Understanding Traumatic Brain Injury (TBI) and Efforts to Aid Ex-Offenders Living with TBI

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Session Objectives

1. Increase knowledge of physiology and impact of traumatic brain injury.
2. Understand the prevalence of traumatic brain injury among incarcerated and formerly incarcerated individuals.
3. Highlight promising practices for assisting reentrants who have a TBI return to work and with successful reentry.
Men ought to know that from nothing else but the brain come joys, delights, laughter and sports, and sorrows, grief's, despondency, and lamentations. And by this, in a special manner, we acquire wisdom and knowledge, and see and hear and know what are foul and what are fair, what are bad and what are good, what are sweet and what are unsavory... And by the same organ we become mad and delirious, and fears and terrors assail us... All these things we endure from the brain when it is not healthy... In these ways I am of the opinion that the brain exercises the greatest power in man.

-Hippocrates, On the Sacred Disease (Fourth century B.C.)

What is Traumatic Brain Injury?
Acquired Brain Injury

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

• All Brain Injuries are considered Acquired Brain Injuries.
• Some examples of Acquired Brain Injury include stroke, intracranial hemorrhage, tumor, encephalopathy (e.g. hypoxia, infectious), neurotoxins or electric shock, TBI.

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.

• Any Traumatic Brain Injury is considered an acquired brain injury
• Traumatic Brain Injuries are considered preventable.
• Some examples of TBI are motor vehicle accidents, motorcycle accidents, bicycle accidents, assaults, falls, gunshot wounds, concussions, sports accidents, etc.
ABI:

• **Traumatic Brain Injury Causes:**
  • Falls, Vehicle accidents, Hit on the head by an object—piercing/contusion, Assaults, Blast injuries, Sports Injuries, etc.

• **Non-Traumatic Brain Injury Causes:**
  • Stroke, Aneurysm, Tumor, Hypoxia/Anoxia, Disease process (non-progressive), Neurotoxins, Electric shock or lightening strike (including ECT)

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**Every Brain Injury is Unique**

• What type of brain injury?
• What part of the brain is injured?
• Who’s brain is it in?
  • How did their brain work before?
  • Support system before?
  • Prior complications?
Parts of the Brain

- Sensory Functions:
  - Differentiation in Size, Shape, Color
  - Visual/Spatial Perception
  - Language Functions (reading, writing, arithmetic)

- Visual/Spatial Perception

- Language Functions (reading, writing, arithmetic)

- Skilled Motor Activity
- Balance
- Coordination

- Brain Stem:
  - Breathing
  - Heart Rate
  - Sleep/Wake (Arousal)

- Frontal Lobe:
  - Problem-Solving
  - Initiation
  - Judgment
  - Inhibition of behavior
  - Planning/Anticipation
  - Self-Monitoring
  - Awareness of abilities/limitations
  - Personality/Emotions
  - Organization
  - Attention/Concentration

- Temporal Lobe:
  - Language (understanding, receiving)
  - Organizing/Sequencing

- Occipital Lobe:

- Cerebellum:

How does TBI affect people?
Common Effects of Brain Injury

• Emotional
  • Anxiety & depression
  • Impulsivity
  • Mood swings & difficulty moderating emotions
  • Agitation/Irritability
  • Lowered self esteem
  • Restlessness
  • Egocentric behaviors

Common Effects of Brain Injury

• Physical
  • Seizures
  • Headaches
  • Fatigue
  • Sleep disturbance
  • Balance problems
  • Speech & vision problems
  • Motor coordination, spasticity, paralysis
Common Effects of Brain Injury

• Cognitive
  • Short term memory loss
  • Slowed processing speed
  • Attention & concentration
  • Executive functions: Planning, Decision-making, Judgment, Initiation, Self-regulation, Awareness, etc.
  • Communication Skills

<table>
<thead>
<tr>
<th>TBI Consequence</th>
<th>Functional Impact on Behavior</th>
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<tbody>
<tr>
<td>Attention deficit</td>
<td>Difficulty focusing on or responding to required tasks or directions</td>
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<tr>
<td>Memory deficit</td>
<td>Difficulty understanding or remembering rules or directions</td>
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<td>Irritability or Anger</td>
<td>Incidents with correctional officers</td>
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<td>Uninhibited or Impulsive Behavior</td>
<td>Poor Inhibition of emotions or desires (e.g., theft or drug use, rage)</td>
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<td>Executive Function deficit</td>
<td>Difficulty organizing behavior to execute stated intentions or goals</td>
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<td>(e.g., don’t actually do what they wanted or said they would do)</td>
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Neuropsychology of Criminal Behavior

• Criminal Behavior is driven by multiple factors (biological, social, psychological)

• TBI however has been demonstrated to be a significant risk factor for incarceration even in subjects with no previous criminal history

• TBI + other risk factors represents an even greater risk factor for criminal behavior

TBI and Criminal Behavior

• TBI in offenders is associated with 1, 2
  • higher rates of infraction while in custody
  • Higher levels of reoffending
  • Committing more violent crimes

• Inmates with TBI were found to have significantly greater risk of violence and self-harm3

TBI and Criminal Behavior

• Aggressive behavior in TBI was significantly associated with
  • Major depression
  • Frontal lobe injury
  • History of drug and alcohol abuse (further compromise of brain functioning)


TBI and Criminal Behavior

• In a study of incarcerated adults,
  • violent inmates had a history of TBI as well as academic and behavioral problems in school
  • Non-violent inmates had only a history of academic and behavioral problems in school
Therefore

• Appropriate brain injury rehabilitation may prevent crime

• Screening for TBI at intake into the DOC and staff training and TBI-specific behavioral protocols may reduce incidents

• Screening at discharge and triage to brain injury resources may reduce re-offending and re-incarceration

How common is TBI?
TBI Prevalence

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

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Relationship Between TBI and Incarceration

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

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TBI in IDOC

• Study conducted by Indiana Public Policy Institute
• December 2012 – one month screening of all male IDOC inmates
• Nearly 1/3 likely have TBI
  • Mild: 19.7%
  • Moderate: 5.8%
  • Severe: 4.3%
  • Possible: 5.9%

% of IDOC Inmates with TBI

N = 873

TBI in IDOC

• No difference in TBI prevalence between racial or ethnic groups
• As compared with those who have no history of TBI, those with TBI are:
  • Younger, on average (31.9 years old versus 34.7 years old)
  • 2.2 times as likely to have a psychiatric disorder
  • 1.5 times more likely to have committed a crime against person
  • 1.5 times more likely to have been incarcerated in the IDOC in the past 10 years
TBI State Implementation Partnership Grant Program

Funded by 4 year grant through US Department of Health & Human Services, Health Resources and Services Administration Maternal and Child Health Bureau

**Goals**

1. Decrease recidivism and improve reentry outcomes for ex-offenders with moderate-severe TBI through participation in resource facilitation and related services
2. Increase community-based provider knowledge and awareness
Desired Outcomes

For Clients:
• Decrease in return to incarceration
• Decrease in re-arrest
• Increase in employment
• Increase in employment retention
• Improved functionality

For Service Providers:
• Increased knowledge and capacity to recognize and address TBI in clients

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
Brain Injury Specialized –
The Resource Facilitation Team

- Indiana VRS Counselors – Brain Injury Specialists
- Resource Facilitators
- Rehabilitation Neuropsychologist
- Clinical Manager, Brain Injury OTR
- Local Support Network Leader
- External Supports: Employment Specialists, Education, Mental Health, Transportation Services, Therapies, etc.

First Level of Intervention in Resource Facilitation

**Individual**
- The Resource Facilitator works with the person with brain injury and their family to provide:
  - Brain injury education
  - Facilitation of access to services, systems and supports applicable to each person as derived through the initial evaluation
  - Ongoing assessment of progress
  - Etc.
Second Level of Intervention in Resource Facilitation

• Environmental and Social
  • The Local Support Network Leader provides:
    • Community brain injury education and awareness
    • Identification or private and public resources & services applicable to brain injury (e.g., health & mental health care, rehabilitation, state agency, transportation, employment services)
    • Coordination and partnerships to promote seamless continuum from acute and clinical organizations to vocational and Community-based organizations

Eligibility for Resource Facilitation

• Acquired non-progressive brain injury

• Goal of return to competitive employment or school that will lead to competitive employment
Resource Facilitation Timeline

- Resource Facilitation Assessment
- Resource Facilitation Services
- Placement and 90 Follow-up
  - Contact with client every two weeks
  - Monthly team conferences

- Resource Facilitator
- Local Support Network Leader
- Neuropsychologist
- Clinical Therapist

How to refer a client to Resource Facilitation

Contact Wendy with the client's information.

Wendy Waldman, 317.329.2235
wendy.waldman@rhin.com
Partners

- **Indiana Department of Correction** – Lead Agency
- **Rehabilitation Hospital of Indiana** – Project Co-Manager; Programmatic Partner
- **Community Solutions** – Project Co-Manager
- **American Institutes for Research (AIR)** - Evaluator
- **IDOC Parole District 3**
- **Marion County Community Corrections/Duvall Residential Facility** – Programmatic Partner
- **Public Advocates in Community re-Entry (PACE)** – Programmatic Partner (Resource Facilitation)

TBI Project Timeline

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<th>Year 1</th>
<th>6/2014-5/2015</th>
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<td>Training on TBI screening protocol – Parole and PACE staff</td>
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<th>Years 2 – 4</th>
<th>6/2015-5/2018</th>
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<tr>
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<td>Screen and refer to Resource Facilitation</td>
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<td></td>
<td>Provide RF Services</td>
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<td></td>
<td>Ongoing Education of correctional and clinical staff</td>
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<td></td>
<td>Continue support groups</td>
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<td>Evaluate outcomes</td>
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Phase One Accomplishments

• Trained PACE and IDOC Parole staff to conduct the OSU-TBI-ID
• Determined baseline and established comparison group
  • 11.0% moderate – severe TBI (N=1,354)
• Developed educational materials and began educating program partners on TBI
• Education of correctional and clinical staff on TBI
• Initiated monthly support groups
• Established system for services

Phase Two Progress-to-Date (6/1/2015-9/6/2016)

• Phase Two Screenings: 12.1% moderate – severe TBI (N=1127)
• Program participation LOW
• Modified RF for this setting – Feasibility Study
• Focus on educating key sectors
Resource Facilitation (Light)

- Initial comprehensive PACE and RHI intake
- (Mini) Neuro-vocational Evaluation: RBANS, SASSI, WRAT4 reading, Card Sorting Test, Trail Making Test, BSI 18 (brief symptom inventory), NSI (neurobehavioral symptom inventory), FRSBE
- Client staffing with neuropsychologist with recommendations
- Possible referral to Vocational Rehabilitation for testing authorization (full NVE testing if authorized)

Resource Facilitation (Light) – cont’d

- Individual Case Management Sessions
- Emergency assistance (bus tickets, food, housing, etc.)
- Referral to other needed resources
- Education Groups:
  - TBI Education group
  - TBI Life Skills Group
  - TBI Career Networking Group
### TBI Project Timeline

#### Year 1
**6/2014 – 5/2015**
- Training on TBI screening protocol – Parole and PACE staff
- Designing data system and developing data sharing agreements
- Collecting screening data to establish baseline
- Referral to Support Groups of individuals screened Mod/Severe TBI
- Developing educational materials for those who work with ex-offenders (CJ, mental health providers, etc.)

#### Years 2 – 4
**6/2015 – 5/2018**
- Screen and refer to Resource Facilitation
- Provide RF Services
- Ongoing Education of correctional and clinical staff
- Continue support groups
- Evaluate outcomes

### In the meantime...

- Look for signs of TBI in your clients
- Learn how to use the OSU-TBI-ID screening; incorporate into intake protocol (contact Wendy Waldman at RHI)
- Refer folks who you suspect have TBI to:
  - **Department of Resource Facilitation at Rehabilitation Hospital of Indiana:** Contact Wendy Waldman: Phone: 317.329.2235
  - **PACE, Inc. (Public Advocates in Community re-Entry):** Phone: 317-612-6800 Website: [www.paceindy.org](http://www.paceindy.org)
- To learn more about TBI and the potential impact on clients:
  - **Brainline:** [http://www.brainline.org/](http://www.brainline.org/)
  - **Brain Injury Association of America:** [www.biaa.org](http://www.biaa.org)