

Non-Accidental Trauma (NAT) Protocol

All children suspected of non-accidental trauma will have a complete work-up including a complete history and physical exam with a focus on injuries and explanation for the injuries.

Major Areas of Evaluation:

1. A complete history (document from/by whom & if it contradicts prior story)
 - a. Including review of prior PCP, ED, and inpatient records as well as prior radiologic studies performed at outside hospitals (if available) to look for sentinel injuries
2. Head to toe physical exam with particular attention to:
 - a. Growth parameters
 - b. Thorough skin exam, including scalp and hair (undress patient completely)
 - c. Palpation of legs, arms, hands, feet and ribs to feel for crepitus or deformities
 - d. Complete neurologic examination
 - e. Oral examination with attention to the lips, tongue, buccal mucosa, frenula, palate and teeth
 - f. Auricle exam
 - g. Genitalia examination
3. Head Imaging
 - a. Infants < **12 months** of age should have a CT scan without contrast or MRI of the brain (preferred if patient has no sign of injury and normal mental status) to evaluate for intracranial injuries. This should be performed regardless of the presence or absence of neurologic findings.
 - b. Children > **12 months** of age should have a CT scan without contrast if there is mental status depression or any other signs of neurological injury. This may also include external signs of head injury, such as facial bruising or scalp hematoma.
 - c. If the CT scan without contrast or MRI indicates signs of trauma, MRI of the c-spine should be considered.

- d. If there is a suspicion of a skull fracture, consider ordering a CT scan with 3D reconstruction, to better clarify fracture versus suture (must be ordered prior to the CT scan being done).
 - e. If there is clinical concern or disagreement with the outside study, order a formal second opinion read. Having the outside report is helpful but not necessary.
4. Abdominal Imaging
- a. Any child who presents with signs/symptoms of abdominal trauma, bruising to the abdomen or torso, or an ALT/AST that is higher than twice normal should have a CT of the abdomen/pelvis with IV contrast.
 - b. Consider abdominal CT if urinalysis has >10 RBCs and/or positive stool guaiac.
5. Skeletal Survey (should be obtained Monday through Friday during normal business hours UNLESS this would delay discharge)
- a. Children < **3 years** of age should have a skeletal survey to evaluate for occult fractures. When ordering a skeletal survey, be sure to include oblique x-rays of the ribs.
 - b. Children > **3 years** of age can have x-rays focusing on areas of concern rather than the entire skeleton.
 - c. Consider getting a full skeletal survey in children > **3 years** of age with developmental delays.
 - d. For skeletal surveys performed at outside hospitals, consider reviewing it with a Pediatric Radiologist to determine the completeness and quality of the study and the potential need for additional films.
 - e. Follow up skeletal survey should be obtained at Upstate two weeks following the suspected trauma to check for fractures that are too acute to show up on initial survey (i.e. rib fractures).
6. Ophthalmology Evaluation
- a. Children < **12 months** of age should have an ophthalmologic evaluation to look for retinal hemorrhages. Retinal photographs should be obtained, when possible.
 - b. Children > **12 months** of age should have an ophthalmologic evaluation when eye injuries are suspected, when head injury is suspected, and/or when there is facial bruising.

- c. Ophthalmologic examination should be obtained as soon as possible. However, the dilated eye exam should be deferred in children with head injuries pending neurosurgery clearance.

7. Lab Evaluation

- a. The following labs should be ordered routinely on all children suspected of NAT:
 - CBC with diff and platelets
 - Amylase
 - Lipase
 - CMP
 - PT/PTT/INR
 - Urinalysis with microscopic
 - Stool for occult blood
- b. Consider a UDS/toxicology evaluation if there is clinical suspicion of exposure to substances or in children < 2 years of age with altered mental status.
- c. Consider Vitamin D 25 Hydroxy, Calcium, Phosphorus and PTH if clinically indicated.

8. Medical Photography

- a. Order Medical Photography as soon as possible to document any skin findings at the time of presentation, since they can change rapidly. Medical Photography is available Monday through Friday 9-5.
- b. When there are skin findings and Medical Photography is not available, the social workers have access to a camera that can document injuries.
- c. When Medical Photography is unavailable the MD/NP/PA will photograph the patient with the camera provided by social work. *See policy C-06*
- d. A healthcare provider must be present while the photographs are taken in order to direct the photographer's attention to areas of concern.

9. Severe Abuse

- a. Victims of severe abuse should have a toxicology evaluation.
- b. Victims of severe abuse should have a SANE evaluation if clinical concerns regarding sexual abuse or other need for forensic evidence collection.

10. Siblings

- a. All siblings or other at risk children in the home of patients that are victims of suspected NAT should be evaluated by their PCP within 24 hours.
- b. Upon identification of other possible at risk individuals in the home of a NAT patient, the service managing the patient at the time of discovery should consult Social Work and request Child Protective Services be made aware of those individuals and document accordingly in the progress notes.

11. Admission

- a. Admit all patients that have a clinical indication. Patients with identified traumatic injuries or who are undergoing an NAT work up will be admitted to an appropriate surgical service. If Pediatric Surgery is not the primary team, they should be consulted to ensure the NAT work-up is completed and appropriate follow-up is in place.
- b. Patients undergoing an NAT work-up meet criteria for inpatient status.
- c. Admit patients when there is a concern about the safety of the patient, especially if there is a disagreement between the provider and CPS.
- d. Children < 24 months with suspected or documented head injury should have serial head circumferences measured daily.

12. Discharge

- a. All children evaluated in the ED where there is concern for possible NAT but who do not meet criteria for inpatient admission should receive a social work consult and CARE clinic should be notified for determination of need for outpatient follow-up.
- b. All children admitted for NAT work-up should have a follow-up appointment with the Pediatric Trauma Clinic (315-464-2878) or be connected with the CARE Program at the McMahon-Ryan Child Advocacy Center (315) 883-5617.
- c. All children who get a skeletal survey as part of their work-up should have a follow up skeletal survey ordered in EPIC prior to discharge. This should be ordered as an orders only encounter. This should be obtained at Upstate two weeks following the suspected trauma.
- d. For patients with head injuries:

- Consider referral for Early Intervention and a hearing evaluation
 - Document head circumference on discharge summary
- e. If feasible, all follow-up appointments with Pediatric Surgery, CARE, Ophthalmology, Orthopedics, Neurosurgery and/or ENT should be scheduled prior to discharge.

13. Impact Statements

- a. An impact statement is a letter written by a health care provider that informs, interprets and provides a medical opinion for child protective workers or the court regarding the level of concern for non-accidental trauma and the impact on the child.
- b. Impact Statements should:
- Describe the situation and your relationship to the patient.
 - Use layman's terms to describe medical issues.
 - Clearly define your concerns in terms that are meaningful to the court and child protective services.
 - Answer questions that CPS has asked.
 - Identify your opinion if you have one, but refrain from outright advocacy if possible.
 - Usually outline next steps for medical and/or legal needs.
- c. The primary team responsible for the patient should generate the impact statement. *See Addendum A for Rating Scale for Abuse Likelihood. For documentation tips and sample impact statements, go to the CHAMP website at: <http://www.champprogram.com/resources.shtml>*

ADDENDUM A

Rating Scale for Abuse Likelihood

1. **Definitely not inflicted injury** (significant, independently verifiable mechanism such as MVC, disinterested witness such as police, ambulance, video documentation, mimic – i.e. Mongolian spot)
2. **Not concerning for inflicted injury** (mechanism explains all injuries, consistent history)
3. **Mildly concerning for inflicted injury** (somewhat concerning injuries with no offered history - i.e. unexplained humerus fracture in a 10-month-old or otherwise unconvincing injury with past suspicious injury and same caregiver)
4. **Intermediately concerning for inflicted injury** (insufficient information to offer an opinion, sequence of events clear but uncertain whether they constitute abuse, necessary lab tests/consultations pending, concerning injury in the setting of bone fragility/bleeding diathesis)
5. **Very concerning for inflicted injury** (given history unlikely to produce documented injuries or concerning injury with no history of trauma – i.e. 4 month old with femur fracture)
6. **Representative of substantial evidence of inflicted injury** (severe injury with no offered history in a child incapable of inflicting the injury on himself or herself, history inconsistent with identified injuries, serious injury with changing history or history inconsistent between caregivers, inappropriate delay in seeking care, multiple severe injuries of different ages without plausible explanation)
7. **Definite inflicted injury** (pattern bruises/burns, unexplained posterior rib fractures, characteristic retinal hemorrhages, reliable eye witness, suspicious injury and concurrently abused sibling, obvious injury with significant, unexplained delay in seeking care – i.e. serious burn, unresponsive child, apparent prolonged seizures)