Inclusion Criteria:
- Any patient <18 years of age admitted to LPCH with injuries suspicious for abuse
- Injuries include burns, head trauma, bruising and fractures

Exclusion Criteria:
- Verifiable, witnessed events such as MVA (unless signs of abuse/neglect, e.g. lack of seatbelt)
- Obvious non-abusive cause of injury or explained by plausible developmentally appropriate mechanism

Is the primary reason for admission suspected non-accidental trauma / injuries suspicious for abuse?

Yes
- Admit to pediatric surgery with pediatric hospitalist consultation (admission to another service dependent on discussion with peds surgery/trauma surgery attending)

No
- Admit to appropriate service based on primary reason for admission and consult pediatric surgery

Upon Admission:
- Review any work up already completed by the ED or OSH (upload outside images)
- Obtain detailed medical history & physical exam with specific focus on indicators and injuries suggestive of abuse
- Place following consults:
  - Trauma surgery
  - Hospitalist
  - Social Work
  - Suspected Child Abuse and Neglect (SCAN) – via Epic consult order or page 27226 (2SCAN) for urgent needs
  - Screen for Occult Injury & Review Skeletal Survey Recommendations
  - Screen for Medical Conditions
    - Use Non-Accidental Trauma Order set in Epic for initial diagnostic work up

Findings with Low Concern for Abuse:
- Single injury with likely accidental mechanism
- No occult injuries on skeletal survey

Recommendations:
- Discuss possible CPS report with social work and SCAN team

Discharge Criteria:
- Medically stable
- CPS disposition is clarified, if they are involved
  - If unable to reach CPS and unsure about discharge, contact SCAN to discuss
  - F/U skeletal survey is scheduled, if indicated
- Primary care physician has been contacted

Findings Suggestive of Abuse:
- Witnessed or disclosed abuse
- Injury pathognomonic of abuse
- Injuries not explained by plausible mechanism
- Occult injuries identified on skeletal survey

Recommendations:
- Additional screen for occult injury per SCAN recommendations
- Work with SW/most informed staff member to file CPS report
- Recommend to investigators evaluation of other children in the home

Definitions, Provider Education & References
Indicators & Injuries Suggestive of Abuse

Historical Indicators of Abuse:
- No/vague explanation for a significant injury
- Important detail of the explanation changes dramatically
- Explanation given is inconsistent with the child’s physical and/or developmental capabilities
- Different witnesses provide different explanations
- Injury occurred as a result of inadequate supervision
- Delay in seeking medical care without reasonable explanation
- Children with injuries resulting from family/domestic violence incident
- Previous history of inflicted injury
- Witnessed inappropriate behavior to a child placing them at risk for non-accidental trauma

Physical Exam Findings Concerning for Abuse:
- Fractures, bruising, burns or oral injuries in children < 6 months
- TEN-4: Injuries to the Torso, Ears, Neck in pts < 4 years old
- FACESp: Frenulum tear, Angle of the jaw, Cheek, & Eyelid bruise, Subconjunctival hemorrhage, patterned injuries
- Burns are patterned, widely separated (especially bilateral), or in different stages of healing
- Burns in unusual areas, such as the backs of hands, torso or buttocks
- Genital bruises, tears, or bleeding
- Failure to thrive

Radiographic Findings Concerning for Abuse:
- Long bone fractures with no trauma history in patients < 2 years of age
- Any subdural hemorrhage in patients < 2 years of age
- Metaphyseal fractures (corner)
- Rib fractures (especially posterior) in infants
- Undiagnosed healing fracture

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# Evaluation of Suspected Child Abuse Pathway

## Screen for Occult Injuries

<table>
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<tr>
<th>Imaging</th>
<th>To rule out</th>
<th>Indicated for</th>
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| CT Head without Contrast      | Occult intracranial injury | - All infants ≤ 12 months old with concern for abuse  
- Patients > 12 months if recommended by SCAN team  
Can consider MRI as alternative to reduce radiation exposure, if no evidence of head injury |
| Skeletal Survey               | Occult fractures         | - All patients ≤ 23 months old with concern for abuse  
- Patients ≥ 2 years if recommended by SCAN team  
[See skeletal survey recs here](#)  
If moderate/high suspicion for abuse, consider repeat skeletal survey in two weeks |
| Abdominal and Pelvic CT with IV Contrast | Occult abdominal injury | - All patients with signs or symptoms concerning for abdominal trauma; including elevated LFTs (AST/ALT >80) or lipase |
| Whole Spine MRI without contrast | Occult spinal injury  | - Infants ≤ 12 months old with evidence of abusive head trauma (AHT) on neuroimaging  
- Patients > 12 months if recommended by SCAN team |
| Ophthalmologic Exam           | Retinal hemorrhages      | - All infants ≤ 12 months old with concern for abusive head trauma (AHT)  
- Patients older than 1 year if recommended by SCAN team  
Prioritize ophthalmologic exams to occur within 24 hours of presentation for best diagnostic evaluation. |

## Lab Testing

<table>
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<tr>
<th>Lab Testing</th>
<th>To rule out</th>
<th>Indicated for</th>
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| CMP Lipase Urinalysis        | Occult abdominal injury  | - All patients ≤ 7 years old with concern for abuse  
- All patients ≥ 8 years old with signs/symptoms concerning for intra-abdominal injury |
| Urine Tox Screen             | Toxin exposure           | - All patients ≤ 7 years old with concern for abuse  
- All patients ≥ 8 years old with signs/symptoms of intoxication  
If concern for opioid exposure or designer drugs, contact laboratory for confirmatory assay(s) |
| CBCd PT/INR PTT              | Predisposition to bleeding | - All patients ≤ 7 years old with concern for abuse  
≥ 8 years old with bruising concerning for abuse |
| Ca, Mag, Phos Alk Phos Intact PTH 25-OH vitamin D | Predisposition to fracture | - All patients with fractures concerning for abuse (excluding skull fractures) |
| Troponin                     | Cardiac injury           | - Only as recommended by SCAN team |
| Lactate, CK                  | Tissue ischemia, Muscle injury | - Only as recommended by SCAN team |
### Conditions Mistaken for Bruising

- Slate gray macules (Mongolian spots)
- Coining
- Erythema nodosum
- Ink, paint, dye
- Cupping
- Phytotophodermatitis

### Conditions that May Predispose a Child to Bruising

- Henoch Schönlein Purpura (HSP)
- Idiopathic Thrombocytopenia Purpura (ITP)
- Leukemia
- Disseminated Intravascular Coagulation (DIC)
- Hemophilia
- Ehlers-Danlos
- Hemangioma
- Vitamin K deficiency
- Inherited coagulopathies

### Conditions Mistaken for Burns

- Impetigo
- Severe diaper rash
- Frostbite
- Chemical burns
- Epidermolysis bullosa
- Phytotophodermatitis
- Ingestion of ex-lax causing buttock “burns”
- Moxibustion

### Consider consulting pediatric:

- Genetics
- Endocrine
- Orthopedics
- Dermatology
- Gynecology
- Neurosurgery
- Neurology

### Conditions that May Predispose a Child to Intracranial Hemorrhage

- Glutaric aciduria type 1 (associated findings: macrocranium, subdural hematomas, retinal hemorrhages, frontotemporal atrophy)
- Hemorrhagic disease of the newborn
- Inherited coagulopathies
- Acquired coagulopathies
- Arteriovenous malformation

### Conditions that May Predispose a Child to Fractures

- Osteogenesis Imperfecta (variable associated findings: blue sclera, ligamentous laxity, wormian skull bones, hearing loss. Usually inheritance is autosomal dominant)
- Osteopenia of prematurity
- Florid rickets (vitamin D (25 OH) <10 and radiographic findings of rickets)
Skeletal Survey Recommendations

Skeletal Survey is necessary in children 0-23 months with any concerns for child abuse OR any of the following features present:

1. History of:
   - Confessed abuse
   - Injury occurring during domestic violence
   - Impact from toy/object causing fracture
   - Delay in seeking care > 24 hours in child with signs of distress
   - Additional injuries unrelated to fracture (i.e. bruising, burns)

2. Fracture requiring skeletal survey:
   - Rib fracture
   - Classic metaphyseal fracture
   - Complex or ping pong skull fracture
   - Humeral fracture with epiphyseal separation attributed to short fall (< 3 feet)
   - Femur diaphyseal fracture attributed to fall from any height

3. No history of trauma to explain fracture EXCEPT for the following in ambulatory patients > 12 months:
   - Distal buckle fracture of radius/ulna
   - Distal spiral or buckle fracture of the tibia/fibula

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**Evaluation of Suspected Child Abuse Pathway**

**Documentation Tips**

**Documenting the History**
- Do document clearly who is providing the history.
- Do appropriately attribute the statement to the source. (i.e. Mrs. Jones stated that Johnny told her...)
- Do document what happened, when, and who was involved.
- Do use quotations to document exact words when a child directly discloses to you.
- Do document any pain a child reports being associated with the injury.
- Do document past medical history, social history, medications, and allergies.
- Do document child’s activities that may impact forensic evidence recovery (i.e. bathing).

**Review of Systems**
- Do document changes in behavior, nightmares, depression etc.
- Do document any general or somatic symptoms, including nausea or vomiting, abdominal pain, fever, etc.

**Documenting the General Physical Exam**
- Do document a full physical examination and any abnormal findings.
- Do describe, draw, and photograph any injuries.

**Documenting the Impression**
- Do provide a summary statement that includes patient’s gender, age, reason for evaluation, and examination findings.
- Do offer an appropriate interpretation of the findings in the context of the history such as the following:
  - 4 m.o. boy who presented with seizure. Noted to have facial bruising on examination. CT scan with acute subdural hematoma, skull fracture. Skeletal survey with rib fractures. Multiplicity and severity of injuries extremely concerning for inflicted trauma. Report filed with CPS and police.
  - 18 m.o. girl who presented for evaluation due to refusal to walk after a fall from standing. Right femur fracture. Injury is consistent with developmental ability and history, and is consistent with accidental injury.
  - 5 m.o. boy with skull fracture after reportedly falling from arms of his father 5 days ago. Child screened for occult injury due to delay in care – no evidence of occult fractures or abdominal trauma. History is consistent with injuries detected. Not reported to CPS at this time due to low suspicion for inflicted trauma.
Evaluation of Suspected Child Abuse Pathway

Photo Documentation Tips

- Do take photos of any injury visible on physical examination
- Do photograph each injury separately
- Do take a photograph of the injury at a distance, followed by a close-up photograph
- Do NOT take only close-up photos without wider angle photos of each injury.
- Remember that what appears obvious to you in the room with the patient may not be identifiable to you months or years later.
- Do review your photographs to be sure that both the injury and body part are identifiable to a provider who has not seen the patient in person
- Do use a size standard or ruler in close-up photographs
- Prior to completing exam, please upload photo to Haiku. Confirm that photos accurately represent the finding(s) you are concerned about.
Definitions:

- **Child abuse/maltreatment** refers to either acts of commission (deliberate or intentional inflicted injury, also referred to as non-accidental trauma) or omission (failure to provide for a child's needs resulting in harm or injury, also referred to as neglect).

- **Nonaccidental trauma** and child abuse are often used interchangeably. It is important to note that the intentionality refers only to the action of the caregiver (hence the term non-accidental trauma), not the consequences of the action.

- **Abusive head trauma (AHT):** an injury to the skull or intracranial contents of a baby or child due to intentional abrupt impact and/or violent shaking. Unintentional injuries resulting from negligent supervision, gunshot, and stabbing or penetrating trauma are excluded from this definition.

References: