

Pedestrian Deaths in Dallas County:

The “Unintended” Pedestrian on Expressways

A Collaborative Project:

Injury Prevention Center of Greater Dallas
Office of the Chief Medical Examiner of Dallas County
Parkland Health and Hospital System

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Pedestrian Death Rates, by State

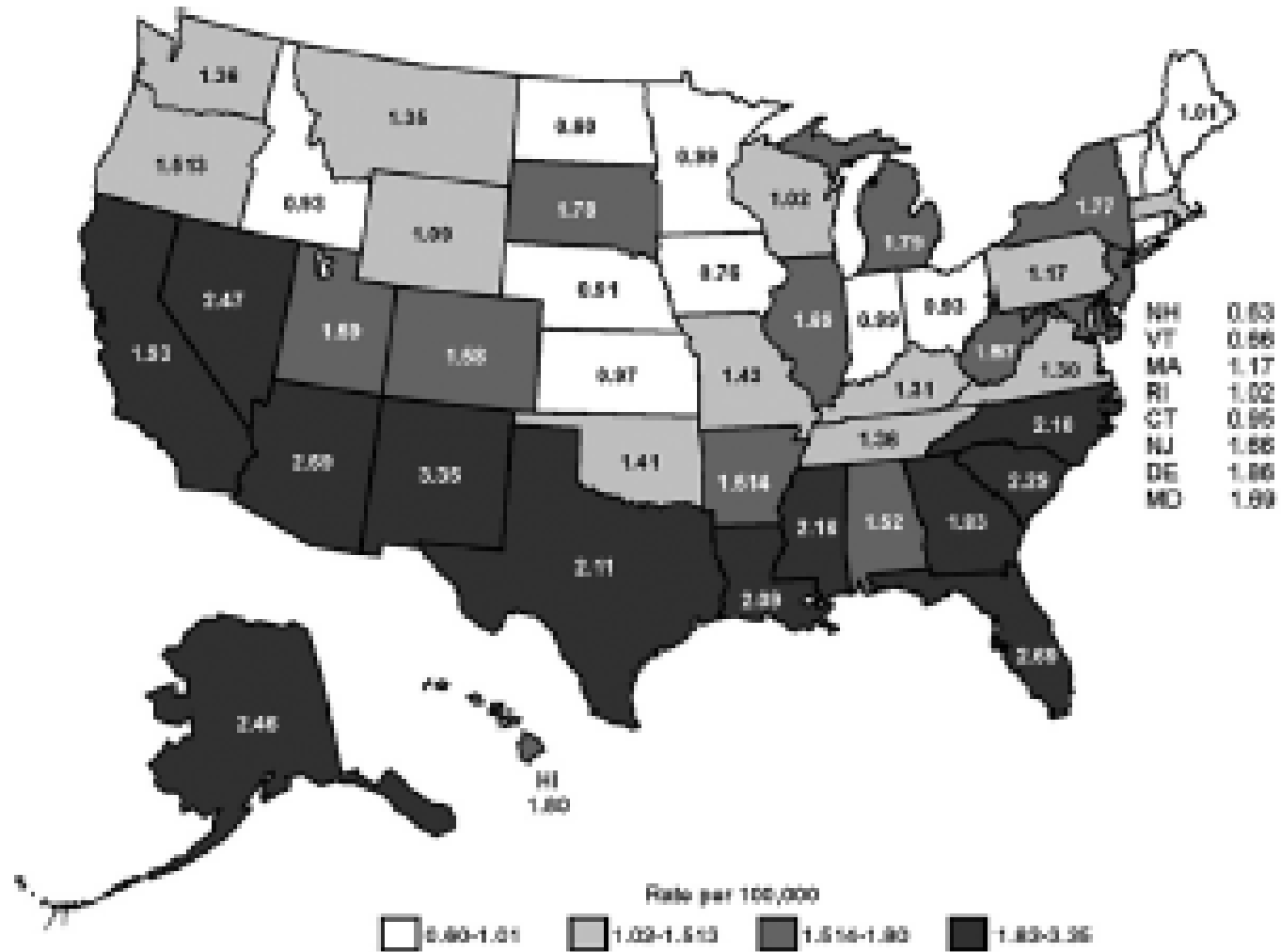


Fig. 1. Unintentional in-traffic pedestrian mortality rates per 100,000 population by state, 1999–2002.

Background/Purpose

Background

- Dallas County, TX population: 2.2million,
 - [45% white, 21% black, 30% hispanic, 5% other]
- MV-related deaths-- ~ 260/yr
- Pedestrians account for > 20% of MV-related deaths in Dallas County, TX

- Purpose

- Patterns; type of roadway; alcohol
- Circumstances; contributing factors
- Potential preventive measures
- Special emphasis on Expressway sites

Methods

- Reviewed records of Medical Examiner
 - Dallas County, TX
 - Review of narrative for circumstances
- Deaths due to Motor Vehicle-Pedestrian-related injury
- Unintentional only
- Linked with FARS data for pedestrians
- Linked with Police investigation reports
- Time period: 1997-2004
- Denominator: 2000 census data

Linked Data Set—Pedestrian Deaths

Med. Examiner Data
All Deaths

FARS Data

Police Investigations

Census data 2000

Definitions and Exclusions:

- **Pedestrian:** struck by a motor vehicle while the person was walking or standing.
- Excluded homicides or suicides, or instances in which the ME could not determine intent
- Died within 1 year of being struck by motor vehicle
- **Expressway:** limited-access highway (e.g., has on-ramps, off-ramps, no cross traffic, no stoplights, etc)
- **Surface street:** any road designed for public traffic that was not an expressway
- **“Unintended Pedestrian”:** a person who entered the roadway in a vehicle then exited the vehicle to become a pedestrian

Results

Overview

- During the 8-year period 1997-2004:
 - 495 Pedestrian deaths
 - (Rate: 2.8 per 100,000/year; US rate ~ 1.7-2.1)
 - ~ 62 deaths/yr (range 57-78)
 - ~ 22% of all MVC-related deaths
 - Male 376 (76%); Female 119 (24%)
 - White-32%; Black-30%; Hispanic-35%; Other-3%
 - Age: mean- 37.1 yrs. (0-98 yrs)
 - Interval between injury and death:
 - 75% same day; 92% < 7 days; 99% < 90 days

Results

Overview

- **Alcohol:**
 - Present: 35%
 - None: 51%
 - Not Tested: 14%

} 40% of persons tested were positive
- **Time of Day:**
 - night (8 pm- 5:59 am): 213 (56%)
 - day (6 am-7:59 pm): 156 (44%)
- **Site of injury:**
 - **Expressway: 201 (41%)**
 - Expressway Service Road: 33 (7%)
 - Surface Street: 214 (43%)
 - Other (driveway, parking lot, etc): 47 (9%)

Results

Rate by Gender, Race/Ethnicity

N=495

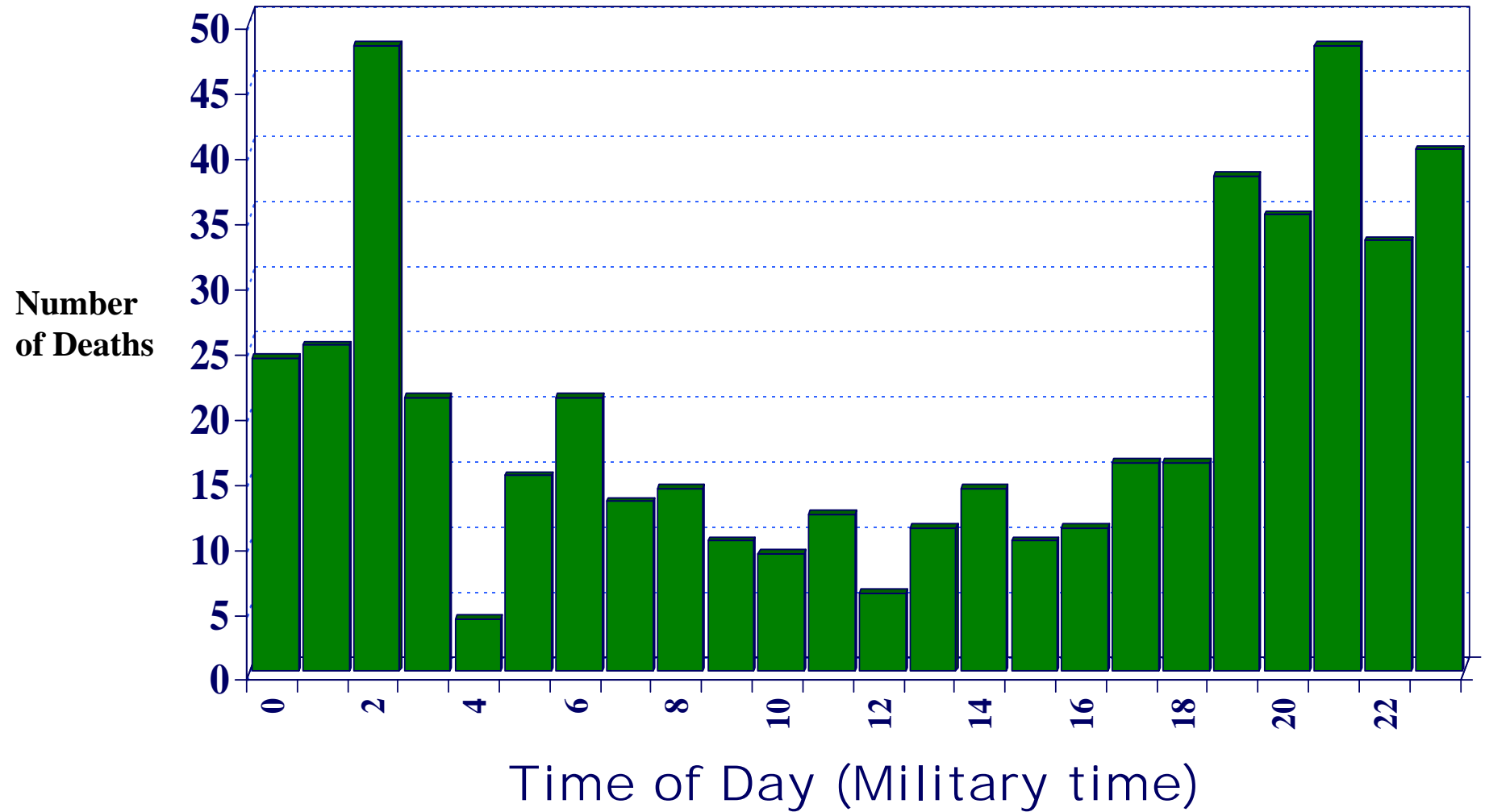
	<u>Rate*</u>	<u>(95% C.I)</u>
Male	4.3**	(3.9-4.8)
Female	1.4	(1.1-1.6)
White (non-Hispanic):	2.0	(1.7-2.3)
Black (non-Hispanic):	4.1**	(3.5-4.8)
Hispanic:	3.3**	(2.8-3.8)
Other:	1.8	(0.9-2.7)

*Rates per 100,000/year

**P < 0.05

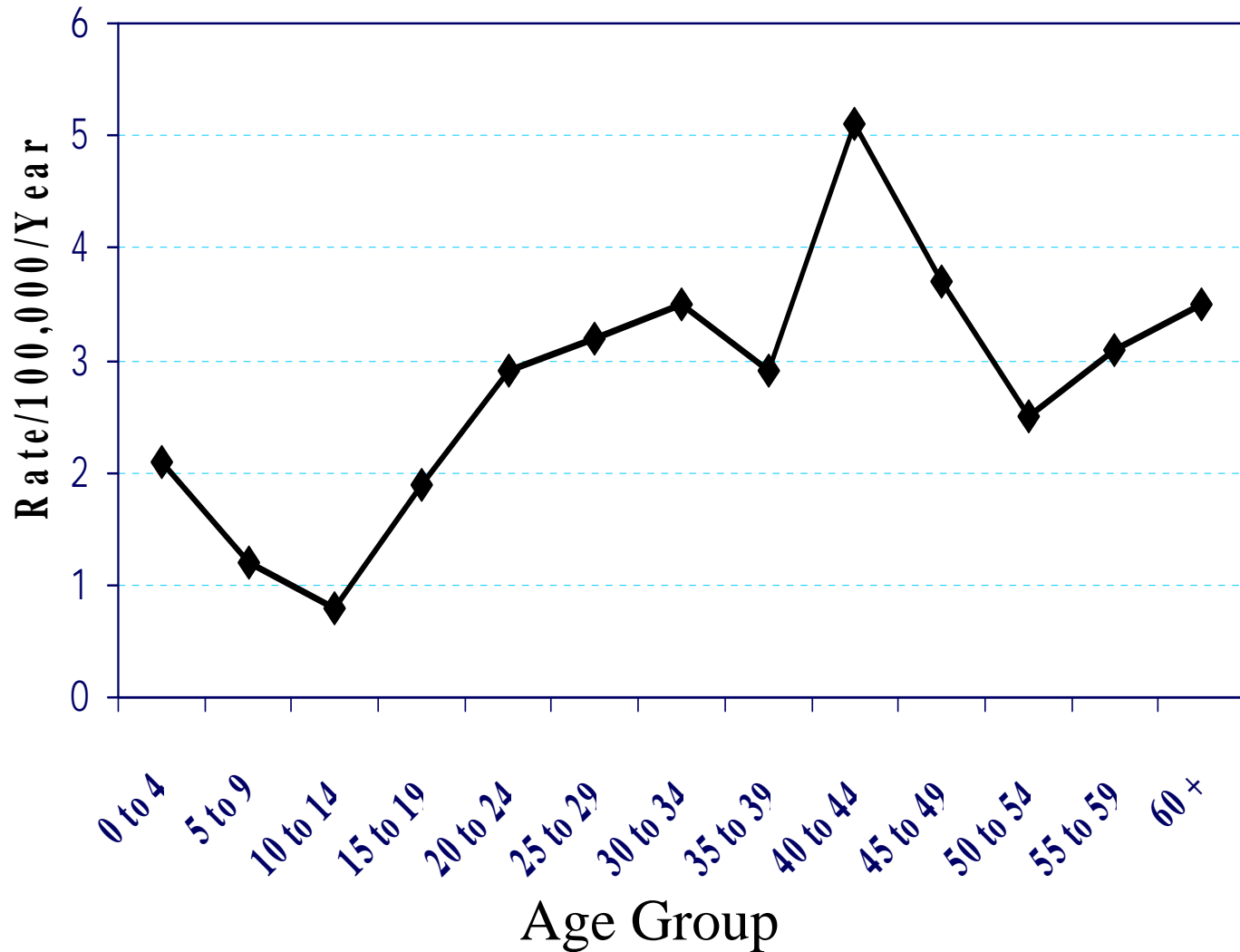
Pedestrian Deaths, by Time of Day

Dallas County, TX 1997-2004



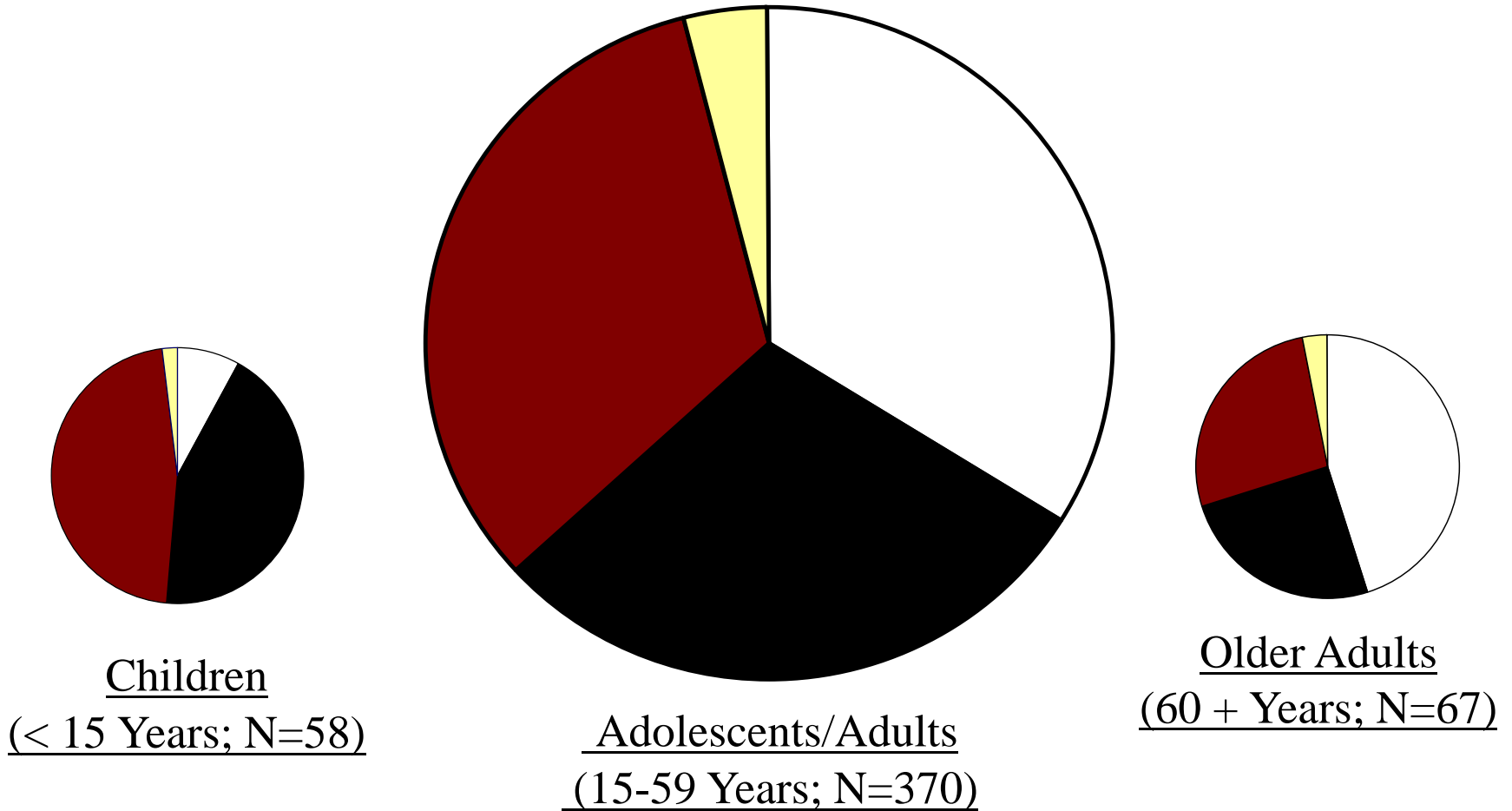
Pedestrian Death Rate by Age Group

Dallas County, TX 1997-2004



Pedestrian Deaths--Race/ethnicity by Age Group,

Dallas County, 1997-2004.



LEGEND:

White



Black



Hispanic

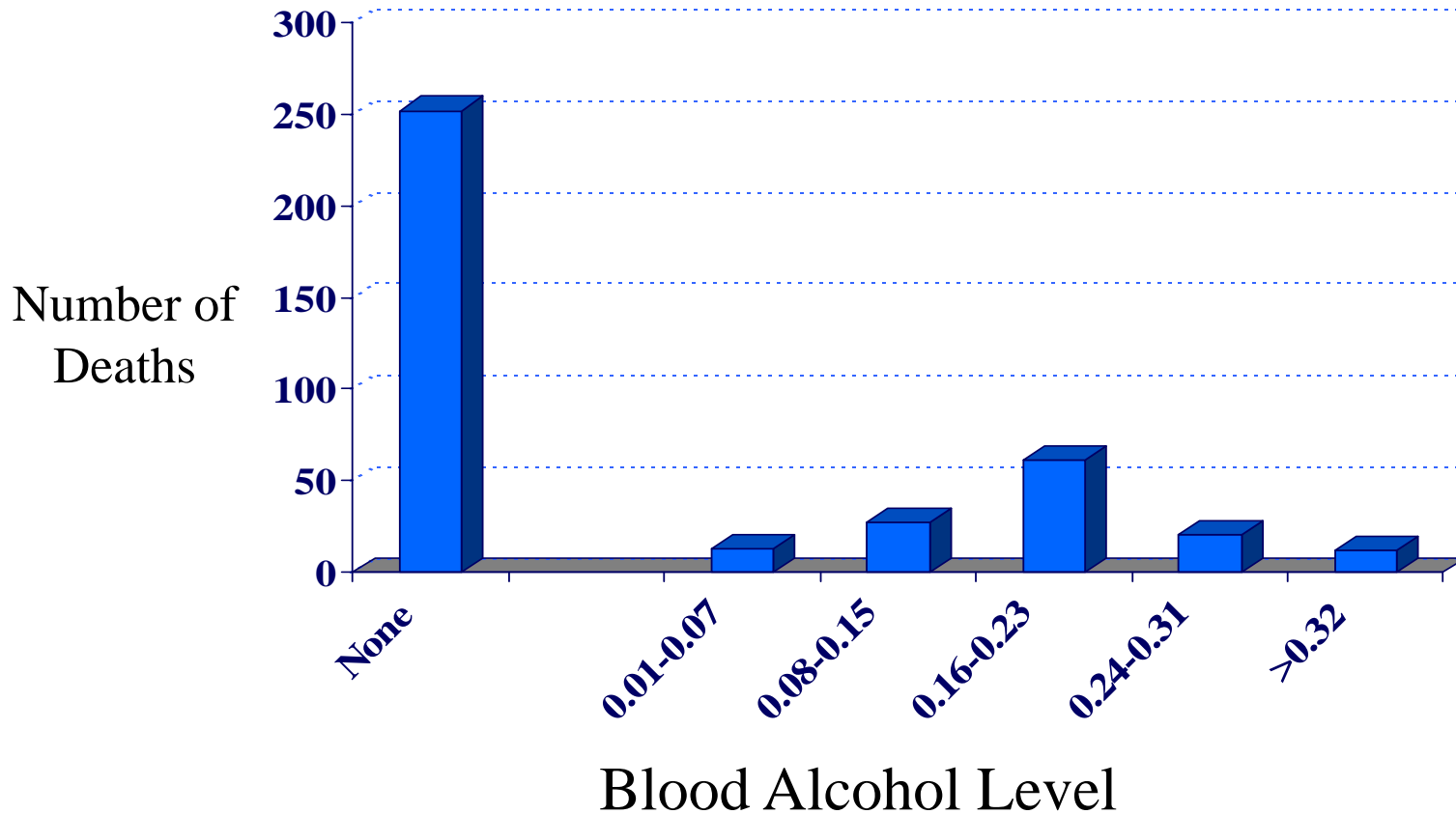


Other



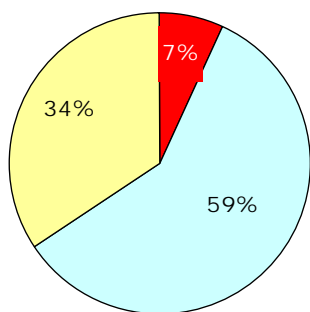
Alcohol-involved Pedestrian Deaths, by Blood Alcohol Level

Dallas County, TX 1997-2004

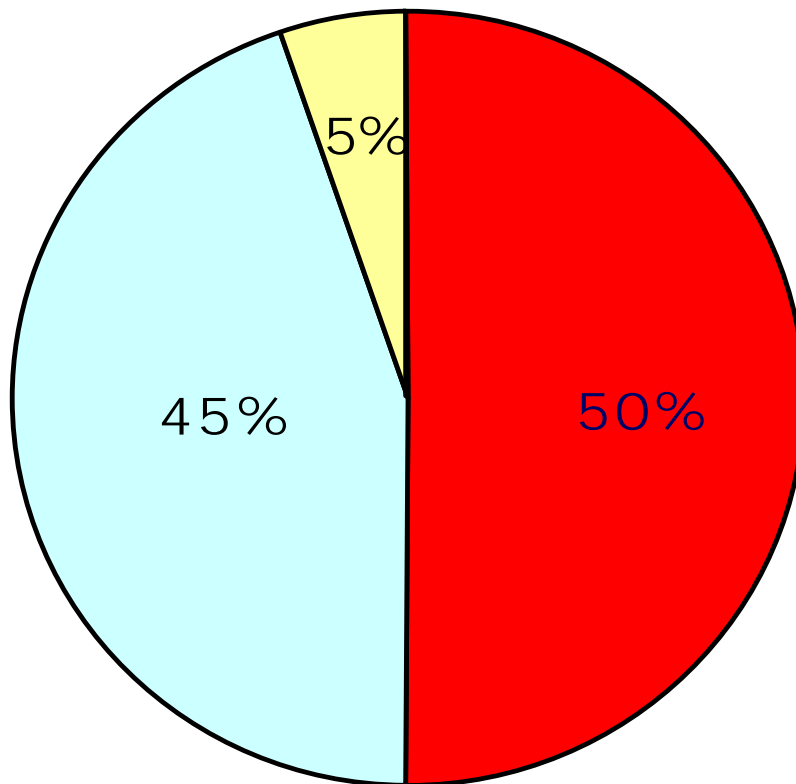


Site of Injury by Age Group for Pedestrian Deaths,

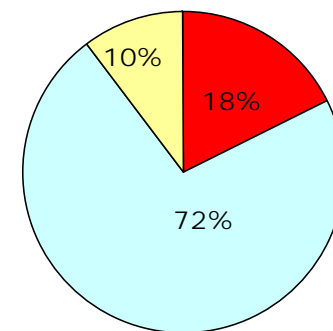
Dallas County 1997-2004.



Children
(< 15 Years; N=58)



Adolescents/Adults
(15-59 Years; N=370)



Older Adults
(60+ Years; N=67)

LEGEND:

Expressway



Street



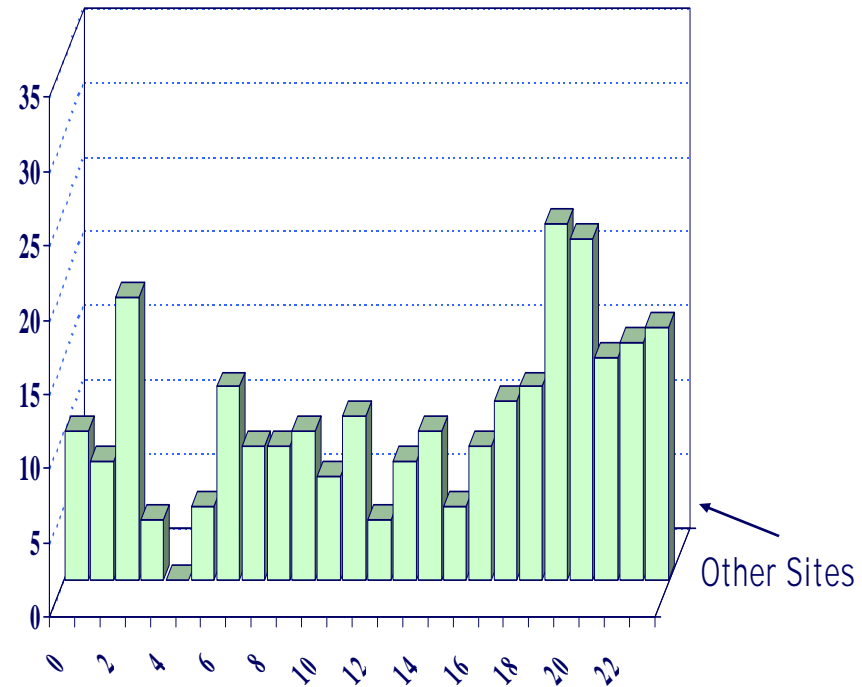
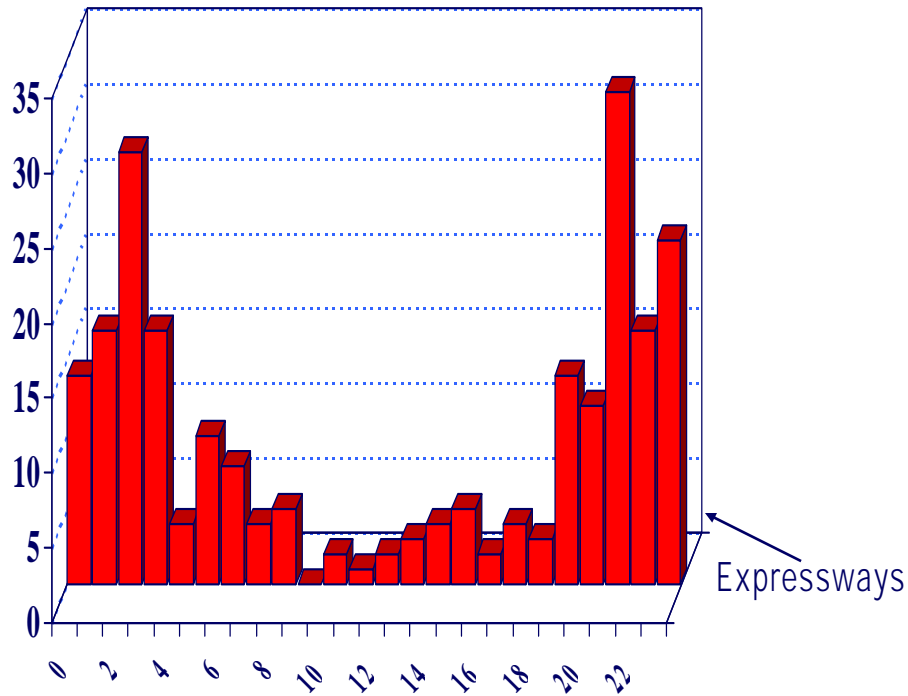
Other



Expressways vs Other Sites

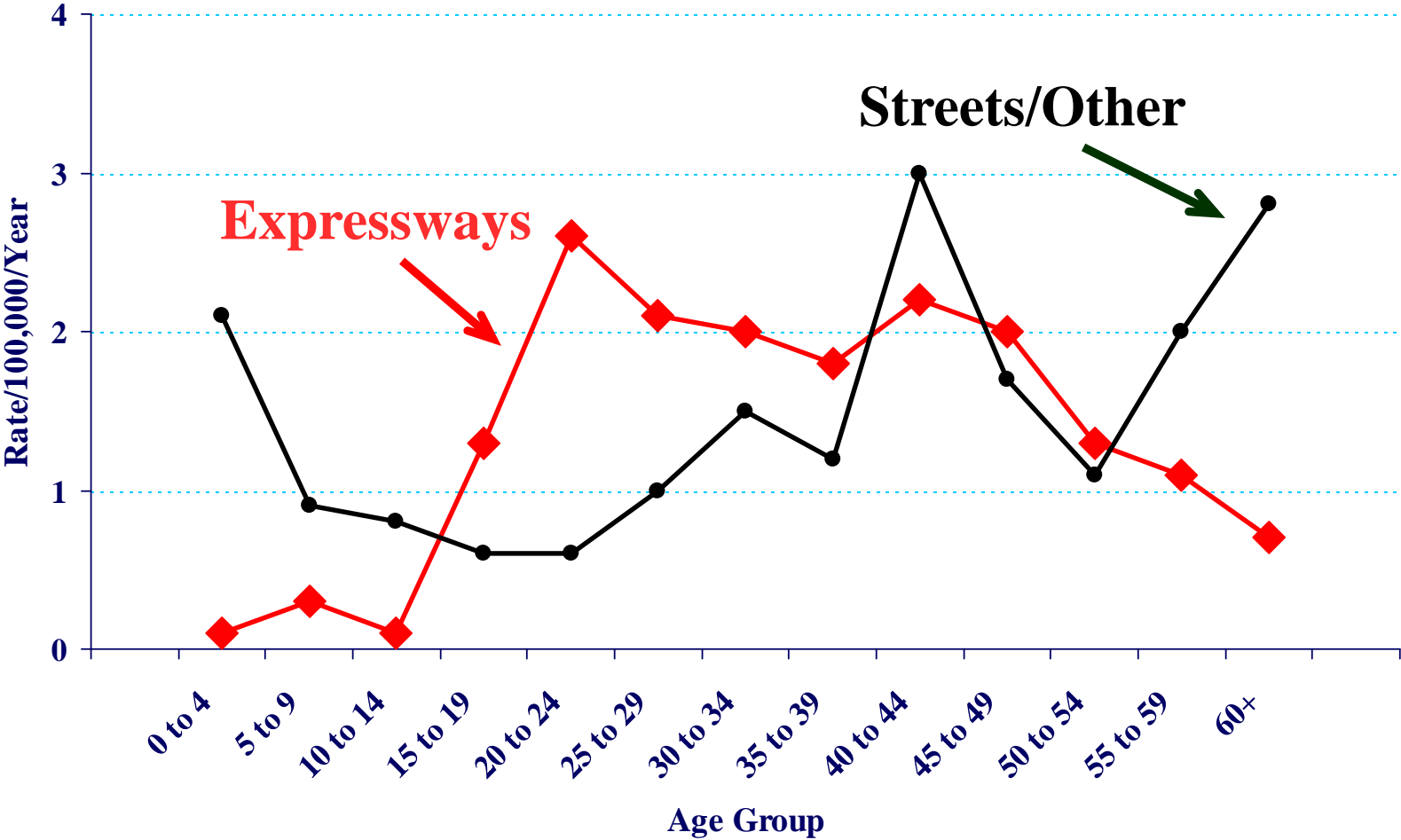
Pedestrian Deaths, by Time of Day, Expressways vs. Other Sites

Dallas County, TX 1997-2004



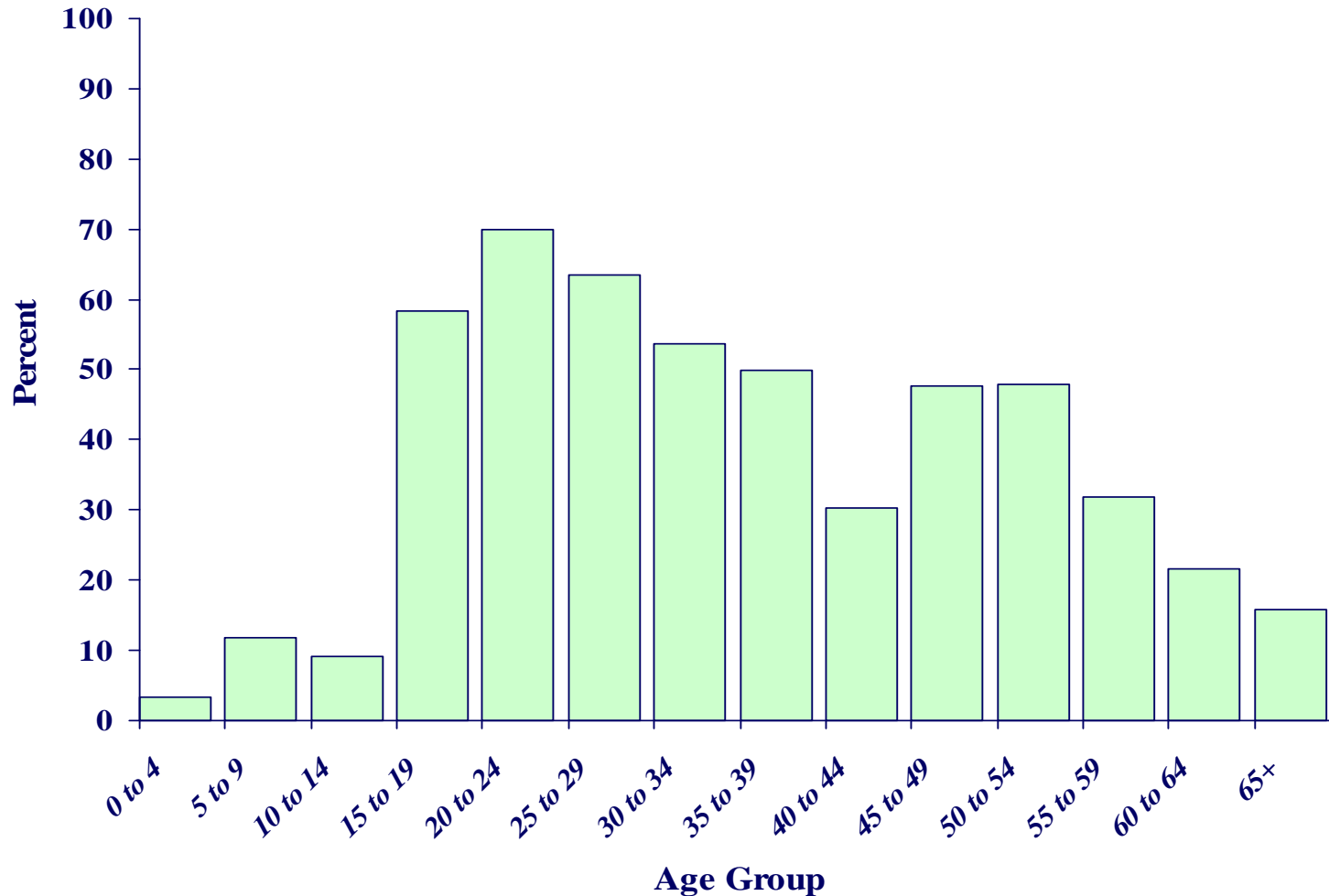
Pedestrian Death Rates, by Site and Age Group,

Dallas County, Texas 1997- 2004



Percent of Pedestrian Deaths That Occurred on Expressways, by Age,

Dallas County, TX 1997-2004 (n=495)



All ages: 201/495 (41%)

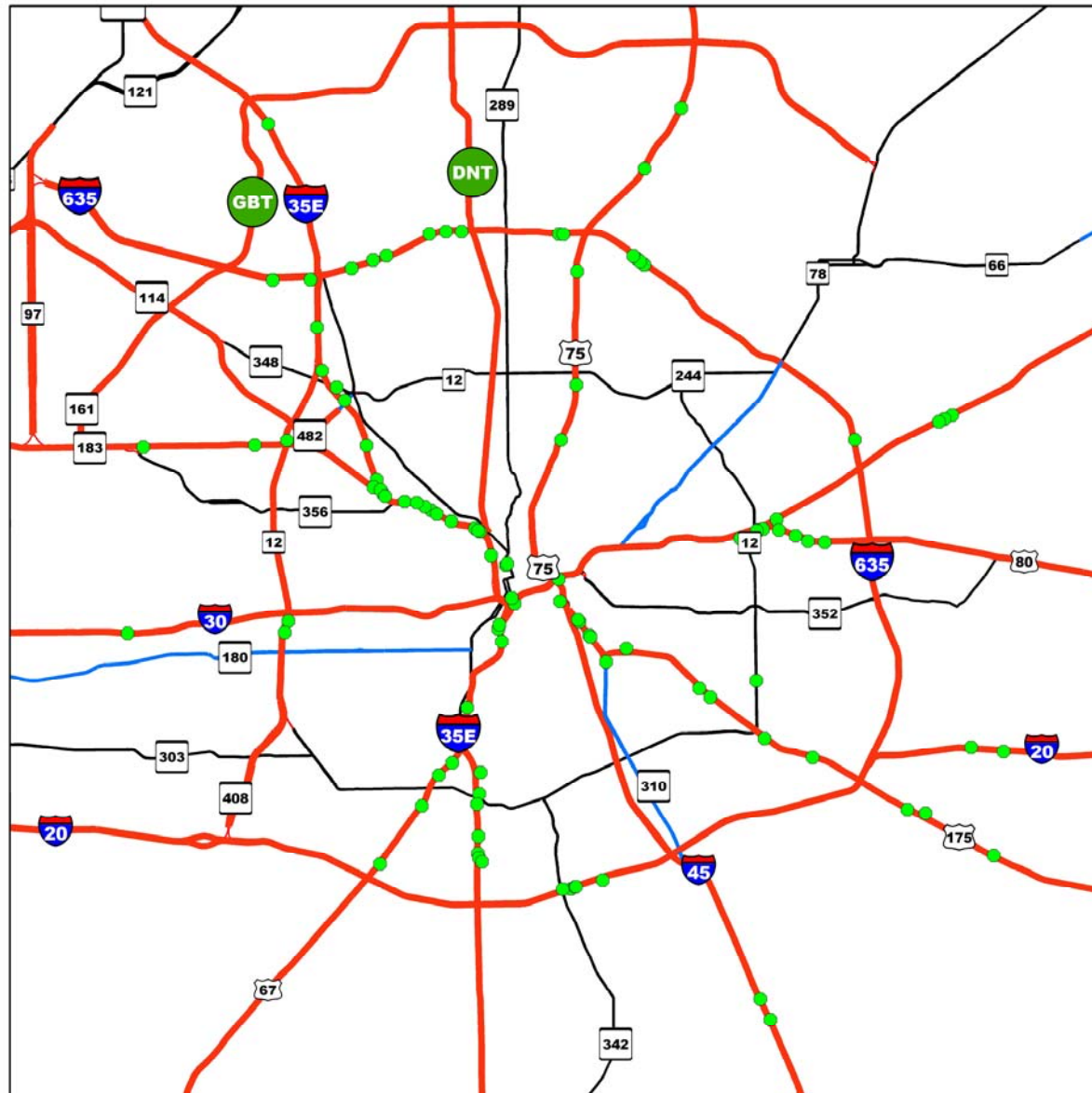
Results of Multivariate Analysis

Comparing Expressway Deaths to Surface Streets: Odds Ratios (and 95% Confidence Limits)

<u>Variable</u>	<u>Odds ratio</u>	<u>(95% Conf. limits)</u>
“Unintended Pedestrian”:	4.8	(2.8-8.4)
Age 15-59 years:	3.3	(1.8-6.2)
Night time:	1.8	(1.2-2.9)
Alcohol present:	1.6	(1.0-2.4)
Male gender:	1.6	(1.0-2.7)
White race:	0.7	(0.4-1.0)

Reasons for being on Expressway, Persons 15 years of age and older (N=197)

- “Unintended Pedestrians” (71 deaths—36%):
 - Vehicle disabled by crash, stall, etc: 51
 - “Good Samaritan” helping others: 10
 - Other, misc.: 10
- Intended to be on expressway (35 deaths—18%):
 - Entered on foot intentionally: 28
 - Working on expressway/police: 4
 - Fell or jumped from moving vehicle: 3
- Unknown why on expressway (91 deaths—46%))
 - No mention in either ME data or Police investigation



**Pedestrian Fatalities
Reported on Highways in
Dallas County, TX
Years 1997 through 2004**

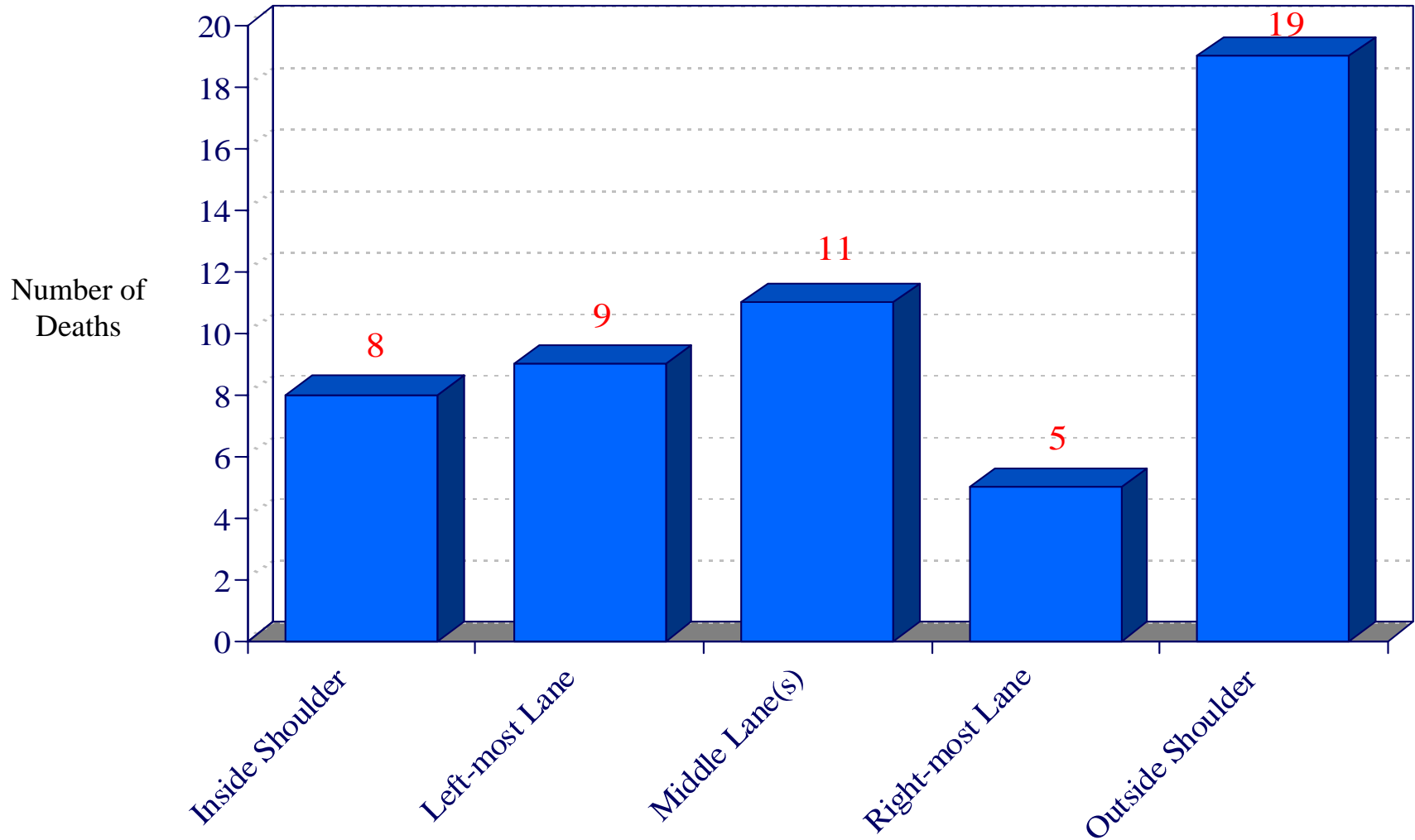
- Highway fatality
- Primary Highway
- Secondary Highway
- Major Arterial

Map courtesy of Helen Chaney of NCTCOG, and Jessica Trudeau, IPC



Note: Includes the ~80% of cases with exact address; data still pending for ~20% of cases

Location of the Disabled/Stopped Vehicle on Expressways, for “Unintended Pedestrian” Deaths Dallas County, 1997-2004



Putting the numbers in perspective:

Proportion of All Motor-vehicle-related Deaths on Expressways that are Pedestrians

Dallas Police Department Data (Dallas City only), 2003-2005*:

Total Motor vehicle related Deaths: 167

Number of these that were pedestrian: 68 (40.7% of total)

* Source: A. Dickason, Dallas Police Department, Feb. 2007

The Importance of Expressways in Pedestrian Deaths Among Persons 15-59 Years of Age

- Majority (370 of 495; ~75%) of all pedestrian deaths were 15-59 years old
 - Half of these occurred on Expressways
 - Alcohol involved -- more than half
 - Night-time -- more than two-thirds
 - “Unintended Pedestrian”: 37%
- For the subset of persons 15-29 years:
 - 65% of Pedestrian deaths occurred on Expressways (75 of 116):
 - Of these Expressway deaths, 83%-night-time; 55%-alcohol involved, 52% “Unintended Pedestrian”
- For the youngest subset of driving-age persons 16-19 years:
 - 9 of 9 (100%) of expressway pedestrian deaths involved “Unintended Pedestrians”

Caveats

- Included only deaths; non-fatal injuries are likely to be different, epidemiologically
- Presence of a disabled vehicle (“Unintended pedestrian”) is a minimum estimate; relied on mention in narrative from ME office or Police investigation; missing for almost half.
- No denominator for pedestrians on highways
- Little information about chain of events leading to the pedestrian death, especially for pedestrians who were intentionally walking across the expressway

Pedestrian Death Rates, by State

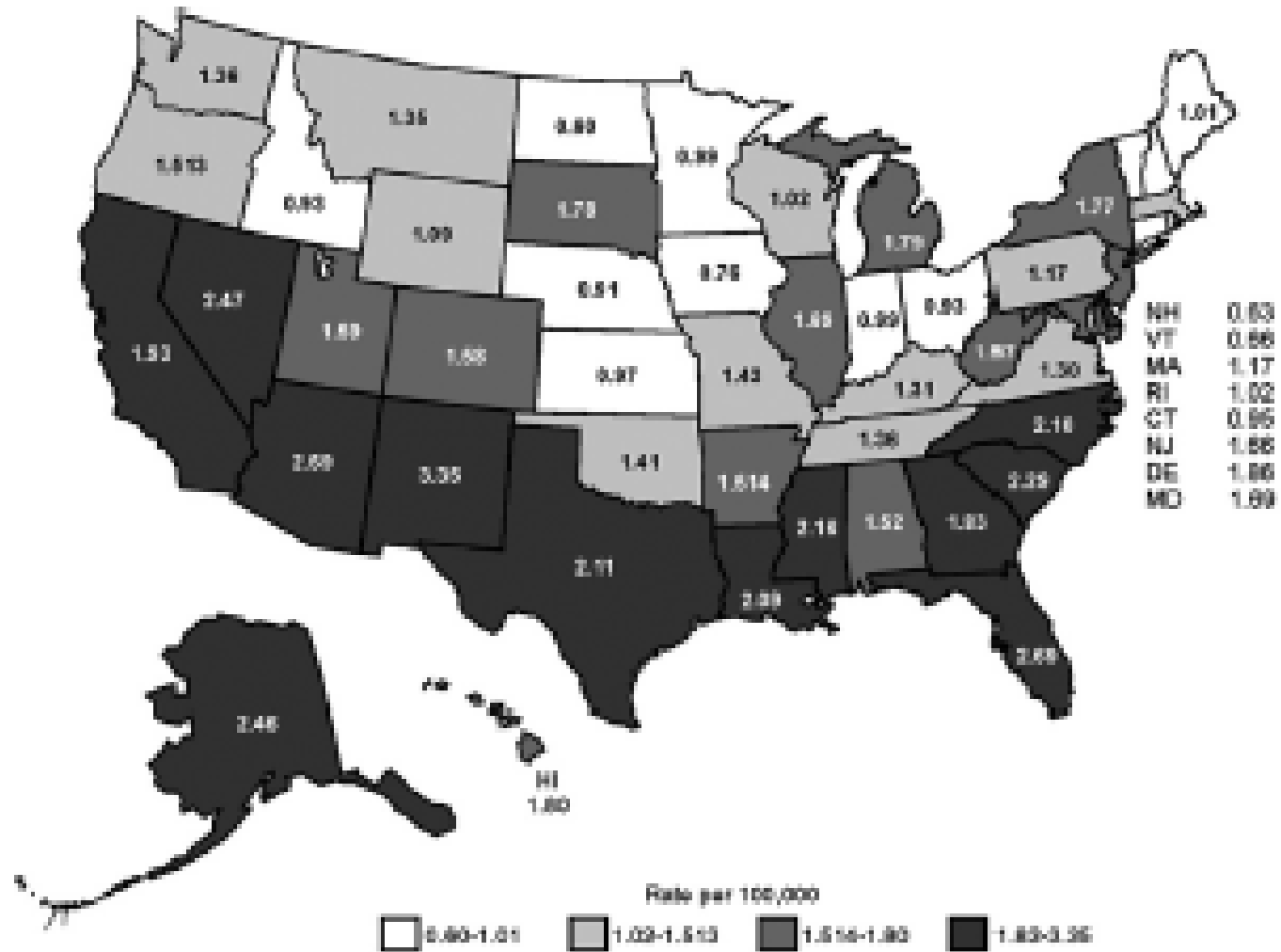


Fig. 1. Unintentional in-traffic pedestrian mortality rates per 100,000 population by state, 1999–2002.

Potential Preventive Measures: Some Issues For Discussion

For Unintended Pedestrians:

- Big Issue: What message to give to persons stranded on expressway?
 - Stay in vehicle?
 - Get out and wait outside of vehicle? Where?
 - How to help another stranded vehicle/person?
- Mainly night time issue:
 - Safety patrol/assistance especially important at night?
 - Lighting?
 - Cameras?
 - Special numbers to call?
- Education:
 - Especially new drivers?
 - Road signs to instruct?

For Other pedestrians (? Intended to be on Expressway ?)

- Barriers to access to expressway?
- Making medians non-crossable?
- Pedestrian crosswalks?
- Also mainly night time issue

Alcohol is a major issue

Need better data for all pedestrian deaths, including more information about why person was on expressway, to help refine potential preventive measures