

Guidelines for Concussion / Mild Traumatic Brain Injury & Persistent Symptoms

Second Edition

For adults (18+ years of age)



Module 5: General Recommendations Regarding Management of Persistent Symptoms



Ontario Neurotrauma Foundation
Fondation ontarienne de neurotraumatologie

MODULE 5: GENERAL RECOMMENDATIONS REGARDING MANAGEMENT OF PERSISTENT SYMPTOMS



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Please note, the project team independently managed the development and production of the guideline and, thus, editorial independence is retained.

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The recommendations and resources found within the *Guidelines for Concussion/Mild Traumatic Brain Injury & Persistent Symptoms* are intended to inform and instruct care providers and other stakeholders who deliver services to adults who have sustained or are suspected of having sustained a concussion/mTBI. These guidelines are not intended for use with patients or clients under the age of 18 years. These guidelines are not intended for use by people who have sustained or are suspected of having sustained a concussion/mTBI for any self-diagnosis or treatment. Patients may wish to bring their healthcare and other providers' attention to these guidelines.

The recommendations provided in these guidelines are informed by best available evidence at the time of publication, and relevant evidence published after these guidelines could influence the recommendations made within. Clinicians should also consider their own clinical judgement, patient preferences and contextual factors such as resource availability in clinical decision-making processes.

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Table of Contents

GUIDELINE RECOMMENDATIONS

5. General Recommendations Regarding Management of Persistent Symptoms	1
--	---

ALGORITHM

5.1: Management of Persistent Symptoms following mTBI	4
---	---

APPENDICES

1.3: Brain Injury Advice Card (Long Version).....	5
1.4: Brain Injury Advice Cards (Short Versions)	9
2.1: Specialized Brain Injury Clinics/Centres in Ontario	13
A: Project Members	16

TABLE

1.1: Risk Factors Influencing Recovery Post mTBI	3
--	---

Unique Features & Symbols in the Current Guideline

Hyperlinks

To improve ease of use, the current guideline has embedded hyperlinks to improve navigation between sections, appendices, and so on. For example, by clicking any heading in the table of contents above, you will be taken directly to that particular section in the current PDF document. Also, anytime there is mention of a particular table, figure, appendix or section, you can simply click on it to go directly to that item.

Symbols



The following symbol has been placed to the left of each guideline recommendation that should be prioritized for implementation. This was determined by expert consensus members during the endorsement/prioritization process, where experts were allowed to provide 20 prioritization votes (see Methodology in the Complete Version). Guideline recommendations with a summed prioritization score greater than 20 are key clinical practice guidelines recommendations for implementation.



The following symbol has been placed to the left of one key guideline recommendation in each of the sections that did not include a recommendation with a prioritization score greater than 20 (determined by expert consensus members during the endorsement/prioritization process).

At the bottom of each page in the current document, there is a hyperlinked footer that can be used to return to the table of contents as desired. Also, clicking “Return to Last Page” will take you back to the previously viewed page. (Note: When scrolling through the pages, the “Return to Last Page” button will only return to the last page that was scrolled through).

5

General Recommendations Regarding Management of Persistent Symptoms

Consistent with general expectations of both patients and health care personnel, symptoms following mTBI are anticipated to resolve in a timely fashion in the majority (85-90%) of cases; however, these guidelines have been developed to assist in managing those individuals who continue to have persistent symptoms or delayed recovery following concussion/mTBI.

While providing education and reassurance that symptoms are expected to recover following mTBI, primary care providers must also carefully monitor for patients who do not follow the anticipated pattern of recovery. For those who have had complete symptom resolution, no intervention apart from the provision of injury prevention strategies is required. However, for those with persistent symptoms or decline in function, emphasis needs to be placed on regular monitoring by health care providers and identification of potentially treatable symptoms. Timely intervention for symptoms should be initiated, as well as consideration for referral to a specialist or multidisciplinary treatment clinic if available. Development of complications post mTBI, such as depression, can also occur and further alter the course or pattern of recovery. In turn, efforts to update the patient's family on the chosen intervention strategies should be considered, as their support is often a key component to maximizing patient independence and psychosocial adjustment. It is also important to approach the patient's tolerance towards activity with vigilance, as going beyond his or her threshold may result in the worsening of symptoms. Periodic re-evaluation of the patient for worsening of symptoms or presence of new symptoms/problems following mTBI is important for those with a more chronic course of recovery.

While patients with persisting symptoms following mTBI are sometimes portrayed as making claims solely for secondary gain (i.e., disability benefits or litigation), it should be noted that in fact many factors can affect symptom expression and accentuation, including levels of emotional distress, fatigue, and pain, as well as pre- and post-injury coping.^{1,2} Accordingly, suspected symptom exaggeration or perceived compensation seeking should not influence the clinical care rendered, as doing so can be counter-therapeutic and negatively impact the quality of care.

The diagnosis of post-concussion syndrome is based on a constellation of symptoms commonly experienced following mTBI. These symptoms are not specific to mTBI, however, and show substantial overlap with other conditions such as depression, pain, and chronic fatigue. Symptoms associated with post-concussion syndrome are also common in normal populations.³ Nonetheless, patients are often functionally affected by these symptoms, and therefore they clearly need to be addressed. This guideline has been designed to highlight a symptomatic approach to management of persistent symptoms following mTBI. By addressing symptoms in a coordinated manner, improvement in outcome can be achieved. See [Algorithm 5.1](#), which outlines the key steps to management of persistent symptoms following mTBI.

GENERAL RECOMMENDATIONS REGARDING MANAGEMENT OF PERSISTENT SYMPTOMS

		GRADE
5.1	Patients should be advised that they are likely to experience one or more symptoms as a consequence of the concussion/mTBI that may persist for a short period of time and that this is usually expected (normal course). ^a	A
5.2	<i>The patient should be advised that a full recovery of symptoms is seen in the majority of cases.*</i>	A
5.3	Significant, prolonged complaints after mTBI should lead primary care providers to consider that many factors may contribute to [the persistence of] post-concussive symptoms (Table 1.1). All potential contributing factors should be investigated and a management strategy considered. ^a	A

* THIS RECOMMENDATION IS DUPLICATED FROM SECTION/MODULE 2 (SAME AS 2.3).

a. Adapted from the Motor Accidents Authority NSW, *Guidelines for Mild Traumatic Brain Injury following a Closed Head Injury* (MAA, NSW, 2008).

GENERAL RECOMMENDATIONS REGARDING MANAGEMENT OF PERSISTENT SYMPTOMS (CONTINUED)		GRADE
5.4	Persons with mTBI and complicating health-related or contextual factors should be considered for early referral to a multidisciplinary treatment clinic (Appendix 2.1) capable of managing post-concussive symptoms because these factors have been associated with poorer outcomes.	C
5.5	The clinician should consider having a knowledgeable and supportive second-person informant (e.g., partner, family member, close friend, etc.) accompany the patient with mTBI to the initial assessment and to ongoing meetings if required to help the patient better understand the condition and provide an opportunity to discuss any coping difficulties. ^a	C
5.6	Low-level exercise for those who are slow to recover may be of benefit, although the optimal timing following injury for initiation of this treatment is currently unknown. However, 1 month post-injury has been proposed. ⁴	C
5.7	New onset pain and concussive injuries are often co-morbid. Comprehensive evaluation and management of the pain should be considered as it may contribute to negatively influencing other symptoms associated with mTBI.	C
5.8	<p><i>Education should be provided in printed material (Appendix 1.3 and 1.4) combined with verbal review and consist of:</i></p> <ol style="list-style-type: none"> <i>Symptoms and expected outcomes.</i> <i>Normalizing symptoms (education that current symptoms are expected and common after injury event).</i> <i>Reassurance about expected positive recovery.</i> <i>Gradual return to activities and life roles.</i> <i>Techniques to manage stress.*</i> 	A (a-d) C (e)

* THIS RECOMMENDATION IS DUPLICATED FROM SECTION/MODULE 2 (SAME AS 2.10).

RESOURCES	
APPENDICES	
1 Brain Injury Advice Card (Long Version)	Appendix 1.3
2 Brain Injury Advice Cards (Short Versions)	Appendix 1.4
3 Specialized Brain Injury Clinics/Centres in Ontario	Appendix 2.1
ALGORITHMS	
1 Management of Persistent Symptoms following mTBI	Algorithm 5.1
TABLES	
1 Risk Factors Influencing Recovery Post mTBI	Table 1.1

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a. Adapted from the VA/DoD Management of Concussion/Mild Traumatic Brain Injury Clinical Practice Guideline (VA/DoD, 2009).

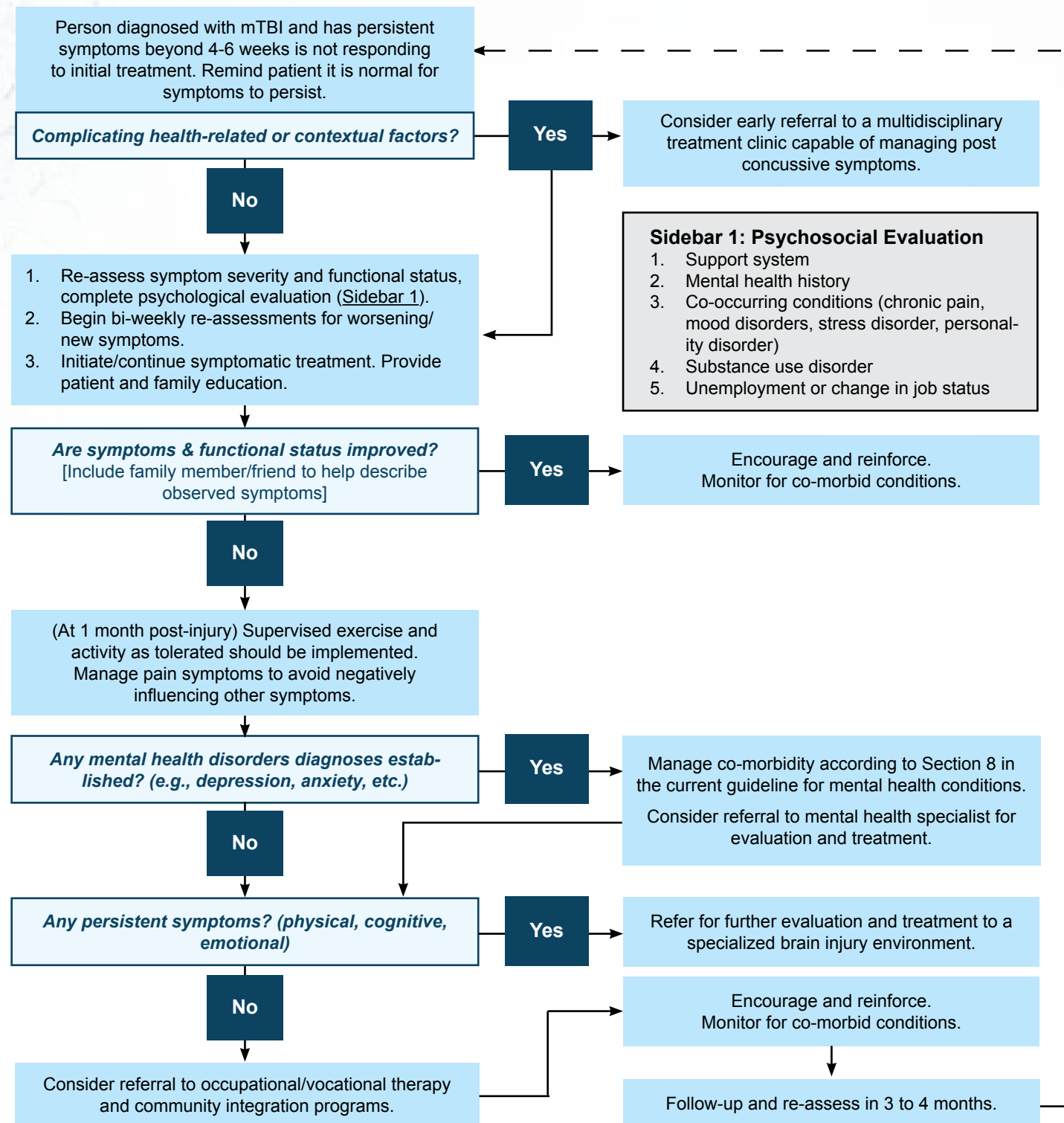
Table 1.1. Risk Factors Influencing Recovery Post mTBI

<p>Medical Factors (red flags): Pre-existing medical conditions or post-injury symptoms that are associated with poor outcomes post mTBI</p>	<ul style="list-style-type: none"> • Post-traumatic amnesia (PTA) • History of previous traumatic brain injury • History of previous physical limitations • History of previous neurological or psychiatric problems • High number of symptoms reported early after injury • Skull fracture • Early onset of pain and in particular headache within 24 hours after injury • Reduced balance or dizziness during acute stage • Confounding effects of other health-related issues, e.g., pain medications, disabling effects of associated injuries, emotional distress • Presence of nausea after injury • Presence of memory problems after injury
<p>Contextual Factors (yellow flags): Personal, psychosocial, or environmental factors that may negatively influence recovery post mTBI</p>	<ul style="list-style-type: none"> • Injury sustained in a motor vehicle accident • Potential influence of secondary gain issues related to litigation and compensation • Not returning to work or significant delays in returning to work following the injury • Being a student • Presence of life stressors at the time of the injury • Higher levels of symptom reporting is associated with mood symptoms and heightened self-awareness of deficits • Older age • Lack of social supports • Less education/lower social economic status

Adapted from the Motor Accidents Authority of NSW, Guidelines for Mild Traumatic Brain Injury following a Closed Head Injury (MAA NSW, 2008)

Algorithm 5.1

Management of Persistent Symptoms following mTBI*



For a narrative description and guideline recommendations related to this algorithm, please refer to **Section 5**.

* Adapted from the VA/DoD Management of Concussion/Mild Traumatic Brain Injury Clinical Practice Guideline (VA/DoD, 2009).

Appendix 1.3

Brain Injury Advice Card - Long Version

Brain Injury Advice Card (Long Version)

Important Points about Mild Brain Injury

- You had a mild brain injury or what is sometimes called a concussion. Most people recover quickly following a mild brain injury. A few people may experience symptoms over a longer period.
- There is a small risk of you developing serious complications so you should be watched closely by another adult for 24 hours after the accident.
- Please read the following. It outlines what signs to look for after a brain injury and what you need to do if you have problems.

Warning Signs

If you show any of these symptoms or signs after your brain injury, or you get worse, go to the nearest hospital, doctor or call 911 immediately.

- Fainting or blacking out, drowsiness, or can't be woken up
- A constant severe headache or a headache that gets worse
- Vomiting or throwing up more than twice
- Cannot remember new events, recognise people or places (increased confusion)
- Acting strange, saying things that do not make sense (change in behaviour)
- Having a seizure (any jerking of the body or limbs)
- Inability to move parts of your body, weakness in arms or legs, or clumsiness
- Blurred vision or slurred speech
- Being unsteady on your feet or loss of balance
- Continual fluid or bleeding from the ear or nose

The First 24-48 Hours After Injury

- **Warning Signs:** You should be observed and return to hospital if you develop any of the above warning signs.
- **Rest/Sleeping:** Rest (both physical and mental) and avoid strenuous activity for at least 24 hours. It is alright for you to sleep tonight but you should be checked every four hours by someone to make sure you are alright.
- **Driving:** Do not drive for at least 24 hours. You should not drive until you feel much better and can concentrate properly. Talk to your doctor.
- **Drinking/Drugs:** Do not drink alcohol or take sleeping pills or recreational drugs in the next 48 hours. All of these can make you feel worse. They also make it hard for other people to tell whether the injury is affecting you or not.
- **Pain Relief:** Use **acetaminophen** or **acetaminophen/codeine** for headaches (e.g., Tylenol).
- **Sports:** Do not return to sports until you have received medical clearance from your health care provider.

See your local doctor if you are not starting to feel better within a few days of your injury.

The First 4 Weeks After Injury

You may have some common effects from the brain injury which usually resolve in several weeks to three months. These are called **post concussion symptoms** (see below). Tiredness can exaggerate the symptoms. Return to your normal activities gradually (not all at once) during the first weeks or months. **You can help yourself get better by:**

- **Rest/Sleeping:** Your brain needs time to recover. It is important to get adequate amounts of sleep as you may feel more tired than normal and you need to get adequate amounts of both physical and mental rest.
- **Driving:** Do not drive or operate machinery until you feel much better and can concentrate properly. Talk to your doctor.
- **Drinking/Drugs:** Do not drink alcohol or use recreational drugs until you are fully recovered. They will make you feel much worse. Do not take medication unless advised by your doctor.
- **Work/Study:** You may need to take time off work or study until you can concentrate better. Most people need a day or two off work but are back full time in less than 2 weeks. How much time you need off work or study will depend on the type of job you do. See your doctor and let your employer or teachers know if you are having problems at work or with study. You may need to return to study or work gradually.
- **Sport/Lifestyle:** It is dangerous for the brain to be injured again if it has not recovered from the first injury. Talk to your doctor about the steps you need to take to gradually increase sports activity and return to play. If in doubt, sit out.
- **Relationships:** Sometimes your symptoms will affect your relationship with family and friends. You may suffer irritability and mood swings. See your doctor if you or your family are worried.

Recovery

- You should start to feel better within a few days and be 'back to normal' within about 4 weeks. See your local doctor if you are not starting to feel better.
- Your doctor will monitor these symptoms and may refer you to a specialist if you do not improve over 4 weeks up to 3 months.

Post Concussion Symptoms

There are common symptoms after a mild brain injury. **They usually go away within a few days or weeks.** Sometimes you may not be aware of them until sometime after your injury like when you return to work.

» Mild headaches (that won't go away)

Headaches are a common problem after a mild brain injury. They can be made worse by fatigue and stress. Sleeping, resting or taking a break from activities requiring concentration or effort will usually relieve headaches. Pain relievers may help to break a cycle of headaches - use acetaminophen or acetaminophen/codeine, limited to <15 days per month. If your headache gets worse, or cannot be relieved, see your doctor.

» Having more trouble than usual with attention & concentration

No one can concentrate well when they are tired, so it is not surprising that many people have trouble concentrating for a while after they have had a mild brain injury. Maybe you cannot even concentrate well enough to read the newspaper. If you really need to, just read for a short time, and then come back to it when you have had a break. The same thing applies to other areas where concentration is needed. Leave things that need your complete concentration until you are feeling better. If you need to concentrate on something important, do it when you are feeling fresh.

» Having more trouble than usual with remembering things (memory difficulties/forgetfulness)

You cannot expect your brain to be as good at remembering things as it usually is. Don't worry if you can't think of a name or a phone number that you ought to know, or if you go to get something, and then can't remember what it is. Your memory is only going to be a problem until you recover. In the meantime, get your family and friends to remind you of important dates and appointments, or write things down.

» Feeling dizzy or sick without vomiting (nausea)

Occasionally, people find that they get a sick or uncomfortable feeling if they move or change their position quickly. Usually it is only a problem for a few days. If you find that things seem to spin round if you sit up suddenly after lying down, or if you turn your head sharply, it is best to avoid such sudden movements or changes in position until it clears. If the dizziness persists for more than a week or two, see your doctor.

» Balance problems

You may find that you are a bit more clumsy than usual. Don't worry if you do find that you are a bit unsteady on your feet, or bump into furniture, or maybe drop things. Just take everything you do a little more slowly. Your brain is the control centre for your whole body. It has to make sense out of all the messages coming in from your eyes and ears and other senses, and to send the right signals to the right muscles for you to be able to do anything. So give yourself more time to do things.

» More difficulty than usual with making decisions and solving problems, getting things done or being organized

You may find you are less able to plan ahead or follow through the steps that are required in carrying out an activity. These kinds of difficulties may cause particular problems during the first few days after a mild brain injury but they are usually temporary in nature. When facing situations that present problems or opportunities to plan, it may help to think things through in a more structured and objective way. For example, you may want to ask yourself a series of questions like:

1. What do I want to achieve?
2. What are the available options?
3. What is the best option?
4. What steps will I need to take to achieve this?

After these questions have been considered and answered, you can then carry out your plan. Writing down a goal, plan or problem also helps to give structure to your thinking and helps to make things clearer. Using a daily and weekly time table, planner, or keeping a diary can provide structure and ensure that plans are made routinely and on an ongoing basis.

» Feeling vague, slowed or 'foggy' thinking

Some people who have sustained a mild brain injury find their thinking is a bit slower. This means they might have some difficulty keeping up with conversations or following directions, and things take longer to get done. Encourage others to slow down by asking questions and having them repeat what they have said. Allow yourself extra time to complete tasks and avoid situations where you are under pressure to do things quickly.

» Balance problems

At first, even a little effort may make you feel very tired. Your brain has less energy to spare than it normally does. If you feel sleepy, go to bed. You will probably find that you need several hours more sleep than you usually do. Let your brain tell you when it needs to sleep, even if it is the middle of the day.

» Tinnitus. Ringing in the ears.

Tinnitus is due to damage to the inner ear after brain injury. It is usually described as a whistling, ringing or roaring sound and may be accompanied by some hearing loss. It usually settles on its own within a few weeks after injury. If the ringing in your ears gets worse or does not go away, see your doctor. Reduce your normal intake until you feel fully recovered.

» Irritability/mood swings. Losing your temper and getting annoyed easily

Some people who have had a mild brain injury find that they get annoyed easily by things that normally would not upset them. This does not last very long, but it can be difficult for you and for your family. It happens because the brain controls your emotional system as well as the rest of your body. After a mild brain injury your emotions may not be as well controlled as they usually are. There are several ways to deal with this. Some people find that going out of a room, or away from a situation as soon as it begins to get annoying is enough. Others use relaxation techniques (controlled breathing, progressive muscle relaxation) to help them get back on an even keel. You may find that you can stop the irritability from developing by doing an activity that uses up some physical energy like riding an exercise bicycle, if tiredness permits. Irritability will be worse when you are tired, so rest will also help.

» Anxiety or depression

Feeling anxious, worried, frightened, angry and low in mood are normal emotions after sustaining a mild brain injury. These feelings often pass in the weeks following the injury, as a person gradually resumes their usual activities. Recognise that emotional upset and worry is a normal part of recovery, even though you may have suffered an injury in the past and not felt like this before. Explain any difficulties that you are experiencing to your family and friends, so that they can understand the effect the injury has had on you and support you in managing your difficulties. Recognise if your worry about symptoms intensifies and a vicious circle develops. If that happens remind yourself of the point above. If symptoms nevertheless do not improve, or if you have suffered from anxiety or depression before the injury and the brain injury has intensified those feelings, visit your doctor.

» More sensitive to lights or sounds

You may find that your eyes are sensitive to bright light. Wearing dark glasses in strong light can help to manage this and the need for dark glasses will likely clear up within a few days. When you want to shut out something you don't want to look at, all you have to do is close your eyes. It is much harder to shut your ears. When your brain is fully awake it uses part of its energy to dampen down noises that would interfere with what you are doing. After a mild brain injury your brain may not have enough energy to spare to do this, and you may find that most noises bother you. Explain to your family and friends, and ask them to keep the noise level down if they can.

» Change in sleep patterns. Trouble sleeping or sleeping too much.

Don't worry about the sleep disturbance. This is usually temporary and your normal routine will come back gradually. If you are having trouble falling asleep you may try things like reducing stimulation by not watching TV in bedroom or spending long times on the computer, avoiding a large meal before bed, avoiding caffeine, using relaxation techniques (controlled breathing, progressive muscle relaxation), or getting up for about 30 minutes if you are unable to sleep for long periods. It is best to avoid sleep medications but if your sleeping pattern has become very disrupted, discuss with your doctor if a short course of medication may be helpful in re-establishing your sleeping pattern.

» Reduced tolerance to alcohol.

After a mild brain injury you may be more sensitive to the effects of alcohol. A small amount may worsen the effects of the brain injury. It can cause unsteadiness and dizziness which may lead to a fall and further injury. It is sensible to avoid alcohol for at least one week after injury and then monitor carefully how alcohol affects you. Reduce your normal intake until you feel fully recovered.

Information included on this advice card was adapted from the Motor Accidents Authority of NSW, Guidelines for Mild Traumatic Brain Injury following Closed Head Injury (MAA NSW, 2008) and the Information about Mild Head Injury or Concussion booklet (Ponsford, Willmott, Nelms & Curran, 2004).

Appendix 1.4

Brain Injury Advice Cards - Short Versions: Example # 1

What to expect after a concussion

A part of CDC's "Heads Up" Series



For more information about concussion, please visit:
www.cdc.gov/Concussion.

PATIENT INSTRUCTIONS

You have been examined at _____
[name of hospital emergency department]
for a head injury and possible concussion. Be sure to let a family member or friend know about your injury. They may notice symptoms before you do and can help you.

Take time off from work or school for _____ days or until you and your doctor think you are able to return to your usual routine.

Your next appointment with _____
[Doctor's name]
is _____
[date and time]

What to Expect Once You're Home from the Hospital

Most people with a concussion recover quickly and fully. During recovery, you may have a range of symptoms that appear right away, while others may not be noticed for hours or even days after the injury. You may not realize you have problems until you try to do your usual activities again. Most symptoms go away over time without any treatment. Below is a list of some of the symptoms you may have:

Thinking/Remembering

- Difficulty thinking clearly ■ Feeling slowed down
- Trouble concentrating ■ Difficulty remembering new information

Physical

- Headache ■ Balance problems ■ Blurred vision ■ Dizziness
- Nausea or vomiting ■ Lack of energy ■ Sensitivity to noise or light

Emotional/Mood

- Irritability ■ Nervousness ■ Sadness ■ More emotional

Sleep

- Sleeping more than usual ■ Sleeping less than usual ■ Trouble falling asleep

How to Feel Better

- Get plenty of rest and sleep.
- Avoid activities that are physically demanding or require a lot of thinking.
- Do not drink alcohol.
- Return slowly and gradually to your routine.
- Ask a doctor when it is safe to drive, ride a bike, or operate heavy equipment.

WHEN TO RETURN TO THE HOSPITAL

Sometimes serious problems develop after a head injury. Return to the emergency department right away if you have any of these symptoms:

- Repeated vomiting
- Worsening or severe headache
- Unable to stay awake during times you would normally be awake
- More confused and restless
- Seizures
- Difficulty walking or difficulty with balance
- Difficulty with your vision
- Any symptom that concerns you, your family members, or friends

Appendix 1.4 (Continued)

Brain Injury Advice Cards - Short Versions: Example # 2

Brain Injury Advice Card (Short Version)

Important Points about Mild Brain Injury

- You had a mild brain injury or what is sometimes called a concussion. Most people recover quickly following a mild brain injury. A few people may experience symptoms over a longer period.
- There is a small risk of you developing serious complications so you should be watched closely by another adult for 24 hours after the accident.
- Please read the following. It outlines what signs to look for after a brain injury and what you need to do if you have problems.

Warning Signs

If you show any of these symptoms or signs after your brain injury, or you get worse, go to the nearest hospital, doctor or call 911 immediately.

- Fainting or blacking out, drowsiness, or can't be woken up
- A constant severe headache or a headache that gets worse
- Vomiting or throwing up more than twice
- Cannot remember new events, recognise people or places (increased confusion)
- Acting strange, saying things that do not make sense (change in behaviour)
- Having a seizure (any jerking of the body or limbs)
- Inability to move parts of your body, weakness in arms or legs, or clumsiness
- Blurred vision or slurred speech
- Being unsteady on your feet or loss of balance
- Continual fluid or bleeding from the ear or nose

The First 24-48 Hours After Injury

- Warning Signs: You should be observed and return to hospital if you develop any of the above warning signs.
- Rest/Sleeping: Rest (both physical and mental) and avoid strenuous activity for at least 24 hours. It is alright for you to sleep tonight but you should be checked every four hours by someone to make sure you are alright.
- Driving: Do not drive for at least 24 hours. You should not drive until you feel much better and can concentrate properly. Talk to your doctor.
- Drinking/Drugs: Do not drink alcohol or take sleeping pills or recreational drugs in the next 48 hours. All of these can make you feel worse. They also make it hard for other people to tell whether the injury is affecting you or not.
- Pain Relief: Use **acetaminophen** or **acetaminophen/codeine** for headaches (e.g., Tylenol).
- Sports: Do not return to sports until you have received medical clearance from your health care provider.

See your local doctor if you are not starting to feel better within a few days of your injury.

The First 4 Weeks After Injury

You may have some common effects from the brain injury which usually resolve in several weeks to three months. These are called **post concussion symptoms** (see below). Tiredness can exaggerate the symptoms. Return to your normal activities gradually (not all at once) during the first weeks or months. **You can help yourself get better by:**

- **Rest/Sleeping:** Your brain needs time to recover. It is important to get adequate amounts of sleep as you may feel more tired than normal and you need to get adequate amounts of both physical and mental rest.
- **Driving:** Do not drive or operate machinery until you feel much better and can concentrate properly. Talk to your doctor.
- **Drinking/Drugs:** Do not drink alcohol or use recreational drugs until you are fully recovered. They will make you feel much worse. Do not take medication unless advised by your doctor.
- **Work/Study:** You may need to take time off work or study until you can concentrate better. Most people need a day or two off work but are back full time in less than 2 weeks. How much time you need off work or study will depend on the type of job you do. See your doctor and let your employer or teachers know if you are having problems at work or with study. You may need to return to study or work gradually.
- **Sport/Lifestyle:** It is dangerous for the brain to be injured again if it has not recovered from the first injury. Talk to your doctor about the steps you need to take to gradually increase sports activity and return to play. If in doubt, sit out.
- **Relationships:** Sometimes your symptoms will affect your relationship with family and friends. You may suffer irritability and mood swings. See your doctor if you or your family are worried.

Recovery

- You should start to feel better within a few days and be 'back to normal' within about 4 weeks. See your local doctor if you are not starting to feel better.
- Your doctor will monitor these symptoms and may refer you to a specialist if you do not improve over 4 weeks up to 3 months.

Information included on this advice card was adapted from the Motor Accidents Authority of NSW, Guidelines for Mild Traumatic Brain Injury following Closed Head Injury (MAA NSW, 2008) and the Information about Mild Head Injury or Concussion booklet (Ponsford, Willmott, Nelms & Curran, 2004).

Appendix 2.1

Specialized Brain Injury Clinics/Centres in Ontario

INSTITUTION	LOCATION AND CONTACT INFORMATION	SERVICES PROVIDED
Bridgepoint Health	<p>Mailing Address: 14 St. Matthews Road Toronto, ON, M4M 2B5 Phone: 416-461-8252 Fax: 416-461-5696</p> <p>Information Contact: Utilization Specialist, Neuro Rehab and Activation: ext. 2305; Case Manager, Day Treatment Extension: ext. 2371</p> <p>Website: http://www.bridgepointhealth.ca/</p>	In-patient active neuro-rehabilitation, Neuropsychology, Nursing, Occupational Therapy, Outpatient Rehabilitation, Physiotherapy, Social Work, Speech-Language Pathology
Hamilton Health Sciences: ABI Program	<p>Mailing Address: Regional Rehabilitation Centre 300 Wellington Street North Hamilton, ON, L8L 8E7 Phone: 905-521-2100 ext. 74101</p> <p>Information Contact: John Zsofcsin, Clinical Manager</p> <p>Website: http://www.hpsc.ca/body.cfm?xyzpdqabc=0&id=11&action=detail&ref=5</p>	Behavioural, Cognitive, Communication, Community Reintegration, In-Patient Rehabilitation, Medical, Outpatient Rehabilitation, Physical, Psychological, Psychosocial, and Psychiatric components as necessary.
Hotel Dieu Grace Healthcare - Tayfour Campus ABI Outpatient Program, Rehabilitation Unit & Complex Care	<p>Mailing Address: 1453 Prince Road Windsor, ON, N9C 3Z4 Phone: 519-257-5111 ext. 75458 Fax: 519-257-5179</p> <p>Information Contact (for Brain Injury Clinical specifically): Sara DeLuca (ext 72252)</p> <p>Website: http://www.hdgh.org</p>	Inpatient rehabilitation, Outpatient rehabilitation, occupational therapy, social work, problem-solving group, neuropsychological assessment, acute concussion clinic, education and psychiatric consultation
Ottawa Hospital Rehabilitation Centre: ABI Program	<p>Mailing Address: 505 Smyth Road Ottawa, ON, K1H 8M2 Phone: (613) 737-7350 Fax: (613) 733-8336</p> <p>Information Contact: Admissions Triage Nurse for ABI Inpatient Program: ext. 75685; Nurse Clinician for ABI Outpatient Clinic: ext. 75406.</p> <p>Website: https://www.ottawahospital.on.ca/wps/portal/Base/TheHospital/ClinicalServices/DeptPgrmCS/Departments/RehabilitationCentre/OurProgramsAndServices/ABI</p>	Anger Management, Behavioural Rehabilitation, Brain Injury Education, Cognitive Rehabilitation, Emotional Adjustment, Family Education, Financial Management, Hospital (In-Patient Rehab), Neuropsychological Assessment, Occupational Therapy, Outpatient Rehabilitation, Physiotherapy, Recreational Therapy, Social work, Stress Management, Vocational Preparation.

INSTITUTION	LOCATION AND CONTACT INFORMATION	SERVICES PROVIDED
Parkwood Hospital	<p>Mailing Address: 801 Commissioners Road London, ON, N6C 5J1 Phone: 519-685-4000 ext. 44064 Fax: 516-685-4066</p> <p>Information Contact: Omer Vandevyvere (Regional Co-ordinator): ext. 42988 or e-mail: omer.vandevyvere@sjhc.london.on.ca</p> <p>Website: http://www.sjhc.london.on.ca/rehabilitation</p>	Cognitive Rehab, Community-based Outpatient Rehabilitation, Job Coaching, Job Placement Support, Neuropsychological Assessment, Nursing Care, Nursing Homes/ Long-term Care Facility, Nutritional, Occupational Therapy, Recreational Therapy, School Reintegration, Speech-Language Therapy
St. Joseph's Care Group: ABI Program	<p>Mailing Address: St. Joseph's Hospital 35 Algoma Street North, Box 3251 Thunder Bay, ON, P7B 5G7 Phone: 807-343-2431 Fax: 807-343-0144</p> <p>Information Contact: contact.sjcg@tbh.net</p> <p>Website: http://www.sjhh.guelph.on.ca/default.aspx</p>	Community Outreach Services, Complex Continuing Care, Psychiatry Services, Rehabilitation Services.
St. Mary's of the Lake Hospital: ABI Program	<p>Mailing Address: 340 Union Street Kingston, ON, K7L 5A2 Phone: 613-544-5220 Fax: 613-544-8558</p> <p>Information Contact: ABI Clinic Referrals - 613-544-1894</p> <p>Website: http://www.pccchealth.org/cms/sitem.cfm/clinical_services/rehabilitation/physical_medicine_and_rehabilitation_clinics/</p>	In-Patient Rehabilitation, Medical Assessment, Outpatient Rehabilitation, Regional Community Brain Injury Service, Referrals for treatment to therapists and other agencies as appropriate.
St. Michael's Hospital: Head Injury Clinic	<p>Mailing Address: 30 Bond Street Toronto, ON, M5B 1W8 Phone: 416-864-5520</p> <p>Information Contact: Alicja Michalak - Case Manager: 416-864-5520; Kristina Kennedy - Admin/Research: 416-864-6060 ext. 6359</p> <p>Website: http://www.stmichaelshospital.com/programs/trauma/head-injury-clinic.php</p>	Cognitive Services, Medical Services, Patient and Family Education and Support, Psychiatry Services, Psychosocial Services
(Sudbury) Health Sciences North	<p>Mailing Address: 41 Ramsey Lake Road Sudbury, ON, P3E 5J1 Phone: 705-523-7100</p> <p>Information Contact: Carol Di Salle (cdisalle@hsnsudbury.ca)</p> <p>Website: http://www.hsnsudbury.ca/portalen/</p>	Aquatic Therapy, Case Management, Cognitive Rehab, Cognitive Therapy, Community Living Skills, Community Reintegration, Community-Based Outpatient Rehabilitation, Inpatient Rehabilitation, Occupational Therapy, Physiotherapy, Recreational Therapy, Social Work

INSTITUTION	LOCATION AND CONTACT INFORMATION	SERVICES PROVIDED
Sunnybrook Health Sciences Centre: Mild to Moderate TBI Clinic	<p>Mailing Address: 2075 Bayview Avenue, Room FG15 North York, ON, M4N 3M5 Phone: 416-480-4095 Fax: 416-480-4613</p> <p>Information Contact: Veronica Gershenzon (TBI Clinic Coordinator): veronica.gershenzon@sunnybrook.ca</p> <p>Website: http://sunnybrook.ca/content/?page=Focus_BSP_Home</p>	Patients are seen within the first 3 months after injury. Brain Injury Education, Medical Services for Physical Symptoms, Neuropsychiatric Services for Cognitive, Emotional, or Behavioural Difficulties
Toronto Rehabilitation Institute	<p>Mailing Address: 550 University Avenue Toronto, ON, M5G 2A2 Phone: 416 597 3422 Fax: 416 597 7021</p> <p>Information Contact: Brain Injury Service Coordinators Neuro Cognitive - Carmen Volpe - Ext. 3593 Neuro Physical - Miranda Hong - Ext. 3441 Neuro Stroke - Isma Javed - Ext. 3618</p> <p>Website: http://www.uhn.ca/TorontoRehab/PatientsFamilies/Clinics_Tests/Brain_Injury_Services</p>	Behavioural Rehabilitation, Cognitive Rehabilitation, Inpatient Rehabilitation, Neuropsychological Assessment, Occupational Therapy, Outpatient Rehabilitation, Patient and Family Education, Recreational Therapy, Social Work, Speech-Language Therapy
Trillium Health Partners: Outpatient Neurorehab Services	<p>Mailing Address: 100 Queensway West Mississauga, ON, L5B 1B8 Phone: 905-848-7100</p> <p>Information Contact: 905-848-7533</p> <p>Website: http://trilliumhealthpartners.ca/Pages/default.aspx</p>	Nursing, Occupational Therapy, Physiotherapy, Speech Language Pathology, Social Work
University Health Network: Toronto Western Hospital	<p>Mailing Address: 7th Floor, Main Pavilion 399 Bathurst Street Toronto, ON, M5T 2S8 Phone: 416-603-5801</p> <p>Information Contact: Ms. Nithiya Paheerathan, (Administrative Assistant, ABI Clinic): 416-603-5009; nithiya.paheerathan@uhn.ca</p> <p>Website: http://www.uhn.ca/MCC/PatientsFamilies/Clinics_Tests/Acquired_Brain_Injury</p>	Case Management, Neuropsychiatric Services, Patient and Family Support, Sleep Therapy.

Appendix A

Project Members

PROJECT TEAM MEMBERS

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* The recommendations in this document are those of the Ontario Neurotrauma Foundation, identified by the guideline development team and expert consensus group members, and do not necessarily represent agreement of or endorsement by the Centers for Disease Control and Prevention.