The Epidemiology of Pediatric Pedestrian Injury in an Urban Setting, 1991-2000

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Specific Aim

Describe and Document the Epidemiology of Pediatric Pedestrian Injury in NYC Over 10-Year Period

- NYC DOT Safety Division
- Assess trends
- Identify risk factors
- Compare experience of different age groups
Methods

Data

- Large Routinely Collected Electronic Police Database
- 1990, 2000 Census
- FARS

Analysis

- Age-specific population based injury and fatality rates
- Ages 1-4, 5-9, 10-14, 15-19 (20-34, 35-65, >65)
Results

- Yearly Injury Rate 246/100,000 (1-19 y/o)
  - Descriptive Epi, Trends, Ecologic Correlates, GIS
- Males, 9 y/o, weekdays, summer (<15)
- Younger than 10 years:
  - 22.6% increase population
  - 41.5% decrease injury rate
  - Stable CFR (<1%)
- Older than 64 years:
  - 1.6% decline population
  - 16.7% decrease injury rate
  - 25.2% decrease CRF
Age and Gender

Age

Frequency

Std. Dev = 21.48
Mean = 33.4
N = 133874.00
Intersections and Traffic Controls

Young Children: Midblock, No Traffic Controls
Older Children: Intersections, Traffic Controls

Figure 6: Proportion of Pediatric Pedestrian Incidents Occurring at Intersections, New York City, 1991-1997

Figure 7: Proportion of Pediatric Pedestrian Incidents Occurring at Sites with Traffic Controls, New York City, 1991-1997
Increased Injuries Younger Children in Summer Months
Age-Specific Injury Rates
Comparison Trends Pediatric vs. Geriatric

Comparison Injury Rates per 1000 5 to 9 Years Old vs. 65 and Over, NYC, 1991-2000.
Comparison Pediatric vs. Geriatric Case Fatality

Comparison Case Fatality Rates per 100 injuries, Pedestrians Aged 10 to 14 vs. Pedestrians 65 and Older, NYC, 1991-2000
Manhattan Police Precincts, Rates per 1000, 5-9 Years Old, 1991-1997
Ecologic Correlates

- Spearman’s rho: Per Capita Income, Housing Density, Education, Vehicle Ownership, Crime
- Per Capita Crime: $r=0.73 \ (p<0.001)$ for 5-19 y/o
- Per Capita Income: $r=0.67 \ (p<0.001)$ for 5-9 y/o subgroup
Geographic Information System

- Reference Markers
  - State, Federal, Interstate: NYS Primary Route System Coverage

- Link and Node Keys
  - CLASS Files

- NYS Data-Sharing Cooperative

- ArcView 3.2 - Interactive
Linked to Crash Data
Conclusions and Discussion

 DECLINE IN PEDESTRIAN INJURY RATES.
  - Lead by decreases in pediatric injuries
  - Age, SES
    - Exposure, Medical Care, 3 E’s

 ADMINISTRATIVE DATABASES USEFUL
  - Descriptive Epi, Priorities, Policy, Resources
Possible Interventions and Future Studies

Education
- Rates to evaluate programs; DOH, clinicians,

Enforcement
- Surveillance; ID areas for NYPD

Engineering
- Identify High Risk Locations (GIS)

Future Studies
- Link NYPD Data to Clinical Data
- GIS Study Environmental Variables