BOTTOM LINE RECOMMENDATIONS:

Suspected Physical Child Maltreatment

Physical child maltreatment is any action by a caregiver resulting in or presenting a significant risk of physical harm to a child. **Infants and toddlers are at the highest risk for death due to maltreatment.**[1] Many who die from maltreatment were previously evaluated for minor injuries (e.g. bruises), that were not recognized as due maltreatment. Medical professionals are mandated to report suspicion of maltreatment to a child welfare authority.

WHEN TO SUSPECT PHYSICAL CHILD MALTREATMENT

- In situations of maltreatment, the history is often misrepresented, not provided, or unknown to caregivers. Maltreatment should be considered when red flags are present in the history (see below).
- No single injury is pathognomonic for maltreatment, but certain injuries or injury patterns should always raise concern.
- In addition to injuries highlighted below, unexplained subconjunctival hemorrhages, oronasal bleeding, and/or injuries to the frenula of the lips or tongue are concerning, especially in infants.
- Abdominal, thoracic, and spinal injuries also occur with maltreatment, but are less common.

RED FLAGS IN THE HISTORY

- Absent, vague or changing history of trauma.
- Injuries that are not explained by the history provided, or a history not consistent with the child's developmental abilities.
- Unexplained delay in seeking medical care.
- History of past significant or unexplained injuries in the child.
- High risk social situations, including prior involvement with child welfare authorities.

BRUISES

- **Bruising is the most common finding in maltreated children** and cannot be dated based on colour or appearance.
- **Bruises without clear explanation that are concerning include**: bruises in unusual/protected locations (torso, ears, neck, frenulum, auricular area, cheek, eyelids, scleral hemorrhage, cheeks, angles of the jaw, abdomen, back, buttocks, genitals); multiple or patterned bruises (e.g. handprints, loops, linear markings, bite marks); and **any bruise in a pre-ambulatory infant or non-ambulatory child**.
- Most bruising incurred during normal child activity in ambulatory children occurs over bony prominences (e.g. shins, knees, forehead) and on the anterior body surface.

FRACTURES (SEE TREKK FRACTURE RECOMMENDATIONS)

- Maltreatment fractures are seen in children of all ages but are most common in children <18 months of age.
- Fractures in children result from significant force. Typically, children who sustain fractures present with a clear history of trauma. An important exception is the *Toddler's Fracture*, a non-displaced spiral fracture of the distal tibia that often occurs during normal activity and can present without a history of significant trauma.
- Spiral/oblique fractures of the femur may occur in older, ambulatory children with a twisting fall and are not specific to maltreatment.
- **Fractures without clear explanation that are concerning for maltreatment include:** any fracture in a non-ambulatory infant or child; femur fracture in a child <12 months old; humerus fracture in a child <18 months old; rib fractures; classical metaphyseal lesions (i.e. corner chip fracture or bucket-handle fracture); multiple fractures; and non-linear skull fractures[2].

HEAD INJURIES (SEE TREKK SEVERE HEAD INJURY RECOMMENDATIONS)

- Head trauma is the leading cause of death due to physical child maltreatment.
- In ~30% of cases, head injuries due to maltreatment are not recognized at the first physician visit.[3]
- Signs and symptoms of intracranial injury in young children may be obvious (e.g. seizure, apnea, altered mental status); subtle and non-specific (e.g. sleepy, unexplained vomiting, irritable, macrocephaly); or absent ("silent" intracranial injury).
- Subdural hematomas are a common intracranial finding associated with traumatic head injury due to child maltreatment.

Any intracranial injury in a child without a clear history of significant accidental trauma or medical explanation should raise concern for child maltreatment.

BURNS

- **Burns without clear explanation or an explanation that does not match the injury are concerning for maltreatment. Patterns that may raise concern for an inflicted burn include:** immersion patterned scald burns (e.g. stocking and/or glove distribution, symmetrically burned buttocks and/or genitals); patterned contact burns (well-demarcated burns mirroring a hot object such as a cigarette, iron, lighter, hair dryer, or cooking items).
- Most *accidental* burn injuries in infants/young children are scald injuries. Those due to spillage of hot liquids are located on the anterior body surface, and may have a "flow/splash" pattern.
- Most *accidental* contact burns occur when a hot object is touched or grasped, burning the palmar surface of the hand.

EVALUATION AND MANAGEMENT OF SUSPECTED PHYSICAL CHILD MALTREATMENT

- Stabilize, evaluate, and treat all injuries according to trauma protocols (see TREKK Multisystem Trauma Recommendations).
- Obtain and document a patient history including:
  - Ask open-ended questions.
  - If a history of trauma is provided, document the mechanism, timing and witnesses, and note the child's signs and symptoms after the incident (e.g. crying, limitation of limb use).
  - If a history of trauma is not provided, include when the child was last well and when symptoms were first noted.
  - Inquire about other children in the home.
  - Defer detailed interviewing of the child to forensic interviewers.
- Perform and document complete physical exam including:
  - Head-to-toe skin exam for all children, paying close attention to high risk areas.[4] Note: Include measurements and record findings on a body diagram.
  - Inspection of conjunctiva (looking for subconjunctival hemorrhages).
  - Inspection of oral cavity (looking for injuries to the frenula, etc.).
  - Head circumference for all children <2 years old and plot on an appropriate growth chart. See WHO growth charts
  - **Consider photographing findings if permitted by ED policy.** [5,6]

REPORTING OF SUSPECTED PHYSICAL CHILD MALTREATMENT TO A CHILD WELFARE AUTHORITY

- Reporting is based on the suspicion that maltreatment is a possibility. **It is not the job of the ED professional to diagnose maltreatment with certainty; it is the ED professional's job to suspect that child maltreatment is a possibility and report this to a child welfare authority.**
- Clinicians may choose to involve/consult social work and/or hospital teams with an expertise in the medical evaluation of child maltreatment when weighing their duty to report.

POTENTIALLY USEFUL STUDIES WHEN PHYSICAL CHILD MALTREATMENT IS SUSPECTED

- Prior to any non-urgent imaging (e.g. skeletal survey) or lab investigations, telephone consultation with a pediatric referral centre or medical practitioner with expertise in Child Maltreatment Pediatrics is recommended for all cases of suspected maltreatment, to discuss whether transfer is required and if any further investigations (below) are warranted prior to transfer.
  - **Skeletal survey** – indicated in all children <2 years old to assess for acute, occult and healing fractures. This includes 20+ dedicated x-ray views and every bone in the body.
  - **Head CT** – (noncontrast, 3D reconstruction) is indicated acutely in the ED for any child with signs or symptoms of head trauma. Non-urgent head imaging may also be indicated for young infants and when there are suspected injuries to the head/face/spine.
  - **Dilated eye exam** – should be performed by an ophthalmologist and is indicated in all children with suspected maltreatment head trauma to rule out retinal hemorrhages.
  - **Labs** – obtain trauma labs as indicated (see TREKK Multisystem Trauma Recommendations). Additional labs *may* be helpful to identify underlying organic bone, bleeding, and/or metabolic diseases which may be mistaken for maltreatment or predispose a child to injury.

DISPOSITION

- Discharge from the ED **only** if medical evaluation is complete or a follow-up plan is established **AND** a safe disposition has been arranged by child welfare authorities.
- Admit to hospital if medically indicated **OR** medical evaluation is incomplete and a follow-up plan is not established **OR** a safe disposition is not able to be arranged by child welfare authorities.
- **Note:** Medical evaluation of siblings or other children at risk of maltreatment should be coordinated by child welfare authorities.

The purpose of this document is to provide healthcare professionals with key facts and recommendations for managing suspected physical abuse in children. This summary was produced by the child abuse content advisors for the TREKK Network, Drs. Amy Ornstein and Carmen Coombs of the IWK Health Centre and Dr. Kathy Boutis of the Hospital for Sick Children, and uses the best available knowledge at the time of publication. In addition, it has been reviewed by the Youth and Child Maltreatment Section of the Canadian Pediatric Society. However, healthcare professionals should continue to use their own judgment and take into consideration context, resources and other relevant factors. The TREKK Network is not liable for any damages, claims, liabilities, costs or obligations arising from the use of this document including loss or damages arising from any claims made by a third party. The TREKK Network assumes no responsibility or liability for changes made to this document without its consent. Key references for this summary include:

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4) Pierce MC, Kaczor K, Aldridge S, O'Flynn J, Lorenz DJ. Bruising Characteristics Discriminating Physical Child Abuse from Accidental Trauma. *Pediatrics*. 2010;125(1).
5) Ornstein, AE. An approach to child maltreatment documentation and participation in the court system. *Pediatr Child Health*. 2013;18(8):e44-47.
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