Introduction to Pediatric Injury Prevention

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Overview of Injuries in Childhood/Epidemiology

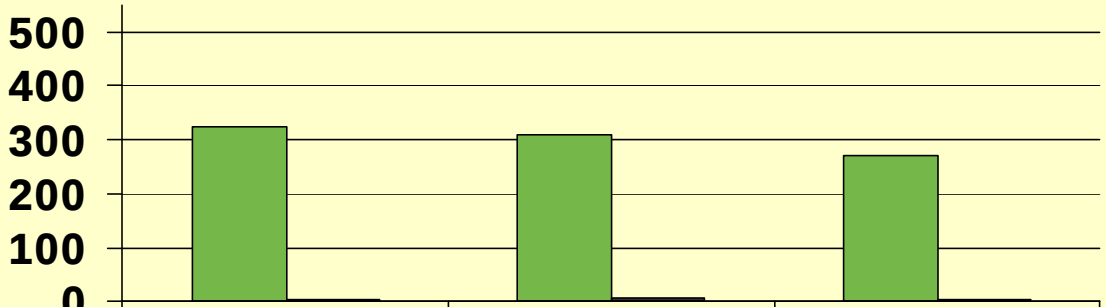
- Unintentional injuries are the leading cause of death in children from 1 - 21 years of age in the U.S.
- Each year, 20-25% of children sustain an injury requiring medical attention, missed school, and/or bedrest
- Leading cause of childhood medical spending in U.S.

Epidemiology cont.

- Children living in low-income neighborhoods such as ours are at increased risk of severe injury from both unintentional and intentional causes (Davidson et.al.)

Injuries in Washington Heights

Incidence (/100,000) of Severe Injuries and Injury Mortality (/100,000), Children < Age 17, Washington Heights, 1999-2001



	1999	2000	2001
Incidence or Severe Injuries	323.25	306.75	271.59
Mortality	3.92	5.86	3.91

Incidence (per 10,000) of Severe Injuries to Residents of Washington Heights Zip Codes, Ages 0-16 Years, 1999-2001, by Cause & Year

	1999	2000	2001
Cause			
Fall	9.80	9.38	6.64
Pedestrian	3.53	1.17	3.13
Bicycle	0.98	1.76	0.98
MV Occupant	0.78	2.15	0.39
Firearms	1.37	0.39	0.59
Poison	1.37	2.15	2.54
Burn/Fire	2.94	3.91	2.93
Cut	0.98	0.59	1.75
Strike	0.98	0.39	0.39
All Other	9.60	8.79	7.82
Total	32.33	30.68	27.16

Example Injury Statistics: Drowning

- In 2002 – 838 children <14 years old died from accidental drowning
- 2003- 4200 children < 14 years old treated in ERs
- Typical medical cost “near drowning”- $8K for hospital visit up to $250K/year for long-term care
- Other sequelae – the witnesses, the families

Basics of Injury Prevention

- INJURIES ARE NOT ACCIDENTS
- Injuries are often understandable, predictable, and preventable
- Specific injuries share similar characteristics of person, place , and time
- By understanding injuries, interventions can be developed and implemented to prevent or limit the extent of a given injury

William Haddon and The Phase-Factor Matrix

- First conceptual framework for studying injuries causes and prevention, developed by William Haddon
- By studying a specific injury with this matrix in mind, one can identify **modifiable** risk factors and identify points of intervention in the causal sequence

Phase-Factor Matrix cont.

- Much like an infectious disease:
  - Host=person experiencing injury
  - Vector=e.g. a bicycle or car
  - Environment=physical and socioeconomic condition surrounding event
- Three Phases during which each factor must be evaluated:
  - pre-event phase
  - event phase
  - post-event phase

Example

	Host	Vector	Environment
Pre-event			
Event			
Post-event			

Example: Ingestion

	Host (child)	Vector (medicine)	Environment (home)
Pre-event	Age of child	How lethal	Where bottle stored
Event	Manual dexterity	Child proof package	supervision
Post-event	Other medical problems	How quickly absorbed	Proximity to hospital

Strategies for Prevention

Intervention or countermeasures are classified based on requirements for behavior change

- **Active** - rely on actions taken by an individual (e.g. storing meds in high/locked cabinets)
- **Passive** - do not rely on the efforts of an individual to be successful (e.g. packaging meds in nonlethal amounts/child safety caps)

Methods of prevention: The Three “E’s”

- Engineering
- Environmental change
- Education

Primary Care Based Injury Prevention Counseling

- American Academy of Pediatrics - injury prevention counseling is standard of care
- Residency Review Committee - among educational goals

Effectiveness of Primary Care Office Based Counseling

- Comprehensive review of the literature shows positive results
  - increased knowledge
  - improved behavior
  - decreases in number of certain injuries (Bass et.al.)
- Cost effective
  - for each dollar invested in effective program, return $13 (Miller and Gailbraith)

Outcomes of Counseling

- educational change
- behavioral change
- change in occurrence of injury

Need for Patient Education

- Parents think they would be most likely to obtain safety information from physician's office; physicians were cited as parents' first choice for such info (Eichelberger et.al.)
- Relatively small proportion of households with young children (39.3% of 0 - 14 year olds) report receiving injury prevention counseling (Quinlan et. al.)

AAP Policy Statement on Office-Based Counseling (1994)

Counseling as a standard of heath care

- “All children deserve to live in a safe environment”
- “Anticipatory guidance for injury prevention should be an integral part of the medical care provided for all infants, children, and adolescents”
- “appropriate to age and locale”

Office Based Injury Prevention Counseling

An effective prevention program must

- emphasize most important injuries
- be developmentally focused
- offer achievable strategies for parents/patient
- actively engage parent/child
- take into account parent's own viewpoint
- Be adaptable to office practice and incorporated into health supervision visits

The Injury Prevention Program (TIPP)

- Initiated in 1983 by the American Academy of Pediatrics
- Initially for children ages birth to 4 years
- October 1988 expanded to include children age 5 to 12 years
- 1994 - revised and updated to reflect the current pattern of childhood injuries

What is TIPP?

- A systematic educational program for pediatricians to use to counsel parents and children about adapting behaviors to prevent injuries
- Promotes behaviors that are effective and capable of being accomplished by most families
- Key topic areas: MV, drowning, burns, firearms, poisonings, falls, bicycles, choking, pedestrian hazards

Comprehensive TIPP Program

Guide to Safety Counseling in Office Practice

- Policy Statement
- Childhood safety counseling schedules and guidelines
- Package of materials - safety surveys and safety sheets for use in providing anticipatory guidance to parents and children

Counseling Schedules

- introduces and reinforces safety concepts in an organized manner
- emphasizes those injuries most important developmentally to help parents anticipate and prevent injuries

Safety Sheets

- Eight age-specific and color-coded Safety Sheets
- Topic-specific sheets also available
- Available in English and Spanish

How to implement in practice: A Checklist

- __Discuss importance of injury prevention to child's health
- __Give parent/child age and language appropriate safety sheet
- __Read through TIPP sheet with parent and child (minimum 3 topics)
- __Ask if any questions
- __Ask if any barriers to implementing
- __Document counseling in medical record

Implementation continued

- Counsel at each well child care visit and during any other appropriate patient encounter (“teachable moment”)
- Ask follow-up questions on subsequent visits to see if parents are implementing

Summary

- You can make a difference
- Injuries are NOT accidents - they are often predictable and preventable
- By taking the time to effect behavioral change in your patients and patients' families, you can have a huge impact on children's lives.