

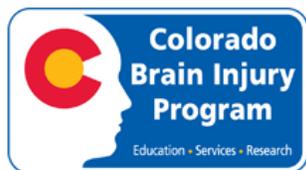
CITY AND COUNTY OF DENVER

# A Unique Approach to Traumatic Brain Injury in a County Jail

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Jennifer Gafford, Bradley McMillan, Kim Gorgens, Judy Dettmer, Nicole Glover

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## **Introduction**

In the community, the incidence of traumatic brain injury (TBI) is estimated to be about 7% (NIMH, 2002), while jail and prison studies indicate 60-87% of inmates report having experienced a head injury or TBI (Williams, et al., 2010; Slaughter, Fann & Ehde, 2003). TBI is associated with memory and attention deficits, irritability or anger, disinhibited behavior and slow response times and therefore has implications for managing behaviors of individuals with these limitations (CDC, 2009). Often the sources of these symptoms are not considered in correctional settings (Williams, Mewse, Tonks, Mills, Burgess & Cordan, 2010).

Comorbid conditions, including mental illness and substance abuse, (Slaughter, Fann & Ehde, 2003) make treatment in correctional settings clinically complicated. Understanding the intersection of criminality, mental illness, substance use, and TBI has important uses in improving individual functioning, reducing recidivism, and behavior management within jails and prisons. Studies of inmate's 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. Among male offenders, a history of TBI is strongly associated with perpetration of domestic and other kinds of violence. Lastly, persons with a TBI are at a higher risk for re-offending (Williams, Mewse, Tonks, Mills, Burgess & Cordan, 2010).

## **Pilot Program Description**

The Commission on Safety and Abuse in America's Prisons (Vera Institute of Justice, 2006) was established in 2005 to identify and recommend solutions to the most serious challenges facing America's jails and prisons. Their 2006 report recommended

routine screening for TBI, substance abuse and co-occurring mental health diagnoses for all inmates. In keeping with that recommendation, this pilot program is a partnership between the Denver County Jail's Mental Health Transition Unit, the University of Denver, and the Colorado Department of Human Services, Colorado Brain Injury Program.

The screening evaluations were conducted by graduate students in a Clinical Neuropsychology course at the University of Denver during the summers of 2013 and 2014. In this service learning partnership, students were credentialed by the jail and inmates were invited to participate in a screening battery and feedback session. The voluntary inmates were chosen from the Male and Female Transition Units, specialty pods designed for inmates with mental illness. A total of 80 inmates participated in these screening evaluations. Inmates signed consent forms granting permission for the evaluation and research. The coding of the inmate responses was later approved by the Institutional Review Board at the University of Denver.

Each student was assigned one inmate and met with him or her on two separate occasions. During the initial 2 hour evaluation meeting, the inmates completed all consent paperwork and participated in a brief clinical interview, the Ohio State University Traumatic Brain Injury Identification Method (OSU-TBI-ID), a neuropsychological screening test (the Automated Neuropsychological Assessment Metric [ANAM] or the Neuropsychological Assessment Battery-Screening Module [NAB-SM]), as well as three tests of effort.

The OSU-TBI-ID is a structured interview to obtain self-reports of a person's lifetime history of TBI (Corrigan & Bogner, 2007). Certainly the gold standard for

identifying lifetime history of TBI is the review of medical records but in correctional settings, like many others, it is often impractical to access all of a person's history. It is also true that individuals sustaining brain injuries often receive no medical attention. In fact, research suggests that 61% of head injuries among prisoners were untreated at the time of the injury (Diamond, Harzke, Magaletta, Cummins, & Frankowski, 2007). The OSU-TBI has been found to effectively identify TBI in individuals in a correctional setting (Bogner & Corrigan, 2007a; 2009).

The Automated Neuropsychological Assessment Metric (ANAM) is a library of computer-based assessments of cognitive domains including attention, concentration, reaction time, memory, processing speed, and decision-making with a very strong normative database (Reeves, Winter, Bleiberg, & Kane, 2007). The Screening module from the Neuropsychological Assessment Battery (NAB-SM) is a comprehensive cognitive screening measure that assesses five domains (Attention, Language, Memory, Spatial, and Executive Functions; Stern & White, 2000). Both instruments have been shown to be sensitive to the deficits associated with brain injury (Kane, Roebuck-Spencer, Short, Kabat, Wilken, 2007; Zgaljardic, & Temple, 2010). In addition to the screenings, the inmates were administered three tests of effort. In keeping with a standard proposed and validated by Meyers and Volbrecht in 2003, inmates who performed poorly on all three tests of effort (the Validity Indicator Profile [Frederick, 2000], Trail Making Test A:B ratio [Martin, Hoffman, & Donders, 2010], and the Rey 15 item test [Reznek, 2005]) were assumed to demonstrate poor effort across the entire battery and so their data were disregarded.

The neuropsychological screening evaluation builds on the OSU-TBI-ID's identification of individuals with a lifetime history of TBI and determines whether or not the individual is experiencing on-going impairments. The results of that neuropsychological screening evaluation are intended to provide guidance to the uniformed and clinical staff in terms of how to effectively support these individuals (Bernett, 2012; Virginia Department of Aging and Rehabilitation Services). During the second meeting, or feedback session, the inmates were provided with verbal feedback and a summary page of their screening evaluation results. Based on an individual's scores, the summary included recommendations for resources in the community as well as practical suggestions or strategies that may help improve individual functioning. In that way, the individuals themselves are left with an understanding of how their brain injury affects their ability to function and what they may be able to do to adjust to some of these limitations. In addition, a two-page summary was provided to the inmate's treatment team for help with treatment planning during incarceration and transitional planning for discharge from the facility.

## **Results**

In analyzing the neuropsychological screening of the inmates in the male and female Transition Units, the DCJ study found that 96% of the population (77 out of 80) met criteria for a mild to severe TBI. In comparison and as stated previously, traumatic brain injuries fall around 7% in the general population (NIMH, 2002) and 60% to 87% in other prison and county jail studies (Williams, et al., 2010; Slaughter, Fann & Ehde, 2003). Six cases were dropped for effort test failure, or eight percent failure rate. This is firmly within population norms, which indicate an eight to thirty-five percent failure rate

(Mittenberg, Patton, Canyock & Condit, 2002). A distribution of mild to moderate/severe TBI is illustrated in the following table:

## Severity of Injury-DCJ

Studies	Mild	Moderate / Severe
Population (CDC, 2003)	74%	26%
County Jail (Slaughter, Fann, & Ehde, 2003)	58%	29%
Denver County Jail	48%	52%

Of the 74 inmates retained for the study, 68 showed cognitive impairments on neuropsychological screening tests. Of the remaining six who did not show cognitive impairment on their testing, all had a self-reported TBI history. In general, 92% of the assessed inmates who produced effortful data showed cognitive impairment on screening tests.

Regardless of TBI self-report, the inmates assessed in this pilot study had higher self-reported rates of mental illness and/or substance abuse than rates indicated in other studies, as shown in the following table:

# Comorbid Conditions

	Bureau of Justice Statistics, 2006	DCJ Pilot Study
<b>Jail mental illness prevalence</b>	64%	93%
<b>Jail prevalence for substance abuse</b>	53%	93%
<b>Jail comorbidity for substance abuse and mental illness</b>	76%	92%

Sixty-four of seventy-seven inmates assessed reported a history of traumatic brain injury concurrent with mental illness or substance abuse (83%). In addition, eighty percent of the inmates qualified for the “Superfecta” – a history of traumatic brain injury, mental illness, substance abuse and criminal history.

## Implications and Future Projects

The data from this pilot are compelling. The pilot program bears out the findings of other research efforts. Additionally, it demonstrates the high co-morbidity of brain injury and behavioral health issues such as mental illness and/or substance abuse. This pilot data reinforce the need to screen for brain injury among the criminal justice population. It also suggests the importance of screening/assessing for on-going impairment as well as developing education for the individuals with TBI and training for the staff working with these individuals. While this pilot illuminates the magnitude of the issue, it does not answer the “so what” question. Screening for lifetime history of TBI

simply indicates that a person had an injury. Now that we know an individual has a lifetime history of TBI and they have on-going impairment, what does that mean in terms of support with-in the corrections setting and for the inmate transitioning back to the community? To address the “so what”, the Colorado Brain Injury Program within the Colorado Department of Human Services is expanding the partnership between the Denver County Jail Transition Unit and the University of Denver, to 12 additional sites. These sites include court, probation and jail settings (youth and adults). Additionally, the expansion project is attempting to better determine which items on the lifetime screen indicate a need for further screening/assessment for on-going impairment. The expansion project also has an information/referral and case management component that the justice involved individual can access for on-going support. Finally, it includes a training component for criminal justice personnel as well as a psycho-educational component for the justice involved individual that is to be developed later this year. This pilot study has brought significant attention to this very complex issue for correctional settings and hopes to continue to offer more insight and solutions to better help the individuals, the correctional systems, and the reentry services.

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