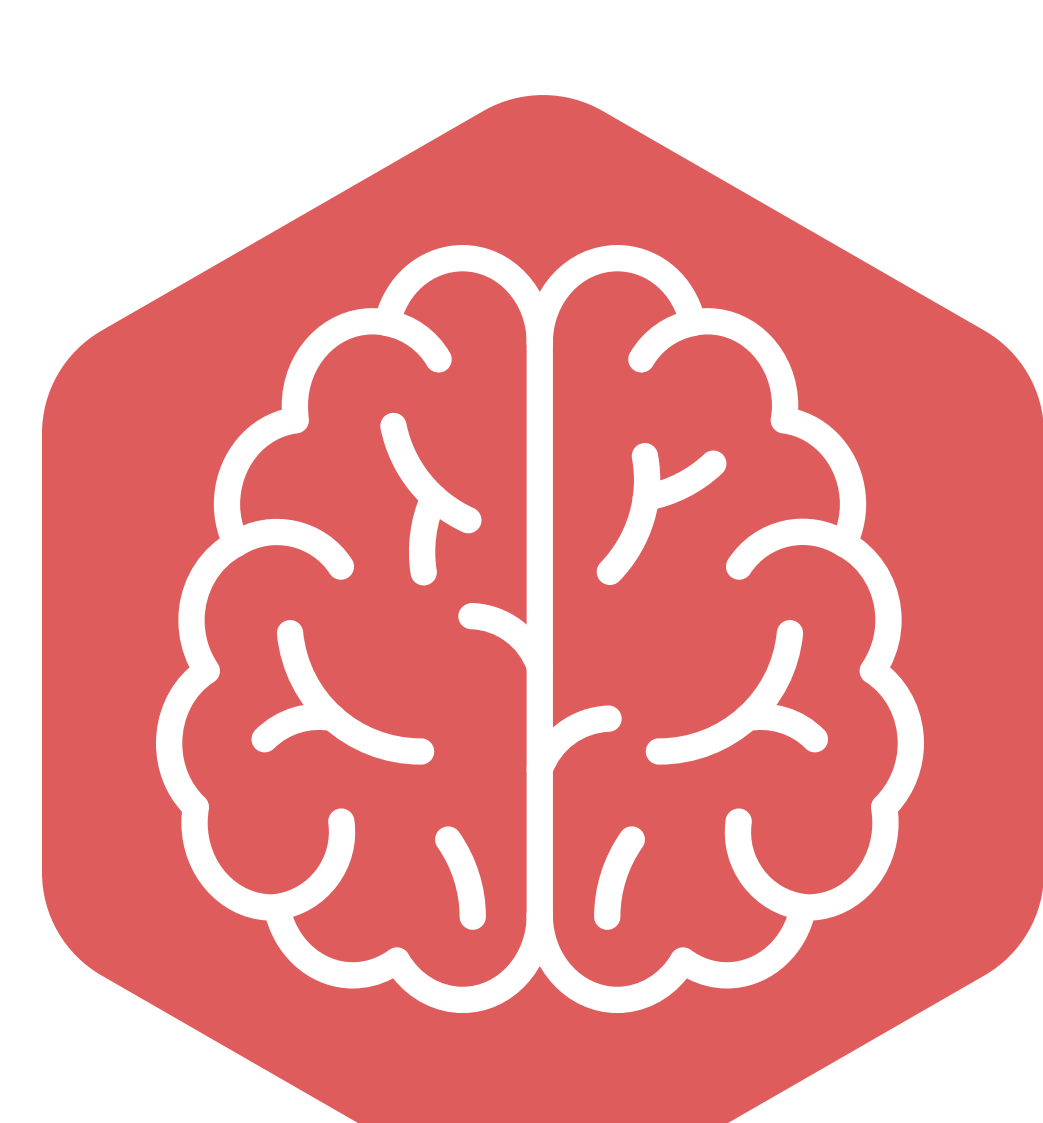


# Non-Accidental Trauma 2



## ED Goals of Care



### Treat

Treat serious/life threatening injuries, and stabilize the patient



### Record

Thoroughly document the pertinent history of physical exam findings



### Report

Mandatory reporting to investigate suspected non-accidental trauma



### Consider

If the other siblings and family members in the household are safe

## NAT Workup

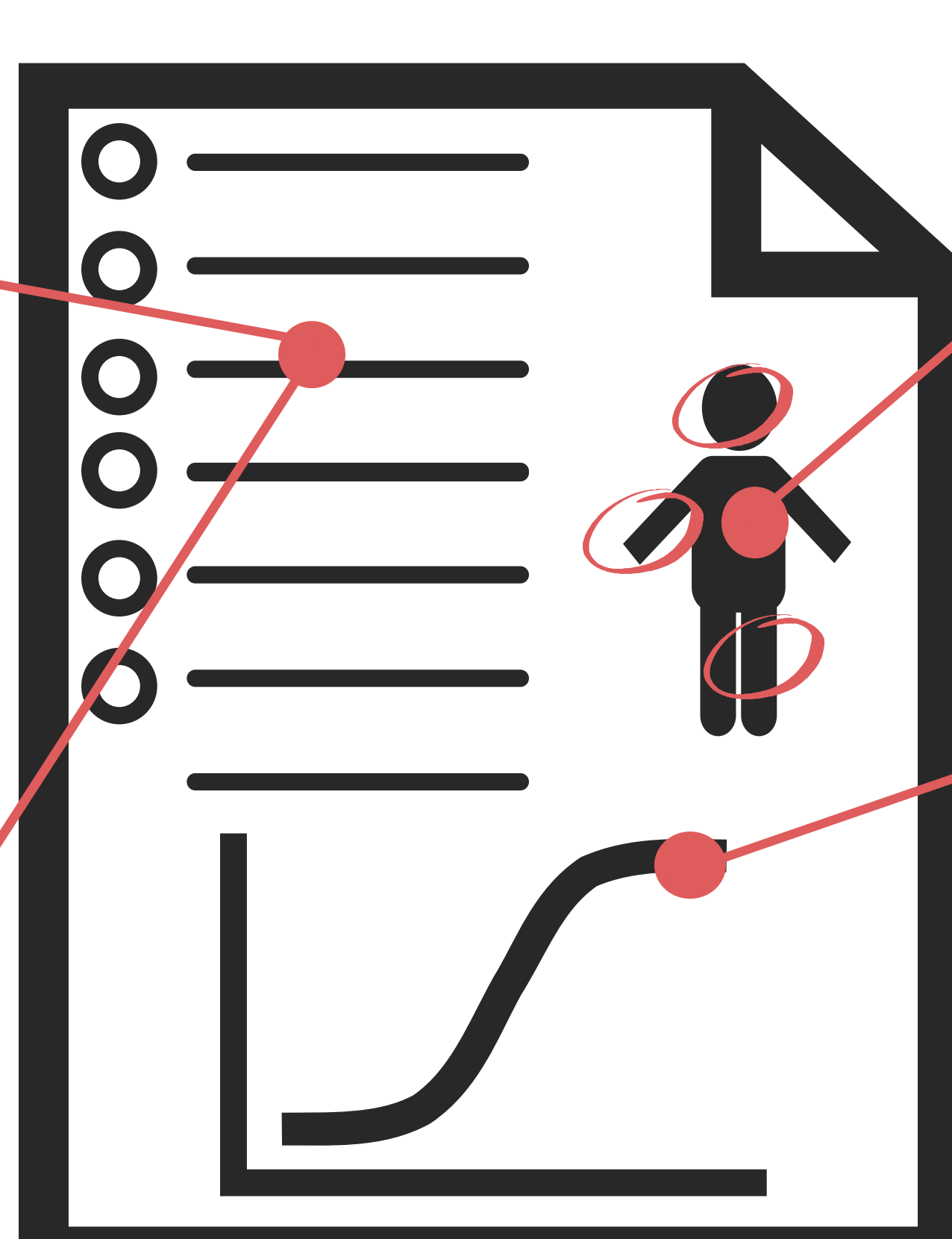
### Consider NAT in any child presenting with:

- Vomiting, seizure, apnea, altered mental status, or ALTE can indicate **head trauma**
- Swelling, and refusal to weight bear or use an extremity can indicate a **fracture**
- Abdo pain, shock or vomiting can indicate **abdominal trauma**
- Be **suspicious of any injuries** that are **inconsistent with the history**

### Have thorough documentation

**Developmental History** - assess if the child meeting milestones

**Social history** - include any financial, domestic, or substance issues. Ask about other children in the home



Use a **body outline** to precisely document injuries

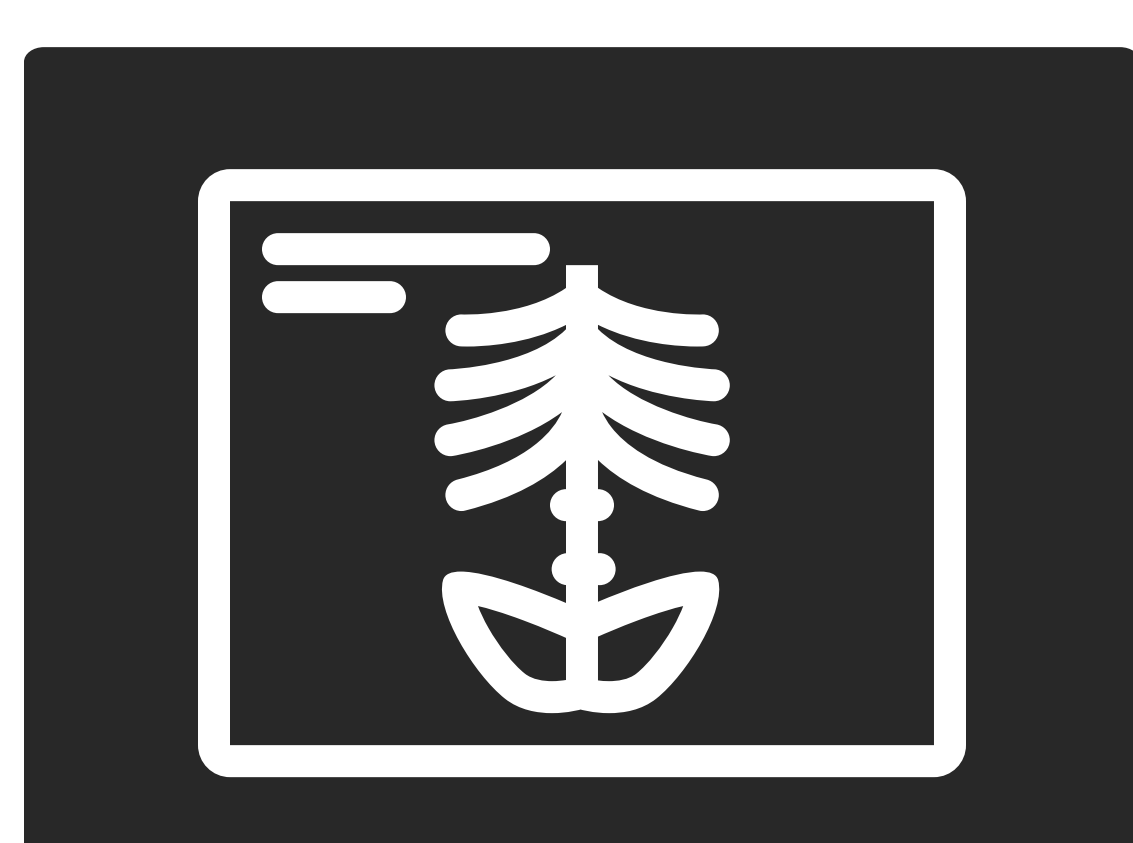
**Detailed physical exam** with plotted growth parameters

**Charting Tips**  
Document all findings, use quotations for quotes, and avoid charting specific dates/times



### Coag / Metabolic Panel

- Should be included in **all workups**, especially if **signs of hemorrhage present**
- Consider adding **tox** and **STI screening** based on clinical suspicion



### Skeletal Survey

- Indicated if **age <24 months** and suspected abuse
- **Reasonable** in children **<60 months**



### AST, ALT, UA, Lipase

- Indicated if suspicious for an **abdominal injury** - abdominal pain, vomiting, guarding



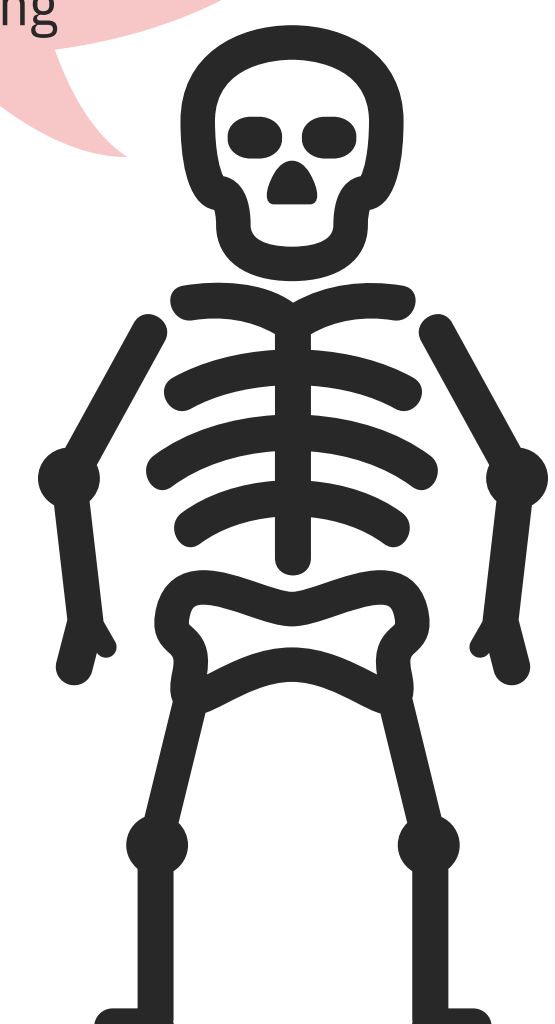
### Optho Referral

- Indicated if suspicious for **head injuries**
- Best performed by **pediatric ophthalmology**

## Imaging

The goal of **imaging** is to identify both **medically treatable** and **forensically significant injuries**

**Practical Tip**  
Skeletal surveys are read by **pediatric radiologists**; coordinate with them for timely reading



### Skeletal Survey

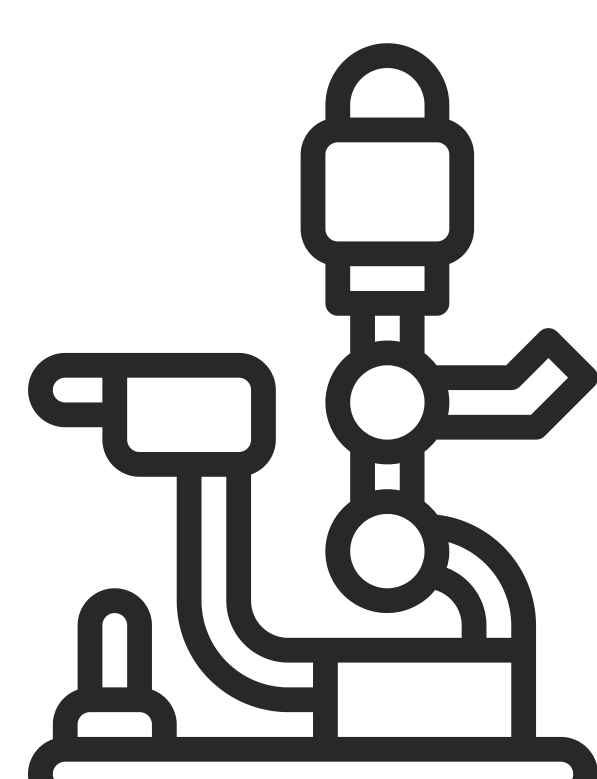
- Will identify **additional fractures in 10-25%** of cases
- Classic metaphyseal lesions (**bucket handle**) fractures are **specific for abuse**
- **Complex skull fractures**, **posterior rib fractures**, fractures in various healing stages for a **single injury**, and **long bone fractures** in **non-ambulating** children are also related to abuse

### Neuroimaging



- Head trauma is the **leading cause of morbidity and mortality**: **Always image if a head injury is suspected**
- **CT** if symptomatic; or **asymptomatic with age <6 months, facial bruising, rib fractures, or multiple fractures**
- **Multifocal traumas** and **subdural hematomas** are suspicious for abuse
- **Skull x-rays** have poor NAT sensitivity and high radiation

### Retinal Imaging



- The presence of **retinal hemorrhages strongly suggests abuse**
- Numerous, multilayered and peripheral hemorrhages associated with severe TBI
- May be absent in 15% of TBI's, **do not use as a screening test**

### Abdominal Imaging



- **50%** of abusive abdominal injuries **have bruising, tenderness, or distension**
- **If AST or ALT is >80 IU/L, use a CT Abdomen with contrast** to further investigate
- **Ultrasound** may help identify injuries, but it **lacks sensitivity** to rule out

## Management

Children with **abusive head trauma** tend to have **higher mortality**, and **worse outcomes** than nonabusive



- **Non-convulsive seizures** occur in greater than **30%** of abusive head traumas. **EEG monitoring** may be considered
- Management of **other abusive traumatic injuries** is similar to management of **nonabusive injuries**

Emergency physicians are **required** to report **all reasonable concerns of abuse** to **CPS agencies**



- Reporting can provide **secondary prevention**, **protect other children in the environment**, and **provide social resources** for the family.
- Submitting a report **will not automatically remove a child** from their home. Instead, it **allows for CPS to properly investigate**

Children with concerns for abuse may be discharged if **all of the following** are met

- Injuries have been **treated and stabilized**
- Concerns for child abuse have been **reported to proper agencies**
- The child has a **safe environment** to return to



REFERENCES:  
Rosen's Emergency Medicine: Concepts and Clinical Practice - 9th ed. 2017: Chapter 177 Child Abuse

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