Period of Purple Crying Implementation

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Objectives

- Define and describe symptoms associated with abusive head trauma
- Discuss the significance of abusive head trauma
- Describe the Period of Purple Crying
- Explain the role of healthcare providers in implementing the Period of Purple Crying
Definition of SBS

Shaken Baby Syndrome is a form of Abusive Head Trauma that occurs when a frustrated caregiver violently "shakes", or "shakes" and "slams" a child’s head against an object.

- Usually to stop them from crying or to get a child to respond to the expectations of the caregiver.

- There are often no outward signs of abuse, but there is injury to the brain and often to the eyes.
Abusive Head Trauma

- The use of broad medical terminology that is inclusive of all mechanisms of injury, including shaking, is required. The AAP recommends…a less mechanistic term, Abusive Head Trauma…

AAP 2009;123;1409-1411
Other Terms Used for Abusive Head Trauma

They are essentially synonymous

- Shaken Baby Syndrome
- Shaken Impact Syndrome
- Closed Head Injury
- Inflicted Head Injury
- Shaken Infant Syndrome
- Blunt Force Trauma to the Head
- Cranio-cerebral Trauma
- Non-accidental Head Injury
Infants less than 1 year **most commonly abused** age group- 21.7 per 1,000 infants (CDC, 2010a)

AHT leading cause of death in child abuse cases; **babies less than 4 mo at highest risk for AHT** (CDC, 2010b)

Most common cause of death from TBI in children less than 2 yr (Kochanek, 2007); 43% of infant deaths r/t head trauma from abuse (Bruce & Zimmerman, 1989); most head injuries in infants are abusive (US Dept Health & Human Services, 1999)
AHT Significance

- Actual incidence unknown
  - 150 children shaken for every known case (Theodore, et al., 2005);
  - 6% of parents admit to smothering, slapping, or shaking their baby in response to infant crying (Reijneveld, et al., 2004);
  - 2.6% of parents of children <2 report shaking as an act of discipline (Runyan, D. 2008)
  - May be listed as other form of abuse
  - May not seek care if no apparent injuries
  - With subtle signs/symptoms, correct diagnosis of AHT only 1:5 (Jenny, et al., 1999)
Form of child abuse in children < 3 years

Set of symptoms caused by violent shaking from a frustrated caregiver, usually in response to infant crying

- May have impact injuries
- May have other associated injuries
- May not have any outward signs of abuse
Common “Triggers” for Shaking

- CRYING
- Toilet Training
- Feeding Problems
- Interrupting

Dr. Jacy Showers, 1998
Vulnerability to SBS / AHT

Children are more vulnerable to being victims of SBS / AHT for several reasons:

- Children are small and the caregivers are big
- Physical development
  - Weight Distribution (Head 10% vs. 2%)
- Underdeveloped anatomy
  - Brain Consistency (Soft vs. Firm)
Victims are usually less than 1 year old, majority being less than 6 months

- Premature / special needs / difficult to soothe babies
- 60% of victims either die from their injuries or suffer lifetime disabilities
- More male victims than female
Example Of Shaking

- Child grasped by trunk or arms
  - Shaken back and forth
    - Chin impacts chest
    - Back of head impacts upper back
Studies show 67% to 70% of perpetrators are male.  
- Most are the biological father of the victim or the mother’s boyfriend  
Other perpetrators include mothers, grandparents, step-parents, other relatives and child care providers  
No traditional profile  
Infant crying is the number one trigger for a shaking incident.
Estimated 1,200 to 1,400 cases reported annually.
  - 25 – 30% die as a result of their injuries

No central reporting for shaking injuries
  - Process of tracking SBS/AHT varies in each state
  - Could be listed as other form of abuse
  - Medical attention not sought because injuries may not be apparent or appear life threatening
Symptoms of SBS / AHT

Mild
- Irritability
- Poor Feeding
- Vomiting
- Lethargy

Severe
- Limp/posturing
- Respiratory Distress
- Altered consciousness / Coma
- Death
Clinical

- Cerebral edema
- Subdural hematomas
- Subarachnoid hemorrhages
- Retinal hemorrhages
Subdural Hematoma: Bleeding over the Brain
Subdural Hematoma

- Often small volumes of blood
- Marker for SBS
- Bridging veins tear during abuse
- Decreased oxygen (cerebral hypoxia) heightens brain injury
Dura (cover over the brain)  Bridging veins
Subdural Hematoma
Retinal Hemorrhages
An Important Marker For Shaking

Retina
Retinal vessels
Optic Nerve
Retinal Hemorrhages
An Important Marker For Shaking

Widespread, multi-layer hemorrhages are virtually only seen with rotational head trauma
Cerebral Edema On CT

[Images: Normal brain CT on the left, showing no swelling or bleeding; Swelling & Bleeding brain CT on the right, with clear signs of tissue expansion and possible bleeding.]
Other Findings Common to SBS:

• No External Sign of Injury
• Axonal Injury - (shearing of axonal nerves as brain whiplashes back and forth)
• Skeletal Trauma
  • Rib fractures
  • Skull fractures
  • Metaphyseal lesions (fractures at the growth plate)
• History of a short fall
No External Sign of Injury
Rib Fractures

- Most common type of abusive fracture
- Posterior (back) rib fractures are highly likely to be abuse
- Anterolateral fractures rarely seen in infant CPR
- Accidental causes are rare, especially if there are multiple fractures in differing stages of healing
Metaphyseal “chip” fractures

Mechanism of injury: flailing and jerking of limbs during severe shaking causes shear fractures through the soft metaphyseal tissue.
### Why do we need AHT prevention?

#### 2010 (N = 20)
- NAT = 12
- All other trauma = 8
- NAT 60%

#### 2011 (N = 14)
- NAT = 7
- All other trauma = 7
- NAT 50%
Why do we need AHT prevention?

2012 (N = 15)

- Auto/Ped: 20%
- ATV: 7%
- Animals: 7%
- GSW: 7%
- Misc: 7%
- NAT: 13%

CCMC, Trauma Services, 2013
AHT at CCMC

- 90% of Nonaccidental trauma fatalities at CCMC had AHT
  - 50% male
  - 40% Caucasian
  - 27% African American
  - 27% Hispanic
  - All less than 3 years of age
    - 50% < 12 mo
    - 33% < 5 mo

(Weaver, 2011)
AHT Significance

- **Mortality rate 25-30%**
  (Nat'l Center on SBS)

- **Morbidity rate 50-65%**
  (King, et al., 2003; Sinal & Ball, 1987; Ludwid, 1984)
  - Long term effects
    - Brain damage, blindness,
      severe learning and behavioral problems,
      cerebral palsy, seizures, deafness, permanent
      vegetative state

- **Cost for first 5 years of AHT survivor can be as high as $3 million**
  (Center for Health Promotion, n. d.)
What is the Period of PURPLE Crying?

- SBS prevention program that provides a positive message to parents of newborns addressing normal infant crying and parental coping.
  - Individual or classroom introduction
  - Parents watch a 10 minute DVD
  - Parents take home DVD and a pamphlet
  - Parents now have coping and soothing component included on the DVD – 17 min.
Period of PURPLE Crying

- **Evidenced based program** (Barr, Barr, et al., 2009; Barr, Rivera, et al., 2009)
  - **Improves caregiver knowledge**
    - Infant crying
    - Dangers of shaking a baby
    - Ok to walk away during inconsoleable crying
  - **Increased caregiver sharing of information**
The Letters in **PURPLE** Stand for

**P**eak of Crying
Your baby may cry more each week. The most at 2 months, then less at 3-5 months

**U**nexpected
Crying can come and go and you don’t know why

**R**esists Soothing
Your baby may not stop crying no matter what you try

**P**ain-Like Face
A crying baby may look like they are in pain, even when they are not

**L**ong Lasting
Crying can last as much as 5 hours a day, or more

**E**vening
Your baby may cry more in the late afternoon and evening

The word *Period* means that the crying has a beginning and an end.
Implementation: A Three Dose Model

- **Dose One:** Maternity services or Home Visitor Programs (one-on-one or small discharge class)
- **Dose Two:** Prenatal classes, postnatal education, pediatricians, family practice physicians, childcare providers, foster care workers, nurse hotline, emergency room personnel
- **Dose Three:** Public education campaign – primary method for reaching the general population
Training For Professionals

- Training options:
  1. online training – 27 minute training
  2. training CD
  3. Train the Trainer Webinar
  4. onsite training available
How To Present the Program to Parents

- **3-Minute Bedside Talking Points**
  - Go through booklet, page by page
  - Teach-back method (what does the parent believe the messages are)
  - Show PURPLE film
  - Give materials to parents to take home

- **10-Minute Classroom Talking Points**
  - Go into more detail
• **Current study ongoing** - The *Period of PURPLE Crying: Keeping Babies Safe in North Carolina* - 2007-2012

**Crying** ▶️ **AHT**

**Opportunity** for intervention through a *cultural change*
How to implement

Contact the NCSBS:
Email: purple@dontshake.org
visit the website at www.dontshake.org
call the Center at 801-627-3399
or write to: 2955 Harrison Blvd. Suite #102, Ogden, Utah, 84403.

They make it easy!!

Sign forms- guided process
Staff training
Order materials
CCMC Implementation

- CCMC is currently providing POPC via classroom instruction to all parents leaving the hospital with infants discharged from NICU
- CCMC Neighborhood clinics provide POPC one on one to caregivers of infants at their well child exams up to age 5 months
POPC Community Implementation

- Parenting and Pregnant teen programs through:
  - FWISD
  - AISD
  - Eagle Mountain ISD (only ISD to completely incorporate into all high schools *4)
  - Everman ISD
- Gladney Center
- Catholic Charities (Various parenting programs: Mommy and me, Healthy Start, Families First)
- Women’s Center (Children’s Case Management, Homeless Initiative: there are parenting classes held at the area shelters)
- Parenting center
- Fort Worth Pregnancy Center
- Alliance For Children Family Advocates
FAQ

Why is the Period of PURPLE Crying different from other SBS prevention programs?

- Based on 30 years of research
- Teaches parents about normal infant development vs. only the negative warnings of shaking a baby
- Aimed at creating a cultural change
- Gives all parents useful information
- Gives parents encouragement that facilitates improved relationship with their baby
- Attractive, positive message
- Designed to increased penetration rate
FAQ

What kind of testing of the program has been done?

- 3 year study
  - First year, materials revised through testing with 19 parent focus groups in US and Canada; Reviewed by professionals
- Years 2 & 3
  - Parallel, randomized controlled studies in Seattle and Vancouver; 4400 parents to assess ability to change in knowledge and behavior (Pediatrics, Canadian Medical Association Journal)
- Current research
  Just completed 3 year study in British Columbia and North Carolina to assess effect on rate of AHT
What is the process for implementing?

- 3 Dose Implementation strategy
  - Dose 1: Maternity Wards
  - Dose 2: Prenatal, postnatal, public health nursing
  - Dose 3: Public education and media campaign
  - Reinforcements: ED, advice and hotlines, childcare providers, foster care workers, WIC…
Thanks for all that you do!