

facts on

Traumatic Head Injury Due to Child Maltreatment

What is traumatic head injury due to child maltreatment?

Traumatic head injury due to child maltreatment (THI-CM), formerly known as “shaken baby syndrome” or “pediatric abusive head trauma,” is a term used to describe a range of injuries in infants and young children caused by blunt impact, violent shaking, or other forms of physical abuse. It can occur in children up to five years of age; however, it is most common in infants under the age of one.

THI-CM in Canada is relatively infrequent though the true rate is likely underestimated due to misdiagnosis. In the most current Canadian data, 7% of traumatic head injuries were cases of child maltreatment and THI-CM was the leading cause of death among infants due to homicide.

What causes THI-CM?

When an infant or young child is forcefully shaken, dropped, or hit against something, the head and neck move back and forth and side to side uncontrollably. This movement results in the infant’s brain moving back and forth inside the skull, which can cause blood vessels and nerves to rupture and brain tissue to tear. The same motion that happens in the brain also happens in the eyes, resulting in bleeding and possible damage to the infant’s vision. The brain may also swell, resulting in pressure and increased injury to the brain. If the head is struck against an object, additional injuries may be seen (e.g., lacerations, bruises, fractures). Often though, there are no obvious external signs of injury. Infants are at most risk of serious injury from THI-CM because of their developing brains, proportionately larger and heavier heads, malleable skull bones, weaker neck muscles, and the significant size and strength difference between them and perpetrators.

It is important to note that these types of injuries cannot be caused by activities such as play, an accidental fall from a couch, or a resuscitation attempt.

What are risk factors for THI-CM?

Risk factors for THI-CM can be separated into three categories:

- Infant factors (e.g., crying, colic, prematurity, disabilities, health-related conditions, feeding issues, separation anxiety)
- Situational factors (e.g., financial stress, unstable housing, lack of support, family isolation, young parental age)
- Caregiver factors (e.g., prior involvement with law enforcement, substance use, lack of knowledge about normal crying patterns or the risk of shaking, unrealistic expectations about child development)

Anything that increases caregiver stress and/or decreases the caregiver’s ability to cope can increase the likelihood of THI-CM. This is why THI-CM occurs across all socioeconomic, cultural, religious, and ethnic groups. Infant crying, particularly inconsolable and/or prolonged crying, has been identified as the main trigger for THI-CM.

What are outcomes of THI-CM?

THI-CM results in death in approximately 30% of cases, and the majority of those who survive suffer serious, long-term health consequences. The outcomes are affected by the duration, force, and frequency of the trauma. Survivors often need long-term medical, educational, and social supports, rehabilitation, as well as child welfare services and legal assistance. Long-term outcomes of THI-CM include:

- Cognitive and developmental impairments (e.g., memory, attention, learning difficulties)

For More Information

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- Motor impairments (e.g., cerebral palsy, spasticity, hemiplegia)
- Seizure disorders, including epilepsy
- Sensory impairments (e.g., vision or hearing loss)

What are the clinical findings of THI-CM?

Many infants and young children with THI-CM may have a history of previous maltreatment or family violence. Because signs can be subtle, recognizing potential indicators is important to help prevent further harm. Children with acute head injuries should be carefully assessed when one or more of the following are present:

- clinically significant respiratory compromise (e.g., apnea, laboured breathing, need for assisted ventilation)
- bruising involving the ear, neck, or torso
- bilateral or interhemispheric subdural hemorrhage or fluid collection
- skull fractures other than an isolated, unilateral, non-diastatic, linear parietal skull fracture

Additional findings that may raise concern include:

- severe retinal hemorrhages
- any subdural hemorrhage or fluid collection
- unexplained loss or alteration of consciousness
- absence of signs of impact at the scene of injury, during transport, in ED, or prior to admission

These indicators are derived from validated clinical prediction tools, including the *4-Variable Abusive Head Trauma Clinical Prediction Rule* and the *Ontario Triad* and *The Triad*.

Duty to report

Service providers have a legal duty to report any reasonable suspicion of child abuse or neglect to a local Ministry of Social Services Child Protection Office, First Nations Child and Family Services Agency, or the police. Refer to Saskatchewan's Child Abuse Protocol 2023 <https://publications.saskatchewan.ca/#/products/12574> for more information.

For references and more details about THI-CM, see the following:

<https://skprevention.ca/resource-catalogue/traumatic-head-injury-due-to-child-maltreatment-thi-cm-a-literature-review/>.

How can THI-CM be prevented?

Service providers can help to reduce THI-CM by teaching caregivers that it is imperative when they become frustrated with their infant's crying that they do not shake their child. Instead, they should place their infant in a safe space (e.g., bassinet, crib) and walk away until they feel calm enough again to care for their infant safely. During this time, they should check on their infant every 10 minutes but are advised not to engage with their child until they are calm enough again to care for them safely. Caregivers should also be taught healthy ways to decrease their frustration and stress while taking this break from their child (e.g., calling someone for help and support, taking deep breaths, or listening to music).

Prevention Resource for Caregivers

When Your Baby Can't Stop Crying Brochure

<https://skprevention.ca/when-your-baby-cant-stop-crying/>