- List major structures and function of nervous system involved in a given TBI
- Types of TBI; describe clinical features
- Mechanisms of neurological injury
- Describe imaging utilized in TBI
- Readiness to respond, Assessment, treat and transport patients with TBI
32 years-Male

RTA, head-on collision from high speed

Seat built was on

He was fully awake for 3 hours prior to arrival to ER

ER assessment:

Opening eyes to painful stimuli

Withdrawal to pain

Verbally responsive but incoherent
Assessment

- Mechanism
- Consciousness
- Severity
- Workup
- management
The problem

- 7th leading cause of death worldwide.
- Local: Increasing leading cause Mortality … Morbidity.
Mortality after traumatic injury

Trimodal distribution of death (Am Coll Surg 1998)
Facts:

- Responsible for 50+% of trauma deaths
- Can be prevented (some extent)
- Major cause of chronic disability
- Mostly from Falls, RTAs and Assaults
Mechanics of RTAs

- Pedestrian Hazards
- Driver Hazards
- Passenger Hazards

- Steering wheel / column
- Instrument panel
- Seatbelt
- Windscreens
Brain Injury is a Mechanical Event
Traumatic Brain Damage

Indications of a head injury:
- Scalp wound
- Fracture
- Swelling, bruising
- Loss of consciousness
- Nasal discharge
- Stiff neck
TBI

Primary
- Result of energy absorption
- Difficult to prevent
- Results from
  - neuronal or axonal disruption
  - shear
  - laceration
  - vascular disruption

Secondary
- Result of insults that occur after primary injury
- Easier to prevent
- Causes
  - ischemia
  - hypoxia
  - cerebral edema
  - intracranial hypertension
  - abnormalities of cerebral blood flow
  - metabolic derangements
Boy, it almost feels like I’ve been shot with an arrow.
Yup, that definitely feels like an arrow.
Primary survey

It should take no more than 5-10 min.
Secondary survey

- Complete physical exam
- Lab and radiological
Best Eye Opening: 4
Best Verbal Response: 5
Best Motor Response: 6
Eye
1. Does not open eyes
2. Opens eyes in response to painful stimuli
3. Opens eyes in response to voice
4. Opens eyes spontaneously

Motor
1. Makes no movements
2. Extension to painful stimuli (decerebrate response)
3. Abnormal flexion to painful stimuli (decorticate response)
4. Flexion / Withdrawal to painful stimuli
5. Localizes painful stimuli
6. Obeys commands

Verbal
1. Makes no sounds
2. Incomprehensible sounds
3. Utters inappropriate words
4. Confused, disoriented
5. Oriented, converses normally
This presentation:

• Is not intended to replace the lecture
• Is not guaranteed to cover the required knowledge & skills
• Class attendance is a must