

Oral Health Fact Sheet for Dental Professionals

Children with Traumatic Brain Injury

Traumatic brain injury (TBI), a form of acquired brain injury, occurs when a sudden trauma causes damage to the brain. TBI can result when the head suddenly and violently hits an object, or when an object pierces the skull and enters brain tissue. Symptoms of a TBI can be mild, moderate, or severe, depending on the extent of the damage to the brain. (National Institute of Neurological Disorders and Stroke/NIH)

Prevalence

Rates increase with age and more common among males

- 0 – 4 years of age 0.921:100,000
- 5 – 14 years of age 458.2: 100,000
- 15 – 24 years of age 760.1:100,000

Manifestations

Clinical

- Cervical spine injury
- Spasticity, rigidity, and ataxia/tremors
- Feeding disorders including dysphagia
- Behavior change (impulsivity, changes in activity level, aggression, irritability, social withdrawal, and apathy)
- Cognitive impairments (learning disability, memory problems, and difficulty with visual spatial and visual motor tasks)
- Language disorders
- Vision and hearing impairments

Oral

- Oral/dental trauma from TBI or self-injurious behaviors
- Bruxism
- GERD
- Inadequate oral hygiene due to cognitive impairments, spasticity and ataxia

Potential Other Disorders/Concerns

- Seizures
- Depression/Anxiety
- Post-traumatic stress disorder
- Personality disorders
- Substance abuse

Children with Traumatic Brain Injury continued

Management

Medication: Manifestations from TBI vary; therefore a range of medications may be prescribed:

SYMPTOM	MEDICATION	SIDE EFFECTS
	<i>Muscle Relaxants</i>	Xerostomia
Repetitive Behaviors	<i>Antidepressants</i>	Xerostomia, dysgeusia, stomatitis, gingivitis, glossitis, sialadenitis, bruxism, dysphagia, discolored tongue, oral edema
Aggressive Behaviors	A. <i>Anticonvulsants</i> (Dilantin)	A. Gingival hyperplasia, xerostomia, stomatitis, glossitis, dysgeusia
	B. <i>Antipsychotics</i>	B. Xerostomia, sialorrhea, dysphagia, dysgeusia, stomatitis, gingivitis, tongue edema, glossitis, discolored tongue
Hyperactivity	A. <i>Antihypertensive</i>	A. Xerostomia, dysphagia, sialadenitis, dysgeusia
	B. <i>CNS Stimulant</i>	B. Xerostomia

Behavioral

Difficulty cooperating in the dental chair and adhering to oral hygiene regimens

Guidance:

- Plan a pre-appointment (in person/phone) to discuss child's special needs prior to the first visit, if necessary.
- Determine the child's level of cognitive and functional abilities and explain each procedure at a level the child can understand. Degree of impairment will depend on severity of injury and cognitive development prior to injury. Use short, clear instructions and speak directly to the child.
- Use Tell-Show-Do approach when introducing new procedures if necessary.
- Do not force limbs into unnatural positions or attempt to stop uncontrolled body movements. Exert a firm, gentle pressure to calm shaking limbs.

Dental Treatment and Prevention:

- Powered toothbrushes may be too stimulating for some children and should be recommended only after determining if the child will tolerate one.
- Consider prescribing a mouth guard for children with severe bruxism or self-injurious behavior.
- Dysphagia management during treatment: Place child in slightly upright position to keep airway open, with head turned to one side. Use suction frequently or as tolerated.
- Seizure management during treatment: **Remove** all dental instruments from the mouth. **Clear** the area around the dental chair. **Stay** with the child and turn child to one side. **Monitor** airway to reduce risk of aspiration. **Note time** seizure begins: if seizure continues >3 min call EMS – Danger of Status Epilepticus (potentially life threatening).
- It is not uncommon to encounter patients who are tube-fed among the population of Children with Special Healthcare Needs. Patients fed by tube typically have low caries, rapid accumulation of calculus, GERD (Gastro-esophageal Reflux Disease), oral hypersensitivity, and are at high risk for aspiration in the dental chair. No antibiotic premedication is needed for Gastric or Nasogastric tubes. Position the patient in as upright a position as possible and utilize low amounts of water and high volume suction to minimize aspiration.

Children with Traumatic Brain Injury continued

Look for signs of physical abuse during the examination. Note findings in chart and report any suspected abuse to Child Protective Services, as required by law. Abuse is more common in children with developmental disabilities and often manifests in oral trauma.

Additional information: [Special Needs Fact Sheets for Providers and Caregivers](#)

References

- Taylor, HG., Yeates, KO., Wade, SL., Drotar, D., Stancin, T., Minich, N. (2002) A prospective study of short- and long-term outcomes after traumatic brain injury in children: behaviour and achievement. *Neuropsychology*, 16: 15–27.
- McKinlay, A., Grace, R.C., Horwood, L.J., Fergusson, D.M., Ridder, E.M., MacFarlane, M. (2008) Prevalence of traumatic brain injury among children, adolescents and young adults: Prospective evidence from a birth cohort. *Brain Injury*, 22(2): 175-81.
- Dymont, H.A., Casas, M.J. 1999 Dental care for children fed by tube: a critical review. *Spec Care Dentist*, 19(5):220-4. Review.

Additional Resources

- [NIH Institute for Traumatic Brain Injury](#)
- [Special Care: an Oral Health Professionals Guide to Serving Young Children with Special Health Care Needs](#)
- [Bright Futures Oral Health Pocket Guide](#)
- [American Academy of Pediatric Dentistry: 2011–2012 Definitions, Oral Health Policies and Clinical Guidelines](#)
- [MCH Resource Center](#)
- [ASTDD-Special Needs](#)
- [Block Oral Disease, MA](#)
- [NOHIC-NIDCR publications](#)
- Free of charge CDE courses: [MCH Oral Health CDE](#) (4 CDE hours); [NIDCR CDE](#) (2 CDE hours)