

# Teaching Students with Acquired Brain Injury

A Resource Guide for Schools



BRITISH  
COLUMBIA

**Ministry of Education**  
Special Programs Branch  
2001



RB 0116

TEACHING  
STUDENTS WITH ACQUIRED BRAIN INJURY  
A Resource Guide for Schools



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### **National Library of Canada Cataloguing in Publication Data**

Main entry under title:

Teaching students with acquired brain injury

Includes bibliographical references: p.  
ISBN 0-7726-4447-0

1. Brain-damaged children - Education -  
British Columbia. I. British Columbia.  
Ministry of Education. Special Programs Branch.

LC4599.C32T42 2001      371.91      C2001-960010-0

## ACKNOWLEDGMENTS

The Special Programs Branch of the British Columbia Ministry of Education gratefully acknowledges the following people for their contributions to the development of this resource for teachers:

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(Vancouver)

Carole Kaseweter, School District No. 57 (Prince George)

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## TABLE OF CONTENTS

<b>Introduction</b> .....	<b>1</b>
<b>Structure and Function of the Brain</b> .....	<b>3</b>
<b>What is Acquired Brain Injury?</b> .....	<b>9</b>
<b>Characteristics Associated With Acquired Brain Injury</b> .....	<b>21</b>
<b>Planning for Students With Acquired Brain Injury</b> .....	<b>29</b>
<b>Teaching Students With Acquired Brain Injury</b> .....	<b>37</b>
<b>Teaching the Student With Mild Traumatic Brain Injury</b> .....	<b>53</b>
<b>Managing Challenging Behaviour</b> .....	<b>57</b>
<b>Transition Planning</b> .....	<b>69</b>
<b>Pulling It Together: Developing an Educational Program for a Student with Acquired Brain Injury</b> .....	<b>81</b>
<b>Case Studies</b> .....	<b>83</b>
<b>Appendix A: Behaviour Observation and Data Collection Chart</b> .....	<b>A-103</b>
<b>Appendix B: Sample Discussion Questions for an Initial Meeting with the Parents of a Student with ABI</b> .....	<b>B-105</b>
<b>Appendix C: Interview Form</b> .....	<b>C-107</b>
<b>Resources</b> .....	<b>115</b>
<b>References and Additional Resources</b> .....	<b>131</b>
<b>How Can We Improve This Resource Guide?</b> .....	<b>133</b>



## INTRODUCTION

In recent years, there has been an increasing awareness of students with acquired brain injury (ABI) in the school system. Advances in road-side care, diagnostic techniques, medical technology, critical care medicine and nursing, and rehabilitation have led to an increase in the number of children and adolescents with ABI who are surviving accidents and illnesses and being served in our schools. As length of stay in hospitals and rehabilitation centres decreases, these students are returning to school sooner, still actively involved in rehabilitation programs. Current research estimates that fewer than five percent of children who sustain traumatic brain injury are admitted to an inpatient rehabilitation program. Many are discharged directly to home and school. Recovery from ABI involves learning and relearning, and schools play a central role in this process.

The consequences of ABI are complex and variable. The nature and degree of disability are dependent on an interplay of several factors, including:

- age
- type of injury
- area of damage
- pre-injury intellectual, physical, and mental status
- medical care
- rehabilitation
- socio-economic status

*Historically, students with ABI have been identified with a variety of labels, including minimal brain dysfunction, organic brain damage, and head injury.*

Just as every student is unique, so every student with ABI is unique. While generalities can be outlined, each brain injury is distinctly different.

Our brains are responsible for the way we think, feel, and move. An ABI can lead to difficulties in all areas of function, including cognition, physical function, and social/emotional behaviour. Therefore, it is important for teachers to understand a student's difficulties, how they manifest themselves in the classroom, and what teaching and learning strategies can be helpful.

This resource guide is intended to assist teachers in planning and providing supports for students with ABI. *Teaching Students with*

*Acquired Brain Injury: A Resource Guide for Schools* is divided into the following sections:

- Structure and Function of the Brain—a brief description of the parts of the brain and their functions, and information on brain development
- What is Acquired Brain Injury?—the nature of ABI and how it is diagnosed
- Characteristics Associated With Acquired Brain Injury—the effects of ABI and educational implications
- Planning Support for Students With Acquired Brain Injury—roles of people involved in planning, and suggested elements of IEPs
- Teaching Students With Acquired Brain Injury—suggestions for instructional approaches and strategies for the classroom
- Managing Challenging Behaviour—suggestions for developing a behaviour plan and strategies for the classroom
- Teaching Students With Mild Acquired Brain Injury—educational implications and suggested strategies for the classroom
- Transition Planning—suggestions for planning transitions into the school system, between school programs, and into adult life
- Pulling It All Together—a model for developing a plan for a student with ABI
- Case Studies—three examples of students with ABI and their IEPs
- Appendices—observation and data collection charts, sample questions to discuss with parents, and an interview form
- Resources—a list of helpful organizations, Internet resources, print resources, and videos

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(Excerpted from Sunny Hill Health Centre for Children, *Children with Acquired Brain Injuries: The Transition from Hospital to Community*, 1999.)

It is helpful for teachers working with students who have acquired brain injury (ABI) to be aware of the basic structure and function of the brain in order to understand the cognitive and behavioural difficulties of these students and to select appropriate teaching and learning strategies.

The brain serves as the control centre for most of the body's functions. It is a highly interconnected and complex organ responsible for how we think, feel, and move. The brain activity underlying any organized behaviour involves an extensive network of nerve cells. Higher-level brain functions, such as attention, memory, and walking are mediated by complex interactive systems that involve many different regions of the brain. A functional system can be disturbed by injury to any one or more of a large number of areas, and will be disrupted differently depending on the specific region injured.

## The nerve cell

The brain is composed of billions of nerve cells called *neurons*. Neurons are the basic building blocks of the nervous system. They are the “communicator” cells. Neurons carry information to and from the brain and interconnect the various regions within the brain.

*At birth we have about 100 billion neurons.*

*Approximately 30,000 neurons can fit on the head of a pin.*

*Each neuron may make between 5,000 and 10,000 connections.*

(From Sprenger, M., *Learning and Memory: The Brain in Action*, page 2)

## Basic organization of the brain

The brain can be described in terms of three basic parts: the brainstem, the cerebellum, and the cerebral hemispheres. Each of these parts has diverse underlying structures and functions.

### Brainstem

The *brainstem* interconnects the spinal cord and the cerebral hemispheres. The brainstem includes the *reticular activating system* (RAS), a network of cells involved in the control of arousal (sleep/wake-

fulness) and the ability to maintain attention. Brain injuries that involve the RAS typically result in a decrease or loss of consciousness.

The lower part of the brainstem controls basic functions essential to life, including breathing, heart rate, and blood pressure. It contains relay centres for vision, hearing, touch, taste, balance, and chewing and swallowing.

The upper part of the brainstem is important for integrating and relaying information related to sensations and movement, and for controlling hunger, thirst, sleep, hormonal secretions, and temperature regulation. Structures in the brainstem are also closely associated with the limbic system, which is of primary importance in the regulation and expression of emotions.

## **Cerebellum**

The *cerebellum*, which is attached to the lower part of the brainstem, is primarily involved with balance, refined movements, and muscle tone. Injury to the cerebellum can result in symptoms such as tremor, weakness, and impaired gait or speech. Recent research indicates that the cerebellum also plays a role in some cognitive abilities.

## **Cerebral hemispheres**

The two *cerebral hemispheres*, which constitute about five-sixths of the mass of the brain, are involved with more complex and integrated brain functions. They are composed of an outer layer of grey matter called the *cerebral cortex*, underlying white matter, the myelin-covered nerve fibres, and sub-cortical structures called the *basal ganglia*. The two hemispheres are connected by the *corpus callosum*, a wide band of nerve fibres.

## **Basal ganglia**

The basal ganglia, located in the central part of each cerebral hemisphere, play an important role in sensory-motor control and contribute to higher-order cognitive functions. Basal ganglia injuries commonly result in movement disorders. They can also disrupt aspects of cognitive function and personality.

## Lobes

Each hemisphere of the brain can be divided into four lobes:

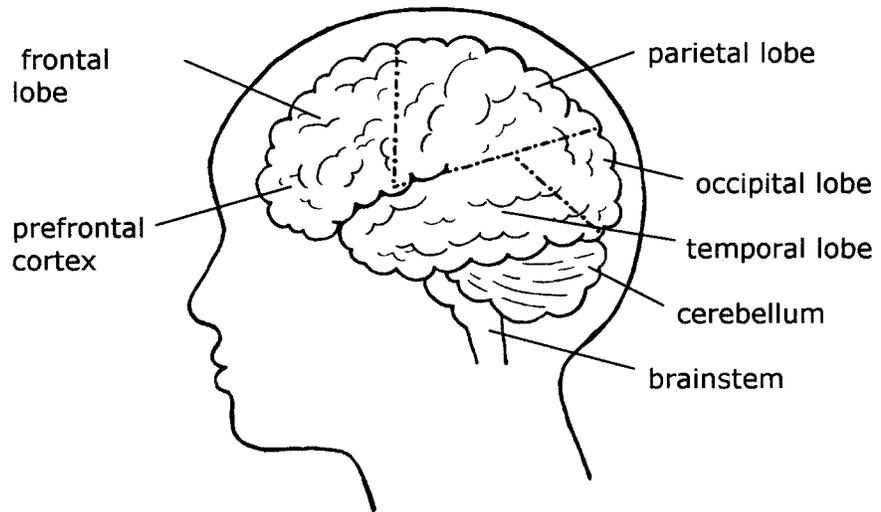
- **Occipital lobes**—The *occipital lobes* are involved in processing and understanding visual information. Damage to the occipital lobes can impair visual awareness and recognition.
- **Temporal lobes**—The *temporal lobes* are important for memory and auditory processing, including language comprehension. Damage to the temporal lobes can result in specific memory impairments and difficulty understanding spoken language. The temporal lobes play a critical role in the integration and regulation of emotion, motivation, and behaviour. They are also involved in music perception and the sense of smell.
- **Parietal lobes**—The *parietal lobes* are involved in body sensation (the somatosensory functions), including touch, pressure, temperature, and position awareness. The parietal lobes are also involved in more complex perceptual and cognitive skills. They are responsible for the integration of visual, auditory, and somatosensory information, which provides a multisensory experience of the external world.

Injury to the parietal lobes can result in disorders of language; reading, writing, arithmetic, recognition of visual and tactile information, body image, and spatial abilities can also be affected. Parietal injuries can result in different motor planning disorders, including difficulty carrying out dressing, drawing, and constructional activities. Parietal injuries can also result in a disorder of selective attention, or specific inattention for information on one side of space, usually the left.

- **Frontal lobes**—The *frontal lobes* contain the motor areas and the large prefrontal regions. The motor areas are involved in movement and in organizing the sequence of body movements. Injury to the motor areas can result in weakness or paralysis, and can disrupt complex motor acts such as speech production.

The prefrontal regions are commonly referred to as the “executive centres” of the brain. They are involved in the most subtle and complex aspects of human behaviour. The prefrontal areas are richly interconnected with all the major sensory and motor systems. They integrate and regulate all components of behaviour at the highest level. Common difficulties following frontal lobe injury include problems in planning, monitoring, and modifying activities. Prefrontal injuries can disrupt mental flexibility, abstract thinking,

self-awareness, judgment, social skills, emotional regulation, attention, organization, and memory function. Changes in personality are often seen after injury to these regions.



## Differences in left/right brain function

There are important differences in the function of the two cerebral hemispheres. For example, in most people, the left side of the brain has primary responsibility for language, verbal memory, and logical, sequential analysis. The right side is better suited for more holistic, non-sequential information processing and is dominant for spatial-perceptual-constructional tasks. This dominance arrangement is sometimes incomplete or reversed.

Each side of the brain is either responsible for, or plays a dominant role in, sensory and motor function in the opposite side of the body. For example, using the right hand is a left-sided brain function. Injury to the left motor or somatosensory areas can result in a right-sided paralysis or sensory loss. This left/right arrangement is more complicated for vision and hearing.

## The brain's blood supply

The brain is maintained by a complex system of blood vessels. To operate normally, the brain requires a constant supply of oxygen and glucose, which are transported via the bloodstream. Impairment of the

blood supply is one of the most common causes of injury to the brain. Even brief interruptions in blood flow can result in brain dysfunction.

## Protection of the brain

The brain is normally supported and protected from injury in the following four ways:

- The brain is enclosed in the skull, which generally serves a protective function. However, in a traumatic head injury, the fragile brain tissue, which has a consistency somewhat softer than jelly, can be injured when it is jarred against the rough inner surface of the skull.
- The brain is protected by three membranes between the skull and brain. The outermost layer protects the brain from excessive movement, but this protection breaks down when the movements are violent.
- The brain is normally cushioned from shock by *cerebro-spinal fluid* (CSF). This fluid is produced within four hollow internal chambers within the brain, called ventricles. The CSF circulates from the *ventricles* out onto the surface of the brain and down alongside the spinal cord. Sometimes an injury to the brain results in obstruction of the flow of CSF, leading to dangerous fluid build-up (*hydrocephalus*) and pressure on the brain tissue.
- The brain is normally protected from many chemical substances circulating in the rest of the body by a *blood-brain barrier*. This barrier can break down when the brain is injured, resulting in leakage of toxic substances into the brain tissue.

## The developing brain

The developing brain is very different from the adult brain. The brain weighs just under one pound at birth, and continues to grow rapidly, reaching 80 percent of its adult weight of approximately three pounds by about age four.

Much of the brain's growth is the result of an increase in the size, complexity, and *myelination* (development of the myelin sheath around the neuronal axon) of nerve cells after birth. We are born with all the neurons in the brain that we are ever going to have. The neurons in the brain are not replaced if injured. However, after birth, the neurons continue to mature and form additional fibre connections into adulthood. Myelination is of critical importance to the efficient functioning of the nerve cell. It begins before birth and continues until

*For more fascinating information about the brain and learning, see M. Sprenger, Learning and Memory: The Brain in Action, 1999.*

age 20 or later. The *prefrontal cortex* is relatively late to mature; this appears to be related to the development of more abstract and complex thinking abilities.

As the brain increases in size, there is an ongoing functional organization of the nervous system that reflects both its genetic blueprint and the influence of environmental stimulation. Damage to the young brain can disrupt the development of this complex structural and functional organization.

From birth to age two, the child's brain is particularly vulnerable to traumatic injury. The young brain tissue is less myelinated and therefore of a softer consistency, making it more susceptible to injury when the head is jarred. The child's large head size in relation to the body and weaker neck muscles both make the child more susceptible to injury. The skull offers less protection because it is pliable at birth and does not become solid until after age one; the front portion of the skull may not harden completely until age two.

In children, the cognitive deficits associated with injuries that involve specific areas of the brain are broadly similar to those found in adolescents and adults, but they tend to be less marked and less differentiated. Infants and preschoolers, in whom cognitive skills are developing rapidly, are at greater risk for generalized cognitive impairment.

As the brain matures, the relationship between specific (*focal*) injuries and the pattern of cognitive and behavioural problems becomes more pronounced and predictable. The brains of older adolescents are more structurally similar to adult brains, and the relationship between the site of damage and behavioural consequences is more direct and reliable in comparison to younger children. However, a brain injury in adolescence can disrupt the final stages of brain maturation and organization, and comes at a time when individuals are facing major developmental challenges (adapted from Begali, 1992, Lehr and Savage, 1990).

*For more information on the implication of brain injury on growth and development, see Savage, R. C., & Wolcott, G. F. (Eds.), An Educator's Manual: What Educators Need To Know About Brain Injury. Washington, DC: Brain Injury Association, 1995.*

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(Excerpted and adapted from Sunny Hill Health Centre for Children, *Children with Acquired Brain Injuries: The Transition from Hospital to Community*, 1999.)

Acquired brain injury (ABI) is an injury that results in the disruption of the normal structure and function of the brain. The term *ABI* refers to a brain injury that has occurred since birth and does not include injuries to the brain that are congenital or the result of birth trauma.

Note: The term *head injury* is often used interchangeably with *traumatic brain injury*. However, the term head injury is a more general term that can encompass injury to the skin, subcutaneous tissue, and bones of the head.

Acquired brain injury can be divided into two categories: traumatic and non-traumatic.

Traumatic brain injuries include:

- closed head injuries
- open head injuries

Non-traumatic brain injuries include:

- anoxic injuries (injuries from lack of oxygen)
- strokes
- tumours
- brain infections
- ingestion of toxic substances (neurotoxic poisonings)
- metabolic disorders

## Traumatic brain injury

The United States Disabilities Act defines traumatic brain injury as follows:

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 affect a child'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; problem-solving; sensory, perceptual and motor abilities; psychosocial behaviour; 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.

—Individuals with Disabilities Education Act, 1991

Causes of traumatic brain injuries in children and adolescents include motor vehicle accidents, falls, and assaults. The most common causes of traumatic brain injury tend to vary with the severity of the injury and the age or developmental level of the child. The number of boys injured is roughly twice that of girls.

In children, falls account for the majority of traumatic brain injury hospitalizations, but most of these injuries are mild. Motor vehicle accidents account for the majority of severe injuries. In infants, physical abuse has been reported as the most frequent cause of injury. As children become older and more involved in recreational activities, sports-related injuries become more common. During adolescence, the rate of traumatic brain injury increases dramatically. The number of severe injuries sustained between ages 15 and 19 is estimated to be equal to the number sustained in all the previous 14 years combined (Lehr & Savage, 1990, Ylvisaker, 1997, Blosser & DePompei, 1994).

A traumatic brain injury generally occurs when the head is struck or when it strikes a hard object (for example, the dashboard of a car) and the brain is pitched around inside the skull. The brain can also be injured without the head being struck—for example, in cases of whiplash or violent shaking.

This type of brain injury results from the sudden starting and stopping movements of the head and the brain itself (often referred to as *acceleration/deceleration forces*). The initial force to the head causes direct injury to the brain (*primary injury*). As the head quickly moves, the brain follows the movement of the head and gets pulled and twisted, resulting in injury to the nerve cells. Bruising and lacerations to the brain tissue and resultant bleeding may occur.

Further injury to the brain can also occur in the minutes and hours following the injury (*secondary injury*). There may be swelling of brain tissue, pooling of blood, lack of blood flow to parts of the brain, increased pressure inside the skull (known as increased cranial pressure, or ICP), and biochemical changes affecting nerve cell function.

The rotational and shearing forces involved in traumatic brain injuries typically result in a common pattern of damage, which includes widespread injury to the nerve cells and blood vessels throughout the

*Traumatic brain injury can be caused by:*

- *child abuse*
- *falls*
- *sports accidents*
- *motor vehicle accidents*
- *assaults*

*Boys are injured roughly twice as often as girls are.*

brain (*diffuse injury*) and bruising in the prefrontal and anterior temporal areas. Other injuries to specific areas of the brain (*localized or focal injury*) may also occur.

Depending on the cause, traumatic injuries may involve bruising or skin lacerations, facial fractures, broken teeth, and other soft tissue injuries. The skull may also be fractured. Most skull fractures heal without intervention. In some cases, a penetrating injury occurs in which the fracture is depressed, resulting in direct damage to the brain. This is referred to as an *open head injury*. Injuries to the brain that do not involve a penetrating injury are referred to as *closed head injuries*.

## Non-traumatic brain injury

*Non-traumatic brain injury* is an acquired insult to the brain not related to an external force. This type of insult may result in diffuse or localized injury to the brain, depending on the nature of the insult. Non-traumatic brain injuries are often overlooked or not specifically addressed in literature on acquired brain injuries.

Major causes of non-traumatic brain injuries in children and adolescents include:

- reduced oxygen to the brain
- strokes
- brain infections
- brain tumours

## Injuries resulting from reduced oxygen

*Anoxic or hypoxic-ischemic injuries* result from reduced oxygen to the brain. The supply of oxygen to the brain depends on two factors: the level of cerebral blood flow and the oxygen content of the blood. A drop in either of these may lead to *cerebral anoxia or hypoxia* (reduced oxygen to the brain). Non-traumatic causes of anoxia include near-drowning, suffocation, cardiac arrest, and *status epilepticus* (continuous or repetitive seizure activity). Anoxic brain damage can also occur as a complication of other types of acquired brain injuries, including stroke, infection, and traumatic injury.

## Strokes

Non-traumatic *cerebral vascular accidents* (CVAs), or strokes, occur less often in children than in adults. However, strokes can occur in children of all ages, from infants to adolescents. There are two types of strokes: *hemorrhagic*, involving a ruptured blood vessel and bleeding into or around the brain, and *ischemic*, resulting from blockage of a cerebral artery or vein. The damage caused by strokes typically occurs in the specific area of the brain where the blood vessel ruptured or was blocked.

## Central nervous system infections

Two of the most common types of central nervous system (CNS) infections seen in children are meningitis and encephalitis. Sometimes children contract meningoencephalitis, a combination of the two.

*Meningitis* is an inflammation of the membranes (*meninges*) covering the spinal cord and brain. Meningitis, particularly bacterial meningitis, is the most common CNS infection of childhood. Anyone can contract meningitis, but most cases are in children, with a peak incidence between six and 12 months of age.

*Encephalitis* is an inflammation or swelling of the brain. It occurs less frequently than meningitis, but is more often associated with significant injury to the brain. Encephalitis is most often caused by a viral infection. The infection may also cause bleeding within the brain, resulting in further damage to the nerve cells.

## Brain tumours

The signs and symptoms of brain tumours vary depending on the location of the tumour. Increased intracranial pressure may result from the growth of the tumour and/or from obstruction of cerebral spinal fluid flow. Long-term problems are related to lesion size and location, age at onset, age during treatment, and type of treatments required. The general treatment of intracranial tumours is surgical removal of as much of the tumour as possible, followed by radiation therapy and/or chemotherapy. In addition to the injury caused by the tumour, radiation treatment can cause further delayed injury to the brain.

## Severity of injury

Traumatic brain injuries are typically categorized as mild, moderate, or severe using medical criteria of severity applied at the time of injury. The literature is inconsistent in terms of the criteria used to determine these categories. However, for traumatic brain injuries, the three main measurements used to define severity are:

- depth of unconsciousness (during the first hours following trauma)
- duration of unconsciousness
- duration of post-traumatic amnesia (PTA), the period that begins immediately following the injury during which children/adolescents are unable to store continuous memory for recent events

The medical categories of injury severity used to describe traumatic injuries are less typically used in discussions of non-traumatic forms of acquired brain injuries, particularly when the injuries are more focal (for example, in the case of a stroke).

## Diagnosis

ABI is typically diagnosed by physicians in a hospital emergency department or, in the case of more subtle injuries, by the family doctor.

A traumatic brain injury can be overlooked when, for example, a child is admitted to hospital with other life-threatening injuries (for example, internal injuries) or physical injuries (for example, a spinal cord injury). As well, diagnosis can be difficult for more subtle cases of ABI because damage can't be seen on many of the scans available. (For more information about mild brain injury, see Chapter 6, Teaching the Student With Mild Traumatic Brain Injury.)

## Recovery and outcome

It is difficult to predict long-term outcome of ABI in children and adolescents. Whether children are toddlers or adolescents when injured, they are still in the process of developing and learning. The injury disrupts this process and affects both current abilities and ongoing development. The process of recovery is complex, and is affected by a large number of interactive factors (Lehr and Savage, 1990, Ylvisaker, 1998).

*No head injury is too serious to be despaired or too trivial to be ignored.*

—Hippocrates (400 B.C.)

*If a student in your class is displaying signs similar to those of acquired brain injury, but has not been diagnosed, consider using the following strategies:*

- *Observe, describe, and document behaviours across times and settings.*
- *Consult with parents and the child on an information-sharing basis to encourage involvement and understanding.*
- *Consult with the school-based team for referral to other professionals, such as a school psychologist, family doctor, neuropsychologist, or psychiatrist, for further assessment.*

### Factors related to improvement

The following factors contribute to the course of improvement and long-term outcome:

- Characteristics of the injury—Different causes of an ABI tend to be associated with different patterns of problems and outcomes. Characteristics of the injury that contribute to the child's recovery or outcome include the severity of the injury, specific areas of the brain that are damaged, extent of the damage, and diffuse (widespread) or local (focussed) nature of the tissue damage.
- Physical recovery of the brain—Nerve cells that are killed will not be replaced. However, some degree of spontaneous physical recovery can be expected to occur following an ABI. For example, some nerve cells that were injured may recover. Blood from bruised areas is reabsorbed. Swelling is gradually reduced over time. As pressure in the brain decreases, normal blood flow can be restored. Some degree of compensation and reorganization of the brain structure can occur. In some cases, it appears that a different neural network may assume responsibility for the impaired brain function. There are, however, limitations. Certain areas of the brain appear to be committed to specific functions, even in infancy, and not all areas of the brain can assume all functions.
- The individual child—Characteristics of the child that contribute to outcome include age at the time of injury; previous skills, knowledge, and personality; any history of pre-existing developmental or learning difficulties; and individual differences in brain organization.
- The environment—Outcome is also affected by the availability and quality of medical care and rehabilitation, and by individual family characteristics. Rehabilitation provided by health care professionals and school staff, together with support provided by family and friends, can have a powerful impact on the recovery process and long-term outcome. Intervention tailored to the needs of individual children can improve their general function during early recovery, decrease the development of secondary functional complications, and help them reach their potential in terms of long-term outcome. Ultimately, the family is the most important component of the recovery process and provides the primary support for the child (Ylvisaker, 1998).

*The younger children are when they sustain a brain injury, the less developed the brain.*

### Prognosis for recovery

The severity and nature of a child's deficits can be expected to change over time. Change tends to be relatively rapid in the first few months and then slows down. Different functions improve at different rates. New deficits may emerge over time as the child goes through new developmental stages.

Most spontaneous physical healing of moderate to severe brain injuries is thought to occur in the first year after the injury. Most of the functional improvement is widely believed to occur during the first six months, and virtually all within the first one to two years following the injury. For most children, any residual deficits apparent at this stage are likely to remain as permanent results of the brain injury (adapted from Spreen, Risser & Edgell, 1995).

After a moderate to severe brain injury, a full recovery is typically not expected. However, no one can perfectly predict the final outcome for an individual child. Predictions about long-term outcome become more accurate with the length of time elapsed since the injury, and as more information becomes available about the child's abilities.

Key considerations for long-term prognosis in children include:

- Potential for improvement—While the rough prognosis is generally known at approximately the one-year mark, the possibility of further improvement never ends for these children, as they continue to learn and develop. Children with brain injuries whose levels of function appear to have plateaued may make significant gains years after their injury.
- Delayed onset of difficulties—Some childhood injuries may initially appear mild, with evidence of substantial deficits surfacing only later in life. Children may suffer damage to a part of the brain that does not become functionally mature until a later stage of development. The consequences of this damage may be evident only when developmental expectations are not met. For example, a young child with an injury that involves the frontal lobes may initially appear normal or have only minimal difficulties, but demonstrate substantial impairment during adolescence because the brain injury disrupts normal development. Subtle cognitive deficits that affect new learning can result in a steadily widening gap between children with brain injuries and their peers. Poor self-awareness, limited ability to read social cues, or disinhibited behaviours may pose minor problems during the first few months at home, but can later develop into significant, long-lasting social difficulties.

*For a more in-depth discussion about brain injury and brain development, see Savage, R., The Child's Brain: Injury and Development, 1999.*

*Cognitive recovery and physical recovery occur at different rates.*

*Every brain is unique, every brain injury is different, and ABI outcomes are variable.*

*Deficits will often become more apparent over time as the demands of school tasks become increasingly complex.*

*Understanding the interplay between brain injury and brain development helps us to monitor progress and anticipate difficulties.*

## **Children do not recover better than adults**

A common misconception is that outcome following brain injury is better if an individual is injured earlier rather than later in life. Recovery is better in children than in adults only when outcome is judged in very global terms—for example, independent walking, self-care, and talking. In children, recovery of motor skills tends to be more rapid and complete than in adults. However, children and adolescents are more vulnerable in terms of their cognitive and psychosocial outcome. As a group, they are at high risk for long-term educational, vocational, and interpersonal problems.

For children and adolescents with brain injuries, the process of recovery and improvement is complicated by a reduced capacity for future learning and development. Injury to the immature nervous system affects a brain still in the process of maturing and acquiring new information and skills. A disruption in the development of one function can have a cumulative effect on subsequently developing functions. In general, the younger the child is at the time of the injury, the greater the impact will be on new learning and development and long-term outcome.

## **Adolescence and ABI**

Adolescence has its own demanding set of challenges. It is typically a time of growth and change, when young people are discovering who they are, striving for independence, and beginning to establish vocational and educational goals. Most adolescents are anxious to complete secondary school and get on with their lives. An ABI can significantly complicate and permanently alter this process.

Sustaining an ABI during adolescence can also have a significant impact on the futures of both the young person and the family. Family roles, dynamics, and expectations may also change. Most importantly, social support that may initially be intense during the illness or directly after an injury tends to dwindle and eventually cease. It is not uncommon for adolescents with ABI to become socially withdrawn and isolated.

Issues that adolescents with ABI may face include:

- being different but not wanting to be
- being unable to recognize any difficulties and insisting they are the same as before and just as capable and responsible
- losing their independence and resenting the dependency

- having to accept increased parental attention and supervision
- having important extra-curricular activities restricted
- having “rites of passage” delayed (e.g., loss of driver’s licence, dating, going to university)
- being misunderstood and abandoned by friends and becoming socially isolated
- wanting to prove normalcy by using alcohol and drugs and/or being sexually active
- having vocational and educational dreams shattered
- having graduation delayed because of hospital and rehabilitation stays, shortened school days, or a reduced course load
- facing increasingly complex and cognitively demanding school work when skills such as abstract thinking and reasoning skills have been impaired

Friends are a powerful force in the life of an adolescent. Losing friends can be devastating. Keeping friends can be difficult after ABI, and social isolation is one of the most significant outcomes of ABI. The following list identifies issues that lead to social isolation. Adolescents with ABI may:

- have different cognitive and behavioural abilities from those of their peers
- have poor social cognition skills
- be unaware of their strengths and weaknesses
- not know the “rules” or “code” of social behaviour appropriate for adolescents
- have personality changes
- be easily or chronically fatigued
- have different interests from those they had before the brain injury
- have decreased self-esteem
- be unable to initiate conversation or activity
- have fewer opportunities to interact with peers or to participate in the same activities as their peers
- demonstrate inappropriate sexual behaviour
- have overprotective parents/caregivers
- cause peers to feel uncomfortable, so they choose to stay away (e.g., peers might not know what is appropriate to talk about, be afraid of

*Inappropriate sexual behaviour may require specialized intervention. For more information and assistance, contact G.F. Strong Rehabilitation Centre, Tel: (604) 734-1313 or [www.vanhosp.bc.ca](http://www.vanhosp.bc.ca)*

*Further information on inappropriate sexual behaviour may also be found in Responding to Children’s Problem Sexual Behaviour in Elementary Schools, (1999) Ministry of Education.*

upsetting their friend, be afraid of asking personal questions, not know how to treat someone with ABI)

Anticipating difficulties with socialization and maintaining friendships is important to the success of early intervention efforts.

Teaching appropriate social skills will provide lifelong benefits to students with ABI. Social skills training takes time, planning, and practice. It should become a regular part of the education program and identified as such in the IEP. Including family, school staff, and friends in such training is important.

Friends are a valuable tool in rehabilitation. They will benefit from concise information about ABI and open and honest communication. They need to be taught how to interact with their friend with ABI and how to react to inappropriate behaviour. It is essential to identify an individual at school to whom peers can turn for advice and support.

Assuming that peers will accept their friend with ABI as before is an unfortunate and inaccurate assumption. It takes considerable effort and energy to create positive social environments for students with ABI.

### **Substance abuse**

Drug and alcohol use by adolescents with ABI is extremely unhealthy and potentially dangerous. It can slow recovery, worsen both physical and cognitive deficits, interact with prescribed medications, and cause seizures.

Adolescents with ABI need education about the impact of substance abuse. They may also need significant support and counselling to avoid using substances, particularly if they were users before their ABI or if they've joined a social group where drug and alcohol use is common.

If school staff suspect alcohol and drug use, parents should be notified and the doctor alerted by the family. Counselling may be needed.

### **Driving**

After an ABI, adolescents may be informed that they cannot drive or that they may have to wait to get a licence. This can be very difficult news to hear. Many adolescents with ABI do not have the necessary decision-making, problem-solving, perceptual, or visual skills to drive safely. For others, anger management is an issue.

Before being licensed to drive, or drive again, students with ABI will be required to undergo neuropsychological assessment and an on-road driving assessment.

## Assessment of students with ABI

In order to effectively teach and appropriately support students with ABI, teachers need to be aware of the specific outcomes of the individual student's brain injury. Traditional educational assessment batteries do not assess the cognitive and behavioural outcomes of ABI. For example, academic achievement tests assess stored knowledge, not new learning potential. Informal, functional, and non-standardized assessment procedures and observation also add valuable information to the assessment. Performance scores in a clinical testing situation may tend to be higher than in the actual classroom because the testing environment is highly structured, protected, and non-competitive and the examiner may provide encouragement, motivation, and assistance with task focus and planning.

Specialized assessment by a neuropsychologist is essential in understanding the profile of a student with ABI. The neuropsychologist has specialized training in evaluating thinking and behaviour and can provide important information about the impact of ABI on cognitive, academic, emotional, social, and behavioural skills.

Baseline assessment is not usually undertaken before 30 days post-injury and depends on the student's ability to participate. Ongoing formal and informal assessment is essential for monitoring progress, adapting programming, and appropriately meeting the needs of the student. A diagnostic teaching approach allows for assessment of the student in a regular classroom setting where there are distractions and many demands. An interdisciplinary assessment by professionals with experience in pediatric ABI is recommended.

It can be challenging to accurately interpret assessment results. For example, a low score on a reading comprehension test may actually be a result of difficulties with attention or short-term memory.

The following specific areas potentially affected by brain injury need assessment:

- speed of information processing—input and output
- attention and concentration
- long-term and short-term memory
- expressive and receptive language

- planning and organization
- judgment and reasoning
- problem solving
- motivation and initiation
- self-esteem and self-awareness
- social behaviour
- perceptual abilities
- vision and hearing
- speech
- motor function—fine motor and gross motor

Assessment results should provide the following important information:

- a profile of physical, cognitive, communication, behavioural, and emotional skills
- classroom strategies for learning and teaching
- management techniques for inappropriate or challenging behaviour
- alternative methods for evaluating the student's academic skills

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(Excerpted from Sunny Hill Health Centre for Children, *Children with Acquired Brain Injuries: The Transition from Hospital to Community*, 1999.)

Virtually any ability or combination of abilities can be impaired following an acquired brain injury (ABI). Each brain injury is different, and can be expected to produce a unique pattern of damage and functional difficulties. However, there are important common difficulties.

Changes in a child's abilities can be profound. However, changes can also be relatively subtle, and the impact of the injury on the child is often underestimated. Overly optimistic reports of outcome are not uncommon because of good physical recovery. Things often go relatively well immediately after discharge from hospital, as the family experiences the welcome relief of life beginning to return to normal. However, problems tend to become apparent as difficulties emerge with, for example, safety, peer relationships, behaviour, and new learning.

Following is a brief discussion of some of the more common difficulties that can result from ABI.

## Health

### **Fatigue, headache and disturbed sleep**

Fatigue is extremely common in the early stages of recovery and can be a long-term concern. Fatigue can limit endurance for both mental and physical activities and generally exacerbates the impact of other deficits. Other health problems can include headaches and disturbed sleep patterns.

### **Seizures**

Some children who had seizures around the time of the injury may be taking anti-seizure medication to minimize the potential for further seizure activity. The majority of children and adolescents with ABI do not have seizures, either in the early phase or as a late-occurring complication. However, if the physician has identified an increased risk for late-

occurring seizures, this always needs to be addressed with the school staff.

## Cognition

Cognitive deficits can affect all areas of a child's function and development, including physical activities, play, communication, social relationships, and academic learning.

Inconsistency of cognitive function over time is common. Children may do better under ideal conditions, while their function may deteriorate as a result of factors such as:

- fatigue
- stress
- overstimulation
- participation in new or unstructured activities

Some of the more critical areas of cognitive impairment are highlighted below because of their pervasive impact on learning and general function. Problems in these areas are extremely common with traumatic brain injury, but are also common with non-traumatic brain injuries, depending on the location of the injury.

### **Attention and concentration**

Attention is a foundation for the cognitive processes needed for everyday function, academic learning, and social interaction. Attention deficits can include:

- slowed rate of information processing
- short attention span
- difficulty with focussed attention
- distractibility
- difficulty shifting attention

### **Memory and learning**

Memory skills are highly complex. In most cases, children demonstrate relatively good recovery of pre-injury information related to personal experience, and of overlearned knowledge and procedural skills (such as

number facts and daily routines). However, specific gaps in recall are common, particularly for more recently acquired knowledge and skills.

Specific memory deficits can include difficulties with:

- forgetfulness
- immediate and short-term memory
- rate of new learning
- retention of new information in long-term memory
- recall of information from memory storage

Memory deficits can be specific to the manner in which information is presented. For example, children can have severe auditory-verbal memory deficits and normal visual–non-verbal memory function.

## Executive functions

Executive functions are the skills needed to formulate goals, to plan how to achieve them, and to initiate and carry out the plans effectively.

Specific executive function deficits can include problems with:

- self-awareness, judgment, and insight
- initiation, planning, and organization
- ability to self-monitor and evaluate performance
- mental flexibility
- ability to generalize newly learned skills to different situations
- abstract and inferential reasoning
- ability to take another person’s perspective
- ability to inhibit impulsive behaviours
- ability to regulate emotional expression

*Memory deficits can be specific to the manner in which information is presented.*

These executive skills are of critical importance to social, academic, and vocational success and independent living. Significant executive system impairment can seriously interfere with rehabilitation and educational intervention. Children and adolescents with poor awareness of their deficits can be difficult to engage in therapy or learning activities. Those with initiation problems or impulsive behaviours may fail to use the skills and strategies they have been taught.

## Communication

Communication impairments can involve any aspect of motor speech, language skills (understanding and expression), or the ability to use language in everyday social situations. In addition to specific speech and language deficits, communicative deficits may be present as a result of underlying cognitive impairments, such as reduced attention, slow information processing, poor organizational skills, and memory and perceptual impairments.

Recovery of basic speech and language skills tends to be relatively good. Most children speak clearly and regain the ability to follow basic directions, use grammatical sentences, and carry on simple conversation. However, many experience persisting communication problems that often significantly affect social and academic functioning.

Common residual problems with language comprehension include difficulty understanding lengthy, complex, or rapidly spoken language, particularly in stressful or distracting listening environments. Expressive language problems, including deficits in word finding and verbal formulation and organization beyond the sentence level, are common in both verbal and written language.

Many children with acquired brain injuries have difficulty with higher-level language skills, including inferential reasoning and understanding of abstract uses of language such as figurative language or humour. The ability to participate in the “give and take” of social interactions may be limited because of:

- difficulty following rapid verbal exchanges
- difficulty understanding the more abstract uses of language, including jokes, irony, and sarcasm
- limited understanding and use of non-verbal communication cues

A small number of children have more severe speech impairments (*dysarthria*, *apraxia*) and language impairments (*aphasia*) that significantly affect functional communication. Aphasic language disturbances typically occur with focal injury to the left side of the brain resulting from trauma or strokes, and affect all modes of symbolic communication, including speaking, understanding, reading, writing, and gesturing.

## Sensory and perceptual

A brain injury can disrupt input from any sensory system. Sensory impairments can result from damage to the sensory organ itself, to nerve pathways transmitting sensory input to the brain, or to the part of the brain primarily responsible for receiving and interpreting that type of sensory input. Some children may have a reduced ability to sense touch, temperature, or where their body parts are in space. Other children may be hypersensitive to sensory input, such as touch, bright lights, or noise.

Sensory impairments can be challenging to identify because of other impairments such as physical limitations, fatigue, distractibility, and reduced self-awareness. Visual acuity is rarely impaired, but there can be partial loss of vision—for example, in one eye or in part of the visual field. Right hemisphere injury can be associated with impaired awareness of sensory information on the left side of the body or space.

Vision can be affected by impairment of the eye muscles. Common problems can include double vision and difficulty with depth perception, the ability to shift gaze, and the ability to track smoothly when reading.

Perceptual impairments include difficulties recognizing and understanding sensory input. For example, children may not be able to understand speech sounds, despite normal hearing. They may not recognize what they are looking at, despite normal eye function.

## Motor skills

The pattern and severity of residual motor deficits caused by a brain injury can cover a wide spectrum. Some children have significant long-term motor deficits—for example, some degree of *hemiparesis* (weakness or paralysis on one side of the body). Most children with acquired brain injuries recover gross motor function relatively well, and most can walk independently. However, residual problems—for example, with fatigue, balance, co-ordination, tone, and strength—often affect a child's return to previous activities. Common fine-motor problems include reduced dexterity, speed, and motor-planning skills (*apraxia*). Children with a hemiparesis involving the hand that is dominant for complex fine-motor skills (such as writing) may have to switch hand dominance.

Some students with brain injury might be returning to school with a physical disability that prevents them from either accessing the curriculum or keeping up with written output. For these students, a referral to Special Education Technology British Columbia (SET-BC)

*For more information about the referral process to SET-BC, talk with your school district SET-BC contact.*

*Many children with ABI make an excellent physical recovery. However, this external appearance of well-being can be deceptive, and result in misinterpretation of cognitive, emotional, and behavioural changes.*

may be necessary. This process should begin as soon as the school-based team has a basic understanding of the student's needs. (For more information about SET-BC, please refer to the Web site at [www.set.gov.bc.ca](http://www.set.gov.bc.ca))

Even when children do not have obvious motor difficulties at the time of discharge, other effects of the brain injury can significantly affect physical function. For example, a student may be physically ready to return to the basketball team, but may have problems coping with the demands of the game because of deficits in speed of information processing, distractibility, disorganization, and impulsive behaviour. Physical safety is often a significant concern because of impaired executive function and residual motor deficits.

## Academic

Students with ABI commonly have marked difficulty working independently on their schoolwork and need a high level of learning support. Any academic skill can be impaired on a temporary or long-term basis. In the early stages of recovery, many children recover pre-injury knowledge and skills relatively well, but the rate at which they catch up may be different for different skills, and they may have long-term residual gaps in accessing previous learning. Problems with higher-level, more complex academic skills, such as reading comprehension, written language, and math, are common.

New learning problems often emerge over time. In some cases, the rate of new learning slows significantly despite initially good recovery of pre-injury skills. Children can have increasing difficulty coping with schoolwork as the demands for abstract learning, complex organizational skills, and quantity of new learning and output increase. The transition from elementary to secondary school is particularly challenging for students, as they are faced with complex schedules, multiple teachers with differing teaching styles, more complex assignments, and expectations of increased independence.

## Behavioural/social

Changes in personality and behaviour are very common and are often the most disabling effect of ABI. Some parents report that their child is not the same person that he or she was before the injury. Parents may find that they no longer know how their child will react, and that their once-effective parenting strategies no longer work.

Behavioural changes can be influenced by the characteristics of the child before the injury and the characteristics of the environment following the injury. For example, old problems with anger and social skills can be exacerbated. Stress can decrease a child's ability to compensate for neurologically-based changes in behaviour and personality.

Impulsive, disinhibited behaviours (sometimes associated with marked hyperactivity) may emerge as recovery occurs. At this stage of recovery, most children and adolescents still have a very limited ability to understand the implications of their brain injury. Most can recognize obvious changes in their physical abilities, but as these improve, they tend to deny that anything else is wrong with them. Their frustration often increases and it can become difficult to engage them or to convince them of the need to comply with restrictions placed on activities for safety reasons.

Emerging problems with behaviour and social relationships are common. Children and adolescents often appear less mature, and may form friendships with children three or four years younger than their age peers. They can be somewhat egocentric. Inflexible, perseverative thinking may result in difficulty changing gears, and demanding or non-compliant behaviours. Children may exhibit new problems with irritability, aggressive behaviours, and temper outbursts. They often have difficulty fully appreciating the impact of their behaviour on other people, and may engage in inappropriate (for example, rude, insensitive, or sexually inappropriate) behaviour in social interactions.

*Children and adolescents often have difficulty returning to their peer group.*

Children and adolescents often have difficulty returning to their peer group because of impaired executive function and changes in communication, perception, attention, and motor skills. Increasing problems with social isolation and withdrawal are common. Without information and support, peers can be put off or confused by changes in their friend's behaviour.

Children's ability to initiate or engage in activities independently may be impaired. Interests often change, usually to simpler activities that might appeal to a younger child. Their play and recreational skills may be less complex and creative. They may not be able to return to former athletic activities.

Safety is often a major concern because of physical and cognitive deficits. Close supervision is often required. Common issues include traffic safety, contact sports, and unsafe familiarity around strangers. Driving, sexuality and alcohol and drug use are major issues for adolescents (see "Adolescence and ABI" in Chapter Two, What is

Acquired Brain Injury?). Peers often do not understand their friend's limitations, leading to unsafe situations.

As self-awareness increases and children begin to experience the impact of their injury, many experience profound anxiety, sadness, or anger. A common problem for adolescents is their desire to return to their normal activities and their parents' unwillingness to reduce their vigilance. Loss of independence and failure to achieve important goals and milestones, such as getting a driver's licence or going to university, are major issues. (See "Adolescence and ABI" in Chapter Two, What is Acquired Brain Injury?)

Many children and adolescents need counselling at different times in their recovery and at different stages of their development to address emotional distress, to help them understand the impact of their brain injury, and to develop effective skills and coping strategies. Some individuals demonstrate signs of post-traumatic stress disorder (PTSD) and need specialized clinical support.

## Developing the Individual Educational Plan (IEP)

Developing an IEP for students with acquired brain injury (ABI) is challenging for several reasons. These students usually return to school during their recovery process, which is a period of ongoing improvement and adjustment. Each student's need for support may differ. Each one demonstrates considerable variability in skills and attitudes. As well, the consequences of the brain injury can be unpredictable. Therefore, IEPs need to be revised frequently as these students continue to heal and as development occurs.

It is important to stress that many similarities exist between students with ABI and other students with disabilities; however, there are distinct and important differences:

- ABI is an acquired neurological disorder that occurs after a normal developmental experience
- students with ABI had a preconceived "self" before their injury and may have difficulty accepting changes in their abilities and behaviours
- students with ABI have typically had no history of special education services before their brain injury
- students with ABI have a solid base of long-term, previously learned knowledge
- students with ABI display inconsistent patterns of performance, depending on the situation and environment (fatigue, noise levels, etc.)
- students with ABI are subject to an unpredictable and fluctuating recovery period that could last for years
- students with ABI may have discrepancies in ability levels that are more extreme and harder to understand

The student's school program should be individualized, based on his or her unique needs and abilities. Planning is most effective when educators have a thorough understanding of the cognitive and physical deficits of the student with ABI and how these deficits affect the student.

The IEP is developed through collaboration by a team of people directly involved with the student, such as the classroom teacher, special education teacher, parents, and student (if appropriate). In some cases, planning involves others, such as teacher's assistants, speech and language pathologists, occupational therapists, physiotherapists, and psychologists. It is important for all school staff to be aware of interventions being used to support the student, so that the school program can be as consistent as possible. Because students with ABI may continue to recover for months, if not years, it is important to review and modify the IEP on a regular basis.

Students with ABI may have a rehabilitation team working with them when they first return to school. Many students with ABI will work with a variety of therapists for years after their injury. As well, those students injured in a motor vehicle accident or at work may continue to be funded for therapy and programming through insurance monies provided by the Insurance Corporation of BC (ICBC) or Workers' Compensation Board (WCB).

To be most efficient and have the best outcomes for students, a collaborative approach among all those working to support them is desirable. Some school boards have found it helpful to develop protocols with local agencies for how they will work together in order to plan supports for students and their families. Such protocols deal with areas such as information sharing, communication methods, meeting locations, and areas of responsibility. Issues such as service providers from outside the school working with the student in school can be dealt with smoothly when there is a protocol. For more information on integrated planning, see the "Integrated case management" on page 34.

*For more information on IEPs, see the BC Ministry of Education handbook Individual Education Planning for Students with Special Needs: A Resource Guide to Support Teachers, 1995.*

## Contents of an IEP

The written IEP is intended to guide the work of educators and to provide information on the types of modifications, adaptations, strategies, and services that will be used to support the student. Effective IEPs include:

- personal and educational data, including assessment information
- information about the student's strengths and needs
- long-term goals and short-term goals and objectives—long-term goals include the future vision for the student as an adult; short-term goals and objectives can be related to the regular curriculum or developed as individualized goals organized into developmental domains such as:

- cognitive skills
- communication
- social skills
- behaviour
- academic skill levels
- physical/functional skills
- transition goals and objectives, including vocational skills
- resources and strategies that will be used in working toward the goals and objectives
- how the student's progress will be assessed and evaluated
- assignment of responsibility for carrying out specific aspects of the plan, with the level of service and who will carry it out
- a process for review and evaluation of the plan, at least annually— however, during the initial stages of recovery in cases of ABI, it is recommended that a review of the IEP occur every three months

The IEP is a broad plan, not intended to delineate the daily instructional activities for the student. It is reasonable to expect that the IEP may need to be revised throughout the year to increase the effectiveness of the student's support program as the student and teachers become more familiar with one another and as changes take place. Flexibility in implementing the IEP during the school year is needed to accommodate changes in such things as the student's behaviour or other needs. (See Chapter 10, Case Studies for examples of integrating the implementation of goals in an IEP with regular class activities.)

When developing a student's IEP, it is important to plan adaptations to instruction, classroom environments, and classroom management that address the needs of the student and that enable him or her to function optimally in the classroom.

## Roles and responsibilities

Effective planning for supporting students with ABI and their families is important. This planning activity may involve a number of individuals within the school system. The student's needs for support may also go beyond the mandate of the school system and may include external agencies. The following **school board resource personnel** may be important to the planning process:

- **School principals**—The duties of principals include implementing education programs for all students in the school, assigning staff, allocating resources within a school, and ensuring that teachers have the information they need to work with students assigned to a class or program. Principals can facilitate the collaboration of school-based teams in supporting students with special needs.
- **Classroom teachers**—Teachers are responsible for the education programs of all students in their classes. When a student with ABI needs specialized programming and instruction, teachers need to work collaboratively with available specialists to ensure that there is a well-planned, co-ordinated approach.
- **Specialist teachers**—Teachers with special training in working with students who have complex special needs support classroom teachers. Specialist teachers have expertise in teaching and learning strategies, modifying and adapting the curriculum, physical adaptations, behaviour management and development, or social skills. In some cases, the specialist teacher may be a resource teacher with special training in learning strategies or behaviour. For some students with ABI, the resource teacher may provide direct instruction, while in other cases, specialist teachers provide consultative support for classroom teachers who have a student with ABI in the regular class.
- **Teacher’s assistants**—In some cases, teacher’s assistants are assigned to support teachers in their work with students who have ABI. Across BC, this educational employee group is described by a variety of titles, including teacher’s assistants, paraprofessional workers, learner assistants, student assistants, and special education assistants. Teachers are expected to design programs for students with special needs; however, teacher’s assistants play a key role in many programs, performing a variety of functions from providing personal care to assisting with the instructional program.
- **Parents**—Parents know their children best. They are the historians of their child’s behaviour and school performance dating from both pre- and post-injury. The families of students with ABI have knowledge and expertise that are valuable in developing an effective program at school. This knowledge is of critical importance in planning for an appropriate educational plan. Parents have worked out ways of communicating with and managing their child at home that can be helpful in the school setting. When families and schools work together for compatibility in the student’s program at school and at home, the student benefits from the resulting consistency.

- **School psychologists**—School psychologists assess intellectual and behavioural functioning. They can help to identify appropriate behavioural and learning strategies.
- **Speech and language pathologists (SLPs)**—Speech and language pathologists have specialized training in assessing communication needs and designing programs to improve communication. Many students with ABI have significant receptive and expressive language impairments. SLPs can play an important role in the collaborative effort to decide on appropriate goals and strategies for meeting the needs of individual students.
- **Occupational therapists (OTs)**—The occupational therapist evaluates fine motor skills, including tone, range of motion, and quality of movement; sensory-perceptual skills; cognitive skills; and the impact of the ABI on functional performance (activities of daily living—e.g., dressing, personal hygiene). OTs will develop treatment programs that encourage recovery of skills and recommend compensatory strategies for skills that have not been recovered.
- **Physiotherapists (PTs)**—Physiotherapists evaluate and provide therapy for muscle tone and strength, range of motion, and quality of movement, including balance and co-ordination. Physiotherapy focusses on recovery of normal movement patterns to maximize functional potential.

If students are injured in motor vehicle accidents or at work, professionals from outside the school system may be consulted on various aspects of planning. **External service providers** include:

- **Neuropsychologists**—Neuropsychologists are psychologists who have special training in assessing how a brain injury affects cognitive, behavioural, emotional, and academic functioning. They can help to identify appropriate behavioural and learning strategies, assist with developing the IEP, and provide counselling for both the child with ABI and the family.
- **Educational consultants**—Educational consultants who specialize in working with students with ABI can assist with the reintegration and case management of students with ABI.
- **Occupational therapist consultants**—OT consultants are often hired to assist with the reintegration of the student into the home, school, and community. They often oversee and supervise a rehabilitation assistant who will work one-to-one with the student on a specific set of skills designed to optimize the student's function.
- **Tutors**—Academic tutors may be hired outside of school hours to assist with homework, studying, and strategy use.

- **Behaviour consultants**—Behaviour consultants specialize in assessing behaviour and developing behaviour intervention programs.

## Integrated case management

Integrated case management provides an opportunity for co-ordinated planning and service delivery to support children and their families. It encourages a collaborative team approach to the development and monitoring of the plan to support a student. One of the important advantages of such an approach is that even though individual team members may change over time, the process will be continuous and the child and family will always know some of the members of the team. Integrated case management can be developed in such a way that it demonstrates respect for the involvement of students and families in planning decisions.

Integrated case management planning and monitoring can be organized in such a way that it focusses on the main areas of a student's life. Areas of focus suggested by the BC Ministry for Children and Families in *Integrated Case Management: A User's Guide* are:

- health—lifestyle, nutrition, or other health needs of the student
- education—academic functioning based on assessment
- identity—language, cultural, and spiritual aspects of the young person's life
- family and social relationships—relationships with family members, including extended family, and friends
- social/emotional/behavioural—behavioural needs, social skills
- other (including vocational—especially for older students, job and career possibilities and transitions)

## Adapting versus modifying curriculum for students with ABI

In many cases, students with ABI will require adaptations to instruction, strategies, or assessment to ensure progress in school. Some students with ABI may require modifications to curricular outcomes in specific subject areas.

*For more information on the parents' role in planning IEPs for their children, see Parents Guide to Individual Education Planning, developed by the BC School Superintendents' Association and the BC Ministry of Education, 1996.*

*For more information on integrated planning, see the BC Ministry for Children and Families' guide for service providers, Integrated Case Management: A User's Guide, 2001.*

## Adaptations

A student who is provided with accommodations or supports in order to achieve the learning outcomes of the provincial curriculum is considered to be receiving adaptations. Students who receive adaptations in credit courses in the graduation years are eligible to receive a Dogwood Certificate upon completion of BC graduation requirements.

## Modifications

In many cases, the needs of students with ABI will be addressed by adapting instruction, strategies, and/or assessment techniques. But in some cases, students with ABI are unable to achieve the learning outcomes of the provincial curriculum, regardless of how much support is provided. These students require modifications to the learning outcomes to address their needs.

The following chart compares adaptation and modification of curriculum:

ACCOMMODATING A STUDENT WITH ABI	
Adaptations	Modifications
<p>Support so students can achieve the prescribed learning outcomes of the provincial curriculum:</p> <ul style="list-style-type: none"> <li>• adapt lesson presentation</li> <li>• adapt assignments, projects, and tests</li> <li>• provide organizational support, and/or</li> <li>• teach compensatory strategies</li> </ul>	<p>Support for students who need individualized outcomes:</p> <ul style="list-style-type: none"> <li>• modify outcomes while using the same materials as used by other students</li> <li>• modify outcomes using different materials from those used by other students</li> <li>• provide activities to develop modified outcomes in the context of the regular classroom and/or in other settings</li> </ul>



## Understanding the needs of the student with ABI: Educational implications

The consequences of acquired brain injury (ABI) are variable, and each student with ABI will demonstrate unique patterns of behaviour. However, there are commonalities among these students and generalities can be made. To be successful in school, students need to be able to pay attention, follow directions, organize their work, and remember information. Typically, these are difficult tasks for students with ABI.

The following chart describes common areas of difficulty and how a student with a particular difficulty might behave in a classroom, and suggests strategies that teachers, students, and their families can use to increase success.

A note about strategy use: Consistency across the home and school environments will greatly increase the likelihood of success in the use of strategies.

*Consistency and structure will greatly increase success.*

HEALTH ISSUES		
May have difficulties with:	Classroom behaviour	Strategies
<b>Fatigue</b>	<ul style="list-style-type: none"> <li>• may look pale and tired</li> <li>• may deny being tired</li> <li>• may tune out and not pay attention</li> <li>• cognitive ability may deteriorate toward the end of the day</li> <li>• may be disinterested in normally appealing activities</li> <li>• may be unable to complete tasks</li> <li>• may be unable to complete homework in evenings</li> </ul>	<ul style="list-style-type: none"> <li>• review medical information on physical limitations</li> <li>• shorten the school day</li> <li>• reduce the course load</li> <li>• avoid overstimulation</li> <li>• increase school time as stamina improves</li> <li>• provide frequent rest breaks</li> <li>• alternate academic subjects with study periods</li> <li>• schedule most demanding activities/subjects during student's optimum performance time</li> <li>• do not assign homework</li> <li>• monitor medications</li> <li>• increase awareness of fatigue</li> </ul>

**HEALTH ISSUES (continued)**

<b>Headaches</b>	<ul style="list-style-type: none"> <li>• may complain of headaches</li> <li>• may be unable to pay attention and concentrate</li> </ul>	<ul style="list-style-type: none"> <li>• allow the student to leave the room to lie down</li> <li>• monitor the activity and time of day to identify patterns in the headaches</li> </ul>
<b>Seizures</b>	<ul style="list-style-type: none"> <li>• may have seizures ranging from hardly noticeable absence (petit mal) seizures to tonic-clonic (grand-mal) seizures</li> </ul>	<ul style="list-style-type: none"> <li>• identify side effects of medication and monitor</li> <li>• educate all staff about seizure protocol</li> </ul>

**MOTOR SKILLS**

<b>Muscle paralysis/muscle weakness</b>	<ul style="list-style-type: none"> <li>• may be unable to keep up with note taking</li> <li>• may become fatigued</li> <li>• may have right/left-sided neglect (walks into walls, hits door frames or sides of desk)</li> <li>• may be clumsy in classroom/hallways</li> </ul>	<ul style="list-style-type: none"> <li>• may require use of a wheelchair or cane</li> <li>• request consultation with occupational therapist and physiotherapist</li> <li>• provide adaptive equipment such as computer or tape recorder</li> <li>• provide grips for pens and pencils</li> <li>• adapt classroom environment for student (e.g., where he or she sits)</li> <li>• ensure supported seating</li> <li>• monitor safety in halls</li> </ul>
<b>Strength</b>	<ul style="list-style-type: none"> <li>• may tire easily</li> <li>• may not be able to carry books and materials between classes or home</li> <li>• may appear clumsy</li> <li>• may fall</li> <li>• may require supervision in hallway</li> </ul>	<ul style="list-style-type: none"> <li>• locate locker centrally if possible</li> <li>• have a copy of the textbook available in the classroom so student does not have to carry heavy text books to class</li> <li>• keep a second set of textbooks at home so the student doesn't have to carry them</li> </ul>
<b>Balance/coordination</b>	<ul style="list-style-type: none"> <li>• may be unstable</li> <li>• may be unsafe in hallways</li> </ul>	<ul style="list-style-type: none"> <li>• allow student to leave early when changing classes</li> <li>• may require supervision in the hallway</li> </ul>

**MOTOR SKILLS (continued)**

**Fine motor activities**

- may print and write slowly
- printing or writing may be illegible
- hand may tremble during activity
- may need to use a computer or word processor
- provide scribe or photocopied notes, or have a good note-taker in the class use NCR paper
- reduce the size of assignments
- consider using oral rather than written tests
- provide short-answer rather than essay questions
- may need extended exam time
- allow audio- or videotaped recording of assignment as an alternative to written work

**Notes:**

- Consult the District OT/PT for further suggestions.
- Students with ABI should avoid contact sports for at least one year after the injury and return only with a doctor's permission. Adapt the PE program; don't exclude the student.

**SENSORY/PERCEPTUAL SKILLS**

**Vision**

- double vision
- visual neglect
- visual field cuts
- light sensitivity
- may "squint" when reading or looking at the board
- may consistently miss information on one side of the board or worksheet
- may miss when reaching to grab an object
- use enlarged print
- decrease the number of questions or amount of print per page
- use a coloured line to indicate the left or right side of the page (or both) and train the student to turn his or her head and look to the line(s)
- have written materials read orally
- use taped books
- may need preferential seating
- turn off fluorescent lights when possible

**Hearing**

- may miss directions and information
- may appear to not be paying attention
- may not respond to name
- may need preferential seating to accommodate hearing loss
- provide written information to accompany lectures
- use visual cueing systems such as checklists to ensure understanding of directions

**Smell**

- may not be aware of unpleasant or dangerous smells (e.g., smoke)
- install flashing light signal as an adjunct to a fire alarm

**Somatosensory**

- may have reduced ability to sense touch or temperature
- may be hypersensitive to sense, touch, or temperature
- may need reminders to test temperatures
- may need gradual de-sensitization program
- use warning signs to indicate places of risk

**SENSORY/PERCEPTUAL SKILLS (continued)****Perception**

- may have difficulty scanning and reading printed material
- may miss math questions or portions of math questions
- may have difficulty perceiving the spatial orientation of objects
- may be overwhelmed by a visually stimulating classroom
- may have difficulty with simple construction tasks
- may have difficulty with oral directions
- may have difficulty finding way around the school (orientation)
- use a multisensory presentation of materials
- use a ruler to help scan the page
- use large print books
- use books on tape
- place arrows, coloured markers, or words on the right and left side of the page to orient the student
- limit the amount of print on a page
- provide large print books or use books on tape
- provide a map and written instructions of class locations
- assign a buddy
- schedule classes in same part of building when possible

**COGNITIVE SKILLS****Attention/concentration**

- may have difficulty focussing attention and filtering distractions (selective attention)
- may have difficulty maintaining attention (concentration)
- may have difficulty shifting attention
- may have difficulty dividing attention between two or more tasks
- may have a short attention span
- may appear distractible
- may have difficulty sitting still in class—may wander
- assignments may be incomplete
- concentration may be easily interrupted
- may have difficulty following directions
- may complete the wrong assignment
- may lose place while reading silently or orally
- may get stuck on one idea (perseveration)
- may look like a daydreamer
- may have increased fatigue resulting from effort of concentration
- seat at front near teacher
- may need one-to-one direct instruction
- may need to work at a carrel for in-class work or in a quiet room for tests/exams
- allow rest periods
- modify the test environment to control noise and distractions
- monitor and refocus attention to the task
- use short and direct presentations of directions and information
- keep distractions to a minimum
- limit the number of choices and decisions
- provide frequent breaks
- break task into manageable parts and complete one at a time
- monitor medications, time of day, and fatigue

**COGNITIVE SKILLS (continued)**

**Memory/learning**

- may appear forgetful
- may fail to complete assignments
- may forget to hand in homework even if completed
- may skip classes
- may forget necessary books or materials
- may have slowed rate of learning
- may have difficulty recalling previously learned information
- may have gaps in previously learned information
- recall/performance may be inconsistent
- may be unable to learn new information
- may have little recall of details when reading
- may be unable to recall specific details or sequence of a lesson
- may have difficulty following directions
- recognition of information may be better than recall
- may not be able to recall information presented verbally (e.g., lectures, discussions, videos)
- may be unable to recall information he or she has read
- may appear disoriented
- may not generate and use compensatory strategies
- may have trouble learning from mistakes or successes
- may not be able to generalize information learned in class
- may not learn from consequences
- use a diagnostic approach and check for gaps in learning
- make sure the information to be learned is relevant to the student and necessary to learn
- link new learning with previously learned, meaningful material
- simplify the material to be learned
- regularly summarize information as it is being taught
- limit sentence length and complexity
- provide experiential presentations of information
- use visual reminders such as schedules, checklists, and calendars
- use visual cues such as highlighting, underlining, pictures/diagrams, and colour coding
- structure thinking processes graphically:
  - time lines
  - lists
  - flow charts
  - graphs
- use the school agenda or a communication book to stay in touch with parents and tutors and to record all important information
- monitor often for understanding and mastery
- record all information to be learned
- overlearn new information and routines
- rehearse new information verbally
- teach memory strategies:
  - categorizing
  - associations (mapping)
  - chunking
  - rehearsal
  - mnemonics
  - visualization
- provide written directions and explanations
- use lists, cue cards, calendars, post-it notes
- review, review, review
- use watch alarms to signal transitions

## COGNITIVE SKILLS (continued)

**Memory/learning  
(continued)**

- use alternative testing methods:
  - multiple choice or matching format for testing recall of information
  - open-book tests
  - oral versus written tests
  - untimed tests
- provide study questions
- use all modalities to teach new information
- keep models of completed worksheets in a notebook for students to refer to
- use two-column notes strategy for note taking

**Organization/planning**

- may have difficulty breaking tasks into smaller parts
- may have difficulty organizing thoughts and preplanning written work
- may have difficulty completing tasks in logical, sequential order
- may have difficulty condensing and summarizing information
- may have difficulty approaching tasks in organized manner
- may complete sequences out of step
- may not recognize due dates
- may have difficulty estimating the time required to complete an activity or project
- may have difficulty getting to class on time
- may forget to bring required materials and books to class
- provide highly structured environment and tasks
- allow use of watch alarm to signal transitions
- use a buddy system to ensure on-time behaviour
- create a system for managing change
- minimize schedule changes
- provide outlines of class lectures identifying key points
- draw semantic maps showing relationships among key points
- insist on well-organized desk and notebooks
- use outlines to organize writing assignments and oral presentations
- use pre-writing strategies to pre-organize work
- provide written checklists of steps for difficult tasks
- have student cross off steps when completed
- use electronic or written planning system
- use homework lists
- use a class schedule that identifies necessary books and supplies for each class
- allow extra time for pre-planning as well as reviewing
- break tasks into smaller tasks
- provide information in point form or steps 1, 2, 3

**COGNITIVE SKILLS (continued)**

<p><b>Reasoning/abstract thinking</b></p>	<ul style="list-style-type: none"> <li>• may have difficulty grasping abstract language such as metaphors or figures of speech</li> <li>• may miss sarcastic humour and jokes</li> <li>• may understand information only at a concrete level</li> <li>• may have difficulty drawing conclusions or applying concepts</li> <li>• may be egocentric</li> </ul>	<ul style="list-style-type: none"> <li>• monitor comprehension of tasks</li> <li>• explain things in concrete terms</li> <li>• speak plainly</li> <li>• be direct</li> <li>• teach deductive and inductive reasoning skills</li> <li>• relate abstract concepts to personal experiences</li> </ul>
<p><b>Problem solving</b></p>	<ul style="list-style-type: none"> <li>• may have difficulty identifying specific problem and relevant information</li> <li>• may have difficulty generating more than one solution</li> <li>• may have difficulty comparing different solutions</li> <li>• may have difficulty making choices</li> <li>• may be confused about where to start in solving a problem</li> <li>• may have difficulty knowing when, where, and how to ask for help</li> <li>• may appear "lost" even in a familiar environment</li> </ul>	<ul style="list-style-type: none"> <li>• help student identify when a problem exists and what the problem is</li> <li>• use a step-by-step problem-solving guide</li> <li>• use 5W questions (who, what, where, when, and why)</li> <li>• assign a buddy</li> <li>• provide ongoing, non-judgmental feedback</li> </ul>
<p><b>Judgment</b></p>	<ul style="list-style-type: none"> <li>• may be easily persuaded by others</li> <li>• may be impulsive</li> <li>• may be careless about safety</li> <li>• may have unrealistic appraisal of self and residual strengths and weaknesses</li> <li>• may make unsafe decisions on playground equipment or in PE</li> <li>• may have difficulty monitoring and evaluating own work</li> <li>• may have difficulty monitoring and evaluating own behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• post class rules</li> <li>• give direct and honest feedback</li> <li>• provide appropriate supervision</li> <li>• establish specific rules for expected behaviour</li> <li>• structure play time with decisions made ahead of time as to what safe decisions will be accepted in order to play</li> <li>• discuss appropriate social conduct</li> <li>• model expected behaviour</li> <li>• role play</li> <li>• use controlled setting before allowing the student to be independent</li> </ul>

**COGNITIVE SKILLS (continued)**

<b>Information processing</b>	<ul style="list-style-type: none"> <li>• may think more slowly</li> <li>• may answer more slowly</li> <li>• may appear to not know the answer</li> <li>• may be unable to complete assignments and tests within allotted time</li> </ul>	<ul style="list-style-type: none"> <li>• allow extra time to answer verbally</li> <li>• provide an outline of lectures</li> <li>• present information in small chunks</li> <li>• phrase questions to allow a choice of answers</li> <li>• avoid asking too many questions</li> <li>• ask a friend to take notes so the student can concentrate on the lesson</li> <li>• allow extra time for in-class assignments and tests</li> <li>• reduce distractions</li> <li>• modify or adapt assignments, tests, and final exams</li> <li>• extend due dates</li> </ul>
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**SPEECH/COMMUNICATION**

<b>Speech</b>	<ul style="list-style-type: none"> <li>• may drool or have difficulty swallowing</li> <li>• may have slurred or mumbled speech</li> <li>• may have slow rate of speech</li> <li>• may have breathy, hoarse, or nasal voice quality</li> <li>• may have disturbed intonation</li> <li>• may speak too quietly</li> </ul>	<ul style="list-style-type: none"> <li>• allow adequate time for answers</li> <li>• sit face to face</li> <li>• work with the student to clarify his or her message</li> <li>• don't pretend to understand the message when you don't</li> <li>• verify message by repeating or rephrasing</li> </ul>
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<b>Expressive language</b>	<ul style="list-style-type: none"> <li>• may not be able to find the words to express ideas (word finding)</li> <li>• may mislabel common objects, tools, materials, etc.</li> <li>• may have difficulty generating ideas</li> <li>• may write short passages or give short answers with few details</li> <li>• may not be able to organize ideas into logical sequence</li> <li>• may ramble on or retell story over and over</li> <li>• may speak too quickly</li> <li>• may monopolize conversation</li> <li>• may make up stories and information to fill in the gaps</li> <li>• may respond with unrelated, lengthy answers</li> <li>• may be easily sidetracked</li> <li>• may not initiate conversation</li> <li>• may have difficulty in social groups</li> </ul>	<ul style="list-style-type: none"> <li>• provide structure by asking 5W questions (who, what, where, when, why)</li> <li>• ask specific questions to fill in the gaps</li> <li>• establish the topic at the beginning of the conversation</li> <li>• give immediate feedback</li> <li>• use semantic mapping or webbing techniques</li> <li>• encourage word retrieval through use of phonetic cueing and descriptions</li> <li>• teach student to recognize non-verbal behaviour of the listener</li> <li>• teach basic writing skills: beginning/middle/end</li> <li>• interrupt rambling speech and refocus on topic</li> <li>• use question cards to organize written output</li> </ul>
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**SPEECH/COMMUNICATION (continued)**

**Expressive language**

- may have difficulties with spelling, grammar, and sentence construction
- may use cliché phrases or use same sentence structure over and over (formulaic language)
- may use immature style of expression
- may make ambiguous, unclear statements
- may demonstrate lack of initiation in conversation
- may have difficulty turn-taking in conversation
- may converse well in social situations but conversation in classroom lacks depth
- produce a model of accurate, concise, expressive language when you are talking
- give cues that you are expecting a response

**Receptive language**

- may not listen well
- may need more time to process verbal and written information
- may lose place when reading
- may not be able to understand lengthy directions or lessons
- may need information repeated
- may not be able to follow conversations
- may be easily confused by too much information
- may have difficulty watching TV and movies
- may not be able to consistently follow directions
- may take everything literally
- may have reduced reading comprehension
- may not be able to understand abstract language
- may miss complex or rapidly spoken information
- may not be able to understand jokes, sarcasm, or irony
- may appear confused
- may be unable to read social cues
- may not be able to take notes during class
- may be unable to identify salient points
- may miss the main idea of what was said
- have student sit at front, near teacher
- provide written directions and explanations
- use clear, short explanations accompanied by written directions or information
- use simple vocabulary and short sentences
- emphasize key points
- present new information in smaller chunks
- summarize and repeat information
- confirm understanding of spoken information
- reduce distractions
- use visual aids to reinforce verbal information
- give more time to process information
- emphasize key points through voice variation, intonation, etc.
- tape lectures and review content
- provide social skills training

## SOCIAL/BEHAVIOURAL SKILLS

**Irritability/short temper**

- may become irritable during class
- may be less tolerant of noise and distractions
- may get frustrated with help
- may have outbursts of temper when others would try a different approach or request help
- identify common triggers and situations and develop a behaviour plan
- consult with the school psychologist or treating neuropsychologist to assist in determining triggers for frustration
- help student identify what is wrong and then find ways to cope
- redirect student away from source of frustration
- anticipate those activities that trigger frustration and restructure them for success
- provide quiet environment free of distractions

**Aggressive behaviour**

- may hit others
- may disobey rules of the classroom and school
- may swear and argue
- identify common triggers and situations and develop a behaviour plan
- use positive behaviour support model—not consequences—to change behaviour
- consult with the school psychologist or treating neuropsychologist to assist in determining triggers for frustration
- use behavioural contracts
- provide consistent feedback and positive reinforcement
- develop a cueing system—verbal, gestural, or signs—that will redirect the student
- videotape behaviour and have a feedback session
- provide assertiveness training
- access professional counselling
- redirect the student's attention away from the cause of frustration
- allow the student to leave the class to regroup
- present an alternative idea or task and guide the student into this new area
- recognize positive behaviour and responses
- provide choices
- if the student's aggressive behaviour cannot be controlled and/or threatens the safety of others, follow the school's emergency procedures

**SOCIAL/BEHAVIOURAL SKILLS (continued)**

<p><b>Passive behaviour/lack of initiation</b></p>	<ul style="list-style-type: none"> <li>• may appear unmotivated and be described as "lazy"</li> <li>• may appear lethargic</li> <li>• may not think to plan and initiate activities</li> <li>• may appear to forget to complete or hand in assignments</li> </ul>	<ul style="list-style-type: none"> <li>• assist with planning class time and free time</li> <li>• have student keep a list of assignments and activities that are to be completed daily</li> <li>• provide student with a buddy</li> <li>• encourage participation</li> <li>• use co-operative learning practices</li> <li>• include in group to stimulate participation</li> <li>• give choices between activities</li> <li>• help student explore what he or she wants; proceed in small steps; set easy goals and ensure success</li> </ul>
<p><b>Depression</b></p>	<ul style="list-style-type: none"> <li>• may or may not express feelings of unworthiness</li> <li>• may express hopelessness</li> <li>• may be unable to identify or appreciate positive qualities and abilities</li> <li>• may withdraw from company of others</li> </ul>	<ul style="list-style-type: none"> <li>• encourage appropriate expression of feelings</li> <li>• keep family members informed of behaviour</li> <li>• enlist assistance of the school psychologist for guidance and strategies</li> </ul>
<p><b>Decreased maturity</b></p>	<ul style="list-style-type: none"> <li>• may prefer to socialize with younger students</li> <li>• may make inappropriate comments to teacher and peers</li> <li>• may make a point of being the centre of attention</li> </ul>	<ul style="list-style-type: none"> <li>• provide direct and honest feedback: be specific about what is wrong and exactly how it should be changed</li> <li>• develop non-verbal cueing system</li> <li>• videotape sessions and review together</li> <li>• discuss immature responses with the student and give alternatives</li> </ul>
<p><b>Sexually inappropriate behaviour</b></p>	<ul style="list-style-type: none"> <li>• may make inappropriate sexual comments</li> <li>• may touch others inappropriately</li> </ul>	<ul style="list-style-type: none"> <li>• provide immediate, direct, and honest feedback</li> <li>• instruct peers to provide appropriate feedback</li> <li>• talk to classmates about why the behaviour occurs</li> <li>• structure the environment to encourage socially appropriate behaviour</li> <li>• provide social skills training</li> <li>• teach self-monitoring techniques</li> </ul>

## SOCIAL/BEHAVIOURAL SKILLS (continued)

<b>Lack of insight/denial</b>	<ul style="list-style-type: none"> <li>• may show limited understanding or awareness of impairment</li> <li>• may think work is too easy based on awareness of previously learned skills and information (overestimation of abilities)</li> <li>• may not benefit from feedback</li> <li>• may not understand others' reactions to their behaviour</li> <li>• may resent supervision</li> </ul>	<ul style="list-style-type: none"> <li>• compare pre- and post-ABI work</li> <li>• provide consistent and honest feedback and explanations about why the student needs help</li> <li>• use videotaped sessions to document strengths and weaknesses and share them with the student</li> <li>• do not try to convince student of his or her ABI—demonstrate it through the student's experience</li> </ul>
<b>Disinhibition/impulsiveness</b>	<ul style="list-style-type: none"> <li>• may make inappropriate, sometimes hurtful comments</li> <li>• may disregard classroom rules</li> <li>• may disregard social rules</li> <li>• may make inappropriate remarks or gestures</li> <li>• may have difficulty waiting for directions to be given</li> <li>• may refuse to follow rules and regulations</li> <li>• may take risks and ignore safety rules</li> <li>• may act irresponsibly</li> <li>• may not read directions</li> <li>• may not listen to instructions</li> <li>• may complete work too quickly to be accurate or complete</li> <li>• may be sexually overt</li> </ul>	<ul style="list-style-type: none"> <li>• discuss alternatives to inappropriate behaviours</li> <li>• use charts to monitor appropriate behaviours</li> <li>• teach self-monitoring techniques</li> <li>• identify set of clear expectations and rules, and provide in written format</li> <li>• talk through an activity before carrying it out</li> <li>• give positive reinforcement and praise successes</li> <li>• role-model appropriate behaviour and identify it in a group setting</li> <li>• encourage appropriate peer feedback</li> </ul>
<b>Social language/behaviour</b>	<ul style="list-style-type: none"> <li>• may be unaware of personal space</li> <li>• may rudely interrupt</li> <li>• may make inappropriate remarks</li> <li>• may be insensitive towards others</li> <li>• may not take turns speaking; doesn't listen to partner</li> </ul>	<ul style="list-style-type: none"> <li>• give direct feedback on social behaviour</li> <li>• videotape session and review together</li> <li>• increase insight by discussing appropriate and inappropriate behaviours</li> <li>• encourage peers to inform student when behaviour is inappropriate</li> <li>• provide direct instruction in social behaviour skills</li> </ul>
<b>Social isolation</b>	<ul style="list-style-type: none"> <li>• may not interact with classmates</li> </ul>	<ul style="list-style-type: none"> <li>• use co-operative learning practices; assign groups to include the student with ABI</li> <li>• encourage participation in extra-curricular activities both at school and in the community</li> <li>• provide peers with inservice and discuss strategies for dealing with behaviour and giving honest but kind feedback</li> </ul>

## Accommodating the student with ABI: Academic strategies

Being a successful student in the classroom requires competence in a variety of basic cognitive, communication, and behavioural skill areas. Students with ABI are in the unique situation of needing to relearn previously learned skills and information as well as continuing to acquire new skills and information. A thorough understanding of a student's profile is essential for appropriate academic planning and strategy use. Strategies should be appropriate for the individual, taught and retaught, and used consistently.

The following list identifies strategies that may benefit students with ABI. There are many excellent teaching and learning strategies and this list is not meant to be exhaustive. Be creative and involve the student with ABI in identifying strategies that work.

### Following directions

- request that the student repeat directions to confirm that they have been heard
- break the task into steps and provide a written list of steps
- underline key words in written directions
- use visual cues such as picture symbols to support directions
- check often for understanding and on-task behaviour
- enlist the assistance of a peer/buddy to ensure understanding

### Reading

- assign small reading segments at one time
- read to the student while he or she reads along or use taped books
- have the student read aloud to focus attention
- review comprehension questions before reading
- use a pre-reading survey of the chapters to cue the student to the content of the novel or textbook
- provide a summary/outline of what was read
- provide chapter summaries for longer novels
- have the student fill in an outline as he or she reads

- have the student take notes on main characters and on main events as they occur
- discuss what was read
- review what was previously read
- use a highlighter to identify key points or events
- use visual imagery to aid in recollection of stories and novels
- use “5W” questions (who, what, where, when, and why) to focus reading
- students with visual impairments may need visual adaptations
- use a ruler to keep the student on the right line

### **Writing**

- review of basic grammar and writing skills, if needed
- provide alternative responses to assignments such as oral discussion or use of tape recorder for answers
- complete writing activities in a step-by-step sequence:
  - brainstorm
  - organize ideas
  - write
  - proofread
  - make corrections
- use advanced organizers such as mapping and webbing strategies
- provide extra time for planning, writing, proofreading, and rewriting
- have a peer proofread and give feedback
- reduce amount of writing required in assignments

### **Math**

- review of basic math skills, if needed
- use a diagnostic teaching approach to identify gaps in previously learned concepts and skills
- provide significant repetition and practice of new concepts and skills
- introduce new concepts one at a time

- monitor work and provide immediate feedback
- use manipulatives
- use a calculator
- assign fewer questions
- reduce the number of questions on a page
- provide key examples for students to refer to
- provide multiplication table chart
- provide a “cheat sheet” of formulas, definitions, and sample questions/answers
- use index cards or a binder as a reference for concepts and skills learned in the class
- teach a word problem–solving strategy
- use concrete personal examples for word problems
- encourage students to represent problems in pictorial or other visual form before solving

## Homework

Homework can be an added stress for an already stressed student and his or her family. Fatigue and ongoing therapy may make it difficult to complete homework. Communication with the family will quickly determine if homework is appropriate.

Encourage use of an agenda or communication book to record all homework assignment details, due dates, test dates, and field trip details and dates. Families need details if they are to be supportive. Use a calendar to record due dates and to provide an overall perspective of each month.

Check to make sure that homework assignments are recorded and material is organized *every day*.

## Study skills

- schedule study time when assistance can be given
- organize a study partner
- schedule and organize study time
- identify information to be studied
- highlight key concepts

- provide quiet, predictable study space
- determine the most effective time of day for learning

### **Tests/exams**

- allow extra time to complete tests/exams
- allow tests/exams to be scribed
- allow use of word processor or other technology
- teach and review key test-taking vocabulary (e.g., list, compare, contrast, discuss)
- consider open-book tests or tests with use of notebooks
- select question format carefully (e.g., consider use of multiple choice or matching items rather than requesting recall of specific facts)
- consider alternatives to objective tests (e.g., oral presentations, concrete application, AV presentation, graphic display)
- present test questions orally by providing a reader or a tape recording of the questions
- allow the student to take tests or exams in an alternative setting

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#### **TIPS FOR TEACHING STUDENTS WITH ABI**

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##### **Plan collaboratively and communicate frequently**

- form a team specific to the individual student
- hold regular team meetings
- include the family and community agencies on the team

##### **Use a diagnostic teaching approach**

- look for gaps in the student's understanding and long-term memory (stored knowledge)
- check frequently for understanding

##### **Ensure consistency of approach and structure**

- between subjects
- between teachers

##### **Keep routines and expectations realistic and consistent**

##### **Give students immediate feedback**

##### **Ensure success**

- provide encouragement and reinforcement often and for small accomplishments

##### **Continually monitor and adapt/modify—be flexible**

##### **Look to the future and plan ahead**

Many children and adolescents are seen at the hospital or at their doctor's office after hitting their heads in falls or motor vehicle accidents or during sports activities. However, the majority of children experiencing mild traumatic brain injury (MTBI) do not go to hospital and often return to school without informing their teachers or school of their injury, despite experiencing temporary or permanent changes in their thinking. Even if they do visit their local hospital, many cases of MTBI are not recognized or diagnosed at the hospital, and students are sent home in the care of their unsuspecting parents.

### What is MTBI?

There are many definitions of MTBI. However, an accepted standard is the definition proposed by the MTBI Committee of the American Congress of Rehabilitation Medicine:

A person with a MTBI is one who has had a traumatically induced physiological disruption of brain function as manifested by at least one of the following:

- any loss of memory for events immediately before or after the trauma
  - any alteration in mental state at the time of the trauma (e.g., feeling dazed, disoriented, or confused), and/or
  - focal neurological impairments that may or may not be transient, but where the severity of the injury does not exceed the following:
    - loss of consciousness for approximately 30 minutes or less;
    - after 30 minutes, an initial Glasgow Coma Scale (GCS) of 13–15
    - post-traumatic amnesia (PTA) not greater than 24 hours
- (Journal of Head Trauma Rehabilitation, 1993, 8, 86–87)*

*Approximately 80 percent of traumatic brain injuries are believed to be mild (Disability Today, Summer 1993, page 23).*

*The majority of people with MTBI experience a full recovery.*

The term post-concussive syndrome is often used interchangeably with MTBI.

*A person does not need to lose consciousness to sustain a traumatic brain injury.*

*Every brain injury, whether mild, moderate, or severe, should be taken seriously.*

MTBI occurs when there is a violent motion of the brain as a result of an accident, fall, or blow. Damage to the brain occurs when the brain tissue collides with the rough surface of the skull. As well, nerve fibres may be stretched and torn, and the tissue of the brain may be bruised, as a result of the abrupt movement of the brain. There may or may not be loss of consciousness.

MTBI is difficult to diagnose. Even basic neurological examinations may not find physical evidence of injury.

## Possible consequences of MTBI

The term mild in MTBI can be misleading. The majority of children who sustain a mild brain injury experience a full recovery, most within three to six months, and many sooner, within hours or days. And while symptoms may not develop for days or even weeks after the MTBI, most will resolve without special treatment. However, a very small percentage of children with MTBI take longer to recover or experience significant lifelong impairments.

MTBI may cause:

- cognitive symptoms, including:
  - short-term memory problems
  - disorientation
  - confusion
  - slowed thinking and information processing
  - shortened attention span
  - distractibility
  - decreased organizational skills
  - poor reasoning, judgment and problem solving
  - word-finding difficulties
  - difficulty expressing or understanding verbal information
  - mental fatigue
  - lack of awareness or denial of difficulties
- emotional symptoms, including:
  - easy anger

- irritability
- anxiety
- apathy
- depression
- mood swings
- social/behavioural changes, resulting in confrontations/conflict with family and peers
- physical symptoms, including:
  - headaches
  - nausea/vomiting
  - fatigue/difficulty sleeping
  - dizziness/balance difficulties
  - blurred vision
  - hearing difficulties
  - sensitivity to bright light

If these difficulties persist, it is important that further medical and neuropsychological assessment be conducted.

## Strategies for the classroom

Teachers need to be aware of the cognitive, emotional, and behavioural outcomes of MTBI so that they can accommodate students with MTBI in their classrooms. Teachers also need to be aware of the possibility of MTBI and its outcomes because of their involvement in sports as PE teachers and as coaches.

The symptoms listed above may lead to temporary changes in the student's academic performance and behaviour. MTBI is challenging to assess, as subtle changes are often difficult to identify and students will still perform within the average range.

At school, the best indicator of MTBI is often a comparison of classroom behaviour and academic achievement pre- and post-accident. (If the student was not hospitalized, or was injured during the summer, teachers may not even be aware that the student was injured.) If changes in academic performance and behaviour are noted, speak to the parents of the student. Further assessment may be required.

*MTBI can affect a child's learning, behaviour, and ability to function at home and at school.*

*Students with MTBI may :*

- *appear restless and have difficulty concentrating and paying attention*
- *forget instructions or assignments*
- *appear fatigued in class*
- *struggle to learn new information*

The outcomes of MTBI may be frustrating for students because there are no outward signs of injury—the difficulties are invisible. There may be a gap in what they know they can do and what others expect them to do. It is very difficult for a student to learn when there has been a change in ability to concentrate, pay attention, organize work, or remember what was taught in class. It is important, therefore, to validate the symptoms and provide students with strategies to cope with them.

The following strategies may enable the student with MTBI to achieve success during the challenging weeks or months following an injury:

- allow for rest breaks during the school day
- reduce the number and size of assignments
- allow extra time for in-class assignments and tests
- make sure the student writes records all important information in his or her school agenda
- provide written directions
- provide written outlines and notes
- “buddy” the student with a peer
- assign one teacher or counsellor to be the case manager, stay in touch with the student’s parents, and monitor the student’s progress
- meet with the student on a regular basis to monitor recovery and appropriateness of strategies, modifications, and supports

Using strategies consistently in all classes makes it easier for the student to function. If the student is experiencing problems, it is important to hold a meeting to inform all of the student’s teachers about the injury and resulting difficulties.

If difficulties persist, students should be encouraged to seek medical assistance. A referral should be considered to a psychologist specializing in ABI.

Students with MTBI should not return to any contact sports until they have been given permission by their physician.

*An average performance is not acceptable for some students, particularly when they were performing in the above-average range before their injury.*

Any behaviour intervention plan should be based on an understanding of the characteristics of acquired brain injury (ABI), as well as on knowledge of the strengths and needs of the individual student. A thorough neuropsychological assessment is central to effective behaviour program planning. Understanding the cognitive and emotional profile of the individual with ABI will assist in determining the most effective solutions. In some situations, environmental adaptations such as reducing distractions or increasing structure may effectively address behaviour issues. Some students may benefit from counselling, whether individually, in age appropriate groupings, or in family therapy. The individual needs of the student should be determined by a professional with experience in ABI.

Students with ABI may demonstrate some challenging behaviours, but because of cognitive difficulties, such as impaired attention and memory, they may not respond to the usual methods of discipline. Students with ABI may not benefit from punishment/consequence-oriented models of behaviour management, because they often will not remember the rules and may not anticipate the consequences of their behaviour. If behaviours are interfering with the student's learning and the learning of other students in the class, it may be necessary to develop a systematic plan for changing behaviour. Behaviour intervention plans are designed to increase positive (adaptive) behaviour, or to decrease negative (maladaptive) behaviours.

A behaviour intervention plan can be developed through a collaborative problem-solving process involving the significant people in the student's life, including parents, classroom teachers, special educators, and teacher's assistants. It may also include other involved persons, such as principals, behaviour consultants, speech and language pathologists, and neuropsychologists. A good place to begin is to understand the situation as a problem to be solved and to analyse the deficits in learning that may be causing the problem behaviour. When teachers and other educational workers are provided with appropriate information and training, they are better equipped to deal with challenging behaviour. The major steps of the problem-solving process are usually to:

1. identify the problem behaviour
2. identify the function of the behaviour and contributing factors

3. identify an alternative behaviour
4. develop strategies for changing behaviour, including:
  - environmental adaptations
  - positive program strategies
  - reactive strategies
5. develop a behaviour intervention plan
6. evaluate the behaviour intervention plan

### **1. Identify the problem behaviour**

Identify and describe the behaviour in observable terms, including where and when it occurs, what usually happens before the behaviour occurs, and the typical reactions of other people.

It is important to determine whether the behaviour actually poses a problem. Key questions to ask include:

- Is the behaviour potentially harmful to the student or others?
- Does it interfere with the student's learning or the learning of others?
- Does it result in negative reactions and/or avoidance by peers and adults?

The student may display more than one challenging behaviour. It may not be reasonable to expect to change all behaviours, and priorities for intervention will need to be established.

### **2. Identify the function of the behaviour and contributing factors**

The function or purpose of a behaviour is not always obvious. It is often necessary to collect information about the student, behaviour, environment, and consequences to determine what purpose the behaviour serves and what factors are maintaining the behaviour.

To determine the underlying contributing factors, conduct a thorough assessment of the behaviour and the context in which it occurs. Ask:

- When and where does the behaviour occur?
- What is going on in the setting when the behaviour occurs?
- Who else is involved or near the student?

The assessment process should also include gathering significant information about the student, such as:

- likes and dislikes
- fears and frustrations
- communication skills
- strengths and needs
- how the student interacts socially

Frequent communication with the student's family or caregivers will provide valuable information. School staff and families often develop a communication system such as a daily communication log or book that travels to and from school with the student. Secondary school students may choose to use their school agendas for the same purpose.

A careful analysis of the student's responses to stimuli may reveal unexpected connections to seemingly small things in the environment, such as too much noise or too many distractions. It is essential to keep track of such information and ensure that it is passed to other people who work with the student, especially during important transitions to new classes or programs, or when staff who work with the student change.

Problem behaviours may be a result of other difficulties resulting from ABI, such as attention and memory difficulties, problems with interpreting verbal information, limited verbal expression, or frustration with activities that were once completed easily.

Functional assessment of behaviour is the process of identifying the function or functions that a specific behaviour serves for the individual. It is based on the premise that all behaviour serves some purpose.

Information for a functional assessment can be found through:

- a review of the student's medical records and rehabilitation records
- a review of the student's school records
- interviews with people who are most knowledgeable about the student in the situation, such as a teacher's assistant or family members
- observation and recording of behavioural data

Observing the student can help provide insight into behaviour, both in settings where the problem occurs and in settings where the problem does not usually occur. The process of collecting the information for a functional assessment involves:

*For more information on functional assessment and forms to use in planning interventions, see O'Neill, R., et al., Functional Assessment and Program Development for Problem Behaviour, 1997.*

- identifying antecedents (what happened just before the behaviour, where the behaviour occurred, and with whom the behaviour occurred)
- describing the behaviour
- identifying consequences (what happened after, and as a result of, the behaviour)

When describing the student's behaviour:

- include the frequency, intensity, and duration of the behaviour (e.g., when describing an angry outburst, include how many times a day a student has angry outbursts and how long the outbursts last)
- be specific and clearly define the behaviour
- clearly identify the situation where the behaviour does and does not occur (e.g., a behaviour may occur only on the school playground or in the cafeteria)

Analyse the information to identify patterns, possible reinforcers, and anything that may be triggering the behaviour. It is particularly useful to make sure that the assessment includes an analysis of the relationship between the problem behaviour and the environmental conditions in which the behaviour occurs.

Many useful formats and forms have been developed to assist with conducting a functional assessment. (Appendix A includes a sample behaviour observation and data collection chart for determining the functions of behaviour.)

*For a questionnaire that will assist in determining the possible functions of behaviours, see Durrand, V. M., and Crimmins, D. B., The Motivation Assessment Scale, 1988.*

### 3. Identify an alternative behaviour

The functional assessment of behaviour provides a foundation for developing a behaviour plan. The success of the behaviour plan depends more on instructional and proactive strategies than on reactive strategies.

Once the reason for a behaviour has been determined or hypothesized, it is possible to identify an alternative, more appropriate behaviour that can serve the same function. For example, if a student refuses to read silently and throws his book away, it may be that the activity, which was once easy, is now too confusing and too frustrating. The student may need to be taught another more acceptable way to get away from doing an activity that is connected to feelings of frustration and failure, or better yet, be taught how to ask for assistance in an appropriate way.

The focus of the behaviour intervention is instruction rather than discipline. The goal is to increase the student's use of an alternate, more

appropriate means of achieving the same purpose. The alternative behaviour is usually a more effective way to communicate or interact with other people. It also might be a more appropriate method for reducing frustration or anxiety (for example, visual imagery, removing oneself from the classroom, self-talk).

For example, if a student begins to wander around the classroom disrupting other students after only a short time at a desk assignment, the student may need to be taught another way of dealing with his or her short attention span. Alternatives may include asking for help, moving to a quiet space, or going for a walk to the office and then returning to the desk work.

It cannot be assumed that the student has the skills necessary to engage in the alternative behaviour or that he or she will recall the skills independently. Systematic instruction, reinforcement, and significant practice are usually necessary.

## 4. Develop strategies for changing behaviour

### Environmental adaptations

Problem behaviours can often be reduced or eliminated by making changes in the environment. The assessment and analysis of the behaviour may indicate that it occurs within specific areas, during specific times, such as transitions, or during specific classes, such as Art or PE. Sometimes the likelihood of the behaviour occurring can be minimized by making environmental accommodations. This does not mean that the entire classroom has to be changed for one student; but adjustments can be made depending on the student's individual needs.

Possible environmental adaptations include:

- removing distracting stimuli
- decreasing sensory stimuli if feasible—be aware of any hypersensitivities to sensory stimuli the student might have, and examine the environment for causes of sensory overload
- making changes in physical arrangements, such as seating
- providing a clear and predictable schedule
- alternating more difficult and demanding tasks with those that are easier and more enjoyable
- having a place where the student can go to relax

- alternating cognitively demanding activities with physical activities or rest periods

### Positive program strategies

Providing a program that emphasizes positive behaviours in a predictable and rewarding environment can help to reduce the frequency and severity of problem behaviours.

These strategies may include:

- teaching social skills that are not easily “picked up” from watching others
- identifying functions of maladaptive behaviours and teaching more appropriate replacement skills or behaviours
- providing clear expectations for behaviour, using appropriate aids to help the student remember what is expected
- providing a clear schedule and using it to prepare the student for transitions between activities and to prepare for any changes that may occur
- providing instruction at a level appropriate to the student
- monitoring the student’s response to the environment and adapting it to reduce the likelihood of anxiety responses before they happen
- encouraging appropriate behaviour with reinforcements that are meaningful to the individual student
- fading prompts to increase independent functioning

Looking ahead to plan for change is also important in managing behaviour. Students may need opportunities for becoming familiar with new places, people, or things. Change is difficult for students with ABI, but adapting to and coping with change are necessary life skills. Introduce new situations slowly so that students have an opportunity to become familiar with different settings, routines, and people.

### Reactive or consequence-based interventions

Positive programming strategies that focus on increasing student competence and making the necessary accommodations to physical settings, materials, and instruction will be the most successful in facilitating long-term behavioural change. However, it is sometimes necessary to also design a planned reaction to a behaviour to maintain order and safety in the classroom.

*It is important to identify behaviour problems early and introduce appropriate strategies to reduce the chance of long-term problems developing.*

*Being proactive is more effective than reacting to student misbehaviour.*

*Reinforcement is the single best way to increase behaviour.*

It is essential that everyone involved with the student be prepared to react to specific behaviours in a consistent way and with the same consequences. Likewise, staff responsible for carrying out the plan need to have the skills and knowledge about behavioural principles to set up and carry out the planned consequences. In general, there are three major types of reactive techniques:

- ignoring the behaviour
- redirection
- removal from reinforcements or time-out

Ignoring the behaviour may be appropriate for minor behaviours. Gaining attention may be the motivation for the behaviour, so that reacting to it may actually be making it harder to stop rather than decreasing it. The student may need to be directly taught how to gain attention or wait for turns, or any other social interaction skill. Ignoring may be difficult to implement in a classroom setting, particularly if the behaviour is disruptive to the learning of the student or the other students in the classroom. It is important to make sure that the student is not being inadvertently reinforced by other sources, such as peer attention.

Redirection is a vital component of any behaviour intervention plan. If a behaviour is unacceptable, the student needs to know what is expected instead, and the expectations need to be communicated clearly. The use of a visual aid, such as a written reminder, or a pre-arranged cue, is often helpful. Redirection is used in combination with positive programming strategies. The student will need to be taught the more appropriate alternative behaviour, and provided with many opportunities to practise and rehearse it.

Removal from the reinforcements for the undesired behaviour may involve removal from the situation, sometimes referred to as a time-out. If a student is very anxious or upset, it may be necessary for the student to leave the situation to calm down before any redirection or teaching of alternative behaviours can occur. This approach can be combined with positive programming strategies, such as teaching students to recognize when they are becoming anxious, and teaching them to independently remove themselves from the situation before they lose control of their behaviour. Because removal from the learning environment as a consequence is a serious form of intervention, it should be cautiously used and carefully documented.

### **Token economy**

A system of reinforcement for desired behaviour can be established, in which receiving a token is contingent upon the student performing the desired response. Tokens, which can be poker chips, tickets, or points recorded on a form or graph, are earned by the student for completion of tasks or other appropriate behaviour. Earned tokens are then “cashed in” for designated reinforcers known to increase behaviours for that student, such as tangibles (food or other desired objects) or preferred activities (time on the computer, or use of a portable CD player).

Tokens can provide an immediate pay-off for the student, which is a stronger reinforcer than waiting until the end of a class or day. Students with ABI may not recall how they earned the reinforcement if it is not immediate. When using a token system, teachers should still pair the awarding of tokens with praise, so that the tokens can eventually be phased out and replaced by more natural reinforcers in the student’s life. It is not advisable to use a token system as punishment, with tokens removed.

### **Shaping behaviour**

Teaching the new acceptable behaviour may involve shaping the behaviour so that approximations of the desired behaviour are reinforced. Once the student is reinforced for an approximation of the desired behaviour, reinforcement is only provided for closer approximations. For example, if the goal is for a student to stay on task for 15 minutes, the following shaping procedure might be used:

- Desired behaviour = 15 minutes on mathematics tasks
- Student is reinforced for 2 minutes of on-task behaviour.
- Student is reinforced for 4 minutes of on-task behaviour.
- Student is reinforced for 6 minutes of on-task behaviour.
- Student is reinforced for 10 minutes of on-task behaviour.
- Student is reinforced for 12 minutes of on-task behaviour.
- Student is reinforced for 15 minutes of on-task behaviour.

### **Crisis management interventions**

The best way to deal with a crisis is always to plan so well that there never is a crisis. However, some students with ABI can become very angry. In such cases, it may be necessary to have a crisis management intervention planned and well understood by all staff working with the

student and perhaps the other students in the class. This crisis plan will ideally be developed by the whole planning team, including the family of the student. The plan may include:

- a description of the signals that indicate that a crisis situation is developing (as identified in the functional assessment)
- a strategy for preventing injury for the student, peers, and staff in all settings in which the crisis may occur
- a list of steps in the intervention to match each step of the escalating behaviour problem
- things to do and things not to do
- provision of appropriate training for staff who will carry out the plan, with opportunities to practise the interventions needed for the plan
- record keeping, for monitoring use of the crisis plan and evaluating its effectiveness

Time-outs may be part of a crisis management plan. Because of the seriousness of this approach, schools would be wise to consult with a physician or mental health professional before implementing time-out, and make careful records with frequent review a part of the plan.

## 5. Develop a behaviour intervention plan

Once the team has identified a student's problem behaviours and the contributing factors, desired alternative behaviours, and strategies for instruction and management, specific interventions can be planned. These plans should be recorded and included in or attached to the student's IEP.

Written plans should outline the goals for behaviour change, the environmental adaptations, positive program strategies, and all reactive strategies, so that all people involved with the student can maintain a consistent approach. This is particularly important for maintaining consistency between home and school and in environments throughout the school, and for situations in which on-call staff are working with the student.

In addition, review dates for behaviour goals need to be established, and a process should be in place to evaluate the effectiveness of the plan.

*Student and family involvement is important in the development of a behaviour management program. Consistency between home and school will reinforce positive behaviour and be less confusing for the student with ABI.*

*The purpose of any behaviour can change over time. Ongoing evaluation is essential.*

*For an overview of the basic principles of behaviour intervention, see Iverson, G. and Osman, A., Behavioral interventions for children and adults with brain injuries: A guide for families, The Journal of Cognitive Rehabilitation, 16 (2), 1998.*

## **6. Evaluate the behaviour intervention plan**

When evaluating the effectiveness of the interventions identified in the student's IEP, ask:

- Is the intervention being implemented consistently?
- Does it need to continue for a longer period of time?
- Do minor adjustments need to be made?
- Is the target behaviour being maintained through other factors that were not accounted for?
- Do the reinforcements need to be modified?
- Are alternative strategies needed?

## Summary: Suggestions for managing challenging behaviour

### CARRYING OUT A FUNCTIONAL ASSESSMENT

- identify the problem behaviour
- gather information to determine the function of the behaviour for the student
- carefully describe the behaviour
- identify antecedents to the occurrence of the behaviour
- identify consequences—what happens in the environment after the behaviour
- measure the frequency and intensity of the behaviour
- identify an alternative acceptable behaviour that could fulfill the same function
- plan and carry out instruction to teach the alternative behaviour
- reinforce successful use of the alternative behaviour

### STRATEGIES FOR CHANGING BEHAVIOUR

#### Environmental adaptations

- remove distracting or anxiety-producing stimuli
- alter features of the environment that cause sensory overload for the student
- arrange classroom to maximize structure and minimize opportunities for undesirable behaviours
- provide a place to which the student can retreat to for relaxation and calming down

#### Positive programming interventions

- use proactive instructional approaches whenever feasible
- directly teach behaviours needed to meet expectations
- use reinforcers to increase appropriate behaviours
- provide opportunities for retreat, rest, and relaxation throughout the day

#### Reactive or consequence-based interventions

- ignore behaviours that do not harm the classroom atmosphere
- redirect the student by communicating the desired behaviour
- remove whatever is reinforcing the behaviour
- remove the student from a reinforcing situation
- provide reinforcement through token economy
- shape behaviour by reinforcing succeeding approximations
- plan for crisis management, if appropriate



Change and transitions are unavoidable in life. Some change is predictable, other change is not. For students with acquired brain injury (ABI), change and transitions can be confusing and stressful. While it is impossible to create an environment that is free of change, steps can be taken to reduce anxiety and confusion.

Facilitating successful transitions means:

- being organized and identifying transitions early
- anticipating rather than reacting to transitions
- planning in a timely manner
- including the student and family as part of the planning process
- developing cueing systems and compensatory strategies to help the student anticipate and react to change

Families are an essential part of transition planning because they are the caretakers and historians of their child's life and they are usually the one constant factor throughout. They know what has been tried and what has worked. Families can make valuable contributions to the transition planning process.

## Transition into the school system at Kindergarten

Typically, parents of a child with ABI notify the elementary school of their child's special needs before the regular Kindergarten registration period. Schools and parents should be sure to plan well in advance for the child's entry into Kindergarten. Depending on when the child was ill or injured, February of the preceding school year is often recommended as a good time to begin this process. Often the child has been in a preschool, childcare program, or child development program in a preschool.

Parents often seek reassurance that their child's supports from the preschool years will continue in the Kindergarten program. They may need assistance in understanding that there may be differences between previously available services and school-based support. A school-based team meeting with school staff, parents, and professionals who have been working with the child can be arranged to help convey important

information about the child. This will ensure that the family's goals are communicated to the school and will help the school board to plan resources for the next school year.

Parents may wish to visit the Kindergarten classroom and meet with the classroom teacher before school entry. Having the preschooler with ABI visit the new classroom to become familiar with the new environment may be beneficial. Assigning an older student as a “buddy” (a student who can spend time when the child visits) may also help in the transition into school. For some children, a gradual introduction to school in the fall may also ease this challenging transition.

## Transition back into the school system from home, hospital, or rehabilitation centre

One of the most important and complex transitions for students with ABI is the return to school from the home, hospital, or rehabilitation centre after the injury. While the student might think that he or she is returning to something familiar, school may actually be quite different. The same is true for the student's parents. Both may need to learn about and adjust to a new system of education and supports and develop a different set of expectations. In many situations, this adjustment takes considerable time.

Whether a student is returning to school directly from home, or from the hospital or the rehabilitation centre, the school should prepare to provide an appropriate program with adequate support. The following list identifies steps that will increase the likelihood of a successful return.

### Steps to a successful school return

- **Identify a school-based case co-ordinator**—In elementary school this may be the classroom teacher, while in secondary school it is often the counsellor.
- **Identify the school team**—The school team may include the principal, classroom teacher, resource teacher, school counsellor, teacher's assistant, school nurse, and district resource staff, such as the psychologist, occupational therapist, and/or physiotherapist.
- **Stay in touch with the rehabilitation team**—If the student is involved in a rehabilitation program, maintain regular contact with the teacher at the rehabilitation centre. School staff are experts in education, while hospital and rehabilitation staff are experts in reha-

bilitation. Collaboration is essential in designing an appropriate program for a student with ABI.

- **Get the assessment and discharge summary reports from the treating therapists at the hospital or rehabilitation centre**—The family can access these reports and pass them to the school. These reports are important for documenting the injuries and resulting deficits, therapy programs, and successful strategies, and for establishing a performance baseline. Important assessment information will assist in planning an appropriate program.
- **Meet with the family**—This is a very stressful time for the family. Knowing that the school is anticipating and planning for their child's return will be reassuring.
- **Identify a preliminary process for gradual return to school**—Begin to plan for the initial return to school. Be realistic and consider all options, including homebound instruction and part-time attendance.
- **Meet with the hospital or rehabilitation team and visit the student before school return**—If the family permits it, attending hospital or rehabilitation team meetings allows the school to be aware of the rehabilitation program and recovery progress.
- **Organize a school visit for the student and family**—Ideally, members of the hospital or rehabilitation team will accompany the student on a visit to the school and conduct an assessment of the school environment.
- **Conduct a school meeting to plan for the return to school**—Invite the parents, hospital or rehabilitation staff, and school staff to a planning meeting to discuss the steps to school return and identify the needs of the student, placement options, necessary supports, and appropriate strategies.
- **Conduct an educational inservice for teachers, administrators, and support staff**—Teachers and other school staff who work with students with ABI will need to understand their specific difficulties and strategies.
- **Conduct an educational inservice to prepare the student's peers**—Having a supportive social network is important when a student returns to school. Peers are often unsure of how to treat their friend and will often avoid him or her because of ignorance and fear. Peers should be instructed in how to give direct and tactful feedback to deal with inappropriate social behaviours. When a student has a good physical recovery, it is difficult for friends to

understand that there are invisible difficulties, such as thinking and communication impairments.

- **Develop an interim Individual Education Plan (IEP)**—If the student requires special education support or a modified or adapted curriculum, an IEP should be developed.

In summary:

- define the team (including the parents and rehabilitation team)
- identify a case co-ordinator
- obtain medical and assessment information
- plan a school return process and IEP with the family and rehabilitation team
- establish a communication plan
- conduct a school visit
- conduct an inservice for teachers and school support staff
- conduct an inservice for peers

### **Issues to consider for returning to school**

The issues need to be discussed before school return:

- academic support:
  - need for structure
  - need for supervision
  - scheduling
  - length of day
  - course load
  - length of assignments
- learning needs:
  - set of textbooks for home
  - adaptive equipment/technology
  - instructional methods/materials/aids
  - teaching, learning and behavioural strategies
  - testing modifications
  - work expectations/speed

- frequency of breaks
- safety needs:
  - emergency communication process
  - safety routines
- environmental needs:
  - locker location
  - locker combination
  - location of classes
  - movement through hallways
  - bus scheduling
- communication needs:
  - school/home communication process
  - school staff education
  - peer education

## Transitions between activities and settings

Because of difficulties with attention, memory, organization, and planning, students with ABI often have difficulty with transitions between activities or settings. Advanced warning of changes will help the student cope. Both written and verbal warnings may help the student to prepare for change. Strategies that can be implemented include:

- providing advanced verbal warning of activity or class change
- providing a written or pictorial schedule of daily activities, classes, or special events
- training the student to use a schedule to anticipate his or her courses
- having the student check in with a teacher, counsellor, or peer at the beginning of the day to discuss the day's events
- having the student use a watch alarm to signal forthcoming class change
- having the student cross out each completed activity on a list

*Because of difficulties with attention, memory, organization, and planning, students with ABI often have difficulty with transitions between activities or settings.*

## Transitions between grade levels and class transfers

Passing from grade to grade or moving to a new class requires planning in advance. Schools have protocols for passing information from teacher to teacher; however, students with ABI require extra consideration because of the changing nature of their illness or injury. Meeting in the spring of the preceding year to discuss key issues of programming and support is recommended. Key school staff, parents, and external professionals should be included in the meeting. An inservice about ABI and appropriate strategies should be conducted at the beginning of each school year for new teachers and staff. It may be appropriate for the new teacher and teaching staff to observe the student in his or her current classroom.

The new teaching staff will need to know:

- pertinent medical and rehabilitation information
- assessment information
- academic strengths and needs
- successful adaptations and modifications to the environment, curriculum, and support
- supervision levels
- appropriate teaching, learning, and behavioural strategies
- the student's level of participation in the activities and social life of the class
- strategies for communication with home

*Students with ABI require extra consideration because of the changing nature of their illness or injury.*

Ideally, a planning meeting is conducted to exchange information about the student as well as to discuss goals and effective approaches that will be part of the student's IEP for the coming school year. This provides the parents and teachers with an opportunity to discuss goals, instructional strategies, curriculum modifications, methods for maintaining appropriate behaviour, and communication. It is preferable to conduct the meeting before the end of the school year. Preparing a short videotape, with the parent's permission, and presenting it to the receiving teacher is a creative way to provide information for school staff.

Students can be prepared for the new classroom setting by showing them videotapes or photographs of the new teacher and classroom. It may be helpful to prepare a small scrapbook to which the student can refer during the summer. The student can also make visits to the new

classroom. This can be facilitated by the current teacher or teacher's assistant in order to maintain some familiarity during the visit.

## Transitions between schools

The suggestions for planning transitions between classrooms are also applicable to planning for transitions between schools. Whether a student with ABI transfers to a new school within the same district or to a new school in a different district, it is essential that medical, rehabilitation, assessment, and educational documentation travel with the student to the new educational placement. Planning for new school placements needs to take place long before the move actually occurs.

## Transition from elementary school to secondary school

Planning for the transition from elementary school to secondary school requires attention during the spring of the year before the move. Students with ABI face a significant challenge in coping with the structure of high school. It is more difficult to create structure and consistency and maintain communication at secondary school. Consideration will need to be given to the student:

- orienting to a new school building and culture
- adapting to a changing schedule
- understanding a new set of school rules
- moving between classes and teachers
- carrying textbooks
- managing homework
- understanding safety routines

Arrange for the student to visit the school on several occasions, if possible. If the student has difficulty with orientation, learning, and adjusting to change, additional time and preparation will be required. Often, matching the schedule of a student with ABI to a friend's schedule may make the student feel secure and also assist him or her in negotiating the new environment.

*Students with ABI face a significant challenge in coping with the structure of high school.*

## Transition from secondary school to adult life

For a young person with ABI, planning and preparing for post-secondary education or employment require significant attention and

preparation. One of the major losses experienced by adolescents who sustain an ABI is the loss or compromise of their vocational and educational goals. Lifelong dreams may become unrealistic and unattainable. After ABI, young people often have difficulty developing realistic vocational and educational plans. Lack of appropriate programming, support, guidance, and employment options may make it difficult for them to find meaningful opportunities after graduation from secondary school.

Future planning should begin early for students with ABI. Development of realistic goals is often challenging because of the effects of the ABI on skills such as insight and judgment, and the fluctuating nature of academic performance and behaviour during ongoing recovery. Students often continue to look forward into adulthood and make plans based on their pre-injury skills, abilities, and personality. While encouragement and support for students with ABI is necessary, realistic feedback and honesty are essential. It is much more rewarding to pursue realistic, achievable goals than to pursue goals that are unrealistic and unattainable.

*While encouragement and support for students with ABI is necessary, realistic feedback and honesty are essential.*

As for other students with disabilities, a variety of post-secondary school opportunities is available. Possible opportunities range from volunteer placements and supported employment to academic post-secondary education and competitive employment. Adjusting goals from competitive to non-competitive employment or a volunteer placement may be necessary.

Important components of thorough and realistic planning include:

- clearly defined interests and pre-accident goals
- clearly documented strengths and weaknesses
- honest feedback
- appropriate academic and social supports
- ongoing monitoring and adjustment of programming and opportunities
- opportunities for realistic supported work experience
- ongoing team approach that includes educators, allied health professionals, parents, and student
- early education of family about post-school rehabilitation and employment services and opportunities other than competitive employment
- introduction to post-secondary academic support systems
- vocational assessment, including:

- interest inventory
- personality assessment
- values assessment
- neuropsychological assessment
- emotional and behavioural assessment
- employability skills assessment
- record of previous work experience
- identification of previous goals
- previous work/volunteer history

The following options may also be available, depending on funding:

- a job coach who assists people with disabilities in achieving competitive employment
- supported employment, with real work for real wages in a normal work environment, with a variety of supports provided, including:
  - job placement
  - on-site job training
  - job redesign/restructuring
  - ongoing assessment and follow-up
  - employer education
  - social skills training
  - counselling
  - job coaching

If funding is not available, people with ABI also have the opportunity for support through government funding. In BC, the Ministry of Social Development and Economic Security offers a Vocational Rehabilitation Services (VRS) program. The mandate of the program is to remove barriers to training and employment for British Columbians with permanent disabilities, including brain injury. A referral to VRS should occur in the spring of the Grade 12 year.

Ultimately, a positive vocational experience requires:

- being realistic
- modifying goals if necessary

*Transitions can be more effective when planning includes opportunities for:*

- *a transition meeting with the school-based team/planning team/rehabilitation team*
- *involving parents and students*
- *updating the Individual Educational Plan (IEP) and ensuring that transition supports are in place*
- *making sure the medical, assessment, therapy, and educational information moves from setting to setting*
- *allowing adequate time for major transitions—ideally, beginning at least one to two years in advance*
- *clarifying roles and responsibilities*
- *observing the student in the current setting*
- *visits to future facilities by students, families, and current staff*

- building on strengths
- working towards success
- making appropriate education and work placement decisions

## Supporting and involving families of students with ABI

An ABI affects not only the individual, but also the individual's family. Having a family member with ABI can disrupt many aspects of family life. Families experience extreme emotional turmoil around the time of illness or injury of their child, and are then also expected to learn about their child's injury; how to manage changing cognitive, emotional, behavioural, and learning needs; and how to access a complex system of medical and rehabilitative support. In addition, family members need to return to work or school, carry on with their social lives, and support each other and other children in the family. The recovery process is a time of ongoing change and adjustment, and every family will react differently. By the time their child is ready to return to school, many families may be physically and emotionally exhausted.

*Parent involvement increases the relevance of learning and provides increased motivation for success.*

Returning to school is often considered an important milestone in the recovery from ABI. Families look forward to their child returning to school as a sign of a return to normalcy and familiar structure in their lives. However, returning to school also often results in disappointment, as students are rarely able to enter school and carry on as before.

Families offer a primary support system for students with ABI, and with time, they become very knowledgeable about the needs of their children. Parents may provide the school with information about the student's abilities, strengths, weaknesses, and needs as they were before the injury. They have witnessed the recovery process and can describe the obvious and subtle changes in their child's thinking and behaviour, and the strategies that have worked and failed.

Once educational strategies and behavioural interventions have been identified, consistency between home and school in their application is beneficial to the student.

Parents may need direct support in order to learn about the special education system and how to support their child. When invited and encouraged to participate in educational planning and goal setting, parents may take a passive rather than an active role as a result of their own past experiences in school. It is also important to consider the fact that most parents of children with ABI may not have had experience

with special education services. Before the accident or injury, the child may have required little or no support throughout his or her educational experience. Parents may benefit from information about:

- the special education services in the school board
- roles and responsibilities of school and school board staff
- roles of parents as effective educational partners and advocates
- educational terminology
- the IEP process
- educational programs and alternative education systems
- effective support strategies

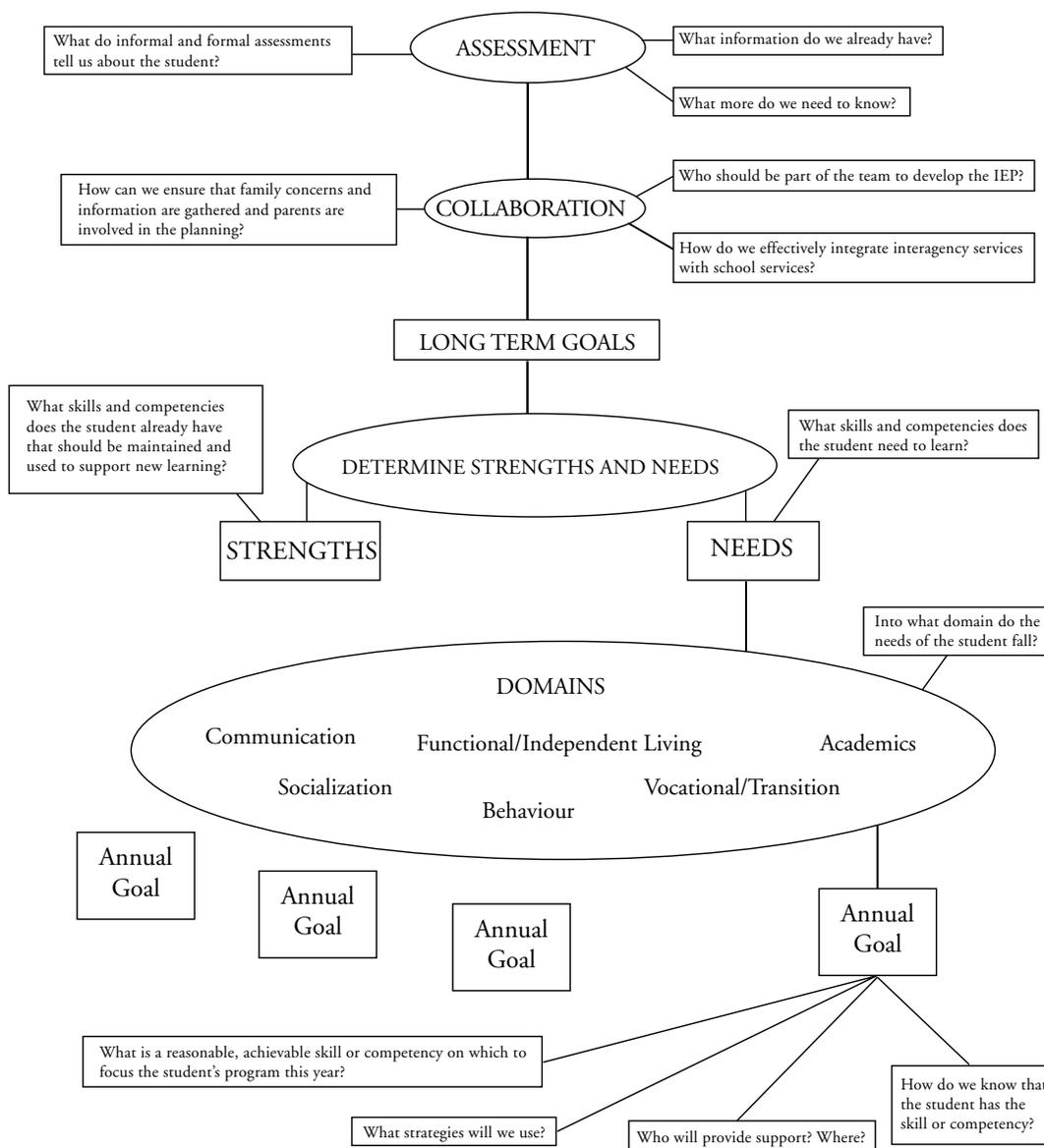
Parental involvement in educational planning and goal setting increases the likelihood of success in implementation. Establishing effective communication and collaboration systems is essential for a positive home/school partnership.

*For more information about the role of parents in special education, see *Education is a Shared Responsibility, in Special Education Services: A Manual of Policies, Procedures and Guidelines, page 9A.**



# PULLING IT TOGETHER: DEVELOPING AN EDUCATIONAL PROGRAM FOR A STUDENT WITH ACQUIRED BRAIN INJURY

How can teachers turn all this information into an effective plan to teach students with acquired brain injury (ABI)? Developing IEPs is really a process rather than a single activity. It requires gathering information about the student from various kinds of assessments, sharing information, and discussing the student with relevant people, determining long-term life goals, setting shorter-term achievable goals, setting objectives to meet those goals, and planning strategies and services. Some practical questions can help guide this process.





The following three case studies have been developed to illustrate three very different students with acquired brain injury (ABI). The case studies are based on real students in the BC school system. Medical and personal information has been changed to preserve confidentiality; however, the learning profiles of these individuals have not been altered. The case studies illustrate the needs of students with ABI and how teachers can plan to meet those needs.

In the case studies, you will meet the following students:

- **Matt**—a Kindergarten student who fell from a pool slide onto the concrete below when he was four years old
- **Sam**—a Grade 4 student who was thrown from a horse while riding with a friend
- **Jennifer**—a Grade 11 girl who was a passenger in a vehicle involved in a head-on collision

## Matt: A Kindergarten student

Matt was a healthy, pleasant little boy before his accident. When Matt was four years old, he fell from the top of a pool slide onto the concrete patio below. He was hospitalized and diagnosed with a brain injury, fractured skull, and fractured right shoulder. He required surgery to remove a subdural hematoma from his frontal lobe. Scans showed a diffuse brain injury with focal injury to his right frontal lobe. Matt was unconscious for nine days and was in the acute care hospital for six weeks. He was transferred for rehabilitation to Sunny Hill Health Centre for Children, where he was an inpatient for two months.

After discharge from rehabilitation, a speech language pathologist and a psychologist specializing in behaviour worked closely with Matt's daycare and future school to develop a support plan. Matt returned to his daycare for May and June 1999. His Kindergarten teacher, Ms. Lee, and his Resource Room teacher, Ms. Maxwell-Smith, were able to visit his daycare and observe Matt's participation and his interactions with the other children. In June 1999, before his entry into Kindergarten, Ms. Lee and Ms. Maxwell-Smith met with Matt's daycare staff, rehabilitation team, and parents to discuss his learning challenges and behaviour and appropriate intervention strategies. Matt's parents continue to be

very involved in his school program and are keen to carry out the same strategies and practices at home.

Matt is currently integrated full-time into a half-day Kindergarten program. Matt has made an excellent physical recovery; however, he has residual cognitive and fine motor difficulties. Ongoing cognitive issues include difficulties with attention and concentration, distractibility, auditory memory, receptive and expressive language, and aggressive behaviour. Matt has a difficult time paying attention when the teacher is addressing the class. He is easily distracted and frequently overwhelmed when the classroom gets busy and noisy. He has a hard time participating in a group setting and displays his frustration by hitting other students. Matt is on medication for a seizure disorder. He requires constant supervision because of his impulsiveness and resulting physical aggression towards his peers. Matt is considered to be a safety risk on the playground.

INDIVIDUAL EDUCATION PLAN

STUDENT NAME: Matt BIRTH DATE: May 16, 1994 STUDENT NO: 101056789  
 SCHOOL: West Lake Elementary School GRADE/CLASS: Kindergarten  
 PARENTS/GUARDIANS: Dorothy/Mark ADDRESS: 1-1234 Able Cr. Vandale BC V5V 1K1  
 HOME PHONE: 555-8765 WORK PHONE: 555-4321  
 PREVIOUS SCHOOL: G. F. Strong Daycare Centre DATE IEP DEVELOPED: October 26, 1999

**ASSESSMENT/PLANNING INFORMATION**

<b>MEDICAL INFORMATION</b> (Relevant to the education program)	
Sunny Hill Reports, 1999	
G. F. Strong Daycare Progress Report, June 1999	
On seizure medication—wears medic alert bracelet	
<b>SCHOOL HISTORY</b>	
Matt attended the G.F. Strong Daycare Centre for two years before his injury. He returned to the daycare setting for May and June 1999. He participated well in structured supervised environments. He required close supervision due to his seizure disorder and his aggression towards other students.	
<b>CURRENT LEVELS OF PERFORMANCE</b> (What is the student able to do? Indicate what assessment was done, when, and if “at,” “above,” or “below” relevant age/grade level for academic areas and functional life skills)	
Language: Matt currently performs in the low average range for receptive language (see Sunny Hill SLP report) and in the mildly impaired range of expressive language. His vocabulary is limited, and he will frequently point and say “that” rather than use the correct word.	
Math: Matt has emerging number concepts. He can identify when he has one, two, and three objects in his hands but cannot count higher. He is able to sort simple objects and classify with colour but can become confused when asked to sort sizes. He does not enjoy playing with building toys and needs help to engage in constructional activities.	
Strengths: (What areas can be built upon and used to support other areas of difficulty?)	Needs: (What are the most important things the student should be learning to do?)
<ul style="list-style-type: none"> <li>• enthusiastic about school</li> <li>• outgoing</li> <li>• enjoys physical activity</li> <li>• listens attentively to orally read stories</li> <li>• contributes to class discussion</li> <li>• likes to communicate verbally</li> <li>• uses good spontaneous greeting language</li> <li>• attends well in one-to-one situations with few distractions</li> <li>• engages actively in large motor play</li> </ul>	<ul style="list-style-type: none"> <li>• improve listening skills</li> <li>• learn not to interrupt</li> <li>• increase participation in group activities</li> <li>• participate appropriately in group activities</li> <li>• encourage an increase in expressive language skills</li> <li>• decrease time off task</li> <li>• learn not to express his frustration or excitement by hitting or pushing</li> <li>• increase independence with self-care activities (e.g., shoes and socks, hand washing)</li> <li>• improve fine motor control</li> <li>• follow one- and two-step directions</li> </ul>
<b>IEP Review/Report Dates:</b>	
First Report: October 26, 1999	Third Report: March 10, 2000
Second Report: December 10, 1999	Year End/Annual: May 20, 2000

<b>GOAL:</b> Behaviour To participate in group activities	<b>DATE ESTABLISHED</b> October 26, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Lee, Teacher Mr. Conrad, TA Mr. and Mrs., parents Ms. Maxwell-Smith, Resource Teacher
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Matt will choose to play in a group activity</li> <li>• Matt will remain in a group activity (e.g., Circle Time, Story Time, PE, Music) until the activity is complete</li> <li>• Matt will wait to be picked second or third</li> </ul>	<ul style="list-style-type: none"> <li>• Partner Matt with mature peers who can model good behaviour</li> <li>• Assist Matt in participating with suggestions, then step back</li> <li>• Assist Matt in staying with the group</li> <li>• Guide Matt gently to another activity if he becomes overstimulated</li> <li>• Increase Matt's time in group by five-minute intervals, beginning with a five-minute period</li> <li>• Matt will raise his hand when he wishes to speak</li> <li>• If Matt speaks out of turn, he will receive a gentle touch on his shoulder as a reminder to wait</li> <li>• Encourage Matt to comment on what other children have said</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher and TA observation and evaluation using observation charts</li> <li>• Matt's choice of a centre involving group play during play time</li> <li>• Teacher and TA observation charts</li> <li>• Matt's time in group will be charted</li> <li>• Matt waits until called on second or third without interrupting</li> </ul>
<b>GOAL:</b> Independent Living To increase use of dressing and toileting strategies to function independently in the classroom and the school	<b>DATE ESTABLISHED</b> October 26, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Lee, Teacher Mr. Conrad, TA Mr. and Mrs., parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Matt will complete toileting activities and preparations to go outside by himself</li> </ul>	<ul style="list-style-type: none"> <li>• Send Matt to the cloakroom early to facilitate his slower rate of dressing</li> <li>• Establish procedures for toileting in private sessions</li> <li>• Encourage use of velcro or slip-on runners</li> <li>• Teach shoe tying as an independent activity to avoid frustration</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing monitoring by TA and family of dressing and toileting</li> </ul>

<b>GOAL:</b> Language Development To facilitate language development	<b>DATE ESTABLISHED</b> October 26, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Lee, Teacher Mr. Conrad, TA Mrs. Smiley, SLP Mr. and Mrs., parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Matt will speak in a complete sentence when asking for things</li> </ul>	<ul style="list-style-type: none"> <li>• Teach Matt to say things “the big way” (i.e., instead of pointing and saying “that one,” he will be asked to say “I want that one”)</li> </ul>	<ul style="list-style-type: none"> <li>• Speech/language assessment January 2000</li> <li>• Informal classroom observation regarding Matt’s speaking ability</li> </ul>
<ul style="list-style-type: none"> <li>• Matt will use descriptive vocabulary when he communicates</li> <li>• Matt will increase his receptive language</li> </ul>	<ul style="list-style-type: none"> <li>• Teach Matt to describe what he wants (e.g., “I want the yellow ball”)</li> <li>• Pre-teach words used around a theme</li> <li>• Always name an object when giving it to Matt (e.g., “Here is some paste, Matt”)</li> <li>• Give instructions one at a time (e.g., “sit down”—he sits down—“take a crayon”—he takes a crayon)</li> <li>• Have Matt tell about the story that has been read to him</li> </ul>	
<b>GOAL:</b> Fine Motor Skills To improve fine motor skills	<b>DATE ESTABLISHED</b> October 26, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Lee, Teacher Mr. Conrad, TA Ms. Maxwell-Smith, Resource Teacher Ms. Handy, OT Mr. Freeman, PT Mr. and Mrs., parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Matt will be able to successfully do classroom written tasks and art activities independently</li> </ul>	<ul style="list-style-type: none"> <li>• Matt will trace shapes and letters using a large pencil and pencil grip</li> <li>• Matt will frequently use playdough and fingerpaint</li> <li>• Encourage Matt to pick up small objects</li> <li>• Matt will practise with scissors as well as tearing and pasting paper</li> <li>• Matt will practise with the class and at home</li> </ul>	<ul style="list-style-type: none"> <li>• OT assessment</li> <li>• Classroom observation by Teacher and TA</li> <li>• Matt will be able to use a pencil to print his name and the letters of the alphabet</li> <li>• Matt’s fine motor skill activities at school and at home (e.g., use of scissors, art supplies, art projects)</li> </ul>

<b>GOAL: Behaviour</b> To express emotions in acceptable ways	<b>DATE ESTABLISHED</b> October 26, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Lee, Teacher Mr. Conrad, TA Ms. Maxwell-Smith, Resource Teacher Mr. and Mrs., parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Matt will not hit or push other children (no hands-on)</li> <li>• Matt will use strategy for identifying how he is feeling</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out Functional Behavioural Assessment to determine what precipitates outbursts and to ensure that the most effective strategies are tried</li> </ul>	<ul style="list-style-type: none"> <li>• Matt will decrease the number of times he strikes out at his peers from an average of three per day to an average of one or less per day</li> </ul>
	<ul style="list-style-type: none"> <li>• Avoid overstimulation</li> <li>• Teach Matt to point to the feeling chart when he is frustrated</li> <li>• Prompt Matt to “use his words” when angry at another child (e.g., “I don’t like that”)</li> <li>• If Matt is clearly overwhelmed, redirect him to a quiet activity or allow him to blow off steam in a safe environment</li> </ul>	<ul style="list-style-type: none"> <li>• Matt’s use of picture feeling chart to identify how he is feeling</li> </ul>

<b>GOAL: Safety</b> To ensure that Matt is safe on the playground	<b>DATE ESTABLISHED</b> October 26, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Lee, Teacher Mr. Conrad, TA Ms. Maxwell-Smith, Resource Teacher Ms. Handy, OT Mr. Freeman, PT Mr. and Mrs., parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Matt will focus on what he is doing</li> <li>• Matt will be aware of others on climbing equipment</li> <li>• Matt will play with other children safely</li> <li>• Matt will acknowledge others’ turns while on playground equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Supervise Matt at the level required on the playground</li> <li>• Matt will rehearse safe use of equipment with frequent reinforcement</li> <li>• Teach Matt not to push or pull other children</li> <li>• If roughhousing is overstimulating, redirect Matt to a quieter activity (e.g., “Matt let’s see how well you do the fire-pole now”)</li> </ul>	<ul style="list-style-type: none"> <li>• Matt’s focus on what he is doing when on the playground</li> <li>• Matt’s awareness of others on climbing equipment</li> <li>• Matt’s appropriate play/interaction with other children on the playground</li> </ul>

**IEP TEAM MEMBERS**

Mrs. Littleford, School Administrator  
 Mr. and Mrs., Parents  
 Ms. Maxwell-Smith, Resource Teacher  
 Ms. Lee, Classroom Teacher  
 Mr. Conrad, TA

Mrs. Smiley, District SLP  
 Ms. Handy, District OT  
 Mr. Freeman, District PT  
 Ms. Murdy, G.F. Strong Daycare Centre Teacher

**IEP CO-ORDINATOR:** Ms. Lee

YEAR END REVIEW	DATE: May 20, 2000
<p><b>Comments:</b> Matt has made excellent progress in his class participation and improving his listening skills. He is able to wait his turn to speak, he strikes out at his peers less, and he can participate with more than one child in a play activity.</p> <p><b>Recommendations for next year:</b> Needs to spend time in a quiet distraction-free environment in order to learn new concepts and skills. Continued speech/language therapy sessions and consultation will be essential as more demands are placed on language abilities. Continue current intervention strategies.</p> <p><b>Transition plans:</b> Matt’s family will facilitate two visits to the school in August before the first week of school in Grade 1. Matt will attend school in September on a graduated attendance program so that he can adjust to a different environment and teacher. Efforts will be made to place two of Matt’s current peers in his Grade 1 class.</p>	

## Sam: A Grade 4 student

In February 1999, Sam was thrown from a horse. He was unconscious for several minutes and appeared dazed and confused afterwards. Sam's parents took him to the local hospital, where he was kept overnight for observation. Sam was diagnosed with a mild traumatic brain injury (MTBI). He returned home the next day and to school the following week.

At the time of his discharge from the hospital, Sam appeared tired but fine. The family doctor informed Sam's parents that Sam might experience temporary difficulties with behaviour and learning. They were told that these difficulties could last for days or months, and that if they persisted over a longer period, more thorough medical and neuropsychological assessment would be required.

At the time of the accident, Sam was in Grade 4. Sam's parents informed the school about Sam's MTBI and changes in his behaviour that they had noticed at home. Sam had been an average student who enjoyed school before his injury. When Sam returned to school, it quickly became apparent that he was having difficulty with stamina, concentration, memory, and headaches. He appeared to be easily frustrated and to be experiencing learning challenges.

Sam's classroom teacher closely monitored his behaviour in the classroom and observed that Sam's fatigue level was significant and affecting his ability to think and learn. He also seemed to be frustrated by the pace of learning in the classroom and his inability to keep up. After one week of unproductive work and several calls to Sam's parents to discuss disruptive behaviour, a meeting was called to develop strategies to help Sam. The District Occupational Therapist, who had previously worked with a student with ABI, was invited to attend the meeting.

At the meeting, an IEP was developed collaboratively by Sam's teacher, his parents, the school Learning Assistance Teacher, the public health nurse, the Principal, and the District Occupational Therapist. It was determined that Sam's progress would be reported to the team bimonthly by Sam's classroom teacher, given that problematic behaviour and learning were expected to improve.

Sam normally travelled to school by bus; however, the full school day was too long for him to cope when he first returned to school. Sam's school program was initially reduced to half days, with his mother picking him up after lunch.

With careful monitoring and adjustments to Sam's educational program, he was able to resume full-time attendance and return to his pre-accident ability level.

**INDIVIDUAL EDUCATION PLAN**

Page 1 of 4

STUDENT NAME: Sam      BIRTH DATE: August 22, 1990      STUDENT NO: 105454541  
 SCHOOL: Parkway Elementary School      GRADE/CLASS: 4  
 PARENTS/GUARDIANS: Mr. and Mrs.      ADDRESS: 1010 Laneway St. Parkcity BC  
 HOME PHONE: 555-2141      WORK PHONE: 555-5575  
 PREVIOUS SCHOOL: Parkway Elementary      DATE IEP DEVELOPED: February 15, 1999

**ASSESSMENT/PLANNING INFORMATION**

<b>MEDICAL INFORMATION</b> (Relevant to the education program)	
Horseback riding accident: February 2, 1999	
Sustained minor traumatic brain injury resulting in: <ul style="list-style-type: none"> <li>• fatigue</li> <li>• headaches</li> <li>• short-term memory problems</li> <li>• shortened attention span</li> <li>• slowed information processing, and</li> <li>• frustration</li> </ul>	
<b>SCHOOL HISTORY</b>	
See Grade 3 final report and Grade 4 first report card: before accident was performing in average range in all academic areas.	
<b>CURRENT LEVELS OF PERFORMANCE</b> (What is the student able to do? Indicate what assessment was done, when, and if “at,” “above,” or “below” relevant age/grade level for academic areas and functional life skills)	
Assessment has not been completed at this time. If difficulties persist, neuropsychological assessment will be recommended.	
<b>Strengths:</b> (What areas can be built upon and used to support other areas of difficulty?)	<b>Needs:</b> (What are the most important things the student should be learning to do?)
<ul style="list-style-type: none"> <li>• basic reading, writing and computational skills appear intact</li> <li>• strong math skills</li> </ul>	<ul style="list-style-type: none"> <li>• to develop increased awareness of cognitive limitations</li> <li>• to monitor his own fatigue level</li> <li>• to express his frustrations appropriately</li> <li>• to improve attention, organization, and academic performance to pre-injury levels</li> </ul>

<b>IEP Review/Report Dates:</b>	
First Report: N/A	Third Report: March 15, 1999
Second Report: N/A	Year End/Annual: June 6, 1999

<b>GOAL:</b> Physical Health To develop skills for self-monitoring fatigue	<b>DATE ESTABLISHED</b> February 15, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Ross, Teacher Ms. Abel, LAC Teacher Mrs. Rose, School Nurse Mr. and Mrs., Parents
<b>OBJECTIVES Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Sam will increase his awareness of fatigue</li> <li>• Sam will use strategies to accommodate his fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Develop self-monitoring tool to determine fatigue</li> <li>• Teacher will closely monitor Sam's fatigue level</li> <li>• Increase Sam's daily attendance at school according to his tolerance and recovery</li> <li>• Sam's parents will communicate with the school through a communication book and indicate daily energy levels</li> <li>• Sam will be allowed to lie down in the nurse's room</li> <li>• Sam's daily program will alternate learning tasks with rest periods</li> <li>• Sam will not be given homework until his fatigue level decreases</li> <li>• Sam will be excused from PE until his stamina has increased</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback from Sam's self-assessment</li> <li>• Feedback from family</li> <li>• Sam understands and uses self-monitoring tool</li> <li>• Sam makes effective choices about ways to deal with his fatigue</li> <li>• Sam's attendance will be charted and monitored</li> <li>• Review fatigue at bimonthly progress meetings</li> </ul>

<b>GOAL:</b> Attention To improve attention in class	<b>DATE ESTABLISHED</b> February 15, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Ross, Teacher Ms. Abel, LAC Teacher Mr. And Mrs., Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Sam will improve his ability to work independently on his in-class assignments</li> <li>• Sam will follow verbal directions accurately</li> </ul>	<ul style="list-style-type: none"> <li>• Provide seating near the front of the class</li> <li>• Provide a study carrel at the back of the classroom for in-class work</li> <li>• Give written instructions for all assignments</li> <li>• Monitor Sam's understanding of instructions and assignments</li> <li>• Encourage Sam not to write while the teacher is speaking</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher observation</li> <li>• Extent to which Sam is up to date for tests/in-class assignments</li> <li>• Sam demonstrates that he can work independently on his school work</li> <li>• Review performance at bimonthly progress meetings</li> </ul>
	<ul style="list-style-type: none"> <li>• Reduce the amount of work to be done in assignments</li> <li>• Provide opportunities to complete work in the LAC room last period before lunch</li> <li>• Provide extra time for tests and tests to be written in the LAC room</li> <li>• Reduce extra supports and increase assignment expectations as Sam's ability improves</li> </ul>	

<b>GOAL:</b> Behaviour To encourage Sam to interact appropriately with his peers	<b>DATE ESTABLISHED</b> February 15, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Ross, Teacher Ms. Able, LAC Teacher Mr. and Mrs., Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>Sam will join in group activities and participate appropriately</li> <li>Sam will learn to monitor his frustration level</li> </ul>	<ul style="list-style-type: none"> <li>Carry out Functional Behavioural Assessment to determine what precipitates frustration and to ensure most effective strategies tried</li> <li>Develop self-monitoring strategy for Sam regarding frustration levels</li> <li>Ask Sam to discuss emotions with teacher (“How do you feel now? How does your friend feel?”)</li> <li>Provide social skills instruction to the class, involving all students; model and role play initiating social interactions and responding to requests to participate in group activities</li> <li>Allow Sam to leave the room and go to the LAC room for a break</li> <li>Partner Sam with mature students who can exercise patience and understanding and who can model good behaviour</li> </ul>	<ul style="list-style-type: none"> <li>Monitor time spent in LAC room and chart rate</li> <li>Progress in self-monitoring</li> <li>Appropriate behaviour with peers in the classroom</li> <li>Review performance at bimonthly progress meetings</li> </ul>

<b>GOAL:</b> Memory To improve memory and organizational strategies	<b>DATE ESTABLISHED</b> February 15, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Ross, Teacher Mr. and Mrs., Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>Sam will use strategies for organization to keep track of in-class materials, assignments, and activities</li> <li>Sam will learn information and concepts presented in class</li> </ul>	<ul style="list-style-type: none"> <li>Reduce the memory load for new information by providing written directions and examples</li> <li>Use school agenda book to record all assignments, due dates, and tests</li> <li>Check Sam’s agenda at the end of each day</li> <li>Present information in small, related chunks</li> <li>Present information visually using diagrams and advance organizers wherever possible</li> <li>Break longer assignments into small chunks and give feedback on each chunk as soon as it is finished</li> <li>New information will require repetition and practice</li> <li>Provide alternate test formats, such as multiple choice and matching</li> </ul>	<ul style="list-style-type: none"> <li>Extent to which Sam completes assignments and tests with passing grades</li> <li>Review performance at bimonthly progress meetings</li> </ul>

<b>GOAL:</b> Information Processing To increase information processing skills	<b>DATE ESTABLISHED</b> February 15, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Ms. Ross, Teacher Ms. Abel, LAC Teacher Mr. and Mrs., Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Sam will increase his understanding of instructions</li> <li>• Sam will use strategies to assist understanding and memory</li> </ul>	<ul style="list-style-type: none"> <li>• Check for understanding</li> <li>• Use simple, short sentence explanations</li> <li>• Break long explanations into steps</li> <li>• Provide structure and cueing</li> <li>• Sam will repeat all directions to teacher to demonstrate understanding</li> <li>• Allow more time for academic activities</li> <li>• Allow completion of assignments in the LAC room</li> <li>• Allow more time to answer orally and in writing</li> <li>• Adjust assignments and tests to accommodate slowed thinking and response time</li> </ul>	<ul style="list-style-type: none"> <li>• Student self-assessment</li> <li>• Student awareness of improvement</li> <li>• Completion of assignments within the allotted time</li> <li>• Participation in classroom activities</li> <li>• Review performance at bimonthly progress meetings</li> </ul>

**IEP TEAM MEMBERS**

Mr. Pat Smart, School Administrator  
Mr. and Mrs., Parents  
Mrs. Rose, School Nurse

Ms. Cope, District OT  
Ms. Abel, LAC Teacher  
Ms. Ross, Classroom Teacher

**IEP CO-ORDINATOR:** Ms. Abel

<b>YEAR END REVIEW:</b>	<b>DATE: June 6, 2000</b>
<p><b>Comments:</b> Sam's stamina improved to the point that he was able to attend school on a full time basis by the end of May. As his fatigue diminished, his attention and concentration improved. Subsequently, his short-term memory difficulties also subsided. The IEP team met regularly to discuss his progress and adjustments to his program. By the end of May, Sam was performing at his pre-accident ability level. Sam's parents reported similar improvements at home. Sam's LAC support was gradually reduced throughout the month of June.</p> <p><b>Recommendations for next year:</b> That Sam be placed in a regular Grade 5 class in September, 1999, without academic adaptations and LAC support. That Sam participate in PE beginning in September, 1999, but that contact sports be avoided until one year post-injury.</p>	

## Jennifer: A Grade 11 student

Jennifer is a 17-year-old student who was involved in a motor vehicle accident during the spring of Grade 10, on March 21, 1999. She sustained a severe brain injury and was in the hospital for six weeks (March–April 1999). She was transferred to an inpatient rehabilitation program for four months (May–August 1999). She was an outpatient from September to December 1999. During the final two months at the rehabilitation centre, Jennifer attended part-time at the centre and part-time at her school.

Planning for Jennifer's return to school began as soon as she entered the rehabilitation program. Staff from the school and school board were part of Jennifer's team early in the process. Staff from the school were invited to rehabilitation team meetings and were kept informed about Jennifer's program and progress. Jennifer was anxious to return to school, so after a total of six months in rehabilitation, it was determined that Jennifer needed to start attending school on a part-time basis to assess how she would cope with the classroom environment and academic learning. Teaching, support, and administration staff attended an educational session by the rehabilitation staff that covered basic information on the structure and function of the brain, brain injury, and Jennifer's specific physical and cognitive profile. Strategies to accommodate Jennifer were discussed at length.

At the time Jennifer entered school, her difficulties were extensive and significant. They included:

- fatigue (cognitive and physical)
- decreased balance, co-ordination, and muscle tone
- flat affect (showed little emotion)
- distractibility
- decreased attention, memory, and organization skills
- difficulty with complex language, abstract thought, and problem solving
- impaired visual perceptual and visual motor skills
- slowed information processing

Jennifer's peer group was exceptionally supportive throughout her hospital stay, rehabilitation program, and return to school. They attended a unique education session that focussed on Jennifer's accident, current difficulties, and supportive strategies.

The school-based team recommended the following reduced academic program for Jennifer in her return to school:

- a self-paced Introductory Math 11 course, where a particular emphasis would be placed on helping her to break new sequences into simple steps
- a Graphics 11 course, where a particular emphasis would be placed on practical, hands-on experiences, and helping her to expand her options for communicating emotions
- a Computer Applications Course, where a particular emphasis would be placed on exploring computer software to improve communications
- a PE 11 course, where particular emphasis would be placed on strengthening her muscle tone and improving her balance
- two Skills blocks for support and strategy development and to reduce the need for homework

INDIVIDUAL EDUCATION PLAN

Page 1 of 5

STUDENT NAME: Jennifer BIRTH DATE: June 1, 1982 STUDENT NO.: 98765432  
 SCHOOL: Milton Secondary School GRADE/CLASS: 11  
 PARENTS/GUARDIANS: Mr. & Mrs. ADDRESS: 1985 Success Avenue, Milton BC  
 HOME PHONE: 454-2323 WORK PHONE: 454-4545  
 PREVIOUS SCHOOL: Milton Secondary School: Grades 8 to 10 DATE IEP DEVELOPED: November 8, 1999

<b>ASSESSMENT/PLANNING INFORMATION</b>	
<b>MEDICAL INFORMATION</b> (Relevant to the education program)	
<ul style="list-style-type: none"> <li>passenger in a motor vehicle accident, March 21, 1999</li> <li>injuries included a severe diffuse traumatic brain injury</li> <li>on seizure medication</li> <li>difficulties with fatigue, balance/co-ordination, visual perceptual/visual motor skills, language skills, information processing, attention, memory, organization, and all areas of complex thinking; has limited insight into difficulties, and flat affect</li> <li>assessment indicates that socialization should be a key focus of Jennifer's school return</li> </ul>	
<b>SCHOOL HISTORY</b>	
<ul style="list-style-type: none"> <li>attended Milton Secondary School for Grades 8, 9, and 10 (until March 1999)</li> <li>average/above average student before accident</li> <li>involved in all aspect of the school community (teams, student council)</li> </ul>	
<b>CURRENT LEVELS OF PERFORMANCE</b> (What is the student able to do? Indicate what assessment was done, when, and if "at," "above," or "below" relevant age/grade level for academic areas and functional life skills)	
Language: Gates MacGinitie Reading Test: (Level F, Form 3): Vocabulary: 25 percentile Test of Written Spelling: > Grade 11.5 Written Language: weak, needs review of all basic writing skills, has decreased written organization and expression skills. Jennifer has difficulty understanding complex language. She has mild word retrieval difficulties. Jennifer's language is affected by her cognitive difficulties.	
Math: Basic computation skills: Grade 3/4 Word problem-solving skills: Grade 5	
<b>Strengths:</b> (What areas can be built upon and used to support other areas of difficulty?)	<b>Needs:</b> (What are the most important things the students should be learning to do?)
<ul style="list-style-type: none"> <li>a co-operative and willing student</li> <li>enthusiastic about returning to school</li> <li>has had a successful school history</li> <li>has excellent spelling skills</li> <li>responds well to material that is organized and sequential</li> <li>has a supportive peer group</li> <li>has a good sense of humour</li> <li>enjoys interacting with adults and same-age peers</li> </ul>	<ul style="list-style-type: none"> <li>fatigue affects both cognitive and physical performance</li> <li>has difficulty with sustained attention and divided attention, and may be distracted by extraneous noise</li> <li>has slowed information processing—both input and output</li> <li>has difficulty keeping track of appointments, activities, assignments, and materials</li> <li>has difficulty with all aspects of memory (short-term/long-term)</li> </ul>
<ul style="list-style-type: none"> <li>persistent in difficult activities when she has assistance</li> </ul>	<ul style="list-style-type: none"> <li>has difficulty following complex communications, understanding abstract concepts, generating multiple ideas and sequencing</li> <li>has difficulty in all academic subjects</li> <li>has decreased physical mobility because of reduced strength/balance/co-ordination</li> <li>is unable to react emotionally—has a flat affect</li> </ul>

<b>IEP Review/Report Dates:</b>	
First Report: November 8, 1999	Third Report: March 6, 2000
Second Report: January 25, 2000	Year End/Annual: June 2, 2000

<b>GOAL:</b> Physical Health To develop skills for self-monitoring fatigue	<b>DATE ESTABLISHED</b> November 8, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Mr. Ade, Skills Teacher Mr. Tennessey, Skills Room SEA All subject teachers Ms. Rest, School Nurse Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Jennifer will increase her awareness of her fatigue</li> <li>• Jennifer will use strategies to accommodate her cognitive and physical fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Develop self-monitoring tool to determine fatigue</li> <li>• Develop self-assessment strategies for monitoring fatigue</li> <li>• Provide frequent rest breaks</li> <li>• Provide access to the bed in the nurse's room for rest breaks/naps</li> <li>• Alternate physical and cognitive tasks</li> <li>• Monitor extra-curricular activities</li> <li>• Provide proper seating</li> <li>• Allow extra time between classes</li> <li>• Provide honest feedback about performance relative to fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback from Jennifer's self-assessment</li> <li>• Feedback from family</li> <li>• Review of fatigue at bimonthly progress meetings</li> <li>• Jennifer understands and uses her self-monitoring tool</li> <li>• Jennifer makes effective choices about ways to deal with her fatigue</li> </ul>

<b>GOAL:</b> Communication To increase receptive/expressive communication skills	<b>DATE ESTABLISHED</b> November 8, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Mr. Ade, Skills Teacher Mr. Tennessey, Skills Room SEA All subject teachers Ms. English, SLP Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Jennifer will follow simple oral directions</li> <li>• Jennifer will increase her information-processing abilities</li> <li>• Jennifer will increase her conversational skills</li> </ul>	<ul style="list-style-type: none"> <li>• Use concrete, simple vocabulary; avoid figurative language</li> <li>• Break long explanations into steps</li> <li>• Emphasize main points of class presentations</li> <li>• Check for understanding</li> <li>• Provide written version of key concepts from classroom lectures</li> <li>• Provide a course overview/unit overview/lesson overview</li> <li>• Allow more time for verbal and written responses</li> <li>• Speak slowly and clearly</li> <li>• Do not expect Jennifer to multi-task (e.g., note taking while listening to a lecture)</li> <li>• Provide a structure for conversations that encourages her to take initiative</li> <li>• Ask specific rather than open-ended questions</li> <li>• Give time to formulate answers</li> </ul>	<ul style="list-style-type: none"> <li>• Reassessment by SLP, March 2000</li> <li>• Jennifer follows simple oral directions and can explain them to peers</li> <li>• Jennifer will independently complete her work in class</li> <li>• Jennifer will use oral language to interact with peers</li> </ul>

<p><b>GOAL: Physical Movement</b> To increase balance and coordination and independently use walking strategy</p>	<p><b>DATE ESTABLISHED</b> November 8, 1999</p>	<p><b>TEAM MEMBER(S) RESPONSIBLE:</b> Mr. Ade, Skills Teacher Mr. Tennessey, Skills Room SEA Ms. Moovit, PT All subject teachers Parents</p>
<p><b>OBJECTIVES (Individual outcomes related to this goal)</b></p>	<p><b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b></p>	<p><b>ASSESSMENT (Progress to objectives)</b></p>
<ul style="list-style-type: none"> <li>• Jennifer will improve her balance and muscle tone</li> <li>• Jennifer will self-advocate for accommodation needed</li> </ul>	<ul style="list-style-type: none"> <li>• Will use backpack over both shoulders to carry books</li> <li>• Will be given extra time for written assignments</li> <li>• Remind regarding safety issues when activity requires fine hand coordination</li> <li>• Strengthening and balance activities as part of her PE program as provided by PT</li> <li>• Teachers will permit to leave class early in order to be on time for next class</li> </ul>	<ul style="list-style-type: none"> <li>• Parent and teacher observation</li> <li>• PT assessment March and June, 2000 to determine Jennifer's progress</li> <li>• Jennifer's awareness of her improvement</li> </ul>

<p><b>GOAL: Social Skills/ Independent Living</b>  To develop skills for decision making To develop skills for independent living: peer relationship development</p>	<p><b>DATE ESTABLISHED</b> November 8, 1999</p>	<p><b>TEAM MEMBER(S) RESPONSIBLE:</b> Mr. Ade, Skills Teacher Mr. Tennessey, Skills Room SEA All subject teachers Parents</p>
<p><b>OBJECTIVES (Individual outcomes related to this goal)</b></p>	<p><b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b></p>	<p><b>ASSESSMENT (Progress to objectives)</b></p>
<ul style="list-style-type: none"> <li>• Jennifer will use strategies to generate solutions and alternatives to problems</li> <li>• Jennifer will develop positive peer relationships</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a problem-solving guide to provide concrete structure with which to identify problems and determine possible solutions</li> <li>• Provide supported practice with problem-solving guide</li> <li>• Model use of questions about alternatives and consequences</li> <li>• Provide a peer inservice for Jennifer's peers</li> <li>• Provide a key contact person at the school to whom friends can ask questions/confide</li> <li>• Social skills grouping using <i>Skillstreaming for the Adolescent</i> curriculum lessons, practice, and role play</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher and parents' observation</li> <li>• Neuropsychological re-assessment, March 2000</li> <li>• Jennifer independently uses problem-solving guide</li> <li>• Ongoing parent and teacher assessment of Jennifer's ability to successfully maintain relationships with peers during school year</li> </ul>

<b>GOAL: Academics</b> To improve memory and organizational strategies  To improve attention in class	<b>DATE ESTABLISHED</b> November 8, 1999	<b>TEAM MEMBER(S) RESPONSIBLE:</b> Mr. Ade, Skills Teacher Mr. Tennessey, Skills Room SEA All subject teachers Parents
<b>OBJECTIVES (Individual outcomes related to this goal)</b>	<b>STRATEGIES (Adaptations, services, location of services, resources to be used)</b>	<b>ASSESSMENT (Progress to objectives)</b>
<ul style="list-style-type: none"> <li>• Jennifer will use strategies for personal organization to keep track of appointments, activities, assignments, and materials</li> <li>• Jennifer will develop a basic understanding of memory strategies</li> <li>• Jennifer will consistently use memory and organizational strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Use school agenda to record all assignments, due dates, homework, and tests</li> <li>• Use a calendar to record tests, meetings, and appointments</li> <li>• Provide repetition and practice of new skills and information</li> <li>• Reduce the memory load for new information by providing organizational strategies and written notes</li> </ul>	<ul style="list-style-type: none"> <li>• Student self-assessment</li> <li>• Teacher and parent observation</li> <li>• Neuropsychological reassessment March 2000</li> <li>• Extent of use of calendar and agenda</li> <li>• Extent to which Jennifer is up to date for tests/assignments</li> <li>• Jennifer's awareness of her improvement</li> </ul>
<ul style="list-style-type: none"> <li>• Jennifer will increase her understanding of her attention difficulties</li> <li>• Jennifer will improve sustained and divided attention skills</li> </ul>	<ul style="list-style-type: none"> <li>• Present new information in smaller related chunks with limited steps per task</li> <li>• Break down tasks so that Jennifer can attend to one specific aspect at a time</li> <li>• Provide structure and cueing</li> <li>• Give frequent breaks</li> <li>• Provide a quiet working environment</li> <li>• Provide frequent feedback to increase Jennifer's awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Jennifer can explain her difficulty with attention to adults</li> <li>• Jennifer actively uses attention strategies in class</li> </ul>

**IEP TEAM MEMBERS**

Mrs. Marks, School Administrator  
 Mr. and Mrs., Parents  
 Mr. Ade, Skills Teacher  
 Ms. Moovit, District PT

Mr. Stride, Classroom Teacher  
 Mr. Tennessey, Skills Room SEA  
 Ms. English, Speech Language Pathologist  
 Mr. Smith, OT

**IEP CO-ORDINATOR:** Mr. Ade, Skills Teacher

<b>YEAR END REVIEW:</b>	<b>DATE: June 2, 2000</b>
<p><b>Comments:</b> Fatigue has continued to affect Jennifer’s ability to return to school on a full-time basis. She is more attentive and productive in the morning. Her parents requested that on the mornings when Jennifer’s Skills block falls in first period she be allowed to stay at home and sleep.</p> <p>Jennifer’s balance and co-ordination have continued to improve and she now moves through the halls safely, carrying books in a knapsack.</p> <p>Jennifer continues to require significant repetition and review to learn new information. Her organization skills are problematic and Jennifer relies heavily on adult support to organize her for the day.</p> <p>Jennifer continues to need significant extra time for all in-class assignments, tests, and homework assignments. She is most successful learning concrete, structured information.</p> <p>Jennifer has a solid network of friends and she is included in all social activities at the school. Her parents report that she continues to be involved in her peer groups from her dance studio and her church.</p> <p><b>Recommendations for next year:</b> That:</p> <ul style="list-style-type: none"> <li>• Jennifer continue on a reduced academic program</li> <li>• all current academic supports remain in place for Jennifer’s Grade 12 year</li> <li>• Jennifer participate in work experience as a significant portion of her school year in Grade 12.</li> </ul> <p><b>Transition plans:</b> Jennifer will meet with the co-ordinator of the New Directions Program, a special college program for students with ABI, in February of her Grade 12 year.</p>	



# BEHAVIOUR OBSERVATION AND DATA COLLECTION CHART

## Appendix A

When determining the function of inappropriate target behaviours in order to plan behaviour change interventions for students, school staff need to observe the behaviour and collect information. It is important to document the behaviour as factually as possible. Rather than speculating on the function of behaviour in the absence of good data, gather facts that are observable and measurable, including:

- **Antecedent**—events in the environment that occur immediately before the target behaviour
- **Behaviour**—actual behaviour, described in specific terms (including duration and intensity)
- **Consequence**—events in the environment that occur directly after the behaviour

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### A-B-C CHART

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Name of student: Date: Target Behaviour:
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Time, setting, social situation	Antecedent event(s)	Behaviour description	Consequence event(s)

Adapted from Seip, J., *Teaching Students with Autism and Developmental Disorders: A Guide for Staff Training and Development*, 1996.



# SAMPLE DISCUSSION QUESTIONS FOR AN INITIAL MEETING WITH THE PARENTS OF A STUDENT WITH ABI

## Appendix B

When meeting for the first time with the parents of a student who has acquired brain injury (ABI), there are a number of important questions that should be asked. It is important to keep in mind the trauma the family has recently experienced and the new role a family may play during their child's educational experience. After their injury, students with ABI often move from regular education to special education. These waters are untravelled by the parents and they will need your assistance to understand and negotiate the system.

Returning to secondary school is significantly different from returning to elementary school. In elementary school, the initial interview may be conducted by the classroom teacher. In secondary school, the school counsellor may take this role. Sample questions have been provided below to guide your meeting. Completing the Interview Form (Appendix C) will ensure that you have all the information you need to plan appropriately for the student with ABI.

### **General information**

- In what grade was your child before the ABI? What school?
- Describe your child as a student before the ABI.
- What were your child's interests, activities, or hobbies before the ABI?
- What do you think is important for me to know about your child's ABI (for example, specific health problems such as seizures; vision/hearing problems; medications; and physical/cognitive/behavioural and emotional challenges)?
- What educational and social goals do you have for your child? How have these changed since the ABI?

### **Agencies and adaptations**

- What are some of the strategies you have found useful in working with your child?

- Are there other agencies involved with your child and what is their role (for example, ICBC, WCB, Community Brain Injury Program for Children and Youth)?
- Does your child require special therapy outside of school such as speech/language therapy, occupational/physical therapy, or counselling?
- Has your child previously received special services in school?

### **Behaviour**

- Could you tell me about your child's challenges and what they might mean in my classroom? If this behaviour occurs at home, how do you handle it?
- Does your child continue to have the same peer group as before the ABI? If yes, how do peers support your child?

### **Assessment and evaluation**

- What reports or other information about your child do you feel are important for me to have? (For example, if your child participated in rehabilitation, are there reports from his or her therapists? Did your child undergo a neuropsychological assessment?)
- Is your child able to work/play independently?
- In what areas has your child experienced particular success?
- In what areas would you particularly like your child to succeed this year?

### **Home and school**

- Is there further information you feel I should know about your child?
- How can we provide a consistent home/school approach in teaching your child?
- Are there any questions you would like to ask me (for example, classroom expectations, assignments, materials, activities, or assessment of progress)?

Date \_\_\_\_\_

Student's name \_\_\_\_\_

School \_\_\_\_\_ Grade \_\_\_\_\_

Interview participants \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Academic history before illness/accident**

Grade at time of illness/accident \_\_\_\_\_

School at time of illness/accident \_\_\_\_\_

Course	Grade
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Work/study habits:

Pre-injury/illness employment experience:

Pre-injury/illness volunteer experience:

Personal goals before illness/accident:

**Illness/accident history**

Date of illness/accident \_\_\_\_\_

History and description of illness/accident::

Length of coma \_\_\_\_\_

Length of post-traumatic amnesia \_\_\_\_\_

Location and length of hospital admission \_\_\_\_\_

Location and length of rehabilitation treatment::

Inpatient rehabilitation treatment:

Outpatient rehabilitation treatment:

### Assessment reports

Discipline	Author	Location/phone	Records avail.	
Medical	_____	_____	yes	no
Neuropsychology	_____	_____	yes	no
Speech/language	_____	_____	yes	no
Occupational therapy	_____	_____	yes	no
Physiotherapy	_____	_____	yes	no
Academic	_____	_____	yes	no
Vocational	_____	_____	yes	no
Recreational	_____	_____	yes	no

**Current physical status**

Seizures \_\_\_\_\_  
\_\_\_\_\_

Paralysis/weakness \_\_\_\_\_  
\_\_\_\_\_

Fine motor problems \_\_\_\_\_  
\_\_\_\_\_

Fatigue (physical and mental endurance) \_\_\_\_\_  
\_\_\_\_\_

Speech \_\_\_\_\_  
\_\_\_\_\_

Vision \_\_\_\_\_  
\_\_\_\_\_

Hearing \_\_\_\_\_  
\_\_\_\_\_

Handedness (has it changed?) \_\_\_\_\_  
\_\_\_\_\_

Medications \_\_\_\_\_  
\_\_\_\_\_

Equipment \_\_\_\_\_  
\_\_\_\_\_

Other \_\_\_\_\_  
\_\_\_\_\_

**Current cognitive status****Helpful strategies**

Memory:

- short-term \_\_\_\_\_
- long-term \_\_\_\_\_

Attention/concentration \_\_\_\_\_

Distractibility \_\_\_\_\_

Speed of information processing \_\_\_\_\_

Executive functions:

- planning \_\_\_\_\_
- organization \_\_\_\_\_
- reasoning/abstract thinking \_\_\_\_\_
- judgment \_\_\_\_\_
- goal setting \_\_\_\_\_
- problem solving \_\_\_\_\_

Ability to initiate \_\_\_\_\_

Awareness of difficulties (insight) \_\_\_\_\_

Level of independence \_\_\_\_\_

**Current communication status****Helpful strategies**

Speech \_\_\_\_\_

Receptive language \_\_\_\_\_

Expressive language \_\_\_\_\_

**Current social/emotional status****Helpful strategies**

Depression/withdrawal \_\_\_\_\_

Mental flexibility \_\_\_\_\_

Denial \_\_\_\_\_

Frustration \_\_\_\_\_

Tolerance/anger \_\_\_\_\_

Irritability/restlessness \_\_\_\_\_

Anxiety \_\_\_\_\_

Lability \_\_\_\_\_

Impulsivity \_\_\_\_\_  
 Social judgment \_\_\_\_\_  
 Disinhibition \_\_\_\_\_  
 Apathy \_\_\_\_\_  
 Decreased personal hygiene \_\_\_\_\_  
 Support from and relationship with peers \_\_\_\_\_

**Current academic levels****Helpful strategies**

Spelling _____	_____
Vocabulary _____	_____
Reading comprehension _____	_____
Math computation skills _____	_____
Math word problem-solving skills _____	_____

Activity restrictions/limitations (e.g., no contact sports for one year):

Current stamina level:

Functional limitations resulting from decreased physical skills (e.g., dressing and toileting):

**Resource staff currently involved with student**

Name	Phone number	Responsibilities
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Expectations for returning to school (e.g., full time, part time, with assistance)**

Student's:

Parents':



## Organizations

### BC Brain Injury Association

218-6th Street  
New Westminster BC V3L 3A2  
Phone: (604) 520-3221  
Fax: (604) 520-3206  
[www.bcbia.org](http://www.bcbia.org)

### The Brain Tumor Foundation of Canada

100-650 Waterloo Street  
London ON N6B 2R4  
Phone: 1-800-265-5106 or (519) 642-7755  
Fax: (519) 642-7192  
[www.btfc.org](http://www.btfc.org)

## Provincial rehabilitation centres

### Adolescent and Young Adult Service

G. F. Strong Rehab Centre  
Vancouver Hospital and Health Science Centre  
4255 Laurel Street  
Vancouver BC V5Z 2G9  
Phone: (604) 734-1313  
Fax: (604) 737-6359  
[www.vanhosp.bc.ca](http://www.vanhosp.bc.ca)

### Brain Injury Team

Sunny Hill Health Centre for Children  
Children's and Women's Health Centre of BC  
3644 Slocan Street  
Vancouver BC V5M 3E8  
Phone: (604) 453-8300  
Fax: (604) 453-8301  
[www.sunnyhill.bc.ca](http://www.sunnyhill.bc.ca)

**Queen Alexandra Centre for Children's Health**

Capital Health Region  
2400 Arbutus Road  
Victoria BC V8N 1V7  
Phone: (250) 477-1826  
Fax: (250) 721-6837  
[www.caphhealth.org](http://www.caphhealth.org)

**Gorge Road Hospital**

Capital Health Region  
63 Gorge Road East  
Victoria BC V9A 1L2  
Phone: (250) 995-4740  
Fax: (250) 995-4759  
[www.caphhealth.org](http://www.caphhealth.org)

**Funding agencies**

**Community Brain Injury Program for Children and Youth**

The Centre for Ability  
2805 Kingsway  
Vancouver BC V5R 5H9  
Phone: (604) 451-5511  
Fax: (604) 451-5651  
Web site: [www.cbip.bc.ca](http://www.cbip.bc.ca)

**Insurance Corporation of BC**

Rehabilitation Department  
808 Nelson Street  
Vancouver BC V6Z 2H2  
Phone: (604) 647-6120  
Fax: (604) 647-6129

**Workers' Compensation Board of BC**

Box 5350  
Vancouver BC V6B 5L5  
Phone: (604) 273-2266 (Lower Mainland)  
1-800-661-2112 (outside Lower Mainland)

**Criminal Injury Compensation Program**

Workers' Compensation Board of BC  
 Box 5350  
 Vancouver BC V6B 5L5  
 Phone: (604) 244-6400 (Lower Mainland)  
 1-800-661-2112, local 6400 (outside Lower Mainland)

**Web sites****BC and Canadian sites****Educating Students With Brain Injury: A Web Site for Teachers**

[www.axion.net/gfstrongschool](http://www.axion.net/gfstrongschool)

Created for teachers working with students with brain injury. BC focus. Provides general information about brain injury, teaching and learning strategies, and links to other related sites.

**Community Brain Injury Program for Children and Youth**

[www.cbip.bc.ca](http://www.cbip.bc.ca)

Provides information about the program, resources, and links and offers an on-line newsletter.

**BC Brain Injury Association**

[www.bcbia.org/](http://www.bcbia.org/)

Provides general information about brain injury, with resources specific to BC, and information about educational opportunities.

**Traumatic Brain Injury Resource Centre**

[www.braininjuryresources.org](http://www.braininjuryresources.org)

A BC-inspired resource site with links to a variety of sites dealing with brain injury.

**Ontario Brain Injury Association**

[www.obia.on.ca/](http://www.obia.on.ca/)

A Canadian site providing information on all aspects of brain injury.

**Brain Tumour Foundation (Canada)**

[www.btfc.org](http://www.btfc.org)

A bilingual site offering information on patient support, fundraising, and research.

## **International sites**

### **The Perspectives Network**

[www.tbi.org](http://www.tbi.org)

A variety of FAQs, tips, and resources dealing with brain injury.

### **Glaxo Neurological Centre**

[glaxocentre.merseyside.org](http://glaxocentre.merseyside.org)

A unique non-medical advice and information centre for people with neurological conditions and those who care for them.

### **Traumatic Brain Injury Survival Guide**

[www.tbiguide.com](http://www.tbiguide.com)

An on-line book written by a clinical neuropsychologist for people with brain injury and their families.

### **While you are waiting...**

[www.waiting.com](http://www.waiting.com)

A collaborative site created by those whose lives have been changed by brain injury (survivors, families, and professionals). Provides information about all aspects of brain injury.

### **Brain Injury Association, Inc.**

[www.biausa.org](http://www.biausa.org)

Provides information about brain injury and on a variety of resources.

### **United States National Library of Medicine**

[www.nlm.nih.gov](http://www.nlm.nih.gov)

Medical library providing access to a variety of resources.

### **Contact Centre for Neuro Skills: Traumatic Brain Injury Resource Guide**

[www.neuroskills.com](http://www.neuroskills.com)

Provides information on brain injury, articles, research, and other resources.

### **National Resource Centre for TBI**

[www.neuro.pmr.vcu.edu/](http://www.neuro.pmr.vcu.edu/)

Provides information about brain injury, resource information, and a question/response write-in section.

**Department of Special Education**

[www.sped.ukans.edu](http://www.sped.ukans.edu)

Provides on-line resources about children with disabilities.

**Department of Physical Medicine and Rehabilitation Research  
Training Centre in Rehabilitation and Childhood Trauma**

[www.nemc.org/rehab/homepg.htm](http://www.nemc.org/rehab/homepg.htm)

Focusses on causes, treatment, and outcome of injury to children, including brain injury in children and youth.

**Lash and Associates Publishing/Training**

[www.lapublishing.com](http://www.lapublishing.com)

Provides publication and resource information on brain injury in children and adolescents.

**TBI Demonstration Project (Missouri)**

[www.tbimo.org](http://www.tbimo.org)

Provides general information on brain injury, links, personal stories, and resource materials.

**Print resources****Books about Acquired Brain Injury**

Broman, S.H., & Michel, M.E. (Eds.). (1995). *Traumatic head injury in children*. New York, NY: Oxford University Press.

Burke, W. H., Wesolowski, M., & Blackerby, W.F. III (Eds.). *The HDI professional series on traumatic brain injury*. Houston, TX: HDI Publishers. Series includes:

- Brain injury rehabilitation: An overview
- Applied behavior analysis in brain injury rehabilitation
- Community living skill development: Teaching methods
- Developing the TBI rehabilitation plan
- Adaptive driving after TBI
- Managing anger and aggression
- Managing attention deficits
- Management of memory disorders

## RESOURCES

- Developing social skills
- Sexuality after TBI
- Developing motivation
- Brain injury rehabilitation with children and adolescents
- Accessing community resources: Discharge planning
- Developing self control
- Increasing self awareness
- Teaching job-seeking skills
- Developing adaptive work behaviors
- Supported employment and TBI
- The role of the family in TBI rehabilitation
- Management of communication and language deficits

Corbett, S. L., & Ross-Thomson, B. (1996). *Educating students with traumatic brain injuries: A resource and planning guide*. Milwaukee, WI: Wisconsin Department of Public Instruction.

Glang, A., & Singer, G. (1997). *Students with acquired brain injury: The school's response*. Baltimore, MD: Paul H. Brookes Publishing Company.

Gronwall, D., Wrightson, P., & Waddell, P. (1998). *Head injury: The facts*. New York, NY: Oxford University Press.

Lash, M. (1992). *When your child goes to school after an injury*. Brick, NJ: Exceptional Parent.

Lehr, E. (1990). *Psychological management of traumatic brain injuries in children and adolescents*. Rockville, MD: Aspen Publishers.

Murdoch, B. E. (Ed.). (1990). *Acquired neurological speech/language disorders in childhood*. Bristol, PA: Taylor & Francis.

Osborn, C. (1998). *Over my head*. Naples, FL: The Peripatetic Publisher.

Savage, R.C., & Wolcott, G. F. (Eds.). (1994). *Educational dimensions of acquired brain injury*. Austin, TX: PRO-ED.

Sellars, C.W., & Vegter, C.H. (1993). *Pediatric brain injury: A practical resource*. Tuscon, AZ: Communication Skill Builders.

- Singer, G. H. S., Glang, A., & Williams, J. M. (Eds.). (1996). *Children with acquired brain injury: Educating and supporting families*. Baltimore, MD: Paul H. Brookes Publishing.
- Sohlberg, M. M., Todis, B., & Glang, A. (1999). *Changes in self-awareness: Among students with brain injuries*. Wolfeboro, NH: L&A Publishing/Training.
- Sohlberg, M. M., Todis, B., Glang, A., & Lash, M. (1999). *Brain injury: Causes and consequences for students*. Wolfeboro, NH: L&A Publishing/Training.
- Specht, K.Q. (1996). *Physical management of students who have sustained a traumatic brain injury: Guidelines and strategies for school personnel*. Houston, TX: HDI Publishers.
- Tyler, J. (1997). *Traumatic brain injury: Inservice training module*. Kansas City, KS: University of Kansas Medical Centre: Department of Special Education.
- Tyler, J. S. & Mira, M. (1999). *Traumatic brain injury in children and adolescents: A sourcebook for teachers and other school personnel*. Austin, TX: PRO-ED, Inc.
- University of the State of New York. (1994). *Traumatic brain injury: A guidebook for educators*. Albany, NY: Author.
- Voss, J., Cooley, E., Glang, A., Todis, B., & Lash, M. (1999). *Building friendships: When students have special needs*. Wolfeboro, NH: L&A Publishing/Training.
- Williams, J. M., & Kay, T. (Eds.). (1991). *Head injury: A family matter*. Baltimore, MD: Paul H. Brookes Publishing.
- Wolcott, G., Lash, M., & Pearson, S. (1995). *Signs and strategies for educating students with brain injuries: A practical guide for teachers and schools*. Houston, TX: HDI Publishers.
- Ylvisaker, M. (Ed.). (1985). *Head injury rehabilitation: Children and adolescents*. San Diego, CA: College-Hill Press.

### **Books for children/adolescents**

- Buckel, C. & Buckel T. (1992). *Mom, I have a staring problem*. Orlando, FL: Author.
- DePompei, R., & Cluett, B. (1998). *All about me!* Wolfeboro, NH: L&A Publishing/Training.

## RESOURCES

- Dow, D. (1997). *Brain attack*. Perrysburg, OH: Author.
- Raines, S. & Waaland, P. (1992). *For kids only: A guide to brain injury*. Richmond, VA: Medical College of Virginia, Department of PM&R.
- Snyder, H. (1998). *Elvin The Elephant Who Forgets*. Wolfeboro, NH: L&A Publishing/Training.

### **Books for families**

- Dikengil, A. (Ed.). (1994). *Family articles about traumatic brain injury*. Tuscon, AZ: Communication Skill Builders.
- Kreutzer, J., Gourley, G., & West, D. *Getting better (and better) after brain injury: A guide for survivors*. Richmond, VA: The National Resource Center for Traumatic Brain Injury.
- Kreutzer, J. & Kolakowsky-Hainer, S. *Getting better (and better) after brain injury: A guide for families, friends and caregivers*. Richmond, VA: The National Center for Traumatic Brain Injury.
- Lash, M. (1990). *When your child is seriously injured: The emotional impact on families*. Boston, MA: Tufts University/New England Medical Center.
- Lash, M. (1998). *Myths and facts: When your child has a brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- Sunny Hill Hospital for Children. (1987). *A family guide to the rehabilitation of the severely head-injured child*. Vancouver, BC: Insurance Corporation of BC.
- Swanson, K. (1999). *I'll carry the fork! Recovering a life after brain injury*. Los Altos, CA: Rising Star Press.

### **Books about the brain**

- Caine, R.M. & Caine, G. (1991). *Making connections: Teaching and the human brain*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, VA: Association for Supervision and Curriculum Development.

Sylvester, R. (1995). *A celebration of neurons: An educator's guide to the human brain*. Alexandria, VA: Association for Supervision and Curriculum Development.

## Manuals

BC Ministry of Education, Special Education Branch. (1995). *Special education services: Manual of policies, procedures and guidelines*. Victoria, BC: Crown Publications.

BC Ministry of Education, Special Programs Branch. (1998). *Responding to Critical Incidents, A Resource Guide for Schools*. Victoria, B.C.: Crown Publications.

BC Rehabilitation Society. (1989). *Brain injury rehabilitation manual*. Vancouver, BC: Author.

Brain Tumor Foundation of Canada. (1994). *Brain tumor patient resource handbook: Paediatric version*. London, ON: Author.

DeBosky, D. (1996). *An educational challenge: Meeting the needs of students with brain injury*. Houston, TX: HDI Publishers.

Glang, A., Sohlberg, M. M., & Todis, B. (1999). *Compensatory systems for students with brain injuries*. Wolfeboro, NH: L&A Publishing/Training.

Houston, J., Warnock, L., & Lash, M. *Traumatic brain injury in children and teens: A national guide for families*. Vienna, VA: Emergency Medical Services for Children Clearinghouse.

Lash, M. (2000). *Resource guide: Children and adolescents with brain injuries*. Wolfeboro, NH: L&A Publishing/Training.

Lash, M., & Cluett, B. (1998). *A manual for managing special education for students with brain injury*. Wolfeboro, NH: L&A Publishing/Training.

Lash, M., Kahn, P., & Wolcott, G. (1997). *When your teenager is injured: Preparing for work and adulthood*. Wolfeboro, NH: L&A Publishing/Training.

Littleford, R., & Wong, K. (1994). *Think ahead: Learning activities about the brain and brain injury*. Vancouver, BC: Adolescent and Young Adult Program, G. F. Strong Rehabilitation Centre.

## RESOURCES

- Mira, M.P., Tucker, B., & Tyler, J. S. (1992). *Traumatic head injury in children and adolescents: A sourcebook for teachers and other school personnel*. Austin, TX: PRO-ED.
- Oregon Department of Education and Portland Public Schools, Department of Special Education. (1991). *Traumatic brain injury: An educator's manual*. Salem, OR: Authors.
- Sellars, C. W., Vegter, C. H., & Ellerbusch, S. S. (1997). *Pediatric brain injury: The special case of the very young child*. Houston, TX: HDI Publishers.
- Todis, B., Sohlberg, M. M., & Glang, A. (1999). *Making the IEP process work: For students with brain injuries*. Wolfeboro, NH: L&A Publishing/Training.
- Tyler, J. (1997). *Traumatic brain injury: Inservice training module*. Kansas City, KS: University of Kansas Medical Center.
- Wolcott, G., & Lash, M., & Pearson, S. (1995). *Signs and strategies for educating students with brain injuries: A practical guide for teachers and schools*. Houston, TX: HDI Publishers.

### Pamphlets

The following pamphlets offer practical and understandable information in summary format.

- Corrigan, J. D., & DePompei, R. (1999). *Substance abuse: After brain injury in youth*. Wolfeboro, NH: L&A Publishing/Training.
- DePompei, R., & Blosser, J. (1998). *Communication: How communication changes over time*. Wolfeboro, NH: L&A Publishing/Training.
- DePompei, R., Blosser, J., Savage, R., & Lash, M. (1998). *Back to school: After a moderate to severe brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- DePompei, R., Blosser, J., Savage, R., & Lash, M. (1998). *Special education IEP checklist: For a student with a brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- DePompei, R., Savage, R., & Lash, M. (1998). *Helping brothers and sisters: When a child has a brain injury*. Wolfeboro, NH: L&A Publishing/Training.

- Gillette, Y., & DePompei R. (1998). *Augmentative communication*. Wolfeboro, NH: L&A Publishing/Training.
- Goodwin, J., & Larson, L. (1999). *Going to college: When a student has a brain injury*. Wolfeboro, NH: L&A Publishing.
- Haltiwanger, J., Lash, M., & Pieper, B. (1994). *When young children are injured: Families as caregivers in hospitals and at home*. Englewood Cliffs, NJ: Exceptional Parent.
- Houston, J., & Savage, R. (1999). *Keeping children safe after a brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- Lash, M. (1998). *Myths and facts: When your child has a brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- Lash, M., & Savage, R. (1998). *Neuropsychology and school: Understanding how a brain injury affects a student's behavior*. Wolfeboro, NH: L&A Publishing Training.
- Lash, M., Savage, R., & DePompei, R. (1998). *Back to school: After a mild brain injury or concussion*. Wolfeboro, NH: L&A Publishing/Training.
- Marchese, N., & Potoczyny-Gray, A., & Savage, R. (1998). *Behavior after brain injury: Changes and challenges*. Wolfeboro, NH: L&A Publishing/Training.
- Robinson, L. (1999). *Talking with parents: When a student has a brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- Rocchio, C., & Lash, M. (1998). *Helping families cope: When a child has a brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- Rossi, E., Fleming, P., Pompeo, L., & Savage, R. (1999). *Therapies in school for students with brain injuries*. Wolfeboro, NH: L&A Publishing/Training.
- Savage, R. (1998). *Bing Bang Bong*. Wolfeboro, NH: L&A Publishing/Training.
- Savage, R., & Lash, M. (1998). *Coma: When your child is in a coma*. Wolfeboro, NH: L&A Publishing/Training.
- Savage, R., & Singer, W. (1999). *Meds: After brain injury*. Wolfeboro, NH: L&A Publishing/Training.
- Tyler, J., Blosser, J., & DePompei, R. (1999). *Teaching strategies for students with brain injuries*. Wolfeboro, NH: L&A Publishing/Training.

**Articles**

- Abbot, N., & Wilkinson, L. (1992). School re-entry of the brain injured student: A case of peer inservicing. *Intervention in School and Clinic*, 27 (4), 242–249.
- Clark, E. (1996). Children and adolescents with traumatic brain injury: Reintegration challenges in educational settings. *Journal of Learning Disabilities*, 29 (5), 549–560.
- DePompei, R., & Blosser, J. (1995). Transition planning from hospital to special education placement in school. *TBI Challenge!* 3 (2), 9–12.
- Doelling, J.E., & Bryde, S. (1995). School reentry and educational planning for the individual with traumatic brain injury. *Intervention in School and Clinic*, 31 (2), 101–107.
- Farmer, J. E. & Peterson, L. (1995). Pediatric traumatic brain injury: Promoting successful school reentry. *School Psychology Review*, 24 (2), 230–243.
- Farmer, J. E., Clippard, D. S., Luehr-Wiemann, Y., Wright, E., & Owings, S. (1996). Assessing children with traumatic brain injury during rehabilitation: Promoting school and community reentry. *Journal of Learning Disabilities*, 29 (5), 532–547.
- Krankowski, T. (1995). Transitioning the student with TBI from school to employment, post-secondary education and independent living. *TBI Challenge!* 3 (2), 46–47.
- Littleford, R. (2000). Reintegrating students with brain injury back to school. *Headline*, 16 (2), 22–24.
- Medical Research and Training Center in Rehabilitation and Childhood Trauma. (October 1993). Facts from the National Pediatric Trauma Registry. Boston, MA: Author.
- Mira, M. P., & Tyler, J. S. (1991). Students with traumatic brain injury: Making the transition from hospital to school, *Focus on Exceptional Children*, 23 (5), 1–12.
- Savage, R. C., Lash, M., Bennett, K., & Navalta, C. (1995). Special education for students with brain injury. *TBI Challenge!* 3 (2), 3–7.
- Shurtleff, H. A., Massagli, T. L., Hays, R. M., Ross, B., & Sprunk-Greenfield, H. (1995). Screening children and adolescents with mild

or moderate traumatic brain injury to assist school reentry. *Journal of Head Trauma Rehabilitation*, 10 (5), 64–79.

- Steensma, M. (1992). Getting the student with head injuries back to school: Strategies for the classroom. *Intervention in School and Clinic*, 27 (4), 207–210.
- Szekeres, S. F., & Meserve, N. F. (1994). Collaborative intervention in schools after traumatic brain injury. *Topics in Language Disorders*, 15 (1), 21–36.
- Tucker, B. F., & Colson, S. E. (1992). Traumatic brain injury: An overview of school re-entry. *Intervention in School and Clinic*, 27 (4), 198–206.
- Ylvisaker, M. (1995). Getting the word out: Helping students with TBI communicate more effectively. *TBI Challenge!* 3 (2), 13–16.
- Ylvisaker, M., Feeney, T., Maher-Maxwell, N., Meserve, N., Geary, P., & DeLorenzo, J. P. (1995). School reentry following severe traumatic brain injury: Guidelines for educational planning. *Journal of Head Trauma Rehabilitation*, 10 (6), 25–41.
- Ylvisaker, M., Feeney, T., & Mullins, K. (1995). School reentry following mild traumatic brain injury: A proposed hospital-to-school protocol. *Journal of Head Trauma Rehabilitation*, 10 (6), 42–49.

### **Newsletters**

#### **Brainbridge**

Produced by the Community Brain Injury Program for Children and Youth  
Phone: (604) 451-5511

#### **Headline**

Produced by the BC Brain Injury Association  
Phone: (604) 520-3221

## Educational resource kits

### A Community Resource Kit for Families and Those Interested in Children and Youth with Brain Injury

Contact: BC Brain Injury Association  
 218-6th Street  
 New Westminster BC V3L 3A2  
 Phone: (604) 520-3221  
 Fax: (604) 520-3206  
[www.bcbia.org](http://www.bcbia.org)

## Videos

G. F. Strong Rehabilitation Centre. (1987). *Managing thinking and behavioural problems after brain injury.*

Hugh MacMillan Rehabilitation Centre, Ontario. (1990). *Students with head injuries: A challenge for teachers.*

Kansas State Board of Education. (1993). *Perspectives on traumatic brain injuries: Success in dealing with long-term challenges by students, families, teachers and friends.*

Pearson, S., Mapel, J., & Porter, J. *Families living with brain injury.* Iowa City, IA: Media Dept., University Hospital School, University of Iowa.

Pearson, S., Roberts, M. A., & Casella, P. *School re-entry for the student with traumatic brain injury.* Iowa City, IA: Media Dept., University Hospital School, University of Iowa.

Rehabilitation, Research and Training Centre (RRTC) on Severe Traumatic Injury, Medical College of Virginia. (1993). *Returning to school following traumatic brain injury: A guide for school personnel.*

Research and Training Center on Community Integration for Individuals with Traumatic Brain Injury. *All the king's horses and all the king's men.* New York, NY: Department of Rehabilitation Medicine, Mt. Sinai School of Medicine.

Sunny Hill Health Centre for Children. (2000). *Peers talking to peers.*

Tyler, J. *Never give up!* Kansas City, KS: University of Kansas Medical Center, Department of Special Education.

University Hospital School. *School re-entry for the students with traumatic brain injury*. Iowa City, IA: University of Iowa.

University Hospital School. *Families living with brain injury*. Iowa City, IA: University of Iowa.

University of Kansas Medical Centre, Department of Special Education. *Perspectives on traumatic brain injuries*.

University of Kansas Medical Centre. (1998). *Traumatic head injury: Returning to school*.



## REFERENCES AND ADDITIONAL RESOURCES

This section includes both books used in the development of the resource guide, and additional resources not listed in the resources section.

- BC Ministry for Children and Families. (in press). *Integrated case management: A user's guide*. Victoria, BC: British Columbia Ministry for Children and Families.
- BC Ministry of Education. (1995). *Individual planning for students with special needs: A resource guide to support teachers*. Victoria, BC: British Columbia Ministry of Education.
- Begali, V. (1992). *Head injury in children and adolescents: A resource and review for school and allied professionals*. (2nd ed.). Brandon, VT: Clinical Psychology Publishing.
- Blosser, J. L. & DePompei, R. (1994). *Pediatric traumatic brain injury: Proactive intervention*. San Diego, CA: Singular Publishing Group.
- BC School Superintendents' Association. (1996). *Parent's guide to individual education*. Vancouver, BC: British Columbia School Superintendents Association.
- Durrand, V. M. & Crimmins, D. B. (1988). *The Motivation Assessment Scale administration guide*. Topeka, KS: Monaco & Associates.
- Iverson, G. (1998). *Epidemic in name*. *Recovery*, 9 (3), 4–7.
- Iverson, G., & Osman, A. (1998). *Behavioural interventions for children and adults with brain injuries: A guide for families*. *Journal of Cognitive Rehabilitation*, 16 (2).
- Lehr, E. & Savage, R.C. (1990). Community and school integration from a developmental perspective. In J.S. Kreutzer, & P. Wehman (Eds.), *Community integration following traumatic brain injury* (pp. 301–310). Baltimore, MD: Paul H. Brookes Publishing.
- O'Neill, R.E., Horner, R.H., Albin, R.W., Sprague, J.R., Storey, K., & Newton, J.S. (1997). *Functional assessment and program development for problem behavior*. Pacific Grove, CA: Brookes/Cole.
- Savage, R., (1999). *The child's brain: Injury and development*. Wolfeboro, NH: L&A Publishing/Training.

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- Savage, R.C. & Wolcott, G. F. (Eds.). (1995). *An educator's manual: What educators need to know about brain injury*. Washington, DC: Brain Injury Association.
- Seip, Jo-Anne. (1996). *Teaching students with autism and developmental disorders: A guide for staff training and development*. Delta, BC: Author.
- Spreen, O., Risser, A. H., & Edgell, D. (1995). *Developmental Neuropsychology*. New York, NY: Oxford University Press.
- Sprenger, M. (1999). *Learning and memory: The brain in action*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Sunny Hill Health Centre for Children. (1999). *Children with acquired brain injuries: The transition from hospital to community*. Vancouver, BC: Sunny Hill Health Centre for Children.
- Teasdale, G. M., & Jennett, B. (1974). *Assessment of coma and impaired consciousness: A practical scale*. *Lancet*, 2, 81–84.
- Ylvisaker, M. (1997). *Executive functions, cognition, and communication following traumatic brain injury*. Handout. Albany, NY: College of St. Rose.
- Ylvisaker, M. (Ed.). (1998). *Traumatic brain injury rehabilitation: Children and adolescents*. (2nd ed.). Boston, MA: Butterworth-Heinemann.

# HOW CAN WE IMPROVE THIS RESOURCE GUIDE?

We hope this resource guide addresses most of your questions and concerns regarding providing appropriate programs for students with acquired brain injury. Since the users of any manual are often the ones best able to identify its strengths and weaknesses, let us know if you think this document could be improved. If you have any suggestions and comments, please complete a copy of this page and send it to the ministry.

## How do you rate Students with Acquired Brain Injury: A Resource Guide for Schools?

	Yes	No	If no, please explain:
1. Useful?	<input type="checkbox"/>	<input type="checkbox"/>	_____
			_____
2. Easy to understand?	<input type="checkbox"/>	<input type="checkbox"/>	_____
			_____
3. Well organized?	<input type="checkbox"/>	<input type="checkbox"/>	_____
			_____
4. Complete?	<input type="checkbox"/>	<input type="checkbox"/>	_____
			_____

Other comments:

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