Trauma Center Practice Management Guideline

DISCLAIMER: *These guidelines were prepared by Trauma Services at Mission Hospital. They are intended to serve as a general statement regarding appropriate patient care practices based upon available medical literature and clinical expertise at the time of development. They should not be considered to be policy, nor are they intended to replace clinical judgment or dictate care of individual patients.*

Title: Pediatrics – Non-accidental trauma	
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Developed by: Andie Slivinski, DNP, RN, ACNS-BC, CEN, CPEN Clinical Nurse Specialist - Trauma	**Approved by:** Jaclyn Gosnell, MSN, RN, CEN, TCRN Trauma Program Manager Katherine Mastriani MD, FACOS, Assistant Trauma Medical Director, ICU Director William Shillinglaw DO, FACOS, FACS, MHA Trauma Services Medical Director Michelle Kiser, MD Pediatric General Surgery

Guideline Applicability:

Trauma Center Practice Management Guideline for the care of the patient with suspected non-accidental trauma is applicable to MH Mission Hospital, LLLP, and other locations where services of the hospital are being provided. This guideline should be used in conjunction with the Mission Health "Identification and Management of Suspected Abuse Victims" (1RI.ADM.0001) policy.

Purpose:

To rapidly identify, treat and manage pediatric trauma injured patients who may be the victim of actual or suspected abuse or neglect.

Guideline Statements:

1. Physical child abuse may be broadly defined as injury inflicted upon a child by a parent or caretaker. Specific definitions can vary widely among countries, as well as among different ethnic and religious groups.
2. Traumatic injuries warrant assessment and management based upon the patient's level of stability and according to the principles of Advanced Trauma Life Support. Children with serious traumatic injuries should undergo emergency laboratory studies and imaging appropriate for the evaluation of multiple traumas.
3. Evaluation of the general appearance of the child should include assessment of his or her clothing (eg, is it appropriate for the season? is it clean and in good repair?). The physical examination ideally is performed with all of the child's clothing removed.
4. All patients will be screened for potential signs of abuse. When completing clinical assessment and history, assess for concerns about history or unusual findings on clinical exam (per Appendix A, Table 1). Additional considerations for non-accidental trauma may include findings based on injury type (per Appendix A, Table 2)

5. Consultation with a child safety team is recommended. Mission Children's child Safety Team overview:
   a. Evaluations for concerns of maltreatment, including physical, sexual, or emotional abuse and neglect.
   b. Medical provider, social services, law enforcement agency or mental health provider may request consultation.
   c. Child safety team is comprised of medical providers who have expertise in child abuse and receive ongoing training and oversight of specialized evaluations. Additionally, the team also has a forensic interviewer.
   d. Team collaborates with the Mission Hospital Forensic Nurse Program to complete forensic photo documentation of physically abused children.
6. The below table provides suggested studies to evaluate for child physical abuse based upon patient age and specific type of injury.

Patient characteristic	Order/action
INITIAL EMERGENCY EVALUATION	
▪ All patients	**Report to child protective services**
	Consult (directly contact consultant): ▪ Social work ▪ Child abuse specialist/team ▪ Trauma surgery
▪ Infant <6 months old, regardless of physical findings ▪ Infant 6 to <12 months old with external head injuries on examination OR skull fracture OR fracture highly suggest of abuse (eg, rib fractures or metaphyseal fractures) ▪ Child of any age with signs suggesting intracranial injury	**Perform neuroimaging:** ▪ Head CT* * Brain MRI instead of head CT is acceptable for initial neuroimaging of asymptomatic children when MRI and pediatric neuroradiologist interpretation are readily available within a few hours.
▪ All children <2 years old ▪ Child <5 years old AND (neurologically impaired OR distracting injury OR suspicious index fracture)	**Perform skeletal survey radiographs**
▪ Infant <6 months of age ▪ Older child with trunk bruising or significant injury (eg, fracture, intracranial hemorrhage)	**Screen for abdominal injury:** ▪ AST ▪ ALT ▪ Lipase **AST OR ALT >80; lipase >100:** ▪ CT abdomen with intravenous contrast (no oral contrast)
▪ Child with bruising or bleeding¶	**Screen for bleeding disorder:**[Δ] ▪ CBC with platelets ▪ PT, INR, aPTT ▪ VWF antigen ▪ VWF activity ▪ Factor VIII level ▪ Factor IX level ▪ Factor XIII level (if intracranial bleeding) ▪ D-dimer (if intracranial bleeding) ▪ Fibrinogen (if intracranial bleeding)
FURTHER EVALUATION IF CLINICALLY INDICATED:	
▪ Child with intracranial bleeding	**Screen for metabolic disease:** ▪ Urine organic acids ▪ Plasma amino acids
▪ Child with suspected abusive head trauma, periorbital bruising, or eye injury	**Identify retinal hemorrhages:** ▪ Ophthalmology consult within 72 hours[◊]
▪ Child with concern for abuse due to fracture(s)¶	**Screen for metabolic bone disease:**[§]

	▪ Serum calcium and phosphorus ▪ Serum alkaline phosphatase ▪ Intact parathyroid hormone level ▪ 25-OH vitamin D level **When osteogenesis imperfecta is suspected:**§¥ ▪ COL 1A1, COL 1A2, IFITM5 gene sequence
▪ Male infant <6 months old with fracture¶	**Screen for Menkes disease:**¥ ▪ Serum copper level ▪ Serum ceruloplasmin level
▪ Child with symptomatic neurologic injury	**Evaluate for cervical spine soft tissue and additional brain injury:** ▪ At 2 days, MRI of cervical spine and brain
▪ All children with continued suspicion of physical child abuse after the initial evaluation	**Evaluate for healing initially undiagnosed fractures:** ▪ At 2 weeks, repeat skeletal survey radiographs; omit skull, lateral spine, and pelvis views

¶ While some child abuse specialists will recommend these studies in all cases, it may be reasonable to omit them when the diagnosis of abuse is more secure due to witnessed abuse, confessed abuse, skin injuries with the imprint of an object or hand, or multiple injuries not explainable by a single medical condition.
Δ For patients with abnormal testing results, or if further testing is desired, consult a pediatric hematologist.
◊ Examination within 48 hours is preferred, when possible.
§ Consult a pediatric endocrinologist for patients with abnormal testing results.
¥ Consult a geneticist to interpret results in light of the patient's phenotype.

Quality Metrics:

1. Volume of non-accidental trauma cases and patterns of injury
2. Reporting?

References:

American College of Surgeons (October 2018). ACS TQIP: Best practices guidelines in imaging. Retrieved on May 1, 2020 from https://www.facs.org/-/media/files/quality-programs/trauma/tqip/imaging_guidelines.ashx.

American College of Surgeons (November 2019). Best practices guidelines for trauma center recognition of child abuse, elder abuse, and intimate partner violence. Retrieved on June 8, 2020 from https://www.facs.org/-/media/files/quality-programs/trauma/tqip/abuse_guidelines.ashx.

Boos, S. (2019). Physical child abuse: Diagnostic evaluation and management. *UpToDate*. Retrieved April 13, 2020 from https://www.uptodate.com/contents/physical-child-abuse-diagnostic-evaluation-and-management?search=CHILD%20MALTREATMENT&topicRef=103420&source=see_link#H1001471372

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Appendix A

Table 1. Patient Assessment and clinical indicators that may be indicative of non-accidental trauma.

Physical Abuse	
Factors to consider	**Clinical indicators observed** (examples)
A. **Concerns about the history** of how the injury occurred: • No history • Account details vary over time • Report that injuries were self-inflicted or caused by another child • Explanation does not fit child's developmental stage B. Serious injury in: • Young child (*5 years and under –increased risk*) • Child with developmental, behavioral or mental health disability (*increased risk*) C. Significant **delay in seeking care** for injuries, or sought advice or care from different (lower level) sources prior to arrival **D.** Concern for injury sustained because of **lack of supervision** E. <u>Past health history:</u> • Brought in for similar injuries in the past • Seen for multiple past injuries • Sibling seen with similar injuries	A. <u>Behaviors - child:</u> • Passive or excessively anxious • Fearful or aggressive • Listless, withdrawn • Afraid to go home • Suicide attempt/gesture B. <u>Behaviors – caretaker:</u> • Hostile, aggressive • Evasive, resistant to medical care for child • Passive, unemotional, detached • Unresponsive to child's severity of injury • Obvious impairment or mental illness C. <u>Physical examination:</u> • Physical exam findings do not fit history provided • Severe **injuries** – multiple injuries and/or large injuries • Location of injuries – **head, ears, neck, trunk, buttocks and genitalia** are particularly concerning • Patterned **injuries (bruises/contusions) or burns** • Injuries that appear to be a **different stages of healing** • Human bites • Poor hygiene

Table 2. Additional considerations based on injury type.

Pediatric Injury Types of Particular Concern (Child Safety Team consult is recommended)
Factors to consider or Clinical Indicators Observed
A. Infant/toddler with serious head injury (subdural hematoma or other intracranial hemorrhage) that did not occur in MVA. B. Pre-mobile infant with ANY bruise C. Serious thoracic or abdominal injury (not involved in MVA or other severe forces are not reported) D. Unexplained/unexpected death of young child E. Immersion burns *(sock, glove, bottom) F. Fractures: • Rib fractures in infant or young child • CMLs (*bucket handle or corner metaphyseal)* • Multiple fractures • Complex skull fractures • Scapular fracture • Infant/toddler younger than 2 yrs. old with long bone fracture (*other than toddler's fracture in walking child*)