

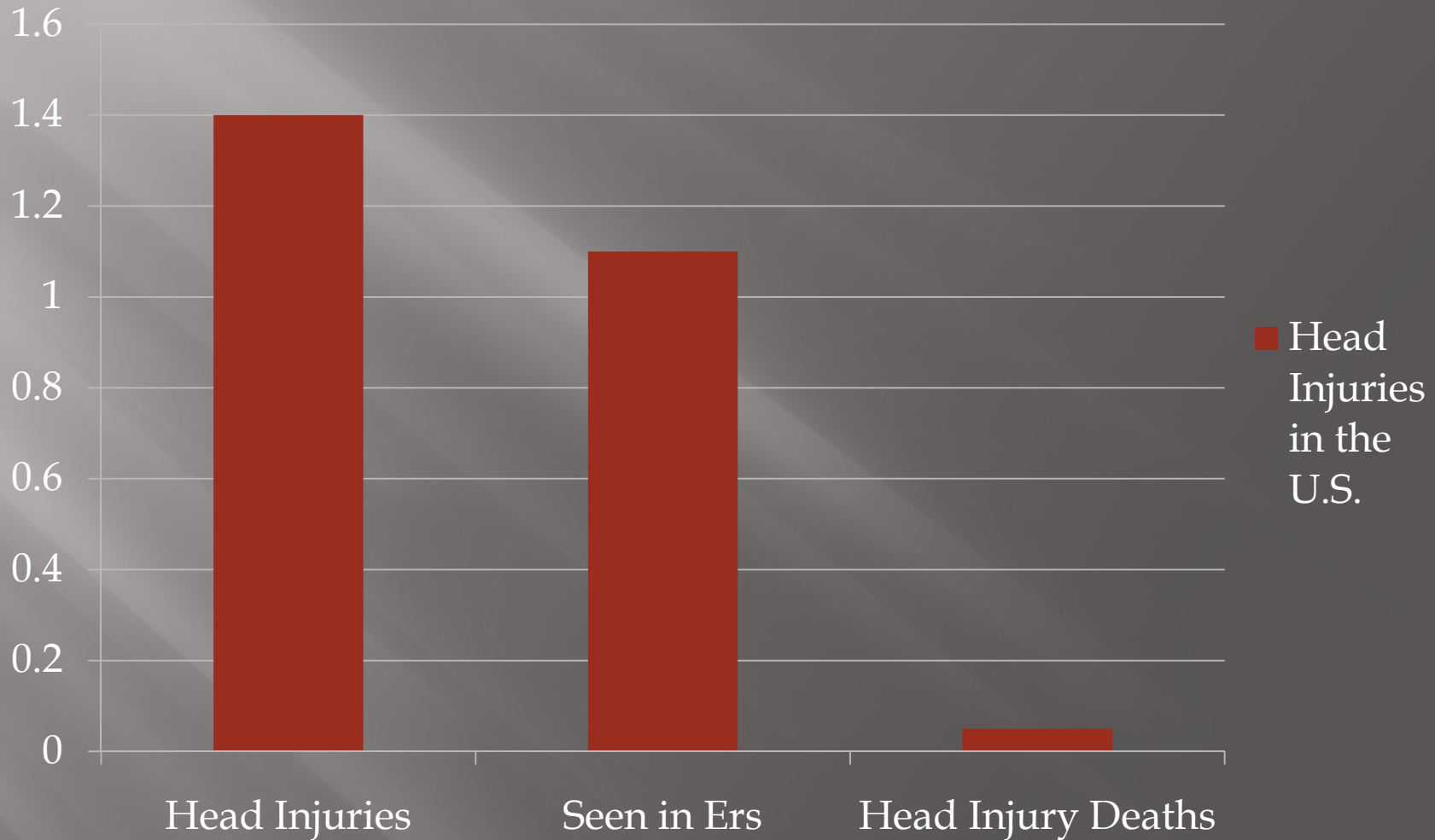
# HEAD TRAUMA



- ▣ 1.4 million people per year in US sustain head injuries
- ▣ 1.1 million of those are seen in ERs
- ▣ 50,000 people in US die from head injuries each year



# Head Injuries in the U.S.



# Traumatic Brain Injuries

## Risk Factors

Males age 15-24

Males 1 ½ times higher risk

Age > 65 yrs.

Children < 5 yrs.

## Mechanism

<75 yrs.

Motor Vehicle Crashes 50%

Violence 20%

Sport injuries 3%

>75 yrs.

Falls are leading cause

Alcohol is involved in 50% of all Traumatic  
Brain Injuries

# Signs/Symptoms

Headache---crescendo headaches more concerning

Behavior Changes

Nausea/Vomiting

Scalp Hematomas

Drowsiness

Pupils Dilated

Neurologic Changes

# Diagnosis

- ▣ Historically diagnosis was purely clinical
- ▣ Glasgow Coma Scale (GCS)
  - Eye opening
  - Motor response
  - Verbal response
- ▣ Watchful waiting
- ▣ Advent of CT scanning changed diagnosis protocols

# CT or not?



- ▣ Over 1 million Head CTs per year in US
- ▣ 94% are negative studies
- ▣ Head CT increases lifetime likelihood of malignancy 0.07 %

# Canadian Head CT Rule

## High Risk

- ▣ GCS < 15 at 2 hours post injury
- ▣ Suspected open or depressed skull fracture
- ▣ Sign of basilar skull Fracture
- ▣ Vomiting  $\geq 2$
- ▣ Age  $\geq 65$

## Medium Risk

Amnesia > 30 min. prior

Mech. Of Injury (pedestrian struck by car, ejected from vehicle, fall from height > 3 ft. or more than 5 stairs)

## New Orleans Criteria

- ▣ Headache
- ▣ Vomiting
- ▣ > 60 years
- ▣ Drug or Alcohol Intoxication
- ▣ Persistent amnesia
- ▣ Visible trauma above the clavicles
- ▣ Seizures

## What determines prognosis?

# BEAN BASH

- ▣ In 2006, large study was completed
- ▣ 13,728 patients with blunt head trauma
- ▣ 917 had significant intracranial injuries
- ▣ Criteria identified 901 of those injuries
- ▣ Of the 16 patients not identified, only 1 of those required neurosurgical intervention
- ▣ Sensitivity 98.3 % with 99% negative predictive value

Statistics are even better in pediatric population

# Bean Bash

- ▣ Behavior Abnormal
- ▣ Emesis
- ▣ Age > 65
- ▣ Neurologic Deficit
- ▣ Bleeding Disorder
- ▣ Altered Mental Status
- ▣ Skull Fracture
- ▣ Hematoma of Scalp

# Prevention

- ▣ Seatbelts/Child safety seats
- ▣ Don't drive under the influence
- ▣ Wear helmets (biking, football, batting, skateboarding, skiing, etc.)
- ▣ Safe living areas for geriatrics
- ▣ Safe living areas for pediatrics
- ▣ Use shock absorbing materials for playgrounds