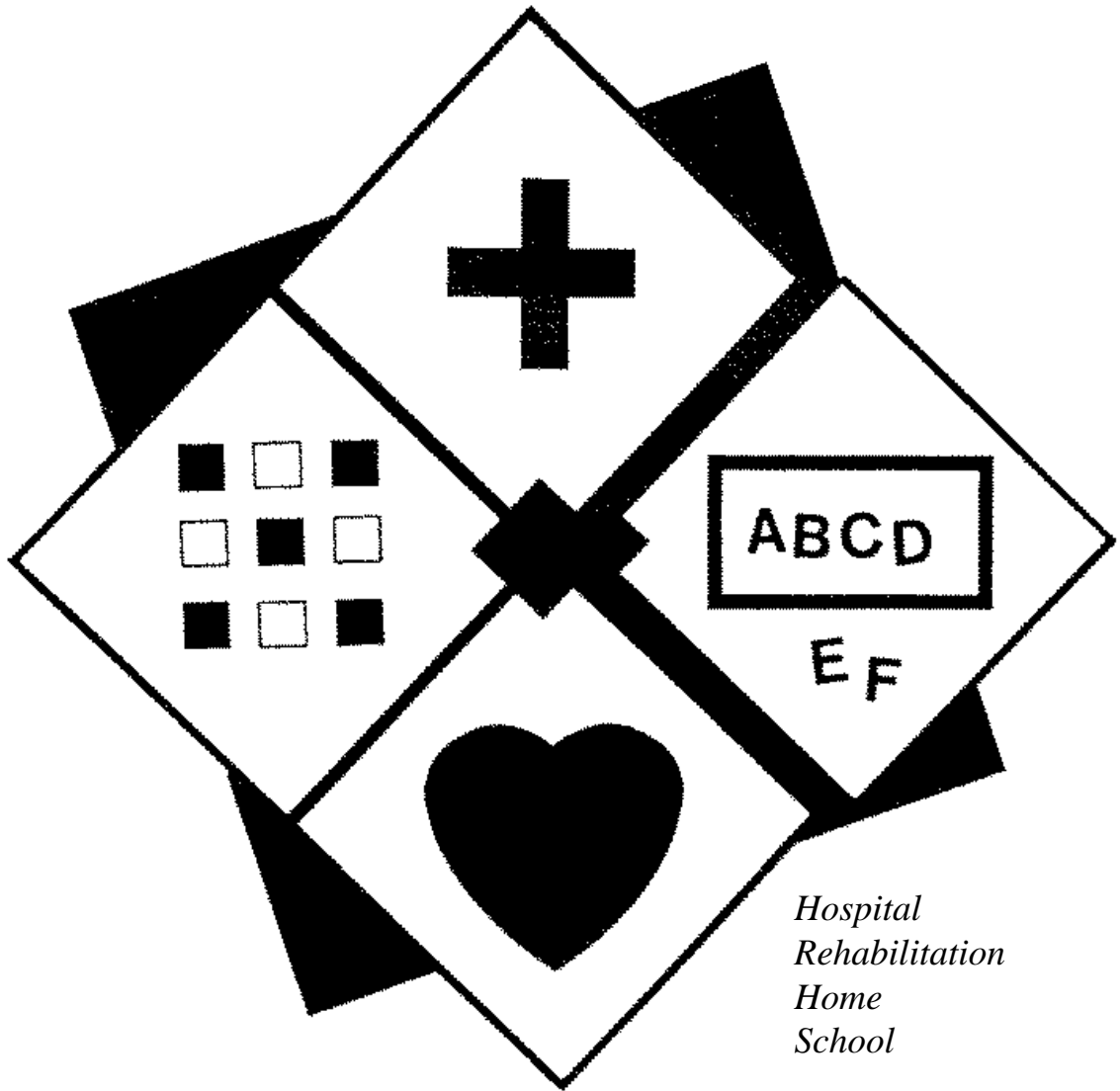


# THE STUDENT WITH TRAUMATIC BRAIN INJURY



## SCHOOL REINTEGRATION

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# OVERVIEW

## 1A

There are currently 5.3 million Americans living with disability caused by brain injury. Over 2,000,000 brain injuries occur yearly in the United States. As many as 500,000 people will require hospitalization and 70,000 to 90,000 individuals will suffer life-long physical, cognitive, and psychological disabilities as a result of their injuries. Two-thirds of those who sustain a brain injury are under the age of 34.

Today educators are seeing an increased number of students with brain injury entering and re-entering their school systems. Few school personnel have received training in the education or therapeutic needs of these students. With the 1990 changes in special education regulations that include Traumatic Brain Injury (TBI) as a separate category of eligibility, there is a need for a comprehensive understanding of the educational implications of brain injury.

There are two main types of traumatic brain injury: Penetrated Head Injury and Closed Head Injury.

*Penetrated Head Injury* is the result of accidents, falls, abuse, assaults and surgical procedures that cause a penetrated wound to the brain (Savage & Wolcott, 1988).

*Closed Head Injury* is caused by a blunt force and can result in diffuse impact and damage. When the force is very severe, damage is caused from internal compression, shearing actions or stretchings. A serious blow may create a 'contracoup' injury by the impact of the brain rebounding to the opposite side. For example, a blow to the back of the head can cause frontal damage as the brain hits the opposite point. The brain moves from front to back or side to side within the skull causing injury beyond the locale of impacted force.

# DEFINITION

**1B**

In 1990, the Education of All Handicapped Children Act (Public Law 94-142) was amended as the Individuals with Disabilities Education Act (IDEA). One of the changes made at this time was the designation of TRAUMATIC BRAIN INJURY as a distinct disability condition for special education eligibility.

Definition:

## **RHODE ISLAND REGULATIONS ONE II, 1.13**

Traumatic brain injury means 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 adversely affects a student's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual and

motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma.

Definition:

## **BRAIN INJURY ASSOCIATION, INC.**

Traumatic brain injury (TBI) is an insult to the brain, not of a degenerative or congenital nature caused by an external physical force that may produce a diminished or altered state of consciousness, which results in an impairment of cognitive abilities or physical functioning. It can also result in the disturbance of behavioral or emotional functioning.

Acquired brain injury (ABI) is an injury to the brain which is not hereditary, congenital or degenerative.

# COGNITION

2A

In the area of cognition, the most consistent residual problem faced by the survivor of brain injury is disordered verbal and nonverbal learning. *Memory deficit is often the most significant and disabling cognitive deficit after severe brain trauma.* Research suggests that impaired new learning can be a problem that will persist for months, years and even decades after injury. (Fisher, 1985)

*Moderate or severe brain injury will often affect school performance.* Academic achievement scores may overestimate the child's ability to function in the classroom. Deficits in attention, memory, and behavior may diminish the child's capacity to achieve.

It may be a few years before the effects of traumatic brain injury are demonstrated. The student may well be able to perform overlearned and mastered skills in reading and spelling. However, a few years after the injury, reading problems may become apparent as a result of the child's learning difficulties. (Ewin-Cobbs, Fletcher, Levin, 1986)

*Long term memory problems and attentional difficulties are characteristically observed in many children who have suffered brain trauma.* Generalization of skills or information is another common problem related to brain injury. These are fundamental components of learning. The child with these deficits will have significant academic difficulties learning new material.

Remedial programs and cognitive rehabilitation must be employed to improve memory skills. Cognitive deficits demonstrated by the child who has sustained a traumatic brain injury are often different than the deficits of the child with a learning disability. Approaches and programming must meet the needs of this unique population.

# COGNITIVE REHABILITATION

2B

Cognitive rehabilitation or training refers to the process of retraining individuals in the way they take in, store, and use information. Brain injury can affect perception, memory, concept formation, reasoning, and/or problem solving which are all skills necessary for successful processing of information.

Cognitive rehabilitation therapy is sometimes provided through hospitals or rehabilitation facilities immediately following acute hospitalization. When the student is reintegrated into school, it is necessary to continue some form of cognitive training. Cognitive rehabilitation and training help the student function within his/her environment. Although this treatment may initially be coordinated between an outpatient rehabilitative program and school, eventually it will become a school based intervention program.

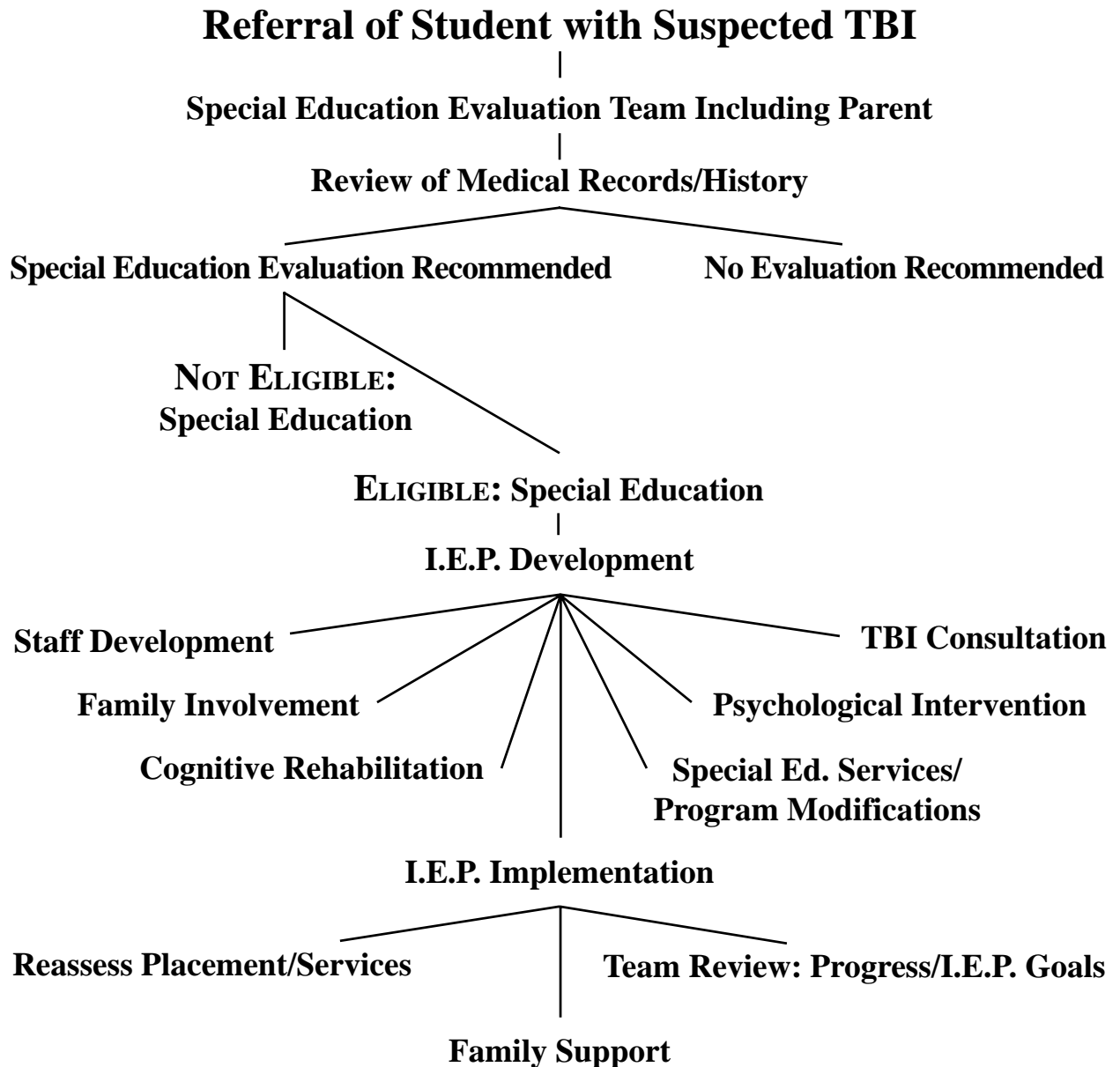
*Cognitive training focuses on the foundation skills necessary for learning.* Improvement in these skills as well as development of compensatory strategies are the goals of treatment. Skill development should be addressed both in individual and group

settings where abilities such as social/verbal pragmatic competence can be addressed more suitably. Academics as well as functional life activities need to be included within treatment to aid with generalization of identified skills.

*Therapists will be a vital link between the student and teachers.* Interfacing and overlapping of goals between therapists and educators are essential to develop well-coordinated programs for the student. Regular meetings with all service providers will help to plan and carry out a continuum of coordinated goals and objectives. This may involve Individual Education Program (IEP) revisions as well as the devising of new methods for working together on overlapping goals.

# REFERRAL

3A



# REINTEGRATION

3B

After review of records and eligibility has been determined, the reintegration process begins. The development of an Individualized Education Program (IEP) is one of the key elements of reintegration. There are several steps that must be covered in order to develop an appropriate IEP and services to meet the needs of the student with TBI.

## **STAFF DEVELOPMENT**

The entire staff working with the student must be made cognizant of brain injury and its consequences.

## **COGNITIVE REHABILITATION**

Traumatic brain injury can affect all areas of daily living; however, each student presents individual differences and individual patterns of behavior. A thorough evaluation will provide information on cognitive performance and the extent of cognitive rehabilitation needed.

## **SPECIAL EDUCATION SERVICES**

Appropriate special education services are highly dependent on individualized programming and planning within the classroom to address the student's specific needs.

## **PSYCHOLOGICAL INTERVENTION**

The school psychologist working with the student needs to have some knowledge of the neurobehavioral consequences of brain injury, such as personality changes, impaired social skills, difficulty recognizing the consequences of one's behavior, aggressive impulses, depression, limited insight and impaired executive functions.

## **FAMILY INVOLVEMENT**

Suddenly a family has a child who has a disability and who may have many problems in learning and behavior. School personnel can coordinate their program with the home by offering suggestions and strategies that have been proven successful in the school environment. The school can offer direction to parents for support and resources.

## **TBI CONSULTATION**

Initially school staff may need consultation in developing appropriate services and strategies for the student with TBI. The consultant can provide resources, direction, and support in developing a collaborative plan for the student.

No where is the impact of TBI so greatly felt as within the family. While the student with brain injury is receiving many services and much attention, family members need to find ways to deal with their grief. The sudden onset of a disability and the many consequences can leave the family overwhelmed. Demands on time, financial resources, emotions and the demands on relationships can have significant impact on family members. Siblings can react with fear, frustration, anger and isolation. They may find it difficult to deal with the extra attention given to the child with the brain injury, particularly if special education and medical needs are new experiences for siblings.

Families now have to learn to handle a new world of hospitals, therapists, neurologists, social workers and education specialists. Families may need months or years to understand and accept the consequences of TBI. Many families are hopeful that the child will continue to make progress and can return to the performance they demonstrated before their injury. Sometimes school personnel may see this as denial. However, this can be a healthy response from parents provided it does not interfere with appropriate services for the child or deficits are not denied over a long period of time. It is beneficial for school personnel to understand what families are going through and to allow time for them to understand the extent and nature of the child's disability. (Savage, 1994)

The following are suggestions for families which need to be reviewed with the following parameters in mind:

- the child's *age and developmental level* at the time of injury
  - the *severity* of the injury
  - the *family's functioning* (coping, roles, flexibility) prior to the injury
  - the availability to *external support systems*
1. Learn how to care for yourselves, once again. It is difficult, under the best of circumstances, to be an effective advocate when you are mentally/physically exhausted. Give yourself permission to have a "day off" or a vacation. Allow others (family, friends, neighbors) to help.
  2. Become knowledgeable about your child's particular injury and, in general, about Traumatic Brain Injury.
  3. If you have not heard from the school department or special education office regarding transition back to school, find out the name of the Director of Special Education (via the rehabilitation facility, state Department of Education or your child's teacher or building principal) and call the office.

4. Familiarize yourself with your state's Department of Education regulations concerning special education services (RI Dept. of Ed., 401-222-4600 ext. 2301. Begin to familiarize yourself with some of the language and vocabulary (Individual Education Program (IEP), Procedural Safeguards, continuum of services, timelines, referral and evaluation process, etc.)
5. Keep in mind that you are a vital member of this process and try not to be overwhelmed by the "system"/bureaucracy. Bring a friend with you to meetings (to keep notes, refresh your memory, 'moral support'); come with a list of questions; have a folder to keep reports, IEPs and other pertinent information together in one place.
6. It is good to ask questions and to request that staff explain unfamiliar terminology, processes, programs or services. Don't be put off if there are not always immediate responses. Some questions require further inquiry, exploration, or collaborative problem solving.
7. Let the school staff know if the process is becoming overwhelming, or that a "break" of some duration would be helpful. Conversely, inform the staff if you would like greater participation (regular meetings, progress notes, phone contact, class visits.)
8. Recognize that a variety of developmental or situational events will trigger strong emotional reactions (loss, anger, denial, fear, anxiety, etc.):
  - your child's first day back to school after the injury
  - school functions (plays, chorus, sports, field trips, dances, prom, graduation)
  - changes in school sites (elementary-junior high, junior high-high school), teachers, therapists and building staff
  - anniversary dates
  - developmental stages (e.g. reaching school age, adolescence, young adulthood)
9. Seek out community based support systems:
  - local Brain Injury Association groups
  - Department of Health
  - Rehabilitation Facility

3/1/97

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## 5A

# CONSEQUENCES

The *consequences* of traumatic brain injury cover the range from *mild to severe deficits* depending on extent and location of the damage. Survivors who have been comatose usually exhibit significant memory dysfunction for both past events and new learning. They may be disoriented and exhibit severe attentional problems. Post traumatic survivors often fatigue easily. Their emotions and behavior are likely to deteriorate when they are frustrated or cannot meet demands.

In general, certain areas of the brain process information in different ways related to specific functions. The *right cerebral hemisphere* responds to information in a more holistic and spatial sense, and the left cerebral hemisphere responds in a logical and linear fashion, which helps it with the use and comprehension of language. Regardless of the uniqueness of the two hemispheres, they do communicate with each other a thousand times a second through the corpus callosum. (Savage, 1994)

The *frontal lobe* has connections with the limbic system (emotions) and other brain lobes. Injury to this area severely compromises a student's ability to synthesize signals from the environment, assign priorities, make decisions, initiate actions, control emotions, behave and interact socially, make plans, and perform other executive-like functions. (Restak, 1991)

The *temporal lobes* are located on both sides of the brain and are responsible for hearing, auditory sensations and language. The *parietal lobe*, located behind the frontal lobe at the top of the brain, responds to touch, heat, cold, pain and body awareness. (Savage, 1994)

The *occipital lobe* is another area that can be affected or damaged by an injury. The occipital lobe controls vision. Results can be blindness, distorted vision, or partial loss of sight.

# 5B

# IMPLICATIONS

## **COGNITIVE DEFICITS INCLUDE:**

- Memory Impairment
- Planning/Organizational Problems
- Attention/Concentration Deficits
- Impaired Auditory Comprehension
- Impaired Perception
- Deficits in Information Processing
- Deficits in Judgement/Decision Making
- Sequencing Information Deficits
- Impaired Communication/Language
- Impaired Reaction Time
- Decreased Abstraction Ability
- Impaired Flexibility on Tasks
- Deficits in Spatial Orientation

## **SENSORIMOTOR DEFICITS INCLUDE:**

- Impaired Vision and/or Hearing
- Impaired Fine and/or Gross Motor Skills
- Impaired Coordination/Speed of Movement
- Impaired Speech
- Deficits in Motor Function
- Impaired Balance and Strength

## **BEHAVIORAL PROBLEMS INCLUDE:**

- Personality Changes
- Irritability
- Fatigue
- Impulsivity
- Disinhibition
- Hyperactivity
- Emotional Lability
- Difficulty Initiating
- Impaired Social Skills
- Egocentricity
- Impaired Judgement
- Impaired Sexuality
- Dependency
- Aggressive Behavior
- Inappropriate Behavior for Age
- Poor Self Esteem
- Poor Self Control
- Impaired Insight
- Lack of Initiation
- Increased Anxiety

# 6A

# ASSESSMENT

The *identification of TBI is based on a medical diagnosis*. Therefore, records from the hospital and rehabilitation facility will be necessary. The medical information will outline the extent and location of injury.

The special education evaluation team reviews how the student is functioning in the areas of cognition, behavior/emotions, fine and gross motor skills, speech and language, academics and intelligence. The student's medical status in relation to seizures is also considered.

The special education team reviews the following information when a student is reentering school after a traumatic brain injury:

- Medical Records
- Neuropsychological Assessment
- Psychological Assessment
- Academic Achievement
- Behavioral Issues
- Social History
- Speech/Language Evaluation
- Occupational Therapy Evaluation
- Physical Therapy Evaluation
- Pre-morbid Information (if available)

There are some limitations to standardized academic tests and psychological test results completed after the brain injury. These tests will show the basic levels the student with brain injury has recovered and how much previously learned material has returned. However, they do not demonstrate how difficult new learning may be, due to the cognitive deficits created by the brain injury.

In situations of past brain injury that have gone unidentified, the assessment process would be very similar. If the medical history indicates that there was a significant brain injury in the student's background, further assessment is indicated. A neuropsychological evaluation would be recommended as well as assessments in the above-mentioned areas that are pertinent to the student's needs.

# 6B NEUROPSYCHOLOGICAL ASSESSMENT

The Neuropsychological Evaluation is a comprehensive assessment of cognitive skills. Neuropsychologists use a variety of testing instruments to assess the effects of damage or suspected damage to the brain. The following are the functions typically assessed:

- General Cognitive Abilities (Intelligence Testing)
- Attentional/Concentration Abilities
- Sensory-perceptual
- Visual Spatial
- Language Ability
- Sensorimotor Functions
- Abstract Reasoning: Verbal and Nonverbal
- Memory and Learning Ability
- Functional Academic Skills
- Organizational Skills
- Problem Solving
- Executive Functions

As part of the Neuropsychological Evaluation, behavioral issues are addressed. Many students with brain injuries exhibit behavioral dysfunctions. These may include: *Impulsivity, Attention Deficits, Impaired Insight/Denial of Deficit Areas, Secondary Emotional Disturbances such as Depression, Motivational Problems, Disinhibition, Impairment of Social Skills, Low Frustration Tolerance, Aggression, and/or Sexual Dysfunction.*

# 7A INSTRUCTIONAL STRATEGIES

When the student with TBI returns to the classroom, he/she may not be able to attend, or to remember information and organize thoughts and materials. Cognitive deficits can affect how the student perceives, interprets, and responds to his/her environment and the tasks at hand. The following are instructional strategies and modifications that will be supportive in developing a successful reintegration program.

## STRUCTURE

The following basic guidelines will provide a framework to build a structured environment for the reintegrated student.

The student with TBI will:

- 1) function best when provided with organization
- 2) function best with clearly stated expectations, combined with a systematic and consistent routine
- 3) function best with limited choices to eliminate confusion and provide direction
- 4) function best when directions are specific, task oriented, and clearly stated with expectations outlined

## FLEXIBILITY OF DEMANDS

- Student may need time to make up courses or instruction they have missed.
- Student, initially, may be able to attend school for only a few hours daily due to fatigue.
- Student may need extra time to get from one class to another or from one activity to the next.
- Student may need extra time to respond verbally during classroom discussions, when answering questions, or may require structure/cues to aid verbal organization and recall.
- Student may need a "time-out" period to rest due to fatigue, at least initially upon return to school.
- Student may need to use video and audio tapes for studying. Tape recorders can be used in place of notetaking.
- Student may need to have written demands reduced.
- Student may need oral testing in place of written responses.
- Student may need multiple choice format, tests of recognition, as compared to tests of recall. Whenever possible, multiple choice test format should be considered because it is an effective means of assessment for the student with TBI.

# 7B INSTRUCTIONAL STRATEGIES

## SUPERVISION

This will be essential in one or more aspects of the student's program. The severity of the student's deficits will be one determinant of the amount of supervision needed.

- A *Buddy System* is one way to provide support to the student in getting from one room to the next, getting to the bus, getting to lunch, and following the day's schedule.
- A teacher assistant can meet the student at the entrance of the school and bring him/her to class. Often the student who has suffered a brain injury is confused upon entering a building and may need direction.
- Supervision is also recommended for review of the student's schedule for the day. The student with TBI needs to become familiar with his/her surroundings and schedule. With frequent reinforcement and the use of a daily log, the student will become more independent.
- Supervision during transition periods may be necessary until the student has become familiar with his/her surroundings and can use compensatory strategies.

- Supervision will be necessary if the student has mobility problems. Secondary students may need to be released from classes several minutes earlier to avoid the confusion of the halls.

## COLLABORATION

The most effective model for successful educational reintegration involves collaboration between the school and the hospital/rehabilitation center in the transition process.

- School personnel should be notified prior to the student's reentry so that services can be planned, and staff can be informed.
- It is helpful if the referring agency visits the school to observe the classroom and building layout.
- The therapists and educators who will be servicing the student should visit the referring hospital or rehabilitation facility to learn about the student's present services and needs.
- After the student is fully transitioned to school, collaboration between school staff must continue. The key to a successful program is the continued collaboration and planning by all staff working with the student and his/her family.

The TBI Resource Center has a small library collection that can be loaned to anyone who wishes to learn more about traumatic brain injury and its consequences. The library contains the following:

Professional Literature  
Journals  
Audio Tapes  
Workbooks

Texts  
Manuals  
Videos

Call (401) 456-4600 for library listings or to personally view the materials.

*The following resources are recommended for additional information and materials:*

### Brain Injury Association of America

The Brain Injury Association at the national level has numerous materials and can provide information on extensive topics.

Brain Injury Association of America  
105 North Alfred Street  
Alexandria, VA 22314  
Tel: (703) 236-6000 Fax: (703) 236-6001  
Website: [www.biausa.org](http://www.biausa.org)

Family Helpline: 1-800-444-6443  
email: [familyhelpline@biausa.org](mailto:familyhelpline@biausa.org)

### Brain Injury Association of Rhode Island

The Brain Injury Association of Rhode Island has materials for loan and also offers monthly support groups for survivors and families.

Brain Injury Association of Rhode Island  
935 Park Avenue, Suite 8  
Cranston, RI 02910  
Tel: (401) 461-6599 or 1-888-824-8911  
email: [BIARI20@aol.com](mailto:BIARI20@aol.com)

### National Information Center for Children and Youth with Disabilities (NICHCY)

The NICHCY has numerous publications and resources on children with disabilities. In addition, NICHCY can respond to individual requests for information on specific topics relating to an identified concern. For further information and/or to receive NICHCY Publications, contact:

NICHCY  
P.O. Box 1492  
Washington, DC 20013  
Tel: 1-800-695-0285 and (202) 884-8200  
Website: [www.nichcy.org](http://www.nichcy.org)

### The Council for Exceptional Children (CEC)

An international organization that offers extensive resources and publications for educators, students, and families

The Council for Exceptional Children  
1110 North Glebe Road, Suite 300  
TTY: (703) 264-9446  
Arlington, VA 22201-5704  
Tel: (Toll-free) 1-888-CEC-SPED  
Local: (703) 620-3660  
Fax: 1-703-264-9494  
Website: [www.cec.sped.org](http://www.cec.sped.org)  
E-mail: [service@cec.sped.org](mailto:service@cec.sped.org)

### Additional Websites:

CDC - <http://www.neuroskills.com/>  
Brain Injury Resource Center - <http://www.headinjury.com/>  
The Perspective Network - <http://www.tbi.org/>  
Brain Injury Center - <http://www.braincenter.org/>  
National Center for Injury Prevention - <http://www.cdc.gov/ncipc/>  
Safe Kids Coalition - <http://www.safekidsusa.com/>  
Lash Publishing Association - <http://www.lapublishing.com/>

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