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Contact Hours: **1.5**

Pediatric Abusive Head Trauma CE for Kentucky Nurses

Prevent and Report Shaken Baby Syndrome

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LEARNING OUTCOME AND OBJECTIVES: Upon completion of this course, you will be better prepared to recognize and help prevent pediatric abusive head trauma (AHT) and understand reporting requirements for instances of AHT in Kentucky. Specific learning objectives to address knowledge gaps include:

- Define “pediatric abusive head trauma.”
- Identify the risk factors for head injuries resulting from abuse.
- Describe the mechanisms of injury, clinical presentation, history gathering, physical assessment, and diagnosis of pediatric AHT.
- Distinguish between accidental and abusive head trauma in the pediatric population.
- Discuss resources for prevention of pediatric AHT.
- Summarize Kentucky reporting requirements for suspected child abuse and neglect.

INTRODUCTION

In 2016, the number of Kentucky children who died from abuse dropped to the lowest level in 10 years, but the number of overall cases of child abuse increased. Kentucky statistics indicated a total of 198 maltreatment fatalities or near fatalities in state fiscal years 2014–2018. Of those, 82 maltreatment deaths or near deaths were in children under the age of 1 year. The leading cause of child physical abuse, fatal or near fatal maltreatment is battered child (i.e., the child suffers multiple injuries across several planes of the body), followed closely by abusive head trauma (KY CHFS, 2018b).

Pediatric abusive head trauma (AHT) is one of the most serious types of child abuse. AHT is a well-recognized constellation of brain injuries caused by the directed application of force to an infant or young child, resulting in physical injury to the head and/or its contents. No single injury is diagnostic of AHT. Instead, a diagnosis of AHT is made by a multidisciplinary team based on multiple findings, including evidence of intracranial and spinal involvement, retinal hemorrhages, and rib and other fractures inconsistent with the reported mechanism of injury (Choudhary et al., 2018; AAP, 2015).

AHT is the leading cause of physical abuse–related death in children and the leading cause of death from injury in infants. The fatality rate is significant for AHT and has been estimated to exceed 20%, with significant disability for nearly two thirds of the survivors. Deaths due to abusive head trauma peak at 1 to 2 months of age, most likely due to higher physiologic vulnerability (CDC, 2018a & b).

For children in the first year of life, the majority of serious head injuries result from abuse, and this peak incidence and rapid decrease with age are thought to be related to episodes of prolonged, inconsolable, and unpredictable crying that are developmentally normal for infants (Parks et al., 2012). Thus, it is important to aim prevention strategies toward supporting parents and caregivers in dealing with crying.

Although there has been tremendous focus on AHT, many challenges remain both in gaining accurate statistics and in overcoming misconceptions related to AHT that may defer caregivers from seeking medical services for infants and children. The good news is that much more is now known about recognizing and preventing AHT. Likewise, with support services and appropriate supervision, the majority of potentially abusive and neglectful parents can learn to safely care for their children.

TERMINOLOGY

Pediatric Abusive Head Trauma (PAHT or AHT)

KRS 620.020 defines pediatric abusive head trauma as the various injuries or conditions that may result following the vigorous shaking, slamming, or impacting the head of an infant or young child. These injuries or conditions, also known as *pediatric acquired abusive head trauma*, have in the past been called *Shaken Baby Syndrome* or *Shaken Infant Syndrome*. Pediatric abusive head trauma injuries or conditions have included but are not limited to the following:

- Irreversible brain damage
- Blindness
- Retinal hemorrhage
- Eye damage
- Cerebral palsy
- Hearing loss
- Spinal cord injury



- Paralysis
- Seizures
- Learning disability
- Death
- Central nervous system injury as evidenced by central nervous system hemorrhaging
- Closed head injury
- Rib fracture
- Subdural hematoma

Shaken Baby Syndrome (SBS)

One form of abusive head trauma with a characteristic pattern of injuries that may include retinal hemorrhages, certain fractures (in particular, ribs and the ends of long bones), and recognizable patterns of brain injury, often including thin subdural hemorrhages and sometimes diffuse axonal injury.

Pediatric Acquired/Traumatic Brain Injury (PA/TBI)

Includes traumatic causes such as those sustained as a result of motor vehicle accidents, sports-related injuries, blast injuries from war, assaults/child abuse, gunshot wounds, and falls.

Triad of SBS

This term refers to a supposedly diagnostic “triad” of encephalopathy (hypoxic-ischemic injury) with subdural hematoma and retinal hemorrhage. In fact, the diagnosis of pediatric AHT can only be made following “detailed medical examinations and testing and is not made automatically on the basis of the presence of these three findings, nor can it be excluded if one or more of these elements is missing” (AAP, 2015). (See also below under “Mechanism of Injury.”)

Other less common terminology includes:

- Nonaccidental head injury (NAHI)
- Shaken impact syndrome (SIS)
- Whiplash shaken infant syndrome
- Inflicted neurotrauma
- Inflicted traumatic brain injury (iTBI)
- Nonaccidental head trauma (NAHT)

“ABUSIVE HEAD TRAUMA” OR “SHAKEN BABY SYNDROME”?

The American Academy of Pediatrics recommends the term *abusive head trauma* rather than a term that implies a single injury mechanism (such as *shaken baby syndrome*) in their diagnosis and medical communications. AAP (2015) also reinforces the fact that shaking is an important contributor to abusive head injuries and that shaken baby syndrome is a subset of AHT. However, there is continued support for using the term *shaken baby syndrome* for parental education and community preventative efforts to caution against the detrimental effects of infant shaking (Howes & Mellar, 2017).

RISK FACTORS FOR PAHT

Risk Due to Infant Anatomy/Physiology

The combination of a disproportionally larger head, soft and rapidly growing brain, thin skull wall, and lack of mobility and control of the head and neck makes infants extremely vulnerable to injury from shaking actions.

Because the brain grows rapidly during infancy, infants have proportionally larger heads than adults in relation to their body size. (The relation between head and body size continuously declines with increasing age.) Therefore, the head is relatively heavy compared to the rest of the body, which results in different dynamics of head acceleration due to the external forces, making the infant head more vulnerable to trauma (Araki et al., 2017).

Additionally, the infant’s brain has higher water content and less myelination than an adult brain, is more gelatinous, and is easily compressed and distorted within the skull during a shaking episode. The infant’s blood vessels around the brain are more susceptible to shearing, and tearing can lead to brain hemorrhages. Because of their minimally developed anatomy, infants are also at increased risk for death and permanent disability.

Gilles (2018) further identified these factors that place infants at higher risk for shear strains with significant angular acceleration:

- Larger head-to-body ratio
- Less-developed neck and shoulder girdle musculature
- More easily disrupted respiratory drive
- Decreased synaptic density
- Decreased ischemic and seizure thresholds to trauma
- Higher brain water content
- Incomplete myelination



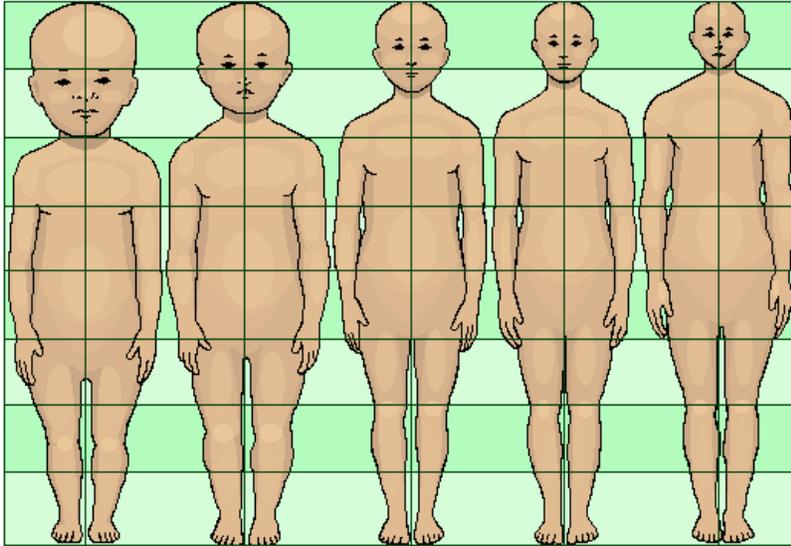


Diagram showing the proportionally larger head of an infant relative to an adult.
(Source: Journal of Heredity, 1921.)

Household Risk Factors and Perpetrator Characteristics

Understanding the AHT risks from various caregivers may help to inform current prevention strategies. A critical risk factor is the occurrence of shaking used either to attempt to calm infants and children or as a means of discipline. Less consistent risk factors include socioeconomic status, societal and family stress, prematurity, multiple births, developmental delay, prior military service, and childhood history of abuse in the perpetrator (Joyce & Huecker, 2018).

There are few statistics looking specifically at risk as it relates to perpetrators of pediatric AHT. Among the limited studies, perpetrators of pediatric AHT have been found most likely to be related males, followed by boyfriends or stepfathers, mothers, temporary caregivers, and others (Barr, 2012). A retrospective review of AHT cases diagnosed at four children's hospitals found that the alleged perpetrators were 53% fathers, 8% mothers, and 39% nonparental perpetrators (parent partner, babysitter, other adult caregiver). However, among children ≥ 1 year, nonparental perpetrators were more likely to cause AHT compared to parents (77% vs. 23%) (Scribano et al., 2013).

A recent study showed that injuries that children suffer at the hands of their parent's male partner, babysitter, or daycare worker are likely to be more severe. Ahmed (2017) reported that "by far, parents were more likely to be perpetrators of the confirmed or suspected child abuse. However, children injured by a parent's partner—a group that was overwhelmingly male—were more likely to be more severely injured, to experience severe head injuries, and to require intubation compared with children who were abused by a parent."

Children who have younger or single parents or parents with a history of mental illness or substance abuse and children living with an unrelated adult in the home are also at increased risk (Pierce & Fingarson, 2012).



According to the CDC (2018c), factors that increase the caregiver's risk for child abuse in general include:

Individual Risk Factors

- Parents' lack of understanding of children's needs, child development, and parenting skills
- Parental history of child abuse and/or neglect
- Substance abuse and/or mental health issues, including depression in the family
- Parental characteristics such as young age, low education, single parenthood, large number of dependent children, and low income
- Nonbiological, transient caregivers in the home (e.g., mother's male partner)
- Parental thoughts and emotions that tend to support or justify maltreatment behaviors

Family Risk Factors

- Social isolation
- Family disorganization, dissolution, and violence, including intimate partner violence
- Parenting stress, poor parent-child relationships, and negative interactions

Community Risk Factors

- Community violence
- Concentrated neighborhood disadvantage (e.g., high poverty, residential instability, high unemployment rates, and high density of alcohol outlets), and poor social connections

Child Risk Factors

Children with special needs—including those born prematurely and/or having developmental delays and/or disabilities—are at higher risk for AHT. A lack of understanding of premature infant development may lead to additional frustration, stress, decreased tolerance, and resentment among caregivers. Since premature infants have a higher rate of disabilities than full-term infants, their risk is even greater.

Infants experiencing neonatal abstinence syndrome (NAS) (i.e., babies in withdrawal) are at particular risk for child abuse, including abusive head trauma, due to the irritability and excessive crying that result from withdrawal from substance addiction. This can last for weeks and months, making such babies difficult to care for (KY CHFS, 2018a).



Additionally, the CDC (2018c) reports that the following characteristics also increase an infant's risk for being shaken, particularly when combined with a parent or caregiver who is not prepared to cope with caring for a baby:

- A history of previous child abuse
- Infant prematurity or disability
- Being one of a multiple birth
- Being less than 6 months of age
- Being perceived as inconsolable and/or crying frequently

Barr (2014) reports that, although for nearly four decades pediatric AHT and infant crying were generally not studied together, the curve of incidence for AHT can be shown to be parallel to the curve of age-related crying in infants. This finding suggests a “tighter and more interwoven relationship” between the two.

ASSESSMENT AND DIAGNOSIS OF PEDIATRIC ABUSIVE HEAD TRAUMA

Mechanism of Injury

Abusive head trauma encompasses many mechanisms of injury. Children who present with AHT may have been injured in a number of ways, including shaking, blunt impact, suffocation, strangulation, and others. It is important to remember that **no single injury is diagnostic of AHT** (Choudhary et al., 2018).

Each type of imposed stress produces a characteristic pattern of injury:

- Acceleration and deceleration through an arc (shaking) produce thin subdural hemorrhage and, commonly, retinal hemorrhages.
- Impact is associated with skull fractures, contra-coup bruising, and unilateral subdural hemorrhage.
- Strangulation causes hypoxia and hypoxic ischemic encephalopathy.

These stresses may occur separately or in any combination.





When a baby is shaken, the neck snaps back and forth and the brain rotates, causing shearing stresses on the vessels and membranes between the brain and skull. (Source: Radiologyassistant.nl.)

Clinical Presentations

Healthcare professionals may first encounter young children with AHT in a range of clinical settings, including primary care, urgent care, and emergency departments. Since there are significant variations in the clinical presentation of children with AHT, it is important that professionals are trained to identify potentially life-threatening situations.

Less severely injured infants and young children may present with symptoms that are quite nonspecific and without a history of trauma provided by a caregiver. These symptoms may be transient and improve if the trauma is not repeated. They include irritability, vomiting, and apnea.

These and other symptoms of AHT are also seen in other minor medical conditions and can easily lead to a mistaken diagnosis of those conditions instead. Healthcare providers may have difficulty recognizing that such symptoms are the result of abuse, and the infant may return to an abusive environment (see also “Differential Diagnoses” below).

While there is an increased awareness now about PAHT and how it may present, it is still important to realize that AHT may present with more subtle signs and symptoms. Jenny and colleagues (1999) reported that 31% of infants who ultimately were found to have AHT had symptoms that in retrospect were “missed” upon initial presentation. These infants were often diagnosed with viral syndromes, colic, and gastro-esophageal reflux. The more clearly the symptoms were neurological in nature (seizures and alterations in consciousness), the more likely that cranial imaging would be requested and a diagnosis of intracranial bleed made.

More seriously injured children have symptoms that should lead to rapid diagnosis of intracranial trauma. The caregiver may report a dramatic change in level of consciousness, as in acute collapse, such as unconsciousness, apnea, or seizures. An episode of minor trauma may be given as an explanation for the injury. Examples include falls off beds, being dropped by caregivers, or other minor contact injuries to the head.



However, a history of trauma is rarely provided in the initial stages. An initial examination may not reveal any external injuries such as bruises, leading to concerns about medical rather than traumatic causes (Frasier, 2009). Likewise, perpetrators of abuse do not frequently admit to their actions; child victims are often preverbal and may be too severely injured or too frightened to disclose their abuse; and injuries can be nonspecific (Christian, 2015).

Besides the presentations described above, Hymel & Deye (2011) give examples of clinical presentations that should create a reasonable suspicion of AHT, including clinical presentations involving soft tissue trauma to the face, scalp, or ears (especially in a nonmobile infant); intraoral trauma or bleeding (e.g., torn frenum or gingival laceration); and/or skull fractures that are multiple, complex, or attributed to a short-distance fall (usually less than six feet).

Presenting History

Any reported history or statements made by the caregiver regarding the injury should be documented accurately and completely. It is best to include the specific questions asked as well as the responses. Information should be gathered in a nonaccusatory but detailed manner.

There are two general portions of the presenting history that are important to document. The first is the history of the injury event and the second is how the child responded or behaved after the injury.

Questions asked when taking a presenting history should include:

- What happened?
- Who was there when it happened?
- Where did it happen?
- When did it happen?
- What happened afterwards?
- When was the child noticed to be ill or injured? How did the child respond? When did symptoms start? How did you respond?
- What made you bring your child to the doctor (or hospital)?
- When was the last time your child was totally normal or well?

Medical, Developmental, and Social History

Information that may be useful in the medical assessment of suspected physical abuse include:

- Past medical history (trauma, hospitalizations, congenital conditions, chronic illnesses)
- Nutrition history



- Seizure history
- Medications and immunizations
- Family history (especially of bleeding, bone disorders, and metabolic or genetic disorders, which often appear as a history of early deaths)
- Pregnancy history (wanted/unwanted, planned/unplanned, prenatal care, postnatal complications, postpartum depression, delivery in nonhospital settings)
- Familial patterns of discipline
- Child temperament (easy to care for vs. fussy)
- History of past abuse to child, siblings, or parents, including history of Child Protective Services or police involvement
- Developmental history of child (language, gross motor, fine motor, psychosocial milestones)
- Substance abuse by any caregivers or people living in the home
- Social and financial stressors and resources (unemployment, divorce/separation, etc.)
- Violent interactions among other family members
(Christian, 2015; Pierce & Fingarson, 2012; Jackson & Jackson, 2011)

The social history is a critical component of the evaluation. Asking parents about the household composition, other caregivers, siblings, substance abuse, mental illness, and social stressors can provide valuable information. It is preferable to interview caregivers separately; thorough and accurate documentation, including the use of quotes, is critical.

Explanations that are of concern for AHT include:

- Any infant or young child whose history is not plausible or consistent with the presenting signs and symptoms (i.e., explanation that is inconsistent with the pattern, age, or severity of the injury or injuries)
- History of behavior that is inconsistent with the child's physical and/or developmental capabilities
- Presence of a new adult partner in the home
- History of delay in seeking medical attention
- History or suspicion of previous abuse
- Absence of a primary caregiver at the onset of injury or illness
- Physical evidence of multiple injuries at varying stages of healing



- Unexplained changes in neurologic status, unexplained shock, and/or cardiovascular collapse (CDC, 2018c)

Physical Assessment

There are various signs and symptoms of AHT that can be recognized in a physical assessment of the child. Depending on the severity of the clinical presentation, initial assessment is often focused on identifying and treating life-threatening issues. This initial assessment focuses on the airway, breathing, circulation, and neurologic status.

As noted above, the consequences of less severe cases may not be brought to the attention of healthcare professionals and may never be diagnosed. In the most severe cases, which usually result in death or severe neurological consequences, the child usually becomes immediately unconscious and suffers rapidly escalating, life-threatening central nervous system dysfunction.

Common presenting **signs and symptoms of AHT** are:

- Lethargy/decreased muscle tone
- Extreme irritability
- Decreased appetite, poor feeding, or vomiting for no apparent reason
- Grab-type bruises on arms or chest (rare)
- No smiling or vocalization
- Poor sucking or swallowing
- Rigidity or posturing
- Difficulty breathing
- Seizures
- Head or forehead appears larger than usual (disproportional growth may be demonstrated on a growth chart if data are available) or soft-spot on head appears to be bulging
- Inability to lift head in an age-appropriate manner
- Inability of eyes to focus or track movement or unequal size of pupils (NCSBS, 2018)

Complete **physical exam** for any young child with suspected AHT includes:

- Inspection of all body parts, scalp, ears, and hair
- Inspection of the mouth (lip, tongue, buccal) to look for frenula tears or dental injuries



- Palpation of legs, arms, hands, feet, and ribs to feel for crepitus or deformities

Nursing neurologic assessment of the child with head trauma includes evaluation of:

- Eye opening
- Arousability level or irritability/consolability
- Symmetry of facial expressions
- Movement of upper and lower extremities
- Increased weakness or pitch in cry/vocalizations
- Fontanels
- Each pupil separately for size, shape, equality of reaction to light
- Ability to track objects
- Muscle tone for rigid extension or flexion of extremities, flaccidity, and/or unusual posturing

Several specific types of injuries are associated in some of the literature with AHT. These include the “triad” of retinal hemorrhage, subdural hematoma, and hypoxic-ischemic injury/encephalopathy. The presence of seizures and electrographic status epilepticus are also common in children with abusive head trauma (Hasbani et al., 2013). (See also “Mechanism of Injury” above.)

Distinguishing between Accidental and Abusive Head Trauma

There are several challenges to differentiating between accidental (nonabusive/noninflicted) trauma or age-appropriate injuries and child abuse in infants and young children. This is especially true in children who are not yet verbal enough to explain what happened to them (i.e., infants, toddlers, and children with developmental delay and/or altered levels of consciousness).

Because of this, knowledge of typical developmental patterns of injury is helpful. That is, how does the presenting pattern(s) of injury and the child’s age and developmental level match up with the reported mechanism of injury?

DEVELOPMENTAL PATTERNS OF INJURY

Developmental patterns of injury seen in the 0- to 3-year-old range (the age range most frequently seen with AHT) include:

- Trauma from falls from furniture, down stairs, or being dropped by another person
- Traumatic delivery (e.g., forceps, vacuum extraction, and/or breech)
- Motor vehicle accidents



Head injury is frequently involved with these traumas because of several factors, including the larger head-to-body ratio and the inability to shield oneself during a fall.

Developmentally, this age range is at risk for accidental injury because the child's developmental milestones include increasing motor skills and curiosity, allowing them a greater range and access to potential hazards. The advancing physical abilities of young children often precede their ability to understand the consequences of their actions. Thus, parent/caregiver knowledge of growth and developmental milestones may reduce the likelihood that they will misjudge the ability of the child and utilize an inappropriate supervision strategy. The mechanisms seen in accidental (noninflicted) injuries are generally different in these types of injuries as compared to AHT, as discussed below.

RED FLAGS FOR INFLICTED INJURY IN A CHILD WITH BRUISING

Healthcare providers can differentiate between accidental trauma and inflicted injury by watching for these “red flags” in children with bruising.

- Any bruises in babies who are not yet cruising
- Bruises on the ears, neck, feet, buttocks, or torso (torso includes chest, back, abdomen, genitalia) in toddlers
- Bruises not on the front of the body and/or that overlie bone
- Bruises that are unusually large or numerous
- Bruises that are clustered or patterned (patterns may include handprints, loop or belt marks, bite marks)
- Bruises that do not fit with the causal mechanism described
(Ward et al., 2013)

ASSESSMENT QUESTIONS

Because this situation is highly charged for both the family and all the healthcare providers involved, it is a good idea to have a mental checklist in place to both pose questions and evaluate responses in relation to the specific patient in question. Providers should further objectively and clearly document the history as described by the parents and/or caregivers present.

The following are questions a clinician can ask oneself to help separate the unintentional from the inflicted injury:

- What is the **age of the child**?
 - What are the normal behaviors of a child at that age? Developmental stages of childhood determine what kinds of injuries are likely to be seen. The motor skills of the child determine what the child could have done to incur injury.



- Based on the child's age, is the presenting injury plausible?
- Is the **history plausible**? Could this injury have been sustained in the manner described? Does the history change with changing information supplied to the caretaker? Adjustments in the account of the injury may be made by caretakers to fit the evolving information, indicating the tailoring of the history to fit new information. Does the history change when related in subsequent accounts by other family members?
- Was the injury **witnessed**? The lack of information as to how a serious injury has occurred should raise the index of suspicion for an abusive origin.
- Is the **social situation** in which the injury occurred a high-risk environment? The presence of community or intrafamilial violence, substance abuse, chaotic living arrangements, poverty, social isolation, transient lifestyles, mental health issues, or conflict among family members are red flags.
- Can the **described mechanism of injury** account for the observed injury? What else could produce the clinical picture?

Explanations that are concerning for intentional trauma include:

- No explanation or vague explanation for a significant injury
 - An important detail of the explanation that changes dramatically
 - An explanation that is inconsistent with the pattern, age, or severity of the injury or injuries
 - An explanation that is inconsistent with the child's physical and/or developmental capabilities
 - Different witnesses who provide markedly different explanations for the injury or injuries
- (Christian, 2015)

Differential Diagnoses

It is also important to rule out underlying conditions that may cause some of the same signs or symptoms associated with AHT or other abuse. Where indicated, medical professionals should inquire about the presence of any of the following conditions or practices:

- Congenital, metabolic, or neoplastic conditions (e.g., aneurysm, arteriovenous malformation, brain tumor, leukemia)
- Connective tissue disease or osteogenesis imperfecta, which may lead to fragile bones that fracture with less force than would be expected
- Acquired causes (e.g., meningitis, obstructive hydrocephalus)



- Undetected bleeding disorders that can lead to abnormal bleeding patterns (e.g., hemophilia, Von Willebrand’s disease, liver disease)
- Traditional or alternative healing practices, which may lead to unusual bruising and scarring patterns (e.g., coin rubbing, cupping, or burning herbs on the skin over acupuncture points)
(Hymel & Deye, 2011)

PREVENTION STRATEGIES

Research has shown that certain protective factors are linked to a lower incidence of child abuse and neglect in general. They are attributes that serve as buffers, helping parents who might otherwise be at risk of abusing their children to find resources, supports, or coping strategies that allow them to parent effectively, even under stress. These protective factors include:

- Nurturing and attachment
- Knowledge of parenting and child development
- Parental resilience
- Social connections
- Concrete supports for parents
- Social and emotional competence of children
(Child Trends, 2018)

Many states, including Kentucky, have enacted programs aimed at preventing child abuse, including pediatric abusive head trauma in particular, through a public health primary universal prevention strategy aimed at changing knowledge and behaviors of caregivers and society in general concerning normal development of infants and the significance of early increased infant crying (Barr, 2012). By increasing parental understanding of infant development, with a focus on infant crying and coping strategies to address it, such programs are thought to offer a “window of opportunity” for the prevention of AHT and, potentially, other forms of infant abuse.

Nevertheless, in one comparative study of a statewide abusive head trauma intervention, researchers found no associated significant reduction in the overall hospitalization rates for abusive head trauma among infants, although parents did report significant knowledge gains from the intervention (Dias et al., 2017).

There are several types of prevention education programs and supports currently being utilized and evaluated. These include:

- Hospital-based (inpatient parent training) education programs
- Home visiting programs



- General parenting education classes
- Parent support groups
- Family resource centers
- Crisis intervention services such as hotlines and crisis nurseries

Primary prevention efforts address a broad segment of the population, such as all new parents. Secondary prevention efforts target a specific subset of the population considered to be at higher risk for child maltreatment. Tertiary prevention efforts target perpetrators of child maltreatment and seek primarily to prevent recidivism.

Primary Efforts: General Public and Parent Education

Primary prevention activities are directed at the general population and attempt to stop maltreatment before it occurs. All members of the community have access to and may benefit from these services. Primary prevention activities with a universal focus seek to raise the awareness of the general public, service providers, and decision makers about the scope and problems associated with child maltreatment. Universal approaches to primary prevention might include:

- Public service announcements that encourage positive parenting
- Parent education programs and support groups that focus on child development, age-appropriate expectations, and the roles and responsibilities of parenting
- Family support and family strengthening programs that enhance the ability of families to access existing services and resources to support positive interactions among family members
- Public awareness campaigns that provide information on how and where to report suspected child abuse and neglect

Parent education and support programs typically focus on educating parents on child development and parenting strategies and also have the goal of decreasing parenting practices and behaviors associated with child abuse and neglect. Although parent education programs may serve the general community, many are also directed at populations determined to be at risk for child maltreatment. Parent education about infant crying and the risks of shaking a baby continues to stand out for its empirical evidence (Lopes & Williams, 2016).

Parent education and support programs can address:

- Developing and practicing positive discipline techniques
- Learning age-appropriate child development skills and milestones
- Promoting positive play and interaction between parents and children



- Locating and accessing community services and supports

Healthcare professionals can provide the following messages to parents and caregivers during their everyday encounters:

- Remind parents and caregivers that crying is normal for babies.
- Explain to parents that excessive crying is a normal phase of infant development.
- Ask parents how they are coping with parenthood and their feelings of stress.
- Assure parents that it is normal to feel frustrated at long bouts of crying and a sudden decrease in sleep, but that things will get better.
- Give parents the number to a local helpline or other resource for help.
- Talk with parents about the steps they can take when feeling frustrated with a crying baby, such as putting the baby safely in a crib on his or her back, checking on the baby’s safety every 5 to 10 minutes, and calling for help or a friend.
- Let parents know what to check for when their baby is crying: signs of illness, fever, or other behavior that is unusual; discomfort like a dirty diaper, diaper rash, teething, or tight clothing; or whether the baby is hungry or needs to be burped.

(CDC, 2018b)

The **Period of PURPLE Crying** is an example of a primary-level program specifically geared to the prevention of AHT. The **target population** is all parents of new infants and society in general, with the goal of increasing their understanding of early infant crying and shaken baby syndrome. Barr and colleagues (2009) demonstrated that the use of the PURPLE education materials seems to lead to higher scores in knowledge about early infant crying and the dangers of shaking, and in sharing of information on behaviors considered to be important for the prevention of shaking.

PERIOD OF PURPLE CRYING PROGRAM		
P	Peak of crying	Your baby may cry more each week, peaking at 2 months, then less at 3 to 5 months.
U	Unexpected	Crying can come and go and you do not know why.
R	Resists soothing	Your baby may not stop crying no matter what you try.
P	Pain-like face	Your crying baby may look to be in pain even when he or she is not.
L	Long lasting	Crying can last as much as 5 hours a day or more.
E	Evening	Your baby may cry more in the late afternoon or evening.

Source: NCSBS, 2018.

The PURPLE program also contains a public media component aimed at changing cultural attitudes about crying, especially inconsolable crying. The approach includes educating parents



and the community about normal infant development, specifically crying in normal infants, rather than being limited to warnings of the negative consequences of shaking.

The PURPLE program uses a DVD and booklet (translated into nine languages) to take home to review and share with others. It includes three 5- to 10-minute “doses”:

- In the maternity ward, given separately from other materials
- Either pre- or post-birth as a second “dose” (e.g., in prenatal classes and in the first pediatric office visit)
- Via media campaign

Through the three contacts, the duration of the program is at least a week and can last much longer since a key element of the program is that each parent receives a copy of the DVD and booklet to take home with them. This way they can refer to the DVD again when the infant is crying and show it to other temporary caregivers.

(See also “Resources” at the end of this course for links to other prevention efforts.)

Secondary Efforts: Home Visitation Programs

Secondary prevention efforts, such as home visitation programs, target a specific subset of the population considered to be at higher risk for child maltreatment. Researchers have identified five common co-occurring parental risk factors—substance abuse, mental illness, domestic violence, child conduct problems, and poverty—that lead to child maltreatment (Barth, 2009). Secondary prevention programs have had the greatest demonstrated success in reducing child maltreatment but often require considerable resources and funding.

Approaches to prevention programs that focus on high-risk populations might include:

- Parent education programs located in high schools and focusing on teen parents or located within substance abuse treatment programs for mothers and families with young children
- Parent support groups that help parents deal with their everyday stresses and meet the challenges and responsibilities of parenting
- Respite care for families who have children with special needs
- Family resource centers that offer information and referral services to families living in low-income neighborhoods
- Home visiting programs that provide support and assistance to expecting and new mothers in their homes

Home visiting is a mechanism to provide direct support and coordination of services for families, beginning prenatally or at birth. Visits are conducted by a nurse, social worker, or trained paraprofessional. Programs vary, but components may include:



- Education in effective parenting and childcare techniques
- Education on child development, health, safety, and nutrition
- Assistance in gaining access to social support networks
- Assistance in obtaining education, employment, and access to community services

Two examples of such programs are listed below:

Kentucky has a home-visiting program targeted to first-time parents called **Health Access Nurturing Development Services (HANDS)**. HANDS is designed to assist overburdened first-time parents at critical development points. Frequent pre- and post-natal home visits by trained professionals are provided to first-time parents. These appointments assist new parents by sharing important information, problem solving, and helping them to meet basic needs such as housing, food, healthcare, and other required services. All of Kentucky's 120 counties offer the HANDS program. Enrollment must be during pregnancy or when the infant is less than 3 months old, and referral to HANDS is made through the County Health Department. (*See also "Resources" at the end of this course.*)

Although there is currently no data to support the HANDS program's effectiveness as it relates to AHT prevention, there is supporting data that demonstrates this program has resulted in less preterm births, fewer children with developmental delay, fewer emergency department visits, increased family self-sufficiency, and lower infant mortality rates (PEW, 2012).

The **Nurse-Family Partnership (NFP)** program provides home visits by registered nurses to first-time, low-income mothers, beginning during pregnancy and continuing through the child's second birthday. It operates nationwide. The program has three primary goals: 1) to improve pregnancy outcomes by promoting health-related behaviors; 2) to improve child health, development, and safety by promoting competent caregiving; and 3) to enhance parent life-course development by promoting pregnancy planning, educational achievement, and employment. The program also has two secondary goals: to enhance families' material support by providing links with needed health and social services and to promote supportive relationships among family and friends.

Tertiary Efforts: Recidivism Prevention

Tertiary prevention activities focus on families where maltreatment has already occurred and seek to reduce the negative consequences of the maltreatment and to prevent its recurrence. These prevention programs may include services such as:

- Intensive family preservation services with trained mental health counselors that are available to families 24 hours per day for a short period of time (e.g., 6 to 8 weeks)
- Parent mentor programs with stable, nonabusive families acting as role models and providing support to families in crisis



- Parent support groups that help parents transform negative practices and beliefs into positive parenting behaviors and attitudes
- Mental health services for children and families affected by maltreatment to improve family communication and functioning (CWIG, 2018)

SafeCare is an evidence-based training curriculum for parents who are at-risk or have been reported for child maltreatment. Parents receive weekly home visits to improve skills in several areas, including home safety, healthcare, and parent-child interaction (CWIG, 2018).

KENTUCKY STATEWIDE PREVENTION EFFORTS

Kentucky has a continued plan to decrease the incidence of PAHT. Some of the statewide objectives include:

- Increase the percentage of Kentucky birthing hospitals implementing pediatric AHT education programs from 8% in 2015 to 25% in 2021
- Develop and implement prevention public service announcements
- Decrease the 2015 pediatric AHT fatality rate from 2.2 deaths to 2.1 deaths per 100,000 children <5 years old
- Decrease 2015 pediatric AHT emergency department visit rate from 4.3 to 4.1 per 100,000 children <5 years old
- Decrease 2015 pediatric AHT inpatient hospitalization rate from 2.9 to 2.8 per 100,000 children <5 years old (KY IPRC, 2016)

Kentucky has also established a statewide AHT prevention program called HANDS (see above under “Prevention Strategies”). There is also a 24-hour statewide helpline that provides parents with a lifeline of support, encouragement, and information regarding resources (800-CHILDREN).

REPORTING CHILD ABUSE AND NEGLECT IN KENTUCKY

Pediatric abusive head trauma is a form of child abuse, and all fifty states, including Kentucky, have statutes that mandate reporting of suspected child abuse and neglect for certain professionals. Familiarity with Kentucky laws will ensure that providers report to the appropriate agency within the required time frame.



Definitions of Child Abuse and Neglect

(From Kentucky Rev. Stat. §600.020)

“Abused or neglected child” means a child whose health or welfare is harmed or threatened with harm when his or her parent, guardian, or other person exercising custodial control or supervision:

- Inflicts or allows to be inflicted upon the child physical or emotional injury by other than accidental means
- Creates or allows to be created a risk of physical or emotional injury to the child by other than accidental means
- Engages in a pattern of conduct that renders the parent incapable of caring for the immediate and ongoing needs of the child, including, but not limited to, parental incapacity due to alcohol and other drug abuse
- Continuously or repeatedly fails or refuses to provide essential parental care and protection for the child, considering the age of the child
- Commits or allows to be committed an act of sexual abuse, sexual exploitation, or prostitution upon the child
- Creates or allows to be created a risk that an act of sexual abuse, sexual exploitation, or prostitution will be committed upon a child
- Abandons or exploits the child
- Does not provide the child with adequate care, supervision, food, clothing, shelter, education, or medical care necessary for the child’s well-being
- Fails to make sufficient progress toward identified goals as set forth in the court-approved case plan to allow for the safe return of the child to the parent that results in the child remaining committed to the Cabinet and remaining in foster care for 15 of the most recent 22 months

“Physical injury” means substantial physical pain or any impairment of physical condition.

“Serious physical injury” means physical injury that creates a substantial risk of death, or causes serious and prolonged disfigurement, prolonged impairment of health, or prolonged loss or impairment of the function of any bodily member or organ.

Persons responsible for the child include:

- A parent who is the biological or adoptive mother or father of a child



- A person exercising custodial control and supervision or an agency that has assumed the role and responsibility of a parent or guardian for the child but does not necessarily have legal custody of the child

Exception: A parent or other person exercising custodial control or supervision of the child who is legitimately practicing his or her religious beliefs shall not be considered a negligent parent because of failure to provide specified medical treatment for a child for that reason alone. This exception shall not preclude a court from ordering necessary medical services for a child.

Standards for Reporting

(From Kentucky Rev. Stat. §620.030 and §620.050)

Any person who knows or has reasonable cause to believe that a child is dependent, neglected, or abused shall immediately report. All persons are required to report, including, but not limited to:

- Physicians, osteopathic physicians, nurses, coroners, medical examiners, residents, interns, chiropractors, dentists, optometrists, emergency medical technicians, paramedics, or other health professionals
- Teachers, school personnel, or child-caring personnel
- Social workers or mental health professionals
- Peace officers

Neither the husband-wife nor any professional client-patient privilege, except the attorney-client and clergy-penitent privilege, shall be a ground for refusing to report.

The reporter is not specifically required by statute to provide his or her name in the report. The identity of the reporter shall not be disclosed except:

- To law enforcement officials, the agency investigating the report, or to a multidisciplinary team
- Under court order, after a court has found reason to believe the reporter knowingly made a false report

Making a Report

Reports of pediatric abusive head trauma can be made by calling toll-free:

- **Kentucky Child Protection Hotline:** 877-KYSAFE1 (877-597-2331)



Before reporting, explain to the child's caregiver(s) that:

- The child sustained a serious brain injury not explained by the history
- You are a mandated reporter who is legally required to make a child abuse report
- You will contact social services and law enforcement agencies, which will investigate

As stated above, having a social worker present may be helpful.

Avoid sharing details of clinical findings or suggesting possible explanations for the injuries. Such discussions could affect later forensic interviews and child abuse investigations.

Mandated reporting to county child welfare services and law enforcement agencies is required as soon as the reporter has a reasonable suspicion that abuse has occurred. It is not necessary to wait until all assessments are complete. Although there is usually a cross-reporting mandate between child welfare and law enforcement officials, it might not happen immediately. Generally, once law enforcement officials are notified, they will launch an investigation parallel to the child welfare agency's investigation.

CONCLUSION

Although the statistics continue to improve, child abuse and neglect remains a problem in Kentucky. Pediatric abusive head trauma accounts for the majority of child fatalities due to abuse, with six fatalities and 24 near fatalities reported in 2016 (Kentucky Public Health, 2017). It is important for healthcare professionals to be aware of the risk factors and signs and symptoms of AHT in the patients they care for. Kentucky offers a 24-hour hotline number to make a report of abuse or neglect, and any person suspecting child abuse is required to report it immediately.

Various resources are also available to help prevent the behaviors that lead to AHT, including Kentucky's statewide HANDS program. Prevention education by healthcare professionals serves the important goal of reducing child abuse and neglect, including abusive head trauma.



RESOURCES

Child abuse evaluation and treatment for medical providers
<http://childabusemd.com>

Child Welfare Information Gateway
<http://www.childwelfare.gov>



Family Nurturing Center
<http://www.familynurture.com>

Kentucky Child Protection Hot Line
 877-KYSAFE1 (877-597-2331)

Kentucky's HANDS
<http://www.kyhands.com/about>

Kentucky Youth Advocates
<https://kyyouth.org/wins-for-kids>

National Center on Shaken Baby Syndrome
<http://www.dontshake.org>

Prevent Child Abuse Kentucky
<http://www.pcaky.org>
 800-CHILDREN (800-244-5373) (statewide helpline)

Shaken Baby Alliance
<http://www.shakenbaby.org>

REFERENCES

Ahmed O. (2017). Child abuse injuries more likely to be severe if caregiver is male and unrelated to child. Retrieved from https://www.eurekalert.org/pub_releases/2017-09/cnhs-cai091317.php

American Academy of Pediatrics (AAP). (2015). *Understanding abusive head trauma in infants and children*. Retrieved from https://www.aap.org/en-us/Documents/cocan_understanding_aht_in_infants_children.pdf

Araki T, et al. (2017). Pediatric traumatic brain injury: characteristic features, diagnosis, and management. *Neurol Med Chir (Tokyo)*, 57(2), 82–93.

Barr RG. (2014). Crying as a trigger for abusive head trauma: a key to prevention. *Pediatr Radiol*, 44(Suppl 4), S559–64.

Barr RG. (2012). Preventing abusive head trauma resulting from a failure of normal interaction between infants and their caregivers. *Proceedings of the National Academy of Sciences of the United States of America*, 109(Suppl 2), 17294–301. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3477395/pdf/pnas.201121267.pdf>

Barr R, Barr M, Fujiwara T, et al. (2009). Do educational materials change knowledge and behavior about crying and shaken baby syndrome? A randomized controlled trial. *Canadian Medical Association Journal*, 180, 703–4.

Centers for Disease Control and Prevention (CDC). (2018a). Violence prevention. Retrieved from <https://www.cdc.gov/violenceprevention/childabuseandneglect/Abusive-Head-Trauma.html>

Centers for Disease Control and Prevention (CDC). (2018b). Child abuse and neglect: risk and protective factors. Retrieved from <https://www.cdc.gov/violenceprevention/childabuseandneglect/riskprotectivefactors.html>

Centers for Disease Control and Prevention (CDC). (2018c). Preventing shaken baby syndrome: a guide for health departments and community-based organizations. Retrieved from <https://www.cdc.gov/violenceprevention/pdf/preventingsbs.pdf>



- Child Trends. (2018). How school, family, and community protective factors can help youth who have experienced maltreatment. Retrieved from https://www.childtrends.org/wp-content/uploads/2018/06/SchoolFamilyCommunityYouthMaltreatment_ChildTrends_July2018.pdf
- Child Welfare Information Gateway (CWIG). (2018). Framework for the prevention of child maltreatment. Retrieved from <http://www.childwelfare.gov/preventing/overview/framework.cfm>
- Choudhary AK, et al. (2018). Consensus statement on abusive head trauma in infants and young children. *Pediatric Radiology*, 48(8), 1048–65. doi:10.1007/s00247-018-4149-1.
- Christian C. (2015). The evaluation of suspected child physical abuse. *Pediatrics*, 135(5), e1337–54.
- Cowley, et al. (2015). Validation of a prediction tool for abusive head trauma. *Pediatrics*, 136(2), 290–8.
- Dias MS, Rottmund CM, Cappos KM, et al. (2017). Association of a postnatal parent education program for abusive head trauma with subsequent pediatric abusive head trauma hospitalization rates. *JAMA Pediatr*, 171(3), 223–9.
- Duffee JH, Mendelsohn AL, Kuo AA, et al. (2017). Early childhood home visiting. *Pediatrics*, 140(3), e20172150. Retrieved from <http://pediatrics.aappublications.org/content/pediatrics/140/3/e20172150.full.pdf>
- Gilles E. (2018). Abusive head injury. *Child Neurology Foundation*. Retrieved from <http://www.childneurologyfoundation.org/disorders/abusive-head-injury/>
- Hasbani D, et al. (2013). Nonconvulsive electrographic seizures are common in children with abusive head trauma. *Pediatr Crit Care Med*, 14(7), 709–15. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4082326/pdf/nihms593410.pdf>
- Howes C & Mellar B. (2017). Pediatric abusive head trauma: a review for trauma providers. *J Trauma Care*, 3(4), 1029. Retrieved from <https://www.jscimedcentral.com/TraumaCare/traumacare-3-1029.pdf>.
- Hymel K & Deye K. (2011). Abusive head trauma. In C Jenny, *Child abuse and neglect: diagnosis, treatment and evidence*, St. Louis: Saunders.
- Jackson A & Jackson B. (2011). Documenting the medical history in cases of child physical abuse. In C Jenny, *Child abuse and neglect: diagnosis, treatment and evidence*, St. Louis: Saunders.
- Jenny C, et al. (1999). Analysis of missed cases of abusive head trauma. *JAMA*, 281, 621–6.
- Joyce T & Huecker MR. (2018). *Pediatric abusive head trauma (shaken baby syndrome)*. StatPearls [Internet]. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK499836/>
- Kentucky Cabinet for Health and Family Services (KY CHFS). (2018a). Neonatal abstinence syndrome in Kentucky: annual report on 2016 births. Frankfort, KY: author.
- Kentucky Cabinet for Health and Family Services (KY CHFS). (2018b). Child abuse and neglect annual report. Retrieved from <https://chfs.ky.gov/agencies/dcbs/dpp/cpb/Documents/Child%20Abuse%20and%20Neglect%20Annual%20Report%20of%20Child%20Fatalities%20and%20Near%20Fatalities%202018%20V.8-27-18.pdf>
- Kentucky Injury Prevention and Research Center (KY IPRC). (2016). Kentucky strategic plan for violence and injury prevention, 2017–21. Retrieved from http://www.mc.uky.edu/kiprc/programs/kvip/Kentucky_State_Injury_Plan_2017-2021.pdf



Lopes N & Williams L. (2016). Pediatric abusive head trauma prevention initiatives: a literature review. *Trauma, Violence & Abuse, 19*(5), 555–66.

National Center on Shaken Baby Syndrome (NCSBS). (2018). Period of PURPLE Crying. Retrieved from <http://www.dontshake.org>

Parks SE, Annest JL, Hill HA, Karch DL. (2012). *Pediatric abusive head trauma: recommended definitions for public health surveillance and research*. Atlanta: Centers for Disease Control and Prevention. Retrieved from <http://www.cdc.gov/ViolencePrevention/pdf/PedHeadTrauma-a.pdf>

PEW Center on the States. (2012). Kentucky—targeted case management. Retrieved from https://www.pewtrusts.org/-/media/legacy/uploadedfiles/pcs_assets/2012/kentuckycasestudy.pdf?la=en&hash=47315B91AC584DBC0DF61EB9CD2962A253429B21

Pierce M & Fingarson A. (2012). Identifying abusive head trauma: knowing what to look for can save babies from future harm. *Contemporary Pediatrics, 29*(2), 16–24.

Scribano P, et al. (2013). Association of perpetrator relationship to abusive head trauma clinical outcomes. *Child Abuse Negl, 37*(10), 771–7.

Ward MG, King WJ, & Bennett S. (2013). From bruises to brain injury: the physician’s role in the assessment of inflicted traumatic head injury. *Paediatrics & Child Health, 18*(8), 423–4.

Ward MG, Ornstein A, Niec A, Murray CL, & Canadian Paediatric Society, Child and Youth Maltreatment Section. (2013). The medical assessment of bruising in suspected child maltreatment cases: a clinical perspective. *Paediatrics & Child Health, 18*(8), 433–7.





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TEST

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1. “Pediatric abusive head trauma” is defined by the State of Kentucky as:
 - a. The injury to the skull of an infant or young child due to neglect or violence, including gunshot wounds, stab wounds, or penetrating trauma.
 - b. The various injuries or conditions that may result following the vigorous shaking, slamming, or impacting the head of an infant or young child.
 - c. The injury to the scalp of an infant or young child due to an open or closed head fracture.
 - d. The white brain matter injury of an infant or young child due to causes of unknown etiology.

2. Infants are at greater risk than adults to head trauma because their:
 - a. Brains have a higher water content and less myelination and are easily compressed within the skull during a shaking episode.
 - b. Skulls are thick and rigid, with open fontanelles that swell and bleed with excessive shaking.
 - c. Heads are smaller in relation to their body size, and their blood vessels are stiff and dilate when shaking occurs.
 - d. Brains have less water content and contain more brain cells than an adult brain.

3. According to study findings, a clinician who assesses families for risk of pediatric abusive head trauma finds which situation to present the highest risk?
 - a. A mother states she is going back to work, leaving her 3-month-old infant with a neighbor who provides licensed in-home care for her own 6-month-old infant.
 - b. A single mother states that her live-in boyfriend, who is currently unemployed, will be caring for her 4-month-old infant while she attends a job-training program.
 - c. A new mother states that she is experiencing mild postpartum depression.
 - d. A husband brings his 1-month-old infant to the family’s doctor appointment, stating that his wife is being treated for postpartum anemia.

4. Which is the **most** accurate statement regarding clinical presentation and history in cases of possible pediatric abusive head trauma (PAHT)?
 - a. No one injury is diagnostic of PAHT.
 - b. The symptoms characteristic of PAHT are almost never missed upon initial presentation.
 - c. Where a child’s injury occurred is not an important element of the presenting history.
 - d. Asking about the parents’ employment and marital status is not appropriate.



5. Which question is **not** part of a nursing neurological assessment of a child suspected of having an abusive head injury?
- Are facial movements symmetrical?
 - Is each pupil the same size, shape, and able to react to light equally?
 - Does the child appear well-nourished?
 - Does the child show unusual flaccidity or posturing?
6. Which injury describes normal developmental patterns of accidental injury in the 0- to 3-year-old age range?
- Fractured long bones and ribs
 - Trauma from falls down stairs or being dropped
 - Retinal hemorrhage and bilateral, hypoxic-ischemic brain injury
 - Bruises with patterns such as handprints, loop or belt marks, or bite marks
7. Which is **not** an evidence-based question to ask oneself in order to distinguish between accidental and abusive injuries when assessing an injured child?
- What are normal behaviors of a child of the same age?
 - Is the caretaker's story of how the injury happened plausible?
 - Do different witnesses provide the same description of what happened?
 - Have there been similar injury stories in the media recently?
8. Which intervention by a healthcare professional is the best example of a **primary** child abuse prevention strategy?
- Offering a parenting course to teen mothers at risk for child abuse
 - Referring parents with "mental health" issues to a community mental health agency
 - Providing all new parents with information on normal newborn crying and steps to take if they become frustrated
 - Referring parents convicted of child abuse to a home-visiting program that teaches parenting skills
9. The Period of PURPLE Crying program's target population is:
- All families at risk of child abuse and neglect.
 - Parents identified as child abuse perpetrators.
 - All parents of new infants and society in general.
 - Parents with co-occurring risk factors for child maltreatment.



10. Which is an example of a **secondary** prevention service for child maltreatment that is commonly provided by a home-visiting program?

- a. Advice on car seat safety
- b. Information on where to report child abuse
- c. A media campaign aimed at changing cultural attitudes about crying
- d. Education on child health and development

11. Which is a **correct** statement regarding mandated reporting of child abuse and/or neglect, to include pediatric abusive head trauma, in Kentucky?

- a. Reporters are required to provide their name in the report.
- b. Mandated reporting is required once a complete assessment of the injuries has been conducted in the presence of a social worker.
- c. Reporting is mandated only for healthcare professionals.
- d. Mandated reporting is required as soon as there is reasonable cause to believe that abuse has occurred.

