side of caution.

Where a health visitor (or other non- hospital based practitioner) identifies a skin mark / lesion and they are unsure whether this is a bruise / burn / other injury, it is acceptable to refer to the GP in the first instance. This **referral must take place on the same day and not cause undue delay**. If the GP is unable to distinguish between a bruise or other reason for the mark, or has concerns, then a referral should be made to Paediatrics under this protocol. If the GP identifies a bruise, then this should be referred to Paediatrics and Children's Social Care, as per the protocol. If a child is seen by the GP but not referred on and the health visitor or other staff continues to have concerns a paediatric opinion should be sought.

See Flow chart 4.

Other marks, abrasions or presentations in children not independently mobile always require an explanation, and action should be based on practitioner judgement and usual safeguarding practice. Practitioners should not suggest a possible reason for the bruising / bleeding / swelling but ask an open question to seek an explanation from the parent / carer.

For suspected injuries brought to the attention of medical practitioners there should be an appropriate examination and the completion of body maps. In infants (< 12 months of age) an appropriate examination would include complete undressing of the infant.

Records must be signed, timed, dated, accurate, comprehensive and contemporaneous. They should include any explanation given recording the words used.

Caution:

Some skin features in an ill infant e.g. a purpuric or petechial rash, may be a sign of life threatening infection.

Any child found to be seriously ill or injured or in need of urgent treatment must be referred immediately to hospital.

Babies with prolonged or persistent crying warrant further assessment / evaluation. There are many possible medical causes for this but the differential diagnosis includes non-accidental injury. Prolonged crying is also a risk factor for abuse, particularly non-accidental head injury.

4. Specific considerations for disabled children – see flow chart 7.

Disabled children are at increased risk of non-accidental injury and many children will be unable to give an account of how an injury was sustained. Injuries may most commonly involve bruising but there may be swelling or a reduction in limb movement compared to the child's normal pattern of movement.

Disabled children may also be at increased risk of injury because of malnourishment or neuromuscular problems e.g. muscle spasms. Many children have very specific moving and handling needs and equipment needs and injuries can be sustained accidentally in relation to the use of this equipment. It is important that any injury noted should be recorded on body maps. For school-aged children these should be shared with the school nurse or for younger children, with the health visitor. Patterns of bruising need to be considered in the context of the child's environment and equipment.

Any bruising that looks suspicious of an inflicted injury or where there is no clear explanation for the injury should lead to referral under this protocol.

5. Accidental / non-accidental / inconclusive categories – see flow chart 1.

When an injury is identified the aim of the assessment is to establish how it was sustained and what the on-going risk to the child / other children in the family is.

Accidental – a clear and consistent account of a plausible mechanism where there are no other identified concerns. The history is consistent with the examination findings. Independent witness accounts may be available to support the history.

If a referral to social care has not already been made the paediatrician should consider discussing the case with a social worker for background checks to be done. If no concerns are identified referral further investigation may not be indicated.

Non-accidental – from the history and / or the examination it is clear that the injury could not have been sustained accidentally. These children, if infants, will need further medical investigation with CT head scan, skeletal survey and eye examination. A referral to social

care MUST be made if it has not already been done and a full multiagency assessment will be needed. In the case of an older non-mobile disabled child a clinical decision will need to be made as to what, if any, medical investigations are indicated.

Inconclusive – this is a common situation. An injury is present and an explanation is provided but there is some doubt as to whether the injury could have been sustained in that way e.g. could it have happened as described without rough handling or excessive force being applied? In these cases, multiagency assessment led by social care and involving police colleagues is crucial for understanding potential risks and may aid decision making about the need for further medical investigations including radiological examination.

6. Specific types of injuries other than bruises

Burns

The assessment of burn and scald injury presents specific difficulties. Accurate assessment of such injuries will ultimately influence the nature of any intervention capable of safeguarding the injured child and any other children. It is therefore imperative that a comprehensive and timely assessment is undertaken.

- **Paediatric Burns Guidelines**;
- **Lund and Browder Chart**.

Burns and scalds to children are common.

- The majority of burn or scald injuries result from accidental injury, which may involve varying degrees of parental inattention;
- Some cases are the result of neglect;
- Some cases involve deliberate abuse.

Staff in accident and emergency, plastic surgery and children's burns units see the more severe injuries at the time of presentation and their records and observations are vital to the overall assessment of the case. Children requiring admission for treatment of burns will be admitted to a specialist burns unit.

If there are any concerns re possible abuse or neglect, a referral to an appropriate Paediatrician and Children's Social Care is required.

In cases of concern any burn dressings/coverings present upon admission or first presentation should be retained. Such dressings may well be the subject of further examination (forensic) as they may contain valuable evidence which supports a non-

accidental or deliberate cause (e.g. cigarette ash residue, chemical residues, paint deposits resulting from contact with heat sources).

The paediatrician will need to liaise with those responsible for the treatment of the burns and ensure that appropriate referrals to partner agencies have been made.

Less severe injuries may not be seen in hospital but may present to GPs, health visitors and school nurses or are discovered, for example, by nursery nurses or school teachers. The need to ensure these cases are properly assessed is equally important.

It should be borne in mind that most accidental burns and scalds in childhood occur in pre-school children and these should be preventable.

See Flow chart 3.

Oronasal Bleeding (bleeding from the mouth or nose)

Oronasal bleeding is uncommon in infants (<12 months) and is rarely seen in emergency departments in children under the age of 2 years. It may be due to serious medical disorders, minor ailments or abuse. Any non-independently mobile child presenting with oronasal bleeding, particularly in the first year of life should be referred for urgent paediatric assessment This is likely to involve blood tests to exclude serious disorders and must include consideration of safeguarding issues. Where no clear cause is established the child should be admitted to hospital for further medical and mult-iagency assessment with referral to social care.

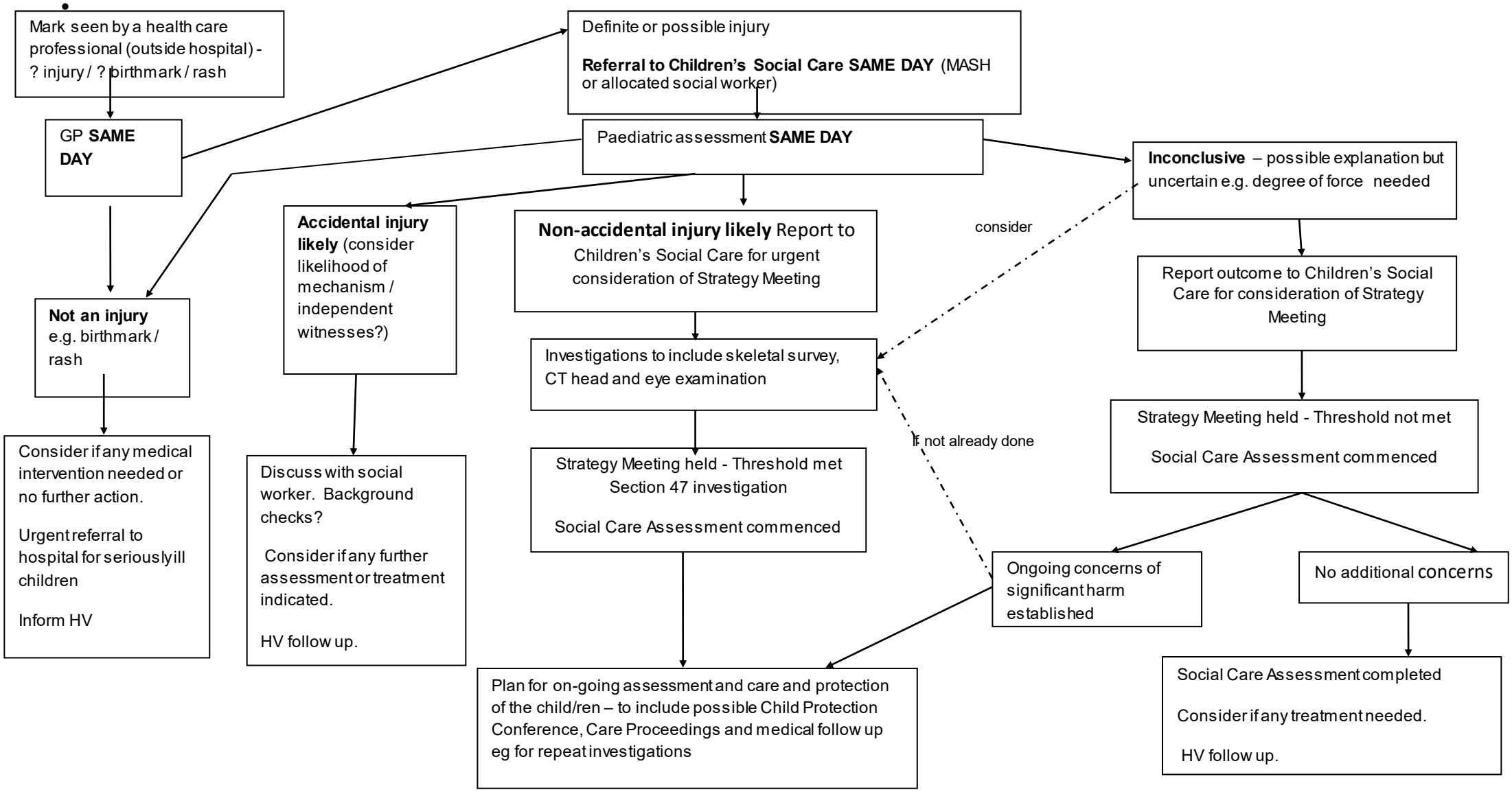
See Flow chart 5.

9. Flowcharts

1. Flow chart for Paediatricians and social workers
2. Flow chart for **non-health care professionals** – assessment of bruising / scald possible injury in a non-independently mobile child
3. Flow chart for **health practitioners** – assessment of bruising / scald possible injury in a non-independently mobile child
4. Flow chart for assessment of an unexplained mark in a non-independently mobile child
5. Flow chart for assessment of bleeding from the nose or mouth in a non-independently mobile child

6. Flow chart for assessment of swelling on head or reduced limb movement in a child who is not independently mobile
7. Flow chart for assessment of injury to a non-independently mobile child with a disability

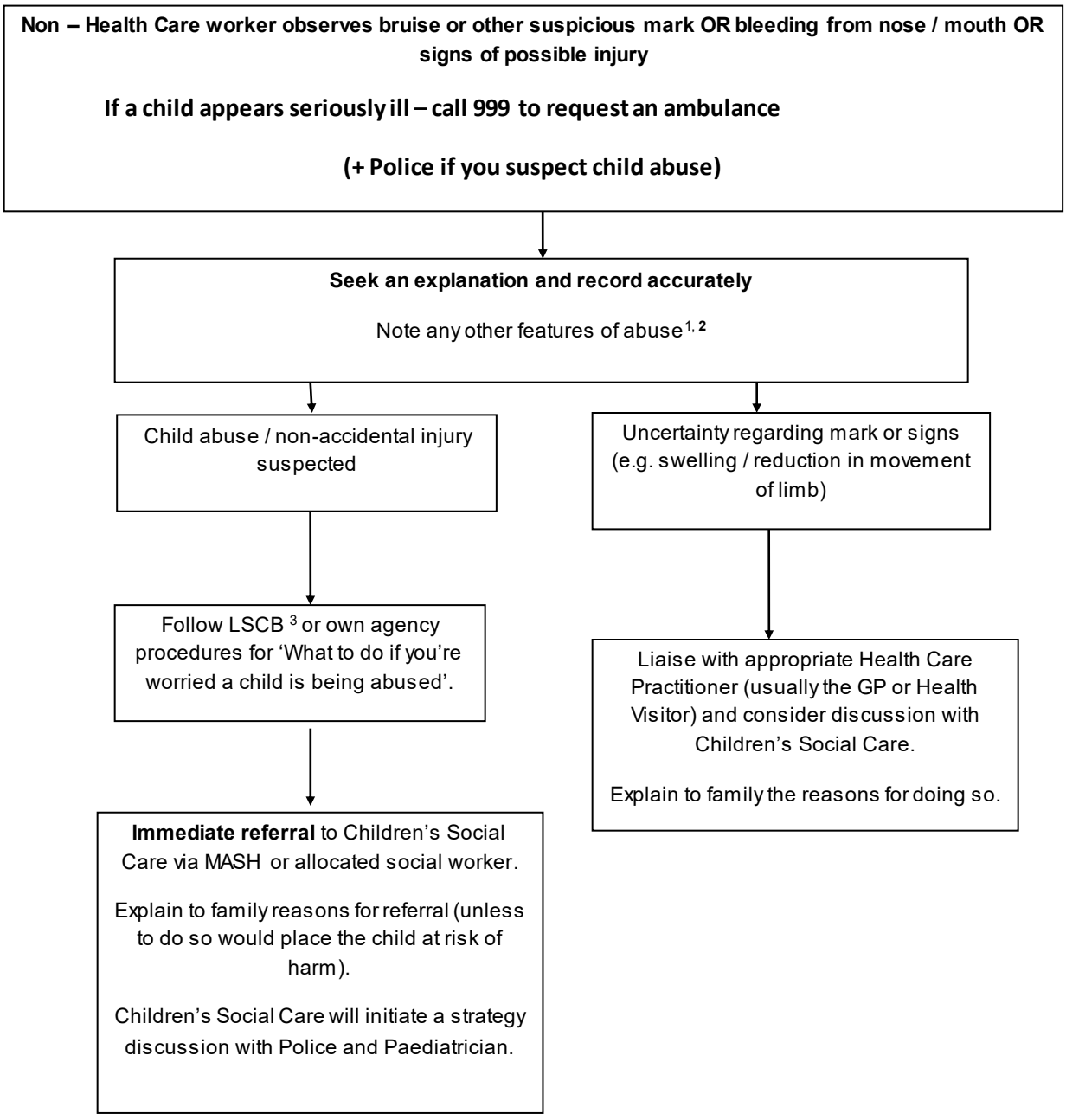
Flowchart 1: Injuries including bruises in non-mobile infants and children: guidance re assessment for doctors and social workers



Flowchart 2:

Non – Health Care Professionals

Joint Protocol for assessment of bruising / burn / scald / possible injury in a child who is not independently mobile



1. **NICE clinical guideline 89: When to suspect child maltreatment, July 2009**

   (SUSPECT means serious level of concern about the possibility of child maltreatment but not proof of it)

2. www.core-info.cf.ac.uk

3. **http://pandorsetscb.proceduresonline.com/index.htm**

Flowchart 3:

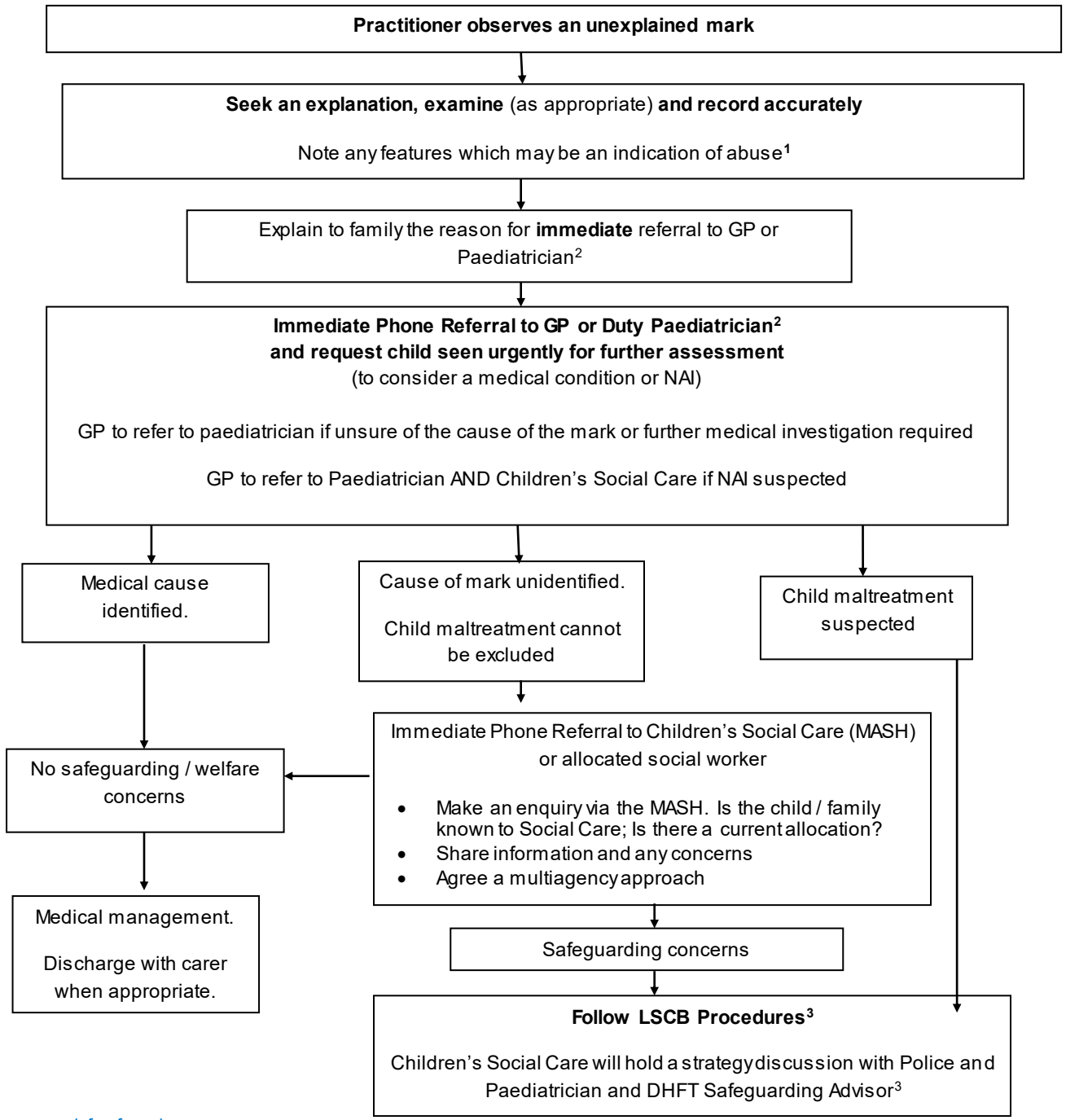
Health Practitioners: Joint Protocol for assessment of bruising / burn / scald in a child who is not independently mobile

1. NICE clinical guideline 89: When to suspect child maltreatment, July 2009
   (SUSPECT means serious level of concern about the possibility of child maltreatment but not proof of it)
2. www.core-info.cf.ac.uk
3. Consultant /Associate Specialist / Staff Grade / or Specialist Registrar (who will discuss with consultant)
4. http://pandorsetscb.proceduresonline.com/index.htm

Flowchart 4:

Joint Protocol for assessment of an unexplained mark* in a child who is not independently mobile

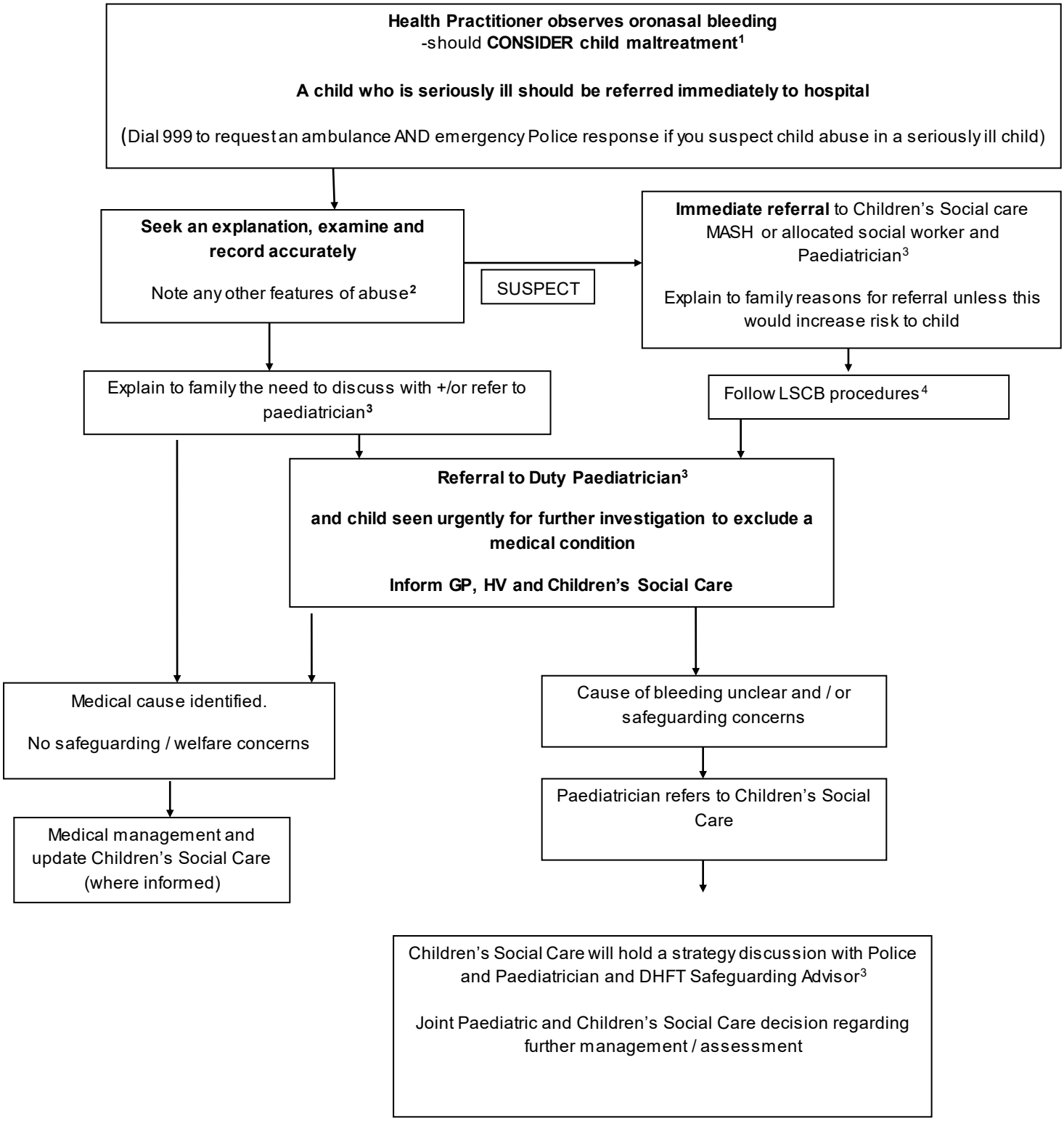
*The Practitioner is not certain whether the mark is a bruise or injury but has concerns



1. www.core-info.cf.ac.uk
2. **Consultant /Associate Specialist / Staff Grade / or Specialist Registrar (who will discuss with consultant)**
3. **http://pandorsetscb.proceduresonline.com/index.htm**

Flowchart 5:

Joint Protocol for assessment of bleeding from nose or mouth in an infant who is not independently mobile



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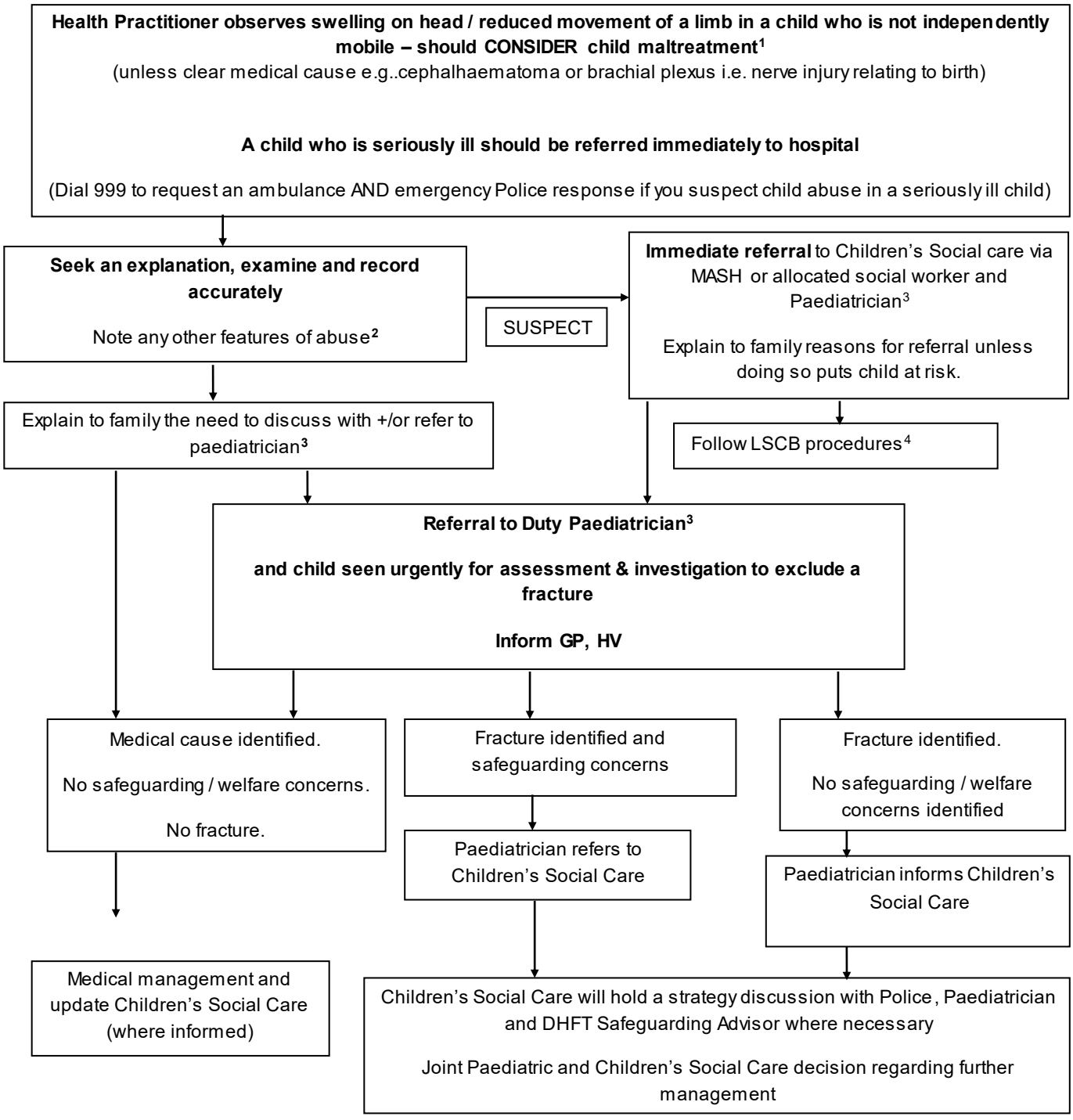
4. ↓

Flowchart 6:

Joint Protocol for assessment of swelling on head or reduced limb movement in a child who is not independently mobile



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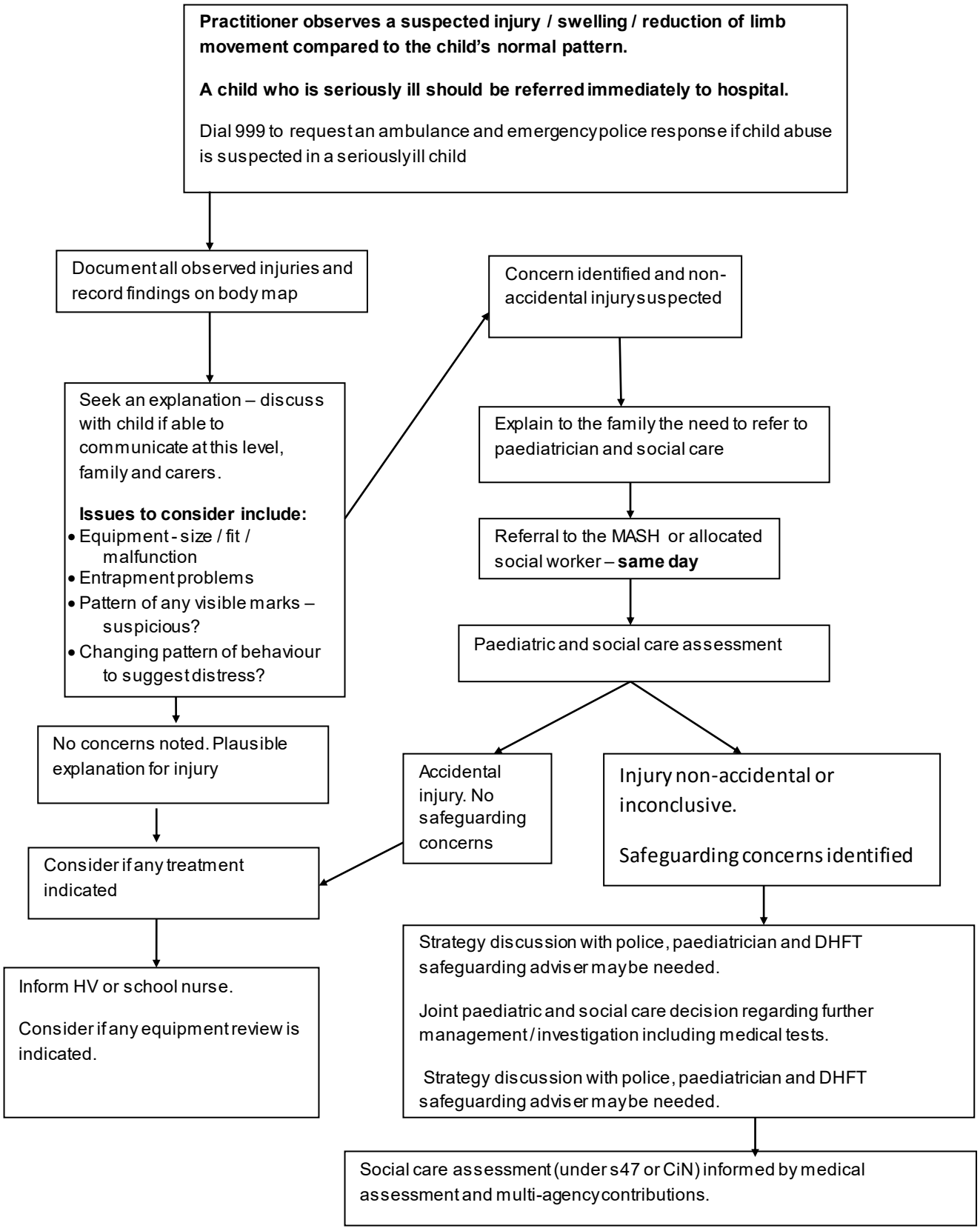
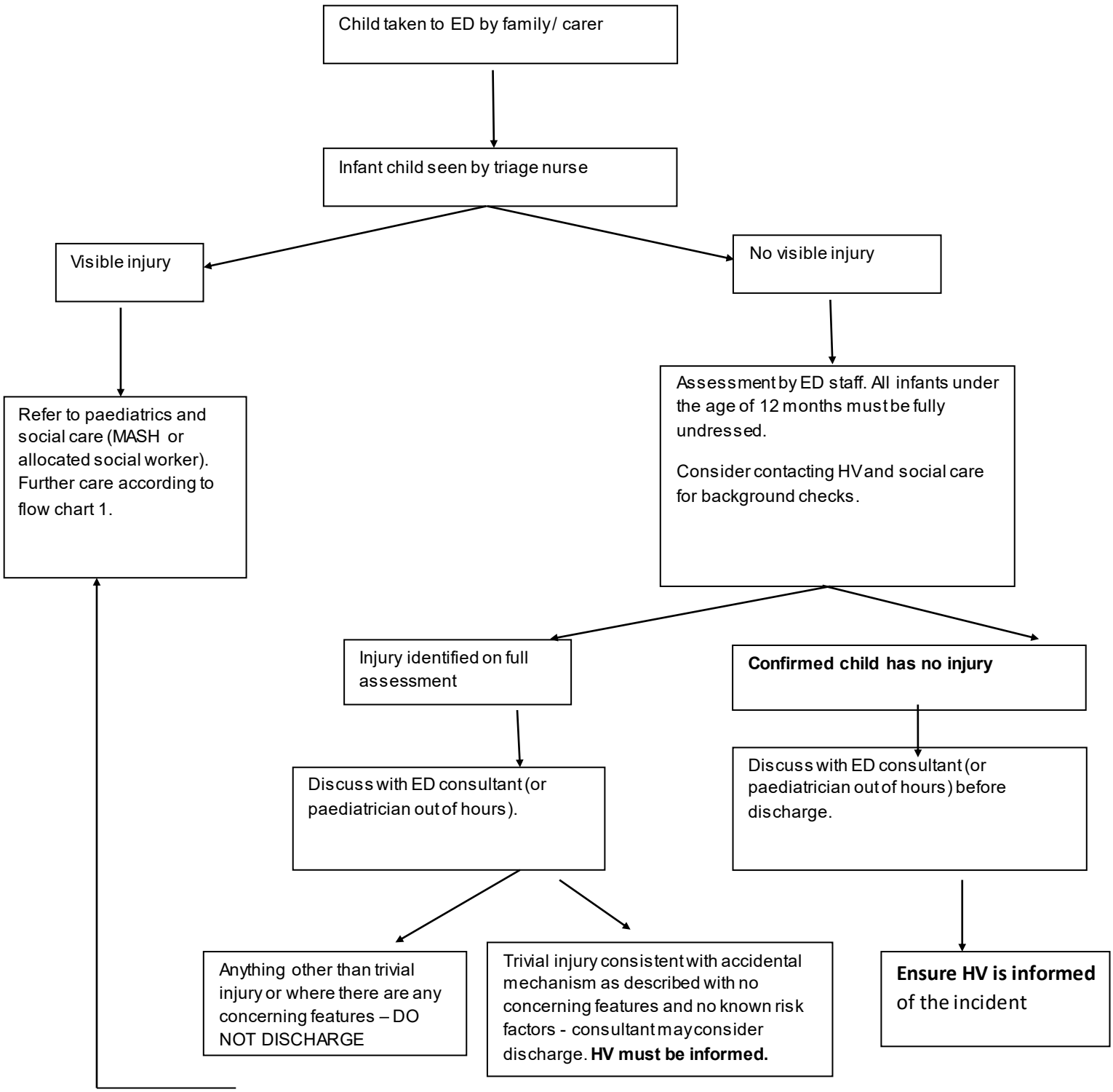
3. **Consultant /Associate Specialist / Staff Grade / or Specialist Registrar (who will discuss with consultant)**
4. **http://pandorsetscb.proceduresonline.com/index.htm**

Flow chart 7:

Joint protocol for assessment of injury to a non-independently mobile child with a disability



Flow chart 8: **Non-mobile child presenting directly to the emergency department ("self-referral" by family)**



Appendix 1: Types of clinical presentation

Bruising is the commonest presenting feature of physical abuse in children. Recent serious case reviews and individual child protection cases across Dorset, Poole and Bournemouth have indicated that staff have sometimes underestimated or ignored the highly predictive value, for child abuse, of the presence of bruising in children who are not independently mobile (those not yet crawling, cruising, walking independently). As a result there have been a number of cases where bruised children have suffered significant abuse that might have been prevented if action had been taken at an earlier stage.

Fractures: Fractures of the skull bone(s) may present as a **swelling on the head**. Children who have fractures of a limb / long bone may present with a **reduction in movement** of that limb. Often there is no bruising of the skin at the site of the fracture. Case audits in Dorset have highlighted that improvements in information sharing within and across agencies can aid risk assessment which in turn leads to better safeguarding arrangements. Swellings may also have an innocent or medical explanation e.g. a swelling on the head of a baby within a few weeks of birth may represent a resolving cephalhaematoma (a collection of blood between the skull bone and the periosteum i.e. the tissue overlying the bone). The birth history will be an important part of the assessment. A review of the notes recorded at birth can also be helpful. However, a cephalhaematoma may not be obvious for a day or two (sometimes longer) after birth.
Similarly, a reduction in movement of a limb may also be a sign of a medical condition rather than injury.

Oronasal bleeding: Bleeding from the mouth / nose of a young infant (< 12 months) is believed to be uncommon and should prompt consideration of a serious medical condition or child abuse within the differential diagnosis.

Thermal injury (burns/ scalds): Accidents can follow brief lapses in protection, neglect is part of a pattern of inadequate parenting, and abuse occurs when injury is deliberately inflicted. When burns are old or become infected they are difficult to differentiate from some primary skin disorders including a primary infected lesion.

Non-Accidental Head Injury (NAHI): Head injury is the commonest cause of death in physical child abuse. 95% of severe head injury in the first year of life is inflicted. NAHI is most commonly seen in infants under the age of 6 months but also occurs in older children. The mortality from NAHI is up to 30%. Half of the survivors have residual disability of variable severity. NAHI should be considered in any infant who inexplicably collapses.

Appendix 2: Key indicators highlighted in NICE Guidance:

http://guidance.nice.org.uk/CG89/QuickRefGuide/pdf/English

The NICE guideline When to Suspect Child Maltreatment (Clinical Guideline 89, July 2009) states that any of the following should prompt **suspicion** of maltreatment:

- Bruising in any child not independently mobile
- One or more fractures in a child if there is no medical condition that predisposes to fragile bones / fractures
- Burn or scald injuries on a child who is not independently mobile
- Intracranial injury in a child if there is no major confirmed accidental trauma or known medical cause in one or more of the following circumstances:
  - there is an absent or unsuitable explanation
  - the child is aged under 3 years
  - there are also other inflicted injuries, retinal haemorrhages, or rib or long bone fractures
  - there are multiple subdural haemorrhages with or without subarachnoid haemorrhage with or without hypoxic ischaemic damage to the brain.

The following should prompt **consideration** of child maltreatment:

- Bleeding from the nose or mouth (especially in an infant who has an apparent life-threatening event) and a medical explanation has not been identified

Appendix 3: Research base

1. **Bruising**: There is a substantial and well-founded research base on the significance of bruising in children. See http://www.corinfo.cf.ac.uk/bruising

1.1 Although bruising is not uncommon in older, mobile children, it is rare in infants that are immobile, particularly those under the age of six months. While up to 60% of older children who are walking have bruising, it is found in less than 1% of not independently mobile infants, Moreover, the pattern, number and distribution of innocent bruising in non-abused children is different to that in those who have been abused. Innocent bruises are more commonly found over bony prominences and on the front of the body but rarely on the back, buttocks, abdomen, upper limbs or soft-tissue areas such as cheeks, around the eyes, ears, palms or soles.

1.2 Patterns of bruising suggestive of physical child abuse include:

- bruising in children who are not independently mobile
- bruising in babies
- bruises that are away from bony prominences
- **bruises to the face, back, abdomen, arms, buttocks, ears and hands**
- multiple or clustered bruising
- imprinting and petechiae
- symmetrical bruising

1.3 **A bruise must never be interpreted in isolation and must always be assessed in the context of medical and social history, developmental stage and explanation given. A full clinical examination and relevant investigations must be undertaken.**

1.4 The younger the child the greater the risk that bruising is non-accidental and the greater potential risk to the child.

2 Fractures

There is a well-founded research base on fractures in children.
See http://www.core-info.cardiff.ac.uk/fractures/index.htm

2.1 All fractures require appropriate explanation which must be consistent with the child's developmental age and any known medical conditions associated with fractures. Abusive fractures may not be obvious.

2.2 The younger the child the greater the likelihood of abuse. 80% of abused children with fractures are less than 18 months old, whereas 85% of accidental fractures occur in children over five years. Overall approximately 25% of all fractures in infants under one year were due to abuse. Infants less than 4 months of age with fractures are more likely to have been abused.

2.3 Types of fractures linked with abuse:

- Multiple fractures are significantly more common in abused children
- Spiral fractures of the humerus (long bone of the upper arm) are uncommon and strongly linked with abuse. All humeral fractures in a non-mobile child are suspicious if there is no clear history of an accident.
- Femoral fractures in children who are not independently mobile are suspicious of abuse, regardless of type.
- In the absence of underlying bone disease or major trauma (such as a road traffic accident), rib fractures in very young children are highly specific for abuse.
- Skull fractures:
- A linear parietal fracture is the commonest accidental and non accidental fracture.
- The probability of abuse for a child with a skull fracture is approximately 30% (95% CI 19%-46%; 6 out of the 7 studies included only infants / toddlers)
- Skull fractures were the commonest accidental fractures and were more frequent in those aged <18 months ($p<0.001$)
- Multiple or bilateral fractures, or those that crossed suture lines were more common in abused children
- A history of a fall of less than 3 feet rarely produces a fracture.

3 Oronasal bleeding

3.1 The incidence of oronasal bleeding appears to vary depending upon the population studied. From a study of General Practice research databases the annual incidence of epistaxis (nose bleed) at age < 1 year is reported to be between 7 – 20 per 10 000; the hospital reported incidence is around 1 per 10 000.

3.2 In a public survey, 94% of parents reported that they would seek medical attention if their infant had a nose bleed.

3.3 Causes of bleeding from the nose / mouth in infants include:

- Trauma (accidental / non accidental including smothering)
- Acute rhinitis / coryzal illness (common cold)- usually small amount of blood mixed with nasal secretions
- Bleeding disorder
- Liver disorder
- Congenital anomaly including craniofacial malformation e.g. facial haemangioma (a birth mark involving blood vessels)
- Malignancy (tumour)

3.4 The conclusions from the studies state:

- **All cases of epistaxis (bleeding from the nose) in infants (age < 1 year) should have a full and expert assessment** to exclude bleeding disorders. In most cases there will be a benign or no explanation. Physical abuse should be considered in this vulnerable group.

- In general practice epistaxis may herald other trauma presentations, implying that such infants may be part of a high-risk group for injury.

- Epistaxis is rarely seen in the emergency department and hospital in the first 2 years of life. When it does present it is often associated with injury or serious illness. The investigation of all cases should involve a paediatrician with expertise in child protection.

- Any infant presenting with isolated bleeding from the nose and / or mouth, in the absence of a clear cause, warrants admission to hospital for further investigation. If no blood abnormality or local source for the bleeding is found, a full social investigation should occur and such infants kept under close surveillance.

4 Thermal Injury (Burns / scalds)

4.1 Many skin disorders may be mistaken for intentional burns.

4.2 Accidental scalds are predominantly spill injuries, few are immersion.

4.3 See scalds triage tool at **http://www.coreinfo.cardiff.ac.uk/thermal/scalds_key_messages.htm** for indicators of abuse

4.4 Contact burns are the most commonly described non-scald burns

4.5 Intentional burns:

- Most commonly reported on back, shoulders, buttocks
- Had sharply demarcated edges which could be matched to the specific implement in many cases
- Occurred throughout childhood

5 Non-Accidental Head Injury (also termed Inflicted Brain Injury)

See **http://www.core-info.cardiff.ac.uk/neurological/index.htm**

5.1 Infants less than six months of age have a greater probability of having sustained their brain injury as a consequence of abuse, than older infants

5.2 Certain features (Retinal haemorrhage, apnoea) appear to correlate strongly with inflicted brain injury (iBI) rather than non-inflicted brain injury (niBI) in children < 3 years with a brain injury

5.3 The pathological features of NAHI in children often include a triad (sometimes referred to as 'The Triad') of intracranial injuries consisting of

- Retinal haemorrhages (bleeding into the lining of the eyes)
- Subdural Haemorrhages (SDH – bleeding beneath the dural membrane of the brain)
- Encephalopathy (damage to the brain affecting its function)

5.4 Subdural Haemorrhage (SDH) arising from intentional injury has an annual incidence of approximately 14 - 21/100 000 in infants (age 0-1year)

5.5 Child abuse (NAHI) is the commonest cause of SDH (Subdural haemorrhage) in infants (Hobbs et al 57% of cases; Kemp et al 72% of cases). Hence the importance of an early multidisciplinary team (involving Health, Children's Social care and Police) approach, including a multidisciplinary strategy discussion, to the investigation of SDH presenting at age < I year.