The U.S. Centers for Disease Control and Prevention estimates that 1.7 million people experience traumatic brain injuries (TBI) each year. Almost half a million do not seek any medical care, leaving them with poor prospects for recovery and little understanding of how their brain injury might affect their life or future. Tragically, 52,000 people die of TBI each year, and an additional 275,000 are hospitalized.

A TBI can range from a frightening but short-term injury to a catastrophic source of lifelong disability. The quality of care you receive is a major predictor of the outcome, so it’s wise to educate yourself, ask lots of questions, and advocate for your needs if you feel your medical providers are not listening.
1: TRAUMATIC BRAIN INJURIES: AN INTRODUCTION

Sometimes called an intracranial injury, a traumatic brain injury occurs when a blow to the head interrupts brain function. This is distinct from brain injuries due to cancer, infections, and other disease-related damage. So the good news is that if you are at risk for a TBI, you should know it because it’s hard to sustain a blow to the head without realizing it.

TBIs are unpredictable. Some injuries seem relatively unserious. You might not even experience much pain. Because of the location or the state of your brain at the time of the injury, the damage might be extensive. Other serious-seeming injuries are relatively minor. Witness boxers who are “knocked out,” but who return to the ring in a matter of weeks. You cannot assess a TBI based solely on immediate symptoms or the severity of the blow. Instead, it’s up to a doctor to examine your symptoms and brain to assess both long and short-term effects.

Though any sudden blow to the head can cause a TBI, the most common culprits are:

- Falls, accounting for 35.2%, and half of the total among children are under the age of 14. Among seniors over the age of 65, falls account for more than 60% of all brain injuries.
- Car accidents, which cause 17.3% of brain injuries.
- Being hit by an object, which accounts for 16.5% of all TBIs.
- Physical assaults, which account for 10% of TBIs.

Other causes account for about 21% of the total, or 1 in 5, traumatic brain injuries.
2: BASIC TBI VOCABULARY

The brain is the body’s most complex organ, and is made up of hundreds of components. You will likely need to become an expert on the area of your brain that was damaged if you want to fully understand your prognosis. Knowing the following terms can help you better understand your doctor’s lingo and ask intelligent questions:

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<th><strong>Cranium:</strong></th>
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<td>The part of the skull that encases the brain; intracranial pressure, for example, means pressure in the brain.</td>
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<th><strong>Hemorrhage:</strong></th>
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<td>Bleeding anywhere in the body, but in the case of TBI, most typically used to refer to bleeding in the brain.</td>
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<th><strong>Contusion:</strong></th>
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<td>A bruise, especially in the brain.</td>
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<th><strong>Aphasia:</strong></th>
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<td>Difficulty with words, especially the inability to speak or understand speech.</td>
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<th><strong>Agnosia:</strong></th>
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<td>Difficulty recognizing or naming familiar objects or people.</td>
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The brain is a complex and interlocking organ that cannot be neatly divided into individual parts. An injury in one area of the brain might affect a geographically distant brain region if it interrupts brain signals. Moreover, there is much we still do not understand about the brain. Though you might hear that a specific region controls a specific function, such as motor skills or speech, the real picture is much more complicated than that. No single region of the brain is solely responsible for any single function, and even a small brain injury can substantially impact disparate functions.

Hope is not lost, in spite of this grim information. Brains sometimes compensate for injuries in one region by producing more neural cells in another region, thereby allowing the brain to continue performing the same function.

Nevertheless, knowing the basics of brain anatomy can help you better understand how your brain works. The brain is often divided into these distinct parts:

**FRONTAL LOBE:** Coordinates movement, personality, emotional reactions, sensory responses, and verbal skills.

**PARIETAL LOBE:** Integrates touch, taste, and body awareness.

**TEMPORAL LOBE:** Aids with long-term memory, emotion, recognition of faces, and hearing.

**CEREBELLUM:** Controls fine motor skills and balance.

**OCCIPITAL LOBE:** Vital for sight.
FRONTAL LOBE: Coordinates movement, personality, emotional reactions, sensory responses, and verbal skills.

PARIETAL LOBE: Integrates touch, taste, and body awareness.

OCCIPITAL LOBE: Vital for sight.

CEREBELLUM: Controls fine motor skills and balance.

LIMBIC LOBE: Controls emotions.

CORPUS CALLOSUM: Joins the left and right brain hemispheres.

SPINAL CORD: Sends brain signals to the body, coordinates reflexes, and provides the brain with signals from the rest of the body.

BRAIN ANATOMY - CROSS SECTION -

3: UNDERSTANDING BRAIN ANATOMY
The brain makes you who you are. It’s the source of your emotions, personality, memories, knowledge, hobbies, and even your ability to move. Without a brain, you can’t survive, so the most obvious and most severe complication of a brain injury is death. Brain injuries kill people when they produce catastrophic hemorrhages, damaging the brain’s ability to control vital functions like breathing, cause emotional problems so intense that TBI survivors commit suicide, or cause strokes or aneurysms.

There is no way to predict the course of any individual brain injury, partially because we still understand so little about how the brain works. Thus your prognosis might be quite good, or you could have long-term complications.

**Some of the most common symptoms of TBI include:**

- Changes in personality.
- Difficulty regulating your emotions.
- New or worsening mental illness, including depression, anger management problems, anxiety, or suicidal thoughts.
- Violent behavior.
- Unusually passive or compliant behavior.
- Difficulty with basic bodily functions, such as breathing, digestion, or fertility.
- Trouble with concentration.
- Mobility impairments.
- Changes in consciousness, including coma, seizures, psychosis, or difficulty staying awake.
- Changes in sleep habits, including circadian rhythm disorders.
- Chronic pain.
It is impossible to determine the severity of a brain injury based on symptoms alone. Even if the victim seems “fine,” all potential brain injuries should be treated as medical emergencies. Does this mean you must go to the emergency room for any bump on the head? Of course not.

Some signs that there might be a brain injury include:

- Temporary loss of consciousness, even for just a split second.
- An open, bleeding wound.
- A very sharp blow to the head.
- Swelling at the site of the injury.
- Changes in personality or mood.
- Intense pain at the site of the injury.
- Ringing in the ears or changes in motor skills.

If you suspect that you or someone you love may have a brain injury, do not adopt a “wait-and-see” approach. Go to the emergency room immediately. If you are alone, do not attempt to drive yourself, as you could lose consciousness or suffer a life-threatening seizure. Call 911.

If the injured person is unconscious, you need an ambulance, so call 911.

Don’t try to move him or her on your own!
6: TREATMENT FOR BRAIN INJURIES

The brain is highly complex, and much about its function is still poorly understood, so brain injury treatment typically focuses on minimizing symptoms. In the immediate aftermath of the injury, the hospital or doctor will focus on stabilizing the injury survivor by:

- Stopping the bleeding.
- Minimizing swelling.
- Ensuring the TBI survivor does not lose consciousness.
- Rarely, putting the TBI survivor into a medically induced coma.
- Operating on the brain to repair catastrophic injuries.

Long-term recovery is a complex undertaking that depends on the severity of your symptoms. Some TBI survivors are lucky enough to spontaneously recover, with little rehabilitative care. Others need long-term treatment. The brain has a remarkable ability to rewire itself, so treatment typically focuses on helping the brain find ways to work around the injury. Your treatment plan might include:

- Occupational therapy to help you learn new skills.
- Physical therapy to help you overcome physical limitations and chronic pain.
- Exercise therapy to boost motor skills and improve mood.
- Psychotherapy to help you deal with psychological symptoms and gain support for the challenges of living with a TBI.
- Medication for symptoms, such as depression, associated with TBI.
- Group support.
- Speech therapy to help you regain lost speech.
- Frequent evaluations, including brain MRIs or skills tests, to evaluate your progress.
Brain injuries demand comprehensive treatment, so the more services your provider offers, the better. The Model Systems Knowledge Transitions Center evaluates brain injury treatment programs. These programs offer the best and most cutting-edge treatment in the nation, including access to research trials, evidence-based treatment procedures, a comprehensive continuum of care, and readily available data about patient outcomes. If you can access one of these programs, doing so offers the best chances for recovery.

No matter which provider you choose for treatment, ask lots of questions. It’s not rude to do so, and research consistently shows that patients who ask questions, read research, and advocate for themselves get better treatment outcomes. If you disagree with something or don’t understand a treatment recommendation, don’t be afraid to speak up. Some questions to ask include:

- Do you offer access to research trials?
- How many patients do you treat each year?
- Do you publish treatment outcomes?
- What specific treatment protocols do you offer?
- Can my family be a part of my treatment?
- What kind of patient education do you offer?
- Do you provide support groups?
- What sorts of specialists can I expect to work with?
- Will a single person coordinate my care, or must I communicate with a range of medical providers?
- How long can I expect to be in treatment?
- Is treatment inpatient or outpatient?
- What financial assistance do you offer?
- Do you accept my insurance?
- Do you offer assistance reintegrating into the community?
- What sort of patient advocacy do you provide?
- Can I speak to current or former patients?
- Is your program accredited?
You might think that the only time you’ll encounter the legal system as a brain injury survivor is if you opt to sue the person or entity who injured you. However, brain injury survivors face a number of legal issues, so it’s wise to consult with a lawyer to clarify your rights and respond to any potential violations. Those rights include:

**A right to quality medical care.**

If your doctor injures you, recommends treatment that is not based on clear evidence, or otherwise does you harm, you may have a medical malpractice case.

**The right to informed consent.**

A brain injury does not undermine your humanity. You have the right to decline treatment, even life-saving treatment. You can also seek a second opinion, pursue alternative treatments, and accept some treatments but not others.

**The right to be informed about your medical care.**

It is illegal for your doctor to keep secrets from you about basic medical information.

**The right to medical privacy.**

Your medical team cannot disclose your protected health information to third parties without your consent. There may be an exception to this rule if you are adjudicated incompetent.
The right to be free of discrimination or harassment.

Employers and educational institutions cannot fire you or expel you because of your disability. They must also make “reasonable accommodations” to allow you to continue to work.

The right to seek compensation from the party liable for your injuries.

If someone else’s negligence or deliberate malice caused you to be injured, you are entitled to sue them to recover your expenses, including attorney’s fees, medical bills, pain and suffering, and anything else the jury deems appropriate.

A right to legal counsel.

You may be required to pay for your attorney, since public defenders do not offer assistance to civil plaintiffs.

A right to insurance coverage.

Your insurer cannot decline you simply because you have a brain injury, and cannot reject your application because of a “pre-existing condition.”

DO YOU NEED LEGAL HELP FOR A BRAIN INJURY?

CLICK HERE FOR INFORMATION ABOUT YOUR LEGAL OPTIONS.
**9: RESOURCES FOR BRAIN INJURY SURVIVORS AND THEIR LOVED ONES**

Knowledge is power. The following resources arm you with the knowledge you need to advocate for yourself or a loved one:

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<th>Resource Name</th>
<th>Description</th>
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<tr>
<td><strong>U.S. Centers for Disease Control and Prevention</strong></td>
<td>Provides comprehensive data on TBI, as well as frequently updated information on current research and best practices in medical care.</td>
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<tr>
<td><strong>Brainline.org</strong></td>
<td>A comprehensive site offering scientific information, advocacy, access to local assistance, blogs, and stories from brain injury survivors.</td>
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<tr>
<td><strong>Brain Injury Resource Center</strong></td>
<td>A comprehensive site offering scientific information, advocacy, access to local assistance, blogs, and stories from brain injury survivors.</td>
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<tr>
<td><strong>Department of Veterans Affairs</strong></td>
<td>TBIs are common among veterans, and this one-stop resource provides access to advocacy, disability resources, and cutting-edge scientific research.</td>
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<tr>
<td><strong>Brain Injury Association of America</strong></td>
<td>This advocacy organization lobbies on behalf of TBI survivors, provides comprehensive updates on new and potential legislation, and offers an extensive resource list for TBI survivors and their families.</td>
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