

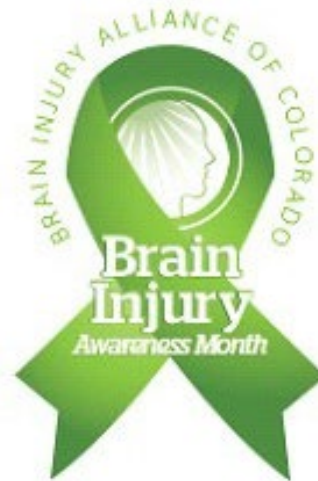
Brain Injury 101: Overview, Symptoms, and Accommodations

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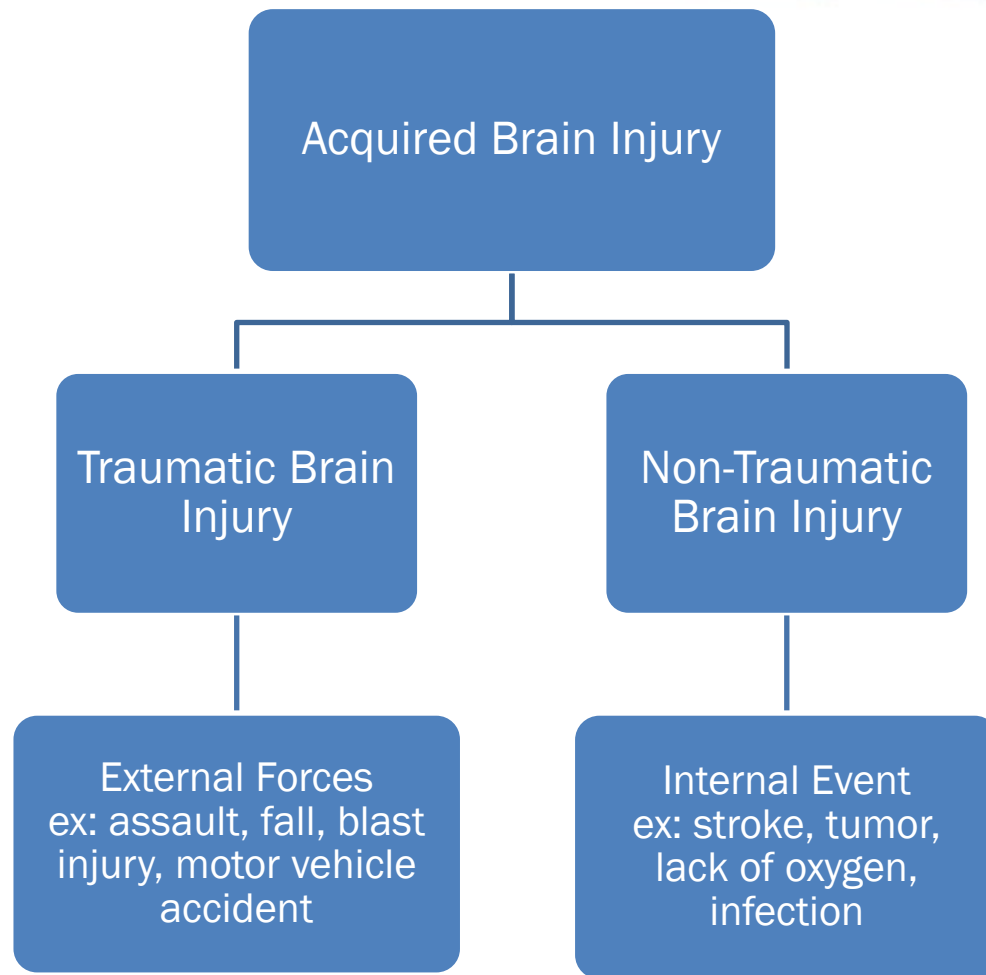
Brain Injury 101

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**Brain Injury
Alliance**

COLORADO





Classification of Severity

Mild – Loss of consciousness 0-30 minutes
(Concussion)

Moderate – Loss of consciousness 30 minutes to 24hrs

Severe – Loss of consciousness for over 24 hours

Frontal lobe

Executive functions, thinking, planning, organising and problem solving, emotions and behavioural control, personality

Motor cortex

Movement

Sensory cortex

Sensations

Parietal lobe

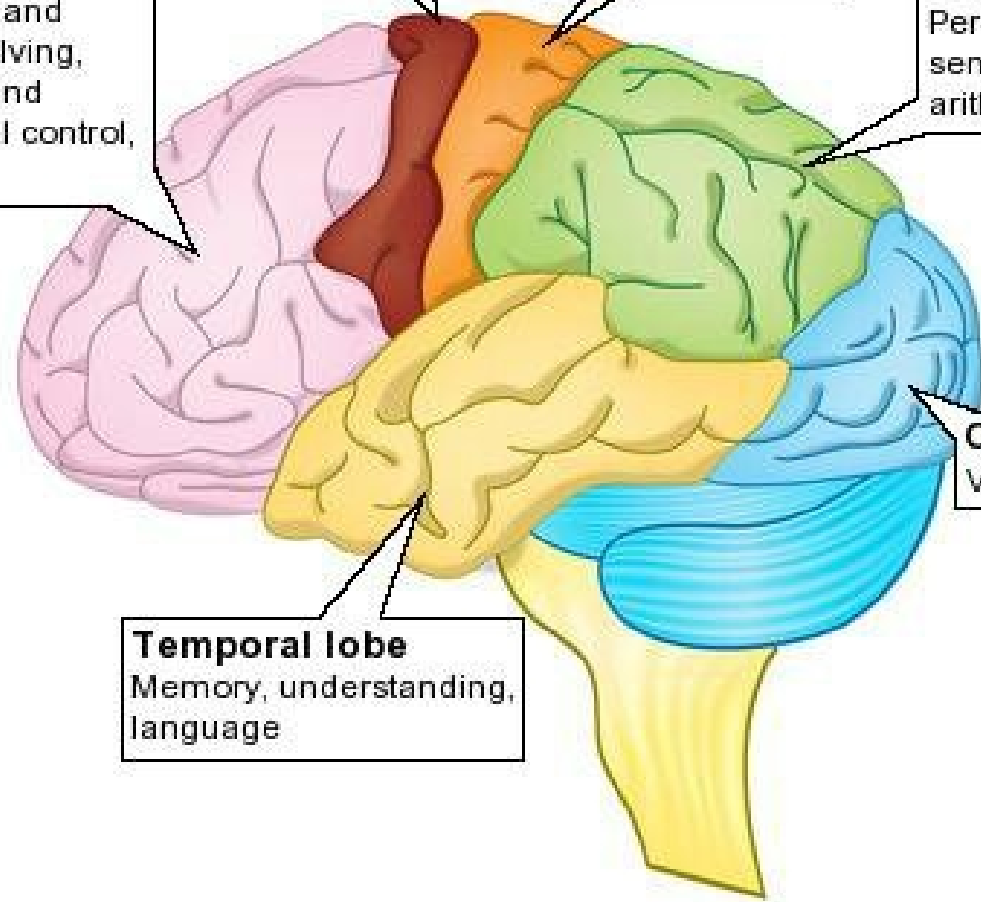
Perception, making sense of the world, arithmetic, spelling

Occipital lobe

Vision

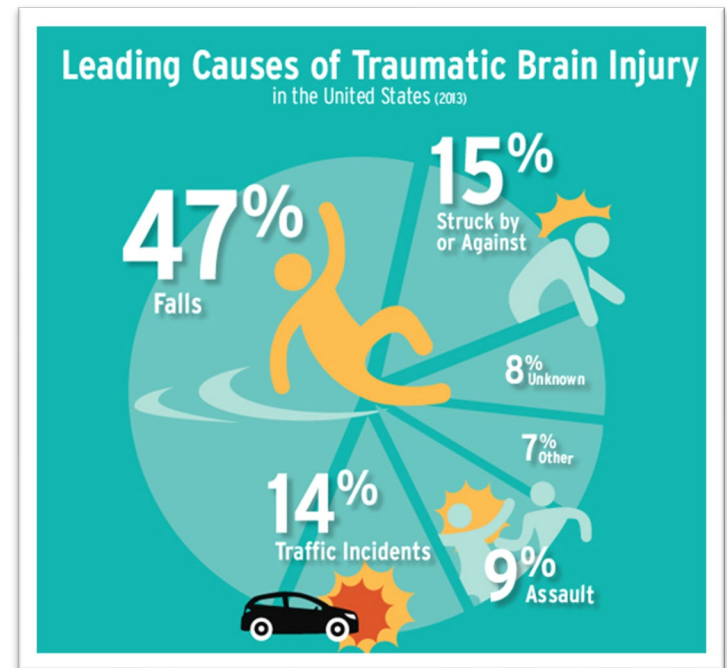
Temporal lobe

Memory, understanding, language



TBI Statistics

- ~1.5 million Americans sustain a TBI annually
- TBI contributes to about 30% of all injury deaths
- Children 0 to 4 years, older adolescents aged 15 to 19 years, and adults 65 years+ are most at risk
- Falls are the leading cause of TBIs in the United States
- Males are almost twice as likely to sustain a TBI as females





Colorado Data

24% (~1,000,000) of Colorado adults have a lifetime history of TBI

Craig Hospital

- Over 5,000 Coloradans are hospitalized for brain injury each year
- Males are **twice as likely** to sustain a TBI in Colorado as females
- **42.6%** of adult TBI survivors are impacted by a disability
- More than **115,000** Coloradans have experienced a stroke
- Stroke is the **5th** leading cause of death in Colorado
- Prevalence varies by region, with **mountainous regions having significantly higher rates of TBI** compared to urban & eastern regions

The number of people with TBI who are not seen in an emergency department or who receive no care is unknown.

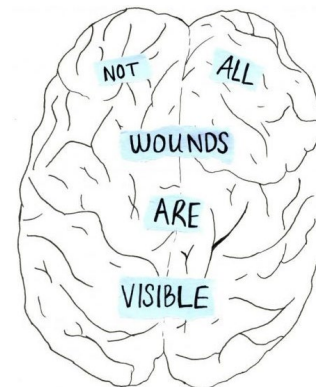
Traumatic Brain Injury National Data Center

Brain Injury & Mental Health

- Almost **half of adults** with TBI who have no pre-injury history of mental health problems develop mental health problems after the TBI
(Gould, Ponsford, Johnston, & Schonberger, 2011. Psychological Medicine, 41, 2099-2109.)
- Depression, anxiety disorders, irritability, and anger problems are most common diagnoses
- Compared to the general population, those with a history of TBI were
 - 37% more likely to receive psychiatric services and 69% more likely to be hospitalized than persons without TBI
- **1/3** of TBI survivors experience emotional problems between 6 months and a year post injury.

Patients who reported:

- Hopelessness 35%
- Suicidal ideation 23%
- Suicide attempts 18%



A Multitude of Loss

- Functional abilities
- Neurological changes: self awareness, communication, emotional regulation
- Life roles & responsibilities as bread winner, role model, social network
- Self-esteem
- Suicidality

- ↑ risk for [homelessness](#)
- ↑ risk for [substance abuse](#)
- ↑ risk for [criminal activity](#)
- ↑ risk for [mental health](#) issues





Keep in Mind

- Complex combination of factors lead to mental health problems post brain injury
 - Neurological
 - Psychological
 - Social
 - Pre-injury personality/functioning
- Medications can play a key role
 - Neuro-psychiatrist or physiatrist
- Each individual is unique
 - To know one individual with a brain injury is not to *know* brain injury



How is brain injury “treated”?

- Rehabilitation
 - Physical Therapy
 - Occupational Therapy
 - Speech/Language Pathologist: Cognitive Therapy
- Independent Living Skills
- Medication
 - Pain management
 - Physical symptoms (e.g., headaches, seizures, attention, fatigue)
 - Mental health
- Complimentary and Alternative Modalities



Common Outcomes of Brain Injury

BI can cause a wide range of functional short- or long-term changes affecting...

➤ **Cognition**

- Thinking
 - Attention, concentration, memory, processing speed
- Executive functions
 - Initiation, reasoning, mental flexibility

➤ **Emotion & Behavior**

- Mental health issues
- Irritability, sadness, aggression
- Social inappropriateness
- Disinhibition

➤ **Physical**

- Headaches, migraines, dizziness
- Fatigue
- Sensitivity to light or noise
- Vision, balance
- Sensory motor skills

➤ **Language & Communication**

- Expressive & Receptive Language
- Social pragmatics
- Lack self-awareness

➤ **Sleep**

Accommodation Strategies

- ✓ Encourage the use of a notebook & calendar
- ✓ Repeat information & summarize
- ✓ Keep instructions brief, simple, & to the point
- ✓ Reduce distractions, meet in quiet environment
- ✓ Remind the person of the purpose of a session
- ✓ Be clear on expectations and consequences of risk-taking behaviors
- ✓ Ask if it would be helpful to repeat or rephrase your message
- ✓ Allow time for transitions
- ✓ Minimize anxiety with reassurance, education, and structure
- ✓ Take breaks
- ✓ Practice patience



Skill vs. Will



T-Rex trying to hang curtains...

General Tx Principles

- Start with a thorough holistic assessment
- Provide education for client & family
- Enhance self-awareness
- Provide supports, repetition, and consistent feedback
- Develop clear, short-term, realistic goals together
- Provide compensatory strategies
- Foster a sense of realistic hope and meaning



(Prigatano, 1986; Klonoff, 2010; Ruff & Chester, 2014)

Brain Injury 102

Strategies & Accommodations

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C O L O R A D O

Importance of Screening for Brain Injury

One study found that **42%** of persons who indicated they had incurred a TBI as defined by the CDC did not seek medical attention *(Corrigan & Bogner, 2007)*

- The full extent of the problem may not be completely understood immediately after the injury but may be revealed with a comprehensive medical evaluation and diagnostic testing
- Clients may be eligible for additional support services
- Psychotherapies can be adapted for neurocognitive deficits. Examples:
 - Minimize environmental distractions
 - Written material/handouts where possible
 - Repetition of key points



Components of Screening

- **Education / awareness**
 - Training regarding the sequelae of brain injury
 - Important to have a foundational knowledge of brain injury
 - Training should be provided to anyone conducting intake/screening
- **Medical documentation**
 - Best practice
 - Important to note that medical documentation only indicates an injury not impact
 - Documentation should be from a clinician trained in diagnosing TBI
- **Establishing credible history**
- **Assessing impact**
- **Modifying/generating novel interventions**



Ohio State University TBI Identification Method — Interview Form

Step 1

Ask questions 1-5 below. Record the cause of each reported injury and any details provided spontaneously in the chart at the bottom of this page. You do not need to ask further about loss of consciousness or other injury details during this step.

I am going to ask you about injuries to your head or neck that you may have had anytime in your life.

1. In your lifetime, have you ever been hospitalized or treated in an emergency room following an injury to your head or neck? Think about any childhood injuries you remember or were told about.

No Yes—Record cause in chart

2. In your lifetime, have you ever injured your head or neck in a car accident or from crashing some other moving vehicle like a bicycle, motorcycle or ATV?

No Yes—Record cause in chart

3. In your lifetime, have you ever injured your head or neck in a fall or from being hit by something (for example, falling from a bike or horse, rollerblading, falling on ice, being hit by a rock)? Have you ever injured your head or neck playing sports or on the playground?

No Yes—Record cause in chart

4. In your lifetime, have you ever injured your head or neck in a fight, from being hit by someone, or from being shaken violently? Have you ever been shot in the head?

No Yes—Record cause in chart

5. In your lifetime, have you ever been nearby when an explosion or a blast occurred? If you served in the military, think about any combat- or training-related incidents.

No Yes—Record cause in chart

Interviewer instruction:

If the answers to any of the above questions are “yes,” go to Step 2. If the answers to all of the above questions are “no,” then proceed to Step 3.

Step 2

Interviewer instruction: If the answer is “yes” to any of the questions in Step 1 ask the following additional questions about each reported injury and add details to the chart below.

Were you knocked out or did you lose consciousness (LOC)?

If yes, how long?

If no, were you dazed or did you have a gap in your memory from the injury?

How old were you?

Step 3

Interviewer instruction: Ask the following questions to help identify a history that may include multiple mild TBIs and complete the chart below.

Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g. history of abuse, contact sports, military duty)?

If yes, what was the typical or usual effect—were you knocked out (Loss of Consciousness - LOC)?

If no, were you dazed or did you have a gap in your memory from the injury?

What was the most severe effect from one of the times you had an impact to the head?

How old were you when these repeated injuries began? Ended?

Step 1

Cause

Step 2

Cause	Loss of consciousness (LOC)/knocked out				Dazed/Mem Gap		Age
	No LOC	< 30 min	30 min-24 hrs	> 24 hrs	Yes	No	

If more injuries with LOC: How many? _____ Longest knocked out? _____ How many ≥ 30 mins.? _____ Youngest age? _____

Step 3

Cause of repeated injury	Typical Effect		Most Severe Effect			Age		
	Dazed/memory gap, no LOC	LOC	Dazed/memory gap, no LOC	LOC < 30 min	LOC 30 min - 24 hrs.	LOC > 24 hrs.	Began	Ended

Step 1 Cause	Step 2						
	Loss of consciousness (LOC)/knocked out				Dazed/Mem Gap		Age
	No LOC	< 30 min	30 min-24 hrs	> 24 hrs	Yes	No	

Interpreting Findings

After completing the OSU TBI-ID screening interview please refer the individuals to the DU Clinician if any one or more of the following conditions are met:

The individual has:

- Worst** = individual reports one moderate to severe TBI. Moderate and Severe TBI indicated by report of loss of consciousness (LOC) of greater than 30 minutes.
- First** = Individual reports TBI with LOC before age of 15.
- Multiple** = Individual reports a period where 3 or more blows to the head caused altered consciousness OR 2 or more TBIs with LOC within a 3 month period.

If more injuries with LOC: How many? _____ Longest knocked out? _____ How many ≥ 30 mins.? _____ Youngest age? _____

Step 3 Cause of repeated injury	Typical Effect		Most Severe Effect				Age	
	Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	LOC 30 min - 24 hrs.	LOC > 24 hrs.	Began	Ended

For more information about TBI or the OSU TBI Identification Method visit:

- Ohio Valley Center at OSU
www.ohiovalley.org/informationeducation
- BrainLine.org
www.brainline.org



The go-to resource for help and services for survivors of an injury to the brain, their families, and providers.

BIAC is a statewide **nonprofit** dedicated to helping all persons with a brain injury thrive in their community

- [Resource navigation](#) for all ages – this is free, with no income or insurance eligibility criteria
- Brain injury specific [conferences & workshops](#)
- Online [educational materials](#) for survivors, family, & professionals
- Statewide brain injury [professional networking](#) groups
- Adaptive [recreation programs, music & art therapy classes](#)
- Online [resource directory](#) specific to brain injury providers
- Statewide [support groups](#)
- Member of [United States Brain Injury Alliance](#)

Funds from surcharges on convictions of speeding tickets, DUI, DWAI, & the children's helmet law



CO Department of Human Services



Community Grants



Services



Research Grants



Resource Navigation



Resource Navigation is our foundational support program for survivors, family members, and caregivers. It is intended to be quick and easy to access.

All ages can access this **free** support.

Examples of support:

- Finding medical providers
- Understanding brain injury
- Filling out paperwork
- Connecting to community-based resources
- Problem-solving

How to connect:

- Online Referral Form: <https://biacolorado.org/referral/>
- Email: info@biacolorado.org
- Phone: 303.355.9969, toll-free 1.800.955.2443

Education Consultation

Examples of support:

- Providing parent/guardian education of services and programming options available in schools
- Assisting in the partnership between parents and schools
- Educating parents and school teams on how a student has been impacted by their brain injury
- Attending transition, IEP, MTSS, and other planning meetings
- Partnering with hospitals to help with transition to school



How to apply:

If you are a parent or professional working with a child or youth with brain injury, please contact BIAC to request an application for education consultation: info@biacolorado.org or 303.355.9969

Classes & Workshops

These activities are **free**, however **space is limited and registration is required**.

Workshops

- Financial Health
- Brain Injury Basics
- Mindfulness



Classes

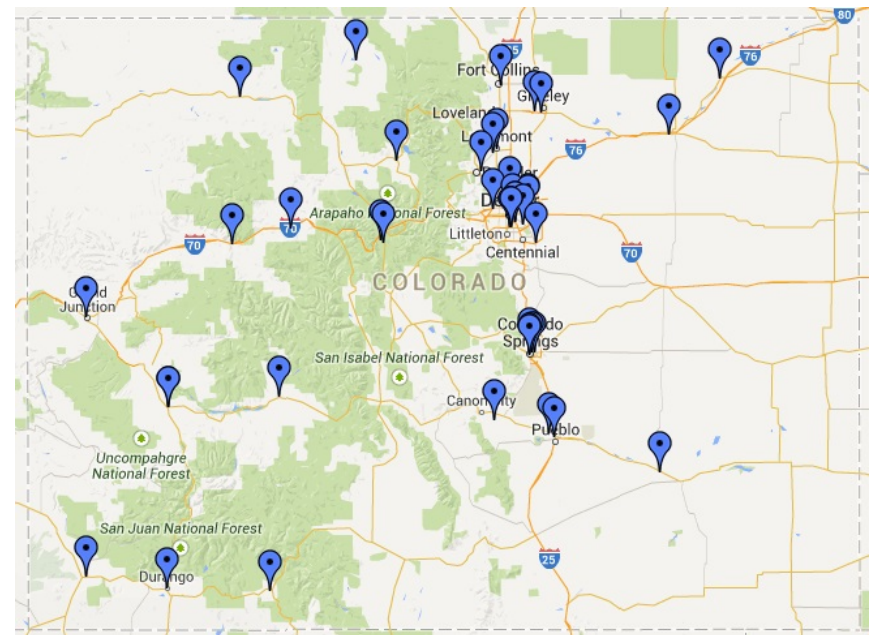
- Art
- Music Therapy
- Adaptive Yoga
- Cooking/Nutrition
- Balance (fall prevention)



Statewide Support groups

Visit <https://biacolorado.org/support-groups/> for specific dates, locations and times

- Understanding brain injury
- Learning about resources and effective professionals in your community
- Opportunities to be understood by, and understand, others dealing with similar issues
- Learning self-advocacy strategies from others' challenges and achievements
- Finding encouragement, hope, and emotional healing



Resource Directory

[REFER A SURVIVOR](#)[BRAIN INJURY PROFESSIONAL NETWORKING \(BIPN\)](#)[RESOURCE DIRECTORY](#)[CRIMINAL JUSTICE AND BRAIN INJURY](#)[EDUCATIONAL MATERIALS](#)[2019 BRAIN INJURY SYMPOSIUM](#)[CALENDAR](#)

Are you a provider who would like to be listed in the Resource Directory?

[Add a Resource Directory Entry](#)

How does my agency become a BIAC Partner?

[Click to learn about becoming a BIAC Partner](#)

Already listed but need to update the information?

[Update your entry](#)

Need help navigating resources?

- [Click here](#) to for information about our resource navigation program
- Or [click here](#) for tips on using the resource directory

Additional Resources & Downloads



- [Colorado State Government Resources](#)
- [Pikes Peak Regional Brain Injury Directory](#)
- [Social Security Disability Benefits Guide](#)

[Assistive Technology](#)[Benefit Navigation](#)[Case Management](#)[Chiropractors](#)[Cognitive Behavioral Therapy](#)[Cognitive Rehabilitation](#)[Counseling](#)[Crisis Services](#)[Day Programs](#)[Dental Services](#)[Education](#)[Employment](#)[Financial Planning](#)[Home Health Care](#)[Horse Therapy](#)[Hospital](#)[Hospitals](#)[Housing](#)[ILST](#)[Legal Services](#)[and Lawyers](#)[Massage](#)[Mental Health](#)[Music Therapy](#)[Neurofeedback](#)[Neurologists](#)[Neuropsychologists](#)[Non-profit](#)[Housing](#)

Education for Professionals

What is a brain injury?

[Brain Injury Facts & Figures](#)



Would you like to request a training?

Fill out [this form](#) and BIAC staff member will be in touch with you shortly



Watch a brief animated video to learn more about brain injuries in Colorado:



Educational Materials

- [Best Practices in Concussion Management](#) – An online tool developed by concussion experts in Colorado
- [CoKidsWithBrainInjury](#) – A website for parents, educators, and professionals who serve kids with brain injuries
- [REAP](#) – Reduce/Remove, Education, Adjust/Accommodate, Pace – Community Based

<https://biacolorado.org/referral/>

ABOUT

PUBLIC POLICY

ADULTS WITH BRAIN INJURY

KIDS WITH BRAIN INJURY

FOR PROFESSIONALS

FUNDRAIS

Survivor Referral Form

Individual Making Referral

If you are a survivor filling out this form, skip to the next section.

REFER A SURVIVOR

BRAIN INJURY PROFESSIONAL NETWORKING (BIPN)

RESOURCE DIRECTORY

EDUCATIONAL MATERIALS

ANNUAL PROFESSIONAL CONFERENCE

CALENDAR

Name

First

Last

Relationship to Survivor

Phone

Email

Join Our M

Email

First

Last

Brain Injury Alliance of Colorado

**Thank you for your time!
Questions? Comments? Feedback?**

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