Non-Accidental Trauma (NAT)

Outpatient
Urgent Care
Emergency Department
Inpatient

Nationwide Children's — When your child needs a hospital, everything matters.

Center for Clinical Excellence

Inclusion & Exclusion Criteria

Evaluation of Siblings & Contact Children

History or exam findings concerning for NAT?

- Historical Indicators for NAT
- Indications for NAT Consideration

Differential Diagnoses:

- Bruising
- Fracture(s)
- Intracranial Hemorrhage
- Intra-oral injury
- Abdominal Trauma
- Burn(s)

Unsure if findings concerning for NAT?

- Call Child Assessment Team
- Consider consulting Social Work

Current Location?

- **Urgent Care or Outpatient Clinics**
  - Consult Child Assessment Team (CAT)
  - Talk to family about concerns for NAT
  - Consult Social Work
  - <2 Years Old?
    - Yes → Transfer to Main Campus Emergency Department
    - No → Additional workup* and/or photo documentation indicated?
      - Yes → Transfer to Main Campus Emergency Department
      - No → Document History and Physical Exam
        - Treat injuries according to accepted practice
        - Document impression
        - Coordinate safe discharge with Social Work
- **Inpatient**
- **Emergency Department**
  - Talk to family about concerns for NAT
  - Consult Social Work
  - *Complete Recommended Evaluation based on age:
    - ≤ 7 months
    - 7 ≤ 12 months
    - 12 < 24 months
    - 2-5 years
  - Utilize the NAT Order Set
  - Inpatient care required?
    - No → Document History and Physical Exam
    - Yes → **Admit Patient to Trauma Service** (Pediatric Surgery, Orthopedics, or Neurosurgery)

Inpatient Evaluation of NAT

- Consult Child Assessment Team (CAT)
- Talk to family about concerns for NAT
- Consult Social Work

- Complete Recommended Evaluation based on age:
  - ≤ 7 months
  - 7 ≤ 12 months
  - 12 ≤ 24 months
  - 2-5 years
- Utilize the NAT Order Set

In the unfortunate event that death is imminent, please call CAT and Social Work immediately

Treat injuries according to accepted practice

Coordinate safe discharge with Social Work

Return to Algorithm

Inclusion & Exclusion Criteria

Inclusion Criteria:

- Children with injuries concerning for non-accidental trauma (NAT)

Exclusion Criteria:

- These guidelines apply specifically to children who are suspected victims of child physical abuse and are not applicable to cases of suspected child sexual abuse, medical child abuse or medical neglect.

Return to Algorithm

Definition and Diagnosis

- The Federal Child Abuse Prevention and Treatment Act provides minimum standards to the states for defining maltreatment. The act defines child abuse as “any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation” or “an act or failure to act which presents an imminent risk of serious harm.”

- Ohio Revised Code (ORC) defines an abused child as any child who “because of the acts of his parents, guardian, or custodian, suffers physical or mental injury that harms or threatens to harm the child's health or welfare.”

Return to Algorithm

Historical Indicators of Abuse

- Patient presents with injuries with no explanation or vague explanation of mechanism.
- Details of incident in which injury was sustained changed significantly or different witnesses provide significantly different histories of how injury occurred.
- Explanation of injury provided is inconsistent with patient's developmental ability.
- Caregiver or child reports physical abuse of patient.
- Medical provider witnesses inappropriate behavior by caregiver towards patient.

Return to Algorithm

Indications for NAT Consideration

<7 months	7-12 months	12-24 months	2-5 years	>5 years
Unexplained fussiness, vomiting or altered mental status Cutaneous injuries (single bruise, burn, bite mark) Intraoral injury Subconjunctival hemorrhage Intracranial hemorrhage Fractures: • Rib • Scapula • Vertebral • Sternum • Hands/feet • Any long bone • Metaphyseal fracture • Multiple fractures Sibling of child with suspected physical abuse	Unexplained fussiness, vomiting or altered mental status Bruising: • Unusual location • Pinna • Neck • Torso • Buttocks Pattern bruising, burns, or bite mark Subconjunctival hemorrhage w/o persistent cough or vomiting Intraoral injury w/o plausible accidental mechanism (including frenula) Fractures: • Rib • Scapula • Vertebral • Sternum • Hands/feet • Any long bone • Metaphyseal fracture • Multiple fractures Injury inconsistent with developmental ability or with accidental mechanism described Sibling of child with suspected physical abuse	Unexplained altered mental status and vomiting Bruising: • Unusual location • Pinna • Neck • Torso • Buttocks Pattern bruising, burns, or adult bite mark Subconjunctival hemorrhage w/o persistent cough or vomiting Fractures: • Rib • Scapula • Vertebral • Sternum • Hands/feet • Multiple fractures Injury inconsistent with developmental ability or with accidental mechanism described Sibling of child with suspected physical abuse	Unexplained altered mental status Bruising: • Unusual location • Pinna • Neck • Torso • Buttocks Pattern bruising, burns, or adult bite mark Subconjunctival hemorrhage w/o persistent cough or vomiting Fractures: • Rib • Scapula • Vertebral • Sternum • Hands/feet • Multiple fractures Injury inconsistent with developmental ability or with accidental mechanism described Sibling of child with suspected physical abuse	Unexplained altered mental status Bruising: • Unusual location • Pinna • Neck • Torso • Buttocks Pattern bruising, burns, or adult bite mark Fractures: • Rib • Scapula • Vertebral • Sternum • Hands/feet • Multiple fractures Injury inconsistent with developmental ability or with accidental mechanism described Sibling of child with suspected physical abuse

If any of these indications are noted, utilize the NAT Order Set. If you have any questions, call the Child Abuse Team on call.

Return to Algorithm

Documentation of History and Physical Exam

History:

- Document the injury/symptom history as provided by the caregiver. If there is no history provided, document this as well.
- Note who was with the child when the incident occurred or the symptoms started.
- Document any interventions or treatments completed by the caregivers.
- Use quotations to document exact statements when possible.
- Document past medical history, family history, medications, and allergies.
- Document developmental history and/or limitations
- Engage Social Work who will assist with gathering history by completing an assessment

Physical Exam:

- Document a full physical examination including pinna, upper and lower labial frenulum and lingual frenulum, neck, torso, and ano-genital area/buttocks.
- Describe any injuries seen and notify Social Work
- Social Work and/or provider to complete photo documentation of cutaneous findings. All images of injuries concerning for NAT that are added to Epic should be marked as “Warning Sensitive Clinical Image”.

Return to Algorithm

Differential Diagnosis Bruising

- **Accidental trauma** provided that a plausible accidental mechanism of injury is described by caregivers and the child is developmentally capable of the accidental mechanism provided (i.e. rolling off of a couch).

- **Coagulopathies and vasculitides** should be considered based on past medical and family history provided, as well as clinical presentation. Screening for coagulopathies is recommended to be done concurrently with the evaluation for non-accidental trauma.

- **Congenital dermal melanocytosis** may be confused for bruising and can be distinguished by distribution and coloration of the lesion, as well as persistence of lesion over time.

Return to Algorithm

Differential Diagnosis
Intracranial Hemorrhage

- **Accidental trauma** provided that a plausible accidental mechanism of injury is described by caregivers and the child is developmentally capable of the accidental mechanism provided.
- **Birth-related injury** should be considered in very young infants presenting with intracranial hemorrhage. All infants with intracranial hemorrhages should be evaluated by neurosurgery and the Child Assessment Team to determine if a birth-related injury is a plausible explanation.
- **Coagulopathies and vasculitides** should be considered based on past medical and family history provided, as well as clinical presentation. Screening for coagulopathies is recommended to be done concurrently with the evaluation for non-accidental trauma.
- **Underlying metabolic diseases**, such as glutaric aciduria type 1, should be considered; recommend obtaining Newborn Screening records.

Return to Algorithm

Differential Diagnosis Fracture(s)

- **Accidental trauma** provided that a plausible accidental mechanism of injury is described by caregivers and the child is developmentally capable of the accidental mechanism provided (i.e. rolling off of a couch).
- **Birth-related injury** should be considered in young infants presenting with clavicular or humerus fractures which can appear acutely up to 14 days of life and with signs of healing up to approximately 6 weeks.
- **Metabolic bone disease** including nutritional deficiencies (such as Rickets) should be considered based on past medical and family history provided, as well as clinical presentation. Screening for metabolic bone disease is recommended to be done concurrently with the evaluation for nonaccidental trauma.
- **Osteopenia** may predispose children to fracture with routine handling and care and should be considered, particularly in chronically ill children.
- **Osteomyelitis** may be considered based on the type of bony lesion seen and the clinical presentation.

Return to Algorithm

Differential Diagnosis
Intraoral Injury

- **Accidental trauma** provided that a plausible accidental mechanism of injury is described by caregivers and the child is developmentally capable of the accidental mechanism provided.

- **Infection** may be considered if clinical presentation is concerning for an infection with oral lesions.

Return to Algorithm

Differential Diagnosis
Abdominal Trauma

Accidental trauma provided that a plausible accidental mechanism of injury is described by caregivers and the child is developmentally capable of the accidental mechanism provided.

Return to Algorithm

Differential Diagnosis Burn(s)

- **Accidental trauma** provided that a plausible accidental mechanism of injury is described by caregivers and the child is developmentally capable of the accidental mechanism provided.
- **Infection**, such as staphylococcus scalded skin syndrome
- **Dermatologic conditions** such as phytophotodermatitis, epidermolysis bullosa

Return to Algorithm

Evaluation < 7 Months

The American Academy of Pediatrics (Christian, Committee on Child Abuse and Neglect, 2015), recommends the following evaluation for injuries suspicious for NAT:

- **Required**
  - Skeletal survey
  - CT head without contrast
  - CBC
  - AST
  - ALT
  - Alkaline Phosphatase
  - Lipase
  - PT
  - APTT
  - Electrolytes/glucose/BUN/Cr/Ca/Mg/Phos

- Consider:
  - CT abdomen/pelvis with IV contrast if AST or ALT > 80, elevated lipase, or abdominal bruising

Return to Algorithm

Evaluation 7 ≤ 12 months

The American Academy of Pediatrics (Christian, Committee on Child Abuse and Neglect, 2015), recommends the following evaluation for injuries suspicious for NAT:

- **Required**
  - Skeletal survey
  - CBC
  - AST
  - ALT
  - Alkaline Phosphatase
  - Lipase
  - PT
  - APTT
  - Electrolytes/glucose/BUN/Cr/Ca/Mg/Phos

- **Consider**
  - CT head without contrast if concern for head trauma, facial/ear bruising or intraoral injury
  - CT abdomen/pelvis with IV contrast if AST or ALT > 80, elevated lipase, or abdominal bruising

Return to Algorithm

Evaluation 12 ≤ 24 Months

The American Academy of Pediatrics (Christian, Committee on Child Abuse and Neglect, 2015), recommends the following evaluation for injuries suspicious for NAT:

- **Required**
  - Skeletal survey
  - CBC
  - AST
  - ALT
  - Alkaline Phosphatase
  - Lipase
  - PT
  - APTT
  - Electrolytes/glucose/BUN/Cr/Ca/Mg/Phos

- **Consider:**
  - CT head without contrast if concern for head trauma, facial/ear bruising or intraoral injury
  - CT abdomen/pelvis with IV contrast if AST or ALT > 80, elevated lipase, or abdominal bruising

Return to Algorithm

Evaluation 2-5 years

The American Academy of Pediatrics (Christian, Committee on Child Abuse and Neglect, 2015), recommends the following evaluation for injuries suspicious for NAT:

Required

- AST
- ALT
- Lipase

Consider

- CBC, PT, PTT, if isolated bruising present
- Skeletal survey if concern for severe multisystem trauma or developmental delay
- CT head without contrast if concern for head trauma, facial/ear bruising or intraoral injury
- CT abdomen/pelvis with IV contrast if AST or ALT > 80, elevated lipase, or abdominal bruising

Return to Algorithm

Strength of Recommendation Quality of evidence

1: Strong Recommendation, High Quality Evidence
2: Strong Recommendation, Moderate Quality Evidence
3: Strong Recommendation, Low Quality Evidence
4: Weak Recommendation, High Quality Evidence
5: Weak Recommendation Moderate Quality Evidence, Weak Recommendation, Low Quality Evidence):

- Skeletal survey[1]
- CT head without contrast[1]
- CBC[1]
- AST[1]
- ALT[1]
- Alkaline Phosphatase[2]
- Lipase[2]
- PT[1]
- APTT[1]
- Electrolytes/glucose/BUN/Cr/Ca/Mg/Phos[2]
- CT abdomen/pelvis with IV contrast if AST/ALT > 80, elevated lipase, or abdominal bruising:[2]

Return to Algorithm

Evaluation of Siblings & Contact Children

Young children in the same care environment of a physically abused child are at high risk for physical abuse. Twins are at even greater risk than other contact children.

A physical exam should be conducted on all siblings and contact children. If the physical exam reveals findings concerning for abuse, the child should receive the complete age-appropriate work-up.

For siblings and contact children *without* physical exam findings of abuse, evaluation is based on age:

- Less than 6 months of age:
  - Skeletal survey
  - Head CT
- 6 – 24 months of age:
  - Skeletal survey

Return to Algorithm

Documentation of Impression

- Summarize patient's age, injuries and/or symptoms and relevant findings on work up.
- Offer an appropriate interpretation of the findings in the context of the history provided by caregivers and notify caregivers of this impression, barring any acute safety concerns.
- Consider using dot phrases available in Epic to guide documentation based on level of concern for non-accidental trauma.
  - .NATDDx
- In cases where reports to child protective services and law enforcement are indicated, notify caregivers (barring any safety concerns), and document that these reports were made.

Return to Algorithm

Importance of Early Indentification

- Early identification of NAT is critical for ensuring children's safety and can be lifesaving. In infants and young toddlers, injuries that are due to non-accidental trauma can be subtle, minor injuries, such as a bruise or frenulum tear, that do not require medical intervention to heal, but are indicative of an unsafe environment for that child. Proper management of these minor injuries includes evaluation for occult injury, as well as reporting the concerning injuries to appropriate agencies (child protective services and law enforcement).

- Initial symptoms of NAT, particularly abusive head trauma, can be non-specific with symptoms such as fussiness or vomiting. Infants with intracranial injury concerning for non-accidental trauma are misdiagnosed frequently and may present for care multiple times before the diagnosis is made. Keeping NAT on the differential diagnosis for these children and evaluating per published guidelines is crucial to avoid missing these injuries.

- Using a routine approach to evaluating children with injuries suspicious for NAT can help avoid missed opportunities to make the diagnosis by reducing implicit bias in which patients are evaluated. While some psychosocial indicators are known to increase risk of NAT, child maltreatment can happen to any child of any race or socioeconomic status and evaluations for NAT should be done based on objective findings on exam and history.

Return to Algorithm

Admission Criteria

- Children with injuries that necessitate additional evaluation or treatment.
- Children with multisystem trauma, as dictated by trauma protocol.
- Children for whom safe discharge cannot be ensured.

Return to Algorithm

Treatments Not Recommended

- A “babygram” (x-ray of the whole body of an infant) is not an acceptable substitute for a skeletal survey as it does not provide correct exposures for each component of the skeletal system. A skeletal survey is a series of ~24 x-rays defined by the AAP and the American College of Radiology.

- Ultrasound of the head is not an acceptable substitute for a head CT or brain MRI for evaluation for intracranial injury, as head ultrasound does not adequately capture the space in the convexities of the skull to evaluate for hemorrhage. (Christian, 2015)

- Ultrasound of the abdomen in not an adequate substitute for a CT abdomen/pelvis to identify intra-abdominal injuries as ultrasound lacks sensitivity and specificity to detect subtle injuries that may be of forensic significance. (Christian, 2015)

- Limited or fast MRI of the brain as initial evaluation for intracranial injury is not currently indicated.

Return to Algorithm

Discharge Criteria & Planning

- Social Work should be engaged to assist with safe discharge planning as they will communicate with Child Protection Services (CPS) and law enforcement.
- Disposition should follow guidance by CPS to ensure patient safety.
- Follow-up for children with injuries suspicious for NAT:
  - Child Assessment Team Clinic (CAT Clinic):
    - Children < 10 years of age or children < 12 years of age or who have developmental delays
  - Skeletal survey within 10-14 days for patients who had an initial skeletal survey:
    - This can be done in conjunction with the CAT Clinic Appointment.
  - Medical and surgical specialties as needed
  - Primary Care Provider to ensure continuity of care and ongoing support
- Siblings and other children in the same care environment may also need evaluation for NAT.

Return to Algorithm

Patient & Caregiver Education

- Social Work can provide Helping Hands related to NAT:
  - Evaluating Injuries in Young Children: A Guide for Families
  - Helping Hands: Skeletal Survey
  - Supporting Families of Children with Reportable Injuries
- Providers can utilize scripting resources available on ANCHOR
  - Suspected Child Maltreatment: Trauma-Informed Discussions with the Family
  - Supporting Families when we Suspect NAT: A Trauma-Informed Guide for Nursing Staff
- Other resources available:
  - Helping Hands: **Calming a Fussy Baby**
  - Helping Hands: **Healthy Sleep Habits for Infants and Toddlers**
  - Helping Hands: **Bathing Your Baby**
  - Helping Hands: **Burn Prevention: Infant and Toddler**
  - Helping Hands: **Home Safety for Infants and Toddlers**
  - Helping Hands: **Discipline**
  - Helping Hands: **Toilet Training**
  - Resources for Postpartum Depression (POEM)
  - Resources for Car Seat Safety
  - Contact information for CAP4Kids and ODJFS for financial resources

Return to Algorithm

Quality Measures

- Bundle compliance for use of NAT order set and completion of appropriate evaluation
- Return rates of patients with suspected NAT
- Compliance with undressing infants in the ED

Return to Algorithm

Pathway Team & Process

Pathway Development Team:

Leader:

Child & Family Advocacy:
Kristin Crichton, DO, MPH
Child & Family Advocacy Medical Director:
Megan Letson, MD, MEd
Director of Social Work & Language Access Services:
Jeanette Foster, MSW, LISW-S
Service Line Coordinator:
Jessica Holstine, MBOE, LSSBB

Members:

Clinical Social Work Program:
Dodie Allen, MSW, LISW-S
Tishia Gunton, MSW, LISW-S
Emergency Medicine:
Berkeley Bennett, MD, MS
Child Protection Program:
Becca Fredin, MSW, LISW-S
Neurosurgery:
Christie Berger, APN
Trauma Coordinator: LeeAnn Wurster

Emergency Medicine & Child Abuse Pediatrics:
Michelle Greene, DO
Trauma Surgery:
Dana Noffsinger, APN
Orthopedic Surgery:
Julie Samora, MD
Jennifer Weiner, APN
Pediatric Surgery:
Raj Thakkar, MD
Ambulatory Pediatrics:
Dane Snyder, MD
Urgent Care:
Cynthis Zimm, MD
Luciana Berg, MD

Clinical Pathways Program:

Medical Director – Emergency Medicine:
Berkeley Bennett, MD, MS
Medical Director – Associate Chief Quality Officer, Center for Clinical Excellence:
Ryan Bode, MD, MBOE
Medical Director – Clinical Informatics & Emergency Medicine:
Laura Rust, MD, MPH
Business & Development Manager:
Rekha Voruganti, MBOE, LSSBB
Program Coordinators:
Tahje Brown, MBA
Tara Dinh, BS

Clinical Pathway Approved:

Medical Director – Associate Chief Quality Officer, Center for Clinical Excellence:
Ryan Bode, MD, MBOE

Advisory Committee Date: January*, 2020*
Origination Date: *January, 2020*
Last Revision Date: *August, 2023*

Clinical Pathway Development

This clinical pathway was developed using the process described in the NCH Clinical Pathway Development Manual Version 6, 2022. Clinical Pathways at Nationwide Children's Hospital (NCH) are standards which provide general guidance to clinicians. Patient choice, clinician judgment, and other relevant factors in diagnosing and treating patients remain central to the selection of diagnostic tests and therapy. The ordering provider assumes all risks associates with care decisions. NCH assumes no responsibility for any adverse consequences, errors, or omissions that may arise from the use or reliance on these guidelines. NCH's clinical pathways are reviewed periodically for consistency with new evidence; however, new developments may not be represented, and NCH makes no guarantees, representations, or warranties with respect to the information provided in this clinical pathway.

For more information about our pathways and program please contact:
ClinicalPathways@NationwideChildrens.org

Return to Algorithm

References

- Christian CW; Committee on Child Abuse and Neglect, American Academy of Pediatrics. The evaluation of suspected child physical abuse. *Pediatrics.* 2015 May;135(5):e1337-54. doi: 10.1542/peds.2015-0356. Erratum in: Pediatrics. 2015 Sep;136(3):583. doi: 10.1542/peds.2015-2010.
- Jenny C, Hymel KP, Ritzen A, Reinert SE, Hay TC. Analysis of missed cases of abusive head trauma. *JAMA*. 1999 Feb 17;281(7):621-6. doi: 10.1001/jama.281.7.621. Erratum in: JAMA 1999 Jul 7;282(1):29.
- Sheets LK, Leach ME, Koszewski IJ, Lessmeier AM, Nugent M, Simpson P. Sentinel injuries in infants evaluated for child physical abuse. *Pediatrics*. 2013 Apr;131(4):701-7. doi: 10.1542/peds.2012-2780. Epub 2013 Mar 11.
- Letson MM, Cooper JN, Deans KJ, Scribano PV, Makoroff KL, Feldman KW, Berger RP. Prior opportunities to identify abuse in children with abusive head trauma. *Child Abuse Negl.* 2016 Oct;60:36-45. doi: 10.1016/j.chiabu.2016.09.001. Epub 2016 Sep 25.
- Pierce MC, Smith S, Kaczor K. Bruising in infants: those with a bruise may be abused. *Pediatr Emerg Care*. 2009 Dec;25(12):845-7. doi: 10.1097/PEC.0b013e3181c06217.
- Sugar NF, Taylor JA, Feldman KW. Bruises in infants and toddlers: those who don't cruise rarely bruise. Puget Sound Pediatric Research Network. *Arch Pediatr Adolesc Med*. 1999 Apr;153(4):399-403. doi: 10.1001/archpedi.153.4.399.
- Harper NS, Feldman KW, Sugar NF, Anderst JD, Lindberg DM; Examining Siblings To Recognize Abuse Investigators. Additional injuries in young infants with concern for abuse and apparently isolated bruises. *J Pediatr.* 2014 Aug;165(2):383-388.e1. doi: 10.1016/j.jpeds.2014.04.004. Epub 2014 May 17.
- Lindberg DM, Beaty B, Juarez-Colunga E, Wood JN, Runyan DK. Testing for Abuse in Children With Sentinel Injuries. *Pediatrics*. 2015 Nov;136(5):831-8. doi: 10.1542/peds.2015-1487. Epub 2015 Oct 5.
- U.S. Congress. Child Abuse Prevention and Treatment Act (CAPTA) Reauthorization Act of 2010, Public Law 111-320. 42 U.S.C. § 5106a. Available at: https://www.acf.hhs.gov/cb/law-regulation/child-abuse-prevention-and-treatment-act-capta.
- Anderst JD, Carpenter SL, Abshire TC; Section on Hematology/Oncology and Committee on Child Abuse and Neglect of the American Academy of Pediatrics. Evaluation for bleeding disorders in suspected child abuse. *Pediatrics*. 2013 Apr;131(4):e1314-22. doi: 10.1542/peds.2013-0195. Epub 2013 Mar 25.
- American College of Radiology, Society for Pediatric Radiology. ACR-SPR practice guideline for skeletal surveys in children. Reston, VA: American College of Radiology; 2011. Available at: www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Skeletal_Surveys.pdf.
- Lindberg DM, Shapiro RA, Blood EA, Steiner RD, Berger RP; ExSTRA investigators. Utility of hepatic transaminases in children with concern for abuse. *Pediatrics*. 2013 Feb;131(2):268-75. doi: 10.1542/peds.2012-1952. Epub 2013 Jan 14.
- Greiner MV, Berger RP, Thackeray JD, Lindberg DM; Examining Siblings to Recognize Abuse (ExSTRA) Investigators. Dedicated retinal examination in children evaluated for physical abuse without radiographically identified traumatic brain injury. *J Pediatr*. 2013 Aug;163(2):527-31. doi: 10.1016/j.jpeds.2013.01.063. Epub 2013 Mar 14.
- Berger RP, Lindberg DM. Early Recognition of Physical Abuse: Bridging the Gap between Knowledge and Practice. *J Pediatr*. 2019 Jan;204:16-23. doi: 10.1016/j.jpeds.2018.07.081. Epub 2018 Sep 26.
- Pierce MC, Kaczor K, Lorenz DJ, et al. Validation of a Clinical Decision Rule to Predict Abuse in Young Children Based on Bruising Characteristics. *JAMA Netw Open.* 2021 Apr 1;4(4):e215832. doi: 10.1001/jamanetworkopen.2021.5832.

Return to Algorithm