CHILD PHYSICAL ABUSE: USING OBJECTIVE FINDINGS TO DIRECT A WORKUP

Robert Sege, MD PhD FAAP
Health Resources in Action, Boston
Center for the Study of Social Policy, Washington DC

Maine American Academy of Pediatrics
May 2, 2015

Learning Goals

- Recognize common problems with the diagnosis of child abuse
- Direct a medical work-up based on objective findings
- Be alert to potential bias in child abuse detection and reporting

What is child maltreatment?

→ABUSE: Non-accidental commission of any act by a caretaker that causes or creates substantial risk of physical or emotional injury

→NEGLECT: Failure by caretaker to provide minimally adequate food, shelter, clothing, medical care, supervision, emotional stability and growth, or other essential care

Diagnosis

Child abuse is diagnosed just like any other medical condition

- History
- Physical
- Imaging
- Labs
- Consultation

Biases in Diagnosis

- Cognitive bias
  - Don't think of child abuse when assessing a child
    - E.g., vomiting and lethargy in an infant
  - Reaching a decision then selecting the data
    - Deciding "it's a virus" and then directing history and exam
- Implicit bias
  - Race
  - Educational status / language
  - "Nice people"

Objective assessment

- Avoids cognitive bias
- Avoids implicit bias
- Recognition of common presentations
- Uses a standard work-up

Case #1

8-week-old infant brought by her mother to Emergency Department

Presenting complaint is runny nose and cough

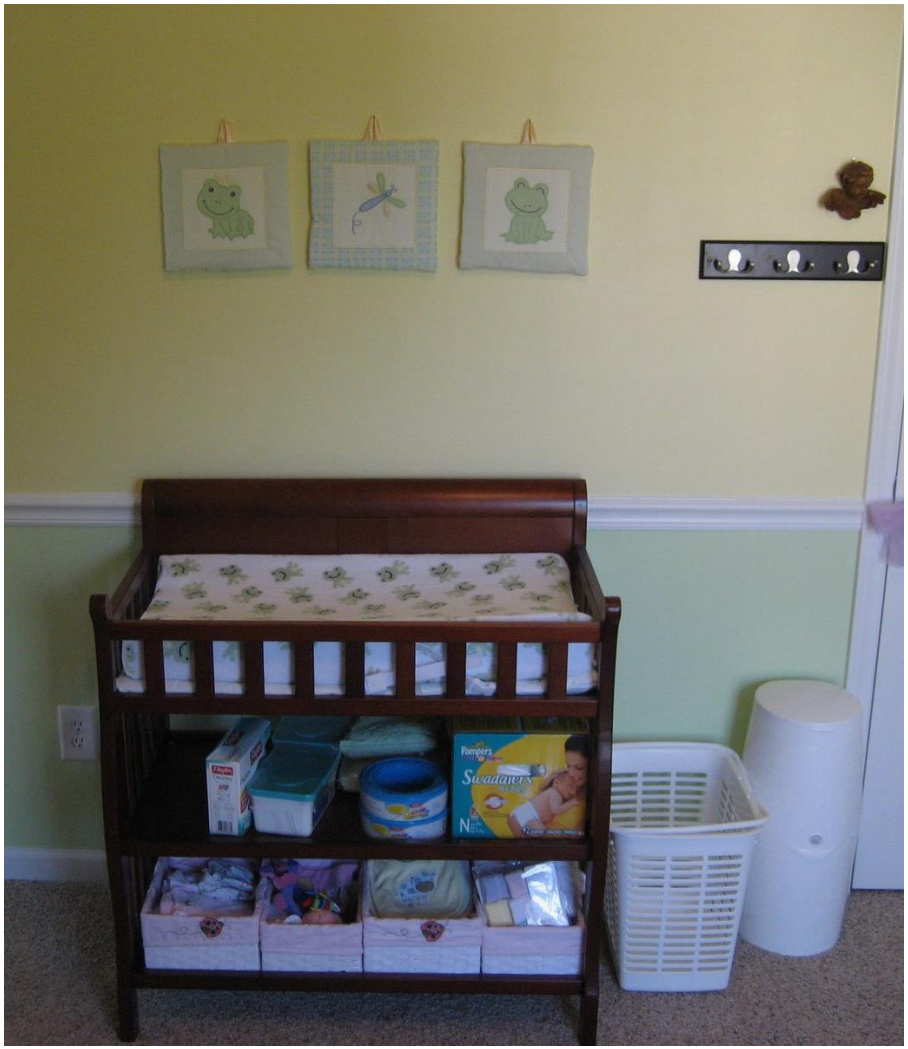
On exam, pt has mild rhinorrhea. Remainder of exam is normal except for the following:

Case #1

When asked about the marks on the child's face, mother reported that infant rolled off the changing table yesterday

No history of other trauma or injury

Pt has been cared for exclusively by his mother for the past 48 hours



Get a complete history

Picture *exactly* what happened.

Ask questions to *clarify* the injury mechanism

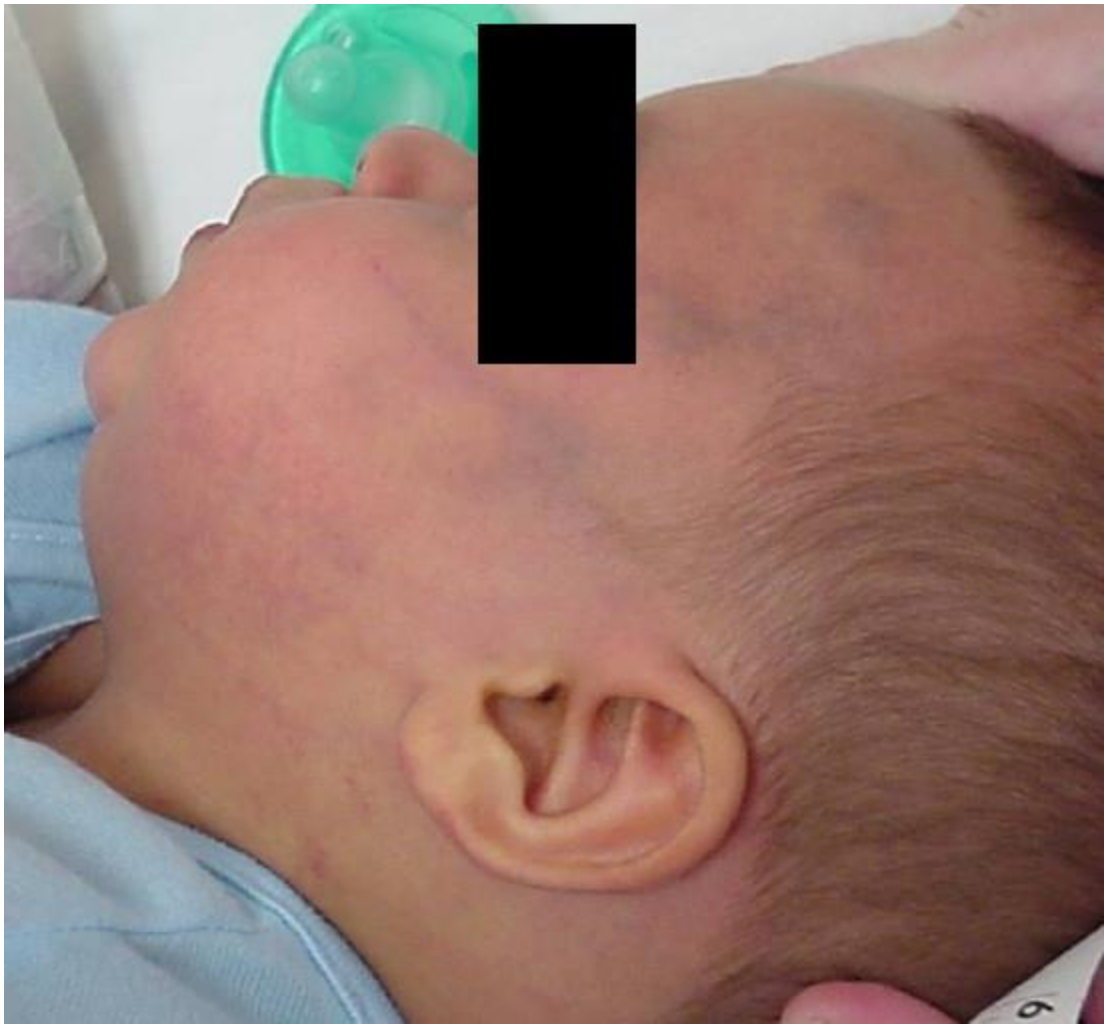
Developmental Assessment

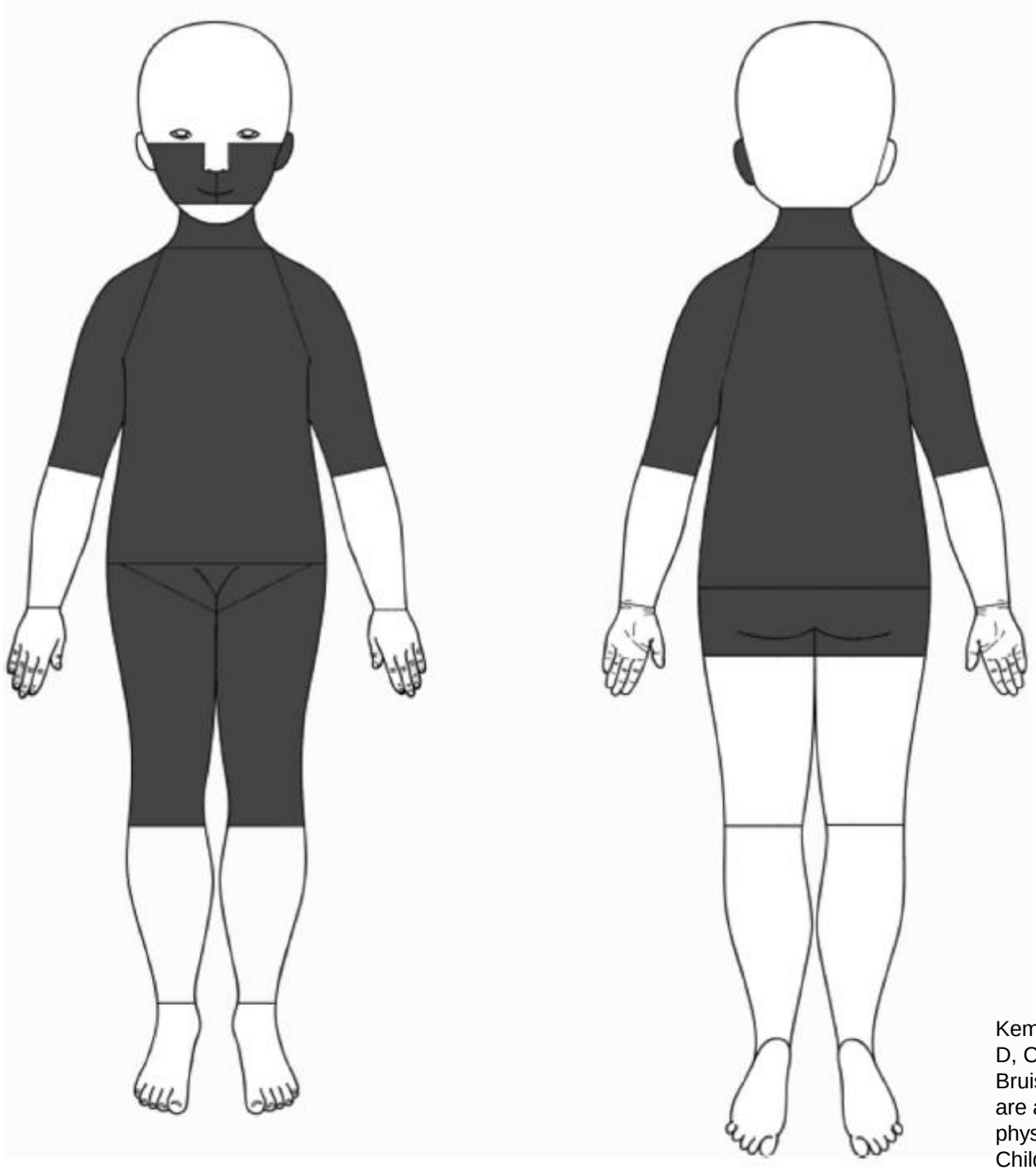
Is the patient able to perform the skills described in the history?

Thorough Physical Exam

- HEENT exam
- Palpate the head and all 4 extremities
- Perform a complete skin exam in good light
- Do an external genital exam with patient assent

Case #1 Example

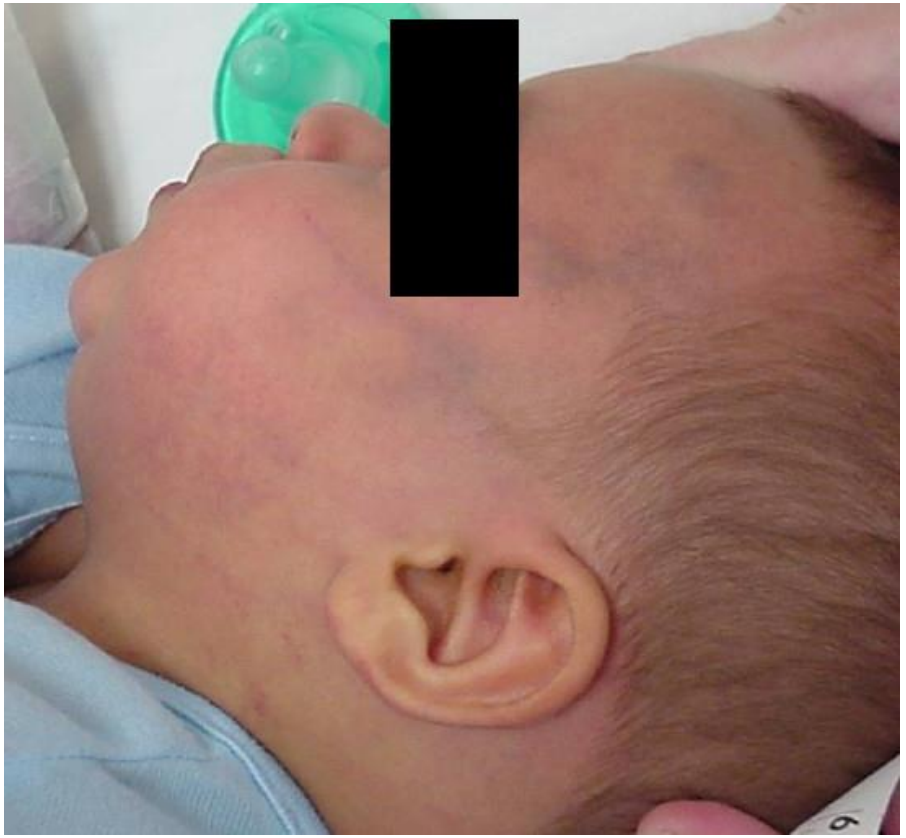




Kemp AM, Maguire SA, Nuttall D, Collins P, Dunstan F. Bruising in children who are assessed for suspected physical abuse. Arch Dis Child. 2013

Case #1summary

History and Physical: Children who can't cruise don't bruise



Case # 2

- 9 month old boy presents to ED with vomiting for one day
  - No fever
  - No diarrhea
  - Listless appearing
  - Improved after IV fluids, then deteriorated

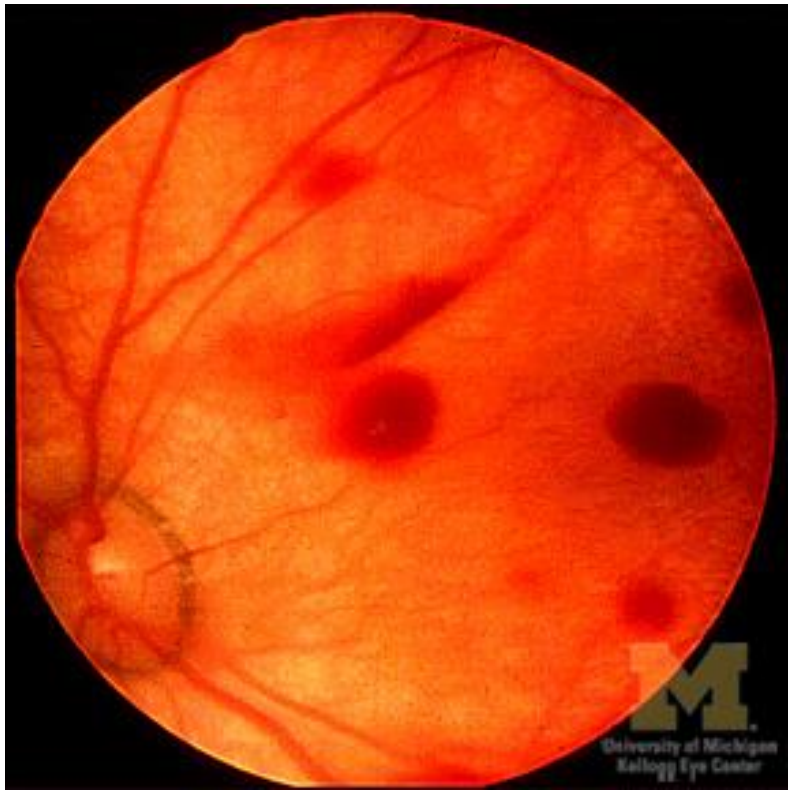
PMH

- Bruise behind ear noted one week earlier
- Vomiting and no fever at another hospital 10 days prior, parents refused admission

Physical

- Lethargic / sleepy NAD
- No bruises noted on skin exam
- HEENT – key finding on next slide
- Remainder of exam WNL

Retinal Hemorrhage



Cognitive Bias: Consider Abusive Head Trauma

- Vomiting
- Lethargy
- Unstable vital signs, neurologic findings, or coma
- Other injuries may be seen

Imaging of AHT

Head CT or Brain MRI

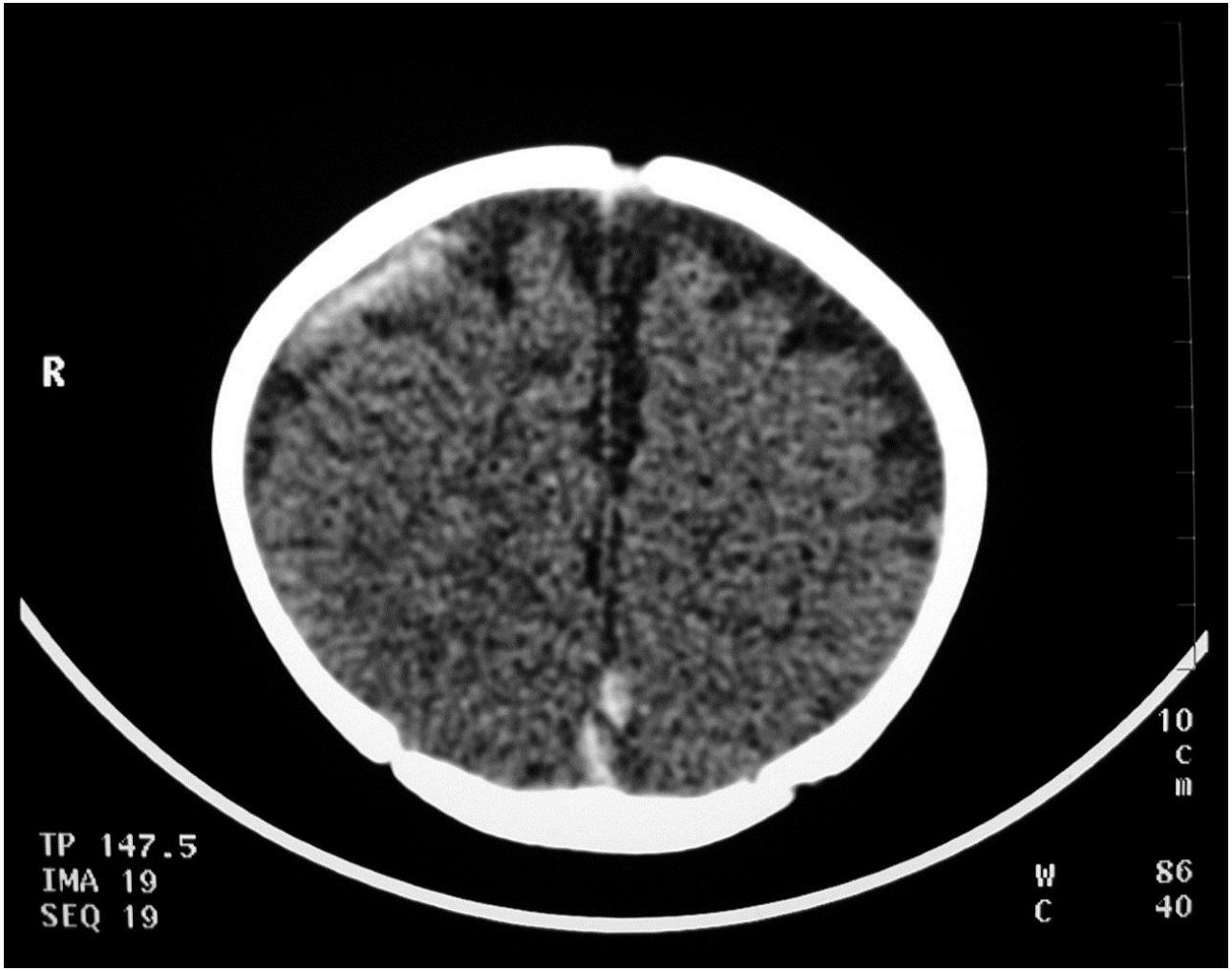
- Always under 6 months
- Always with altered mental status
- Consider in all children under 2

Retinal exam: (Opthalmologlst)

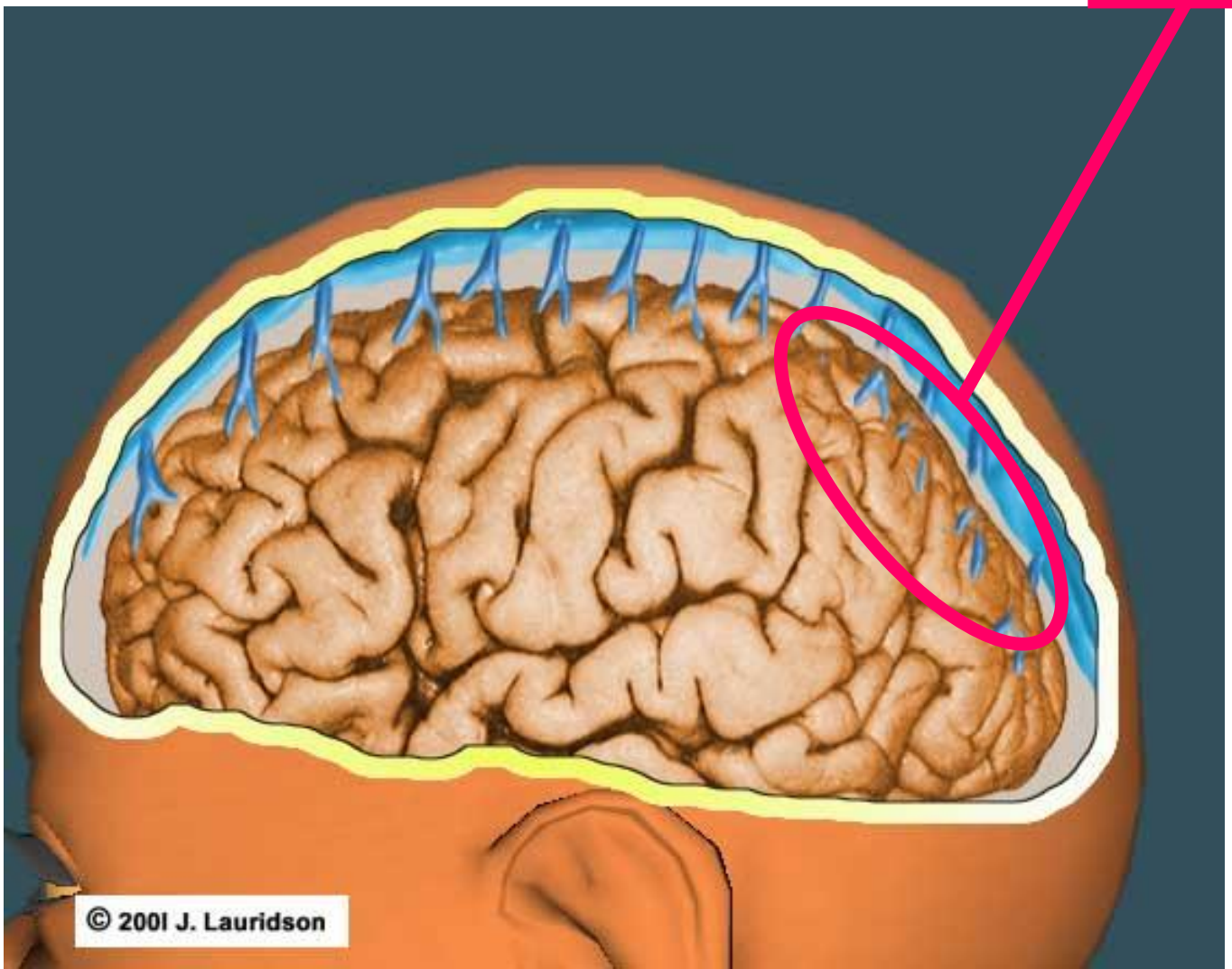
- All children under 2 with IC bleeding
- All children under 2 altered MS

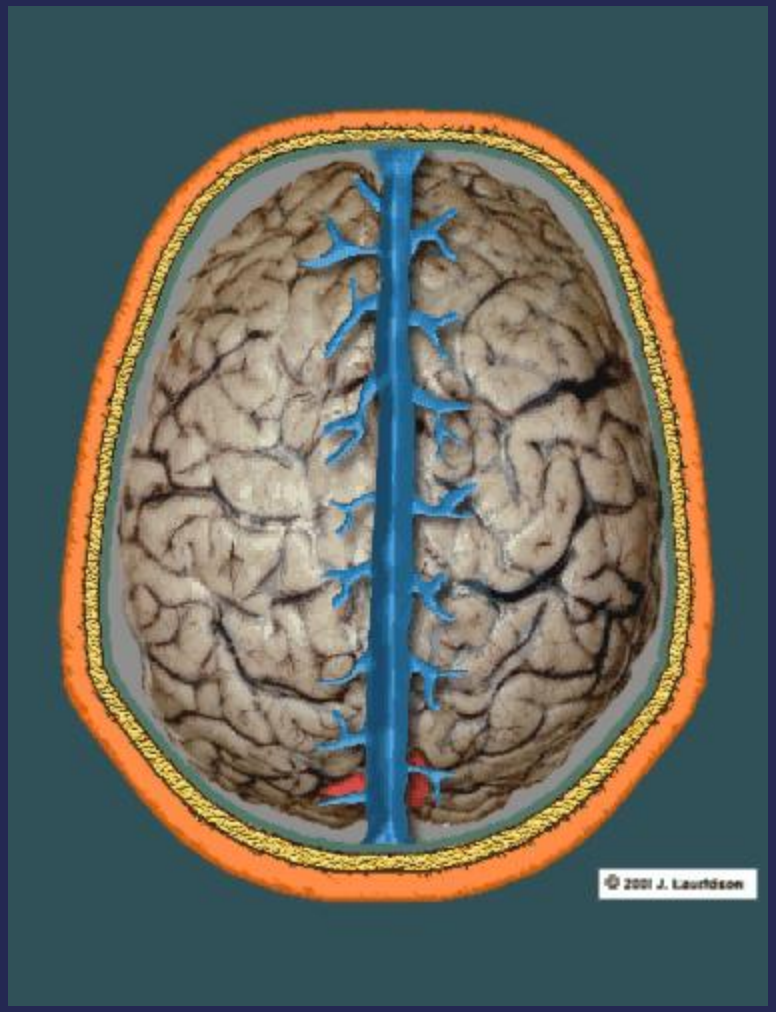
Skeletal survey (under 2 yo)

Right Fronto-Temporal SDH



Subdural and Subarachnoid Hemorrhage




© 2001 J. Lauridson

Nerve (Axonal) Damage

- Damaged cells release chemicals that cause the blood supply to shut down
- May also lead to direct destruction of adjacent cells.

Hypoxic Ischemic Injury

- Breathing is controlled by the brainstem – often injured during shaking.
- Swelling causes raised intracranial pressure
- Vicious cycle: Compression of blood supply, leading to further cell damage - > further swelling - > ^ ICP ->

Complete Skeletal Survey (AAP)

Appendicular skeleton

- Arms (AP)
- Forearms (AP)
- Hands (PA)
- Thighs (AP)
- Legs (AP)
- Feet (PA or AP)

Axial skeleton

- Thorax (AP and lateral), to include thoracic spine and ribs
- AP abdomen, lumbosacral spine, and bony pelvis
- Lumbar spine (lateral)
- Cervical spine (AP and lateral)
- Skull (frontal and lateral)

AP indicates anteroposterior; PA, posteroanterior.

Rib fractures

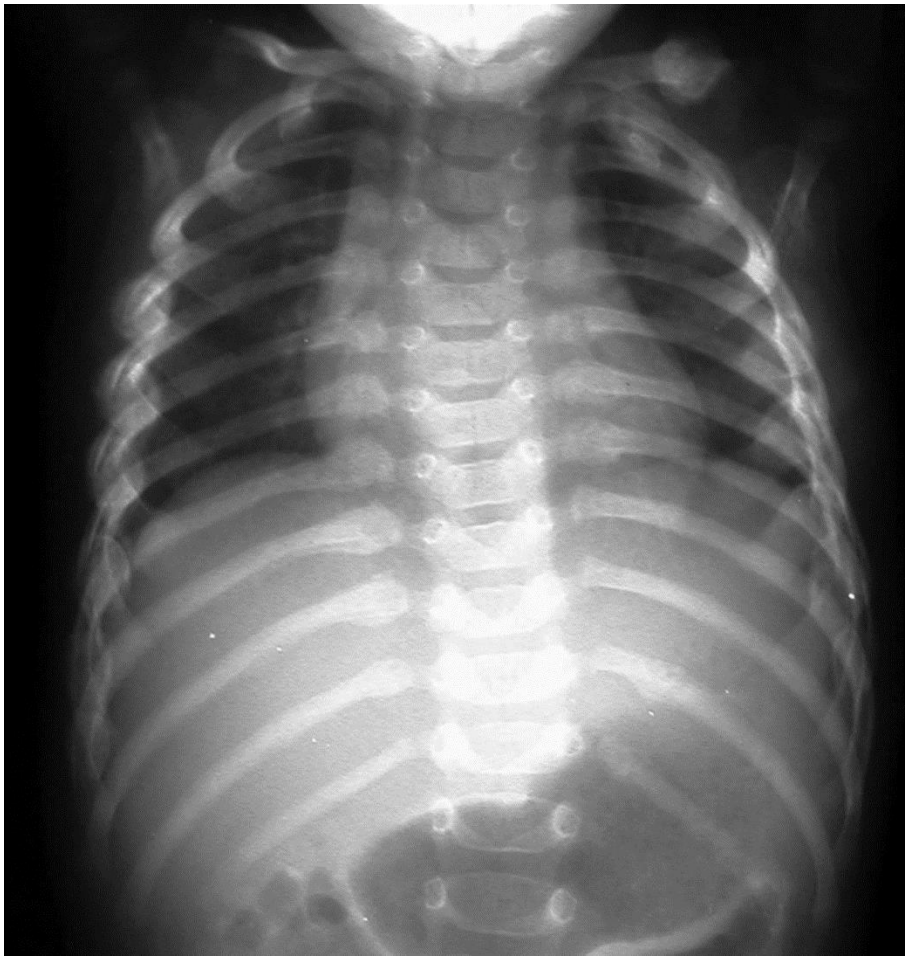
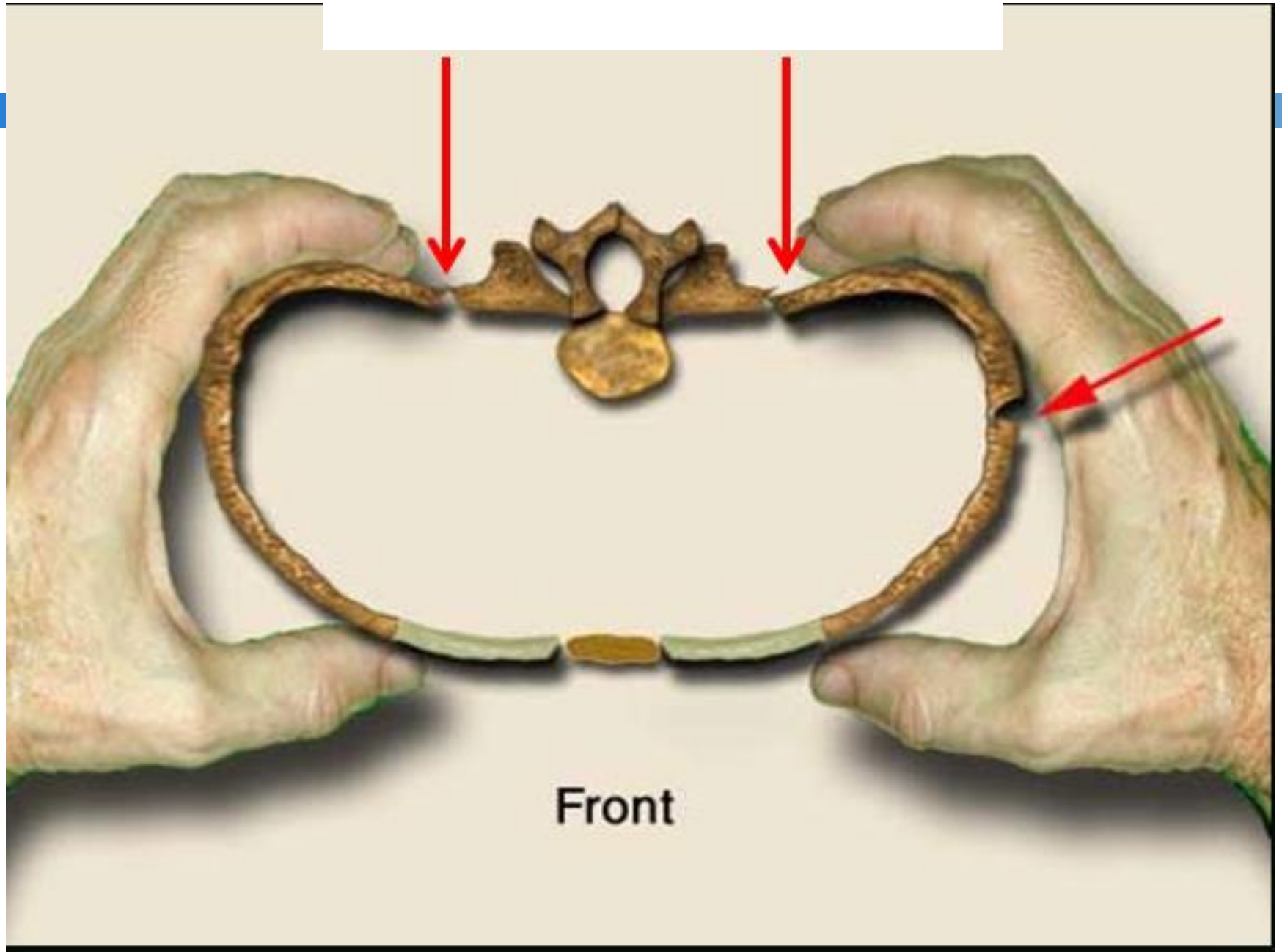
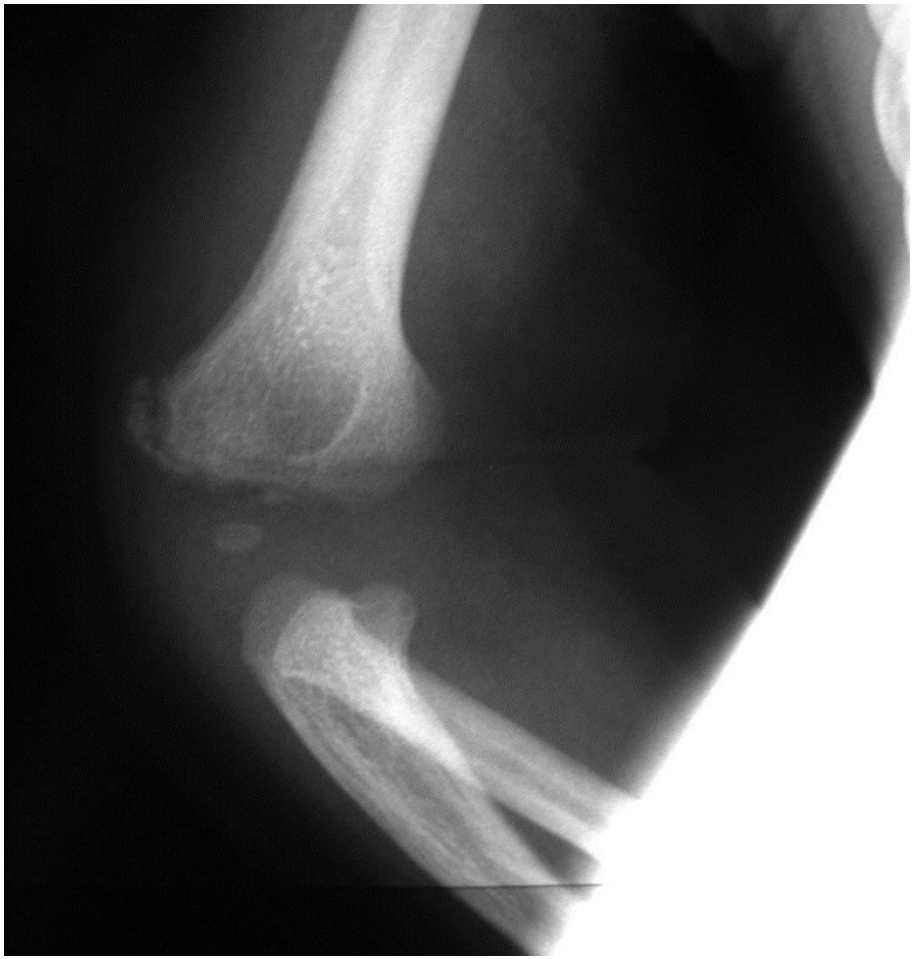


Image shows multiple bilateral rib fractures that are healing. Note the callus formation at the posterior and lateral aspects of the ribs and the healing left clavicular fracture with callus formation.

Rib Fractures





Case # 2 Summary

- Likely prior AHT (10 days prior)
- Missed bruise behind the ear at primary care
- Child with significant neurologic injury

Outcomes of AHT

- Long-term morbidity high amongst survivors—90% affected
- Mortality rate approximately 20%

Fighting Cognitive bias: Recognizing Sentinel Injuries

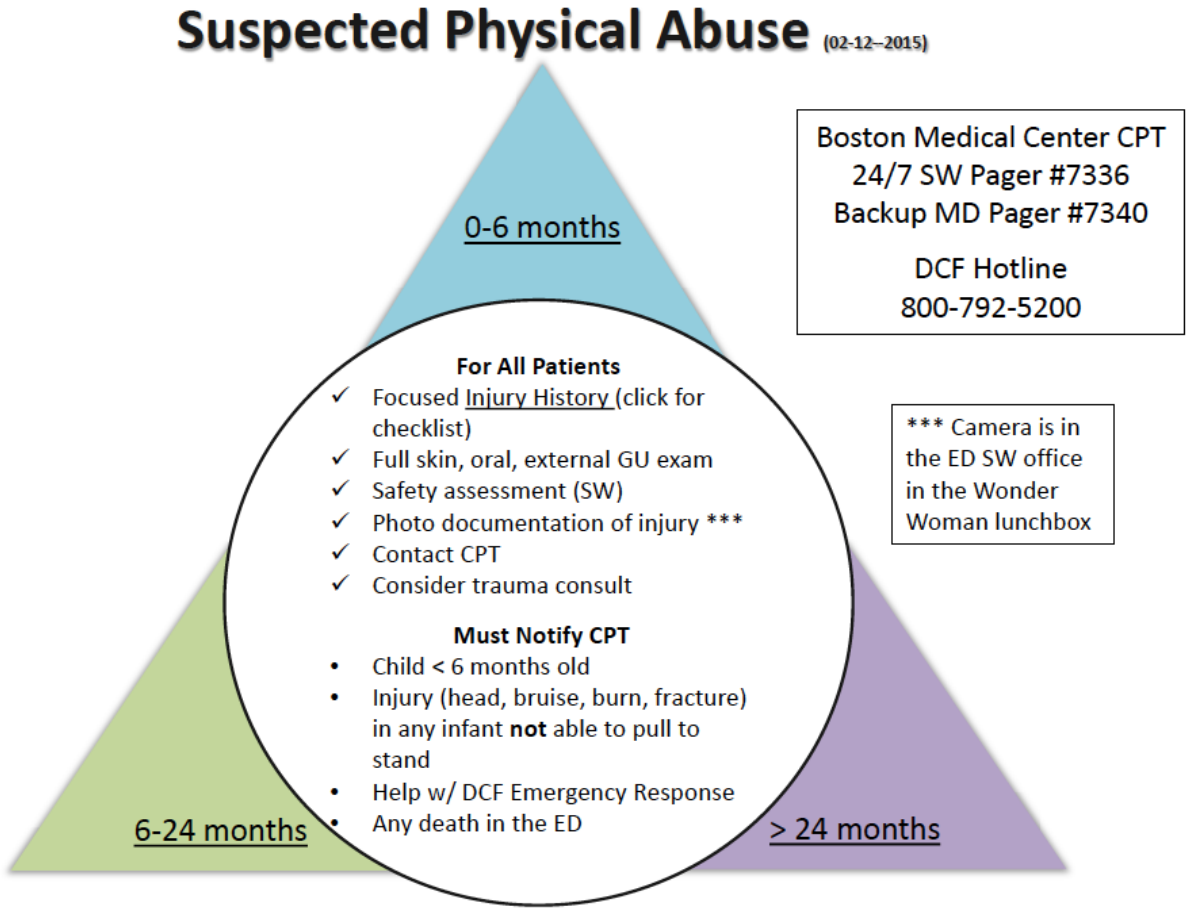
- Often relatively minor, or with subtle clinical findings
- Present in children subsequently found to have been abused:
  - Carole Jenny1999: 54% of cases of AHT missed
  - Sheets et al. 2013: 27.5% of abused children had earlier minor bruises / oral injuries

4 common sentinel injuries

- Skin: Bruising and burns
- Head Trauma
- Fractures
  - Classic Metaphyseal Lesions
  - Rib Fractures

Standard Protocol:

www.bmc.org/Documents/Suspected-Physical-Abuse.pdf



Summary

- Diagnosis of Child Physical Abuse requires:
  - Detailed history and Risk Assessment
  - Complete Physical Exam
  - Imaging and lab studies
- Avoid bias by:
  - Recognition of Sentinel Injuries and presentations
  - Being aware of implicit biases
  - Don't depend on "funny feeling" or "nice family"

Questions?

THANK YOU!

Resources:

- Injury data (CDC): http://www.cdc.gov/injury/wisqars/
- US and state child abuse reports:
- https://www.childwelfare.gov/systemwide/statistics/can.cfm
- AAP Policy statements and clinical reports

AAP Policy statements (partial list)

- **AAP Policy Statements : Google AAP policy child abuse**

- Abusive Head Trauma in Infants and Children (5/09, reaffirmed 3/13)
- Caregiver Fabricated Illness in a Child: A Manifestation of Child Maltreatment (9/13)
- Distinguishing Sudden Infant Death Syndrome from Child Abuse Fatalities (7/06, reaffirmed 1/10, 3/13)
- Evaluating Children with Fractures for Child Physical Abuse (1/14)
- Evaluation for Bleeding Disorders in Suspected Child Abuse (4/13)
- Evaluation of Children in the Primary Care Setting When Sexual Abuse Is Suspected (8/13)
- Evaluation of Sexual Behaviors of Children (9/09, reaffirmed 3/13)
- Evaluation of Suspected Child Physical Abuse (6/07, reaffirmed 5/12, under revision)
- Eye Examination in the Evaluation of Child Abuse (7/10)
- Failure to Thrive as a Manifestation of Child Neglect (11/05, reaffirmed 5/09)
- Maltreatment of Children with Disabilities (5/07, reaffirmed 1/11)
- Oral and Dental Aspects of Child Abuse and Neglect (12/05, reaffirmed 5/09)
- Pediatrician's Role in the Prevention of Child Maltreatment (9/10)
- Recognizing and Responding to Medical Neglect (12/07, reaffirmed 1/11)
- Understanding the Behavioral and Emotional Consequences of Child Abuse (9/08, under revision)