

Traumatic brain injury in prison populations

Kate Moore & Pam Nir, Cota

Flora Matheson & Kathryn McIsaac, CRICH

CRICH

CENTRE FOR RESEARCH ON INNER CITY HEALTH



Defining Traumatic Brain Injury (TBI)

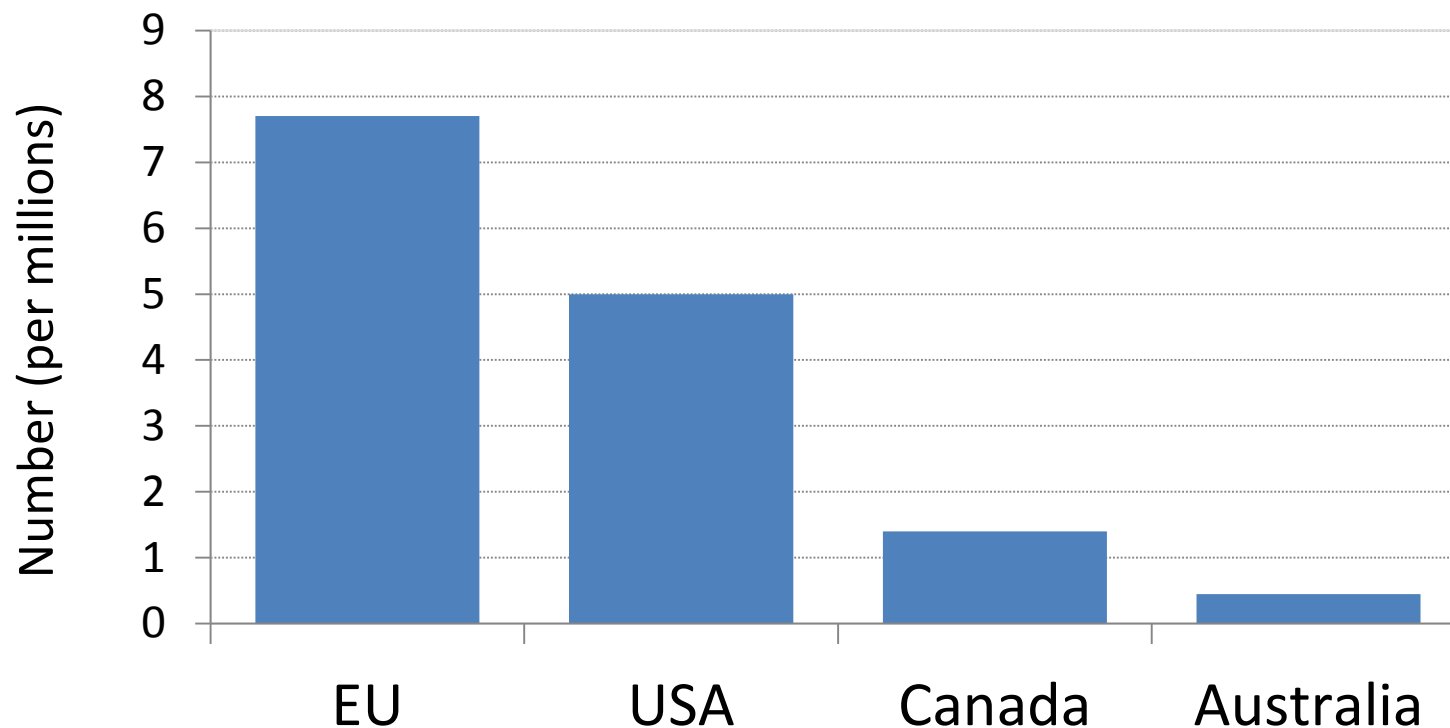
A disruption in the normal function of the brain caused by a blow or jolt to the head or a penetrating head injury.

Although blows and jolts to the head don't always result in TBI, brain injury can range in severity from mild — marked by a change in mental status — to severe, which may include an extended period of unconsciousness or amnesia after injury.

Centers for Disease Control and Prevention (CDC). (2008)
<http://www.cdc.gov/ncipc/tbi/TBI.htm>



Estimates of the burden of people living with traumatic brain injury-caused disability



Roozenbeek, B. *et al.* (2013) Changing patterns in the epidemiology of traumatic brain injury
Nat. Rev. Neurol. doi:10.1038/nrneurol.2013.22



Cost of the Problem

Direct Costs

- \$32 132 for average TBI care in the first year after injury
- \$120.7 million in Ontario (2008-2009)

Indirect Costs

- \$1 billion in Ontario and \$3 billion in Canada per year



Risk Factors for TBI

Socio-demographic

- Age: Young children (<15); young adults (15-24); seniors 65+
- Sex: Male
- Race/Ethnicity: Aboriginal
- Place: Rural

Health related

- Substance use
- Mental Illness



TBI and risk of incarceration

- 4 studies have examined TBI and criminal justice involvement
- Australia, New Zealand, Finland, Sweden
- People with TBI were more likely to be involved in the criminal justice system than those without TBI (Risk: 1.5 to 3 times greater)

Timonen et al 2002; Fazel et al 2011; Schofield et al 2015; McKinley et al 2015



Prevalence of TBI in persons with history of criminal justice involvement

Author, year	Population	N	Prevalence
Shiroma, 2010	Adults	20	60.2
Farrer, 2011	Youth + Adults	26	41.4
			51.0
Farrer, 2013	Youth	9	30.6
Colantonio, 2014	Adults	270	41.2



TBI and Impacts while incarcerated

- US Study
 - Men with TBI had 1.9 times higher risk of behavioural infraction
 - Women with TBI had a 2.4 times higher risk of behavioural infraction

Shiroma et al. *J Correct Health Care* 2010; 16: 273-86.



Men with TBI who are Incarcerated

TBI co-exists with other concerns

- More likely to be involved with drug or alcohol use at an earlier age
- More likely to report family history of substance abuse

Colantonio et al. *J Correctional Health Care* 2014; 20: 4: 271-279



Women with TBI who are Incarcerated

TBI co-exists with other concerns (e.g., trauma)

- More likely to report history of physical abuse
- More likely to report history of sexual abuse



Awareness of TBI

Persons incarcerated

Have not sought medical attention for TBI

- 16-18% Canada
- 60% US

Research community

- 3 studies on TBI in prison

Colantonio et al. *J Correctional Health Care* 2014; 20: 4: 271-279,, Kouyoumdjian et al. *BMC Public Health* 2015: 15: 419;



Awareness of TBI

Correctional health care staff

- Underestimate extent of TBI in prisons
- Have misconceptions of TBI and its symptoms
- Do not feel adequately trained to work with TBI

Diamond et al. *J Head Trauma Rehabil* 2007; 33: 330-338



Awareness of TBI in Prisons (continued)

Screening for TBI in prisons

Some **US** studies routinely screen for TBI

- South Carolina (Ohio State)
- Minnesota (TBI-questionnaire)

Correctional Service **Canada** (CSC) screens for TBI using a single question

