Global Childhood Unintentional Injury Surveillance in Four Cities in Developing Countries: A Pilot Study

"Bangladesh,Colombia,Egypt,Pakistan"

Adnan Hyder, David Sugerman, Prasanthi Puvanachandra, Junaid Razzak, **Hesham El-Sayed**, Andres Isaza, Fazlur Rahmang & Margie Peden

Gcuis Study Objectives

- To determine the frequency and nature of childhood injuries in low & Middle-income countries by using emergency department (ED) surveillance data.
- To explore the risk factors for injuries.
- Data contribution to the WHO World Health Report 2008 and Country Specific Reports

Study Methodology

- ***Case definition:***

  Any child victim of injury (< 12 years) coming to ED with caregivers

- **Study sample:**

  Quota sampling of 500 patients for 3 months in each of the study centers

Study Methodology (Cont.)

- 10 minute survey administered by research assistant to caregivers of children 0-11 yrs in the hospital ED
  - Obtain oral consent from caregiver
  - 22 questions
- 5 minute assessment by the ED physician
  - 5 questions
  - Abbreviated injury severity score (AISS)
  - Expected disability
  - Length of stay and disposition

Study Methodology (Cont.)

Core data set:

- Unlinked unique identifier, age, gender, education level
- Injury mechanism, nature, date, time and place of occurrence.
- Seat belt/helmet usage.
- Injury severity score
- Disposition of injured person

Abbreviated Injury Severity Score (AISS)

Anatomic Region	Severity (0-6)
1. General (i.e. burn, shock, coma, skin)	
2. Face	
3. Head and neck	
4. Chest	
5. Abdomen	
6. Extremities	

Severity codes:

0= NO INJURY;

1=minor injury; 2=moderate injury; 3=severe but not life threatening; 4= life threatening but survival likely; 5=critical with uncertain survival; 6=fatal

(Grade the severity of the three most severe injuries according to anatomical site)

Why we measure ISS?

- Facilitate pre-hospital triage
- Organize and improve trauma system
- Allow accurate comparison of different trauma populations
- etc…

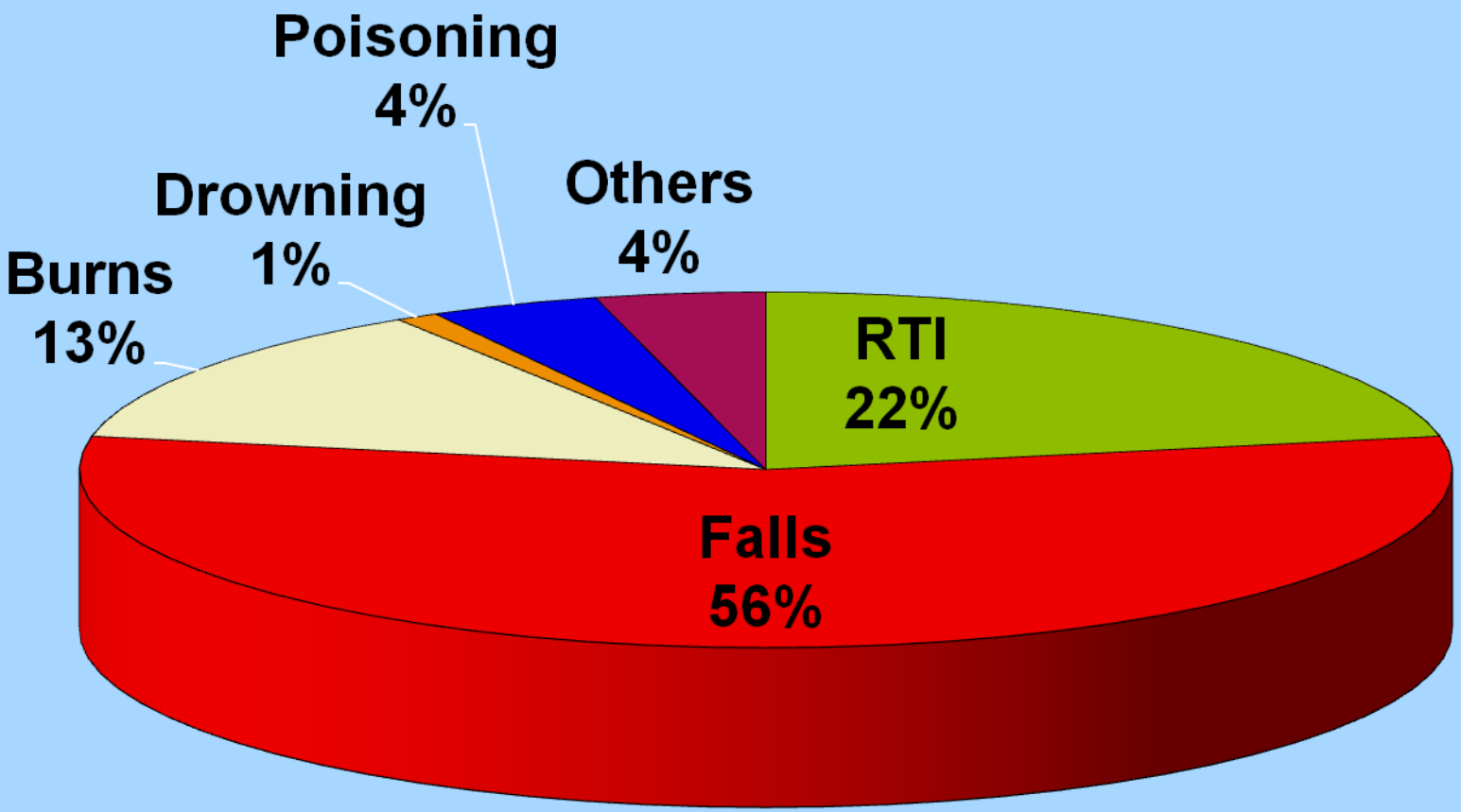
Study Results (1)

- The study included 1559 injured children across all sites, 1010 (65%) were male
- Most children were aged (5-11) years (60%), while only 2% were < 1 year old
- Injuries occurred in and around the home in 56% of the cases, in street or highway (21%) and in playground in 7% of cases.

Study Results (2)

- The most common external causes of injuries were falls in 56%, road traffic injuries 22% and burns in 13% of the cases.
- Falls occurred most often from stairs or ladders; road traffic injuries most often involved pedestrians; and the majority of burns were from hot liquids.

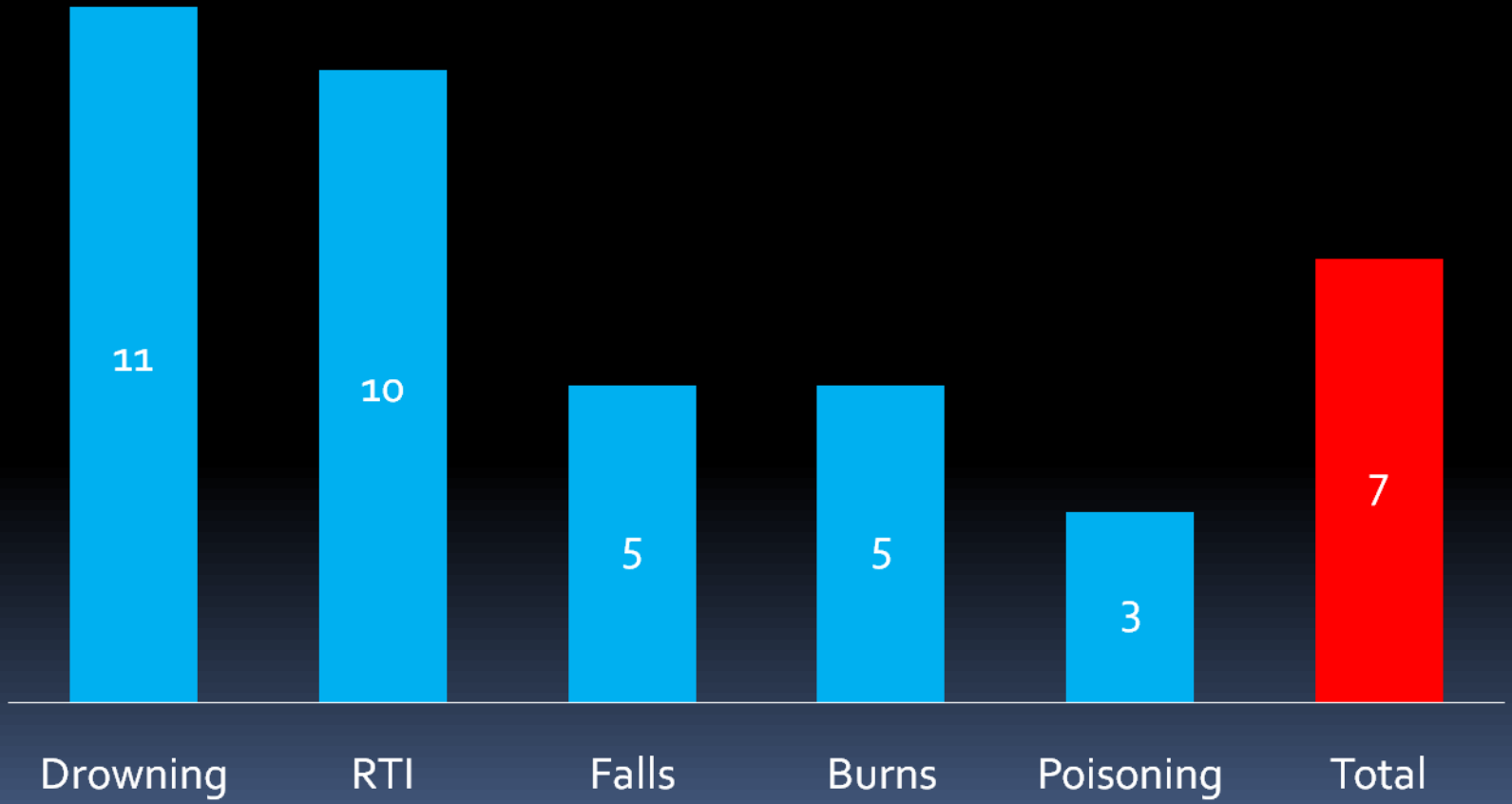
External Causes of Injuries



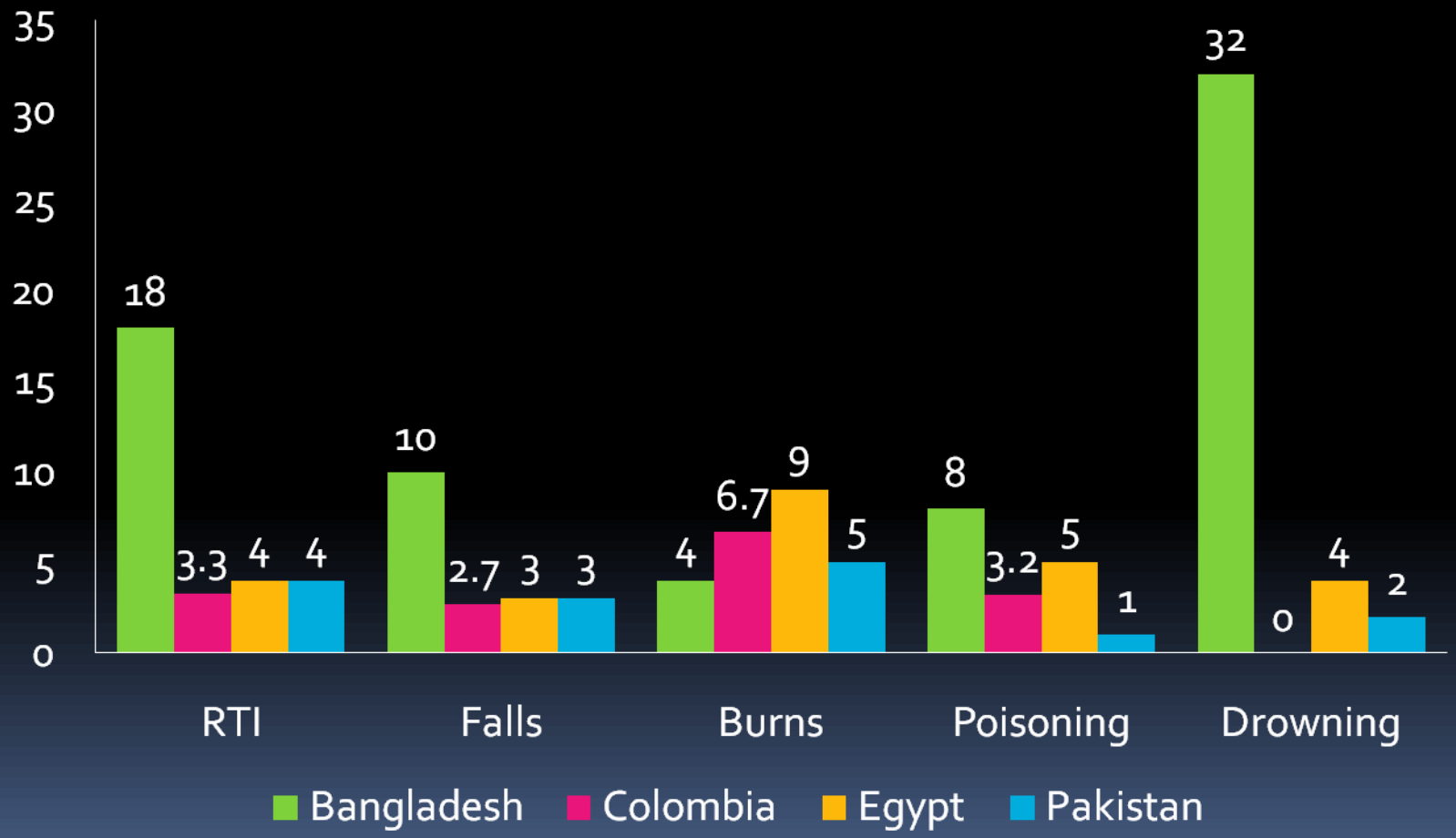
Study Results (3)

- The mean injury severity score for all injuries was 7
- The highest scores were in Near drowning or drowning (11) and followed closely by road traffic injuries (10)
- There were marked variation of the severity scores between the different study centers
- There were 6 deaths, of which 2 resulted from drowning, 2 from falls and 2 from road traffic injuries.
- Most sever injuries among children were cuts and open wounds (22%), followed by fractures (20%), then concussion (17%)

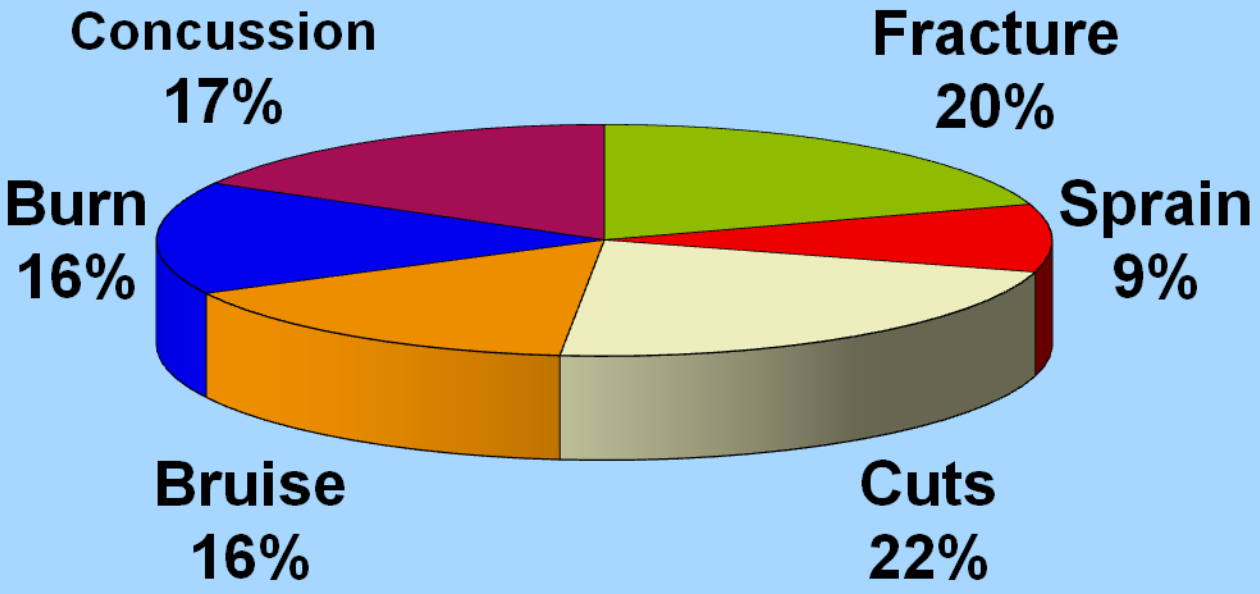
Injury Severity Scores of the Different Injuries



AISS in the Different Study Centers



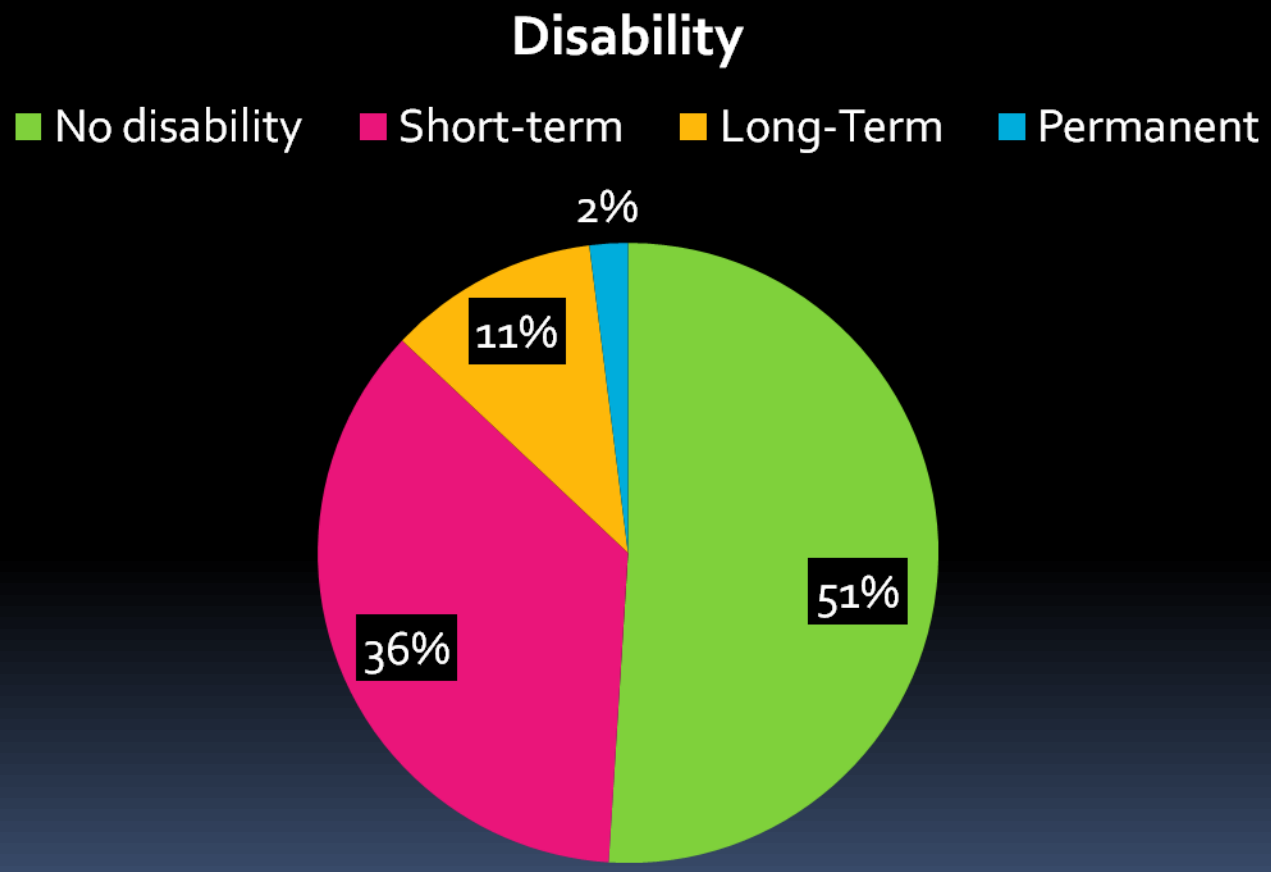
Most Sever Injuries Among Children



Study Results (4)

- The majority of injured children were treated and discharged (66%).
- One-third were admitted to the hospital (27%) and 2% required emergency surgery
- Less than 1% died in the ED or transferred to another centre.
- Most discharged children (51%) suffered no disability; short-term disability (< 6 Ws) 36% ; while 11% long-term disability (≥ 6 Ws); & 2% suffered permanent disability.

Projected Effect of Injury



Conclusions

- The burden of childhood injuries on the studied hospitals of LMIC is substantial
- The study illustrated the feasibility of documenting the burden of childhood injuries and of undertaking standardized child injury surveillance on the health facilities in LMIC
- There is need for tailored injury prevention research in LMIC and to encourage the conduct of interventional trials

Conclusions *(AISS)*

- *Application obstacles:*
  - Investigators compliance (incomplete data)
  - Needs comprehensive training and monitoring of the investigators
- Disadvantages :
  - Unable to discriminate between the impact of similarly scored injuries to other injuries
  - Suitability for widespread surveillance in LMIC ?

Recommendations

- Ongoing child injury surveillance using systematic approaches is required to identify the epidemiology of injuries, their risk factors, and plan for timely interventions in the health system.
- There is need to implement appropriate injury prevention strategies based on injury surveillance results (i.e. evidence based).
- Ongoing child injury surveillance using standardized methods is needed to track injuries and their risk factors and to monitor the impact of intervention programs.

Recommendations (for ISS)

- There is need to use appropriate severity scores methods that can help in improving health system injury care and better monitoring:

- Suitable methods for ED
- Can be used in representative surveys
- T o improve injury care system by identifying fatal and serious non-fatal injury incidence.

Acknowledgement

Department of Violence and Injury Prevention and Disability,
World Health Organization (WHO),
Geneva, Switzerland