FOCUS: The Pediatric and Neonatal Care Conference  
The ABCs of Child Abuse

Robin L. Foster, M.D. FAAP FACEP  
Division Chairman of Pediatric Emergency Services  
Children’s Hospital of Richmond at Virginia Commonwealth University

Virginia Department of Social Services FY2014

- 50,136 children in 32,907 reports of abuse and neglect
- 6,792 children were involved in founded cases (26% physical abuse cases)
- 33,736 children were involved in family assessments with or without safety plans
- 21% reported by school personnel
- 8% reported by health care providers
Virginia Department of Social Services FY 2014

- 124 reports of suspected child abuse fatalities in 2014
- 47 reports founded
  - Age range 0-17 years
  - 34 (73.9%) children were less than 3 years old
- 29 (62%) male
- 13 physical abuse, 23 physical neglect, 7 physical abuse & neglect, 3 medical neglect

Virginia Department of Social Services FY 2014

- 60 caretakers were found to be responsible for the 47 deaths
- 37 (61.7%) were female
- 23 (38.3%) were male
- 45 (75%) were biological parents
- 28 (46.7%) were between the ages of 20-29
- 20 (42.6%) had prior child protective service involvement
Virginia Department of Social Services FY 2014

- Child death rate is 2.5 per 100,000 versus 1.8 per 100,000 in FY 2013
- Western region of Virginia had the highest death rate at 6.3 per 100,000
- National death rate is 2.0 per 100,000

Reporting of Child Abuse in Virginia

- State CPS Hotline 800 552 7096
- Mandated Reporting
- Permissive Reporting
- Immunity
- Assessment
- Investigation
Failure to Thrive
Mortality and Morbidity in Child Abuse:

Head Trauma

Abdominal Trauma

Burns

Soft tissue injuries

- The most common marker of physical abuse is a bruise:
  - Ecchymoses
  - Hematomas
  - Contusions
  - Abrasions lacerations
  - Burns
  - Human bites
Characteristics of Soft Tissue Injury

- Location
- Age of Injury
- Morphology

Loop Mark
Belt morphology
Switch Marks

Finger tip bruises
2 yo multiple bruises hgb 4
Linear abrasions and bruising
Multiple Circular Burn Marks
Ligature Marks
Types of Burns Consistent with Abuse

- Immersion Burns
  - Stocking
  - Glove
  - Perineum
    - Central Sparing
- Contact Burns
- Cigarette Burns

Suspicious Burns

- Delay in seeking treatment > 2 hours
- Burn appears older than stated age
- The accident was not witnessed
- A sibling is accused of being responsible
- The burn is second or third degree
Splash Burn from Hot Liquid in Toddler

Glove Immersion Burn
Stocking Immersion Burn
Relationship Between Water Temperature and Full Thickness Burns

Thermal Contact Burn Large Surface Area
Shaken Baby Syndrome = Abusive Head Trauma

- Ambroise Tardieu a French forensic physician wrote an article in 1860 describing abusive injuries including fatal head injuries in infants.
- Whiplash Shaken Infant Syndrome
  - Coined by Caffey in 1972 in landmark article
  - Noted constellation of fractures, subdural hematomas and retinal hemorrhages as early as 1946
- Shaken Baby Syndrome
  - Shaken Impact Syndrome
- Abusive Head Trauma
  - April 27, 2009

Presenting Symptoms of AHT

- Poor feeding
- Vomiting
- Lethargy
- Irritability
- Seizure
- Coma
- Death
Abusive Head Trauma

- Subdural or subarachnoid hemorrhages
- Cerebral edema
- Retinal hemorrhages
- Skull fractures or scalp contusions
- Skeletal fractures
- Spinal cord injuries (maintain c spine immobilization because of this)
Age Range for AHT

- Peak incidence of crying in infants 6 weeks-4 months
- Peak incidence of SBS 6 weeks-4 months
- Not uncommon from 0-2 years
- Uncommon but occurs 3-5 years
- Shaken Adult Syndrome
Victims of AHT

- %70 have evidence of prior abuse
- %33 have evidence of prior intracranial injury

Mortality and Morbidity of AHT

- 25% mortality rate
- Wide range of morbidity
- Unknown denominator
Evidence of External Trauma

- Bruising on the head from impact
- Bruising on the arms or chest wall from tightly gripping the baby
- External evidence is present in only fifty percent of cases
- External evidence is not predictive of outcome

Occipital Skull Fracture
Inflicted Abdominal Injuries

- Ruptured liver or spleen
- Intestinal perforation
- Intramural hematoma of duodenum or proximal jejunum
- Ruptured blood vessel
- Pancreatic injury
- Kidney injury

Liver Laceration
Complete Transection of the Jejunum

Inflicted Bone Injuries

- Bucket Handle Fractures of Metaphysis
- Chip Fractures of the Metaphyseal Epiphyseal Junction
- Unusual Fractures (Ribs, Scapula, Sternum)
- Any fracture in a nonambulatory child
- Fractures at different stages of healing
Inflicted Bone Injuries

- Skeletal Surveys
  - Evaluate for other acute or healing fractures
  - Appropriate in children 3 and under
  - Older children should have films based on localization on exam
- Skeletal fracture in less than one year old carries a 30% risk of occult head injury
  - Head CT and eye exam

Multiple Rib Fractures
Metaphyseal Epiphyseal Chip Fractures

Lumbar Compression Fractures in 7 mo old female
6 week old infant with femur fracture

2-week-old with knot in thigh
Spiral Humerus Fracture