Traumatic Brain Injury:

Screening and Assessing Offenders - How prevalent is it?

Brain Injury

Acquired Brain Injury ABI

An Acquired Brain Injury (ABI) covers ALL injuries to the brain – including both non-traumatic such as anoxic (lack of oxygen to the brain), or toxic (introduction of toxins or chemicals to the brain) and traumatic (external blows to the head from an outside source). Regardless of the cause of the brain injury, consequences of brain injury may be similar and the interventions may be the same.

Traumatic Brain Injury TBI

A Traumatic Brain Injury, "TBI" is a particular type of acquired brain injury; it is the result of an external blow to the head. A TBI can result in either an "open" head injury – where the skin and bone of the skull are actually penetrated and the brain may be exposed, or a "closed" head injury – where there is no lesion to the skin or skull but there is still damage to the brain within the skull.

Brain Injury - ABI

Acquired Brain Injury ABI

Traumatic Brain Injury TBI

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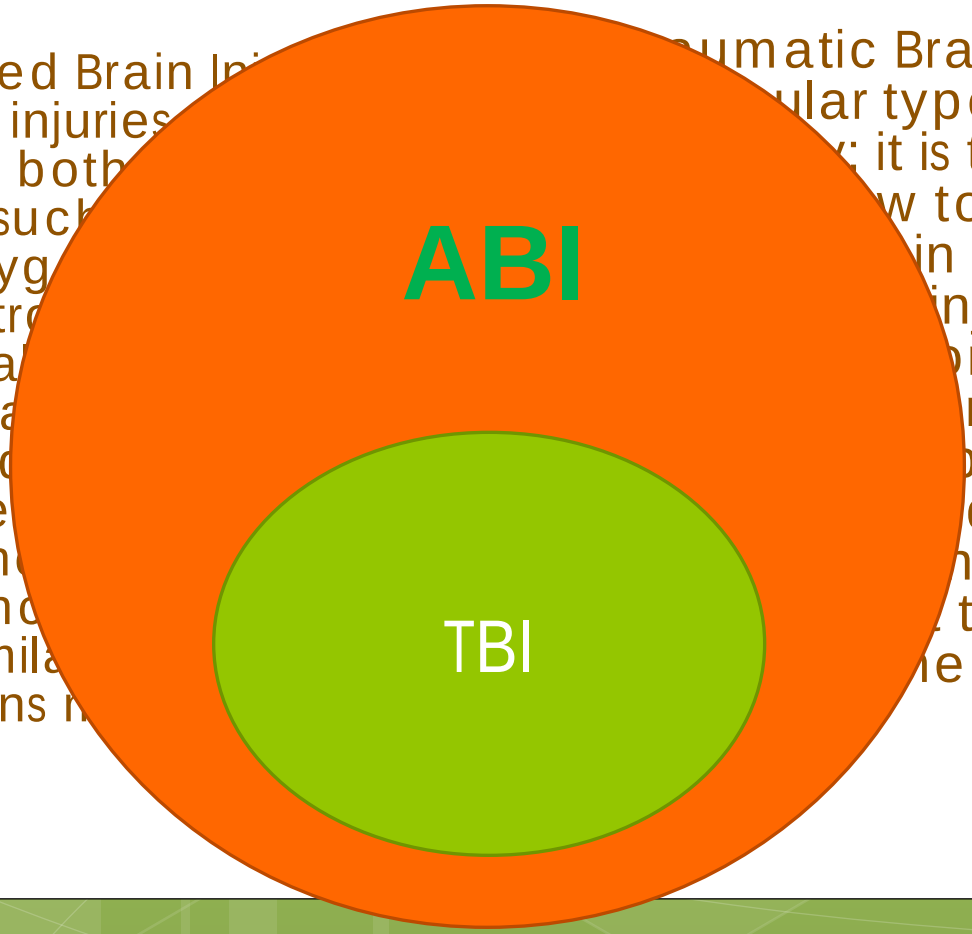


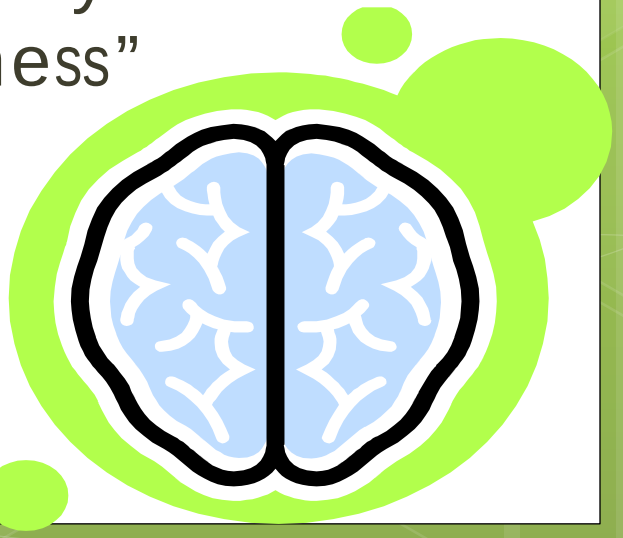
Review: Injury Severity

Mild	Moderate	Severe
Altered or LOC<30 minutes with normal CT and/or MRI	LOC<6 hours with abnormal CT and/or MRI	LOC>6 hours with abnormal CT and/or MRI
GCS 13-15	GCS 9-12	GCS<9
PTA<24 hours	PTA<7 days	PTA>7days

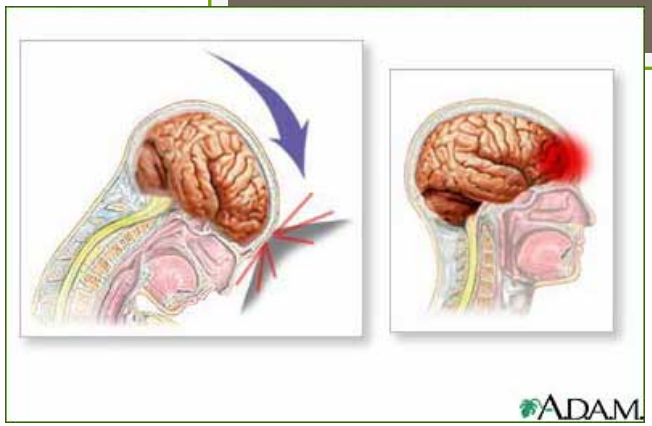
Definition of Concussion

Concussion = American Academy of Neurology:

"any trauma induced alteration in mental status that may or may not include a loss of consciousness"



CAUSE

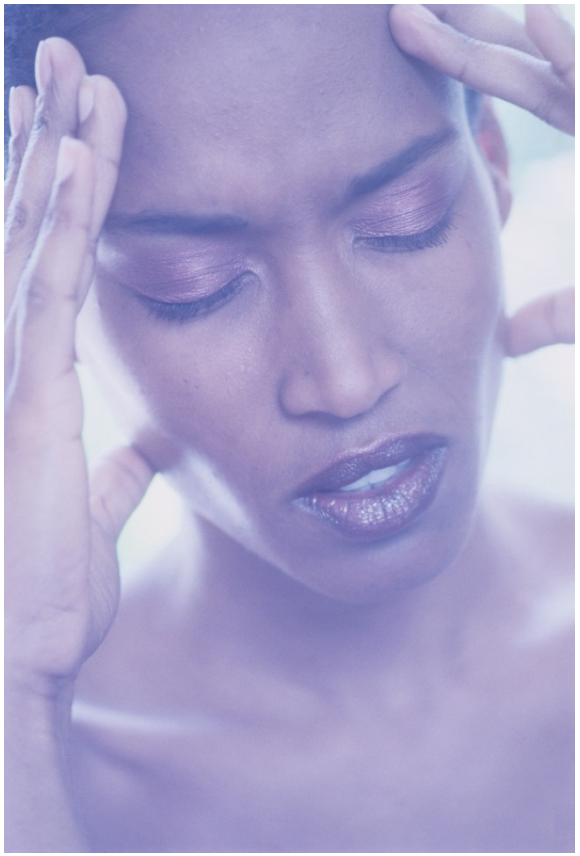


- Caused by an “impulsive” force transmitted to the brain
- Forces may be directly to head or transmitted via body
- Affects function NOT structure

ENERGY CRISIS

EFFECTS

- The way the person feels
  - Headache or fatigue
- How they think
  - Memory or concentration
- Change in emotions
  - Irritable or sad
- How they sleep
  - Trouble falling sleep



mTBI: THE HIDDEN EPIDEMIC

Symptoms may be subtle

- 90% of Concussions are not associated with a Loss of consciousness
- Concussive symptoms may develop over days

Often do not seek medical attention

- 90% of mTBI may go unreported

Peak15-24 years, > age 75

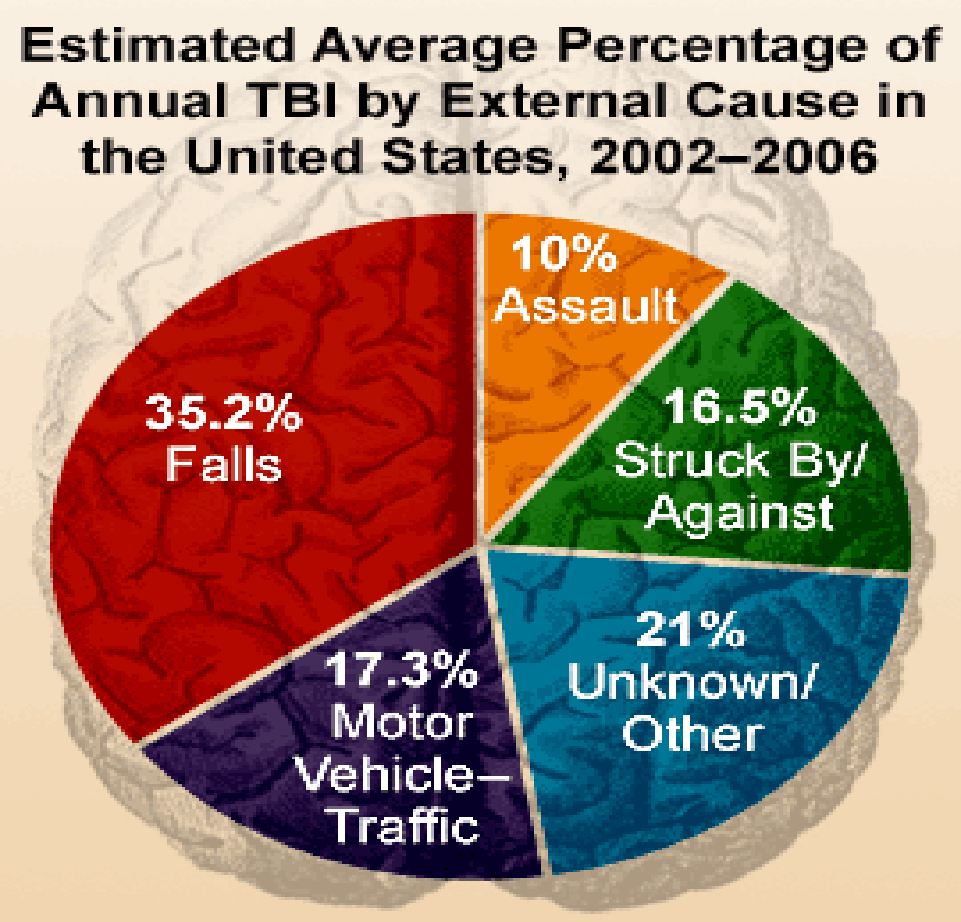
- 2nd peak: ≤ 5 years

Most individuals return to baseline functioning within 3 months to 1 year

7% to 33% have persistent symptoms

Belanger et al., 2005

Leading Causes of TBI



Common Causes of Non-Traumatic Brain Injuries

- Illness (e.g. high fever)
- Infections (e.g. meningitis, encephalitis)
- Anoxic injuries
- Strokes, vascular accidents
- Brain tumors
- Poisoning (e.g. ingestion, inhalation)
- Metabolic disorders (e.g. insulin shock)

Incidence/Prevalence

1.7 million Americans sustain a TBI annually
52,000 die
275,000 are hospitalized
1,365,000 million are treated and released from an Emergency Department

The number of people with TBI who are not seen in the ED or receive no care is unknown

CDC 2012

Colorado Statistics

Annually
103.9/100,000

950 Deaths

5,200 Hospitalizations

27,000 ED visits

Colorado TBI Surveillance System (2007-2009)

Scope of the Problem in Context

- More than two million people currently reside in U.S. prisons and jails.
- According to jail and prison studies, 25-87% of inmates report having experienced a head injury or TBI as compared to 8.5% in a general population reporting a history of TBI.
- Prisoners who have had head injuries may also experience mental health problems such as severe depression and anxiety, substance use disorders, difficulty controlling anger, or suicidal thoughts and/or attempts.

http://www.cdc.gov/traumaticbraininjury/pdf/Prisoner_TBI_Prof-a.pdf

Scope of the Problem in Context

- Studies of Prisoners self reported health indicate that those with one or more head injuries have significantly higher levels of alcohol and/or drug use during the year preceding their current incarceration.
- The U.S. Department of Justice has reported that 52% of female offenders and 41% of male offenders are under the influence of drugs, alcohol, or both at the time of their arrest.
- Among male prisoners, a history of TBI is strongly associated with perpetration of domestic and other kinds of violence.

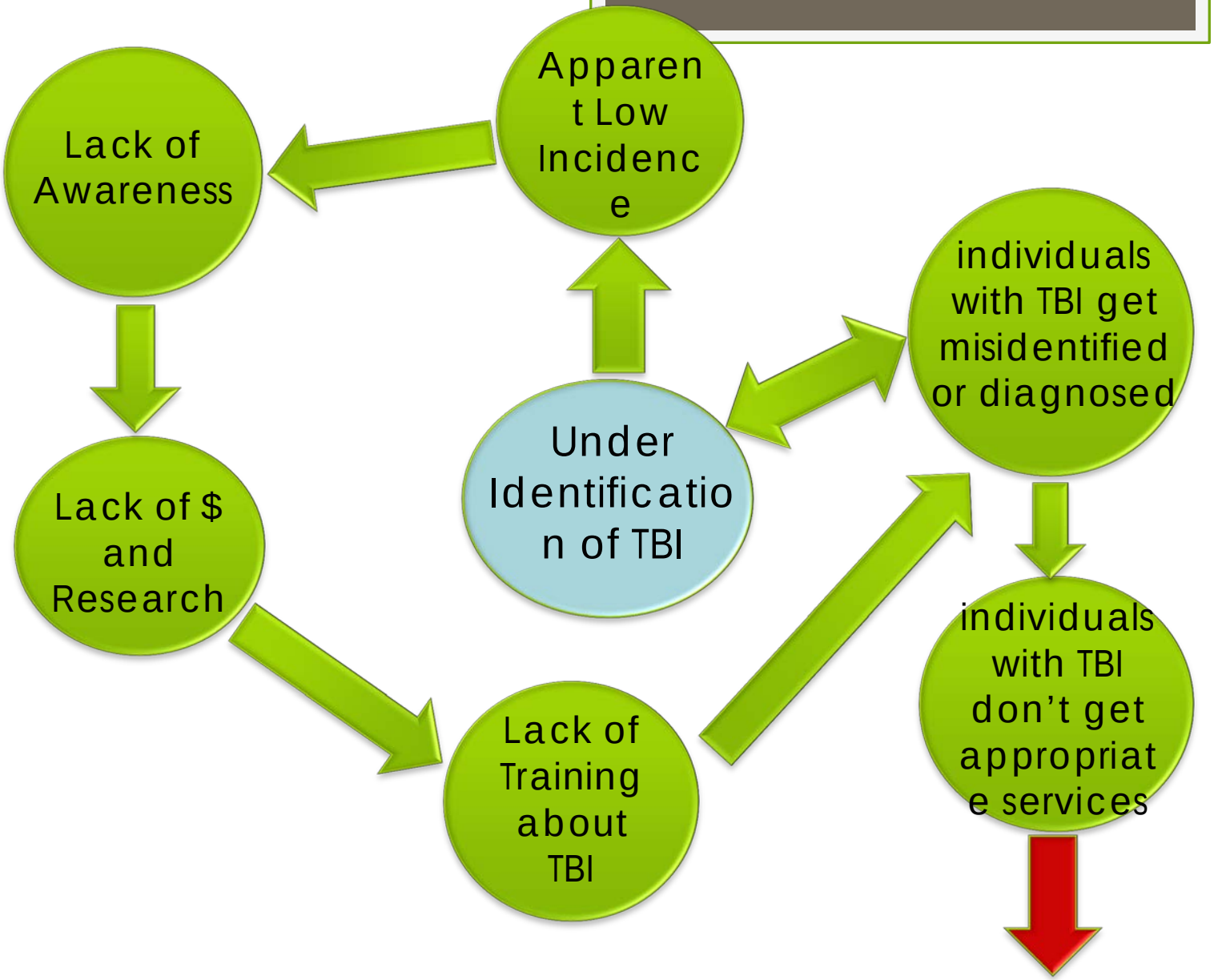
Scope of the Problem In Context

- Report from the Commission on Safety and Abuse in American's Prisons recommends increased health screening, evaluation, and treatment for inmates. In addition, TBI experts and prison officials suggests:
- Routine screening of jail and prison inmates to identify a history of TBI;
- Screening individuals with TBI for substance abuse and co-occurring behavioral health;
- Evaluation to identify issues related to the identified brain injury to guide personnel in how to manage and support individuals with TBI. Special consideration should be given to impulsive behavior ; including violence, sexual behavior, and suicide risk if inmate is depressed.

http://www.cdc.gov/traumaticbraininjury/pdf/Prisoner_TBI_Prof-a.pdf

Why Screening Matters

http://www.youtube.com/watch?v=-4EDhdAHrOg


Lack of Awareness
Apparent Low Incidence
individuals with TBI get misidentified or diagnosed
Lack of $ and Research
Under Identification of TBI
Lack of Training about TBI
individuals with TBI don't get appropriate services

25% - 87% in prisons/jail

30% homeless

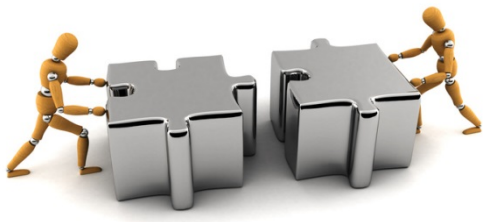
60% substance abuse

60% mental health

Children's Healthcare of Atlanta; Julie Haarbauer-Krupa, PhD & CDC TBI in Prisons and Jails: An Unrecognized Problem

Components to screening and identification

1. Education/awareness
2. Medical documentation
3. Establishing credible history
4. Assessing impact
5. Modifying interventior
6. Evaluation



Education and 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 for identifying TBI is to obtain medical documentation
- Important to note that medical documentation only indicates an injury not impact
- Documentation should be from a clinician trained in diagnosing TBI

Credible History

A 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).

Credible History

- "The gold standard for determining prior TBI is self/parent-report as determined by a structured or in-depth interview" (Corrigan & Bogner, 2007) with more than 2 items related to TBI.

- **Comprehensive Health History Interview** (Health history should be a face to face interview)

- Credible history of TBI requires a skilled interviewer to know how to ask certain questions, to ask pointed questions multiple times and in a variety of ways, to establish the details of the TBI(s).

Questions should include:

- Where
- When
- How
- Medical intervention(s) sought at the time, later, through the recovery
- Are answers medically plausible?
- Be aware of assumptions – for example, the report of a “scalp laceration” or “head injury” does not automatically define a “brain injury”

Credible History continued…

- There needs to be a reported incident(s) as well as on-going symptoms/behaviors that persist beyond the incident (Corrigan & Bogner, 2007).
- During the health interview, details of the incident should be clear and consistent. The description of the injury should not vary widely from report to report, from reporter to reporter.
- If there are multiple injuries, specifics about each injury should be well-detailed and consistent.

First Step Screening

Screening tools are best if:

- Valid and reliable
- Sensitive to the population
- Appropriate to the setting

Screening Tools

- Brain Check Survey (www.cokidswithbraininjury.com)
- Brain Injury Screening Questionnaire (wayne.gordon@mountsinai.org)
- OSU TBI-ID (http://ohiovalley.org/informationeducation/screening/)

Screening Tools

www.tbitac.hrsa.gov

Has a list of several screening tools for example;

- Alaska Screening Tool for Dual Diagnosis and TBI
- Safe Child Screening Tool (0-4), Nebraska

Formal "Focused" Assessment

- Cognitive
- Neuropsychological
- Achievement
- Speech Language
- Occupational Therapy/Physical Therapy
- Adaptive
- Emotional/Behavioral/Executive Functions

Answering the “So What”

- Identification is the first step
- Screening and Identification Protocol should include guidance regarding intervention, treatment etc.
- Understanding resources is critical
- Begin the process by addressing the “so-what”

Colorado's experience

Neuropsychological Screening Pilot Project:

A collaboration between the University of Denver, Denver County Jail and the Colorado Brain Injury Program. Summer 2013:

Dr. Kim Gorgens & Lydia Popovski, University of Denver

Judy Dettmer, Colorado Brain Injury Program

Dr's Jennifer Gafford & Brad McMillan, Denver County Jail

UNIVERSITY of DENVER
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DENVER SHERIFF

Colorado Brain Injury Program
Education • Services • Research

COLORADO COURTS

Process

- Inmates identified and consented (see attached consent form)
- Assessment meetings (2 hours) 7/8/13-7/19/13
  - Neuropsychological screening test (NAB Screening Module or ANAM Core Battery), 3 effort tests (e.g. TOMM, VIP, TMT A:B, Rey 15 item test), OSU-TBI-ID and Clinical Interview

Process Continued…

- Feedback meetings (1 hour) 8/5/13-8/14/13
  - Inmates received single page summary
  - Jail staff received 2 page report and copy of inmate summary and all test data
- 36 evaluations conducted
  - 15 females, 21 males
  - ages 22-61 years

History of TBI

- General population=7% (NIMH, 2002)
- Prison/County Jail=60% (Williams, Mewse, Tonks, Mills, Burgess &Cordan, 2010) to 87% lifetime (Slaughter, Fann, & Ehde, 2003)
- Denver County Jail=97% (35 of 36)

Severity of Injury

- Population (CDC, 2003)
  - 74% Mild
  - 26% Moderate/Severe
- County Jail (Slaughter, Fann, & Ehde, 2003)
  - 58% Mild
  - 29% Moderate/Severe
- Denver County Jail
  - 49% Mild
  - 51% Moderate/Severe

Deficits

- 31 of 33 (effortful data) inmates assessed showed cognitive impairments on screening tests
  - 94% of inmates with TBI history
    - 30 of 32 (effortful data) inmates with TBI history
- Of the remaining 2 without deficits
  - both had a TBI history

Comorbid Conditions

- Comorbity for TBI is 65% (Corrigan, Lamb-Hart & Rust, 1995)
  - In this sample, 35 of 35 TBI survivors had comorbid conditions (100%)
    - 29 of those 35 TBI survivors had '**trimorbidities'** (83%) [**SUPERFECTA=83%**]
- In this sample, 33 of 36 inmates (92%) had extensive psychiatric histories
  - Local jail mental illness prevalence=64% (Bureau of Justice Statistics, 2006)

Comorbid Conditions

- In this sample, 34 of 36 inmates (94%) had extensive substance abuse histories
  - Population comorbidity for substance abuse is 60% (Corrigan, Rust & Lamb-Hart, 1995)
  - 74% of state prisoners who had a mental health problem are dependent on or abused alcohol or drugs (Bureau of Justice Statistics, 2006)
    - In this sample, 31 of the 34 inmates (91%) with substance abuse had a comorbid mental illness
    - In this sample, 31 of the 33 inmates (94%) with mental illness had comorbid substance abuse
  - Associated with unemployment, criminal activity, depression and overall lower subjective well-being (Sherer et al., 1999)

Effort Testing

- 3 effort tests administered
  - Poor psychometrics of single tests
  - Meyers & Volbrecht (2003) found that failing >2 of 3 tests yielded 100% positive ID of simulated malingerers
- Population baserates of effort test 'failure'=

8-35% (Mittenberg et al., 2002)

- Denver County Jail effort test 'failure' rate=3 of 36 assessed=8%

Inmate Feedback

- From one summary

  Memory Aids:

  Mnemonics: Make sentences that you can associate with the person based on their initials. For instance, if you meet someone named **J**ohn **S**mith who has a big smile and a white beard, you can use the **J** and **S** to remember him as "**J**olly **S**anta." Mnemonics can also be used to help you remember instructions, by forming words based on the instruction's main points. For instance, if the instructions are, "Drive over the river in a mile, then turn right at Overland Rd., and U-turn before the traffic light" you could remember "DORM TROUT." It does not have to make sense- sometimes it's more fun when it doesn't!

  Rehearse, Rehearse, Rehearse- When you are introduced to someone, say their names several times in your first conversation with them. Rehearsing the information can also mean keeping a written journal where you write things down and carry that journal around with you.

  Make it Meaningful- If you are presented with simple information, try to make it meaningful to you. For instance, you could tell a story about your grocery list (i.e. "The celery needed to go find the peanut butter, but it ran into a river of milk"). Be creative! The more you can associate these simple processes, the more likely they are to stick with you.

  Read Out Loud- You may benefit from reading instructions out loud. When you are hearing the words and reading them, you may be able to encode more of the information into your long-term memory.

Recommendations

- Used by mental health providers to assist treatment planning
  - From two reports

    RECOMMENDATIONS: Based on this screening, the following recommendations are indicated.

    1. Emilio can use alternative skills and strategies to help him learn and remember new information. These include note-taking, using a planner to records events and reminders, asking someone to repeat information when needed, and receiving hands-on educational/professional training.

    2. Strategies to aid in accuracy and working memory tasks would also be helpful, such as using a calculator, writing down math problems, and taking time to think through and double check his work.

    3. Emilio's mental health issues and psychotropic medications should continue to be assessed by his current health care providers. Affordable individual psychotherapy following his release from DCJ is also recommended, such as from the Professional Psychology Clinic (303-871-3626).

    4. Considering Emilio's history of seizures, drug abuse, and hospitalizations, a thorough review of his medical records would also help inform his treatment needs.

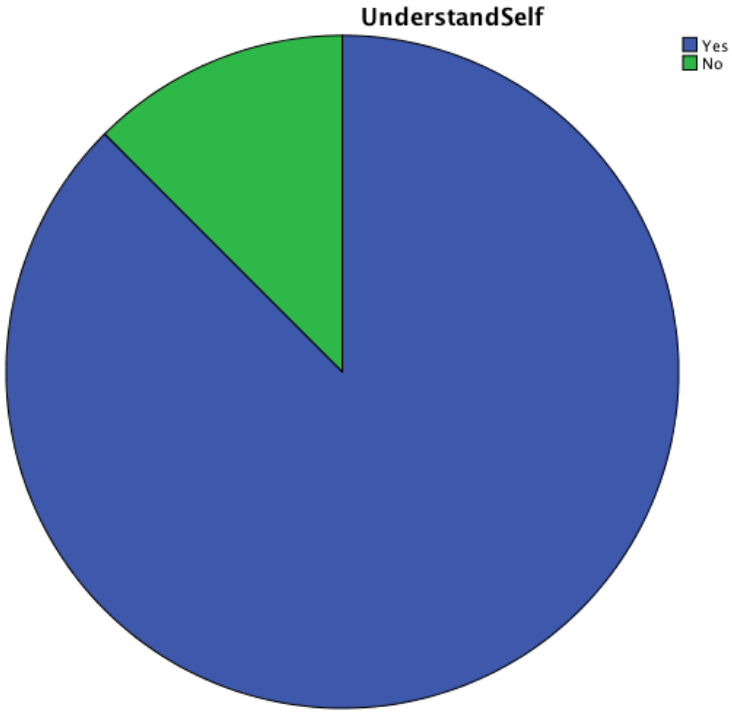
Recommendations

RECOMMENDATIONS

- Due to Ms. A's report of long-term depression and anxiety symptoms, it is suggested that she continue to receive consistent medication management and psychotherapy during the remainder of her sentence and upon discharge. Recommendations for Behavioral Health resources should be made at the completion of her sentence, but may include the Mental Health Center of Denver (303-504-1250) and Park Hill Family Health Center (303-602-3720).
- Ms. A may benefit from future administration of neuropsychological screening tests in order to determine change in functioning over time, particularly as she continues to be treated for depression and insomnia.
- Due to Ms. A's relative weaknesses in delayed memory and learning, compared with her strengths in working memory, it is recommended that she utilize a variety of memory aids in order to encode memory. For instance, creating mnemonics for names or instructions may be particularly helpful to associate information with more meaningful concepts. A separate sheet of recommendations on approaches that she might utilize will be provided at the testing feedback session on 08/05/2013.

Inmate Feedback

"Did the information you learned through the assessment help you understand yourself better?"

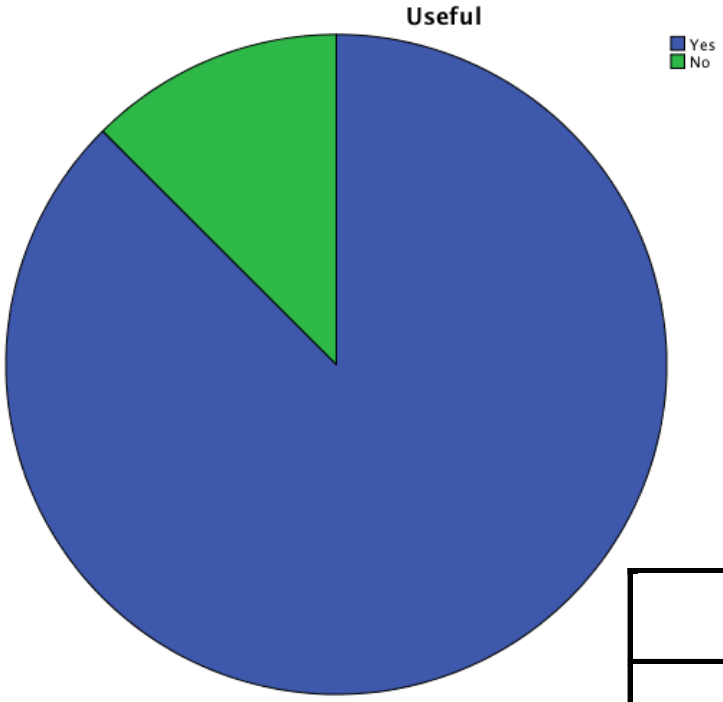


UnderstandSelf

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	87.5	87.5	87.5
	No	2	12.5	12.5	100.0
	Total	16	100.0	100.0	

Inmate Feedback

"Will the information you learned through the assessment be useful in your life upon community re-entry?"



Useful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	87.5	87.5	87.5
	No	2	12.5	12.5	100.0
	Total	16	100.0	100.0	

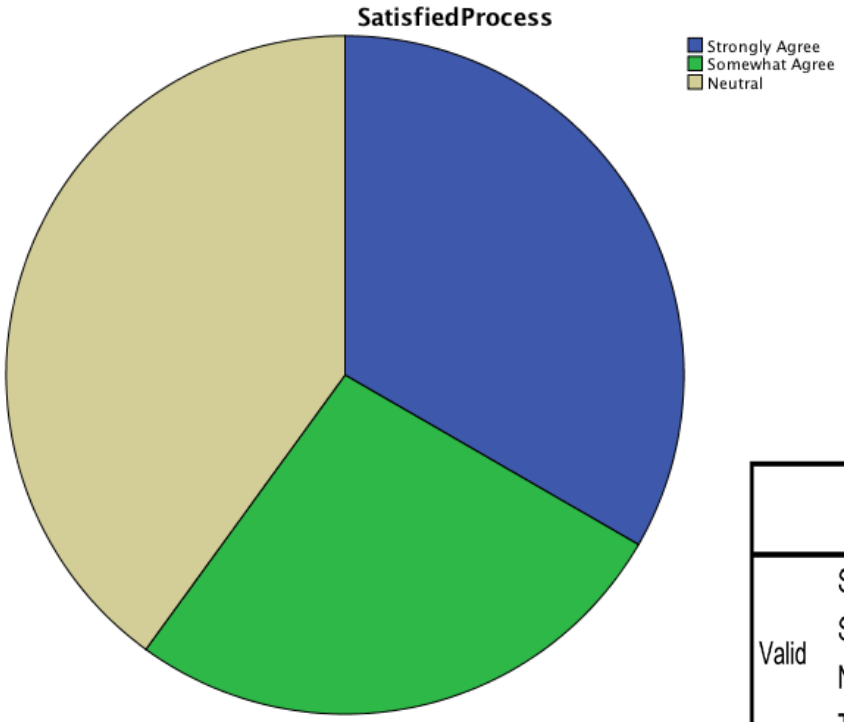
Inmate Feedback

"I would like more testing if possible! Thank you!"

"I do believe that it was very helpful for me because I could see things a lot differently."

Staff Feedback

"I am satisfied with the screening and assessment process. "

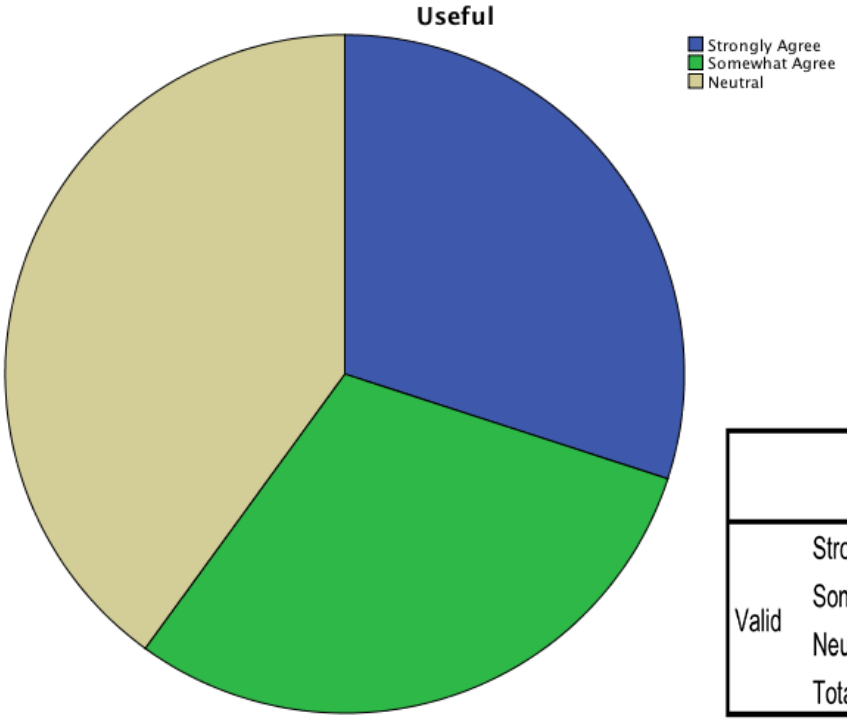


SatisfiedProcess

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	10	33.3	33.3	33.3
	Somewhat Agree	8	26.7	26.7	60.0
	Neutral	12	40.0	40.0	100.0
	Total	30	100.0	100.0	

Staff Feedback

"Overall, I found the assessment report to be useful"



Useful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	9	30.0	30.0	30.0
	Somewhat Agree	9	30.0	30.0	60.0
	Neutral	12	40.0	40.0	100.0
	Total	30	100.0	100.0	

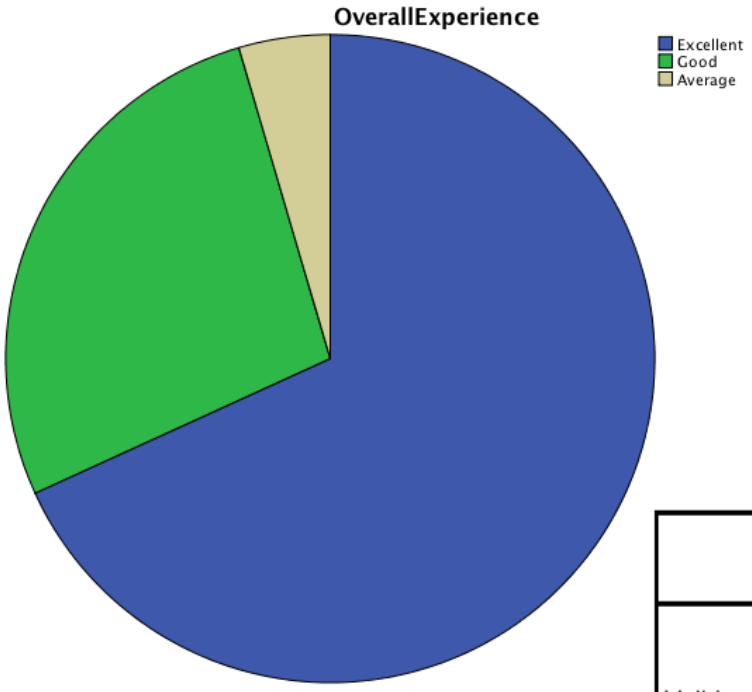
Staff Feedback

- *"Very useful tool."*
- *"Very helpful."*
- *"Even though this patient has been released, the feedback was interesting/helpful in rounding out my understanding of him."*
- *"Nice to have an additional component in understanding this patient. Thanks!"*

Student Experience

“Overall, I would rate this exercise as”

“



OverallExperience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	15	68.2	68.2	68.2
	Good	6	27.3	27.3	95.5
	Average	1	4.5	4.5	100.0
	Total	22	100.0	100.0	

Student Experience

- *"My client enjoyed the experience."*
- *"I felt my client really wanted answers to some of his ongoing challenges and I think he felt like he would get some out of the assessment. Thus, I think he was glad to be there."*
- *"I genuinely appreciate how accommodating the jail was, from the front desk staff to the inmates who volunteered to be assessed."*
- *"I really enjoyed interacting with the inmate and feel that I was able to help him."*
- *"He [inmate] seemed happy to interact with someone and very grateful for the experience and expressed appreciation on multiple occasions."*
- *"Great learning opportunity!"*

Denver Juvenile Probation:

A collaboration between the University of Denver, Denver Juvenile Probation and the Colorado Brain Injury Program:

Dr. Kim Gorgens, University of Denver

Judy Dettmer, Colorado Brain Injury Program

Kira Gaines & Ted Romero, Denver Juvenile Probation

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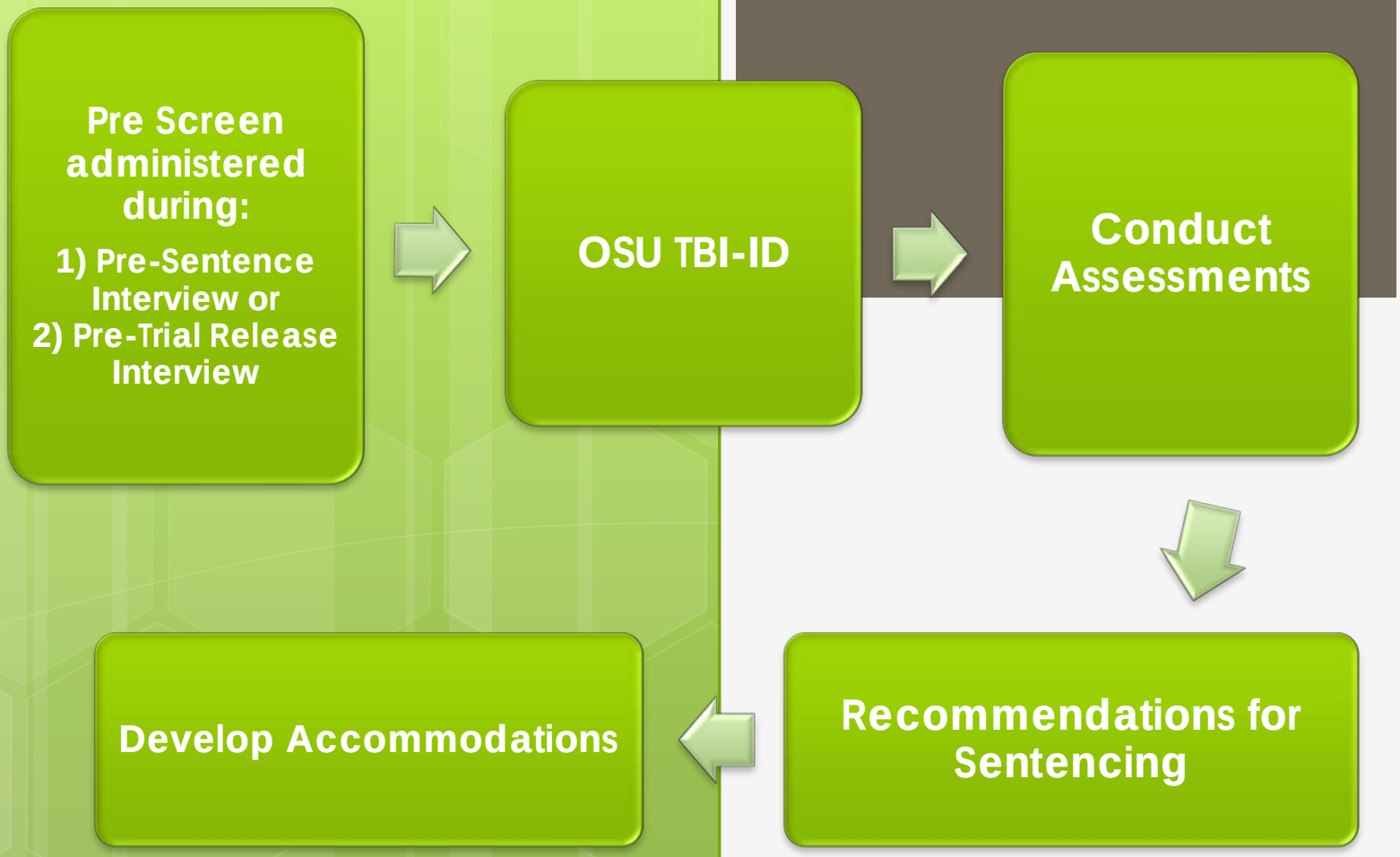
COLORADO COURTS


Pre Screen administered during:
1) Pre-Sentence Interview or
2) Pre-Trial Release Interview
OSU TBI-ID
Conduct Assessments
Recommendations for Sentencing
Develop Accommodations

Data, since 03/21/2013 Denver Juvenile Probation

- 179 youth screened
- 39 screened positive
- 5 minutes to complete if negative and 10-15 if positive
- Positive screens trigger further assessment

Accommodations:

- Educating treatment teams, professionals, & the Court
- Specialized and modified terms and conditions of Probation
- Modified & Individualized Case Planning
- Increased parental education & engagement
- Access & referrals to additional community resources and supports

Barriers:

- Funding – evaluations & resources
- Education – identified and recognized in Individual Education Plans
- Unrealistic expectations of patients with TBI's to navigate systems of services
- Lack of research on system involved youth with TBI's

Why Screening is Important

- TBI=higher risk for re-offending (Williams, Mewse, Tonks, Mills, Burgess & Cordan, 2010)
- Psychotherapies can be adapted for neurocognitive deficits—FOR EXAMPLE
  - Minimize environmental distractions
  - Educational therapies (e.g. CBT, DBT) should emphasize pacing, provide frequent opportunities for inmates to respond, generate feedback, and provide reinforcement to maintain inmate engagement
  - Written material/handouts where possible
  - Repetition of key points
  - Non-electronic devices might include checklists, pictures or icons, photograph cues, post-it-notes, calendars, planners, and journals
  - Therapies should be introduced with a simple rationale

Why Screening is Important

- Management of inmates in the custody of Denver County Jail can be maximized—FOR EXAMPLE
  - Give clearly stated task directions (limit the number of steps) and ask the inmate to repeat or paraphrase the directions to ensure understanding if comprehension is required
  - Provide immediate feedback and error correction when necessary
  - Use a direct statement telling the inmate to start (rather than stop) a behavior
  - Look directly at the inmate as you make requests of their behavior; speak clearly, slowly and concisely

Conclusions

- TBI is a major, chronic, health condition within this offender population
  - The deficits noted here include memory and attention deficits as well as impulsivity and poor verbal fluency
  - All of these deficits are related to recidivism and reoffending
- The rate of TBI is VERY high, 97%, though consistent with those other studies with offenders
- In 94% of these injuries, there appear to be neuropsychological consequences
  - Pre-morbid and co-existing issues (e.g. substance abuse, mental illness) may reflect underlying neurocognitive impairment and be a factor in current functioning

Next Steps

- Present this model for review (conferences, papers, etc.)
- Continue screening protocol
  - Expand to general population and other settings
  - Student support for assessment and research
- Develop and employ novel self-advocacy training program

Resources

Brain Injury Program
Colorado Department of Human Services
Director, Judy Dettmer
Judy.dettmer@sttate-co.us
(303) 866-4085
(Training, Education, Infrastructure)

Brain Injury Alliance of Colorado
www.biacolorado.org
(303) 355-9969
(General resources, CO TBI Program for Adults and Youth Brain Injury Connections)

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