

Traumatic Brain Injury and Substance Use: This Is Your Injured Brain on Alcohol

Jan. 12, 2017
1-2:30 p.m. (ET)



“Medically Ready Force...Ready Medical Force”

Presenters, Moderator



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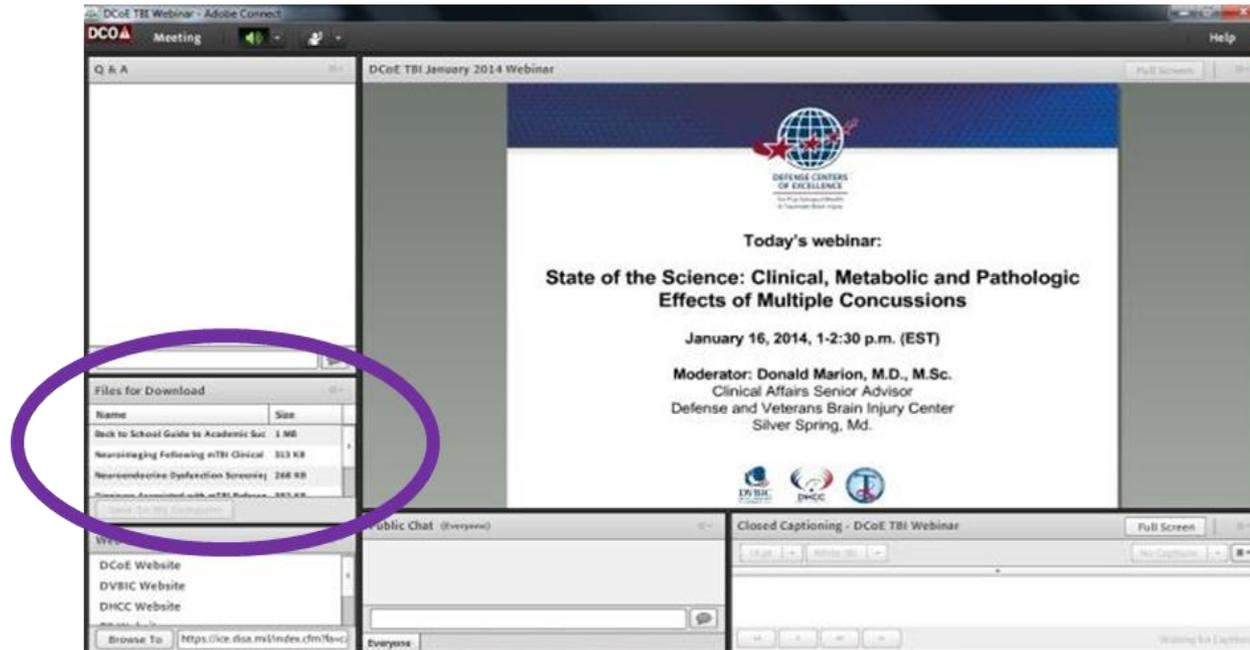
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Continuing Education Accreditation

(continued)



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Continuing Education Accreditation

(continued 2)



Physicians

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(continued 3)



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Continuing Education Accreditation

(continued 4)



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Continuing Education Accreditation

(continued 5)



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Webinar Overview



Addiction may significantly exacerbate traumatic brain injury (TBI), prevent full TBI recovery, and increase the risk for repeated TBI. Although addiction and TBI are often discussed separately, the high rate of comorbidity suggests the need to examine TBI and substance use disorders together. Presenters will explore the complexity and importance of substance use screening among TBI patients and highlight the specific TBI recovery concerns and complications associated with continued substance use for TBI patients.

Webinar Overview (continued)



At the conclusion of this webinar, participants will be able to:

- Discuss the prevalence of comorbidity between substance use disorders and TBI.
- Articulate specific factors that impact diagnosis and recovery when TBI and substance use disorders are comorbid.
- Examine the roles of early detection, education and intervention for substance use disorders among TBI patients to improve prognoses for full TBI recovery.

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Agenda



- Relationship between TBI and substance abuse
- Screening and assessment considerations
- Alcohol and other drugs (AOD): Effects on TBI
- Substance use after TBI
 - Findings
 - Recommendations
- Research opportunities
- Addiction resources
- TBI resources

Terms



- TBI: Traumatic brain injury
- AOD: Alcohol and other drugs
- SUD: Substance use disorders

TBI and Substance Abuse



- 37-50% of all TBI injuries occur while intoxicated
- Two-thirds of those with TBI have a history of alcohol abuse or high-risk drinking
- One-third TBI injured while under influence of other drugs
- Prevalence in a military population

(West, 2011; Weil, Corrigan, & Karelina, 2016)

TBI and Substance Abuse (continued)

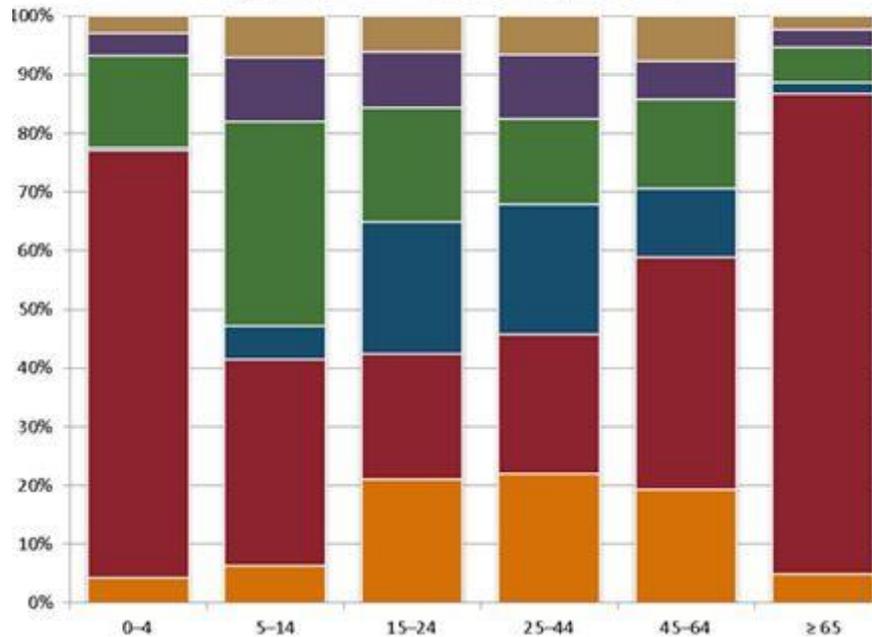


- Notable absence of these patients in substance abuse treatment post-TBI:
 - Program barriers
 - Limitations of screening
 - Not meeting diagnostic or patient placement criteria
 - Military vs. civilian and treatment of mild substance abuse disorders (substance abuse)

(West, 2011; Weil et al., 2016)

TBI Distribution by Age and Mechanism of Injury

Percent Distributions of TBI-related Emergency Department Visits by Age Group and Injury Mechanism — United States, 2006–2010



	Motor Vehicle Traffic	Falls	Assault	Struck by/Against	All Other Causes	Unknown
0-4	14,655	250,413	1,513	53,761	13,222	10,225
5-14	18,110	101,790	16,612	101,112	31,355	20,763
15-24	76,602	77,951	81,822	71,031	34,486	22,722
25-44	75,122	80,867	75,527	49,505	36,933	22,855
45-64	46,923	95,824	28,206	36,925	15,843	18,804
≥ 65	10,359	174,544	4,068	12,815	6,285	5,216

(Centers for Disease Control and Prevention, 2016)

Screening and Assessment



- SUD screening and assessment challenges
 - Propensity for minimization
 - Self-report instruments limited
 - Complexity when considering TBI, substance abuse, and co-occurring disorders

Screening and Assessment Measures



Measure	Questions	Administration
Alcohol Use Disorders Identification Test (AUDIT-C)	3	Self-Report
CAGE (Cut Down, Annoyed, Guilt, Eye-opener)	4	Self-Report
Michigan Alcohol Screening Test (MAST – Brief)	10	Self-Report
Substance Abuse Subtle Screening Inventory (SASSI)*	67 True/False + 26 Item Section	Self-Report
Addiction Severity Index (ASI)	200	Self-Report

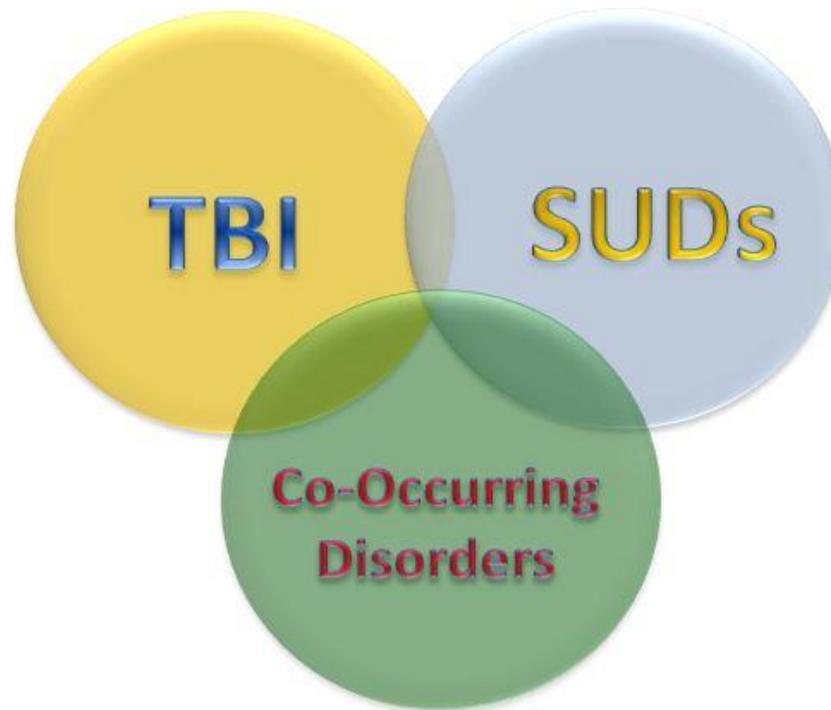
*Blood Alcohol Level (BAL) recommended

Severities of TBI and Levels of Substance Use

	SUBSTANCE USE	SUBSTANCE MISUSE	SUBSTANCE USE DISORDER (MILD)	SUBSTANCE USE DISORDER (MODERATE)	SUBSTANCE USE DISORDER (SEVERE)
Mild TBI (mTBI/Concussion)					
Moderate TBI					
Severe TBI					



Overlap of TBI, SUDs and Co-Occurring Disorders



Effects of Brain Injury and AOD

BRAIN INJURY
Poor memory
Impaired judgment
Fine and gross motor impairments
Poor concentration
Decreased impulse control
Impaired language skills

AOD EFFECTS
Poor memory
Impaired judgment
Fine and gross motor impairments
Poor concentration
Decreased impulse control
Impaired language skills

(Silver, McAllister, & Yudofsky, 2011)

Effects of AOD Use on TBI



- Brain more sensitive to alcohol after TBI
 - Effects more intense, longer lasting
- Increases likelihood of another TBI
 - Already 3-8 times greater than uninjured population
 - Brain injury and alcohol BOTH affect coordination and balance
- Increases seizure risk associated with moderate and severe TBI
 - Alcohol reduces seizure threshold
 - Interferes with anti-seizure medication (e.g., Dilantin, Keppra)

(Corrigan & Cole, 2008)

Effects of AOD Use on TBI (continued)



- Reduces gains in brain injury recovery
 - It is a toxin which crosses the blood-brain barrier.
 - Neurodegeneration
- Exacerbates negative TBI effects on mental abilities
 - Memory and concentration
 - Thinking flexibility
 - Cognitive problems
- Headaches and hangovers

(Weil et al., 2016; Corrigan & Cole, 2008)

Effects of AOD Use on TBI (continued 2)



- Depression
 - Eight times more prevalent in first year after TBI
 - Alcohol is a central nervous system depressant
 - Alcohol reduces effectiveness of anti-depressant medication
- Sexual functioning
 - Alcohol and TBI both diminish sexual desire, performance and satisfaction
- Medications
 - Dangerous synergistic effects with pain killers and anti-anxiety medications

(Weil et al., 2016; Corrigan & Cole, 2008)

Substance Use After TBI



- In general, alcohol and substance use rates decline following brain injury in the civilian population (Whelan-Goodinson et al., 2009) although an increased risk is noted in individuals with a co-occurring mood disorder. (Jorge et al., 2005)
- Initial refractory period before a return to pre-injury levels of use (Kolakowsky-Hayner et al., 2002) with increased risk noted in individuals with a co-occurring mood disorder (Jorge et al., 2005)
- “Window of Opportunity” – Increased readiness to change (Weil et al., 2016)

Substance Use After TBI (continued)



- In a study of active-duty soldiers with mild TBI (mTBI), there was a slightly higher rate of alcohol abuse in individuals with a comorbid mTBI diagnosis compared to other types of injuries (6.9% vs. 4.4%). (Heltemese, Dougherty, MacGregor, & Galarneau, 2011)
- Understanding increased alcohol misuse after TBI (Weil et al., 2016)
 - Self-medication of negative affective states
 - Cognitive deficits
 - Neuroinflammation cycle
 - Dopaminergic dysregulation

Substance Use After TBI (continued 2)



- Sobriety after TBI Focus Groups:
 - Early detection and treatment
 - Education, even if not clinically indicated, as prevention
 - Support groups that address the ‘double-challenge’ of SUD and TBI
 - Twelve-step programs (Alcoholics Anonymous, Narcotics Anonymous)
 - Sober support group

(Brainline.org, 2008)

Recommendations



- There is no 'safe' level of alcohol (or recreational drug) use after TBI.
- Six-month window of increased risk for dependence or another TBI (Miller et al., 2013)
- Alcohol use dangerously complicates medication regimen.
- Substance abuse significantly slows/prevents the healing of brain injuries.

Recommendations (continued)



- Importance of education, early detection, and treatment (Weil et al., 2016)
- Additional prescription medication risks in addicted and TBI populations (Miller, 1991)
- Acknowledgement of disease of addiction most effective clinical approach (Silver et al., 2011)

Future Research



- Identify the true epidemiology of substance use and SUD among the TBI population.
- Identify factors promoting and inhibiting substance use.
- Develop a tool for standard and easy assessment for SUD among TBI patients.
- Identify best practices with regard to patients with concurrent TBI and SUD.

(West, 2011; Weil et al., 2016)

Addiction Resources



- CAGE/MAST/AUDIT/SASSI
- www.alcoholscreening.org
- AA.org – Find a meeting
- Refer for further assessment/treatment
- Substance Abuse and Mental Health Services Administration (SAMHSA, 1-800-662-4357) is a Federal program that can help one locate a treatment facility.

TBI Resources



dvbic.org



dcoe.health.mil

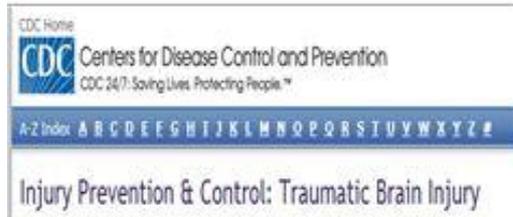


afterdeployment.org

TBI Resources (continued)



www.brainline.org



www.cdc.gov/TraumaticBrainInjury

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