

Meeting the Needs of Students with Traumatic Brain Injury



A Resource for Minnesota Educators

(Updated 2023)

Minnesota Low Incidence Projects

Serving Learners with Low Incidence Disabilities

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Meeting the Needs of Students with Traumatic Brain Injury

About This Publication

This Minnesota Low Incidence Projects (MN LIPs) publication has been written to assist those responsible for educating students with a traumatic brain injury (TBI). Funding for this resource was made possible by a grant from the Minnesota Department of Education, using federal award Special Education – Programs to States, CDFA 84.027A. This resource does not necessarily represent the policy of the federal Department of Education or the state Department of Education. Endorsement by either should not be assumed. Permission is granted to duplicate this resource for nonprofit educational use.

A Resource for Minnesota Educators

This publication is a secondary resource for teachers, school psychologists, school health specialists, related services staff, administrators, and others who serve students with a TBI. Current interpretation of Minnesota (MN) Statutes and Rules provide the framework for this resource, with the intent of aiding in identifying and serving students eligible for special education services under the TBI special education category in the state of Minnesota. This publication was updated from a previous 2013 edition. A comprehensive review along with updates were provided by Kelly Bredeken, Statewide School TBI Specialist. Grammatical edits were provided by Sarah Obritsch.

Quick Resources

The primary legal references for TBI in MN are [Minnesota Rule 3525.1348](#); [Minnesota Statute 125A.02](#); and amended [Minnesota Statute 125A.08](#). More information regarding legal requirements and the related implications for identifying and serving students with TBI is provided in this publication.

Resources and information specific to TBI can be found on the [Minnesota Low Incidence Projects](#) website and the [Minnesota Department of Education](#) website. It should be noted that posted materials are not guaranteed to be compliant in all aspects of legal requirements. The Minnesota Department of Education (MDE) and MN LIPs suggest that if questions arise, clarification be obtained from your district legal counsel.

Please contact the Statewide School TBI Specialist, Kelly.Bredeken@metroecsu.org for additional resources or technical assistance.

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Part 1: Understanding Traumatic Brain Injury

Traumatic Brain Injury (TBI) as a Disability

TBI is often considered a hidden disability for good reasons. You cannot see the brain, and there can be significant injury with no obvious physical signs. Individuals with TBI often experience subtle yet profound deficits for unknown periods of time. The outcomes of a TBI vary greatly from person to person. This can be due to the nature of the injury, but also can be the result of such factors as pre-existing abilities, personality traits, and home environment.

Brain injuries can lead to impairments in various areas of development. It is important for educators to be knowledgeable in identifying and addressing the needs of these students. This resource emphasizes the unique characteristics associated with traumatic brain injuries. However, educators can take comfort in knowing that many instructional methods and strategies used with other students may also be appropriate for students who have experienced a TBI.

The Impact of Injuries on the Brain

The brain can be easily damaged by falls, blows, or violence such as shaking. When an injury occurs, many neuron cells are irreversibly destroyed; others remain alive but exist in a vulnerable state, sometimes up to months after the injury.

Damage to the brain from an impact injury can result in a localized injury to a specific area of the brain but can also cause diffuse injury throughout the brain. While certain areas of the brain regulate specific functions, it is important to remember that the brain is interconnected. Therefore, damage to any part of the system can often result in neurological changes.

Severity of Injury

Medical professionals typically classify the initial severity of a TBI as mild, moderate, or severe. They do this using an assessment tool called the Glasgow Coma Scale (GCS). It is important to note that there isn't necessarily a correlation between the initial rating of severity and an individual's eventual outcome. For example, an individual with a severe injury could recover quite well, while someone with a mild injury could suffer from chronic debilitating symptoms.

Most TBIs are mild. While mild traumatic brain injuries (mTBI) can resolve without lasting complications within a short period of time, some individuals struggle with symptoms for weeks, months, or even years. It is important to know that one can experience a mTBI without losing consciousness or having an abnormal CT head scan.

Individuals with moderate or severe TBI suffer from more extensive symptoms. In the first few days following a more severe TBI, a person may experience a variety of medical complications. These can include brain swelling, edema (excess cerebral-spinal fluid), respiratory difficulty, and seizures. Motor concerns are common during this period, and can include rigidity, spasticity, coordination difficulties, and tremors. As an individual emerges from a coma, they may experience temporary irritability, agitation, and aggression; or may lack emotional expression. As the patient improves, they may be able to follow simple routines and directions, and may recall selected past events, but appear confused or have no memory of recent events.

A small percentage of people may also experience seizures immediately after the injury, or up to years later. In most cases, seizures can be controlled through medication, although this may present additional side effects that can impact learning and attention.

These early symptoms usually diminish rapidly. This initial improvement is often interpreted as an indication that the subsequent recovery will also be rapid and complete. However, individuals with severe, moderate, and sometimes even mild TBI may have persistent difficulties. Most individuals who experience a severe TBI have multiple chronic disabilities which can often last a lifetime.

Mild Traumatic Brain Injury (mTBI)

A mTBI, or concussion, is defined as an injury caused by a bump, jolt, or blow to the head that results in a period of altered consciousness such as disorientation, confusion, inability to follow simple commands, and/or a brief loss of consciousness of no more than 15 minutes. It should be noted, once again, that most concussions do not result in loss of consciousness. The Centers for Disease Control and Prevention (CDC) indicates that up to 75 percent of all TBIs that occur each year are categorized as concussions or other forms of mTBI. Symptoms resulting from a mTBI often resolve in the days following the injury but can potentially result in chronic impairment. This is especially true in the case of repeated concussions. Repeated mTBIs occurring over an extended period of time (i.e., months, years) can result in cumulative neurological and cognitive deficits. A concussion is most likely to occur during physical education class, on the playground, or during activities where collisions can occur, such as sports.

Recognizing and responding to a possible concussion can prevent further injury and help with recovery. All children and teens with a concussion or a suspected concussion should be monitored closely by their health care provider. A visit following the concussion allows the provider to assess the patient for ongoing symptoms. It also allows the patient and the patient's family to ask questions regarding care and activity limitations, as well as how to prevent future injury. It is important to note that teens should NEVER return to any physical activities on the day of the injury and should delay a return to any sports or recreation activities until they are symptom-free and have received documented clearance from their health care provider.

It is important to realize that symptoms of concussions sustained outside of school may only become apparent when the student arrives at school. Proper recognition and response to symptoms can prevent further injury and help with recovery.

Symptoms Following a Mild Traumatic Brain Injury

Symptoms of a concussion can vary greatly depending on the extent and location of the injury. Some symptoms can be delayed or worsen over time. A combination of early diagnosis and ongoing treatment is the best way to lessen the effects of a mild brain injury. A child or teen who displays symptoms listed below for several weeks after a concussion may require further assessment and/or evaluation by a neuropsychologist, neurologist, or other specialist.

The following symptoms are often associated with mTBI: headache or “pressure” in the head, nausea or vomiting, dizziness, blurred or double vision, sensitivity to light and/or noise, feeling sluggish, hazy, foggy, or groggy, fatigue, difficulty concentrating, confusion, and not feeling right or feeling down.

Recommendations Following a Mild Traumatic Brain Injury

Research has shown that a well-timed return to school activities can positively influence recovery if appropriate accommodations are in place. The following are frequently referenced recommendations.

- **Rest** - In the case of a child or teen who has recently sustained a concussion, health care providers generally recommend rest. In the short term, avoidance of activities that would put the student at risk of sustaining another injury is very important. Physical exertion is not recommended immediately following a concussion, as this can result in exacerbated symptoms. Any restrictions should stay in place until the health care provider clears the student. After this period, a timely return to school is recommended.
- **Timely Return to School** - The key to a successful return to school is that it be done gradually. If symptoms return or worsen, the student should stop new activities and take more time for rest and recovery. As the days go by, there should be gradual improvement. Parents should monitor their child’s progress closely during the first days and weeks following a return to school. A return visit to the physician should be scheduled if warranted.
- **Open Communication and Family Involvement** - Open communication is of great help when a student experiences a concussion. Parents should contact the school regarding the injury and share medical recommendations and documentation with school staff. The student and family are encouraged to work closely with their medical provider and communicate with school staff to determine the most appropriate timeline for a return to school and related activities.

- **Primary Contact** - Schools should have a clear understanding of who is the school's first point of contact in the event of a reported mTBI. This individual should serve as a liaison to the parents and teachers, relaying updated information on the student's condition and anticipated return to school.

This liaison should also be aware of who the district 504 coordinator and TBI specialist are, what their services entail, and when and how to access those services if needed.

Part 2: Overview of School Supports, Services, and Intervention Strategies

School Supports and Services

General Adjustments

Upon a return to school, students may require classroom adjustments if their symptoms have not resolved. Examples of such adjustments may include shortened assignments, rest breaks, a quiet environment, extended transitions between classes, or preferential seating.

Symptoms resulting from mild brain injuries are usually temporary and can be resolved without further consideration. However, if the symptoms result in a substantial limitation of major life activities for an extended period, the school and family may need to explore additional accommodations for the student, including the development of a 504 Plan or special education evaluation.

504 Plan

To best understand the provision of services at a local level, it is critical to first understand the federal and state education laws and regulations that guide all services in the schools.

Section 504 of the 1973 Rehabilitation Act, with amendments in 1986, is a civil rights law protecting the rights of individuals of all ages with disabilities who participate in programs that receive federal financial assistance from the U.S. Department of Education. [Section 504](#) defines an individual with disabilities as “persons with a physical or mental impairment which substantially limits one or more major life activities. People who have a history of, or who are regarded as having a physical or mental impairment that substantially limits one or more major life activities, are also covered.” Students whose disability does not adversely affect their educational performance but substantially limits one or more major life activities may be eligible for accommodations under Section 504. This definition is broader than that of IDEA, which defines specific qualifying conditions. The U.S. Department of Education has not defined the term “substantial limitation,” allowing local educational agencies to develop their own definitions. Some students with disabilities may not meet special education eligibility guidelines under IDEA but do qualify for support under Section 504. There may also be students who qualify under both definitions, but if they do not require specially designed instruction and or related services, they may only need special accommodations under Section 504. The Office of Civil Rights (OCR), U.S. Department of Education, is the enforcing agency for Section 504 in the educational realm. OCR conducts compliance reviews and investigates complaints. Section 504 includes administrative complaint procedures, which can help to avoid costly court actions. Like IDEA, Section 504 requires identification, evaluation,

provision of appropriate services, notification of parents, and an individualized accommodation plan.

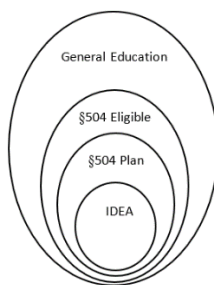
The law requires that the 504 team decide on needs as outlined in the Eligibility Analysis process in the Minnesota Compliance Manual for Section 504 of the Rehabilitation Act of 1973. The school district has a legal responsibility for learners who qualify for support under this act. The district is required to evaluate and develop a 504 Plan that directs regular education staff to meet the educational needs of these students in the least restrictive manner. This plan can include accommodations to the environment, curriculum, materials, and instruction. Accommodations are defined as “adjustments and/or modifications that enable the learner to have equal access and opportunity to benefit from the educational program.” If, after careful consideration, the school determines that the student does not currently require a 504 Plan, the student may still be eligible in the future for protections under Section 504 as it relates to providing accommodations associated with their disability.

Individual with Disabilities Education Act (IDEA) and Special Education Services

If the student requires specially designed instruction in addition to accommodations, the school should initiate an evaluation to consider qualification for special education services under the TBI category. Determination of eligibility must be established before special education services can be provided. These services include, but are not limited to, modified curriculum, specialized instruction, emergency evacuation procedures, specialized transportation, and Individual Health Plans. Services would then be documented on an Individual Education Program (IEP) and be annually reviewed by the educational team.

Overlapping Domains: Section 504 and IDEA

The following diagram reflects the spectrum of services and support provided to special education students. It is important to know and understand that if a student qualifies under IDEA, the student also qualifies under Section 504 and, therefore, is included under its nondiscrimination protections. A student who has qualified under Section 504, however, is not necessarily considered disabled under IDEA if the student hasn't met one of the thirteen specific special education criteria, one of which is TBI in Minnesota Rule.



Special Education Category of Traumatic Brain Injury

[MN Administrative Rule 3525.1348 Subpart 1. Definition](#) defines Traumatic Brain Injury as “an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psycho-social impairment that may adversely affect a pupil’s educational performance and result in the need for special education and related services.” To qualify for services under this category, there must be documentation of the TBI by a physician and evidence of a functional impairment in one or more of seven listed areas that are not a result of a previously existing condition. It is strongly recommended that a school TBI specialist be involved in the evaluation and development of an Individual Education Program (IEP) when there is evidence of a TBI in the school records, or in discussions with the parents.

Role of the TBI Specialist in the Schools

Currently, there is no Minnesota teaching license required for the Traumatic Brain Injury category. A TBI specialist is an educator who has received training or certification in the field of TBI. A licensed Physical and Health Disabilities Teacher is often utilized as a TBI Specialist in Minnesota schools.

Additional Key Services

Educational teams consist of many professional service providers who collaborate to create meaningful and high-quality educational programming for students with TBI. Related service staff, in addition to general education classroom teachers, special education teachers and paraprofessionals, provide key support. These supports include, but are not limited to, speech-language services, audiology and interpreting services, psychological and counseling services, physical and occupational therapy, school health services, and social work services. The IEP team decides which services a child needs and documents these services in the child's IEP.

School Health Services

School nurses play an essential role in keeping children healthy, safe, and ready to learn so that they may grow into healthy and productive adults. The school nurse is a member of a unique, specialized discipline of professional nursing and is often the sole healthcare provider in an educational setting (NASN, 2016).

The licensed school nurse (LSN)/ public health nurse (PHN) is a valuable member of the related services team and plays an important role on the Section 504, child study and special education teams.

As a member of the team, the school nurse should be involved in meetings from prereferral, evaluations, IEP through reevaluations depending on the need of the student. In a typical evaluation, following signed consent, the LSN/PHN role includes obtaining and reviewing health and medical records, performing vision and hearing screening, reviewing health office visits, attendance records, student

observation and/or interviewing the parent/guardian about the student's health needs. The LSN then summarizes the information and interprets how the health condition(s) might impact learning in the evaluation.

If the LSN/PHN determined that nursing services are required, services provided should be described in the Accommodations/Adaptation section of the IEP and listed on the IEP service grid as direct (face to face services with the student) and indirect minutes (planning, consultation, training). It is important to customize adaptations to the needs of the student and to coordinate services with those developed by other IEP team members.

The LSN/PHN facilitates health related communication between the family, students' licensed health care providers and the school. This might include contributing to ongoing team discussions regarding return-to-school protocols and medications, treatments, procedures and individual health plans (IHP) and emergency health plans (EHP) that are needed. The LSN/PHN will determine when specific nursing tasks are delegated and to whom and provide training and supervision following nursing scope of practice.

Some students may require more documentation and procedural information than what is typically found in an IEP; in such cases, the licensed school nurse often takes a lead role in creating an individualized healthcare plan (IHP). An emergency care plan (ECP) would be developed by the school nurse if the student is at risk of requiring urgent medical care while at school. It is also recommended that the school nurse provide information and train staff about a student's health care needs and accommodations to team members when developing an emergency evacuation plan (EEP) for a school emergency evacuation or lockdown situation.

References:

National Association of School Nurses (NASN) [School Nursing: Scope and Standards of Practice, 4th Edition](#)

[Concussions: School Based Management - NASN](#)

School Intervention Strategies

Source: The listed behaviors and interventions were taken with permission from a brochure published by Hennepin Healthcare titled [Return to Learn, A guide for school success following a pediatric brain injury - English](#)

[Return to Learn, A guide for school success following a pediatric brain injury - Español](#)

School interventions can vary from classroom adjustments and accommodations to more extensive modifications that may require customized special education services. Determining appropriate adjustments often depends upon the severity and type of the

brain injury, how the injury impacts the student's functioning, and the length of time that the student is symptomatic. Educational needs can change quickly in the first weeks and months following a TBI. This may require frequent checking in with the student and family to assess whether general classroom adjustments continue to be appropriate.

The following strategies are grouped by areas of need and have been found to be helpful when a student has been diagnosed with mTBI. Students who experienced a moderate to severe injury typically require extensive accommodations with deeper need consideration. Please refer to Section 3: School Re-entry Following a Moderate to Severe TBI.

- **Medical Management** - Communication between the family, students' licensed health care providers and the school is key to the student's success. The student may need to be reminded to go to the health office for treatments and procedures during the day. The IEP or 504 teams must coordinate a plan for possible attendance issues, for example, follow up appointments, rest periods and partial days.
- **Physical and Neurological Fatigue** - Many physical symptoms can be noticed immediately following an injury. These symptoms are often persistent. Fatigue or tiredness is a common complaint and can be physical and/or neurological. In cases of fatigue, avoidance of cognitively or physically demanding activity is recommended. Prior activity levels can be slowly re-introduced as symptoms resolve. Headaches, sleep difficulties, dizziness, and sensitivity to light or sound are frequently reported. Expect the student to show pronounced variation in school performance from day to day or from morning to afternoon. The student may benefit from shorter days or a modified schedule when first returning to school. A modified class schedule to optimize peak energy levels for the most difficult subjects can also be very helpful. More time to pass in hallways or opportunities to rest in a quiet area during a scheduled break will help prevent the student from becoming overstimulated.
- **Executive Functioning** - The brain's frontal and prefrontal lobes are often referenced as the CEO of the brain. The frontal lobe is associated with executive functions such as goal-directed and problem-solving behavior. Because of the significant role that executive functions have in learning and daily functioning, careful evaluation and monitoring of the student's executive functions should occur. Executive function deficits may include difficulty with setting realistic goals, planning activities, initiating tasks, organizing projects, inhibiting inappropriate behaviors, evaluating one's own performance, and problem solving. Executive function difficulties also include transferring and generalizing newly acquired skills to different settings or situations.
- **Executive Functioning: Attention and Concentration** - An inability to attend to a task and maintain focus for adequate periods of time is common following a TBI. Educators may notice that the student is having difficulty with organization,

following directions, visually attending to a speaker or an assignment, and completing work in a timely fashion. The student may appear to be easily distracted by noise or movement and tend to “overload” quickly. Attention difficulties can also affect the student’s ability to shift from one topic or activity to another. Any auditory or visual distractions should be minimized as much as possible. Possible strategies include shortening assignments, breaking tasks down into smaller parts, modifying due dates, or providing prompts for task redirection. Teachers can also alter the student’s seating assignment and offer opportunities to take tests in a quiet area, with additional time provided for completion.

- **Memory, Organization, and Processing Speed** - Memory deficits are among the more common and lasting effects of a brain injury. Remembering routines can be a challenge, along with difficulty learning, storing, and retrieving new information. Educators may notice slowed processing of information and an inability to do more than one thing at a time. This is particularly true when the information is presented quickly, in large “chunks”, or in detail. Because prior memories may be preserved, teachers and family members may not initially detect concerns. Teachers can help aid memory by breaking down multiple-step directions into smaller steps and asking the student to restate directions. Individualized instruction, varied methods of lesson presentation, assistance with completing missed work and prioritizing tasks, a “buddy system”, an extra set of textbooks, and the use of assistive technology can also be helpful strategies. An initial reduction of changes in the daily routine, organizing information in advance to help with transitions, or a labeled organizational system can help the student feel more in control of transitions.
- **Academic** - In addition to restricted physical activity, short-term restrictions should be placed on academic activity as well. Some students may need an adjusted class schedule until their symptoms resolve and physical and mental fatigue has lessened. Most students will also require classroom adjustments to reduce their workload, as too much mental strain on an injured brain can worsen post-concussive symptoms. Educators should not be surprised if new academic difficulties present themselves. Students who have experienced a TBI often have a decreased tolerance for stimulation and difficulty attending to two tasks at once: for example, listening and note-taking. The student may appear distracted, impulsive, and inattentive, requiring more time to process directions, complete tasks, and transition from one activity to another. Problems with reading, writing, and math are not uncommon. Parents can help by organizing school materials and assignments or by planning for tutoring and other support services. Schools should consider modifications to the grading policy and course load requirements during the student’s recovery period and provide alternative methods to earn credits if necessary.
- **Academic: Reading or Visual Skills** - The student may benefit from orally presented tests, opportunities to review other students’ notes in alternative

formats, digital books and text-to-speech tools, modifications to print or font size, and short-term remedial reading instruction.

- **Academic: Math Skills** - Additional tools and methods for recalling math concepts can be helpful for students who struggle in this subject. If there are visual-perceptual difficulties, grid paper can be used to organize columns for multiplication and division. Short-term remedial math instruction can also be of benefit.
- **Behavior and Emotional Health** – Please refer to Part 7 of this resource for information pertaining to behavior and emotional health as well as social functioning following a TBI.
- **Speech/Language and Social Communication** - Speech difficulties are often apparent immediately following a TBI. Often, these difficulties show improvement during the early stages of recovery. However, some speech problems may persist. Research indicates that most children with brain injuries eventually recover motor speech functions. While speech patterns and existing vocabulary size often return to pre-injury levels, problems with new learning may have a pronounced effect on the acquisition of future vocabulary. Additionally, these students may also have ongoing higher-level language and communication problems. To work around these symptoms, homework assignments can be given in written and verbal form. The use of specific rather than open-ended questions may reduce student frustration, as can shorten verbal directions. It is a good practice to verify understanding of directions to ensure student comprehension.
- **Expressive Language** - Following a TBI, verbal expression is often a concern regarding: confrontation naming (naming things or people upon presentation), word retrieval (coming up with names for things or people spontaneously), and extended or detailed responses.
- **Receptive Language** - Following a TBI, comprehending or understanding spoken language can deteriorate sharply with increases in the following: rate of speech, amount of information to process, degree of abstractness, and interference from busy and/or noisy environments (classrooms, hallways, cafeteria, gym, etc.).
- **Social Communication** - Skills needed by older students for appropriate communication include sustained attention to shifting topics, accurate perception and interpretation of social cues, retention and integration of earlier shared information, organization of ideas, retrieval of words, and recollection and application of social rules or norms. The ability to participate appropriately in conversation requires the use of cognitive, linguistic, and social skills. Disorganized or socially inappropriate conversation is common following a TBI. Students may score adequately on standardized language tests. However, the functional nature of speech and language impairments affects social and academic success in school. An evaluation must combine formal speech and language assessments with structured observations of the student's communication skills in

a variety of daily activities and environments.

- **Sensory (Vision and Hearing)** - Brain injury can cause complex visual disabilities. In some cases, damage to the part of the brain that controls visual processing results in visual field cuts, double vision, or partial vision loss. However, because of the brain's attempt to compensate, the individual may report no visual problems. Young children in particular are not adept at reporting vision loss. As a result, these students can experience significant problems with near-point reading (from a book or computer screen) and far-point reading (from a board, projected screen, or chart). A vision screening is an important part of any evaluation if vision loss is suspected.
 - Hearing loss can also occur because of damage to the ear, auditory nerve, or auditory center of the brain. As is the case with vision loss, the student may think that he or she is hearing correctly, which can delay a proper diagnosis. Careful monitoring and evaluation should be implemented whenever hearing loss is suspected.
- **Fine and Gross Motor** - Following a TBI, motor skills often recover to a point where typical independent functioning returns. In some cases, however, motor recovery can plateau, resulting in long-term motor concerns. Difficulties with balance, gait, strength, range of motion, spatial orientation, and coordination may continue, which can impact general mobility and self-care activities. Great care should be taken of a student's safety following a concussion, especially during recess and physical education class. The school environment should be fully accessible, and an emergency evacuation plan for students with mobility aides should be in place. A buddy system can be implemented for written work and physical safety. Students can also be given assistance with written tasks, a reduction in written work, or audio and video recordings as an alternative. Allowing extra time for assignment completion and for getting from one place to another can be helpful to the student.
- **Sports and Recreational Activities** - Students should follow guidelines related to returning to physical education or sports, including obtaining a doctor's prior approval. Students can also wear protective gear such as helmets to reduce the risk of a second TBI.

Part 3: School Re-Entry Following a Moderate or Severe TBI

School Re-Entry Following Extended Hospitalization

When a child is hospitalized due to a moderate or severe traumatic brain injury, the recovery process can be long and arduous for the child and family. When planning a successful school re-entry, communication between the school, family, and medical providers is essential.

Initial Evaluation

After a traumatic brain injury, modifications to the curriculum, instructional methods, and grading are often necessary. In cases where the student has had an extended hospital stay, a special education evaluation and IEP should be completed before the student returns to school to ensure that the necessary accommodations and services are in place.

Following an extended hospitalization, there rarely is an opportunity for the student to be evaluated in a school setting before their return to school. Student observations, a required part of an evaluation, can take place in the hospital, the rehabilitation center, or in the student's home. The intent of an observation is to determine the student's current educational strengths, abilities, and needs. Therefore, it is recommended that observations occur when the student is engaged in academic or functional skills activities whenever possible.

The school team should utilize whatever pertinent information can be gathered, including recent reports from medical personnel, information from parents, and previous school records. School staff should be proactive in reaching out to family members and medical providers to decide arrangements for evaluations; flexibility will be important on the part of all team members.

Progress Monitoring

Due to the unpredictability of TBI, a student will need to be reevaluated periodically during the first months after the injury. It is recommended that the school team document in the initial IEP that the student will continue to be observed following school re-entry, and that the IEP should be reviewed by a specified date (usually 3 to 6 months following re-entry, with a customized IEP review schedule thereafter). This will ensure that the IEP is reflective of current educational needs.

TBI School Re-Entry & Medical Documentation Forms

The [School Re-Entry and Medical Documentation Form](#) and the [School Re-Entry Following Extended Hospitalization Guidance Document](#) aids school teams when

considering a student's transition from medical care to a school setting following a severe TBI. Portions of these guidelines may also be helpful when evaluating a student with a prior history of a TBI, but who has not previously qualified for special education services under the TBI category.

Part 4: Educational Evaluation

Purpose of an Educational Evaluation

An educational evaluation of a student with a traumatic brain injury has several purposes, including to determine a baseline for behavior, to identify changing patterns of student performance, to isolate subtle impairments, to assess cognitive abilities, to identify barriers to independent and productive functioning, and to provide essential periodic review.

To determine eligibility for qualification of special education services under the TBI Category, a team must first assure that there is medical documentation of the traumatic brain injury provided by a physician. Please refer to Part 5: Eligibility for more detailed information about medical documentation requirements. The team must then verify that there is a functional impairment attributable to the TBI that adversely affects the student's educational performance in one or more of seven areas listed in the [Minnesota State Criteria 3525.1348](#). This is determined through a comprehensive special education evaluation.

Appearances Can Be Misleading

Children returning to school following a traumatic brain injury may appear to have made a good recovery. Physical functioning often improves considerably, speech may be intact, and some pre-injury skills are often retained. This apparent recovery is often misleading and can conceal serious cognitive, sensory, and self-regulatory deficits resulting from the brain injury. A broad-based evaluation is often needed, and should include a thorough review of medical information, educational history, and a variety of formal and informal tools.

Referral

A referral for a special education evaluation can come from a variety of sources, including parents, teachers, school nurses, or medical or rehabilitative communities. All school districts have a formal referral process and guidelines. Pre-referral intervention procedures are not necessary when a medically diagnosed TBI has recently occurred and there is concern regarding educational performance.

Thoughtful Approach Needed

Effective educational planning for all students with special needs requires a thoughtful and thorough approach to the evaluation process. This is especially true for students with TBI. Because of the unique and complex circumstances associated with brain injury, there are additional factors to consider. For instance, a student with a TBI may have an unusual profile of abilities and needs that is based on pre-existing knowledge

prior to the injury, as well as injury-related deficits. The consequences of frontal lobe injury are typically not detected by commonly used tests of intelligence, academic performance, and language skills. Ongoing neurologic recovery may invalidate standardized, norm-referenced assessment results, necessitating the use of a variety of tools and methods to accurately measure student progress. Certain types of injuries may have delayed consequences, again requiring special consideration when evaluating the student. TBI is associated with inconsistent performance, which may invalidate test performance on any given day. Students may react unpredictably, in positive or negative ways, to being back in school, requiring special thoughtfulness in interpreting test results.

A specifically designed approach to the evaluation process is crucial to ensure a successful educational experience for the student with TBI. When transitioning from the hospital to school, a successful re-entry process requires careful planning, a thorough evaluation, and comprehensive knowledge of TBI and related implications for students. Effective evaluation of a student with TBI entails a variety of strategies, methods, and tools to identify current educational needs and accommodations that will allow the student to successfully function in school settings.

Members of an Evaluation Team

Although there currently is no specific teacher licensure for the Traumatic Brain Injury Category in Minnesota, it is strongly recommended that the evaluation team include an educational TBI specialist who is knowledgeable and has had training in the area of traumatic brain injury. A licensed Physical and Health Disabilities teacher often serve as a TBI Specialist. Other members of a multidisciplinary evaluation can include special education teachers, school nurses, school psychologists, therapists, and other related service providers.

Utilizing Evaluation Data from Other Agencies

If a student has been recently evaluated in a medical, therapeutic, or school setting, this information should be considered in terms of relevance to the educational programming of the student. School personnel will be required to obtain a release of information from the parent/guardian before they are allowed to access confidential information from other agencies. Collaboration, sharing of information, and careful planning between medical/therapy providers, the school, and the family is critical in assuring a comprehensive and meaningful evaluation of the student.

Neuropsychological Evaluation

Specialized tests of cognitive functioning are frequently conducted by neuropsychologists and are typically performed in a clinical setting. Results from these tests are helpful in documenting more subtle learning deficits and linking such deficits

with brain function. Neuropsychologists are also skilled in identifying compensatory skill areas, accommodations, and strategies.

Required Components of a School Evaluation

When evaluating a student who is being considered for special education qualification under the category of TBI, the team should include a variety of formal evaluation tools. This will provide the most comprehensive profile of the student's learning and behavioral needs. A combination of standardized and norm-referenced measures, criterion-referenced measures, personality/projective measures, and sociometric measures should be included in the evaluation.

Informal evaluation tools and activities should also be a part of every evaluation. Checklists (such as the TBI checklist), classroom or work samples, student file review, pre- and post-injury educational and medical history, systematic behavioral observances in a variety of educational settings, and interviews with the student, the student's family, and the student's educators could be taken under review for consideration. An evaluation should include at least one of the suggested evaluation tools and activities.

Pre-Injury Profile

It is crucial to the evaluation process to gather information about the student prior to the injury. Comparing the student's behavior before and after the injury is important in terms of highlighting the changes that have occurred; both those directly related to the injury, and in reaction to the injury.

A student's school history, such as past standardized test records, history of learning or behavioral difficulties, past placement, past evaluations, and work samples should be reviewed to obtain a pre-injury profile of the student.

Identifying Uneven Cognitive Abilities

One of the primary hallmarks of a brain injury on a child's performance is unevenness in abilities across different settings over time, and across different content areas.

It is not unusual for a student with a brain injury to demonstrate performance on cognitive measures within a broad percentile range during the first few weeks and months following the injury. This large variability may indicate that certain areas of learning may be more intact than others and will be easier for the student, as compared to other areas of performance that are more difficult and challenging. This variability may not appear to be sensible or logical, given what we know about the normal development of academic skills.

Choosing the Correct Tools

There are a variety of school evaluation tools available that are helpful in identifying educational needs of the student with a TBI. The student's individual characteristics of age, current functioning, attention, and recovery phase must be considered when selecting evaluation tools. An evaluation of school performance may include intellectual or ability tests, which measure cognitive abilities and are most often conducted by school psychologists in the school setting. Achievement tests, which measure a student's academic performance, and school function assessments, which assess a student's ability to adapt and adequately function in typical environments, are most often conducted by special education teachers and/or related services personnel. Adaptive behavior scales can be completed by school psychologists or special educators.

Optimal Testing Conditions

The usefulness of evaluation data can be impacted if test conditions are not optimal. Those administering the test should ensure that the environment is free from distractions and that clear instructions are given. It is beneficial when short tests are given in brief sessions and frequent breaks are provided. In addition, an encouraging manner on the part of those administering the evaluation will help the student relax and avoid poor performance due to nervousness.

Modifying Standardized Tests

It is recommended that the evaluator examine the results of standardized tests. Once the standardized test has been administered to the student for comparison with the tests of others at his grade level, the administration of the test can be modified to identify cognitive areas which may affect performance. For example, a section of the test may be shortened, or additional time may be given.

Other possible modifications to standardized tests that measure cognition include allowing the student to use different response modes, providing examples, providing multiple choice responses, changing directions and content of test items, and enlarging print. Any test modifications should be documented in the student's IEP.

Functional Evaluation Tools & Methods

An alternative to standardized tools is functional evaluation tools, and can include such activities as student observations, interviews, and review of the student's educational history. Such evaluation methods are considered functional in that they are specifically designed to evaluate a student's performance in functional daily settings, and often include interviews and observations addressing organization, study skills, work completion, memory, attention, communication skills, behavior, and motor skills.

An additional consideration is that a student with TBI may require more frequent evaluation over a shorter period of time during the recovery. Frequently repeated standardized testing is typically not recommended; informal evaluation using a variety of functional tools may offer a better alternative in measuring student progress.

Informal Evaluation

An informal evaluation process can complement a standardized evaluation for some domain areas and result in more meaningful results by providing the team with a set of acceptable informal techniques. It can also be used outside the traditional evaluation/reevaluation schedule and create more frequent opportunities for collecting data and measuring student progress.

Systematic Observations

Systematic observations occur in the natural setting of the student, typically in a classroom, and requires the teacher to observe behaviors relative to the student's educational functioning. The collected data requires the teacher to explain how the student's impairment is affecting his classroom functioning. The [Brain Injury Observation Form](#) may be used as a tool to record information gathered from observations.

Functional Evaluation Tools Specific to TBI

Checklists and observation tools designed specifically for use with students with TBI include the TBI Checklist and the Brain Injury Observation Form. These tools can provide useful information for determining eligibility and for program planning. When conducting interviews or asking others to complete checklists, it is important to include nontraditional team members such as coaches, counselors, and hall/lunch/playground supervisors.

The [Traumatic Brain Injury Checklist](#) is a tool that can be used to evaluate the student in a variety of areas. When interpreting the findings, an educator who is trained and knowledgeable about TBI should carefully review and summarize the information obtained from this checklist. The following steps will assist in evaluating and interpreting the results.

Using the rating scale shown on the first page, the individual completing the checklist responds to each of the items by checking the column which best reflects the student's status. When scoring the results, the numbers are tallied for each category, and a corresponding score and percentage is calculated. Results from one or more raters can be tabulated, either individually or mathematically averaged.

When analyzing the tallied responses for each category, the most points possible (number on the bottom) represents the most severe and frequent occurrences of the behavior. By comparing the student's total points per category to this number and then calculating a percentage, the relative significance of the problem may be determined. A student who receives a score of 40% or more of the possible points may have significant concerns in that particular area depending upon analysis of the behaviors involved. For example, in the first section, Orientation and Attention to Activity, the total possible score is 24. If a student receives 10 or more points in this section, this total section score could be considered significant.

Interpretation of Evaluation Results

Indicators, trends, and interpreted results derived from observation worksheets, checklists, and other informal measures should be reviewed by the team along with all other formal assessment measures and procedures, and then summarized as part of the total evaluation. Information gathered from individual tools should never be used in isolation from other evaluation tools.

Evaluation results should be carefully interpreted by trained and knowledgeable special education staff, including an educator who is experienced in the area of TBI. The process of interpretation and summary should be team-based, and within the framework of the actual school setting. Environmental variables that may have influenced test results either positively or negatively should be included. Results of testing should be viewed as a student's present level of functioning and not necessarily as predictors of future performance.

Reevaluation

Since recovery from TBI can be unpredictable, reevaluation is important in order to monitor progress, review instructional objectives, and revise programs. This is particularly true in the case of rapid changes. However, over-testing can also result in frustration for the student without significant results. Decisions regarding the type and frequency of evaluations must be carefully considered by the team.

Considerations for Evaluating the Very Young Child

When evaluating a very young child, remember that he may experience heightened stranger and/or separation anxiety. Young children are influenced by their comfort level with their assessor, and the proximity of their primary caregivers. They may have limited communication skills which can interfere with comprehension and responses and should be evaluated in a variety of situations.

Part 5: Eligibility

Considerations for Determining Eligibility

[Minnesota Rule 3525.1348](#) defines traumatic brain Injury as “an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that may adversely affect a pupil’s educational performance and may result in the need for special education and related services.” This legal definition further states that the educational definition of TBI does not apply to brain injuries that are acquired (non-traumatic), congenital or degenerative, or induced by birth trauma. For more information on these types of injuries, see sections entitled “Acquired Brain Injury” and “Congenital Brain Injury”.

[Minnesota Rule 3525.1348 Subp. 2. Criteria](#) states that there must be documentation by a physician of a medically verified traumatic brain injury to qualify under the category of TBI. When the medical documentation is questionable or non-existent, there are options the educational team may want to consider if they feel that the evaluation results support a learner profile of a student with TBI. To read more on this topic, see the section entitled “Medical Documentation” on the following pages.

The Minnesota Criteria further states that there must be a functional impairment attributable to the TBI that adversely affects educational performance in one or more listed areas of learning. A comprehensive educational evaluation should assist the team in establishing which, if any, areas are impacted by the TBI, and to what extent. The team is then charged with developing an Individualized Education Plan (IEP) which clearly identifies the student’s strengths, needs, goals and related objectives, adaptations, and services. More information on developing an IEP can be found in Part 6 of this manual.

TBI Criteria Checklist

The Minnesota Department of Education has developed customized criteria checklists for each of the thirteen special education categories. This tool, [Traumatic Brain Injury Criteria Checklist](#) may be helpful to teams in providing a systematic way of documenting which components of the criteria have been met, and the decision that was made regarding eligibility determination.

Acquired Brain Injury (ABI)

Some medical conditions may result in an injury to the brain but would be classified as non-traumatic in nature and defined as a non-traumatic or acquired brain injury (ABI). As a result, such conditions would **not** meet criteria for the TBI category, as defined by Minnesota State Rule (with the exception of surgical resection of a brain tumor). However, it is important for a school team to note that the student may still present with

symptoms and educational needs that are typically seen in someone with TBI, and that the student may require accommodations and support in the school setting.

Some examples of medical conditions that would be considered non-traumatic include stroke, encephalitis, meningitis, aneurysm, anoxia, or brain tumor. These conditions may result in structural and biochemical changes to the brain, which can affect cognitive function and school performance. For example, a student's central nervous system may become inflamed by a virus, causing residual neurological effects. However, since the damage was not caused by external trauma, it is not considered a TBI.

The case of surgical resection of a brain tumor is unique and is evaluated on a case-by-case basis. This surgical procedure may cause damage to the brain tissue surrounding the tumor; however, resulting injuries must meet the definition of "caused by external force" to qualify for a medical diagnosis of TBI.

Congenital Brain Injury (CBI)

Congenital brain injuries result from a variety of medical conditions and are present at birth. These injuries can include cerebral palsy, a wide array of genetic or chromosome disorders or syndromes, and complications from premature birth. Although congenital brain injuries often result in impaired brain function, the student would not meet eligibility under the category of TBI in the state of Minnesota.

In the cases of both ABI and CBI, the educational team should consider eligibility under other special education categories that would best address the student's needs.

The chart on the accompanying page provides a framework for eligibility when considering the category of TBI and other categorical areas, based on the presenting medically diagnosed condition.

Considerations for TBI Eligibility

Traumatic Brain Injury	Congenital Brain Injury	Acquired Brain Injury
	Occurs at birth	Non-traumatic Occurs after birth
Caused By:	Caused By:	Caused By:
External Physical Force Motor Vehicle Crashes Falls Bicycle Injuries Recreational Vehicle Crashes Child Abuse Brain Surgery	Cerebral Palsy Genetic disorders or syndromes Chromosome Disorders Consider other Categories	Anoxic Injury Infection Stroke Toxins Tumors Near Drowning Consider other Categories

Medical Documentation

Before a student can be considered for eligibility under the category of TBI, there must be signed documentation of the TBI by a physician. This documentation is kept in the student's school file. Acceptable forms of signed medical documentation include a letter, physician's note, or discharge summary. Documentation must come from a medical doctor; diagnoses from neuropsychologists and nurse practitioners would not meet eligibility criteria.

Medical information is also helpful in identifying ongoing health issues and planning for related accommodations. For example, a medical perspective can be very beneficial to educators when determining the degree of trauma. In addition to general medical information, the effects of medication administered to the student and their potential side effects must also be considered in the evaluation process.

Lack of Documentation

On occasion, a family may not have the necessary medical documentation at the time of the evaluation. This may be the result of only having anecdotal evidence (e.g., parent report) of a long-past injury that was never formally diagnosed by a physician. Another possible situation may involve a family that has few or no medical records, has a history of emotional or physical trauma, or that is hesitant to request support from community or government agencies. When such situations occur, it is recommended that the school team work closely with the family to obtain the necessary medical documentation if there is justification for considering qualification under the category of TBI. The TBI specialist or other designated school staff can assist the family by linking them to county human services intake personnel or area medical clinics. Some clinics provide free medical services and/or a sliding fee payment option.

Once documentation is provided, the family and school staff should continue to work together to provide the physician with supporting evidence that would suggest the presence of a TBI, such as observation notes, classroom data, information from previous evaluations, and other anecdotal evidence. A physician may also consider making a referral for a neuropsychological evaluation to further clarify learning and emotional/behavioral needs.

Fiscal Responsibility

An important reminder to school staff: under both the Individuals with Disabilities Education Act (IDEA) and Section 504 of the 1973 Rehabilitation Act, school districts are obligated to conduct an evaluation, which can include a medical assessment, at no cost to the parents. Districts cannot require parents to seek a medical diagnosis as a prerequisite to conducting an evaluation.

Indicators of Need

To meet Minnesota eligibility criteria for TBI, a student must demonstrate a functional impairment attributable to the traumatic brain injury that adversely affects educational performance in one or more of the nine domains listed below. Listed under each area are some indicators of functional impairments that may result from a traumatic brain injury. A functional impairment is defined as an inability to function in activities and/or complete tasks in what would be considered typical age/grade level educational setting(s).

Intellectual/Cognitive Functioning Indicators: Distractibility; poor concentration; poor impulse control or inhibition; poor memory affecting encoding, retention, and retrieval of information; visual-spatial problems affecting part-whole reasoning, integration, and synthesis; impaired judgment, conceptual reasoning, and organizational skills; slowed processing speed and/or slowed output of information affecting performance in timed tests.

Academic Performance Indicators: impaired word recognition (dyslexia) or reading comprehension; confusion with math calculations, especially applications (dyscalculia); poor retention of facts in content subjects, such as history and science; errors in mechanics and fluent expression of written language (dysgraphia); difficulty integrating and applying new information.

Communication Status Indicators: oral motor dysfunction affecting articulation or swallowing; comprehension problems or inefficiently processing language; dysfluent speech or problems retrieving words from memory; pragmatic language deficits in conversation, turn-taking, and social rules.

Motor Ability Indicators:

- **Gross Motor:** extreme weakness (paresis) or total paralysis of one or both sides; reduced muscle tone (hypotonia) or rigidity; muscle contractions or spasticity; poor balance or ataxia.
- **Fine Motor:** reduced motor dexterity and tremors impairing cutting, drawing, or writing skills; problems with motor planning (dyspraxia) impairing dressing or assembly skills; problems with written output (dysgraphia) affecting written communication.

Sensory Status Indicators:

- **Hearing:** partial or total hearing loss in one or both ears; difficulty understanding spoken language in a noisy environment; development of a “ringing sound” (tinnitus); heightened or diminished sensitivity to sound.
- **Vision:** partial or total vision loss; visual field cuts (blind spots or areas); impaired visual tracking (affecting reading, writing, driving, etc.); visual blurring; double vision; heightened or diminished sensitivity to light.

Social/Emotional Development and Behavioral Indicators: Agitated, depressed, anxious, or labile behaviors; immature, insensitive, or inappropriate behaviors; poor or unrealistic perceptions of self or abilities; low frustration tolerance and/or persistence.

Functional Skills/Adaptive Behavior Indicators: problems with self-care (e.g., dressing, hygiene, feeding); inability to work independently; inability to generalize information from one setting to another; problems orienting self in time and space; difficulties with transitions or changes in routine.

In addition, the educational team should consider the following indicators which align with MN special education evaluation standards:

Health/Physical Status Indicators (secondary to TBI): physical limitations (e.g., physical activity restrictions and fatigue); medical problems (e.g., seizures, motor spasticity, headaches, pain, dizziness, or vertigo); medication needs (e.g., anticonvulsant, antidepressant, psycho-stimulant medications); need for assistive devices (e.g., wheelchair, positioning equipment, assistive technology).

Transition Areas:

- **Postsecondary Education and Training:** unrealistic goal setting; lack of awareness of post-secondary options; impaired self-advocacy skills and awareness of needs/accommodations.
- **Employment:** limited occupational interests; behavior interfering with employment; limited job seeking or interview skills.
- **Community Participation:** problems accessing reliable transportation; limited knowledge of legal rights; limited knowledge of and access to community services.
- **Leisure and Home Living:** difficulties with money management; difficulties with completing forms; difficulties with understanding contractual agreements; difficulties with medical management (e.g., self-administration of medication and making medical appointments); difficulties with locating housing; difficulties with maintaining a home (e.g., cleaning, repairs).
- **Recreation:** limited knowledge of and access to recreation options in the community.

Part 6: Designing an Educational Program

Educational Needs of a Unique Learner

Students who have experienced a TBI can be unique regarding learning and behavior. Their changed learning profile is impacted by the location and extent of the injury, their age, and the ability of others to provide appropriate support. The recovery process can be hard to predict, and the resulting educational needs can be complex and often hidden.

Recovery is an Ongoing Process

Recovery from a TBI can often be unpredictable and inconsistent. Neurological improvement can occur for months and years after the initial injury. Early dramatic improvements are often the result of recovery from secondary injuries, such as a reduction in swelling and bleeding in the brain tissue. However, it should not be assumed that full cognitive recovery will be equally swift. Changes in neurocognitive function can occur over a number of years and are often subtle. However, even as improvements are noted, new unmet developmental milestones or expectations can lead to frustration, confusion, or avoidance, requiring the team to be continually ready to support the student in new and meaningful ways.

Program Planning

Students with TBI typically struggle with multiple needs in a variety of areas, including cognition, language, social skills, sensory function, and behavior. While these students are capable of making remarkable progress when provided with carefully chosen accommodations, modifications, and support, they are at risk for frustration, failure, and diminished self-esteem when they are not adequately supported.

The educational placement of and services for a student with a TBI should be carefully considered and based on a thorough evaluation conducted by knowledgeable team members, including a TBI specialist. The diagnosis of a TBI does not dictate a specific program plan or placement. Rather, a continuum of services and accommodations should be considered and customized for each student, depending upon the following variables: age of onset, passage of time since the injury, type of injury, pre-existing abilities, pre-existing conditions, health status, areas of deficit, and environmental stability/support systems.

As the recovery continues and the student responds to new challenges, instruction, and social situations, the team should closely monitor progress, note areas of concern, and make necessary modifications on a daily basis. Effective communication between the student, family, and educators is especially crucial at this time.

Ongoing Informal Evaluation

The full impact of the TBI on student performance may not be fully evident immediately after an injury and may in fact change over time. In addition to an initial comprehensive evaluation, the team should also continue to monitor and informally evaluate the student for the first year or more after a return to school. The team should also be watchful for any problems with new learning, and for emerging problems not previously detected that can affect ongoing educational progress.

Individualized Education Plan (IEP)

For students who qualify for special education services, the IEP should address all areas of educational need, focusing particularly on cognitive, behavioral, and psychosocial needs identified through the comprehensive evaluation process.

Developing Goals and Objectives

Based on the student's unique learner profile, the IEP should identify appropriate goals, short-term objectives, and adaptations in both academic, behavioral, and executive function skill areas. Not all identified areas of need require immediate attention. When developing the IEP, it is the team's responsibility to prioritize needs and develop a timeline acceptable to all. Consideration should be given to educational needs that most interfere with the student's ability to function in school, can be resolved quickly or compensated for, increase the student's academic and social/emotional success, and are identified as major concerns by the student and/or student's family.

Accommodations & Modifications

For students qualifying under the TBI category, accommodations and modifications are a critical component of the IEP and require careful team consideration and advisement from the TBI specialist. A clear understanding of the student's needs as they relate to the TBI is a critical first step.

Accommodations

The Individuals with Disabilities Education Act has been reauthorized several times since 1975, most recently in 2004. IDEA 2004 uses the term "accommodations" to describe changes to the way students learn and are tested. Other similar definitions suggest that an accommodation is a change that helps a student overcome or work around challenges imposed by the disability.

Types of accommodations may include supplementary aids and services to be provided to the student, classroom and testing accommodations, supports for school

personnel to address the needs of the student with disabilities, and individual accommodations in the administration of state or district assessments.

Some examples of accommodations may include emergency evacuation plans, individualized health plans, modified school schedules, access to adaptive equipment and assistive technology, testing accommodations, extended assignment due dates, alternate response formats, additional adult support, alternate bus transport, and alternate instructional settings (such as the home or hospital).

Modifications

Modifications are often defined as a change in what is taught to or expected from the student. Adapting or modifying the content, methodology, and/or delivery of instruction is considered a modification and alters the rigor of the academic task. Modifications are an essential component of special education and should be carefully considered by the educational team before pursuing a special education evaluation, particularly if the student's educational needs are complex or transitory. For this reason, TBI specialists receive specialized training in how to best determine if the student requires modifications to the curriculum, materials, or instruction in order to be academically successful.

Types of modifications may include modified curriculum content, modified content for classroom assignments and tests, modified grading, modified course requirements, and modified district and state testing requirements.

Statewide Assessment for Students with Disabilities

The Federal Individuals with Disabilities Education Act (IDEA 2004), Minnesota State laws, and local district mandates require that all Minnesota students, including students with disabilities, must participate in assessments to determine if they have met academic performance standards or are required to participate in an alternate assessment. An alternate assessment is a way for states to measure the achievement of students who have significant learning deficits and are unable to participate in more standardized assessments.

Teaching New Skills and Concepts

New learning is often difficult for students with TBI because of accompanying cognitive impairments in the areas of memory, attention, information processing, and problem solving. Teaching new skills should be carefully planned and structured. The following practices may be beneficial: modeling the skill, utilizing auditory and/or visual cueing, prompting to shape the student's performance, reinforcing appropriate responses, using consistent approaches and extensive practice, and generalizing learned information to new situations or settings.

Another effective technique is task analysis, defined as breaking down the task into manageable steps. The purpose of using task analysis is to determine where the breakdown in learning is occurring during the task, and why.

Educators should determine what equipment and materials are needed to complete the activity, how much time is needed to complete the activity, and what technical skills and knowledge are needed for the activity.

Once these three basic questions have been answered, the specific demands of a particular activity can be assessed. Task or activity analysis is the process of analyzing and breaking down the task into its smallest performance components. When breaking down an activity, an educator must look at the primary skill areas and the individual abilities associated with each skill. The information below provides an overview of task analysis areas that should be addressed when trying to determine where the student is having difficulties.

Task Analysis: Motor/Physical Abilities

Educators should consider what position the student needs to be in, what range-of-motion abilities are needed, how much muscle/physical strength is needed, what degree of coordination is necessary, what types of grasping skills or movement patterns are needed, whether the activity requires the student to cross at midline, whether the student can maintain balance while doing the activity, and whether the activity is a low-key (passive) or high-key (active) activity.

Task Analysis: Sensory Abilities

Educators should consider how the student receives and responds to sensory information from the environment, what tactile skills are needed, what visual-perceptual abilities are necessary, and how hearing ability and sense of smell contribute to the activity.

Task Analysis: Executive Function Abilities

Educators should consider how much attention is required of the student, what degree of decision-making is required of the student, what problem-solving abilities are necessary, how much structure the activity provides, which organizational skills are needed, and what degree of adaptability/spontaneity is required.

Task Analysis: Cognitive Abilities

Educators should consider whether abstract concepts are a part of the activity, whether the activity requires new or previously learned information, and what the memory requirements of the activity are.

Task Analysis: Social/Emotional/Behavioral Abilities

Educators should consider whether the activity requires cooperation with others, how the activity affects the student's beliefs about himself, how the activity affects or is affected by the student's peers and teachers, how much emotional flexibility is needed, and whether the student is likely to feel embarrassed about his skill level in front of his peers.

Next Steps

After observing the student several times in a variety of settings and using a reputable method for data collection, the educator should also interview the student to gather additional anecdotal data.

The educator should then identify the tasks and settings that are posing the most challenges for the student. The tasks should then be broken down into smaller steps. Any appropriate accommodation and/or modifications should be identified. Individual steps and strategies should be taught. For example, when using the strategy of reverse chaining, the teacher initially presents a task that only requires the student to master the last step. As the student experiences success, new steps are introduced in a backward chain, allowing the student to build on previous successes and eventually accomplish the larger task. After the strategy has been taught, the teacher should practice with the student, with a focus on the components of the task that are most difficult. If necessary, an isolated environment while practicing can be provided. Continue practicing until the student demonstrates success with the full task, reminding the student to use the strategies that were most helpful.

Many times, classroom teachers are fearful that if the student is already falling behind their peers, breaking down the tasks will only slow things down more. They continue to give the student the complete assignment because they are focused on what the student is expected to learn at a particular grade level. Unfortunately, the student with a TBI may become overwhelmed and less successful as a result.

When successfully using task analysis from the beginning, the student will gradually begin to link the steps together independently, and the teacher can gradually reduce the support needed by the student.

Instructional Modifications, Accommodations and Supports

It is critical that the student continue to experience success from the first day of instruction following a TBI. This is important both academically and to the student's self-esteem and motivation. Appropriate instructional modifications, accommodations, and supports contribute to student success.

When developing an educational program for a student with TBI, it is important to analyze multiple educational environments and identify appropriate supports for each setting. Research indicates that identifying and providing these supports in a purposeful manner can often minimize the effects of a disability and promote placement in less restrictive settings. These program supports should be considered and matched to the student's identified needs on the IEP. The success of these supports can best be determined through systematic observations and feedback from others, including the student.

When and How Much?

In the beginning, it is usually better to provide too many modifications and supports rather than too few. It is best to initially provide more intensive support for the student to minimize stress, frustration, and possible failure.

However, it is also important for the team to prioritize areas of difficulty to avoid overwhelming a student, parent, or classroom teacher. After the team has become familiar with the student, it is suggested that they come together as a group and focus on some primary overlapping areas of need and use this process as a method to re-prioritize needs.

Instructional Interactions

Instructional interactions often present opportunities to improve the student's executive functions by asking questions related to planning and evaluating their performance. Some questions to consider asking the student include whether the task was easy or difficult and why, how well the student thinks he did and why, whether the student can repeat back the directions, whether the student can list the steps involved in the task, what the due date of the project is, whether the student needs help and how she can get it, whether the student did as well as she had hoped, and what the student could do to improve the quality of his work.

Curricular Modifications

Students with TBI often have profiles characterized by both preserved islands of skills and gaps in basal areas. In some cases, students may have intact higher-level cognitive skills but have difficulty performing lower-level tasks, which are often critical for success with many everyday tasks. For example, a student may be able to complete division problems, but experience difficulty with additional problems.

Most curriculum is sequenced-based and part of a skill hierarchy, and achievement at a given skill level implies that a student has all related antecedent skills intact. For students with TBI, this assumption should not be made. Conversely, the assumption that a student who cannot perform a specific skill has not retained higher

level skills may also be incorrect. Instruction should focus on preserving higher-level intact skills while practicing lower-level skills that have been lost.

Instructional Modifications

Educators must also consider modifications in their instruction in order to promote successful learning situations for all students. An example is outlined below.

Instructional Goal: Assist student with organizational difficulties

Suggestions:

Consolidate lengthy directions into smaller steps or chunks, provide student with list of key words and concepts immediately prior to introducing lesson, help student organize his thoughts by teaching from a concrete to abstract level, provide examples, use techniques to help student categorize and associate or link new information with previously learned information.

Additional suggestions for instructional modifications can be found in the Appendices section.

Compensatory Strategies

Some cognitive deficits experienced by students with TBI may not respond to remediation and will require that the student develop strategies to compensate for these difficulties. Compensatory strategies are a method of applying tools or methods to compensate for lost or diminished abilities. Most people use compensatory strategies and tools throughout a typical day without realizing it, such as technological devices, calendars, maps, recorders, study techniques, and planners. Compensatory strategies for students are tools and methods that help them achieve goals and are essential to their increased independence and success. Some strategies may be utilized in a variety of settings, including the student's home, school, and community.

Some Examples

There are many compensatory strategies, most of which require careful consideration and customization to fit the needs and strengths of an individual student, his environment, and expectations of him.

Examples of compensatory strategies include identifying a study location that enhances focused attention, developing a study schedule, recording class notes, developing a story outline through webbing, rehearsing as a study technique, highlighting main ideas in notes or texts, keeping an assignment log and checking off work when complete, choosing to sit in a desk close to where the instruction will

occur, utilizing a school map or schematic to aid in recall of room locations, and using color filters or enlarged text for reading.

Compensatory Strategy Principles

A student with TBI may lack awareness of her new deficits, and subsequently may not see the benefits of compensatory strategies. It is critical that the educator works closely and respectfully with the student to help her better understand her changed abilities and needs.

When using compensatory strategies, remember to assist the student in becoming more strategic in his approaches to learning. The student should understand the rationale behind the strategy each time it is introduced. The use of compensatory strategies must be taught to a student, often requiring frequent instruction and practice. Do not allow the strategy to get so complex that it interferes with the student's ability to concentrate on the task at hand. The number and types of strategies introduced should be limited because a student's ability to concentrate is often impaired. Compensatory strategies can take a long time to master but may also need to be modified or eliminated. Consistency is important, but so is flexibility. Students need to practice strategies to the point where their use becomes automatic. They should be encouraged to "own" the strategies, and to be involved in the process of deciding which strategies to try and keep.

Environmental Accommodations

In addition to evaluating and implementing instructional modifications and compensatory strategies, the team must also address the demands of the new environment and the child's ability to meet those demands. Although environmental accommodations may be essential in the beginning (and, indeed, may always be needed to some degree), the goal for all students should be to gradually decrease the amount of environmental support whenever possible.

When identifying potential environmental accommodations, the team should consider the new, unfamiliar, or confusing situations that the child may be exposed to. Educators should be aware of any new and unfamiliar environments that the student may need help navigating, such as new school buildings, new buses, and field trip locations. The team should anticipate the activities that will be required in these new environments and the skills which the student will need to be successful (such as finding the correct classroom, following a schedule, and remembering to bring materials to class). The student may be able to build upon skills he already has.

Examples of Environmental Accommodations

Various types of adaptations to the physical environment might include preferential seating arrangements for optimal location, adaptations to architectural barriers, lighting, and noise level, and alternative locations for studying and taking tests.

Part 7: Behavioral and Emotional Health and Social Changes

Behavioral Changes Following a TBI

The social, emotional, and behavioral changes that may be experienced by children and youth with TBI are often the least understood aspects of the injury and can be the most challenging to address. The child may appear to have recovered these faculties, but subtle neurological changes that affect behavior can still exist. Such difficulties are not always evident at first glance. Behavioral changes may initially be masked by other, more obvious impairments or injuries, and emerge later as school challenges mount.

A TBI often has a pronounced effect on a student's behavior. Many times, the changes reflect an exacerbation of challenging behaviors that the child had prior to the injury. There are other behaviors that may occur as a direct result of the injury and are new responses for the child. The child may demonstrate depression, grief, or anxiety over his loss of ability, lower tolerance for stress, irritability, impulsivity and recklessness, or emotional flatness and passivity. Some children and youth react to their post-injury state by denying that there is any change from before the injury. They may deny or minimize physical or cognitive limitations. This denial can reflect a cognitive inability to realistically judge and evaluate their own performance. In such cases, the student may benefit from counseling to address these issues.

Behavioral changes seen in young children can include the following: increased restlessness or fussiness, becoming quieter than usual, becoming upset more easily than before, decreased energy and interest in playing, becoming clumsier than normal, losing speech, using fewer words, and becoming less able to do physical tasks such as self-feeding or toileting than before.

Behavioral changes seen in adolescents or young adults can include slower performance in the classroom, being more easily upset, agitated, or irritable, reduced interest in activities, difficulty dealing with others, and mood swings.

It can be helpful to contact the TBI specialist, school counselor, social worker, or psychologist to facilitate a student's insight into emotional changes and assist in developing coping strategies. The student should be involved in decision-making about accommodations and be offered some flexibility, while expectations are maintained. Some strategies include minimizing changes in the student's routine, proactive behavior intervention strategies geared to help the student return to baseline emotional functioning, and a self-review of behavior on the part of the student at the end of the day.

Social - A staff person can be identified to monitor the student's social readjustment to school. If help is needed, the student can benefit from support in unstructured

settings, including use of the “buddy system” or older-grade mentor to model appropriate social skills. The student should be encouraged to continue to participate in after-school programs that don’t hamper recovery. If conflicts with peers arise, school staff should be prepared to discuss proper conflict resolution with the student.

Multiple Factors to Consider

Following a TBI, it is not unusual for a child to exhibit exaggerated behaviors that have never been seen before. Additional consideration is needed in situations in which a child was diagnosed with a disability prior to the TBI, and behaviors are now magnified. For example, a student may have had a diagnosis of attention deficit hyperactivity disorder (ADHD) prior to the TBI. Following the brain injury, school staff and family may note increased impulsivity and irritability, and decreased ability to initiate, focus, attend to, and complete tasks.

Occasionally, there is a history of a previous TBI in addition to the more recent brain injury. As a result, there may be cumulative effects that could exacerbate previous learning deficits and behaviors. Such situations will require careful consideration on the part of the school team as they determine the degree of impact from past injuries versus that of the recent TBI.

Behavioral changes can follow a somewhat predictable pattern, depending upon the degree and type of the brain injury, but each case is unique. Changes in behavior can last for days, months, or longer. In some cases, a TBI can have long-term implications in how a person relates to others. These changes often cause significant distress and concern on the part of the family, the school, and the child himself.

Emotions and behaviors are closely related. The student’s emotional status can be in reaction to the injury and can trigger behavioral responses. For example, a student who is experiencing depression and anxiety because of the TBI may react by showing more irritability, anger, or frustration. Or the behaviors may be the direct result of organic changes in the brain caused by the TBI, resulting in the inability of a child or teen to inhibit or control their behavioral responses.

Positive Behavior Strategies & Supports

Strategies that employ positive behavioral support and antecedent behavior management are often most effective for students with TBI. Other behavioral approaches, such as consequential behavior management (CBM), rely on a student’s ability to remember previous behaviors and consequences, and therefore are generally not effective with this population.

Environmental Accommodations

Following a TBI, students often experience difficulties in coping with environments that are unstructured, change frequently, or provide too much visual or aural stimulation. As a result, they may become easily distracted, disoriented, or agitated. Providing a calming, routine environment offers an opportunity for students with TBI to be more successful. Examples of some settings and corresponding supports can be found in the table below.

Environments	Supports
Large, noisy, or active classrooms	Portable carrels; headphones; access to a quiet room for rest or work
Hallways	Ability to pass during less congested times; locker near home room; classes clustered together
Cafeteria	Seating in quieter area of cafeteria; support when going through lunch line; preferred or selected lunch mates
Playground	Increased supervision; guided activities; confined area; option for indoor recess and preferred activity
School bus	Seated near front; support from bus paraprofessional
Gymnasium	Small group activities; headphones; use of alternative rooms or areas
School assemblies or large events	Provision of a quieter corner; provision of an alternative activity; option to not attend

Specialized Behavioral Instruction

Students with TBI often benefit from specialized instruction provided by educators who are skilled and trained in social/behavioral functioning and are knowledgeable in the area of TBI. These educators should monitor the student's ongoing social and emotional status through discussions with the student and team members (including parents/guardians) and observations of the student.

Examples of Positive Behavior Strategies

There are a number of ways that educators and family members can support a student through the use of positive behavior strategies and supports. For example, visual schedules and periodic rest breaks can be provided. Structure and consistency should be emphasized in the student's schedule as much as possible. The student should be prepared in advance for transitions and changes in the routine and should have a way to communicate her needs in an effective and simple manner. Care should be taken not to overwhelm the student; this can be avoided by breaking down tasks into manageable smaller steps.

Words of encouragement and positive reinforcement can go a long way. Focus on positive goals and strengths and how they can be used to address needs. Frequent opportunities for pleasurable, meaningful activities can motivate the student for more challenging activities. When the student becomes agitated or angry, using a soothing, quiet voice to calm the student is more effective than trying to reason with the student. Model appropriate behaviors, acknowledge their frustrations, and discuss the relationship between TBI and changes in behavior and learning. Be sure to intervene early before behaviors escalate. Use redirection, when possible, but also provide direct feedback when needed. The student can be assisted in identifying possible consequences for actions, as well as in weighing pros and cons regarding decisions and behaviors. Subtle signals or cues can be created with the student to help him remember the "stop and think" strategy. Educators and family members should follow through on previously established promises and avoid promising things that can't be delivered.

Antecedent Behavior Consequence (ABC) Model

Antecedent management follows a prevention model that emphasizes managing behaviors before they happen. Research suggests that this intervention model is much more effective for students with TBI than the more traditional consequential behavior management (CBM) model, which uses positive and negative reinforcement to modify or change behaviors. If a student has cognitive or memory deficits resulting from a TBI, the student may not recall the positive or negative reinforcement they received earlier or follow the complexity of a token system.

Components of the ABC Model

An **antecedent** is what happens BEFORE the behavior is exhibited, and can happen minutes, hours, or even days before the behavior occurs. **Behavior** is what happens in observable and measurable terms. **Consequence** is what happens as a result of the behavior.

Analyzing the environment and identifying the triggers, or antecedents, that directly or indirectly affect behavior is a challenging but crucial step in the process of making adaptations to the environment, task, or expectations, and in decreasing the severity and frequency of undesirable behavior.

Antecedents can be actions or words (the teacher asking the student a question, another student talking too loudly), environmental (a noisy cafeteria, a crowded hallway, a too-brightly lit classroom), behavioral (two students arguing, a difficult morning on the bus), emotional (feelings of anger or frustration), or physical (feeling tired or hungry, having a headache).

Positive Approach

A positive approach to address behaviors should be built upon the process of identifying the behavior, consequence, and antecedent, and then identifying and implementing strategies that will help the student avoid the problem in the future, develop coping strategies, or create alternative solutions.

Behavioral Evaluation

It is important to establish a proactive approach and assume there may be some emotional/behavioral challenges when a student first returns to school following a TBI, or as the student approaches milestones or transitions. For example, it is quite common for previously unidentified behavioral concerns to emerge when a student transitions to a different classroom, grade, or school, particularly during adolescence.

When returning to school following a TBI, the team will certainly want to address emotional/behavioral needs as part of the initial evaluation process. When transitions approach, the student's team should prepare the student as much as possible prior to the change by providing opportunities to visit the new setting beforehand, meet new teacher(s), or connect with a peer mentor.

If behavior concerns increase or have existed for a long period, the team may want to consider administering a functional behavior assessment (FBA), which can assist the team in identifying antecedents and create strategies for decreasing unwanted behavior. Teams should be aware that modifying entrenched behaviors can take time. However, positive change is possible with good data, patience, a consistent approach, and appropriate strategies.

Evaluating the Behavior

The purpose of any behavior can change frequently over time, so it must be continually evaluated. Once a behavior's purpose is understood, a strategy can be planned. Effectively evaluating behaviors include the following steps:

Identify Changes in Behavior

Know how the student behaved and learned prior to the TBI and identify changes in behavior after the injury.

Define and Evaluate the Behavior

Operationally define the behavior in such a way that everyone understands and recognizes it. What is the student doing? How long does the behavior last? Next, assess the behavior by carefully observing the student and documenting everything that may be possibly related to the behavior in question. What is the purpose behind the behavior? What are the antecedents, i.e., where was the student when the behavior was observed? What time of day? What happened seconds, minutes, or hours before the behavior? How was the student feeling? Who was present? Were there any changes in the routine or support? Finally, identify the changes or strategies that will be most successful in meeting the needs of the student so that unwanted behavior is no longer necessary.

Evaluate Regularly and Often

Frequently review the strategies and adjust as needed, focusing on compensatory strategies, and taking any cultural or language differences into account.

Some examples of proactive behavioral strategies for adolescents with TBI are outlined in a document developed by the Courage Kenny Rehabilitation Institute entitled "Adolescents with TBI: Commonly Observed Behaviors and Possible Strategies". This document can be found in the Community Resources section of this manual.

Teaching Appropriate Behaviors

When a student shows excessive agitation, anger, or aggression, educators should not assume that the student is aware of acceptable boundaries or that she is capable of altering inappropriate behavioral responses. Appropriate responses may need to be taught through a series of instructional approaches that incorporate a variety of methods such as modeling, rehearsal, and cueing.

Confrontation and delayed consequences such as detention and suspension from school activities are likely to be ineffective at best, and may actually increase levels of frustration, anger, and misunderstanding. Work directly and proactively with the student

to understand antecedents, such as what he feels and acts in certain settings, situations, or with specific people, and provide acceptable alternatives to avoid challenging situations in the future.

If the strategy doesn't work, don't be afraid to try new strategies or review previously used ones. Ensure that the strategies continue to be effective and current by involving both the student and family when developing the plan, focusing on the student's strengths, needs, and preferences, and providing a nurturing and welcome environment for the student. In addition, be sure to provide structure and routine so that the student can anticipate needs. Alert the student to possible changes, including providing sufficient notice and opportunities to practice new strategies.

Impact of TBI on Self-Esteem and Emotional Maturity

Prior to a TBI, a student may have a fairly clear understanding of who they are, such as their abilities and interests, their dreams for the future, their identity within a family unit, and their friendships with peers. After sustaining a TBI, a child or teen's perceptions of her own competence, intelligence, future plans, and social success can be drastically impacted. Research shows that as the student becomes aware of his injury and related limitations, self-esteem drops, and self-doubt and depression are frequent outcomes. Some students may have difficulty understanding and adjusting to the changes in their lives resulting from the TBI and may confabulate or create a more acceptable interior world for themselves.

Impact of TBI on Social Relationships

Research indicates that children with TBI often experience a loss of friendships during the first year of recovery. Challenges in the areas of cognition, communication, and behavioral skills can interfere with maintaining and initiating new friendships, often in subtle ways. The student may initially receive a significant degree of support from staff and students upon their return to school, but as time passes, friends may drift away, and the child or teen may experience feelings of increased social isolation and poor self-esteem. The family and school team will need to work closely with the student to create and support an ongoing support system that will supplement or replace previous systems.

Connecting Areas of Deficit with Potential Social Challenges

Additional social challenges resulting from a TBI can affect children and youth differently, impacted by pre-existing variables such as innate personality traits, cultural and family values, environmental factors, and prior social relationships. Some of these potential challenges are included in the following chart and are aligned with specific areas of deficit that may result from a TBI.

Areas of Deficit	Potential Social Challenges
Attention and Language	Initiating and maintaining conversations
Memory	Remembering faces, names, social rules
Visual Processing	Reading social cues
Impulse Control	Making appropriate comments
Judgment and Decision-Making	Self-monitoring of behavior and language; degree of influence by others
Planning and Organization	Making and keeping plans with friends
Problem Solving	Navigating social relationships
Insight	Expressing empathy and understanding
Energy Level and Motivation	Keeping up with friends and activities; following through with plans
Visual-Perceptual Awareness	Maintaining appropriate social space
Information Processing	Reading social cues, understanding humor, gestures, body language, facial expressions
Initiation	Appropriately engaging in activities

Social Skills Training

This type of training focuses on the development of social skills, assertiveness, and problem-solving techniques. For students with TBI, this type of training may be helpful, particularly as it relates to role modeling. This technique allows the educator and student to practice various social communication situations in a safe environment, while learning appropriate responses or strategies and providing opportunities for repetition and rehearsal of new skills.

Tips for Teaching Social Skills

Students with TBI will require more supervision than is typically considered appropriate for their age. Identify a person who the student is comfortable with, and who can provide support and guidance in social situations if needed. Observe the student in the lunchroom, hallways, gym, and playground (and school bus if feasible). Consider role-playing or video-modeling to develop targeted social skills, as well as concrete methods for teaching abstract concepts (such as using a circle on the floor to demonstrate personal space).

Identify clear social boundaries if judgment is an issue. Be sure to firmly address unacceptable social behaviors. Educators should encourage positive social interactions with a small circle of friends, and help the student identify social hobbies or after-school groups to participate in. Younger students can be involved in a social skills group where specific skills can be developed and nurtured. Finally, match the student's strengths with opportunities to shine in the classroom or school building, such as by performing special jobs or tasks.

Tips for Helping Peers of the Student

Educators should provide open and honest communication and concise information about TBI at an age-appropriate level with peers of the student with TBI. Discuss how to interact and show support to the student with TBI, including how to handle inappropriate or unusual behavior. Identify someone at the school who friends of the student with TBI can turn to for advice and who can support their efforts to support their friend.

Part 8 Special Considerations for Very Young Children

The Very Young Child

A child's age at the time of injury influences brain development, which can affect their outcome. The younger the child, the more profound the outcome of a brain injury may be. When a brain injury occurs, information previously learned is often retained, but new learning can be significantly hindered.

The effects of TBI in young children are often not seen until more sophisticated skill levels are required. It is at this time that neurological deficits from a childhood injury become more apparent. For example, executive functioning skills (judgment, problem solving, reasoning, organization) typically don't fully emerge until adolescence. Consequently, the effects a childhood injury has on the child's executive functioning will not be fully experienced until adolescence. Monitoring children over time for these delayed consequences is critical.

While every child with a brain injury requires individual consideration, there are some unique differences that should be noted when a child suffers a brain injury at a very young age. For decades, the concept of "brain plasticity" led the medical community to believe that younger children could use undamaged parts of their brain to acquire new skills after brain injury, and therefore better compensate for their injuries. While this may be true with some injuries, it is now known that a very young child who suffers a brain injury may face lifelong deficits. This knowledge, combined with the fact that children aged birth to four are one of the highest risk groups for sustaining a TBI, makes brain injury in the very young child a serious health concern.

Brain Development

Traumatic pathology in a very young child is different from that of adults for several reasons. Myelination is the process by which a fatty layer of the brain, called myelin, accumulates around nerve cells. This process occurs during the first three years of life. Myelination enables nerve cells to transmit information faster and allows for more complex brain processes. Until myelination is complete, the consistency of the young brain is soft and more like custard, making it susceptible to forces of impact. When young children sustain injuries to the temporal and frontal lobes, normal development can be affected.

In addition, injuries to the young brain tend to be more diffuse, rather than localized to a specific area. The young brain tends to swell rapidly, creating a higher risk for secondary injuries. Younger children are also at higher risk for post-traumatic seizures and epilepsy.

Mechanism of Injury

In addition to characteristics of the young brain itself, a young child's anatomy places them at increased risk for sustaining a brain injury. Young children have proportionately greater weight in the upper half of their bodies than adults or older children do. Given this distribution, the head, with its relatively large mass and volume, often becomes the major point of contact when the body falls.

Young children are also more susceptible to falls due to their developing motor and sensory skills. In fact, falls are the number one cause of brain injury in children. The child's brain is also the most frequently injured part of the body in motor vehicle accidents. During a crash, the young child can sustain trauma to the brain due to the movement of the brain within the skull, even when they are restrained properly.

Impact of Injury

In addition to being at higher risk for sustaining a traumatic brain injury, young children are also faced with significant consequences when an injury does occur. Synaptic connections and dendrite formations occur predominantly in the first two years after birth. Interruption of this process can produce a cascading effect, impacting later developing neuronal tracts which are critical for developing skills. One long-term study followed children who were injured before the age of two and who were then discharged from a medical facility without obvious impairment. During follow-up evaluations later in their toddler years, however, it became easier to identify developmental lags in these children.

Concussion in Infants, Toddlers and Preschool Children

Very young children may suffer bumps and bruises to their heads from falls, direct injuries, motor vehicle crashes, accidents, or other causes such as child abuse. Sometimes these causes can result in a concussion. Deciding when a child needs an immediate concussion assessment can be difficult. Young children may have the same concussion symptoms as older children, but they do not express them in the same way. For example, young children cannot describe where they are hurt. If in doubt, get an immediate evaluation from a medical professional. At routine health checks, a doctor should ask about all the child's "bumps on the head" and should consider referring the child to the emergency department if they suspect a "bump on the head" might be a concussion.

Acute signs and symptoms of a concussion include vomiting, headache, crying that can't be stopped, restlessness, or irritability.

Pediatric Abusive Head Trauma (AHT)

Pediatric abusive head trauma (AHT) is defined by the Centers for Disease Control and Prevention as inflicted cranial, cerebral, and related spinal injuries resulting from blunt force trauma, shaking (also known as Shaken Baby Syndrome), or a combination of forces. This diagnosis is commonly identified as a TBI in that it has resulted from external physical force. Shaken Baby Syndrome (SBS) or Abusive Head Trauma (AHT) occurs when someone shakes a child so hard that the unsupported head moves about violently, causing damage to the brain and blood vessels as the brain repeatedly hits the skull.

CDC research indicates that among children in the U.S., abuse is the third leading cause of all head injuries, after falls and motor vehicle crashes. Every day, three to four children are victims of AHT, with 20 percent of the cases proving fatal in the first few days after injury. Chronic, often lifelong disabilities can include learning and behavioral disorders, profound mental and developmental delays, paralysis, and blindness. In severe cases, infants and young children who suffer AHT may demonstrate unresponsiveness, loss of consciousness, breathing problems, and loss of pulse.

Infants and young children may also exhibit the following symptoms: change in sleeping pattern or inability to be awakened, vomiting, convulsions, seizures, irritability, uncontrollable crying, inability to be consoled, and inability to nurse or eat.

Implications for the Educational Setting

The age of injury, severity, cause, and physiological response to a brain injury all play a role in a child's ultimate outcome. It is critical to assess the child at various developmental milestones and transition points where previous learning is essential for the next step of development. For example, a child may acquire the ability to read, but it will be important to determine whether they have the cognitive skills to functionally use reading to learn and retain new information (the transition from "learning to read" to "reading to learn").

For many children injured at a young age, adaptations, and accommodations for impaired executive functions such as planning, organization, and retention and recall of information are often required. Early introduction of age-appropriate reminders, organizational tools, calendars, and task lists can improve skills and reduce confusion and frustration. Similarly, early positive behavioral supports can assist with providing the structure, social network, and interaction that may not otherwise develop with a typical trajectory of development.

Because skill acquisition in the cognitive, social and communication domains during the preschool years is so critical for later development, it is important that children undergo periodic evaluation following an injury.

Part 9: Post-Secondary Transition: Considerations for Evaluation and Planning

Post-Secondary Transition Planning in the School Setting

Transition planning is important at all stages of a student's education, especially when planning for the transition from high school to adult life. Minnesota Rule states that, when a student with special needs reaches ninth grade or the age of fourteen, whichever comes first, the team will conduct an evaluation and develop an IEP that will address the student's secondary transition needs. An invitation to the student to attend their IEP meeting is required at a minimum during ninth grade. Decisions about post-secondary training, job and career development, and independent living options will not be embraced by the student if he is not part of the process.

Identifying Options

When assisting the student with development of transition skills, school services may want to offer opportunities to participate in work experience programs, career and technical education classes in the high school or community setting, or post-secondary options courses at area colleges. As the student nears graduation, other individuals from the school and community agencies who provide instruction or support to the student should be included in the planning, such as a job coach, county social worker, or rehabilitation services counselor.

Providing transition support to students with TBI offers a unique challenge to school teams and families. Students often have needs that extend beyond the more typical passage into adulthood. These needs can encompass the areas of financial planning, health care, residential options, and home support such as PCA services. Specialized transportation needs, a modified work environment, and customized social, recreational, and leisure opportunities should also be considered.

School Transition Evaluation

Purpose

For each student, the district is required to conduct an evaluation that addresses secondary transition needs and plans appropriate services to meet the identified needs. The evaluation is useful for establishing a baseline of acquired skills, and documents the student's strengths, interests, preferences, and needs. If a neuropsychological evaluation was recently completed, this information should be included in the initial transition evaluation to identify strengths and limitations in cognitive, motor, and behavioral functioning.

Settings

A transition evaluation requires gathering and analyzing information from a variety of sources and evaluating the student's performance in a variety of environments including the classroom, community, and work setting. Standardized tests should be supplemented by situational observations, on-the-job evaluations, and community-based evaluations that focus on work skills. Age-appropriate assessments provide baseline data, assist the student in identifying strengths, interests, and preferences, identify appropriate accommodations, and support appropriate instruction and activities to achieve measurable postsecondary goals.

Areas of Focus

Areas to monitor as part of a functional vocational evaluation of a student with TBI should include awareness and appraisal of work abilities and deficits, attention, concentration, memory, ability to set vocational goals, ability to utilize compensatory skills, interpersonal skills and work behaviors, adapting to varying work demands, management of personal and self-care skills, emotional control, work performance and work skills, self-reliance in mobility/transportation, planning, organizing, initiation of tasks, ability to generalize and transfer skills, problem-solving, psychomotor skills, physical functioning, learning style and capacity for new learning, perceptual abilities, need for an availability of social supports, and need for extended or long-term support on the job.

Strategies for Facilitating a Smooth Transition from High School to Adult Life

Provide the student with hands-on experiences in all transition areas throughout the high school years. Gear the experiences to identified areas of vocational interest, strengths, and goals for the future. Develop a comprehensive transition plan that reflects data from current evaluations, knowledge of the student's strengths and areas of need, and vocational interests.

Balance the need to be realistic about the student's abilities with their desire to pursue their interests and goals as an adult. Explore ways to provide the support and services needed for a successful transition. Transition programming may be available through the school district if additional special education services and support are needed to assure completion of IEP goals by the age of 21. Adult support services are often available in the community; check with the school district staff to see if there is a list of online resources and contact information. Work as a team to ensure the IEP (or 504 plan) is updated and includes relevant information such as accommodations. Create an electronic portfolio that reflects the strengths and interests of the student as they relate to employment, post-secondary education, and training.

Standardized College Admissions Tests & Accommodations

The ACT (American College Testing) and SAT (Scholastic Aptitude Test) are standardized college admissions tests generally taken in the junior year of high school. Schools should carefully document all needed accommodations on the IEP throughout the student's high school years. Students with documented disabilities (which must be submitted with the application accommodation request) may request accommodations when taking the ACT or SAT tests, including extended time and alternative formats. Students must complete an application before receiving permission to use accommodations.

ACT accommodations at many national registered test centers include extended time to take the test and large-print test booklets. It should be noted that not all national testing sites provide accommodations, and that not all applications are accepted. Families should plan early and check the ACT or SAT website for more information.

Special testing at the student's school site (as opposed to a test center) is designed for students whose documented disabilities require accommodations that cannot be provided at a national test center.

Examples of Accommodations

Examples of accommodations that can be provided at the student's school site include more than time-and-a-half testing time, testing over multiple days, alternate test formats (Braille, cassettes, audio DVDs, or a reader), use of a scribe or computer for the writing test (typically for disabilities that prevent students from writing independently), and extended time on the writing test only (students with developmental writing disorder, written expression, or dysgraphia).

College Disability Services

Post-secondary institutions that receive federal funding are required to offer support to students with disabilities as defined under Section 504 of the Rehabilitation Act. These colleges and universities have at least one designated staff member who is knowledgeable about Section 504 regulations as they pertain to accommodations and supports for students with disabilities. Students who may be in need of extra accommodations should be aware of who to contact at their college or university should the need arise.

Supplemental Security Income (SSI)

Supplemental Security Income (SSI) is coordinated through the Social Security Administration, and pays monthly checks to the elderly, the blind, and people with disabilities who meet income guidelines. SSI recipients often qualify for food stamps

and Medicaid as well. Children, as well as adults, can qualify for and receive benefits as a result of a disability if they meet criteria.

To receive benefits from the Social Security Administration, you must live in the United States as a United States citizen or other legal resident. Call 1-800-772-1213 to set up an appointment with a Social Security representative. People who are deaf or hearing impaired may call the toll-free “TTY” number: 1-800-325-0778.

Vocational Rehabilitation Services

Vocational counseling, which is available through local school staff and community agencies such as the Department of Rehabilitation Services, can be helpful in building and supplementing social supports and identifying and developing the skills necessary for positive vocational adjustment.

Vocational Rehabilitation Services (VRS) assists individuals with disabilities in becoming employable. Services include diagnostic and evaluation services to help establish eligibility, guidance, counseling, education, and training. Prior to a student’s senior year, contact the vocational rehabilitation (VR) counselor that works with the student’s district. Although the VR counselor may participate in team planning and attending meetings during the latter part of the student’s high school years, they typically don’t initiate formal services until the student graduates from high school. An individual may be able to access vocational rehabilitation services if the disability makes it difficult to develop work skills and find or retain a job. In order to qualify for services, the VR counselor will review reports from the student’s physician, school, or other outside agencies.

Vocational Counseling Topics

Topics for vocational counseling specific to TBI might include the impact the TBI has on the student’s vocational planning and goals, identification and exploration of career interests and aptitudes, career planning, employer and community expectations, development of interpersonal skills, and identification and utilization of vocational and social supports.

Legal Supports: Age of Majority

For the family of an adolescent or teen with TBI, the prospect of adulthood brings unique challenges to mind. Families are often concerned about the teen’s judgment, ability to understand the consequences of her actions, ability to handle finances, and ability to live independently. However, there are many options to consider for children who have a significant disability and are approaching the age of majority. Many community advocacy agencies can provide families with information and resources as they begin to help their child plan for adulthood. It is important to inform the student and their parent/guardian that guardianship will automatically transfer to the young adult at

the age of 18 unless legal steps have been taken to assign guardianship to another court-appointed party.

Drivers' Evaluation and Training

A drivers' evaluation is designed to measure a person's ability to safely operate a motor vehicle. If a student has a disability and has not yet learned to drive, the evaluation might be their first step in determining their potential to drive a motor vehicle safely and independently. The evaluation will involve measuring visual, cognitive and physical skills, as well as the need for adaptive equipment, and will include a behind-the-wheel assessment. After completing a drivers' evaluation, recommendations will be given that may include drivers' training. Drivers' training is based on the individual's needs and abilities in safely and independently operating a motor vehicle.

Part 10: Considerations for Working with Families

A Parent's Viewpoint

Recovery from a TBI is a long and uncertain process and can impact a family in often unanticipated ways. Immediately following the injury, family members may experience shock, bewilderment, fear, and anger. These reactions are not uncommon, and may last for days, weeks, or longer.

As time goes on, parents often report feeling overwhelmed and exhausted by the many changes that occur as a result of their child's injury. The initial recovery process can be misleading in terms of long-term prognosis, resulting in expectations on the part of the family that may later prove to be unrealistic.

Parents and educators may also have different timelines and expectations. Educators rely on a consistent framework that revolves around the academic year, subject areas, and curriculum. However, for the student with a recent TBI and his family, everything is new, different, and often difficult. Each year brings new teachers, new classes, new challenges, and new questions.

Resources and Information

As families move along this continuum, school staff will be in a unique position to assist them in accessing information about educational services and community support.

If appropriate, suggest that families connect with other families who have had similar experiences. Parents can utilize existing parent-to-parent support programs such as Family Voices of Minnesota or hospital/community support groups. Parents can also contact the Minnesota Brain Injury Alliance for information, resources, and family support. The county human services department can provide information on waived services, respite care, and medical assistance. Parents can be encouraged to start a home filing system to manage information and records, or a journal to record their child's progress over time.

Collaboration

School staff should anticipate that family members may react differently to the challenges that come with having a child undergo a traumatic and sometimes life-changing event. Educators should not assume that all families will have the same level of resilience, support systems, and coping strategies. Educators should also acknowledge that parents know the student best and should have a clear voice as a team member, even though they may be relatively new to the world of brain injury.

When school staff are introducing families to specialized services and supports for their child or teen, it can be helpful to have the family identify a person in the school who they are comfortable with and would serve as a primary point of contact if concerns arise. This person does not necessarily have to be the IEP case manager. The school nurse, the school principal, or the classroom teacher are all potential contact people as well. Anticipating, planning for, and communicating upcoming transitions to parents (for example, moving up to the next grade) is helpful for both the student and the family. Encourage creative problem solving that includes the parents when addressing behavior or learning issues.

Building Trust

Parents may occasionally express frustration about their child's educational program to school personnel. These emotions are often caused by fatigue and stress, the causes of which may be outside of the control of the school. When dealing with these situations, remember to avoid becoming defensive and taking their anger personally. Educators can help build trust with families by giving them their full attention, listening closely to and restating their concerns, and working toward solutions together with them.

Siblings

A brain injury affects every member of the family, including brothers and sisters. Siblings will need special attention and support too. Educators can encourage parents to explain medical treatment to siblings in a way they'll understand, allow them to visit their injured sibling, and set aside special time just for them.

Links to Community Resources

School Resources

For local or regional support, training, and resources in the school setting, contact the area School TBI Specialist or Physical and Health Disabilities (P/HD) teacher for your district or region. If these contact people are not known, contact the Regional Low Incidence Facilitator for your area.

For statewide information and resources, contact the Statewide School TBI specialist, Kelly.Bredeken@metroecu.org, with the MN Low Incidence Projects

National and State Resources

- Brain Injury Association of America - [BIA of America](https://www.biausa.org/)
(<https://www.biausa.org/>)
- Center for Disease Control and Prevention - [Traumatic Brain Injury & Concussion](https://www.cdc.gov/traumaticbraininjury/index.html)
(<https://www.cdc.gov/traumaticbraininjury/index.html>)
- Center for Disease Control and Prevention - [HEADS UP to Schools: Online Concussion Training](https://www.cdc.gov/headsup/schoolprofessionals/training/index.html)
(<https://www.cdc.gov/headsup/schoolprofessionals/training/index.html>)
- Center for Disease Control and Prevention - [Pediatric MTBI Guideline](https://www.cdc.gov/traumaticbraininjury/PediatricmTBIGuideline.html)
(<https://www.cdc.gov/traumaticbraininjury/PediatricmTBIGuideline.html>)
- Courage Kenny Rehabilitation Institute, Golden Valley, Minnesota - [Brain Injury Clinic](https://account.allinahealth.org/services/717)
(<https://account.allinahealth.org/services/717>)
- Gillette Children's Specialty Healthcare, St. Paul, Minnesota - [Concussion and Related Neurotrauma](https://www.gillettechildrens.org/conditions-care/concussion-and-related-neurotrauma)
(<https://www.gillettechildrens.org/conditions-care/concussion-and-related-neurotrauma>)
- Hennepin Healthcare, Minneapolis, Minnesota - [Traumatic Brain Injury Center](https://www.hennepinhealthcare.org/specialty/traumatic-brain-injury-center/) [What is Brain Injury](#)
(<https://www.hennepinhealthcare.org/specialty/traumatic-brain-injury-center/>)
- Minnesota Brain Injury Alliance - [MN BIA](https://www.braininjurymn.org/)
(<https://www.braininjurymn.org/>)

Links Referenced Within This Publication

- [Brain Injury Observation Form](#)
(https://drive.google.com/file/d/10mNCDxAiEVYtB_mPQxyc4Ik5TIUVlwv/view)
- [Concussions: School Based Management - NASN](#)
(<https://www.nasn.org/nasn-resources/professional-practice-documents/position-statements/ps-concussions>)
- [Minnesota Rule 3525.1348](#)
(<https://www.revisor.mn.gov/rules/3525.1348/#:~:text=%22Traumatic%20brain%20injury%22%20means%20an,special%20education%20and%20related%20services>)
- [Minnesota Statute 125A.02;](#)
(<https://www.revisor.mn.gov/statutes/cite/125A.02>)
- [Minnesota Statute 125A.08.](#)
(<https://www.revisor.mn.gov/laws/2016/0/163/#laws.3.1.0>)
- [Minnesota Low Incidence Projects](#)
(<https://mnlowincidenceprojects.org/Projects/tbi/index.html>)
- [Minnesota Department of Education](#)
(<https://education.mn.gov/MDE/dse/sped/cat/tbi/>)
- [Return to Learn, A guide for school success following a pediatric brain injury - English](#)
(https://www.hennepinhealthcare.org/wp-content/uploads/2020/01/180-07440_ReturnToLearn_12-19_r7-1.pdf)
- [Return to Learn, A guide for school success following a pediatric brain injury - Espa?ol](#)
(https://www.hennepinhealthcare.org/wp-content/uploads/2020/01/ReturnToLearn-broch-1-20_SP.pdf)

- [School Nursing: Scope and Standards of Practice, 4th Edition](#)
(<https://www.nasn.org/blogs/nasn-inc/2022/07/28/school-nursing-scope-and-standards-of-practice-4th>)
- [Section 504](#)
(<https://www.hhs.gov/sites/default/files/ocr/civilrights/resources/factsheets/504.pdf>)
- [School Re-Entry and Medical Documentation Form](#)
(<https://drive.google.com/file/d/1QNaxR4OS0dqndQ-Nk7g14SCKh8fjyoj7/view>)
- [School Re-Entry Following Extended Hospitalization Guidance Document](#)
(https://drive.google.com/file/d/1O9viJh0t_guOywk55u-ar3m2dEdO7NG0/view)
- [Traumatic Brain Injury Criteria Checklist](#)
(https://drive.google.com/file/d/1mr8IYPyDDM_fxyOkMq2_gAGH67WQsw-_/_view)