Brain Injury: The Silent Epidemic

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Brain Injury Overview
Acquired Brain Injury (ABI)

An Acquired Brain Injury is an injury to the brain, which is not hereditary, congenital, or degenerative.

• All Brain Injuries are considered Acquired Brain Injuries.
Traumatic Brain Injury (TBI)

*Traumatic Brain Injury or TBI is defined as an alteration in brain function, or other evidence of brain pathology, caused by an external force.*

• All *Traumatic Brain Injury* is considered an acquired brain injury
ABI: TBI Causes

Traumatic Injuries
Major Causes of Traumatic Brain Injuries

- Falls: 28%
- Motor Vehicle Accident: 20%
- Struck by... (incl. Sports): 19%
- Assault: 11%
- Suicide: 1%
- Other: 21%

Source: National Center for Injury Prevention and Control, CDC
ABI—Non-Traumatic Brain Injuries

- Stroke
- Aneurysm
- Tumor
- Hypoxia or Anoxia
- Disease process (non-progressive)
- Neurotoxins
- Electric shock or lightning strike
Common Effects after Brain Injury

• **Cognitive:**
  - Short-term memory loss
  - Slowed processing speed
  - Executive Functioning
  - Communication Skills
  - Concentration/attention

• **Physical**
  - Seizures
  - Loss of smell and/or taste
  - Fatigue
  - Muscle Spasticity
  - Speech Impairments
  - Balance
  - Vision Issues
  - Headaches

• **Emotional/Behavioral**
  - Depression
  - Irritability
  - Impulsivity
  - Anxiety
  - Egocentric Behaviors
  - Mood Swings
TBI in the population

- 1.7 million TBI each year in USA & 90% of those survive
- 4,000/day
- 3/minute
- 10,000 Hoosiers per year in Indiana
8.5% of Americans have experienced a brain injury.
Unrecognized Brain Injury

• “You just had a concussion”
• Never went to the doctor—lots of reasons!
• Other injuries distract
• Incorrect diagnosis

Important to ASK!

• Have you ever hit your head or been knocked unconscious or dazed?
• Use OSU Screening Instrument
Why is this important?

How does this impact our communities?

How does this impact the efficacy of our services?
Populations at Risk of Brain Injury

- People with addiction issues (50%)
- People with mental illness (40-60%)
- People who have been incarcerated (60%)
- People in domestic violence situations (50-60%)
- People experiencing homelessness (40-60%)
- People who experienced childhood abuse (??)
- Athletes
- Males
Prevalence in Criminal Justice System

Meta-analysis of 20 epidemiological studies found 60% of offenders had history of TBI\(^1\) Compared to 8.5% of people in the community\(^2\)

\(^1\) Shiroma, Ferguson, & Pickelsimer (2012). J Correctional Health Care, 16(2), 147-159.

83% reported sustaining a TBI before their initial involvement with the criminal justice system.
Relationship Between TBI and Incarceration

- 7% of survivors of severe TBI had had legal involvement within 1 year after the injury. ¹
- 24% of subjects with TBI had committed crimes leading to arrests within a 2-year period. ²
- By 5 years after the head injury, 31% had legal involvement. ¹

People Experiencing Homelessness

- 45% of homeless men had TBI
- 73% of those had 1\textsuperscript{st} TBI before age 18
- 87% had first TBI before becoming homeless
- Mental illness & arrest is more common if a TBI is present

Topolovic-Vranic et al, 2014
Brain Injury & Substance Misuse

- Substance misuse can lead to brain injury
- Continued use complicates recovery from brain injury
- Brain injury complicates Substance Use Disorder (SUD) recovery
- 30% of people requiring rehab are intoxicated at time of injury
- Up to 50% of people seeking SUD tx have hx of TBI
- 10-20% of BI survivors develop substance use problems after injury
- Deaths due to accidental overdose 11x more likely w/BI
Brain Injury is a Significant and Unrecognized Risk Factor for Opioid Misuse

• People with TBI have a high rate of premorbid substance abuse

• TBI often results in headache or orthopedic injuries for which they are prescribed opioids (70%)

• TBI frequently results in impairment of:
  • Memory – people forget that they have taken their pain medication, and therefore take it again.
  • impaired judgement, self-regulation, and impulsivity which may lead to overuse of pain medication

• Prescribers unaware they are prescribing to someone with a TBI and the implications
Effects of Hypoxic Encephalopathy

- Memory impairment
- Executive Function Impairments
  - Planning
  - Problem-Solving
  - Self-monitoring & self-awareness
  - Mood and impulse regulation
- Motor coordination impairments
- Anxiety and agitation
Opioids and TBI: Discharge Data from RHI

• One year of discharges from October 22, 2016 to October 22, 2017
• Diagnosis of TBI
• Sample size = 232

• 149 (64%) on an opioid
• 47 (31%) on multiple opioids
Treatment Considerations with BI

• People with brain injury take 2-3x more treatment
• “Compliance Issues”
  • May be a comprehension issue
  • May be a memory issue
  • May be an executive functioning issue
  • May be impaired judgment
  • May be emotional regulation issues
  • May be a fatigue issue
Incidence of Depression & Anxiety post mTBI

- 50% of mTBI patients report psych symptoms (Personality change, irritability, anxiety, depression) in 1st 3 months

- Depression reported in 14-46% of mTBI in 1st yr after injury, 11-61% up to 50 yrs post injury (avg is 30%) (Struchten et al., 2009)

- Anxiety disorders occur in 11-70%

- Apathy in ~ 70% (Guillamondegui, et al., 2011)
Brain Injury & Suicidality

- Suicidal ideation, attempts, & completions 2-4x more likely
- Increased risk of depression & anxiety
  - Increased impulsivity
  - Poor problem solving
  - Cognitive impairment in learning, remembering, and implementing coping skills
- Increased risk of substance abuse
- Loss of self esteem and sense of efficacy

Teasdale & Engberg, 2001
Impairments that can affect access to, participation & follow through in getting assistance/resources

- Memory
- Processing
- Attention
- Emotion Regulation
- Problem Solving
- Anger/Rage
- Impulsivity
- Judgement
- Initiation
- Lack of a “filter”
Applying this Information: How to Help
The Ohio State University (OSU) Traumatic Brain Injury (TBI) Identification Method & ABI (OSU TBI-ID & ABI) is a standardized procedure for eliciting a person’s lifetime history of ABI via a 3-5 minute structured interview.

While not ideal for determining lifetime exposure to potentially damaging brain injury, self-report remains the gold standard for research and clinical use.
Disclaimers

• This is **NOT** a diagnostic tool, it is simply a screening tool for brain injury.
  • Diagnosis comes from a medical professional.

• This measure, and the results of this measure, do **NOT** inform the screener if the individual has a disability associated with his/her brain injury and if so, how the disability may affect the individual being screened.
  • Someone with a possible moderate-severe BI might not experience any long-term effects as a result, or may not have awareness of any effects.
  • Someone with a mild TBI might have a disability.

• Initial severity does **NOT** predict disability!
How to best *use* this Information

- Ask in the intake (NOT “have you had a brain injury”)
- Screen for brain injury, especially in populations with higher incidence
- Make referrals to brain injury-specific services for evaluation, treatment, and supports
- Get more training on how to be more effective for clients with brain injuries
- Follow through individually and as a system on implementation of the changes you make
- Bring up brain injury in coalition meetings, task forces, community discussions
Tips for Working with Clients post Brain Injury

• Write things down
• Encourage use of day planner, notebooks, calendars, electronic reminders
• Don’t assume “resistance”
• Provide appropriate accommodations
• Provide BI education for client & family
• Referral to brain injury support groups
Available Services to assist
Helpful Services

- Neuropsychologists
- Neurologists
- Physiatrists (PM&R)
- Psychotherapists with knowledge of BI

- Indiana Vocational Rehabilitation
- Resource Facilitation
- Employment Services
- Waiver Management
Resource Facilitation
Resource Facilitation

- Specialized service for people with brain injuries who have a return to work or return to school goal

  - Funded by Vocational Rehab
  - Assists with access to services & supports
  - Coordination among those services & supports
  - Provide education on BI and resources
  - Provided by a team of brain injury specialists
  - Specific service is tailored to specific needs
RF Services & Supports

**Basic Needs Services**
- Housing
- Transportation
- Food
- Applying for Social Services
- Obtaining GED
- Health Insurance

**BI Supportive Service**
- Strategies for Managing Cognitive/Behavioral Impairments
- Patient-Family Education about Brain Injury
- Consulting with other Providers about how to modify services for Brain Injury
Eligibility for Resource Facilitation

• Acquired non-progressive brain injury
• Goal of return to competitive employment or school that will lead to competitive employment (Not sheltered workshop)
• At least 17 years of age
RF Program Manager: Susie Crane, CBIS

Northern Indiana
Local Support Leader:
  Penny Torma, LSW, CBIS
Resource Facilitators:
  Kalina Baker, BSW, CBIS
  Karen Marsh, BSW, CBIS
  Khady Diop, BSPH, CBIS
  Tracy Stillman, CBIS

Central Indiana
Brain Injury Continuum Outreach Manager & Local Support Leader:
  Wendy Waldman, BSW, CBIST
Resource Facilitators:
  Pam Nihiser, CBIS
  Anthony Laffoon, MA, CBIS
  Chrissy Simpson, CBIS
  Mackenzie Coughlin, BSW

Southern Indiana
Local Support Leader:
  Jean Capler, MSW, LCSW, CBIS
Resource Facilitator:
  Mary Austin, CBIS
  Samantha Buente, CBIS
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