

Overview & Impact of Brain Injury

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1

Brain Injury Defined

Acquired Brain Injury (ABI)

Traumatic
Brain Injury (TBI)

Non-Traumatic
Brain Injury

External Events: assault,
fall, blast injury, motor
vehicle crash

Internal Events: stroke,
tumor, anoxia,
aneurysm, infection

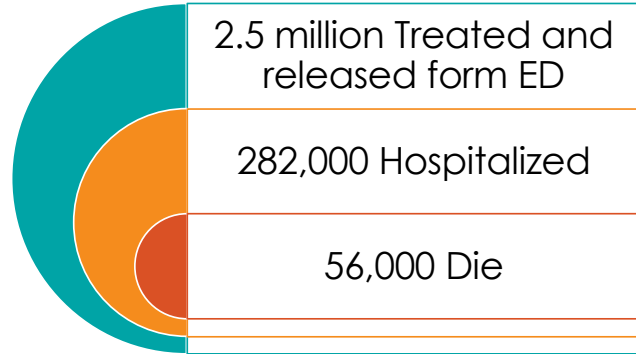
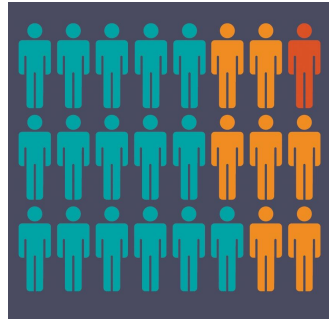
North Dakota's Definition

"Brain injury means damage to the brain or the coverings of the brain which produces an altered mental state and results in a decrease in cognitive, behavioral, emotional, or physical functioning. The term does not include an insult of a degenerative or congenital nature."

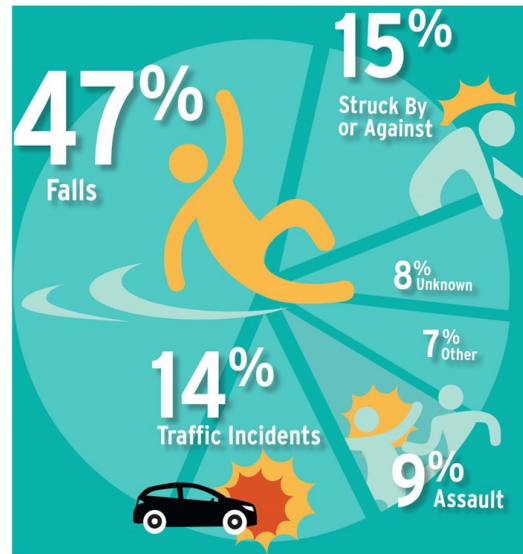
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2

2.8 Million TBIs a year



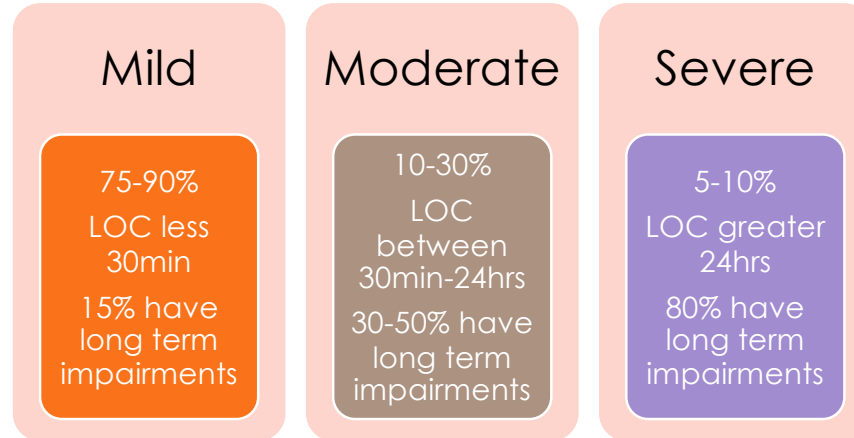
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Leading Causes of TBI

4

Severity Continuum



5

Brain injuries are like earthquakes.

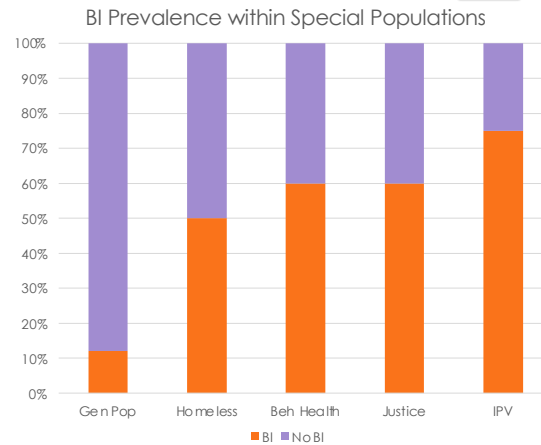
- ▶ In a major quake, a severe brain injury involving fractures, hemorrhages or penetrating wounds — bridges go down and buildings collapse. The city is devastated.
- ▶ But mild brain injuries are smaller quakes: Books fall off shelves; vases are broken. It's harder to survey the damage and easy to miss what's broken, but something is clearly wrong.



6

Health Disparities

- ▶ Screening programs have shown that brain injuries hide in plain sight
- ▶ Particularly in high-risk populations



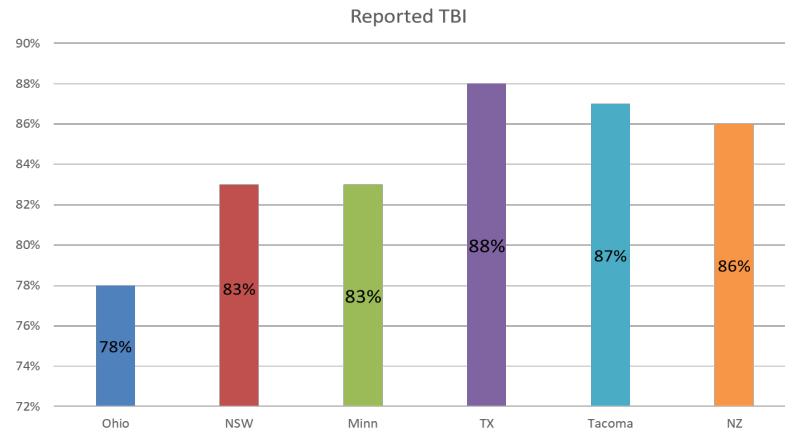
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Military & Veterans

- ▶ 450,000+ U.S. service members were diagnosed with a TBI from 2000 to 2021.
- ▶ The military conflicts from 2005 to 2018 increased the number of service members and Veterans living with TBI, but approximately 80% of TBIs among military service members occur in non-deployed settings.

8

Rates of Reported TBI among Incarcerated Persons



9

Juvenile Justice

- ▶ Adolescents in the NY City Jails that 67% of screened detainees reported a history of at least one brain injury⁷
 - ▶ Most frequent causes were assaults (55.5%) followed by falls (41%)
- ▶ Pennsylvania found more than half (53%) of juveniles screened in two detention centers⁸
 - ▶ Of the 133 juveniles who went on to receive neurocognitive testing, 74—or 56%—showed evidence of impairment.

10

Homelessness

- ▶ People who experience homelessness are 2 to 4 times more likely to have a history of any type of TBI
- ▶ 10 times more likely to have a history of a moderate or severe TBI
- ▶ Majority 1st injury prior to experiencing homelessness

11

Individuals experiencing intimate partner violence

- ▶ Screening among IPV survivors ranges from 30%-60% depending on the study.
- ▶ Survivors of intimate partner violence who have a TBI due to an assault are more likely to:
 - ▶ be diagnosed with PTSD, insomnia, and depression, and report worse overall health.

12

Tribal Populations

- ▶ American Indian/Alaska Native children and adults have higher rates of TBI-related hospitalizations and deaths **than other racial or ethnic groups.**
- ▶ Factors that may contribute to this disparity include difficulties accessing appropriate healthcare as well as higher rates of MVC, substance use, and suicide

13

Rural

- ▶ People living in rural areas have a greater risk of dying from a TBI compared to people living in urban areas.
- ▶ Some potential reasons for this disparity include:
 - ▶ more time needed to travel to emergency medical care, less access to a Level I trauma center, and difficulty getting services, such as specialized TBI care

14

Suicide Risk

Danish study found:

- ▶ Even seven years after injury, TBI patients still faced a 75 percent higher risk of suicide
- ▶ All types of head injuries were tied to an increased risk of suicide, but severe traumatic brain injury had the highest risk

15

Recovery After Brain Injury

There is no cure for brain injury.....

- ▶ Recovery is usually most rapid in the first six months.
- ▶ More like a **chronic condition** that has changing needs.

16

“Silent Epidemic” “Invisible Disability”

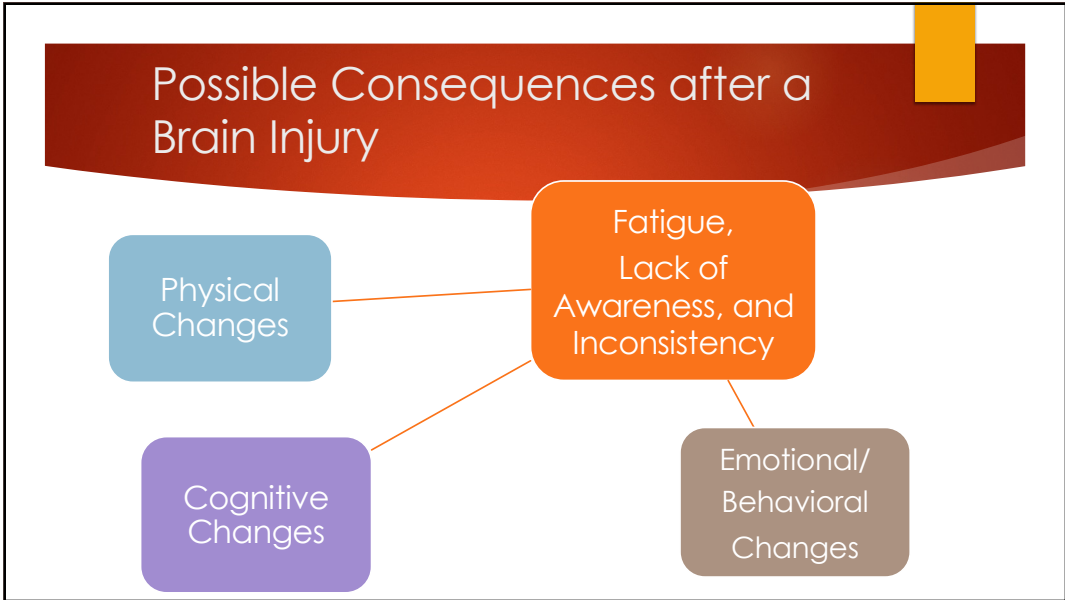
- ▶ Injury forgotten once physically healed
- ▶ Person looks the same
- ▶ May have no conclusive measures
- ▶ Individuals often told they would be fine
- ▶ Unreported / non-accidental injuries
- ▶ Minor blows to the head or “concussions” are often not perceived as “brain injuries”

17

Outcome Predictors

- ▶ Severity of injury
- ▶ Age of injury
- ▶ Access to appropriate acute care and rehabilitation
- ▶ Family life and support system

18



19

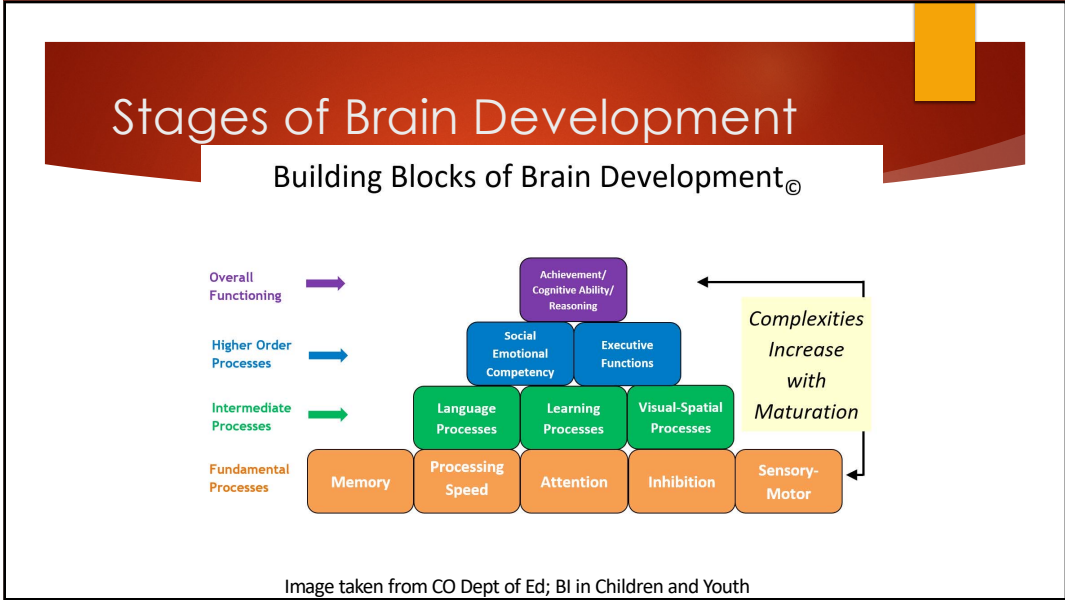


Image taken from CO Dept of Ed; BI in Children and Youth

20

Stages of Brain Development Following a Brain Injury



Image taken from CO Dept of Ed; BI in Children and Youth

21

ROWBOATS

- ▶ Reduce amount of information
- ▶ One instruction at a time
- ▶ Written & verbal when possible
- ▶ Breaks are helpful
- ▶ Often is better, routines help
- ▶ Ask person for paraphrase/repeat
- ▶ Take time, go slowly
- ▶ Simple & organized info is best



22

Screening/Symptom Inventory

Name: _____ Current Age: _____ Interviewer Initials: _____ Date: _____

Life History of Traumatic Brain Injury (from the OSU TBI-ID) and other Acquired Brain Injuries

Take this simple history of you may have sustained a brain injury. It is important to note that this is not a diagnosis, but is used for eligibility determination and ODSR requires a flow to have evaluation and assessment with a licensed professional. All information is kept confidential. Your answers may be reviewed confidentially by program staff and research investigators.

- Please think about injuries you have had during your entire lifetime, especially those that affected your head or neck. Forget things that occurred inside you such as the hospital or Emergency Department. Think about injuries you may have sustained from car accidents, work, sports, falls, being hit by something, being pushed, being hit by someone, playing sports or an injury during military service.
 - Thinking about any injuries you have had in your lifetime, have you ever looked out of all you lose consciousness?
 - Yes
 - No (If NO, GO TO QUESTION 2)
 - What was the longest time you were knocked out or unconscious? Choose just one, if you are not sure please enter your best guess.
 - knocked out or lost consciousness for less than 30 minutes
 - knocked out or lost consciousness between 30 minutes and 24 hours
 - knocked out or lost consciousness for 24 hours or longer
 - How old were you when you were knocked out or lost consciousness?
 - _____ years old
- Have you ever had a period of time in which you experienced multiple repeated impacts to your head as a result of falls, contact sports, military duty?
 - Yes
 - No (If NO, GO TO QUESTION 3)
- How old were you when these repeated injuries began?
 - _____ years old
- How old were you when these repeated injuries ended?
 - _____ years old

- Have you EVER been told by a doctor or other health professional that you had any of the following?
 - epilepsy or seizures
 - a stroke, cerebral vascular disease or a hearted vascular attack
 - a tumor of the brain
 - swelling of the brain (edema)
 - head effects or poisoning by substances
 - infectious meningitis or encephalitis
 - a brain bleed or hemorrhage
 - loss of oxygen to the brain. (the first time when you stopped breathing, had a stroke during or experienced a strangulation)

Interpretive Section
This section of the test is not based on a checklist of a perfect accounting of a person's lifetime history of brain injury. Instead, it provides a means to evaluate the likelihood that a person has had a brain injury. The following list of symptoms has been included for this lifetime exposure.

A person may be more likely to have ongoing problems if they have any of the following:

- **WITNESSED** - witnessed an assault
- **FAREWIT** - TB with loss of consciousness before age 15
- **NO TBI** - Spinal fluid where the equivalent of a brain bleed was in the head
- **OTHER SOURCES** - Any TB combined with another way brain function has been impaired

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Name: _____ Date: _____

Brain Injury Symptom Inventory

In recent weeks, how much have you been bothered by the following problem?
Please mark only one circle per item.

	N/A I don't have this problem	I have this problem but it never bothers me	I am slightly bothered by this problem	I am very bothered by this problem	I am extremely bothered by this problem
SECTION 1					
I have or might have important items (e.g., notes, papers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I forget what people tell me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I forget what I've read	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble with time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I forget what I did yesterday	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I forget things I've just learned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I forget meetings/appointments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I forget to turn off appliances (e.g., stove)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SECTION 2					
I have a hard time following conversations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can remember only one or two steps of instructions or directions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take too long to figure out what someone is trying to tell me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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23

ATTENTION ACCOMMODATIONS

- Reduce auditory and visual distractions
- Use visual aids to help with focus
- Work in quiet/non-distracting places or wear earplugs to drown out noise
- Break larger tasks into smaller, written down steps
- Use highlighters or color coding when following along with handouts
- Take frequent "brain breaks"
- Use a recorder to help remember important details
- Try using doodling or fidget devices to stay focused
- Schedule appointments during most alert time frames

Aside from being awake and alert, one of the most important cognitive abilities is being able to pay attention or concentrate on important things happening around us.

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ATTENTION



LOOK FOR:

- Sustained
 - Difficulty staying on task when working independently
 - Difficulty listening across the duration of a conversation/discussion/TV show
- Selective
 - Inability to complete tasks
 - Difficulty following a conversation and ignoring background noise
- Reduced concentration caused by auditory or visual distractors
- Difficulty concentrating caused by fatigue, worry or sadness
- Alternating
 - Leaving tasks incomplete after interruption
- Divided
 - Difficulty focusing on more than a thing at a time
 - Difficulty engaging in 2 tasks at once

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ATTENTION ACCOMMODATIONS FOR PROFESSIONALS

- **Attention Grabber**
 - Check for eye contact and initial attention
 - Engage in activity with something that demands attention or involves active participation (fill in on inventory, a challenge, or discussion that includes their participation)
 - Utilize visual aids
- **Reduce Distractions**
 - Allow for work in a quiet space/wear earplugs to drown out excess noise
- **Break It Down**
 - Give instructions brief, simple, and to the point
 - Summarize critical points of discussion/conversation
 - Present information in short and concise segments, one at a time
 - Suggest using a calendar or reminders on phone/works computer
- **Hands On**
 - Use movement and tactile activities to enhance energy and attention
 - Encourage note taking to record important information. (e.g., having them write down the date of the next meeting they are in the room)
 - Try to schedule appointments earlier in the day

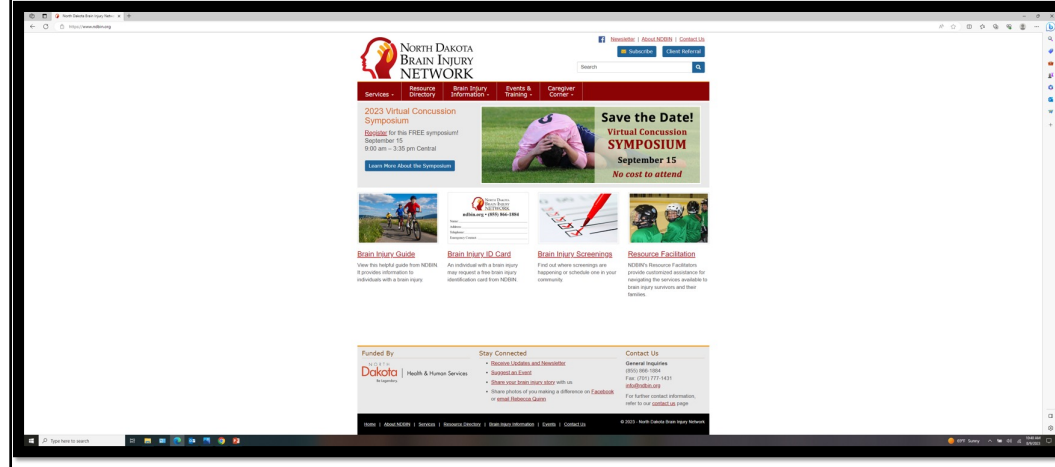
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Tip Sheets for Individuals & Professionals

24

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25

Chronic Condition

Unfortunately there is no cure for brain injury. There are many treatment options available and NDBIN is happy to help navigate the recovery process.

*Help for Today,
Hope for Tomorrow.*

26



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