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

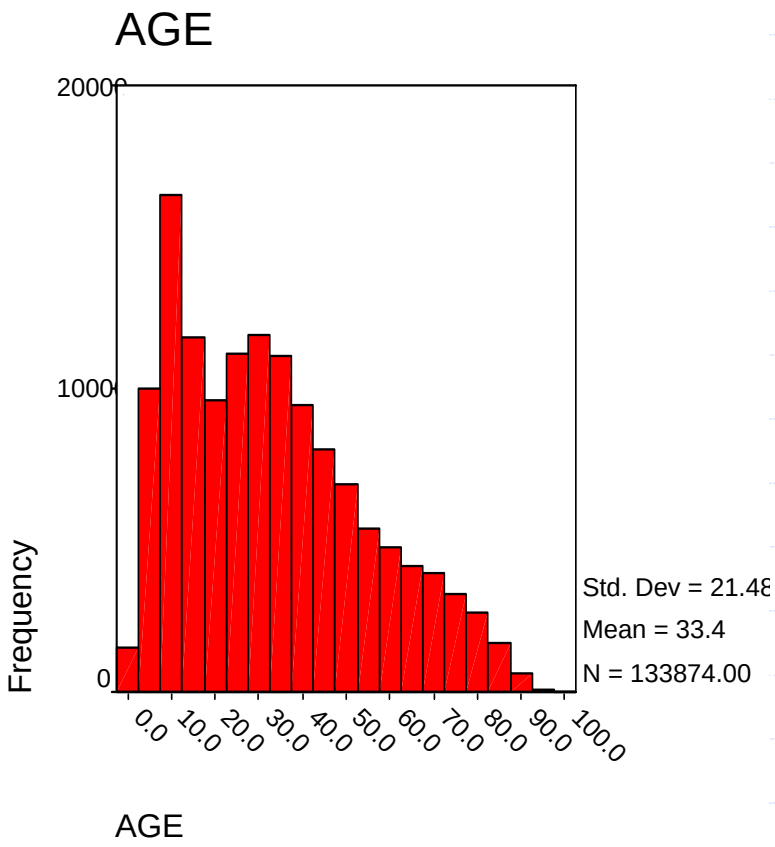
Methods

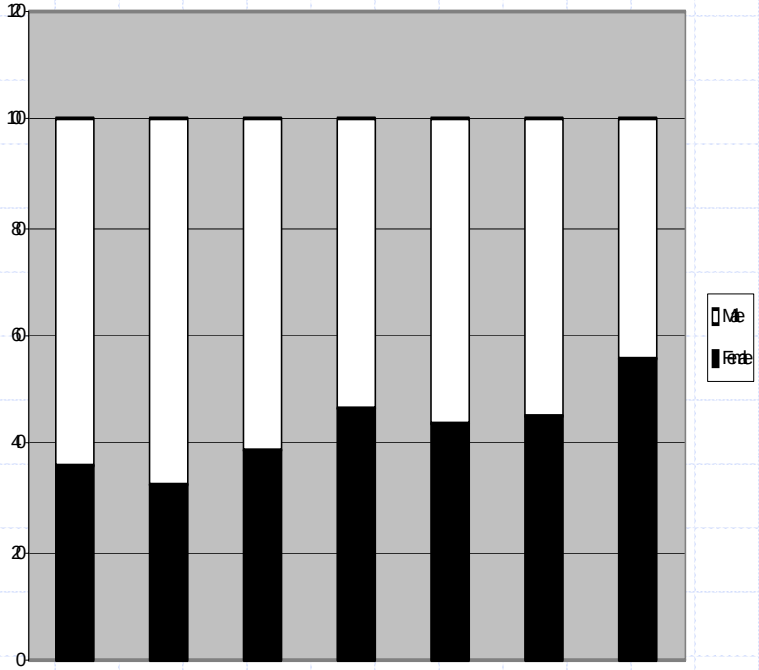
- Data
  - Large Routinely Collected Electronic Police Database
    - 136,306 pedestrians all ages injured NYC 1991-2000
  - 1990, 2000 Census
  - FARS
- Analysis
  - Age-specific population based injury and fatality rates
  - Ages 1-4, 5-9, 10-14, 15-19 (20-34, 35-65, >65)

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





Intersections and Traffic Controls

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

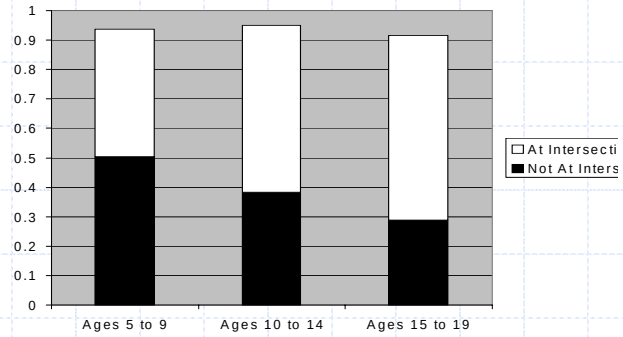
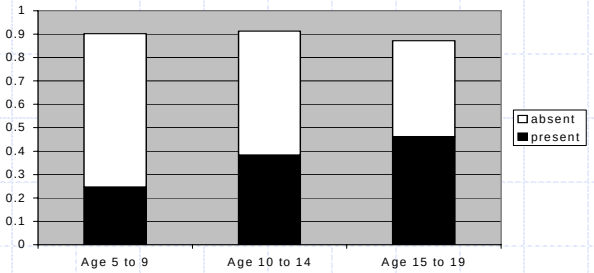
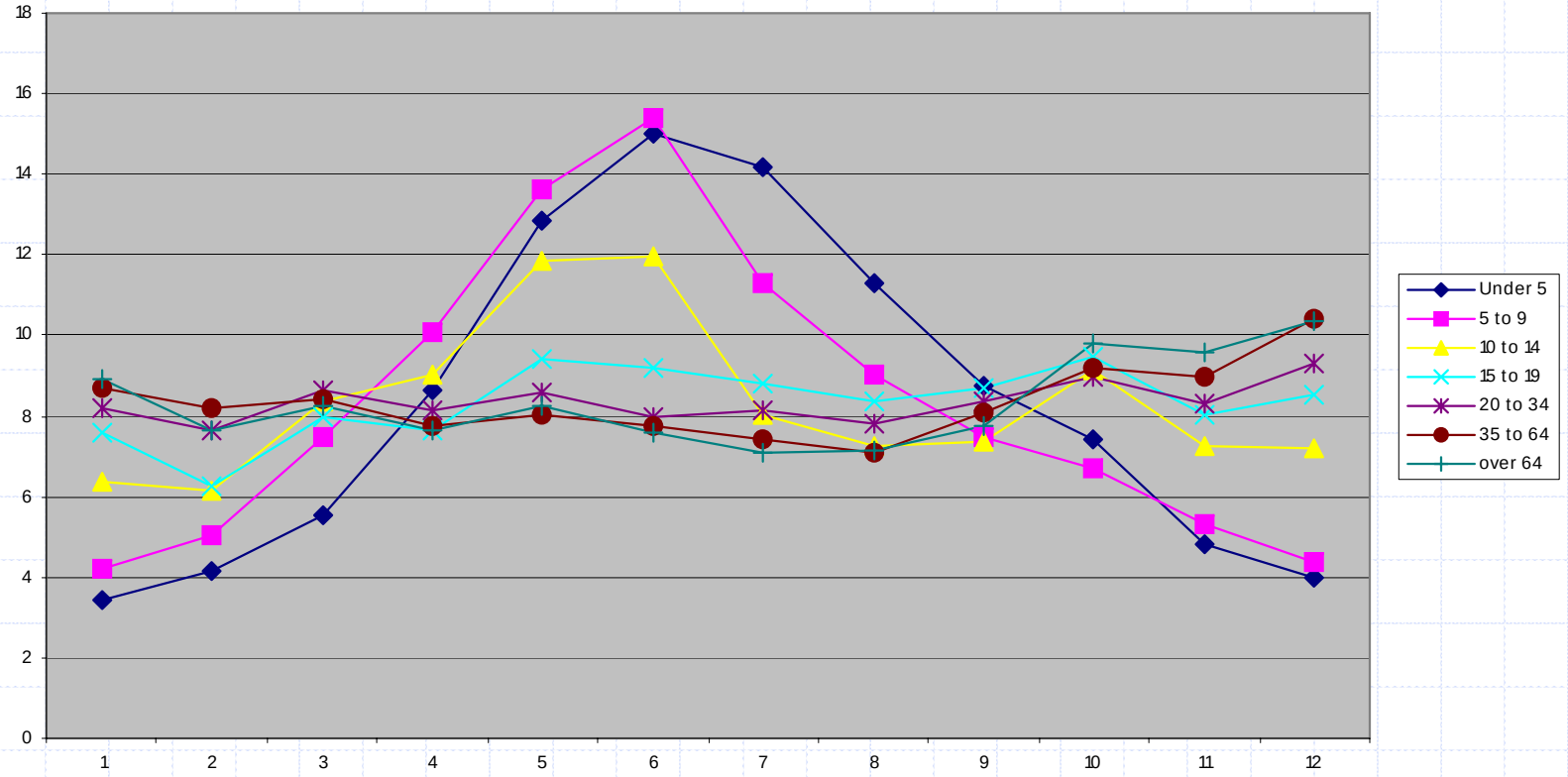


Figure 7: Proportion of Pediatric Pedestrian Incidents Occurring at Sites with Traffic Controls, New York City, 1991-1997

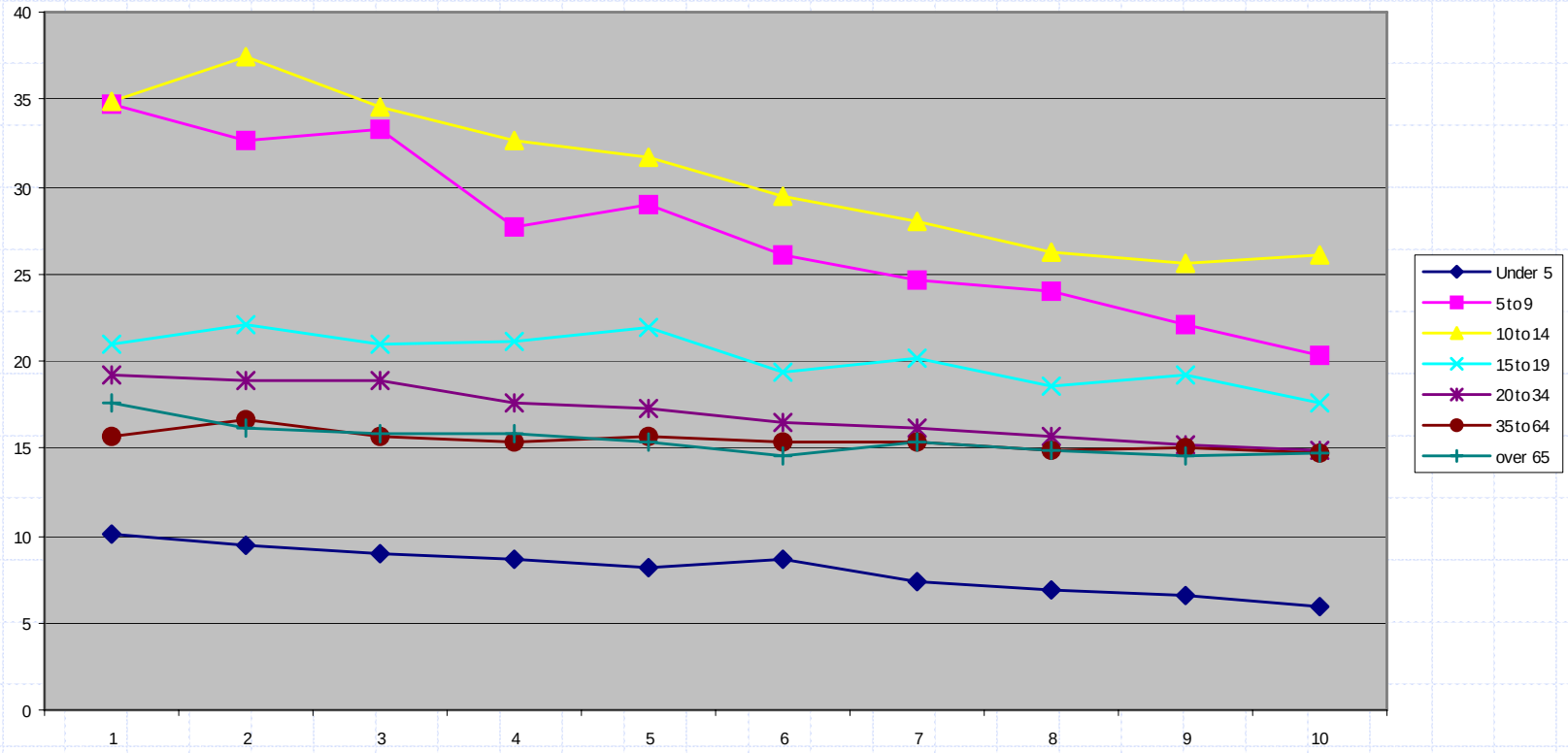


- Young Children: Midblock, No Traffic Controls
- Older Children: Intersections, Traffic Controls

Increased Injuries Younger Children in Summer Months

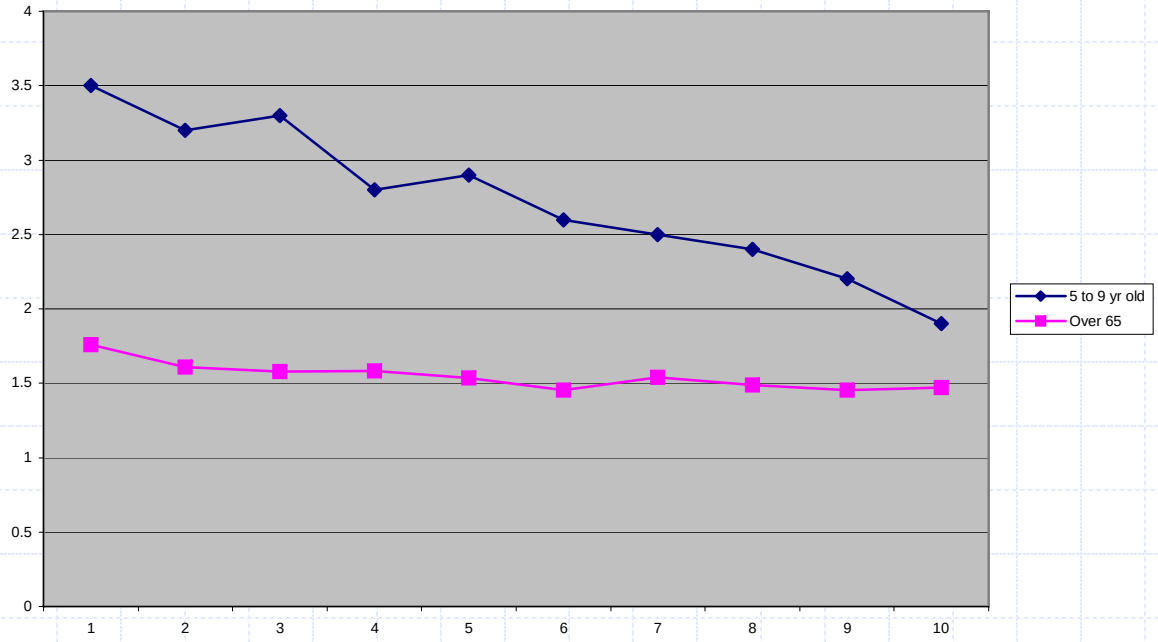


Age-Specific Injury Rates



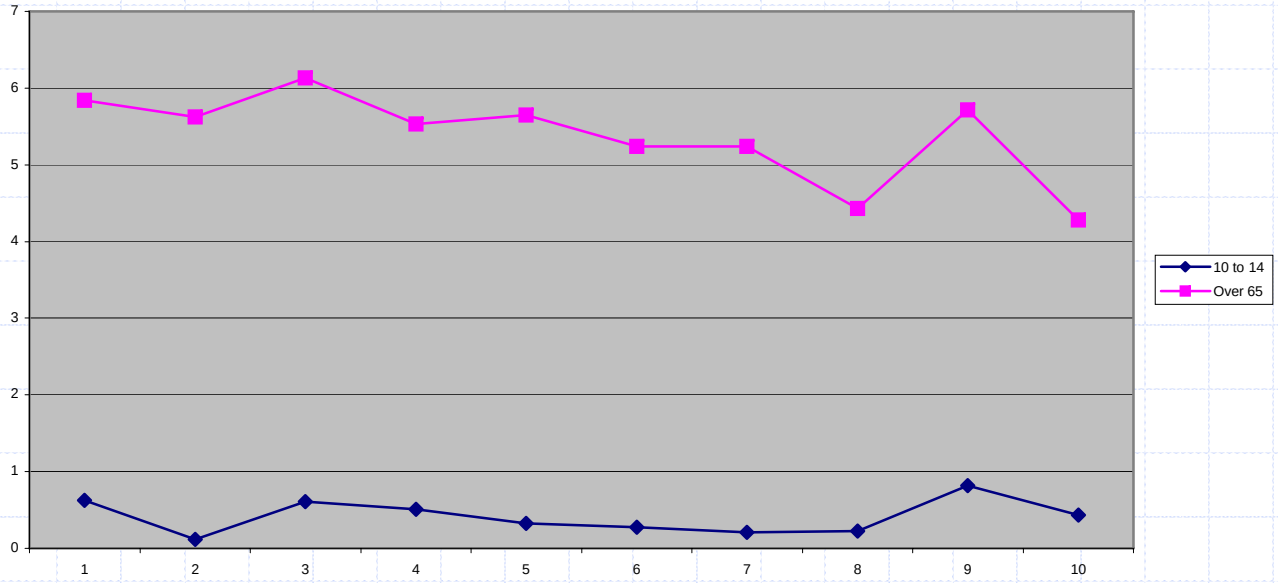
Comparison Trends Pediatric vs. Geriatric

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

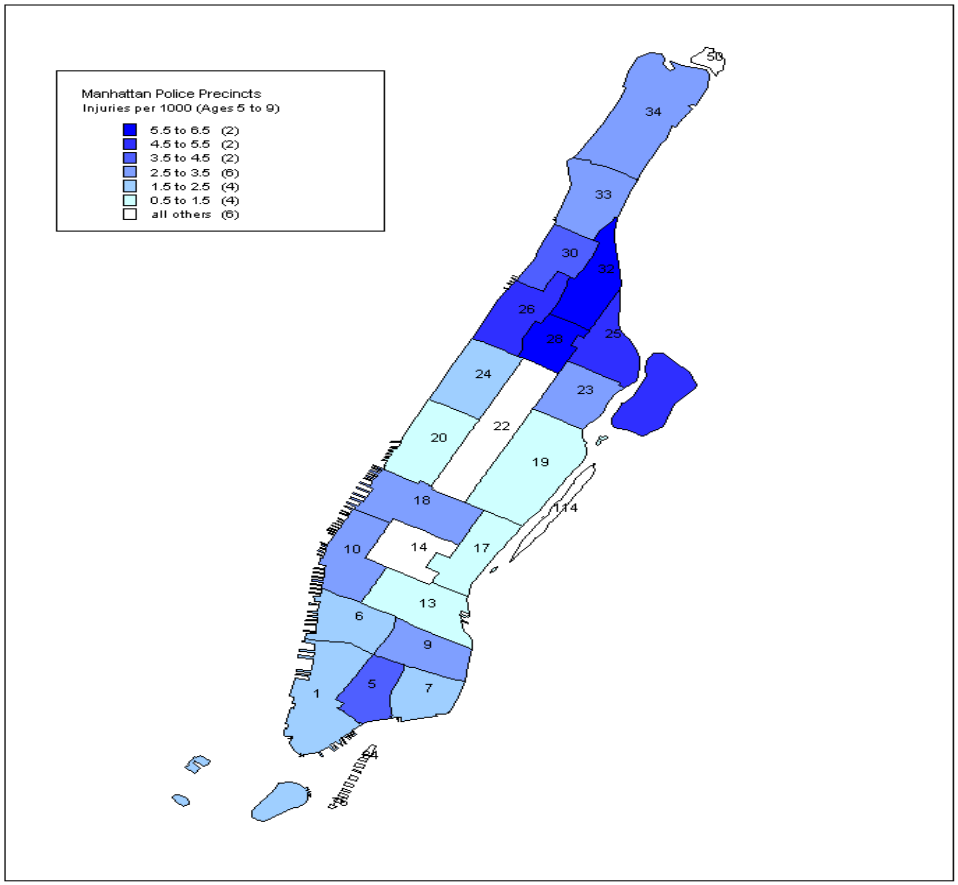


Comparison Pediatric vs. Geriatric Case Fatality

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



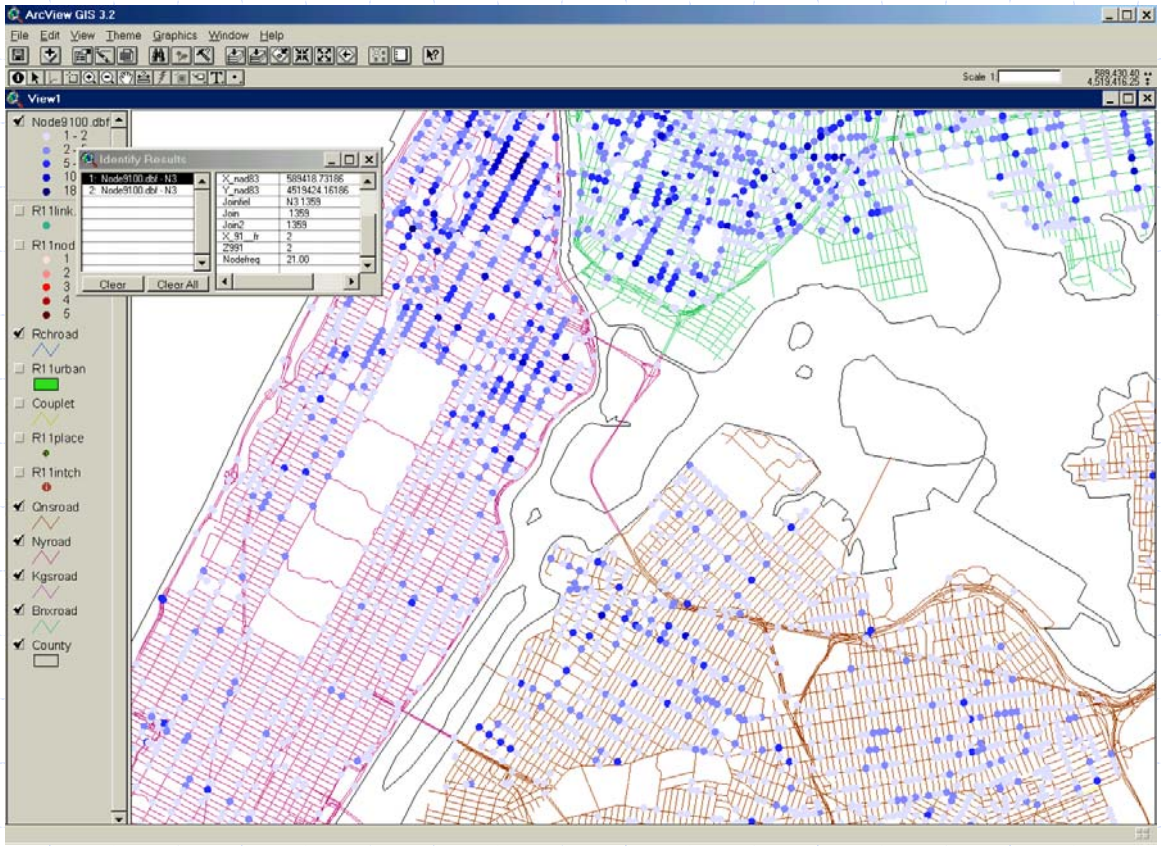
Ecologic Correlates

- 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
  - “Why Have Child Pedestrian Death Rates Fallen?” Roberts, 1993
    - 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