

Traumatic Brain Injury

Translation from Animal Models and Genetics to Improving Outcomes

Susanne Muehlschlegel, MD, MPH

Assistant Professor of Neurocritical Care

UMASS Depts. Of Neurology,
Anesthesia/Critical Care and Surgery

Nils Henninger, MD

Assistant Professor of Neurology

UMASS Dept. Of Neurology

Constance Moore, PhD

Associate Professor of Psychiatry

UMASS Center for Comparative
Neuroimaging

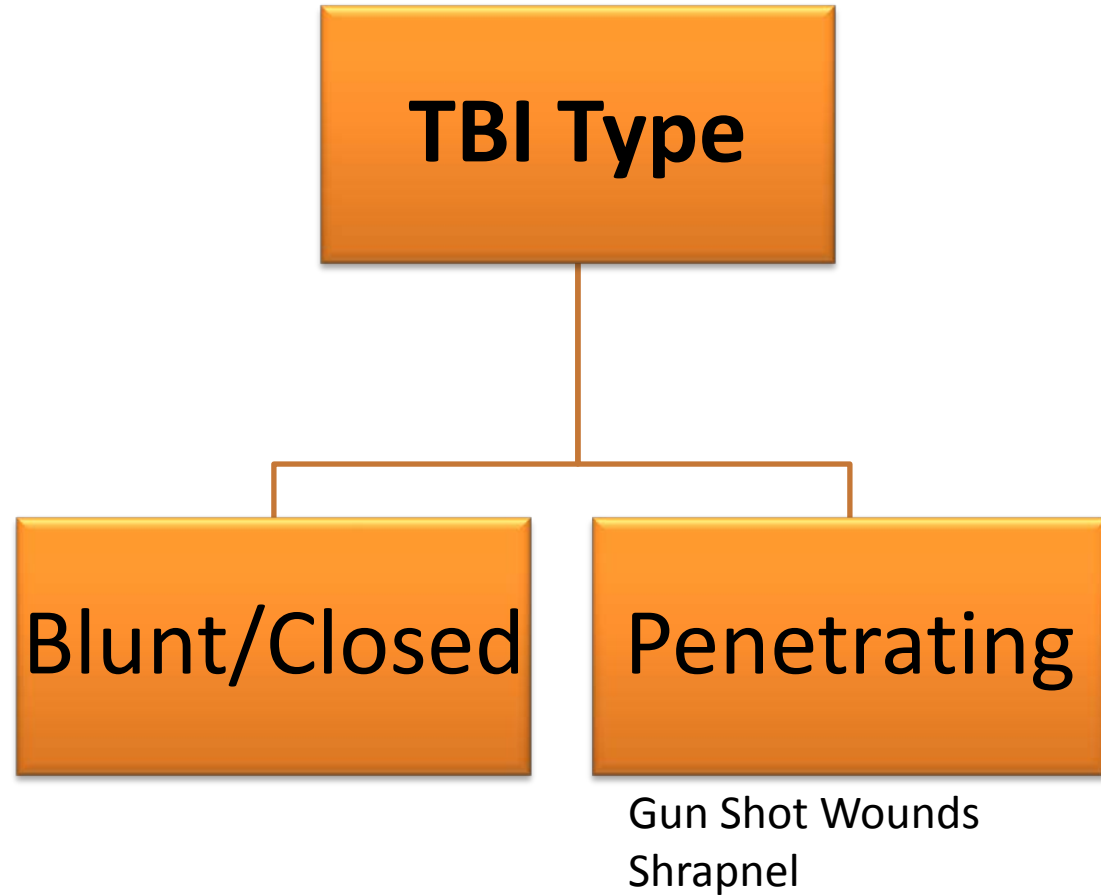
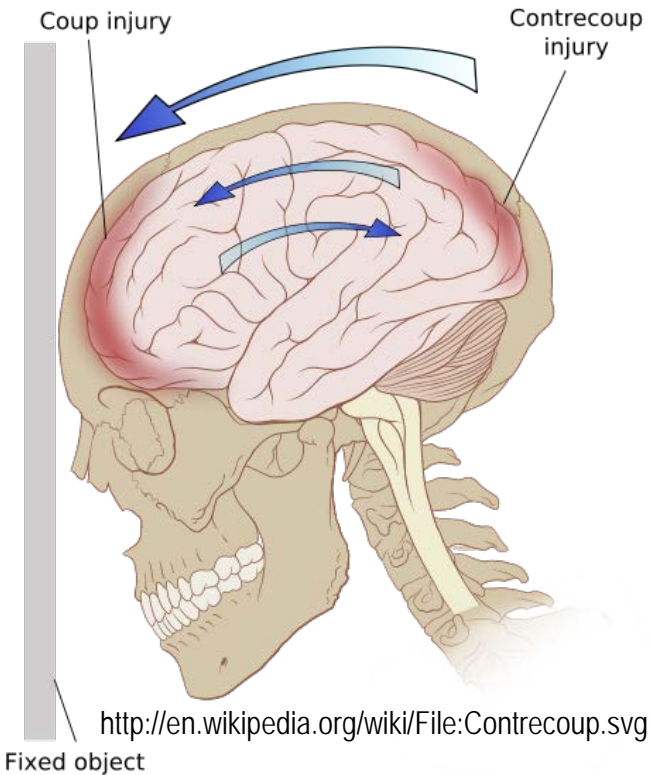
Raphael Carandang, MD

Assistant Professor of Neurocritical Care

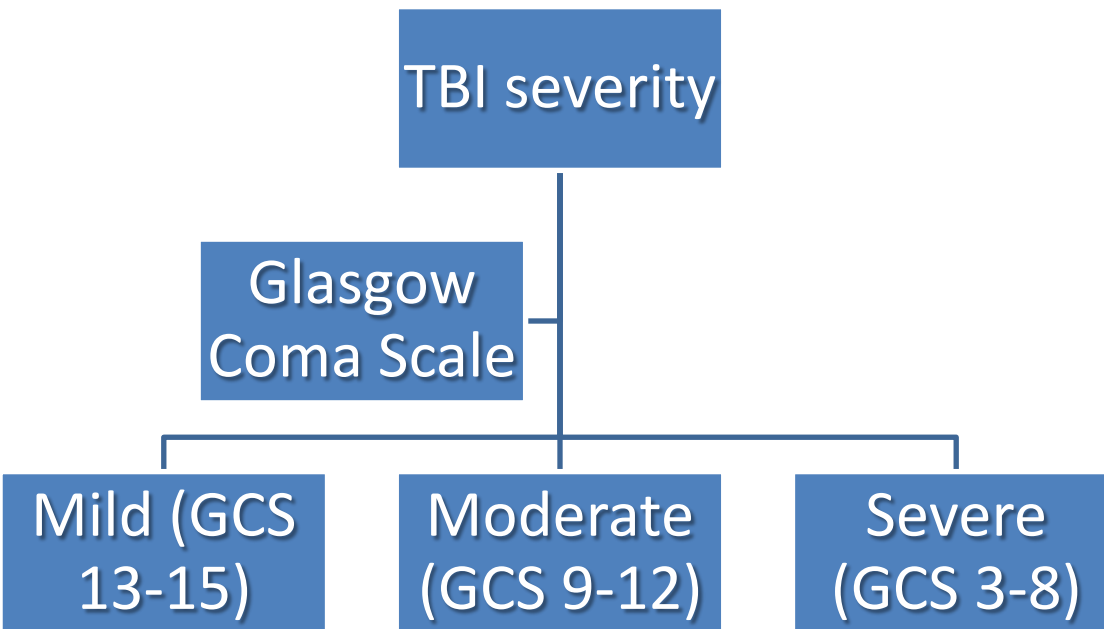
UMASS Depts. Of Neurology and Surgery



Traumatic Brain Injury (TBI) is due to a sudden forceful, mechanical injury to the brain.



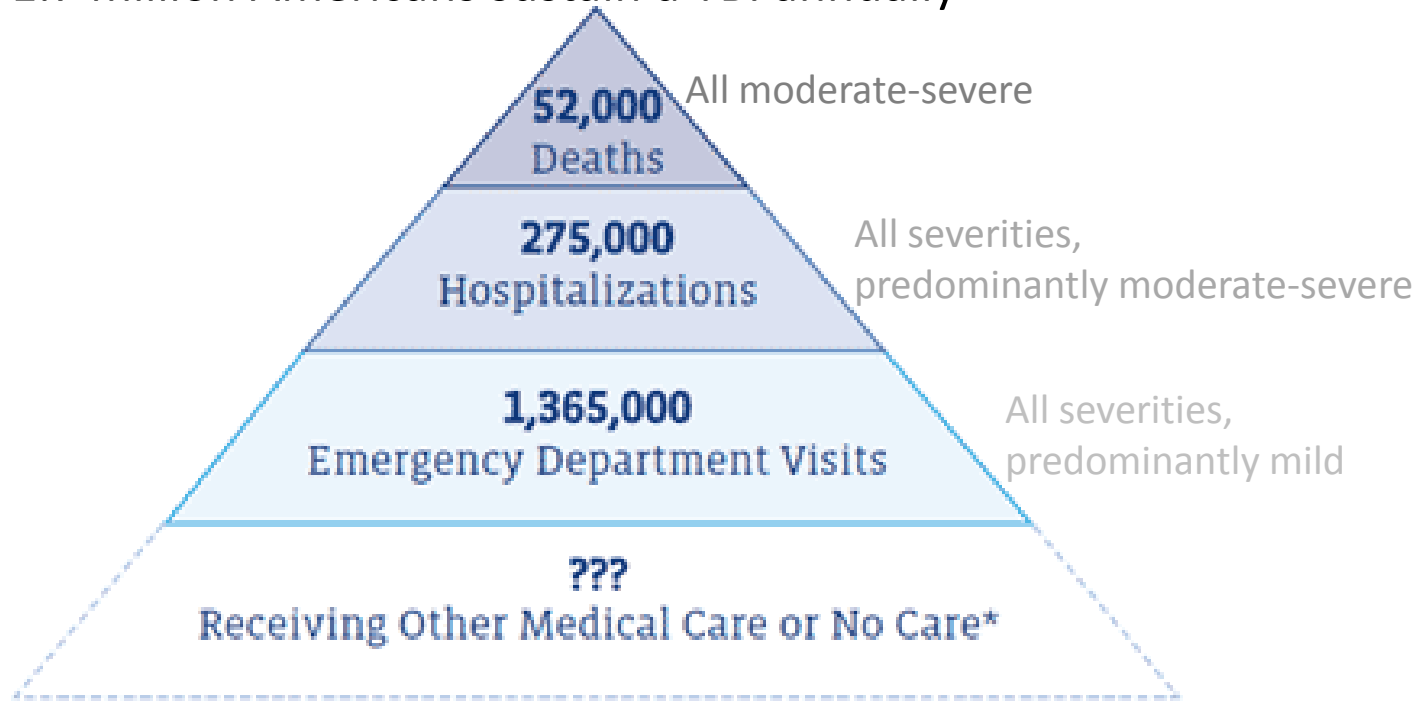
The severity of TBI is determined by the Glasgow Coma Scale on presentation.



The Glasgow Coma Scale (GCS)		
Feature	Scale Responses	Score
Eye opening	Spontaneous	4
	To voice	3
	To pain	4
	None	1
Verbal response	Oriented	5
	Confused conversation	4
	Words (inappropriate)	3
	Sounds (incomprehensible)	2
	None	1
Best motor response	Obeys commands	6
	Localizes	5
	Withdraws	4
	Flexion Posture	3
	Extension Posture	2
	None	1
Total		3 - 15

Traumatic Brain Injury is a real public health problem in the U.S. (and worldwide).

Appr. 1.7 million Americans sustain a TBI annually



From: <http://www.cdc.gov/traumaticbraininjury/statistics.html>

- 25% of these are moderate-severe TBI.

Falls and motor vehicle accidents are the most common causes of adult TBI.



From: www.nutridesk.com.au

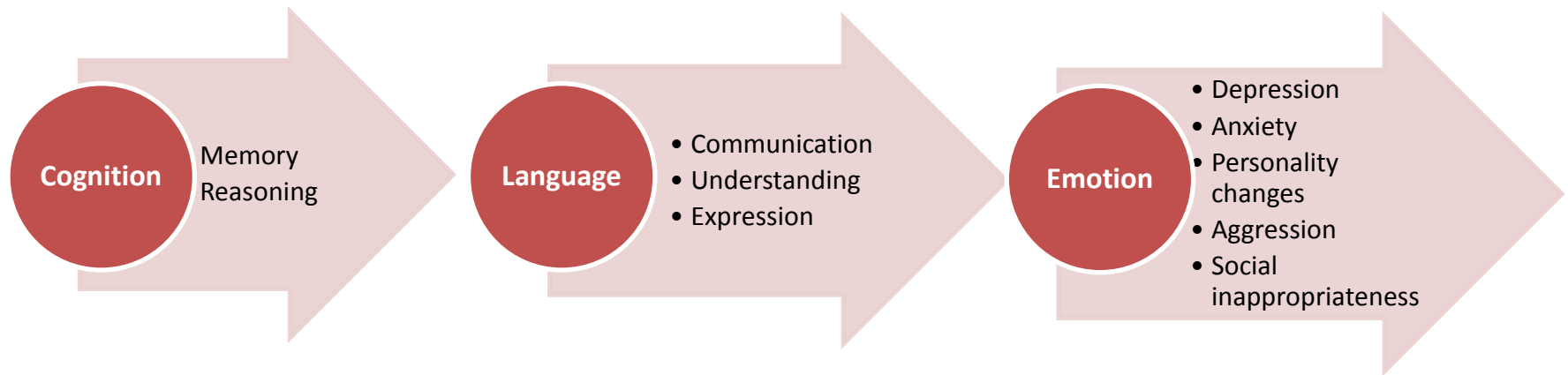
- Falls are the leading cause of TBI
- Fall-related TBIs older adults aged ≥ 75 years is increasing



From: www.break.com

Among all age groups, motor vehicle crashes and traffic-related incidents result in the largest % TBI-related deaths (31.8%).

Long-term effects and poor outcomes require research to improve outcomes and develop new therapies.



Direct medical costs and indirect costs
(lost productivity) of TBI:

~ \$76.5 billion in the U.S. in 2010

From: <http://www.cdc.gov/traumaticbraininjury/statistics.html>

