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
Management

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

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

**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.
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

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**References**


**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
- 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)