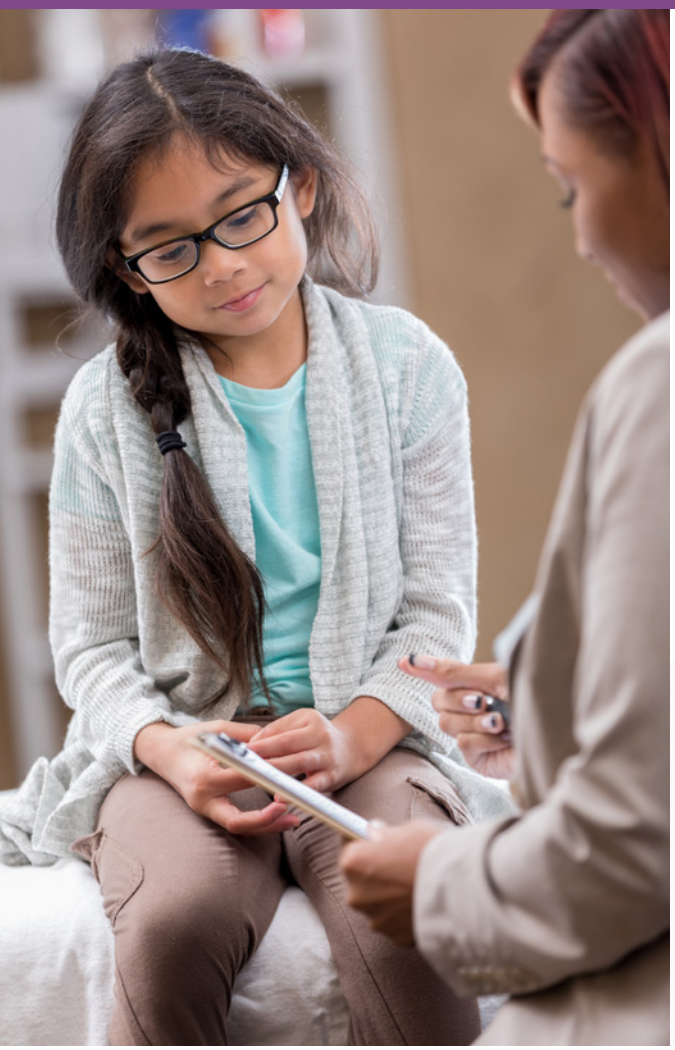
CDC PEDIATRIC mTBI GUIDELINE

Prognostic Recommendations

This handout for healthcare providers describes prognosis-related recommendations contained in the CDC Pediatric mTBI Guideline.

CDC HEADS UP
SAFE BRAIN. STRONGER FUTURE.



GOAL OF THE CDC mTBI GUIDELINE

The goal of the CDC Pediatric Mild Traumatic Brain Injury (mTBI) Guideline is to help healthcare providers take action to improve the health of their pediatric patients with mTBI. To do this, the Guideline consists of 19 clinical recommendations that cover diagnosis, prognosis, and management and treatment. These recommendations are applicable to healthcare providers working in: inpatient, emergency, primary, and outpatient care settings.

The Guideline was developed through a rigorous process guided by the American Academy of Neurology methodology and 2010 National Academy of Sciences methodology for the development of evidence-based guidelines. An extensive review of scientific literature, spanning 25 years of research, formed the basis of the Guideline.

mTBI in children

Symptoms of mTBI generally fall into four categories:

• Somatic • Cognitive • Mood/Affective • Sleep

Symptom resolution:

30% Experience symptoms one month post-injury

10% Experience symptoms three months post-injury

5% Experience symptoms one year post-injury

RECOMMENDATIONS FOR THE PROGNOSIS OF mTBI

Five sets of prognostic recommendations are included in the Guideline. These recommendations focus on:

- Counseling patients on prognosis
- Evaluating for premorbid conditions
- Assessing for risk factors
- Use of tools for predicting prognosis
- Interventions for poor prognosis

Prognostic Recommendations

GENERAL HEALTHCARE PROVIDER COUNSELING OF PROGNOSIS

Evidence suggests education and clear communication from healthcare providers can optimize outcomes.

- Healthcare providers **should** counsel patients and families that the large majority (70-80%) of children with mTBI do not show significant difficulties that last more than 1-3 months post-injury.
- Healthcare providers **should** counsel patients and families that although some factors predict an increased or decreased risk for prolonged symptoms, each child's recovery from mTBI is unique and will follow its own trajectory.

PROGNOSIS RELATED TO PREMORBID CONDITIONS

There is an increased risk of delayed recovery or prolonged symptoms associated with certain premorbid conditions in children with mTBI.

- Healthcare providers **should** assess the premorbid history of children either prior to an injury, as a part of pre-participation athletic examinations, or as soon as possible post-injury in children with mTBI, to assist in determining prognosis.
- Healthcare providers **should** counsel children and families completing pre-participation athletic examinations, and children with mTBI and their families, that recovery from mTBI might be delayed in those with:
  - Premorbid histories of mTBI
  - Lower cognitive ability (for children with an intracranial lesion)
  - Neurological or psychiatric disorder
  - Learning difficulties
  - Increased pre-injury symptoms (such as headache disorders)
  - Family and social stressors

ASSESSMENT OF CUMULATIVE RISK FACTORS AND PROGNOSIS

Evidence indicates that a variety of demographic and injury-related factors predict outcomes in pediatric mTBI.

- Healthcare providers **should** screen for a variety of known risk factors for persistent symptoms in children with mTBI.
- Healthcare providers **may** use validated prediction rules, which combine information about multiple risk factors for persistent symptoms, to provide prognostic counseling to children with mTBI evaluated in emergency department settings.

FACTORS ASSOCIATED WITH POOR PROGNOSIS:

- Older children or adolescents
- Children of Hispanic ethnicity
- Children from a lower socioeconomic status
- Children with more severe presentations of mTBI (including those associated with an intracranial injury)
- Children who report a higher level of acute postconcussion symptoms
- Children with a neurological or psychiatric disorder
- Children with learning difficulties
- Children with family and social stressors

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Prognostic Recommendations

EXAMPLES OF VALIDATED SCALES INCLUDE, BUT AREN'T LIMITED TO:

- Post-Concussion Symptom Scale
- Health and Behavior Inventory
- Post-Concussion Symptom Inventory
- Accute concussion Evaluation

ASSESSMENT TOOLS AND PROGNOSIS

Healthcare providers can more effectively counsel patients with mTBI when they have assessed risk factors for outcomes and recovery. However, there is no single assessment tool to predict outcomes.

- Healthcare providers **should** use a combination of tools to assess recovery in children with mTBI.
- Healthcare providers **should** use validated symptom scales to assess recovery in children with mTBI.
- Healthcare providers **may** use validated cognitive testing (including measures of reaction time) to assess recovery in children with mTBI.
- Healthcare providers **may** use balance testing to assess recovery in adolescent athletes with mTBI.

INTERVENTIONS FOR mTBI WITH POOR PROGNOSIS

While most symptoms of mTBI resolve within 1-3 months, some children are at risk for persistent symptoms or delayed recovery. Children who are at higher risk for delayed recovery are more likely to need further intervention.

- Healthcare providers **should** monitor children with mTBI who are determined to be at high risk for persistent symptoms based on premorbid history, demographics, or injury characteristics.
- For children with mTBI whose symptoms do not resolve as expected with standard care (i.e., after 4-6 weeks), healthcare providers **should** provide or refer for appropriate assessments or interventions.

Take action to improve the health of your young patients with mTBI.

To view all 19 sets of recommendations, including those that cover diagnosis and management and treatment, and to learn more about the CDC Pediatric mTBI Guideline, visit **www.cdc.gov/HEADSUP**.