

# Traumatic Brain Injury in Children

Missouri Traumatic Brain Injury  
Implementation Grant  
December 2<sup>nd</sup>, 2016

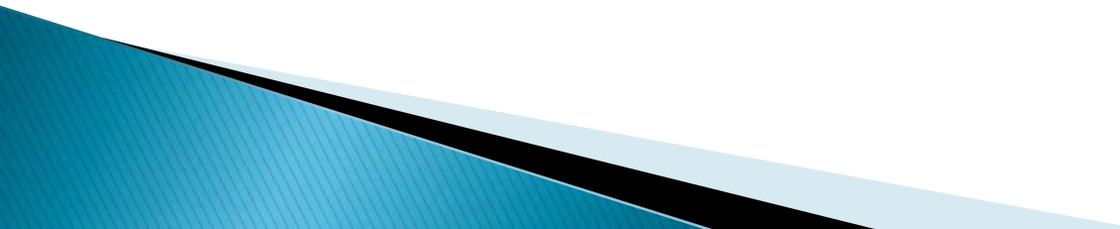
# Learning Objectives

- ▶ What is a TBI
  - ▶ Why is it so important to identify TBIs
  - ▶ Common causes of TBI across the lifespan
  - ▶ Signs and symptoms of TBI
  - ▶ High Risk Populations
  - ▶ Possible long term effects of TBI
  - ▶ Review screening tools
  - ▶ Strategies for prevention
  - ▶ Additional Resources
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# What is a Traumatic Brain Injury?

- ▶ RSMo 192.735 defines TBI as: "Brain injury" or "traumatic brain injury", a sudden insult or damage to the brain or its coverings, not of a degenerative nature. Such insult or damage may produce an altered state of consciousness and may result in a decrease of one or more of the following: mental, cognitive, behavioral or physical functioning resulting in partial or total disability. Cerebral vascular accidents, aneurisms and congenital deficits are specifically excluded from this definition;
- ▶ The numerous symptoms may be mild, but could have long term effects.

# TBI versus ABI

- ▶ Difference of Traumatic Brain Injury and Acquired Brain Injury
  - ▶ The Missouri Department of Health and Senior Services (DHSS) Adult Brain Injury (ABI) Program provides resources to individuals with a diagnosed TBI.
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# Facts about TBI

- ▶ 2.5 Million people sustain a TBI each year in the US.
- ▶ 16,065 Missourians sustained a TBI requiring medical attention in 2013.
- ▶ 391 of them died.
- ▶ The cost of TBI in the United States is estimated to be about \$76.5 billion annually!

References:

<http://health.mo.gov/data/mica/InjuryMICA/>

<http://www.cdc.gov/traumaticbraininjury/basics.html>

# Some High Risk Populations

- ▶ **Children 0–5 years old**
  - ▶ **Youth 6–19 who participate in sports**
  - ▶ **Incarcerated folks**
  - ▶ **Veterans and service members**
  - ▶ **The elderly 75+**
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# Why is it so important to identify TBIs?



# 1. TBI can be a chronic condition

- ▶ Children who experience brain injuries can have lifelong issues. These issues may be misdiagnosed or go unnoticed once the injury is no longer visible.

2. The signs and symptoms of a TBI can be misdiagnosed as behavior problems rather than the manifestation of physical damage to the brain.

- ▶ Blaming an individual for behavior brought on by damage from a TBI can make the problem worse, causing feelings of guilt, frustration, anxiety, and insecurity.

# 3. Heightened need for prevention

- ▶ Additional concussions can cause further damage, especially while the brain is still recovering from a previous injury, and can cause scarring, exacerbating the problems associated with the initial trauma.
  - ▶ Children/infant outcomes can be far worse than an adult. The brain isn't finished developing until age 22, so many higher level skills, such as executive functioning, i.e., cognitive development do not develop on schedule, plus they have no life history to fall back on.
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# TBI 101

Video:

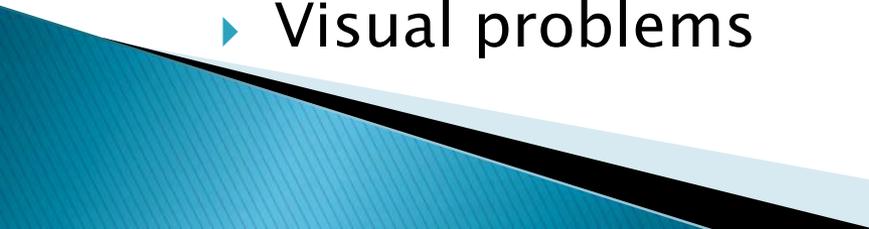
<http://braininjuryeducation.org/TBI-Basics/>

# Common causes of TBI in kids

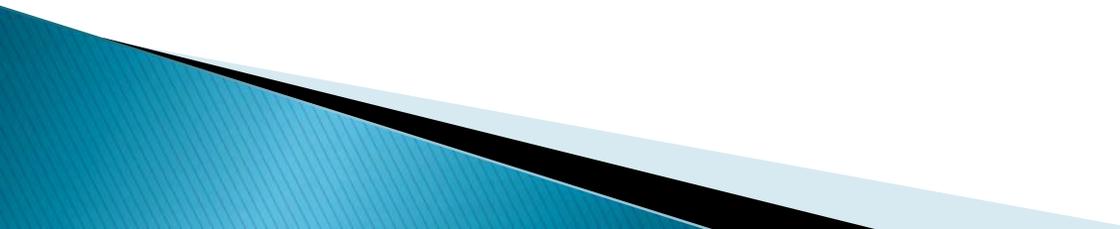


- ▶ Falls
- ▶ Struck by/against something (e.g., colliding with a moving or stationary object)
- ▶ Assault (including forceful shaking)
- ▶ Motor vehicle crashes
- ▶ Bicycle crashes or other sports/activity injuries

# Signs and symptoms of a TBI in infants and toddlers

- ▶ Headache or persistent rubbing of the head
  - ▶ Nausea and vomiting
  - ▶ Unsteady walking, loss of balance or poor coordination
  - ▶ Loss of ability to carry out newly learned skills (e.g., toilet training, speech)
  - ▶ Lack of interest in favorite toys
  - ▶ Cranky, irritable or difficult to console
  - ▶ Changes in eating and/or sleeping patterns
  - ▶ Tiring easily or listlessness
  - ▶ Sensitivity to light and/or noise
  - ▶ Visual problems
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# Possible long term effects of a TBI in kids

- ▶ Difficulty paying attention.
  - ▶ Decrease in academic performance.
  - ▶ Decreased language/social skills.
  - ▶ Difficulty with problem solving.
  - ▶ Problems learning new information.
  - ▶ Difficulty managing their own behavior, their school work and responsibilities.
  - ▶ Moody, depressed, or self isolating.
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# What to do if you suspect your child has a significant impact to the head

- ▶ **Call your physician or go to the local Emergency Department immediately. *Even if you are not sure, take your child in to be safe!***
- ▶ **Remember to make a follow up appointment with your physician or brain injury specialist to have your child's symptoms monitored.**
- ▶ **Ensure that your child plays quietly for at least the first 24 hours with **NO** highly active play (e.g., **NO** running, fast action, rough play, or jarring motions)**

# An ounce of prevention is worth a pound of cure

- ▶ Infants and toddlers should **play where it is safe** and be **supervised** by a responsible adult
  - ▶ **Never leave your child unattended on high surfaces** (e.g., changing table, countertop)
  - ▶ Use an **approved infant/toddler car seat** that is appropriate for the age and size of the child
  - ▶ Toddlers should **wear appropriate protective gear** during sports and recreational activities (e.g., a properly fitted helmet while riding a bicycle).
  - ▶ Toddlers should only participate in **age-appropriate sports activities**.
  - ▶ **NEVER** shake a baby, abuse from a parent or other person should be reported ASAP.
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# Screening can help identify kids who's parents are unaware their child was injured

## Health History Form for Brain/Head Injury (Ages 0-4)

**Educator  
Resource  
4**

Today's Date:

Child's Name:

Child's Date of Birth:

Person completing this report: \_\_\_\_\_ Relationship to child: \_\_\_\_\_

**Accidents:** Has your child ever been in a car accident, experienced a near drowning or suffocation, stopped breathing for one minute or longer or sustained a blow to the head? Yes \_\_\_ No \_\_\_

**Falls:** Has your child ever fallen from a height greater than 18 inches (i.e., fallen down stairs, rolled off a changing table, fallen from playground equipment, fallen while climbing or fallen when riding a tricycle/bike/scooter) resulting in a fall or fallen onto an object that resulted in a blow to the head? Yes \_\_\_ No \_\_\_

**Emergency Room:** Has your child ever visited a doctor's office or emergency room because of a loss of consciousness or hit on the head? Yes \_\_\_ No \_\_\_

**Symptoms or Sickness:** Has your child ever had a seizure or loss of consciousness? Yes \_\_\_ No \_\_\_

If **yes** to any of the above, describe when and what happened: (Include how it occurred and how hard was the hit to the head?)

**Changes:** Check any changes you noted in the child following the incident described.

Check all that apply	# of Minutes	# of Hours	# of Days	# of Weeks	Or Longer
Decreased strength					
Decreased sucking/swallowing					
Decreased smiling/vocalizing					
Decreased tolerance to light					
Frequent rubbing of eyes					
Extreme irritability/Increased crying					
Swelling of the Soft Spot					
Appears dazed or confused					
Lost consciousness					
Decreased coordination or poor balance					
Decreased ability to lift or hold head					
Decreased language/communication					

# Testing

- ▶ Neuropsychological evaluation is a comprehensive objective assessment of a wide range of cognitive, adaptive and emotional behaviors that reflect the adequacy or inadequacy of higher brain functions
  - ▶ MRI
  - ▶ CAT SCAN
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# Make your home safe

- ▶ Keeping the floors free of clutter or anything that may cause the child to trip and fall
  - ▶ Blocking off stairways
  - ▶ Using safety products (e.g., safety gates, cabinet locks, window guards, wall anchors for furniture/TV).
  - ▶ Pad sharp/hard corners in toddlers play area.
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Some signs and symptoms may not appear for hours or days, such as

- ▶ Trouble concentrating
  - ▶ Continued or persistent memory loss
  - ▶ Irritability and other personality changes
  - ▶ Sensitivity to light and noise
  - ▶ Sleep problems
  - ▶ Mood swings, stress, anxiety or depression
  - ▶ Disorders of taste and smell
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# Resources

- ▶ **Brain Injury Association of MO** <http://www.biamo.org/>
- ▶ [www.braininjuryeducation.org](http://www.braininjuryeducation.org)
- ▶ **Brain Injury Association of America** <http://www.biaa.org/>
- ▶ **Traumatic Brain Injury Survival Guide**  
<http://www.tbiguide.com/>
- ▶ **Families, friends, and caregivers speaking out on behalf of children with special health care needs, addressing policy, managed care, advocacy–training for parents, publications available.** <http://www.familyvoices.org/>

# Resources Continued

- ▶ **Missouri's Parent Training and Information Center (MPACT)** is a statewide parent training and information center that assists parents of children with all disabilities in their effort to effectively advocate for their children's educational rights and services. <http://ptimpact.org/>
- ▶ **The Sarah Jane Brain Foundation** –The Mission is to create a model system for children suffering from all Pediatric Acquired Brain Injuries. <http://www.thebrainproject.org/>

# Resources Continued

- ▶ Shaken Baby Alliance <http://www.shakenbaby.com/>
- ▶ <http://www.health.mo.gov/living/healthcondiseases/tbi/index.php>
- ▶ <http://braininjuryeducation.org/>
- ▶ This project was supported, in part by (*Grant # 90TBSG0017-01-00, Traumatic Brain Injury State Implementation Partnership Grant Program*) the U.S. Administration for Community Living, Department of Health and Human Services, Washington, D.C. 20201. Grantees undertaking projects under government sponsorship are encouraged to express freely their findings and conclusions. Points of view or opinions do not, therefore, necessarily represent official Administration for Community Living policy.