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Hi. We're CalTrin!

who we are

- The California Training Institute
- Funded by the State of California, Dept. of Social Services, Office of Child Abuse Prevention (OCAP) to support child abuse prevention through professional development and extended learning opportunities.
- Designed for staff of family strengthening and child abuse prevention organizations in California, including Family Resource Centers, Child Abuse Prevention Councils, community-based organizations, and other child and family serving systems.

what we offer

- Live webinars & small group training
- Virtual, self-paced courses
- Job aids & other resources

CALTRIN
California Training Institute

This training was made possible with funding from the California Department of Social Services, Office of Child Abuse Prevention. Any opinions, findings, conclusions, and/or recommendations expressed are those of the CECB/CalTrin and do not necessarily reflect the views of the California Department of Social Services.

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UPCOMING TRAININGS



mark your calendars!

Visit caltrin.org to view and register for upcoming webinars or workshops

 October 29 Understanding EMDR Therapy for Children: A Trauma-Informed Guide	 November 14 Paternal Perinatal Mental Health: The Changing Face of New Fatherhood
 October 30 & November 4 Essential Employee Conversations	 November 18 Social & Emotional Competence of Children
 November 5 Opportunities for Expanding Parent Leadership	 November 19 Recognizing & Regulating Workplace Distress Through the Window of Capacity

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Before We Begin...

DURING		AFTER
	Access the notetaking slides now! The link can be found in the chat.	
	Review interactive features for today's session. Locate the controls on the toolbar at the bottom of your screen.	Complete the survey at the end of this webinar to receive your Certificate of Attendance.
	External AI assistants are not allowed in CalTrin trainings due to California privacy laws.	
This presentation is being recorded.	A follow-up email will be sent to all participants within two days.	

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CALTRIN
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Shaken Baby Syndrome: Mechanisms, Risk, & Prevention Across Care Systems

Presented by Danielle Vazquez, BSW, and Shantel Wakley, BS

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Speaker SPOTLIGHT



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WHO WE ARE

NATIONAL CENTER ON SHAKEN BABY SYNDROME

- The National Center on Shaken Baby Syndrome (NCSBS) is a non-profit 501(c)3 public charity founded in 2000.
- Provide education and resources to organizations aligned to keep babies safe.
- Leader in research-based development of AHT prevention programs, training courses, and public education campaigns.
- Host biennial world-renowned International Conference on Shaken Baby Syndrome/Abusive Head Trauma.
- Our research-based resources reach over a **million** people worldwide each year.

Mission: The National Center on Shaken Baby Syndrome commits to prevent shaken baby syndrome/abusive head trauma and promote the well-being of infants through supporting and educating families, caregivers and professionals.



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WHAT IS SBS/AHT?

Abusive Head Trauma (AHT) is a severe form of physical child abuse that results in head injury.

- AHT is an injury to the skull or intracranial contents of an infant or young child (<5 years of age) due to inflicted blunt impact and/or violent shaking (CDC, 2012)
- AHT remains a significant cause of morbidity and mortality in the pediatric population, especially in young infants. (AAP. 2020)

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WHAT IS SBS/AHT: DR. BLOCK



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SHAKING MECHANISMS & FACTORS CONTRIBUTING TO INJURY

The shaking mechanism that results in SBS/AHT is complex.

- Head size - large compared to its body, supported by weak neck muscles.
- Brain - only partially myelinated at this early stage of development
 - Contains increased water resulting in a soft, gelatinous organ that is susceptible to distortion.
 - White matter and gray matter - differ in consistency and mass.
- The infantile skull is composed of rather loosely connected curved plates with intertwined soft membranes.

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SHAKING MECHANISMS & FACTORS CONTRIBUTING TO INJURY

Rapid acceleration and deceleration rotational movement of the brain tissues

- Structures will move at different speeds in different locations.
- Veins anchored to the brain and to the dura are stretched and torn due to this rotational movement.
- Lead to bleeding under the dura or under the arachnoid layers of the membranes covering the brain.

Common Potential Injuries:

- Subdural hemorrhages
- Subarachnoid hemorrhages
- Retinal hemorrhages

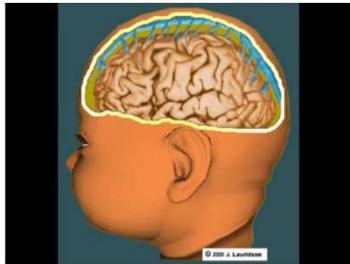
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PHYSICAL SIGNS OF SHAKING

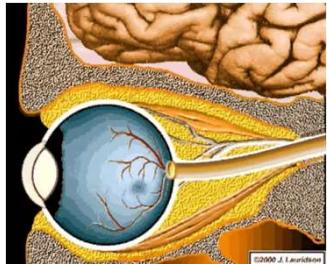


- Weak neck muscles
- Person doing the shaking is much bigger
- Large head-to-body ratio
- **Violent, sustained force**

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INTRACRANIAL CASCADE FROM SHAKING

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MECHANICAL STRESSES AND EYE LESIONS

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HOW MUCH FORCE IS NEEDED?

Unknown

No way to measure this

Many variables to be considered

VIOLENT and SUSTAINED shaking, with or without impact,
is thought by most experienced clinicians to produce these
injuries.

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INJURIES

Skull:

- fractures
- soft tissue swelling
- Fluid collection (subdural space)

Eyes:

- extensive, multi-layered retinal hemorrhages

Other injuries:

- Bruises (face, ear, neck, torso)
- Frenular tears/contusions
- fractures (ribs, long bone)

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SENTINEL INJURIES

Bruising in nonmobile children has a strong association with abuse over accident.

- A sentinel injury is a fairly minor abusive injury that often comes before a more serious physical abuse injury in infants.
- 27.5% of abused infants had a previous sentinel injury.
- Sentinel injuries happened in early infancy: 66% at <3 months of age and 95% at or before the age of 7 months.
- Doctors are reportedly only aware of the sentinel injury in 41.9% of abuse cases.



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TEN-4-FACESp

- Clinicians using tools such as TEN-4-FACESp to accurately diagnose (Pierce et al., 2021)
- Bruising on the torso, ears, neck, frenulum, angle of jaw, cheeks, eyelids, subconjunctivae, any bruising on children under 4 months old
- Bruising in these regions has a 96% sensitivity and 87% specificity for identifying abuse injury.

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PHYSICAL SIGNS OF SHAKING

Milder Signs

- Trouble sucking or swallowing
- Decreased appetite
- Trouble sleeping
- Lethargy
- Low level of consciousness
- Vomiting
- Irritability

Severe Signs

- Unable to make sounds or follow movement
- Problems breathing or turning blue
- Seizures
- Unable to suck or swallow
- Unconscious
- Unresponsive

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CONSEQUENCES OF SHAKING

- Cognitive disabilities
- Physical disabilities
- Visual disabilities or blindness
- Hearing loss
- Speech disabilities
- Cerebral Palsy
- Chronic seizures
- Behavior disorders
- Death

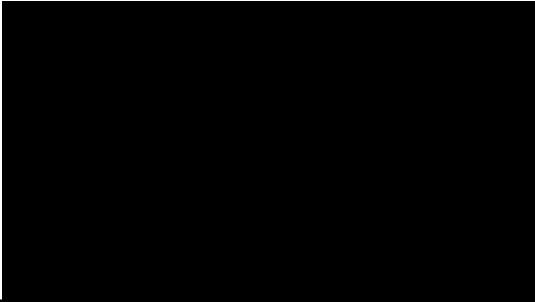
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SBS/AHT IS NOT CAUSED BY:

- Bouncing a baby on your knee
- Tossing a baby in the air
- Jogging or bicycling with your baby
- Falls off a couch or other furniture
- Sudden stops in a car or driving over bumps
- Burping your baby

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LIVED EXPERIENCES



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WHAT TRIGGERS SHAKING?

Situational Factors:

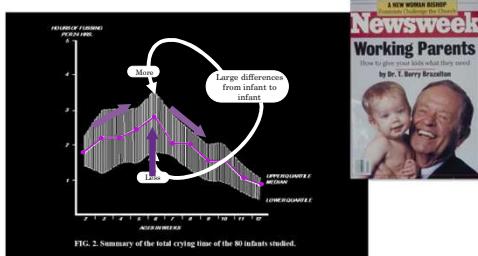
- Feeding Difficulties
- Toilet Training Difficulties
- Caregiver Frustration
- Societal Factors
- Perceived Misbehavior – Increased, unsoothable crying

Perpetrator Confessions:

- Perpetrators often say the reason for shaking was because the baby wouldn't stop crying. (Barr, 2012)

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THE CRYING CURVE



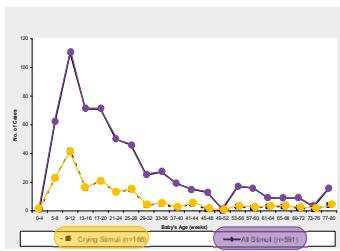
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NORMAL CRYING/DISTRESS



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AGE-SPECIFIC INCIDENCE OF PUBLICLY-REPORTED CASES OF AHT



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HOW COMMON IS AHT?

AHT is the leading cause of death from physical child abuse.

- Approx. 1,200-1,400 clinically recognized cases in the US each year. (Keenen et al., 2004)
- Approx. 32-38 cases per 100,000 children less than 1 year old. (Shanahan et al., 2013)
- 30%-40% of cases are missed at medical institutions. (Jenny et. al., 1999)
- Known incidence is likely just the tip of the iceberg.

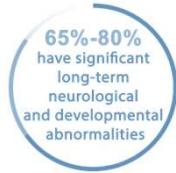
Actual incidence is unknown

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OUTCOMES OF HOSPITALIZED CASES

10% - 20% of victims die from injuries. (Narang et. al., 2025)

Of those who survive:



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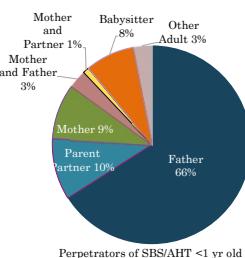
VICTIMS OF AHT

- Incidence highest among infants under the age of 8 months.
 - Fatal AHT rates peaking in infants ages 1-2 months.
 - Victims reported in children up to age 5.
- Male infants are at an increased risk of AHT.
 - 62% of children with inflicted Traumatic Brain Injury (TBI) are male.
 - Male infants are more likely to be victims of severe AHT leading to death.
- Infants born to young mothers are at greater risk of infant maltreatment.
 - Maternal age was associated with maltreatment until 28 years of age.
 - <22 years conferred higher risk.
- Minority children are at an increased risk.
 - Higher risk for all TBI, inflicted and non-inflicted.

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PERPATRATORS OF SHAKING EVENTS

- Fathers are the most common perpetrator for children under 1 year of age. (Scribano et al., 2013)
- Children under 1 year of age with siblings under the age of 5 years are more likely to be injured by biological parents. (Eismann et al., 2022)



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NON-ACCIDENTAL TRAUMA WORKUP

COMMON FEATURES THAT RAISE SUSPICION:

- No history of injury
- History not plausible
- Inconsistent explanation or changing histories
- Non ambulatory child
 - *especially when explanation for injury absent
- Multiple fractures
- Fractures of varying ages
- Delay in seeking care

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THE ROLE OF CHILD ABUSE PEDIATRICIANS

- Child Abuse Pediatrician: Board Certified
 - Interpret the Medical Findings
 - Recognize presence of abusive/accidental injuries
 - Likely ways particular injuries may present
 - General biomechanics of injuries
 - Relevant medical diagnoses on the differential diagnosis
 - Interpret laboratory & radiological results
 - Educate Judge & Jury

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MULTIDISCIPLINARY TEAM APPROACH

- Collaboration between experts ensures that all aspects of the child's injury, history, and environment are carefully reviewed.
- A team approach helps protect children and families by improving the accuracy of diagnoses, reducing bias, and ensuring that medical findings and investigations are thorough and fair.

Medical & Surgical Subspecialists

- Orthopedics
- Ophthalmology
- Critical Care
- Neurology
- Hematology
- Radiology
- Others

Other Professional Fields

- Law Enforcement
- Child Protective Services (CPS)
- State/District Attorney's Office
- Child Protection Team
- Medical Examiner
- Medical/Hospital Personnel
- Forensic Interviewer
- Child Advocate
- Others as needed

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CONTROVERSY SURROUNDING AHT

"The AAP continues to embrace the "shaken baby syndrome" diagnosis as a valid subset of the AHT diagnosis." (Narang et. al., 2020)

- Few pediatric diagnoses have engendered as much debate in medicolegal circles as AHT. (AAP, 2020)
- These cases are complex because a diagnosis can lead to serious outcomes—such as a child being removed from their home or an adult facing criminal charges.
- The disagreement isn't about the science, which is well-established, but rather about philosophical and legal interpretations of the evidence.

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AAP POLICY & CONSENSUS STATEMENTS

- The "clinical signs of shaken baby syndrome are immediate and identifiable as problematic, even to parents who are not medically knowledgeable."
 - AAP: Committee on Child Abuse and Neglect, *Shaken Baby Syndrome: Rotational Cranial Injuries—Technical Report*, 108 Pediatrics 206, 207 (2001).
- False controversy exists only in the legal arena- there is no controversy in the relevant medical community- among those who are properly trained and regularly diagnose the cause of injuries in children
 - APSAC Policy Report: Promoting Justice for Victims of AHT: Information and Strategies for Effective Courtroom Presentation

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CONSENSUS STATEMENT ON AHT

"There is no controversy concerning the medical validity of the existence of AHT." (Choudhary et. al., 2018)

Professional Societies Involved:

• The Society for Pediatric Radiology (SPR)	• European Society of Neuroradiology
• European Society of Paediatric Radiology (ESPR)	(ESNR)
• American Society of Pediatric Neuroradiology (ASPNR)	• American Professional Society on the Abuse of Children (APSAC)
• American Academy of Pediatrics (AAP)	• Swedish Paediatric Society
	• Norwegian Pediatric Association
	• Japanese Pediatric Society

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AAP TECHNICAL REPORT

FROM THE AMERICAN ACADEMY OF PEDIATRICS | TECHNICAL REPORT | FEBRUARY 24 2025
Abusive Head Trauma in Infants and Children: Technical Report **FREE**

The American Academy of Pediatrics provides a comprehensive literature review in support of evidence-based medical evaluations to the diagnose abusive head trauma in children in a technical report.

- AHT is the third leading cause of head trauma in children younger than 5 years.
 - Peak incidence is around 2 months of age; the median is at 4 months of age, with decreasing incidence after infancy.
 - Mortality rate ranges from 10% to 20%.

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SHORT FALLS

Short falls from couches, beds, changing tables, or falls while being carried almost never cause the features seen in abusive head trauma (shaken baby syndrome) or death.

- 1991 - children who acquire fatal head injuries from short falls have suspicious trauma histories.
- Rough play unlikely to cause similar devastating effects - but is discouraged.
- 2008 - current estimate of mortality rate for short falls affecting infants and young children is <0.48 deaths per 1 million young children per year.

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SHORT FALLS

Chadwick DL, Chin S, Salerno C, Landsverk J, Kitchen L. J Trauma, 1991. Vol. 31 No. 10. pp.1353-55

317 cases of children with a history from the caretaker that the child had fallen are analyzed.

- Seven deaths occurred in 100 children who fell 4 feet or less.
- One death occurred in 117 children who fell 10 feet to 45 feet.
- The 7 children who died in short falls all had other factors in their cases which suggested false histories.

It is likely that history is incorrect when children incur fatal injuries in falls of less than 4 feet.

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“OVERTURNED” AHT CASES

- Evaluated overturned SBS/AHT convictions
 - The prevalence and characteristics of overturned SBS/AHT convictions in appeals system
 - The legal basis for overturned convictions
 - Characteristics of medical evidence-related arguments
- Started with 1431 SBS/AHT convictions with appellate rulings since 2008
- 49 (3%) overturned with 20 (1%) on medical evidence related grounds.
 - Most common theme was controversy over the SBS/AHT diagnosis or accidental injury mechanism
- Upon retrial, 42% defendants either re-plead guilty to or were convicted again of the same offense.

Cases are rarely overturned. When successful – not based on “new scientific discovery” but on differing medical opinions.

* Overturned Abusive Head Trauma and Shaken Baby Syndrome Convictions in the United States: Prevalence, Legal Basis, and Medical Evidence. Narang et al. *Child Abuse & Neglect*. December 2023

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MEDIA INFLUENCE ON COURTS



Robert Roberson

- Convicted in 2003 for death of 2y daughter, placed on death row
- Execution halted in fall 2024 after extensive international media attention
 - Theme of the use of “disputed SBS/AHT science” in criminal convictions
 - Influenced legal and policy reconsideration of SBS/AHT cases
- False narrative of SBS/AHT diagnosis potentially puts infants at risk

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PREVENTION

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Abusive Head Trauma in Infants and Children: Technical Report
American Academy of Pediatrics
February 24, 2025

Primary Prevention Focus: Emphasizes supporting caregivers during early infancy when frustration and infant crying peak—key risk period for AHT.

Parent Education Programs: Endorses evidence-based programs (e.g., *Period of PURPLE Crying*) that educate about normal infant crying patterns and coping strategies.

Hospital-Based Interventions: Recommends universal delivery of AHT prevention materials in birthing hospitals as part of discharge protocols.

Key Prevention Components: Effective programs include education on crying, calming strategies, dangers of shaking, and identifying alternate caregivers when overwhelmed.

System-Level Support: Encourages integration of AHT prevention into pediatric visits, home visiting, and community health services to reinforce messaging.

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AHT: IT'S PREVENTABLE

 Only form of child maltreatment where we know the specific trigger and timing of the incident.

 Crying is the #1 trigger for AHT and infant abuse. Increased infant crying peaks around 2 months of age.

 Educating parents that crying is normal reduces incidents of SBS/AHT.

Period of PURPLE Crying®
a program of the National Center on Shaken Baby Syndrome

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THE PURPLE ACRONYM

The Letters in **PURPLE** Stand for

P PEAK of Crying	U UNEXPECTED	R RESISTS Soothing	P PAIN-LIKE Face	L LONG Lasting	E EVENING
----------------------------	------------------------	------------------------------	----------------------------	--------------------------	---------------------

Your baby may cry more each week, the most in months 2, then less in months 3-5

Crying can come and go and you don't know why

Your baby may not stop crying no matter what you try

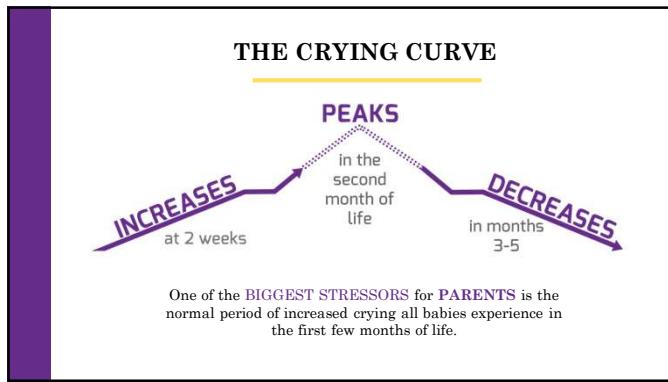
A crying baby may look like they are in pain, even when they are not

Crying can last as much as 5 hours a day, or more

Your baby may cry more in the late afternoon and evening

The word **Period** means that the crying has a beginning and an end.

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PROGRAM MATERIALS

Available in English & Spanish on:

[GET IT ON Google Play](#) [Download on the App Store](#)

Closed captioning available

Booklet Translated in:

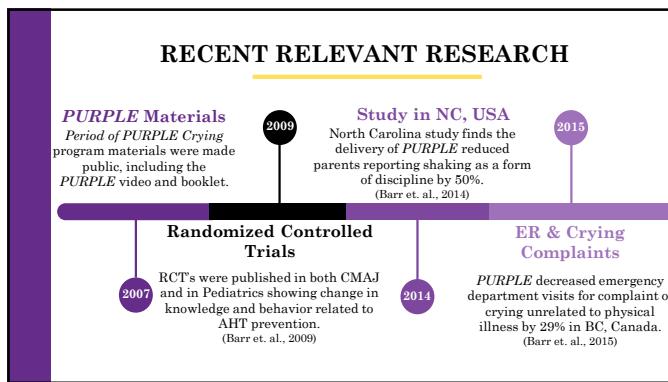
- English
- Spanish
- French
- Arabic
- Haitian Creole
- Somali
- More to come...

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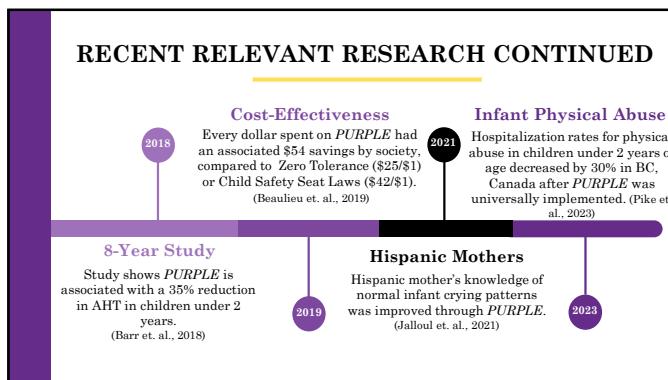
THREE DOSE EXPOSURE

- Teach** (1): Targets parents and caregivers of newborns 0-2 weeks old. Trained providers deliver education and materials to parents. Hospital discharge setting, Perinatal/Postnatal Classes, Home Visiting, etc.
- Reinforce** (2): Targets parents and caregivers of newborns 2 weeks to 3 months old. Trained providers reinforce key program messages and deliver materials if necessary. Home Visiting, Pediatric Well Baby Visits, Public & State Department of Health Programs, etc.
- Advocate** (3): Targets the general population. Not set to timing of baby's birth. Dependent upon organization's capacity to educate the community. "Normal" Ad Campaign, PURPLE Toolkit, etc.

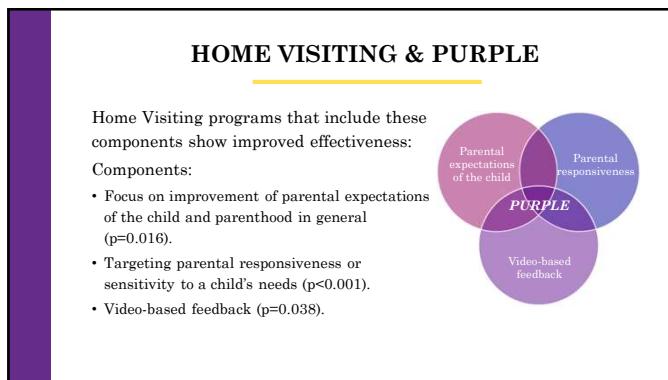
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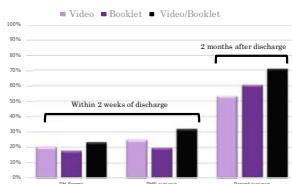
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WHY ARE MATERIALS IMPORTANT?

It is critical that parents take a set of program materials home.

Results: Reading and Viewing Materials, Among Mothers:

1. Both booklet and *PURPLE* video were used.
2. Use of booklet and *PURPLE* video **more than doubled** at home post-discharge.



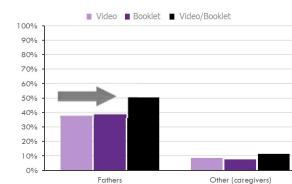
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WHY ARE MATERIALS IMPORTANT?

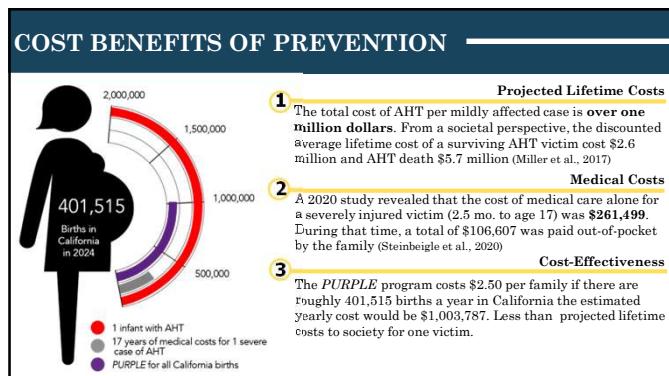
It is critical that parents take a set of program materials home.

Results: Reading and Viewing Materials, Among Fathers:

By 2 months **50% of fathers** had read/viewed the materials



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NCSBS RESOURCES

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**SCHOOL-BASED
SBS/AHT CURRICULUM**

• Designed to be taught to grades 6-12
 • Comes with script educators can read from as well as Instructor Guide
 • Includes curriculum, videos, interactive classroom activities, and a quiz
 • Can be adapted to fit anywhere from 15 minutes to 2 hours of classroom time



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**CHILDCARE PROVIDERS
INTRO TO SBS/AHT**

Educes childcare providers and educators about the latest information on:



- Basics of Shaken Baby Syndrome
- The *Period of PURPLE Crying*
- Soothing a Crying Baby
- Coping with a Crying Baby
- Safe Sleep
- Recognizing Child Abuse
- Reporting Child Abuse

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WORKING TOWARDS

- National Legislation
 - Mandated prevention education
 - Increased funding for non-profit organizations
- Consistent Messaging
- Universal Support for Families
 - Widespread access to home visiting programs
 - Paid parental leave
 - Support of the family unit as a whole



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NATIONAL PREVENTION LEGISLATION

- Minnesota – Minnesota State Department of Health
 - Minnesota Infant Mortality Reduction Initiative Statute 114.574
 - Requests hospitals to provide a commissioner approved video
 - MECSH Model Home Visiting Program *PURPLE* is embedded
- Wisconsin – Child Abuse & Neglect Prevention Board
 - Statewide funding for hospitals, home visiting programs, child advocacy, etc.
 - Children's Wisconsin began delivery in 2009, all units collaborate with program delivery.
- Oklahoma – Oklahoma State Department of Health
 - Preparing for a Lifetime Program – aims to improve infant and maternal outcomes
 - State allocated funding, serves over 80% of families with new babies with hospital partnerships

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FLORIDA SENATE BILL 1482

Purpose: Intended to require the Department of Health to adopt and distribute evidence-based parent education materials detailing the dangers of AHT, including SBS.

Scope of Materials: Materials could be delivered via written, visual, or electronic formats. Must explicitly explain signs, risks, and prevention strategies related to shaking.

Implementation Plan: Mandated a multi-year phase-in schedule for distribution.

Effective Date: If enacted - July 1, 2025

Legislative Outcome: Indefinitely postponed on May 3, 2025. Died in the Senate Health Policy Committee on June 16, 2025.



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CONSISTENT MESSAGING

- Early infant crying is NORMAL
- There will be times you won't be able to soothe the baby
- The crying is neither the caregiver's nor the baby's fault
- It's OK to put the baby down and take a short break to calm yourself down
- Increase Carry, Comfort, Walk and Talk actions
- NEVER shake a baby or child
- If you have concerns, have your doctor examine the baby
- The crying WILL come to an end

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UNIVERSAL SUPPORT FOR FAMILIES

- Research shows that **economic support for families** can help reduce cases of **Abusive Head Trauma (AHT)** in infants and young children.
- In **California**, after a **Paid Family Leave** policy was introduced in 2004, hospital admissions for AHT **significantly decreased** among babies under 1 and 2 years old. (Klevens J. et al., 2016)
- States **without paid family leave** did **not** see the same drop in AHT cases.
- Another study found that states offering a **refundable Earned Income Tax Credit (EITC)** also saw **fewer hospital admissions** for AHT in children under 2.
- These findings suggest that **financial stability and time at home with newborns** can help prevent child abuse — though **more research is needed** to fully understand the connection.

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STAY IN TOUCH

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