

The Gift of Knowing

June 3, 2026



Indian Health Service
Anna Knight MS, APRN, FNP-C
Program Directors Meeting





Learning Objectives

By the end of this session, participants will be able to:

- Describe key epidemiologic patterns, risk factors, and protective factors for brain injury among American Indian and Alaska Native populations.
- Identify signs and symptoms, early and chronic, of brain injury and recognize barriers to timely identification in tribal and rural clinical settings.
- Apply culturally responsive and trauma-informed principles during brain injury screening and assessment.
- Compare commonly used brain injury screening and assessment tools and select feasible options for IHS, tribal, and urban Indian health systems.
- Discuss strategies to strengthen care coordination, referral, and follow-up while respecting tribal sovereignty and community priorities.



Disclosures

Financial and Personal

I have no financial disclosures.

My mother had a severe traumatic brain injury at age 3.

My husband had a severe traumatic brain injury at age 15 and an accidental non-fatal opioid overdose at age 40.

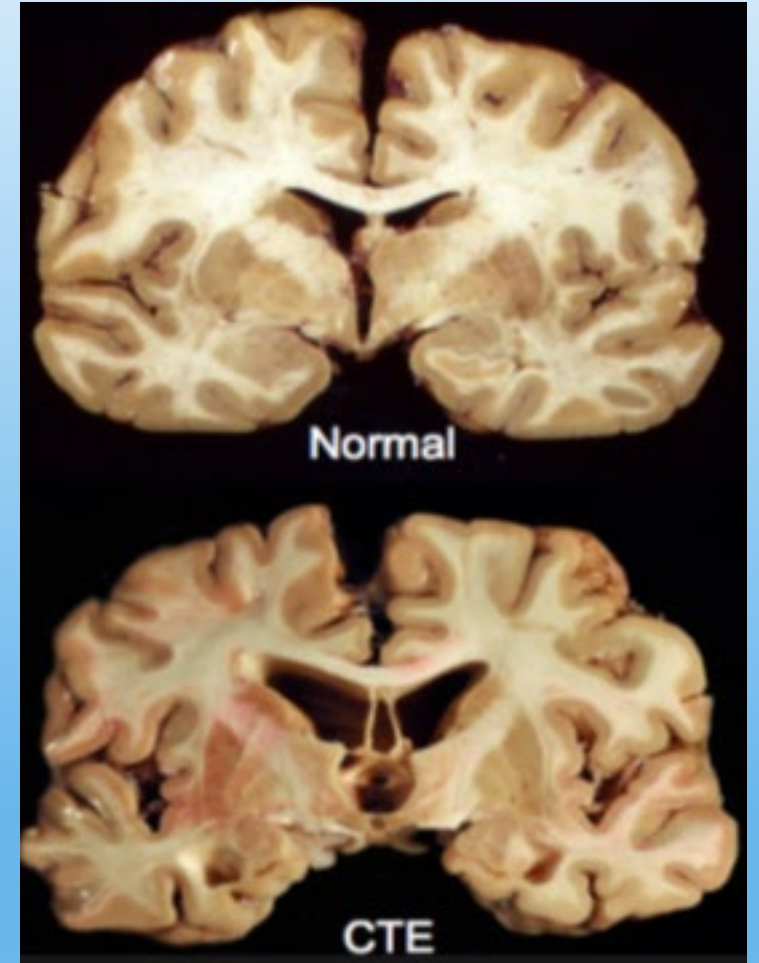
I have had countless patients with a history of brain injury, that I failed to recognize the sequelae of their injury, ensure accommodations and support, whose outcomes could have been better if only I had given them the gift of knowing.



The Brain



80% of brain injuries are mild, under-recognized and under-reported



Case Story

- 56 year old male
- Married, recently separated
- Disabled due to work related back injury
- CC: memory problems, chronic headaches, difficulty falling asleep and staying asleep
- Age appropriate, dressed appropriately, friendly
- Recent incarceration for 'verbal assault' – states he's never been arrested before and has never even had a traffic violation



Use these questions to help a person recall injuries that may have involved an impact to the head or neck.

	YES	NO
T TRAUMA: An injury that includes a blow to the head, the head having impact with another object (e.g., the ground, a windshield), or substantial shaking without impact.		
Have you ever been knocked out following an accident, an assault, or any other injury?	X	
Have you ever been injured		
... in a car or bike accident?	X	
... from being hit by something?		X
... in a fight?		X
... playing sports?	X	
... by a family member?		X
... while serving in the military?		X
... being near an explosion?		X
Have you ever been treated in an emergency room, or hospitalized following an injury?	X	
Were you ever injured and should have received medical attention but didn't?	X	

With the identification of a possible trauma, next evaluate whether any of the injuries caused an altered state of consciousness.

For each injury, determine if the person was hit in the head, near an explosion, or if the head could have been shaken violently. If so, was the person dazed or confused, have a period of memory lapse, or actually knocked out or unconscious?

Incident	Age at time	Were you dazed or confused (D/C), have a lapse in memory (Mem), or actually knocked out (KO)?	If knocked out, how long?	Were you treated in the ER, hospitalized, or admitted to a rehabilitation facility?		
				ER	Hosp	Rehab
Football Helmet: XLo + LOC Concussions	15-20	(D/C) Mem (KO)	<30°			
MVA	23	(D/C) Mem (KO)	74°	(ER)	(F) Hosp	Rehab
Fall / Found down DNEMS	50	(D/C) Mem (KO)	74°	(ER)	(F) Hosp	Rehab
		D/C Mem KO		ER	Hosp	Rehab

After any of your injuries did any of these persist for more than several weeks?

	YES	NO
Headaches	X	
Dizziness or balance problems	X	
Tiredness or fatigue	X	
Problems paying attention or concentrating	X	
Being sensitive to bright lights or loud noises	X	
In the months after any of your injuries did you:	YES	NO
Have new problems at work or school, or lose a job?	X	
Notice changes in your relationships with your family (wife, husband, parents, friends)?	X	
Have trouble remembering things or solving problems?	X	
Feel depressed or anxious more than before the injury?	X	
Have trouble controlling your temper?	X	

I
IMPACT ON EVERYDAY FUNCTION: Following the injury, new onset or exacerbation of symptoms (e.g., headaches, dizziness, fatigue, depression) or function (e.g., attention, memory, employment, relationships).



SHAAKE

Example 1

[Head shake examples](#)



Nowinski, C. J., Bureau, S. C., Rhim, H. C., Zafonte, R. D., Cantu, R. C., & Daneshvar, D. H. (2024). Spontaneous Headshake after a Kinematic Event (SHAAKE): Evaluating the Utility of a Potential New Sign in the Diagnosis of Concussion. *Diagnosics*, 14(20), 2314. <https://doi.org/10.3390/diagnostics14202314>



Fast Facts

New Brain Injuries in the U.S. Each Year

Prevalence

The total number of people living with traumatic brain injury in the United States:

64,000,000

or 18.7% of U.S. population

The number of all case of brain injuries is even higher.

Traumatic Brain Injury – Pediatric	➔	5.2 million* Emergency, inpatient and outpatient
Traumatic Brain Injury – Adult	➔	12.6 million* Emergency, inpatient and outpatient
Traumatic Brain Injury – Military	➔	10,167
Stroke	➔	795,000
Brain Tumors	➔	90,000
Dementias	➔	514,000**
TOTAL:		= 19,218,167 NEW BRAIN INJURIES/YEAR or 5.6% of the U.S. population

Lesser Recognized Causes of Brain Injury

Drug Overdose with Hypoxia/Anoxia – Non-Fatal Opioid Overdose (NFOO)

Brain Infection

Metabolic Disorders

Epilepsy/Seizure disorder

Neurotoxic poisoning

Congenital Injuries

Near drownings



*“Will I ever be normal
again?”*

*“This was my 6th
overdose; all my
friends have had at
least that many or
more. We are all
struggling.”*





Common Causes of Brain Injury

American Indians/Alaska Natives

- Motor vehicle accidents – cars, ATV's, motorcycles
- Falls
- Self-harm and Assaults
- Other unintentional accidents
 - **Non-Fatal Opioid Overdose**

Indian Health Service, 2025. Injuries. [Injuries | Fact Sheets](#)
[Fentanyl Overdoses May Cause Brain Injury | Psychology Today](#)



Non-Fatal Opioid Overdose

“Respiratory depression is a defining characteristic of opioid overdose and prolonged cerebral hypoxia may cause brain injuries and/or neurocognitive impairments. The onset, characteristics, and duration of such injuries is variable, and additional research is needed to understand their clinical implications.”

doi:10.1016/j.drugalcdep.2021.108838



The Typical or Atypical NFOO?



L.Y. Choo et al.

Drug and Alcohol Dependence Reports 18 (2026) 100405

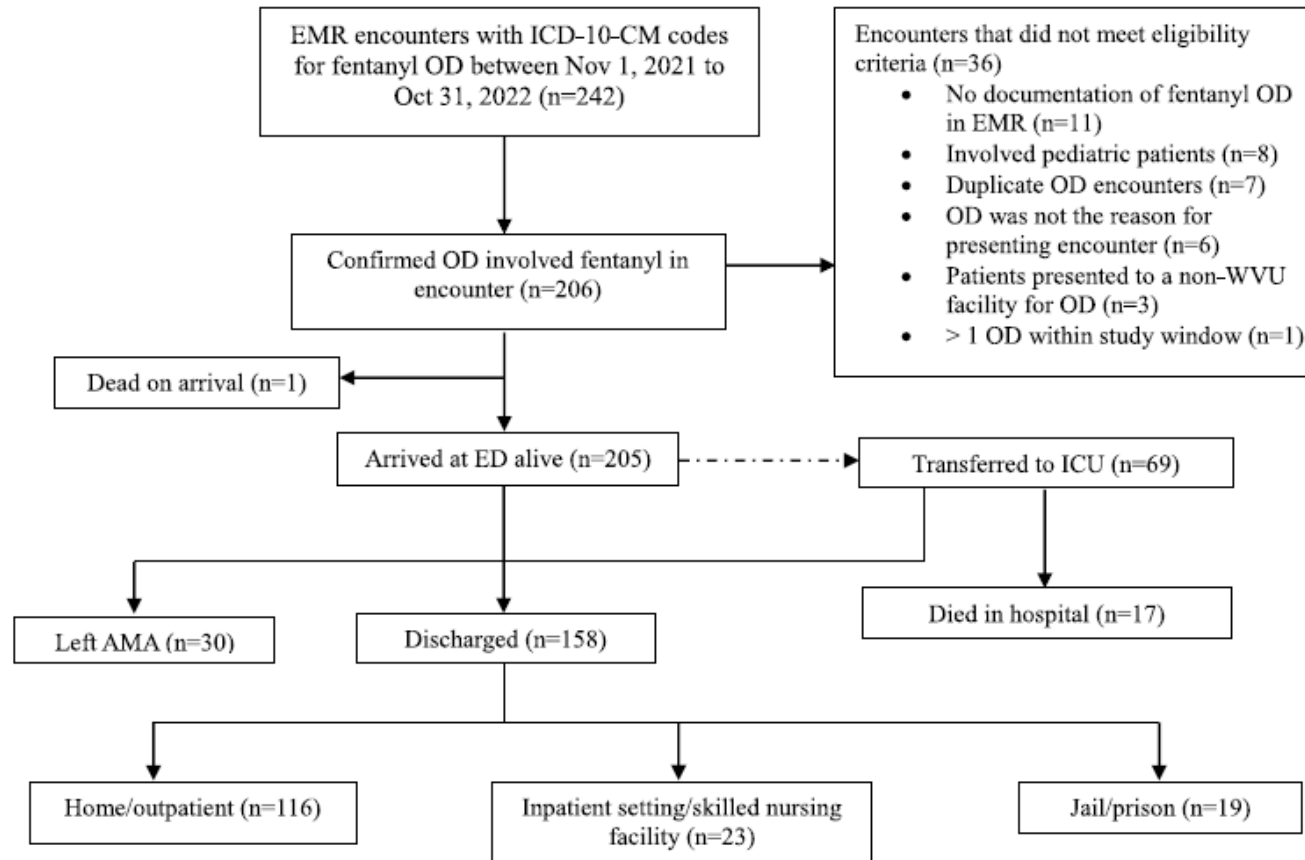
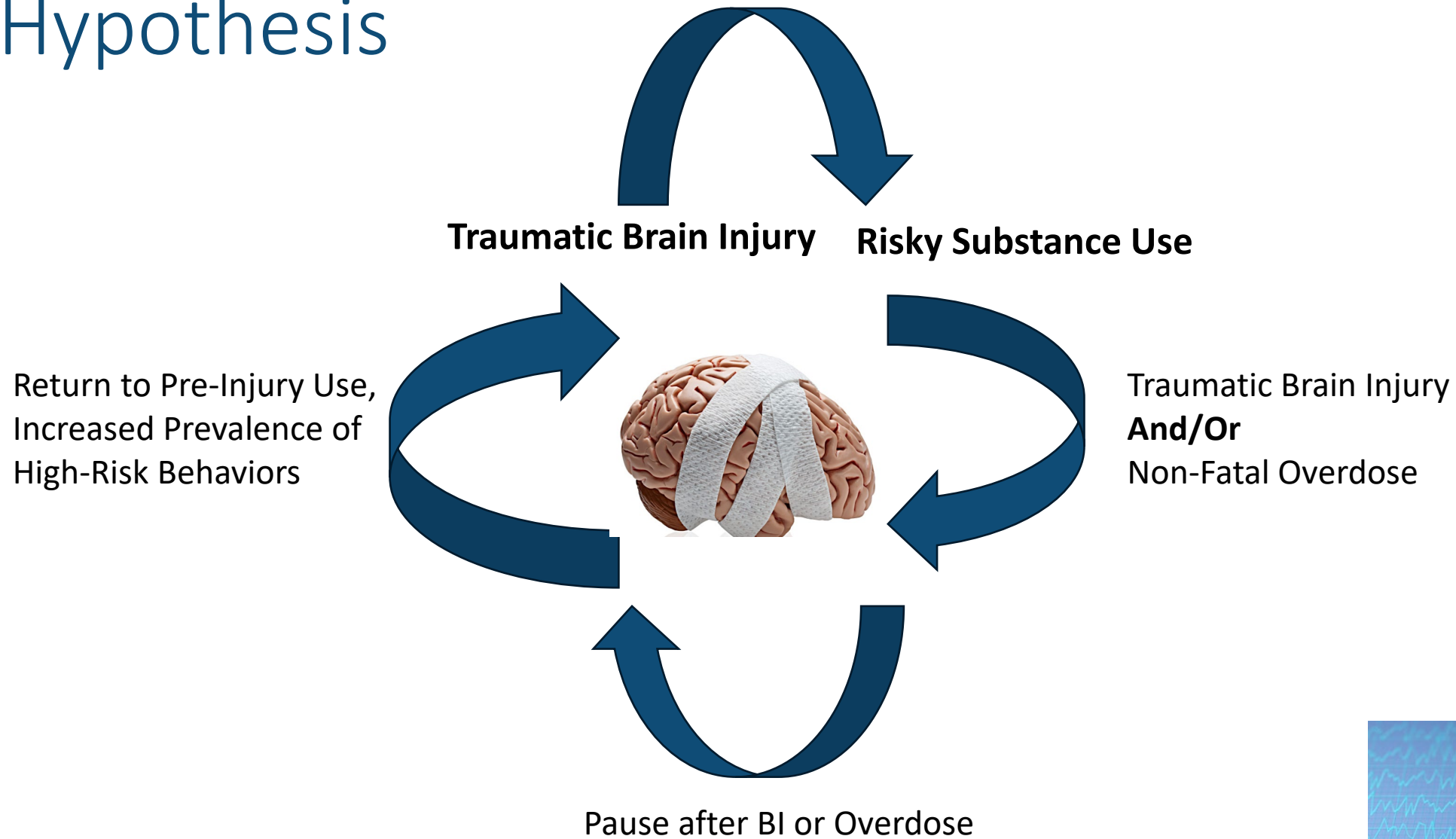


Fig. 1. Patient flow and journey within the health system from ED admission to discharge.

Hypothesis



The Multi-System Impact

One in five people in the U.S. have had a brain injury – It affects people of all ages

50% of patients in the mental health system

50% of patients receiving substance use treatment

80% of patient receiving both mental health and substance use treatment

87% of people in the criminal justice system

67% of youth in the criminal justice system

50% of unhoused

20 million women each year suffer a brain injury as the result of domestic violence

60% of those with a history of TBI develop chronic pain

ACES overlap with brain injury and alter brain development

5 million Americans have a disability due to brain injury

Possible Impairments After A Brain Injury

Immediate and Long-term

Physical	Cognitive	Behavioral/Mood	Vestibular/Ocular
<ul style="list-style-type: none"> Motor Coordination Hearing and Vision Loss Spasticity and Tremors Fatigue Loss of Taste and Smell Balance problems Mobility Speech Seizures Headaches Chronic Pain Changes in Sleep Patterns 	<ul style="list-style-type: none"> Memory Decision Making Planning Judgement Slowed Processing Problem Solving Organization Concentration Lack of Awareness Language Initiation 	<ul style="list-style-type: none"> Mood swings Depression Impulsivity – Loss of control Inappropriate behavior Socially inappropriate Physical and verbal violence Poor self-esteem Relating to others No empathy Maintaining/Forming Relationships Agitation Irritability 	<ul style="list-style-type: none"> Balance issues Blurred vision Double vision Dizziness



What To Look For

- Looking uninterested because they cannot pay attention
- Appearance of defiance because they cannot remember the rules
- Slow to follow directions because they cannot process quickly
- Getting into fights because of irritability, anger and impulsivity
- Falling into things, often getting hurt
- Difficulty re-entering community because of cognitive changes
- Getting stuck on an idea or a way of doing something, not recognizing mistakes

Screening and Evaluation

How to help

- ❖ **SCREEN** for prior brain injuries
- ❖ **ASSESS** for neurocognitive and functional impairment
- ❖ **EDUCATE** staff, patient and their family about brain injury
- ❖ **PROVIDE** simple accommodations:
 - ✓ Planner to keep track of appointments or setting reminders on their phone
 - ✓ Refer them to any community resources like symptom specialists they might need
 - ✓ Monitor over time and help them to know what types of things to look out for: trouble thinking, substance use, mental health, pain, trouble with the law, and suicidal ideations.



Frequent 'no-shows'

Poorly controlled T2DM

Insomnia

Behavioral health

Substance use



988 LIFELINE

If you need to talk, the 988 Lifeline is here.

At the 988 Suicide & Crisis Lifeline, we understand that life's challenges can sometimes be difficult. Whether you're facing mental health struggles, emotional distress, alcohol or drug use concerns, or just need someone to talk to, our caring counselors are here for you. You are not alone.

 **Call**

 **Text**

 **Chat**

 **Deaf/HoH**



OSU TBD ID | Ohio State Brain Injury Prevention & Rehabilitation Prescreening for Lifetime History of TBI (from the OSU TBI-ID) and other Acquired Brain Injuries Ohio State University TBI Identification Method — Interview Form TBI-Screening_v2.pdf

Brain Injury Assessment Tools

How to Judge Injury Severity

<p>MILDER</p> <p>MORE SEVERE</p>	Loss of consciousness of 30 minutes or less	Temporary effects	Having several TBIs with any loss of consciousness may show cumulative effects (e.g., though each of the TBIs are mild, their combined effect may be like a moderate or severe TBI).
		Some individuals will have a less severe TBI, but experience greater effects because of an interaction between the TBI and other neurologic compromises.	TBIs requiring hospitalization are generally more severe than those requiring ER care (however, hospitalization can be for injuries other than the TBI).
	Effects that persist	TBIs that have more effects on everyday functioning are more severe.	TBIs requiring rehabilitation are generally more severe than those requiring hospitalization only (however, rehabilitation can be for injuries other than TBI).
	Having no recall of a day or more <i>after</i> the injury	More severe TBI will be associated with greater cognitive, behavioral, and emotional problems. Often, the problem is regulating one's thinking, actions, or emotions.	May not report significant effects because they are not able to recognize changes in their ability to function because of an "unawareness" of deficits, (a specific kind of cognitive impairment that can result from TBI).

Support

- I encourage caregivers to manage the scheduling of appointments and go with the patient.
- Specialty
 - **Neurology**
 - Speech Therapy
 - Occupational Therapy
 - Physical Therapy
 - Acute Brain Injury Programs
 - Neurorehabilitation
 - Neuropsychology for full testing and evaluation with recommendations
 - **Psychiatry**
 - Neuro + Substance Use Rehabilitation [Neurobehavioral Services](#)
[| NeuroRestorative](#)



Brain Injury Prevention

Across the Lifespan

Children	Adolescents	Adults	Older Adults
<ul style="list-style-type: none"> • Safe sleep • Helmets • Car seats, seat belts, hot vehicles • Water safety – baths, buckets, rivers, lakes, pools • No shaking • Window guards • Baby gates • Non-slip mats in bath/shower 	<ul style="list-style-type: none"> • Seat belts • Sports safety • Substance use prevention • Healthy brain education and safety talks • Discussions on decision making 	<ul style="list-style-type: none"> • Workplace safety • Healthy relationships • Mental health • Helmets • Substance use prevention 	<ul style="list-style-type: none"> • Fall prevention • Home safety • Medication • Non-slip mats • Lighting • Regular vision exams • Strength training and regular exercise • Substance use prevention

ROUTINELY ASSESS FOR LIFETIME BRAIN INJURY



Resources for Families

- [Home | MSKTC](#) Model Systems Knowledge Translation Center
 - [American Indians: Understanding Traumatic Brain Injury | MSKTC](#)
- [BrainLine | All About Brain Injury and PTSD](#)



[Brain Injury ID Card | BrainLine](#)

brainline.org Emergency ID

Name: _____

Address: _____

Telephone: _____

Emergency Contact: _____

Emergency Contact Telephone: _____

I HAVE A BRAIN INJURY.

Symptoms caused by my injury may include:

- Poor coordination or unsteady walking
- Impaired talking, seeing, hearing, understanding, or remembering
- Confusion, disorientation, or distractibility
- Slow response to questions
- Agitation, irritability, impatience, or anxiety
- Anger, aggression, or explosive behavior

Please help me through this crisis by being patient and by calling the emergency contact number on the other side of this card.


For more information on brain injury, please visit BrainLine at www.BrainLine.org.



Cultural & Community Considerations

- Prevention is protecting family and community well-being
- Collaborate with community healers, elders, and medicine people when appropriate
- Mind, body, spirit, and environment are interconnected
- Partner with tribal health programs, cultural liaisons, and community wellness initiatives





People can learn how to manage the physical, emotional, and behavioral problems caused by TBI. Rehabilitation, therapy, and other supports can help.

Source: Our health information content is based on research evidence and/or professional consensus and has been reviewed and approved by experts from the TBI Model Systems and Polytrauma Rehabilitation Centers. The resource has also been reviewed by American Indians with TBI and their family members. **Disclaimer:** This information is not meant to replace the advice of a medical professional. You should consult your health care provider regarding specific medical concerns or treatment. The contents of this resource were developed under grants from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant numbers 90DPKT0008 and 90DPKT0009). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this resource do not necessarily represent the policy of NIDILRR, ACL, or HHS, and you should not assume endorsement by the federal government. **Copyright** © 2025 Model Systems Knowledge Translation Center (MSKTC). May be reproduced and distributed freely with appropriate attribution. Prior permission must be obtained for inclusion in fee-based materials.





How the Department of Rehabilitation Serves TBI-impacted Californians

Direct Support

State-funded TBI Program Sites providing services and resources to individuals living with TBI.

Services include:

- Enhanced Information and Assistance
- Community Navigation
- Person Centered Case Coordination
- Community Reintegration
- Supported Living
- Vocational Supportive Services
- Public and professional education services

For information on partnering with the TBI program or becoming a TBI program site, please email at TBI Information email

TBI Program Sites

[DOR TBI Program Sites](#)

TBI sites are subject to change.

Please confirm with the site before referring.

**Brain Injury Center
of Ventura County
(Camarillo)**

**Central Coast
Center for
Independent Living
(Salinas)**

**Disability Resources
Agency for
Independent Living
(Modesto)**

**Dignity Health
Mercy General
(Citrus Heights)**

**FREED Center for
Independent Living
(Grass Valley)**

**California
Resource Services
for Independent
Living (Pasadena)**

**Jodi House
(Santa Barbara)**

**Community
Resources for
Independent Living
(Hayward)**

**Rolling Start Inc.
(San Bernadino)**

**San Diego Brain
Injury Foundation
(San Diego)**

**Disability Action
Center
(Chico)**

**St. Jude Brain
Injury Network
(Fullerton)**

Recorded Webinars



March 24th and 31st – IHS National Webinars with Dr. John Corrigan from the Ohio Valley Center for Brain Injury Prevention and Rehabilitation will present on

- How to recognize and screen for brain injuries
- Implement neurologic informed care
- Understand cognitive impacts on recovery
- Adapt treatment environments and methods: creating supportive environments, such as reducing noise, adjusting lighting, and allowing for restlessness, along with practical strategies like visual aids, repetition, and hand on tools. Have patients repeat back instructions to evaluate what they understood.
- Address sleep disorders
- Individualized care to reduce substance use risks

<https://youtu.be/NuMGSZmkCUc>

Pain and Opioid Use Disorder Webinar Series:
What If There's a Brain Injury?



John D. Corrigan, PhD
Director
Ohio Brain Injury Program
Professor
Department of Physical Medicine & Rehabilitation
The Ohio State University



<https://youtu.be/hrAF9WQ5Fpk>

Pain and Opioid Use Disorder Webinar Series:
Neurologic Informed Care

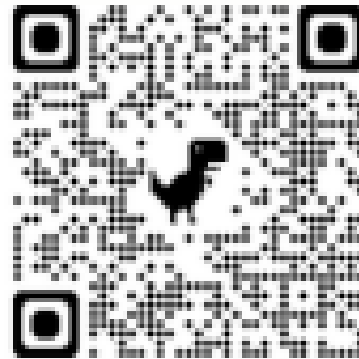


John D. Corrigan, PhD
Director, Ohio Brain Injury Program
Professor, Department of Physical
Medicine and Rehabilitation
The Ohio State University

Healthcare Provider Toolkit



Traumatic Brain Injury Toolkit
For Healthcare Providers



More free CME

Concussionandcte.org



A screenshot of the Concussion & CTE Foundation website. The header includes the organization's logo, a location selector for 'US', and a navigation menu with links for 'Resource Center', 'About Us', 'Programs', 'Stories', 'Get Involved', 'News', and a blue 'HELPLINE' button. The main content area features a dark blue background with a photo of a man in a white lab coat. A 'Resource Center' button is positioned above the main headline, which reads 'Free & Accredited Continuing Medical Education'. Below the headline is the text 'Free mTBI & CTE continuing education for licensed medical professionals.' and a blue 'LEARN MORE ABOUT CTE' button.



Key Takeaways

“The Gift of Knowing”

- Brain injury is **common, underrecognized, and often cumulative** in AI/AN populations.
- **Context matters:** culture, geography, access, and trust influence assessment and outcomes.
- **Early identification and culturally responsive care** can improve recovery trajectories.
- Clinicians play a key role in **closing gaps across systems** and supporting community-defined priorities.



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Thank you!

Questions?

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