Objectives

- CART – indications for evaluation and access to our service
- Recognize common manifestations of child physical abuse
- Understand difficulties posed in description and recognition of neglect
- Overview of Failure to Thrive
What is CART?

- A multidisciplinary team (child abuse pediatricians, forensic dentist, nurses, social workers) that provides consultative services to healthcare providers and other professionals caring for children who are suspected victims of child abuse and or neglect in the state of New Mexico.
When Do I Need CART?

- CART consultation should be requested when a child presents to care with injuries causing concern for physical abuse or a situation that is worrisome for neglect.
How Do I Request Consultation?

- Outpatient consultative service is offered Monday through Friday 9AM-5PM via the Nurse Coordinator: Jocelyn Ruebel
  - **Office number:** 272-1898
  - Pager 951-2509 (preferred means of contact)
  - Attending on call may be directly reached through UNM PALS: 272-2000
After Hours

- For patients seen after hours, contact the CART message line: 925-4495
- Indicate patient name, DOB, brief HPI, and follow-up needs. Indicate whether CYFD and/or law enforcement is involved and any appropriate contact information.
How Do I Know it’s Abuse?
History

- No history of trauma
- History inconsistent with injuries
- Changes in reported history
- History of self-inflicted trauma not consistent with developmental ability
- History of trauma inflicted by another child inconsistent with developmental capabilities
The Physical Examination

- Thorough physical exam, with emphasis on external inspection
- Measurements (English, not metric) of bruises, burns, and scars
  - description of size, shape, location, and color
- High quality photographs as adjunct
Bruising

- most common injury identified in cases of abuse
- involvement of extremities, bony prominence is often normal
- Concerning bruises
  - central location (buttocks, abdomen, chest)
  - non-ambulatory infant
  - bruise in the pattern of an object
Bruising

- Dating – NOT Recommended
  - resolution varies with location, depth, severity, skin tone, vascularity, patient age
- Medical conditions with associated “bruising”
  - HSP, ITP, Vitamin K deficiency, hemophilia, Mongolian spots
Inflicted Bruising
Inflicted bruising
Inflicted Bruising
Inflicted Bruising
Inflicted Bruising
Inflicted Bruising: spanking
Patterned bruising: open hand slap
Patterned Bruising: Belt Buckle
Patterned Bruising
Patterned Bruising
Bites

- circular or oval patterned injury that consists of opposing symmetrical arches separated at their bases by open spaces
Human Bite
Evaluation of Bruising/Bites

- CBC
- Coagulation studies
- Hematology consultation as indicated
- Detailed description, illustration, photographs
Burns

- 10-25% of pediatric burns are abusive
- hot solid objects (irons, curling irons, radiators, cigarettes), caustic materials, flames, hot liquids, scalding tap water
Abusive Contact Burn
Abusive Immersion Burns

- Often associated with soiling (vomiting, incontinence) that requires cleaning the child.
- Areas submerged are burned with clear lines of demarcation, whereas areas above the water line are spared.
- Simultaneous burning of buttocks, perineum, and both feet are highly specific for abuse.
Immersion Scald
Immersion Scald
Immersion Scald, Stocking
Accidental Scald Burns

- Irregular margins
- Non-uniform depth of injury
- Indistinct borders between burned and unburned skin
- Deliberate and accidental burns may be associated with splash marks
Fractures

- Concerning characteristics
  - non-ambulatory infants
  - multiple fractures
  - different aged fractures
  - Metaphyseal, sternal, scapular, posterior rib fractures
  - history inconsistent with degree of injury
Fractures
Fractures
Fracture Evaluation

- Skeletal Survey
- Bone scan in select situations
- In select cases consider repeat skeletal survey or CXR approx 2 weeks following initial to identify healing rib fractures as acute fractures may not be visible on initial study
Abusive Head Trauma

- Leading cause of mortality and morbidity from physical abuse
- Common in young infants who have been crying inconsolably
Abusive Head Trauma

- **Mechanisms**
  - Blunt head impact, shaking with rotational acceleration/deceleration, or both
  - Infant risk factors for injury
    - Large head, weak neck, small body, incomplete myelination of CNS tissues
Abusive Head Trauma

- Diagnosis of Shaking Injury
  - Subdural Hemorrhage
  - Specific pattern and severity of retinal hemorrhage
  - Brain injury (altered mental status, seizures, cerebral edema, encephalopathy, diffuse axonal injury)
Bridging Veins
Abusive Head Trauma with Impact

- Superficial soft tissue injury
- Skull fractures
- Subgaleal hematoma
- Subdural or epidural hematoma
- Cortical contusion
- Axonal injury
Abusive Head Trauma

- Possible presentations
  - irritability, lethargy, vomiting, apnea, loss of consciousness, seizures
- Obvious external injury (scalp bruising) often minimal or absent
Abusive Head Trauma Evaluation

- **Acute injury**
  - CT without contrast, including bone windows

- **Subacute/Chronic injury**
  - MRI: more sensitive than CT in the detection of intraparenchymal injuries, subdural and epidural hematomas, and axonal injury
Subdural Hematoma
Bilateral SDH, Acute on Chronic
Abusive Head Trauma Evaluation

- Ophthalmologic Exam
  - Up to 80% of children with abusive head injury have retinal hemorrhages
  - unilateral or bilateral
  - Severe hemorrhagic retinopathy is very specific for abusive head injury
  - visual outcome variable and most dependent on cortical injury
Retinal Hemorrhage
Abusive Head Trauma Evaluation

- **Skeletal Survey**
  - 30% to 70% of children with abusive head trauma have skeletal trauma recognized at the time of their diagnosis
  - rib and metaphyseal fractures are classically associated with abusive head trauma
Abdominal Trauma

- <1% of identified physical abuse
- external signs (bruising) often minimal or lacking
- most often blunt trauma with multiple organ injury
  - solid organ injury
  - perforation of hollow viscous
  - shearing of mesenteric vessels
Abdominal Trauma

- Liver, pancreas, small intestine injured most often
- Injuries to the spleen, kidneys, adrenal gland, bladder, and colon have been reported
Abdominal Trauma

- **Presentation**
  - Acute blood loss
  - peritonitis
  - renal failure (rhabdomyolysis)

- **Evaluation**
  - LFT's, pancreatic enzymes, CBC
  - US/CT
The problem with Child Neglect

- Lack of a universally accepted definition
- Why?
  - Often multifactorial and multidimensional
  - Often involves act of omission
  - Often lacks visible injury
  - Perspective: controversy over defining with focus on the caretaker or the child
Defining Neglect

- Broadly
  - Neglect occurs when a child’s basic needs are not adequately met
Categorizing Neglect

- Physical Neglect
  - Inadequate food, clothing, shelter, hygiene

- Medical Neglect
  - Failure to provide prescribed medical care or failure to seek appropriate medical care in a timely manner

- Dental Neglect
  - Failure to provide adequate dental care
Categorizing Neglect

- Supervisional Neglect
  - Failure to provide age appropriate supervision

- Emotional Neglect
  - Failure to provide adequate nurturance or affection or necessary psychological support

- Educational Neglect
  - Failure to enroll a child in school or failure to provide adequate home schooling; failure to comply with special education; allowing chronic truancy
Categorizing Neglect

- Other neglect
  - Exposure to Domestic Violence
  - Engaging/encouraging children in illegal activities
  - Shoplifting
  - Drug use and dealing
Categorizing Neglect

- All assessments of neglect should be performed in the context of the child’s age and developmental capabilities.
- Pattern, frequency, and severity also must be assessed.
Degrees of Neglect

- **1st Degree**
  - Obvious, ongoing, chronic, pervasive

- **2nd Degree**
  - Single act of negligence or inattention that puts a child at risk

- **3rd degree**
  - Single act or repetitive acts of neglect that result from circumstance beyond the control of the caretaker
Examples (insert controversy here)

- Malnourished child chained in a closet
  - 1st Degree

- Child injured in MVA due to no restraint
  - 2nd Degree

- Sick child’s medical care is delayed due to family’s concern about cost of care
  - 3rd Degree
Outcomes of Neglect

- Physical Injury (abusive or accidental)
- Negative effect on psychosocial, cognitive, and emotional development
- Behavioral problems
- Attachment Disorders
- May manifest acutely and chronically
(The problem with) Failure to Thrive

- Lack of a universally accepted definition
- Most commonly described only in terms of physical growth
  - Weight for age falls two percentiles for age/gender on growth chart
  - Weight below 3\textsuperscript{rd} or 5\textsuperscript{th} % for age/gender
What FTT is not

- A solitary medical condition
- It IS a sign of an often multifactorial situation affecting the growth, development, and emotional well-being of a child
Categories of FTT
Inadequate Absorption/Excess Loss of Calories

- Persistent Vomiting
  - Pyloric Stenosis
  - CNS disease
  - GI obstruction
  - Rumination
  - Psychogenic vomiting

- GI Disease
  - Celiac Disease
  - CF
  - Protein allergy
  - Lactose Intolerance
  - Infection
  - Liver Disease
  - Short Gut
Increased Caloric Requirements

- Cardiorespiratory Disease
  - Congenital or acquired heart disease
- CF
- CLD
- OSA

- Chronic Infection
  - HIV/AIDS
  - TB
  - UTI

- Other
  - Malignancy
  - Hyperthyroidism
  - Excess Activity
Defective Utilization of Calories

- Inborn errors of metabolism
- Diabetes mellitus
- Congenital Adrenal Hyperplasia
Inadequate Caloric Intake

- Breastfeeding Difficulty
  - Poor latch, inadequate supply
- Formula Problems
  - Preparation mistakes
- Poor nutritional content
  - Excess juice or water, unusual diet
- Inadequate food supply
  - Poverty, purposeful withholding
- Medical child abuse
Inadequate Caloric Intake

- Feeding difficulties
  - Oromotor dysfunction
  - GERD/esophagitis
  - Structural anomalies (rings/slings/strictures)
  - Poor dentition
  - Anorexia
  - Parent-child conflict
Evaluation of FTT

- HISTORY, HISTORY, HISTORY!
  - Prenatal/birth history
  - Feeding
    - How often, how much, how is food/formula prepared, feeding environment
    - Feeding journal or calorie count
  - Bowel habits
  - Social history
History in FTT

- Family History
  - Growth of parents/siblings
  - Neurologic conditions
  - Inborn errors of metabolism
  - Unexpected/unexplained infant death
  - Consanguinity
  - Psychiatric disease
  - Substance abuse
Physical Examination in FTT

- **General**
  - Height/weight with comparison to prior values
  - Affect, interaction with caretaker, fat stores/muscle mass

- **HEENT**
  - Hair texture/distribution, plagiocephaly, dysmorphisms, palate, dentition, thyroid

- **Cardiorespiratory**
  - Murmur, perfusion, resp distress clubbing,

- **GI**
  - Organomegaly, mass, ascites
Physical Examination in FTT

- GU
  - Structural anomalies, fistula, trauma
- Skin
  - Hygiene, rashes, trauma, turgor
- Neurologic
  - Tone, reflexes, suck/swallow, developmental status
Ancillary Studies in FTT

- Not initially helpful unless indicated by H&P
  - Retrospective studies show 0.8-1.4% of tests contribute to diagnosis
  - Always consider morbidity, trauma, cost effectiveness of studies
Ancillary Studies in FTT

- If screens are done...
  - CBC
  - Electrolytes
  -Albumin/prealbumin
  - CRP/ESR
  - UA/culture
  - +/- Blood lead level
  - +/- HIV, TB screens
To Hospitalize or Not

- Severity of malnutrition
  - Concern for refeeding syndrome
- Significant dehydration
- Significant medical comorbidities
- Child’s safety in question
- Need for multidisciplinary assessment
- Failure of outpatient management
Management of FTT

- Catch-up weight gain with energy intake 50% above basal caloric need
  - Concentrated formula
  - Add rice cereal to purees
  - Taste pleasing fats (cheese, butter, PB)
  - High calorie milk based drinks (Pediasure)
  - MVI with iron and zinc
Management of FTT

- Parental Engagement
  - Address parental anxiety
  - Encourage, don’t force child to eat
  - Scheduled meals/snacks without rushing
  - Encourage variety
Management of FTT

- The difficult cases
  - Nutritionist
  - Speech therapy/occupational therapy
  - Social work
  - Psychologist/psychiatrist
Parting Thoughts

- Child Abuse and neglect is a national epidemic
- Ignoring abuse/neglect will not make it go away
  - Severity escalates with time
- Report suspicion, refer for evaluation
- Accurate diagnosis is prevention!