

## Shaken baby syndrome

Shaken Baby Syndrome (SBS) is a preventable, severe form of physical child abuse resulting from violently shaking an infant by the shoulders, arms, or legs. SBS may result from both shaking alone or from shaking with impact.

SBS is not just a crime—it is a public health issue. SBS resulting in head injury is a leading cause of child abuse death in the United States. Nearly all victims of SBS suffer serious health consequences and at least one of every four babies who are violently shaken dies from this form of child maltreatment.<sup>1</sup>

From a public health perspective, creating greater awareness about SBS is important. Helping people understand the dangers of violently shaking a baby; the risk factors associated with SBS; the triggers for it; and ways to prevent it may help reduce the number of babies affected by SBS. Everyone, from caregivers to bystanders, can do something to help.

The bottom line is that vigorously shaking a baby can be fatal or result in a permanent disability. Shaking most often occurs in response to a baby crying, or other factors that can lead the person caring for a baby to become frustrated or angry. All babies cry and do things that can frustrate caregivers; however, not all caregivers are prepared to care for a baby.

Babies, newborn to one year (especially babies ages 2 to 4 months), are at greatest risk of injury from shaking. Shaking them violently can trigger a “whiplash” effect that can lead to internal injuries—including bleeding in the brain or in the eyes. Often there are no obvious external physical signs, such as bruising or bleeding, to indicate an injury.

In more severe cases of SBS, babies may exhibit the following:<sup>3, 4</sup>

- Unresponsiveness
- Loss of consciousness
- Breathing problems (irregular breathing or not breathing)
- No pulse

Babies suffering lesser damage from SBS may exhibit some of the following:<sup>5, 6</sup>

- Change in sleeping pattern or inability to be awakened
- Vomiting
- Convulsions or seizures
- Irritability
- Uncontrollable crying
- Inability to be consoled
- Inability to nurse or eat

SBS can potentially result in the following consequences:

- Death
- Blindness
- Mental retardation or developmental delays (any significant lags in a child’s physical, cognitive, behavioral, emotional, or social development, in comparison with norms)<sup>7</sup> and learning disabilities
- Cerebral palsy
- Severe motor dysfunction (muscle weakness or paralysis)
- Spasticity (a condition in which certain muscles are continuously contracted. this contraction causes stiffness or tightness of the muscles and may interfere with movement, speech, and manner of walking)<sup>8</sup>
- Seizures

(1) Carbaugh SF. Understanding shaken baby syndrome. *Adv Neonatal Care* 2004;4(2):105-16.

(2) Lee C, Barr RG, Catherine NM, Wicks A. Age-related incidence of publicly-reported shaken baby syndrome cases: Is

*crying a trigger for shaking?* *J Dev Behav Pediatr* 2007;28(4):288-93.

(3) Miehl NJ. Shaken baby syndrome. *J Forensic Nurs* 2005;1(3):111-7.

(4) Carbaugh SF. Understanding shaken baby syndrome. *Adv Neonatal Care* 2004;4(2):105-16.

(5) *Ibid.*

(6) Miehl NJ. Shaken baby syndrome. *J Forensic Nurs* 2005;1(3):111-7.

(7) *Encyclopedia of Children's Health. Developmental delay [online]. [cited 2008 Oct 16.] Available from URL: <https://www.healthofchildren.com/D/Developmental-Delay.html>.*

(8) National Institutes of Health, National Institute of Neurological Disorders and Stroke. NINDS spasticity information page [online]. 2007. [cited 2008 Oct 16.] Available from URL: <https://www.ninds.nih.gov/disorders/spasticity/spasticity.htm>.

## Facts & figures

□ It is difficult to know the exact number of SBS cases per year because many cases of SBS are underreported and/or never receive a diagnosis. However, a study of North Carolina SBS cases suggests that as many as three to four children a day experience severe or fatal head injury from child abuse in the United States.<sup>9</sup>

- Babies less than 1 year of age<sup>10</sup> (with the highest risk period at 2 to 4 months) are at greatest risk for SBS because they cry longer and more frequently, and are easier to shake than older and larger children.<sup>11</sup>

- SBS injuries have been reported in children up to age 5.

- SBS is the result of violent shaking that leads to a brain injury, which is much like an adult may sustain in repeated car crashes. It is child abuse, not play. This is why claims by perpetrators that the highly traumatic internal injuries that characterize SBS resulted from merely “playing with the baby” are false. While jogging an infant on your knee or tossing him or her in the air can be very risky, the injuries that result from SBS are not caused by these types of activities.<sup>13</sup>

- The most common trigger for shaking a baby is inconsolable or excessive crying—a normal phase in infant development.<sup>14, 15, 16</sup>

□ Parents and their partners account for the majority of perpetrators. Biological fathers, stepfathers, and mothers<sup>□</sup> boyfriends are responsible for the majority of cases, followed by mothers.<sup>17</sup>□ In most SBS cases there is evidence of some form of prior physical abuse, including prior shaking.<sup>18, 19</sup>

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(15) Miehl NJ. Shaken baby syndrome. *J Forensic Nurs* 2005;1(3):111-7.

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## Triggers & risk factors

The crying...the late-night feedings...the constant changing of diapers...the resulting exhaustion...

The fact is that many new parents and caregivers find themselves unprepared for the realities of caring for a baby and the stress and aggravation that can accompany those realities.

Add to these stresses at home, the outside stressors created by work, social, and/or financial challenges, and you have a potentially combustible combination. It's a mix that in some situations leads to violent behavior by the caregiver and can result in fatal or debilitating injuries for a baby.

Following is a brief discussion of inconsolable crying, the primary trigger for SBS and risk factors for SBS perpetrators and victims.

**Inconsolable crying.** If you've ever been around a baby who won't stop crying, you likely know that there is potential to get frustrated.

The fact is that crying—including prolonged bouts of inconsolable crying—is normal developmental behavior in babies. It helps to think of crying as one of the ways babies communicate. Research also shows that most babies who cry a great deal are healthy and stop crying for prolonged periods of time after 4 months of age.<sup>20</sup>

What most people don't realize is that there is a normal crying curve for babies. Recent studies show that crying begins to increase around 2 to 3 weeks of age, and peaks around 6 to 8 weeks of age, as illustrated above. It then tapers off, and usually ends, when the baby is 3 to 4 months old.<sup>21</sup>

The key here is that crying is normal and is not the problem. The problem is how caregivers respond to a baby's cry. Picking up a baby and shaking, throwing, hitting, or hurting him/her is never an appropriate response. It is important for parents and caregivers to know how they can cope if they find themselves becoming frustrated.

While no one wakes up and says, "Today I plan to shake or harm a baby," excessive frustration and exhaustion can lead individuals to a breaking point. However, there are other factors that can also increase the risk for an action that can harm a baby. These factors include:<sup>22, 23, 24</sup>

- Having unrealistic expectations about child development and child-rearing
- Having been abused or neglected as a child
- Being a victim or witness to domestic violence
- Being a single parent

The following increases an infant's risk for being shaken<sup>25, 26, 27</sup> particularly when combined with a parent or caregiver who's 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
- Inconsolable and/or frequent crying

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## Recommendations

If you are the parent or caregiver of a baby:

- Babies can cry a lot in the first few months of life and this can be frustrating. But it will get better.□
- Remember, you are not a bad parent or caregiver if your baby continues to cry after you have done all you can to calm him/her.
- You can try to calm your crying baby by
  - Rubbing his/her back
  - Gently rocking
  - Offering a pacifier
  - Singing or talking
  - Taking a walk using a stroller or a drive with the baby in a properly-secured car seat.
- If you have tried various ways to calm your baby and he/she won't stop crying, do the following:
  - Check for signs of illness or discomfort like diaper rash, teething, or tight clothing
  - Call the doctor if you suspect your child is injured or ill
  - Assess whether he/she is hungry or needs to be burped
- If you find yourself pushed to the limit by a crying baby, you may need to focus on calming yourself. Put your baby in a crib on his/her back, make sure he/she is safe, and then walk away for a bit and call a friend, relative, neighbor, or parent helpline for support. Check on him/her every 5 to 10 minutes.
- Understand that you may not be able to calm your baby and that it is not your fault, nor your baby's. It is normal for healthy babies to cry much more in the first 4 months of life. It may help to think of this as the Period of PURPLE Crying as defined by the National Center for Shaken Baby Syndrome (NCSBS). PURPLE, stands for:
  - Peak Pattern:** Crying peaks around 2 months, then decreases.
  - Unpredictable:** Crying for long periods can come and go for no reason.
  - Resistant to Soothing:** The baby may keep crying for long periods.
  - Pain-like Look on Face.**
  - Long Bouts of Crying:** Crying can go on for hours.
  - Evening Crying:** Baby cries more in the afternoon and evening.

For more information about the Period of PURPLE Crying and NCBS, visit: [www.dontshake.org](http://www.dontshake.org).

- Tell everyone who cares for your baby about the dangers of shaking a baby and what to do if they become angry, frustrated, or upset when your baby has an episode of inconsolable crying or does other things that caregivers may find annoying, such as interrupting television, video games, sleep time, etc.
- Be aware of signs of frustration and anger among others caring for your baby. Let them know that crying is normal, and that it will get better.
- See a health care professional if you have anger management or other behavioral concerns.

If you are a friend, family member, health care professional or observer of a parent or other caregiver:

- Be aware of new parents in your family and community who may need help or support.
- Provide support by offering to give them a break, sharing a parent helpline number, or simply being a friend.
- Let the parent know that the crying can be very frustrating, especially when they're tired and stressed. Reinforce that crying is normal and that it will get better.
- Tell the parent how to leave his or her baby in a safe place while he or she takes a break.
- Be sensitive and supportive in situations when parents are trying to calm a crying baby.
- Think about policies or services that could be resources for new parents in your community. advocate for those that don't exist.

## CDC experts & other sources

**American Academy of Pediatrics**

(847) 434-4000  
<https://www.aap.org>

**National Center on Shaken Baby Syndrome**

(888) 273-0071  
<https://www.dontshake.org>

**Pennsylvania Shaken Baby Prevention and Awareness Program**

(717) 531-7498

**Prevent Child Abuse America**

(312) 663-3520  
<https://www.preventchildabuse.org>

**Period of PURPLE Crying: Keeping Babies Safe in North Carolina**

(919) 419-3474

Your state or local health department and community organizations can also serve as good resources. For more information on SBS and Child Maltreatment, visit: [www.cdc.gov/injury](http://www.cdc.gov/injury).

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US Department of Health and Human Services Centers for Disease Control and Prevention. Shaken Baby Syndrome: A Preventable Tragedy. Available at: [https://www.cdc.gov/concussion/pdf/sbs\\_media\\_guide\\_508\\_optimized-a.pdf](https://www.cdc.gov/concussion/pdf/sbs_media_guide_508_optimized-a.pdf). Accessed February 14, 2014.

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