



Brain Injuries and Mass Casualty Events: Information for Clinicians

Traumatic Brain Injury Facts

- An estimated 1.4 million Americans sustain a traumatic brain injury (TBI) each year, most often due to falls, motor vehicle-traffic crashes and being struck by persons or against objects.
- The severity of a TBI can range from "mild," i.e., a brief change in mental status or consciousness, to "severe," i.e., an extended period of unconsciousness or amnesia after the injury.
- In disaster events, such as the World Trade Center attack or the Oklahoma City bombing, TBIs can be caused by flying debris, falls, being trampled, or blast waves from an explosion.
- In the chaos following mass casualty events, diagnosis of a TBI may be missed.
- Timely diagnosis and treatment of long term consequences of a TBI is needed.

Signs and Symptoms of a TBI

The signs and symptoms of a TBI can be subtle. Symptoms of a TBI may not appear until days or weeks following the injury or may even be missed as people may look fine, even though they may act or feel differently. The following are some common signs and symptoms of a TBI:

Behavioral	Physical	Cognitive
<ul style="list-style-type: none">• Irritability• Depression• Anxiety• Sleep disturbances• Problems with emotional control• Loss of initiative• Problems related to employment, marriage, relationships, and home or school management	<ul style="list-style-type: none">• Headaches• Dizziness• Insomnia• Fatigue• Uneven gait• Nausea• Blurred Vision	<ul style="list-style-type: none">• Attention difficulties• Concentration problems• Memory problems• Orientation problems

Diagnosis

Diagnosing a TBI can be a challenge because symptoms are often common to other medical conditions, and the severity of the symptoms can change over time. Any patient with a history of head trauma who is suffering from confusion, disorientation, amnesia of events around the time of injury, loss of consciousness of 30 minutes or less, neurological or neuropsychological problems, or who has a [Glasgow](#)

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[Coma Scale](#) (GCS) score of 13 or higher, may have a TBI. Taking a careful medical history can be key to detecting an TBI. Any unusual or unexplained signs or symptoms should be evaluated further.

Treatment

Treatment of a TBI varies from person to person. Educating the patient and his/her family about the possibility of a TBI and the symptoms that may be experienced as a result of such an injury is critical. Referral to specialists in neurology, neuropsychology, or rehabilitation may be appropriate.

Additional Resources for Clinicians

American Academy of Family Physicians, American Academy of Pediatrics. Management of Minor Closed Head Injury in Children (AC9858). *Pediatrics* 1999;104(6): 1407-1415 1999. Available at:

<http://www.aap.org/policy/ac9858.html>.

Brain Injury Association of America. Available at: <http://www.biausa.org>.

Centers for Disease Control and Prevention. Facts about Traumatic Brain Injury. Available at:

<http://www.cdc.gov/doc.do/id/O900f3ec8031534c>.

Centers for Disease Control and Prevention. Heads Up: Brain Injury in Your Practice. Available at:

<http://www.cdc.gov/doc.do?id=0900f3ec80017619>.

Gordon WA, Brown M, Sliwinski M, Hibbard MR, et al. The enigma of "Hidden" traumatic brain injury. *J Head Trauma Rehabil* 1998; 13(6): 39-56.

Jagoda AS, Cantrill SV, Wears, RL, Valadka A, et al. Clinical policy: Neuroimaging and decisionmaking in adult mild traumatic brain injury in the acute setting. *Ann Emerg Med* 2002; 40(2): 231-249.

Kibby MY, Long CJ. Review: Minor head injury: Attempts at clarifying the confusion. *Brain Inj* 1996; 10(3): 159-186.

Kushner D. Mild traumatic brain injury: Toward understanding manifestations and treatment. *Arch Intern Med* 1998; 158(15):1617-1624.

McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery* 2002; 50(5) 1032-1042.

Rehabilitation of persons with traumatic brain injury. National Institute of Health (NIH) Consensus Statement Online 1998 Oct 26-28; 16(1): 1-41. Available at:

<http://consensus.nih.gov/1998/1998TraumaticBrainInjury109html.htm>.

Langlois JA, Rutland-Brown W, Thomas KE. *Traumatic Brain Injury in the United States : Emergency Department Visits, Hospitalizations, and Deaths*. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2004. Available at: http://www.cdc.gov/ncipc/pub-res/TBI_in_US_04/TBI_ED.htm.

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Resources for Patient Education

[Facts About Concussion and Brain Injury](#) and Where to Get Help, 1999.

Información Acerca de la Lesión Cerebral Leve, 2002.

[Heads Up: Brain Injury in Your Practice](#) (patient information on tear-off pads), 2002.
Page content last revised 8/05.

For more information, visit www.bt.cdc.gov/masscasualties,
or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).