


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

Charles DiMaggio, PA-C, MPH, PhD  
Mt. Sinai School of Medicine  
Department of Emergency Medicine  
Elmhurst Hospital Center



# 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

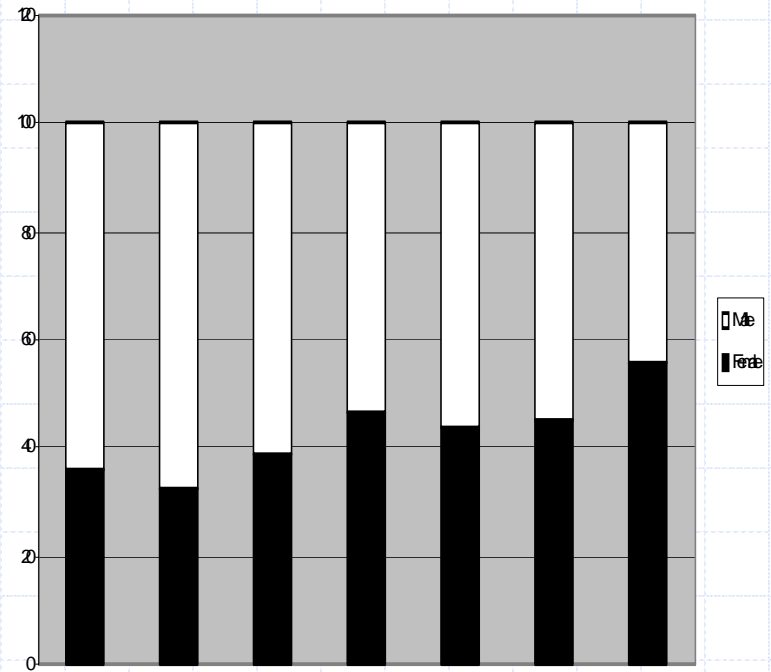
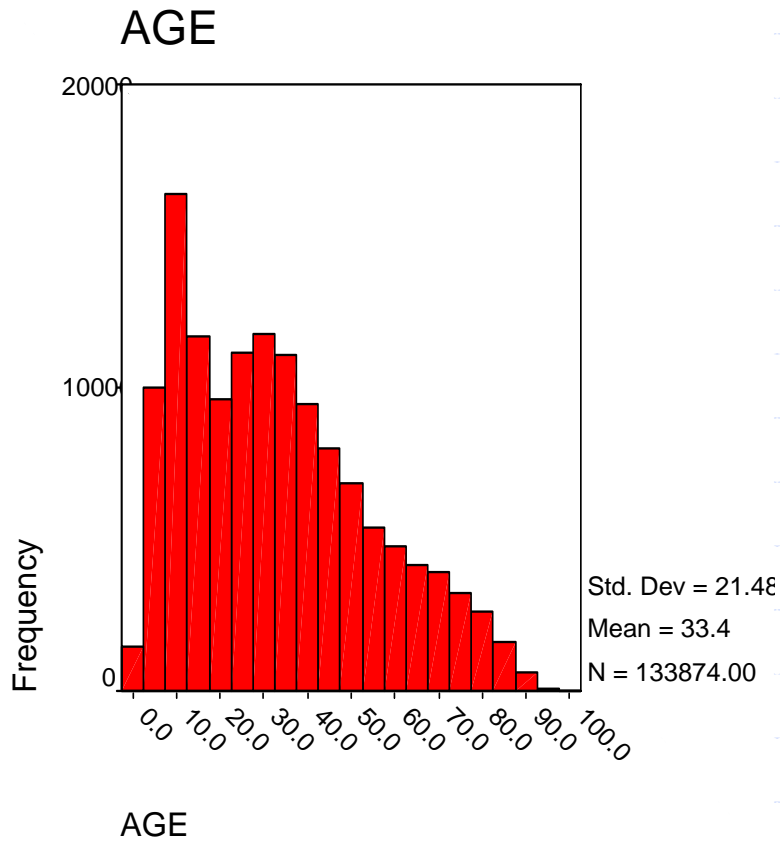
## ◆ Analysis

- 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

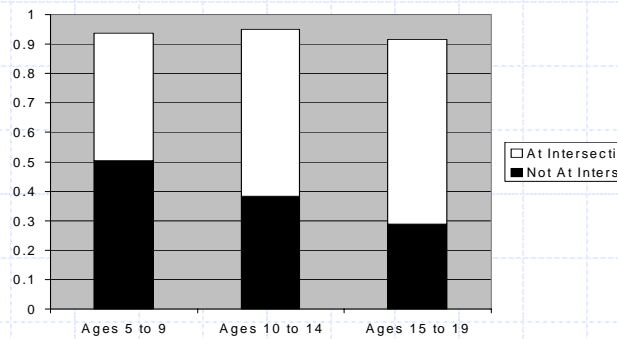
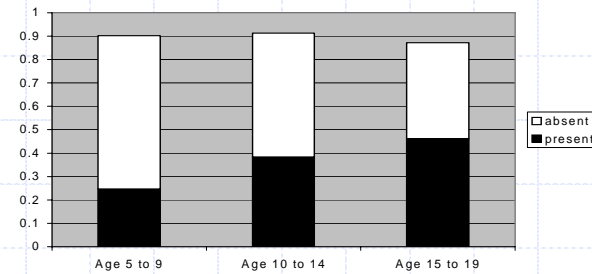
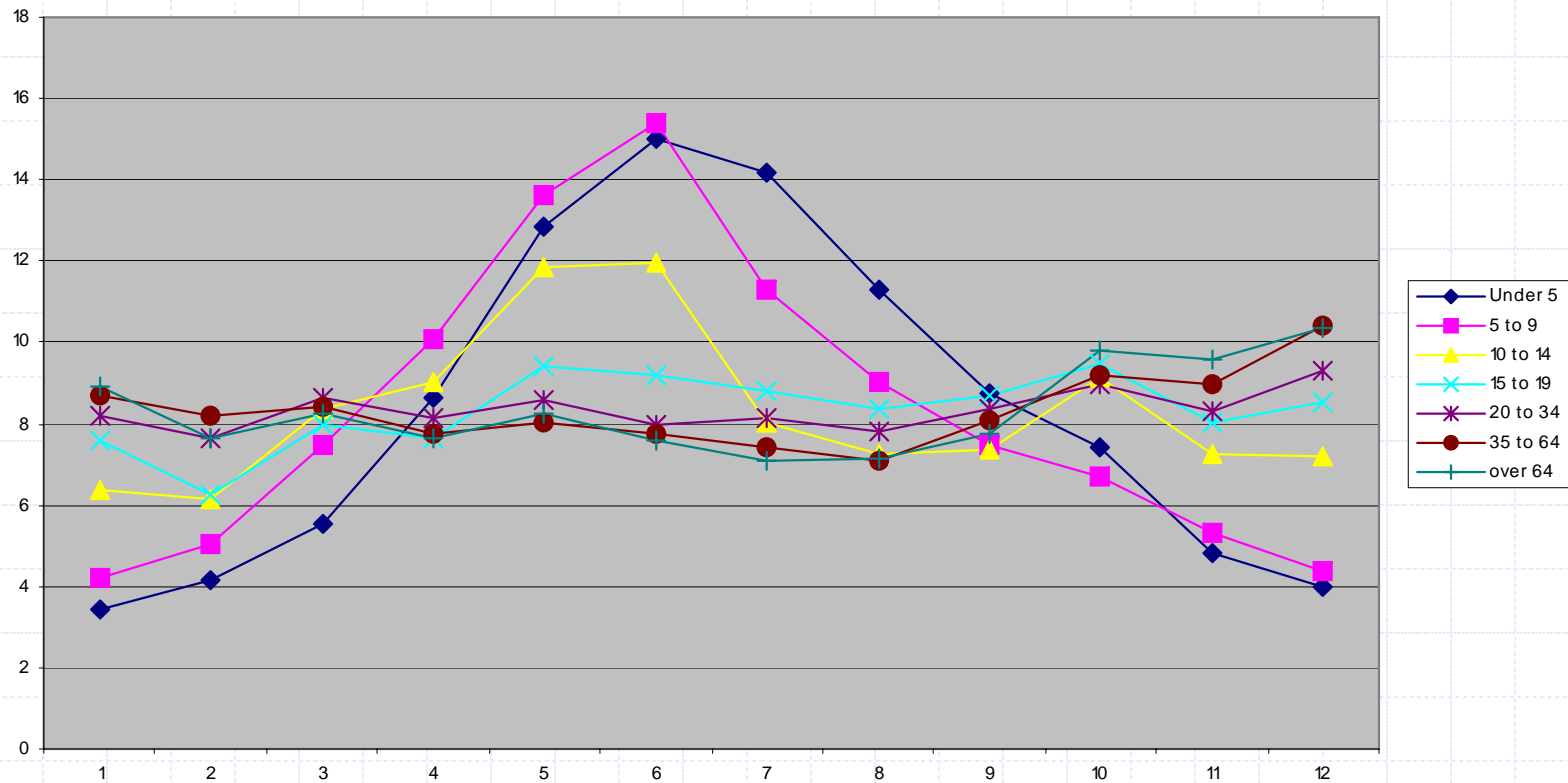


Figure 7: Proportion of Pediatric Pedestrian Incidents Occurring at Sites with Traffic Controls, New York City, 1991-1997

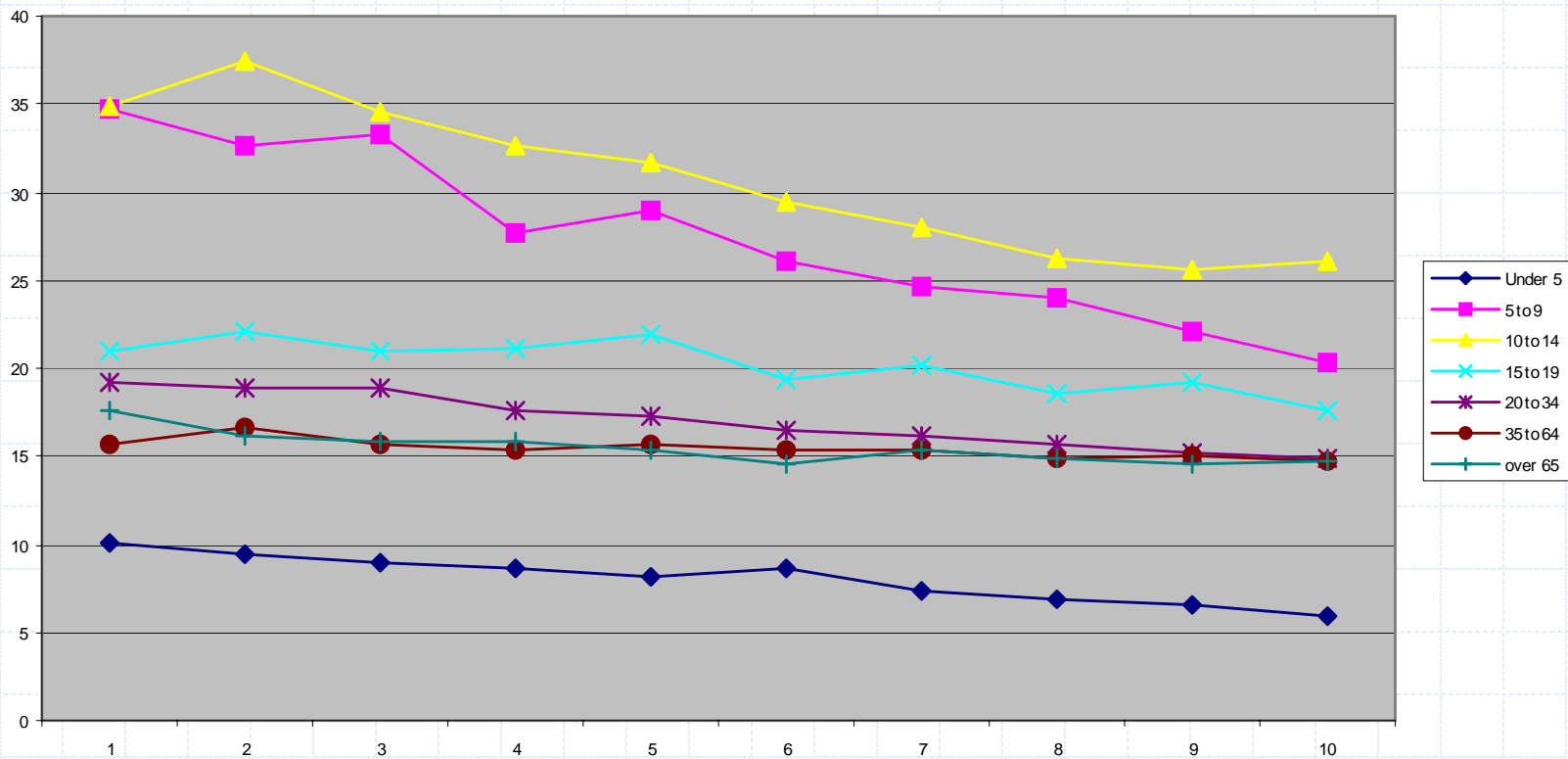


- ◆ Young Children: Midblock, No Traffic Controls
- ◆ Older Children: Intersections, Traffic Controls

# Increased Injuries Younger Children in Summer Months



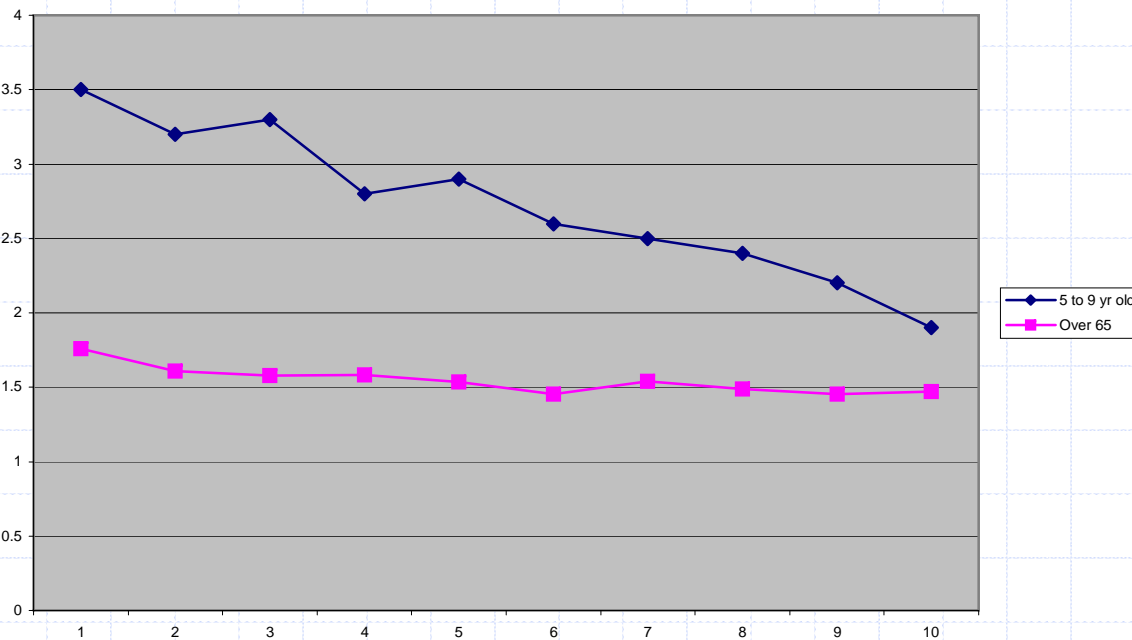
# Age-Specific Injury Rates





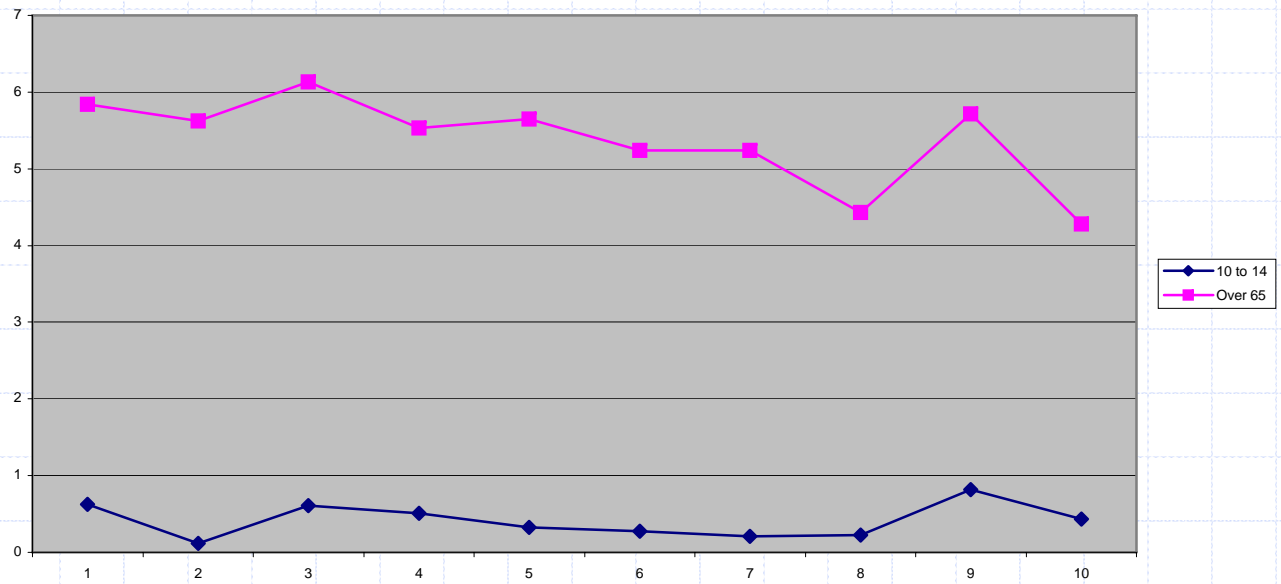
# Comparison Trends Pediatric vs. Geriatric

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

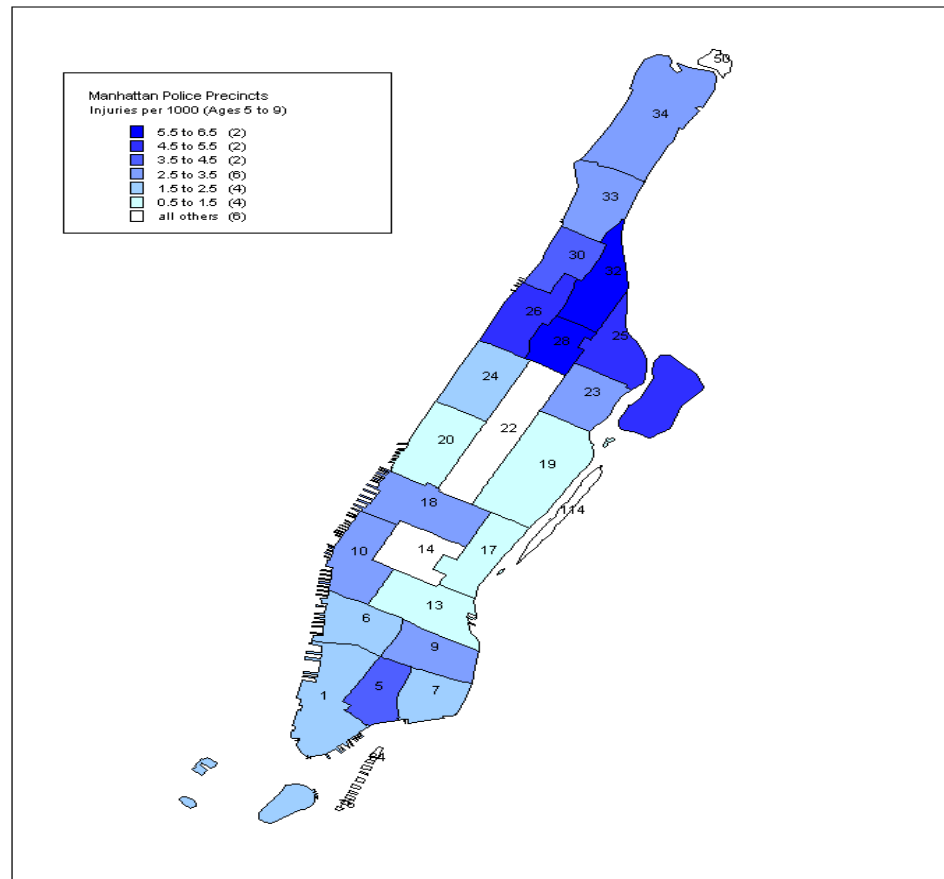


# Comparison Pediatric vs. Geriatric Case Fatality

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

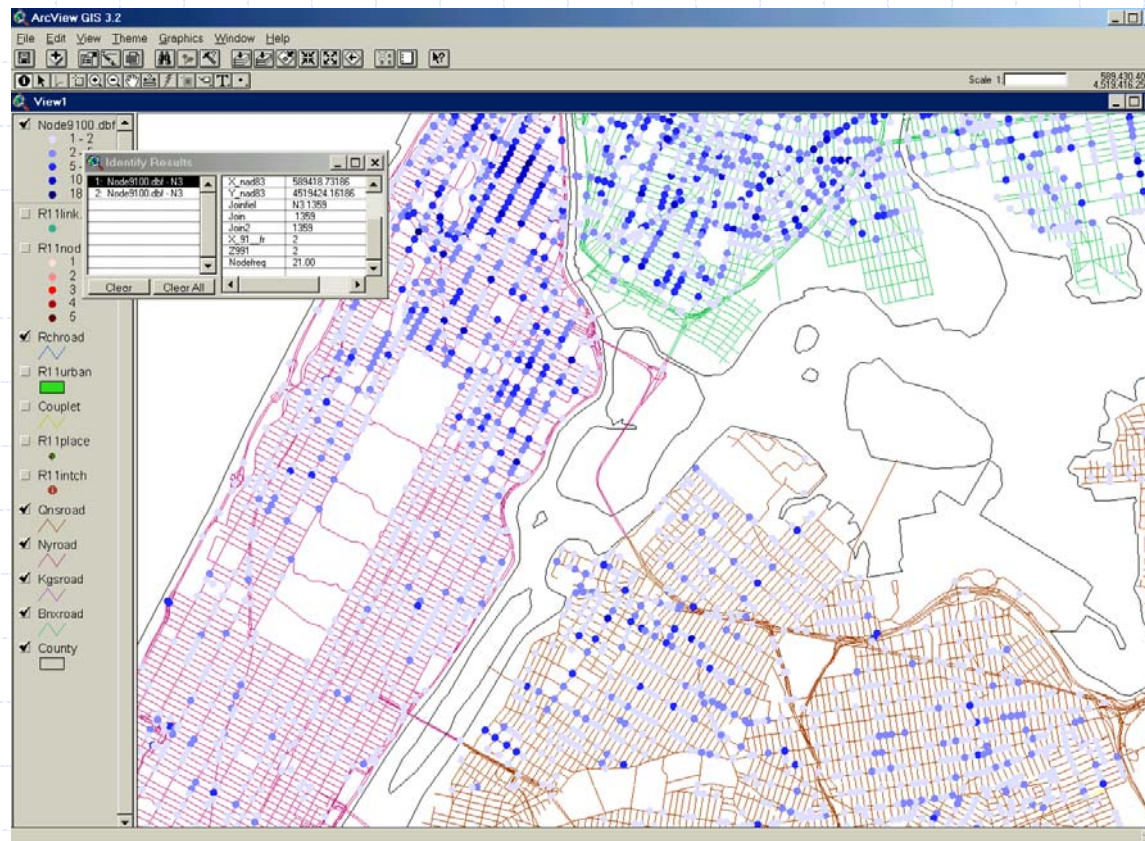
## ◆ Link and Node Keys

- 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