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- District School Board of Niagara, representing employers
- College of Audiologists and Speech-Language Pathologists of Ontario
- Ontario Association of Speech-Language Pathologists and Audiologists
- Ontario Chiropractic Association
- Ontario Massage Therapist Association
- Ontario Physiotherapy Association
- Ontario Psychological Association
- Ontario Society of Occupational Therapists
- Registered Practical Nurses Association of Ontario

Health Care Practitioner Access Line:
1-800-569-7919 or (416) 344-4526

Please call the Health Care Practitioner Access Line if you have any questions about the Program of Care.
Hours: Monday to Friday, 9:00 a.m. to 4:00 p.m.
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Introduction

This reference guide is intended for regulated health professionals who can deliver the Mild Traumatic Brain Injury Program of Care (MTBI POC). The purpose of this guide is to inform regulated health care professionals about the objectives of the MTBI POC and the details of the treatment program.

The MTBI POC was developed through a collaborative process that included representatives of health professional associations, a regulatory college, workplace representatives and the WSIB.

The MTBI POC is an evidence-based health care delivery plan, based on a systematic review of the scientific literature, and is specific to the treatment of workers with a MTBI. This POC is specific to the treatment of workers with a mild traumatic brain injury for up to six months of care. This POC is not intended for the treatment of workers with moderate or severe brain injuries.

The MTBI POC will evolve based on ongoing clinical and program outcome measurements, and on the emergence of new evidence. The POC will be evaluated following implementation to determine health professional, worker and employer satisfaction, as well as worker health outcomes, changes to practice patterns and economic benefits. Completed POC reports are critical since information provided in these reports will be integral to the POC evaluation.

Grade of Evidence

A systematic literature review was completed by The Toronto Rehabilitation Institute (TRI), a fully affiliated teaching hospital of the University of Toronto, led by Dr. Paul Comper, and a team of researchers; Sean Bisschop, Nancy Carnide, and Andrea Tricco. The purpose was to identify effective interventions for the treatment of workers with MTBI. Additionally, a search for existing MTBI treatment guidelines was completed and the guidelines were rated by TRI.

The quality of the evidence and strength of recommendations were graded according to the table (below) developed by the working committee. These gradings are noted as a margin accompaniment for each intervention.
Grade of Evidence

<table>
<thead>
<tr>
<th>Grading</th>
<th>Quality of Evidence</th>
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<tbody>
<tr>
<td>I</td>
<td>At least one properly designed randomized, controlled trial</td>
</tr>
<tr>
<td>II</td>
<td>Well-designed, controlled trials without randomization, e.g. cohort studies</td>
</tr>
<tr>
<td>III</td>
<td>Inadequate evidence</td>
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<table>
<thead>
<tr>
<th>Grading</th>
<th>Strength of Recommendations</th>
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<tbody>
<tr>
<td>A</td>
<td>Good evidence to support the use of this intervention</td>
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<tr>
<td>B</td>
<td>Fair evidence to support the use of this intervention</td>
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<tr>
<td>C</td>
<td>Poor evidence to support the use of this intervention</td>
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<tr>
<td>D</td>
<td>Fair evidence to support rejection of this intervention</td>
</tr>
<tr>
<td>E</td>
<td>Good evidence to support rejection of this intervention</td>
</tr>
<tr>
<td>+</td>
<td>Program of Care Translation Committee recommendation based on clinical expertise, clinical guidelines, expert committees, etc.</td>
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</table>

There was one intervention, vestibular rehabilitation, for which the systematic review did not identify any evidence either to support or reject this intervention in the context of MTBI. During MTBI POC implementation, a practice-based recommendation will be reviewed using the process that was established by the Health Professional Forum to address this issue.
Goals & Objectives

The goals of the MTBI POC are to improve knowledge of common symptoms and complaints associated with MTBI, to help the worker manage the most common symptoms of MTBI and to prevent chronic symptoms.

The specific objectives of the MTBI POC are to:

- provide best possible evidence-based quality care to workers with MTBI in a timely manner
- promote safe, timely, and sustainable return to work for workers in the program
- assist the worker to return to the best possible pre-injury level of overall function and quality of life.

The implementation of this care model does not interfere with the rights and obligations of workers, employers, health professionals, or the WSIB.

Exclusion Criteria

The MTBI POC is not designed for workers with:

- moderate or severe brain injuries
- other injuries being treated through the WSIB Serious Injury Program
- cancer of the central nervous system
- structural defect of cranial vault at the time of injury
- penetrating brain injury
- a psychiatric disorder/psychopathology such that the MTBI POC would interfere with the treatment of this condition
- physical impairments or concurrent injuries that would prevent the worker from being assessed and/or treated in the MTBI POC.

Workers with any of these injuries/illnesses should be treated outside the MTBI POC.

Mandatory Requirements

Prior to commencing this POC:

- the worker must have been diagnosed with a MTBI by a physician
- the worker must have an approved claim for MTBI.

Eligibility Criteria

Noting the mandatory requirements, the MTBI POC is appropriate for workers:

- within one year post-date of injury
- not hospitalized.
Diagnosing a Mild Traumatic Brain Injury


Based on the ACRM classification, the POC is applicable for workers in Ontario with at least one of the following:

- any period of loss of consciousness
- any loss of memory for events immediately before or after the injury
- any alteration in mental state at the time of the injury
- focal neurologic deficit that may or may not be transient BUT the severity does not exceed the following:
  - loss of consciousness of 30 minutes
  - an initial Glasgow Coma Scale score of 13-15 after 30 minutes
- post-traumatic amnesia of no more than 24 hours duration.

Based on the AAN definition, the POC is applicable for workers in Ontario with:

- the presence of head trauma
- some period of dazed consciousness; unconsciousness is not required
- a presenting ER Glasgow Coma Scale score of 13-15
- post-traumatic confusion with amnesia, usually for minutes to hours
- no abnormality on thorough neurologic examination
- negative findings on all neuroimaging studies.

1. Glasgow Coma Scale (GCS)
Both definitions use the Glasgow Coma Scale (Teasdale G., Jennett B. (1974). Assessment of Coma and Impaired Consciousness A Practical Scale. Lancet; July 13, 81-84). The GCS assesses motor and verbal responses along with eye opening on command to evaluate gross levels of consciousness after head injury.

NOTE: The physician will complete and submit an appropriate medical report to the WSIB.
Components of the Program of Care

**Initial Assessment/Initial Assessment Report**

The purpose of the initial assessment is to:

- establish extent of symptomatology and other injuries sustained
- establish baseline measures using the Rivermead and RAND SF-36 outcome measures
- determine which stream of care is appropriate for the worker
- develop treatment planning if worker is more than three months post date of injury.

Following completion of the initial assessment the MTBI POC Initial Assessment Report is to be completed and submitted to the WSIB within two working days. Only one Initial Assessment Report is required for the duration of the POC.

**IMPORTANT:** Whenever a worker reaches three months post date of injury and remains symptomatic, the worker should be moved to active treatment with continuing education.

**NOTE:** If at the first visit, the worker is eligible for the Program of Care, you do not need to complete the Health Professional’s Report (Form 8). Complete the Program of Care for Mild Traumatic Brain Injury Initial Assessment Report only.
Components of the Program of Care

Outcome Measurement Tools

Rivermead Questionnaire

The use of the Rivermead Questionnaire is recommended at any reassessment point in the MTBI POC to track the progress of recovery of a worker from any symptoms related to the MTBI and assist with treatment planning.

The Rivermead is a short, worker-completed instrument in which the worker rates the severity of current symptoms compared to prior to the injury. Symptoms monitored are: headaches, dizziness, nausea/vomiting, phonophobia, sleep disturbance, fatigue, irritability, feeling depressed, feeling frustrated, forgetfulness, inattentiveness, slow thinking, blurring vision, photophobia, diplopia and restlessness.

NOTE: Health professionals are only required to provide the Rivermead score on the Initial Assessment and Care & Outcomes Summary Reports.

RAND SF-36 – Short Form Health Survey (SF-36)

The RAND SF-36 is recommended as an instrument that has been scientifically validated for use in a MTBI population. One of the goals of the MTBI POC is to improve the quality of life of the worker. The RAND SF-36 was selected for use in the MTBI POC to assess aspects of quality of life of the worker. The RAND SF-36 assesses eight health concepts:

1) limitations in physical activities because of health problems
2) limitations in social activities because of physical or emotional problems
3) limitations in usual role activities because of physical health problems
4) bodily pain
5) general mental health (psychological distress and well-being)
6) limitations in usual role activities because of emotional problems
7) vitality (energy and fatigue)
8) general health perceptions.

NOTE: Health professionals are asked to provide scores for all eight concepts on the Initial Assessment and Care & Outcomes Summary Reports.

NOTE: The WSIB acknowledges that the RAND 36 – Short Form Health Survey (SF-36) was developed at RAND as part of the Medical Outcomes Study.
Components of the Program of Care

Recommended and Non-recommended Interventions

The interventions searched in the scientific literature were considered and are either recommended or not recommended for use in the POC. Recommended interventions are those interventions for which there is evidence in the scientific literature of effectiveness in the treatment of symptoms related to a MTBI. Furthermore, recommended interventions are supported as best practice by the experts who were members of the committee designing the MTBI POC.

Only recommended interventions are appropriate for treating workers with a MTBI. Non-recommended interventions are not supported by scientific evidence and are not included in the MTBI POC.

Recommended Interventions

► Education
► Cognitive Rehabilitation
► Manual Mobilization Therapy

Non-recommended Interventions

► Pharmacological Interventions
  [Amitripelavil, Desmopressin (DDAVP), Dihydroergotamine (DHE)]

Care & Outcomes Summary Report

It is expected the health care professionals involved in the treatment of symptoms related to the MTBI will schedule follow-up visits with the worker. A follow-up is recommended at least six-to-eight weeks post start of treatment. At this follow-up visit, the health professional will re-administer the Rivermead and the RAND SF-36 questionnaires and determine if the current treatment plan is warranted, requires change appropriate for the state of symptoms, or if the worker is ready for discharge.

At any time in the MTBI POC the worker should be discharged when symptoms have resolved and no further treatment is required. When the worker is discharged from the MTBI POC, the health professional completes and submits the Care & Outcomes Summary Report to the WSIB.

Transition to Work

Workers should be moved towards a safe transition to work as early as possible. Some workers with MTBI remain/return to work with no modifications. For some workers, modifications to job duties or hours of work may be necessary depending both on the nature of the worker’s MTBI symptoms and the nature of the individual’s work. For example, if fatigue is a symptom, a gradual return to pre-injury hours may be required. If poor concentration is a symptom, a modification in duties may be appropriate for a period of time. Determining the most appropriate transition to work will require communication among workplace parties – the worker, the employer and the health professional.
Components of the Program of Care

Communication Requirements

**MTBI POC Requirements**

Following the onset of symptoms for a MTBI, health professionals are required to report the worker’s health status, progress and outcomes by providing:

- Initial Assessment Report: baseline data collected to enable treatment planning
- Care & Outcomes Summary Report: a summary of the worker’s achieved recovery and when necessary, recommendations for further treatment.

**Communication Among Workplace Parties**

Timely and effective communication is an important element in the success of the POC. Communication includes written reports, telephone conversations and one-on-one discussion with workers. The frequency of communication will vary from case to case depending on the individual circumstances of the worker and the extent of progress achieved. There are, however, some key communications and reporting that should occur at various times during the POC.

Communication occurring among participants during the recovery and return to work process may include:

- Worker
- Employer
- WSIB service delivery team: adjudicator, nurse case manager, and medical consultant
- Physician
- Other health professionals.

**The health professional is responsible for the following communication:**

**Communication with the worker**

Communication with the worker should be ongoing throughout the POC.

**Communication with the employer**

At the beginning of treatment, contact the employer, either by phone or by letter, to let the employer know that you will be involved in facilitating the worker’s process of return to work. You should inquire about the demands of the worker’s job as these relate to MTBI and, if necessary, about possible modifications. When the worker is nearing discharge, contact the employer regarding the worker’s return to work. Refer to Section D in the Care & Outcomes Summary Report.

All communication should be documented in the patient’s chart.

**NOTE:** Communication with the employer is restricted to the worker’s functional abilities unless the worker’s consent is obtained.

**Communication with the WSIB**

Timely submission of the Initial Assessment Report and Care & Outcomes Summary Report by the health professional is essential. In addition, call the WSIB when:

- The worker is not progressing as expected
- Any other issue arises.

**NOTE:** Information relating to the worker’s health care may be released to the WSIB by health professionals, hospitals and health facilities without first obtaining the worker’s consent. (See S.37 of the Workplace Safety and Insurance Act.)
Education Stream of the POC

(Less than three months post date of injury)

Education Session

Regardless of the time of entry into the MTBI POC, the first treatment of the worker should consist of education about MTBI and potential treatments for symptoms related to the MTBI. The literature suggests that the education should be provided ideally in a single 1 to 1.5 hour session, but the length of the session should be determined by the treating health professional in accordance with the worker’s needs. Elements that should be included in the education session are:

► Reassurance that symptoms will resolve over time
► Typical time and pattern of recovery
► Most common symptoms include fatigue, forgetfulness and poor concentration, irritability, headache
► Less common symptoms include dizziness, cognitive impairment, communication disorders, anxiety, depression (post-traumatic stress disorder), sleep disturbance, photophobia and sonophobia
► How to cope with common problems
► Importance of resting as needed
► Gradual reintegration to regular activities
► An opportunity to ask questions, provide feedback
► A mechanism to obtain help if a problem arises after the visit
► A review of the information in the session.

Workers who enter the MTBI POC within three months of the date of the injury should be educated that their symptoms should typically resolve within three months and that treatment of symptoms within this initial period is usually not indicated. Workers should be asked about their current expectations and knowledge of symptoms and recovery from MTBI, and their education session should be adjusted accordingly.

The education stream of the POC is for a maximum of 12 weeks of care and recovery, with discharge at any time.
The literature suggests that a worker with a MTBI who remains symptomatic three months post date of injury would benefit from active treatment with specific interventions in addition to education related to the MTBI.

The active treatment of symptoms in the POC is up to a maximum of 12 weeks with discharge at any time.

**Assessment for Treatment Planning**

Prior to initiating treatment, an assessment is conducted by the treating health professional. The components of the assessment will conform to the professional guidelines and standards of practice within each regulated health profession. The length of a typical assessment for workers with a MTBI will vary for each worker and by discipline.

In the case where a worker moves from education only into the active treatment and education stream, and if the worker is referred to health professionals for one or more of the recommended interventions, each health professional will conduct an appropriate assessment prior to the initiation of a treatment program.

**Recommended Treatment Interventions**

**Education Program**

*Level I Grade A*  
As with workers who entered the MTBI POC less than three months post date of injury, an education session is beneficial to workers entering the MTBI POC after three months post date of injury. The core elements of an education program were discussed earlier. Both content and length of the education session for workers more than three months post date of injury are dependent on a number of factors, including whether the worker has previously had an education session related to this MTBI.

**Cognitive Rehabilitation**

*Levels I + II Grades B + C*  
For cognitive sequelae following MTBI, cognitive rehabilitation strategies have been shown to improve patients’ scores on many commonly used neuropsychological tests. The restorative approach and compensatory approach were both used in the literature.

**Restorative Approach**

The restorative approach focuses on eliminating or reducing underlying cognitive impairments and improving performance subcomponents. Intervention consists of hierarchically organized retraining exercises that target specific cognitive processes. Intervention is often conducted in clinical settings, using specially designed materials and tasks. These are usually paper and pencil tasks and ‘real life’ activities.

**Compensatory Approach**

The compensatory approach focuses on reducing the underlying impairment by achieving functional objectives and facilitating participation in real-world activities. Intervention
consists of designing and teaching individualized compensatory strategies and behaviours using environmental supports, in both clinical and real-world settings. The compensatory approach to cognitive rehabilitation is more often used with MTBI patients to address issues such as activities of daily living, communication functions, and behavioural skills. Depending on the deficits of the patient, the frequency and duration of treatment will vary.

Cognitive rehabilitation may be delivered by a variety of regulated health professionals. In practice, areas of cognitive rehabilitation treatment may overlap or be provided by more than one discipline. For example, regulated health professionals from several disciplines could treat the following: attention and concentration, orientation, memory and new learning, information processing, reasoning and problem solving processes, executive functions and metacognitive processes, insight, judgement and adjustment to disability, consideration of vision, hearing, olfaction, pain, fatigue, and sensory-motor skills.

Manual Mobilization Therapy

There was good evidence showing manual mobilization therapy to be moderately effective in treating post-traumatic headache. Mobilization consists of passive movements of the joint within its normal physiological range.

The treatment is based on the principle that precise localization of tenderness and segmental hypomobility can be diagnosed by detailed examination of the neck, the so-called segmental spine examination. Since the upper part of the thoracic spine and cervical spine are functionally connected, the upper six thoracic segments have been involved in the examination and treatment. The treatments are provided according to the result of the segmental examination. At each session, two or three segments are treated. The amount of mobilization at each visit is left to the discretion of the health professional.
ALGORITHM

MTBI POC: Education Stream

Diagnosis of a workplace MTBI by a physician and a WSIB approved claim

Do not enroll in POC
Manage as required

More than 12 months
from injury?

Initial Assessment Report
Assess worker, administer Rivermead
and RAND SF-36

Less than 3 months post
injury?

First treatment / Education Session

Follow-up

Symptomatic?

Active Treatment and
Education for Symptom
Management

Symptoms can be addressed
by active treatment

Condition improving?

Discharge worker and refer
for assessment outside POC

Follow-up at 3 months post injury

Further intervention
required?

NOTE: At any point where
workers reach three months
post date of injury and continue
to have symptoms, they should
begin the active treatment and
education stage of the POC.
Algorithm: MTBI POC: Active Treatment & Education Stream

NOTE: At discharge complete both the Rivermead and RAND SF-36 questionnaires and record the scores on the Care & Outcomes Summary Report.