Safer Streets NYC

At Elmhurst Hospital Center

A Look At Pedestrian Injury at Elmhurst Hospital
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Why Look At Pedestrian Injuries at Elmhurst?

Data from 2000- 2009 show that Elmhurst Hospital Center's percentage of pedestrian injuries exceed other institutions

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	Motor Vehicle Crash	Pedestrian Struck	Assault	Fall
Lincoln Hospital (2000-2003)	32%	14%	20%	34%
New York Hospital (2000-2004)	12%	6%	6%	66%
Mary Immaculate (2003)	20%	9%	12%	10%
Kings County (2000-2007)	30%	14%	9%	17%
St. Barnabas (2008-2009)	12%	19%	20%	19%
New York Presbyterian Children's (2000-2007)	4%	11%	5%	43%
Elmhurst Hospital (2000-2009)	19%	21%	10%	19%

About Elmhurst Hospital Center

Elmhurst Hospital Center (EHC) serves an area of nearly one million people in one of the most ethnically and linguistically diverse communities in the United States. Our patients come from across the globe, speaking a multitude of languages and dialects. Elmhurst has a catchment area of approximately 1.5 million people

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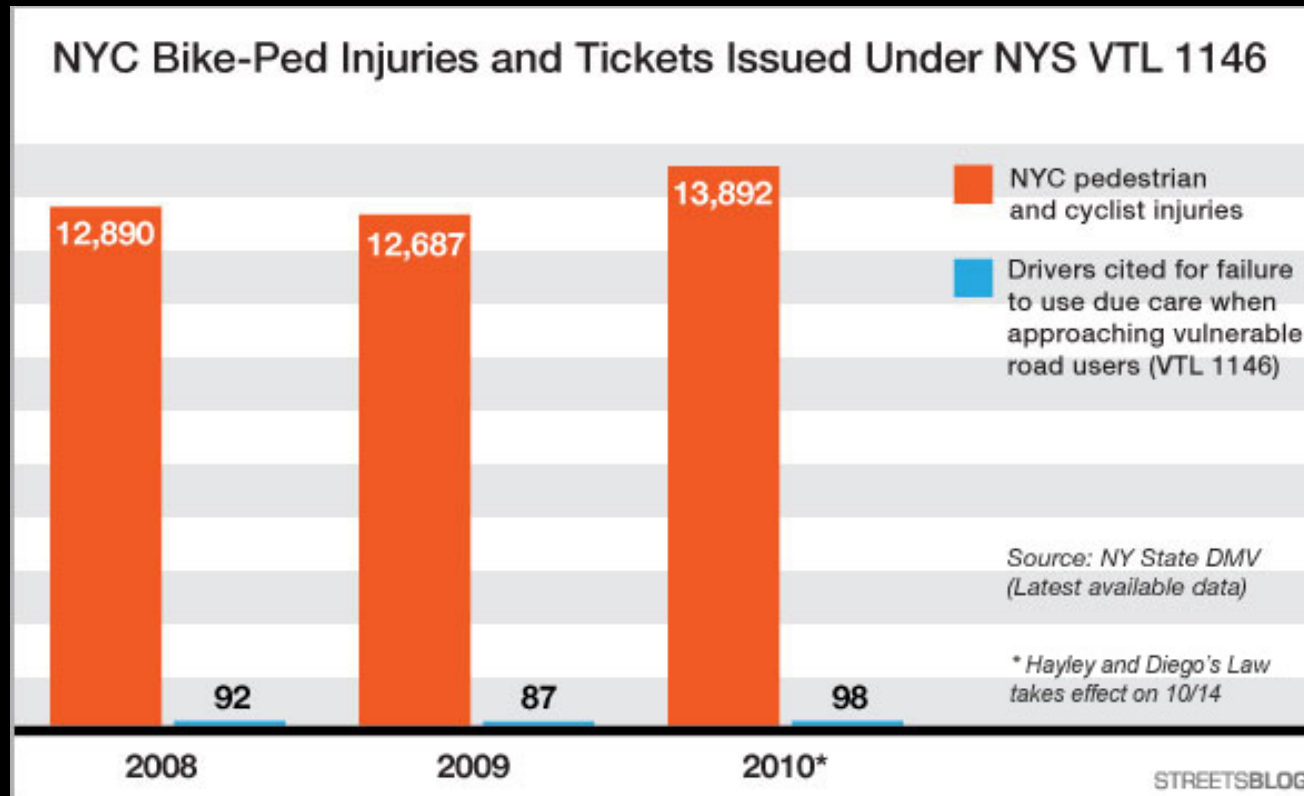
Injuries are on the rise while drivers are not being held to account, We can expect to see more cases in the ER

Some Streets Aren't Made for Walking

Some Streets Aren't Made for Walking

An aging, more diverse US population could drive up traffic-related pedestrian deaths in the coming years, according to findings published in the *Morbidity and Mortality Report.*

aged 75 years or older and American Indian/Alaska Native individuals. Overall, about 13% of people who die in motor vehicle crashes are pedestrians.

The US Census Bureau projects the number of US adults who are at least 75 years old will more than double, from 21 million in 2011 to 44 million in 2040. Racial and ethnic populations also are expected to increase, from 116 million in 2010 to 186 million in 2040.

State and municipal authorities should consider strategies to safeguard pedestrians as the country's demographics change, the study authors wrote. They suggested new or improved crosswalks, sidewalks, and raised medians; speed bumps to slow traffic; enforcing laws that address speeding, distracted driving, and pedestrian right of way; creating streets designed for walking; and improving mass transit route design and access. For older adults, more specific approaches such as longer pedes-

Campylobacter and *Vibrio* Infections Increased in 2012

Substantial increases in the number of *Campylobacter* and *Vibrio* infections demonstrate the need for regulatory agencies, the food and food service industries, public health officials, farmers, and consumers to direct greater efforts toward reducing preventable foodborne diseases.

The Foodborne Diseases Active Surveillance Network, known as Food-Net, which tracks confirmed infections transmitted via food at 10 US sites,

months, when waters contain more of the bacteria. People who are immunocompromised or have impaired liver function should be aware that eating raw seafood increases their risk of severe *Vibrio* infection. Additionally, contact with water containing *Vibrio* also can result in soft tissue infections.

Campylobacter infections increased by 14%, to 14.30 per 100 000 population, the highest rate since 2000. These infections are associated with eating raw or undercooked poultry, raw milk dairy products, and con-

the study authors wrote. They suggested new or improved crosswalks, sidewalks, and raised medians; speed bumps to slow traffic; enforcing laws that address speeding, distracted driving, and pedestrian right of way; creating streets designed for walking; and improving mass transit route de-

CDC (left); Janice Carr/CDC (right)

...taminated with *Vibrio* bacteria, which live naturally in sea water. Infection ...the warmer months, when waters contain more of the bacteria.

IT'S A 3-WAY STREET

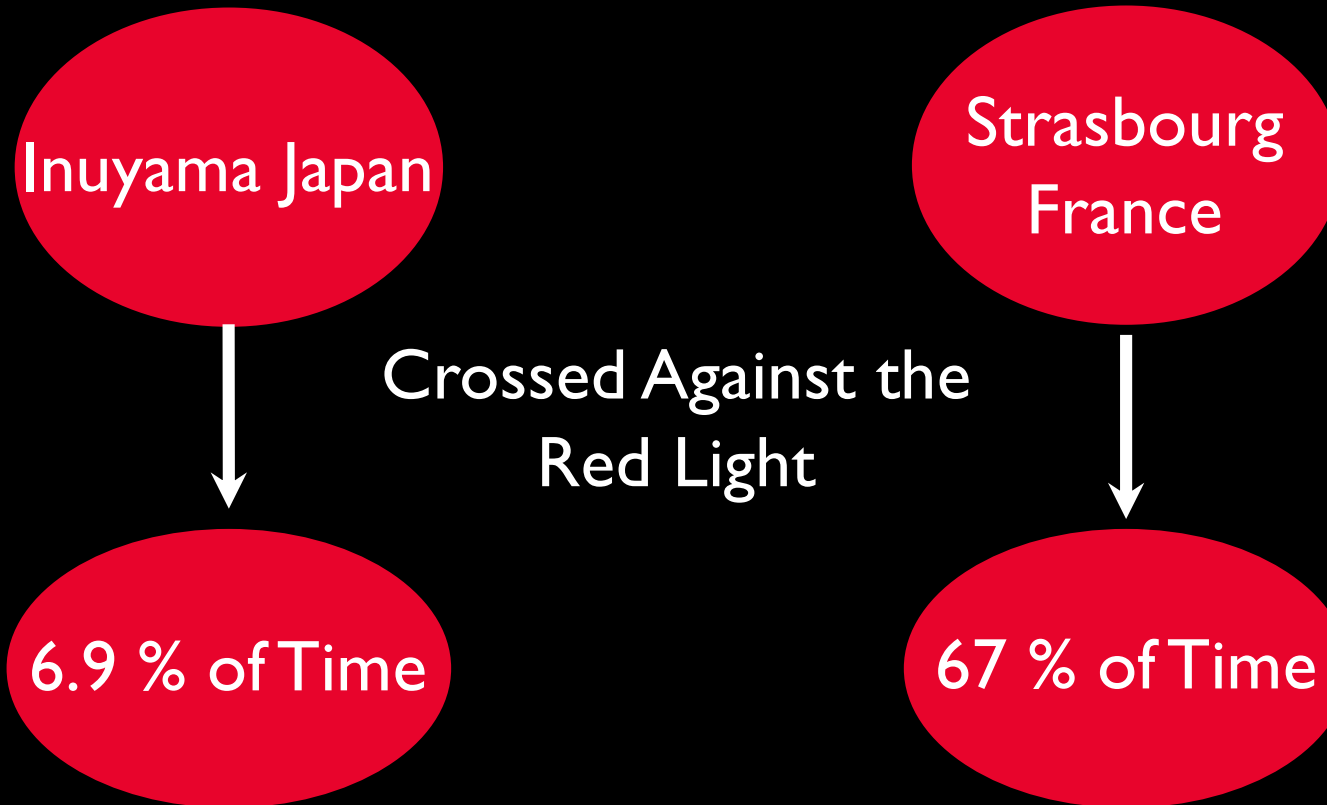QUEENS BOULEVARD: The Boulevard of Death!

Pedestrian Behavior At Intersection

Inuyama Japan

Strasbourg France

Crossed Against the Red Light

6.9 % of Time

67 % of Time

Chi square test on absolute frequency p<0.0001

What Does This Mean

Head Trauma in Pedestrian Injury

- Resulting trauma can be Epidural, Subdural hemorrhages to more commonly cerebral contusions where the brain gets bruised

- In children whose center of gravity is much lower, even at low speeds injuries may resemble those seen in adults struck at high speeds

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Neurosurgical Indications After Pedestrian Injury

Neurosurgical Indications After Pedestrian Injury

Temporal/Parietal Bone Injury

Cervical Spine Involvement
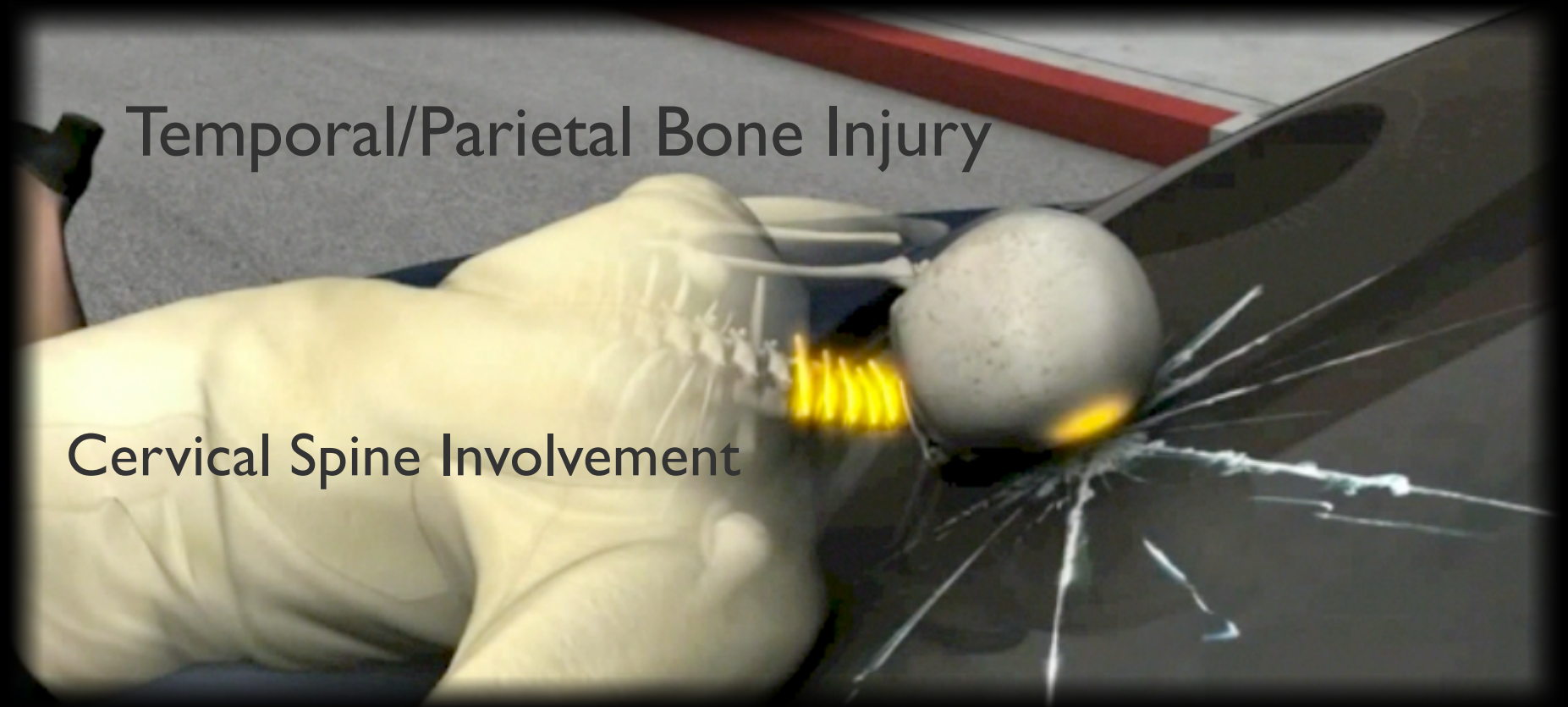
Neurosurgical Indications After Pedestrian Injury

Blunt Force Trauma

Neurosurgical Indications After Pedestrian Injury

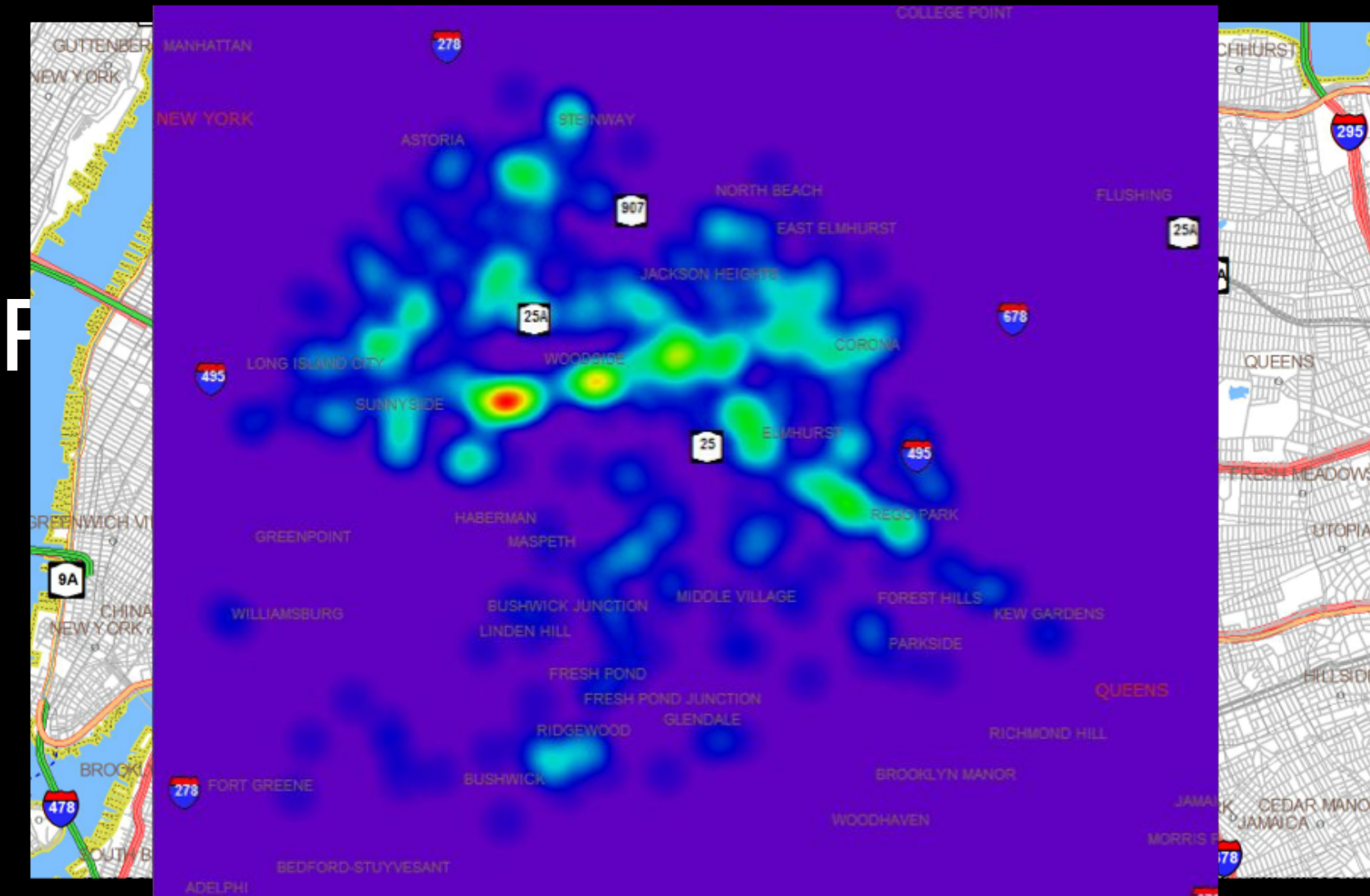Coup &
Contrecoup Type
of Injury

Neurosurgical Indications After Pedestrian Injury

Squamous Temporal/Mastoid Area of Parietal Bone Fracture Leading to EDH

Density of Incidents With Most At Queens Boulevard Which is Nicknamed The "Boulevard of Death"

Study Title:
Safer Streets NYC at Elmhurst Hospital Center

Background:

This is a project that is being conducted in collaboration with NYU/Bellevue Hospital Center, who had realized a 22% incidence of pedestrian injury in their catchment area. A prospective analysis was conducted from 2008-11. The goal was to study this problem in other NYC boroughs and Elmhurst, with its announcement of a similar problem in their catchment area was chosen as the second site for Safer Streets

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Purpose:

This is a prospective, observational and epidemiological study evaluating risk factors for pedestrian and cyclist injury in western Queens. Results of this study will be used to advise agencies and local authorities on methods to reduce such injuries in addition to helping design a public health campaign tailored to the Elmhurst Catchment area and beyond.

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Methods:

- Verbal consent is always obtained with the explanation of study objectives and with the expressed understanding that participation is voluntary. Adults unable to give consent are enrolled with chart data collection only until they regain capacity

- Data will be analyzed using frequency statistics and correlations. Comparison statistics will be performed with the data obtained from the Bellevue Study

SAFER STREETS: NYC-Elmhurst Study #: _10_

COMPLETE SHADED (i.e., prospective data) AREAS ON ALL PAGES!!!

Patient Name: _____
Medical Rec # _____
Date of Visit: _____

Inclusion Criteria: All pedestrians and cyclists injured by motor vehicles and seen at EHC *(including transfers)*

Data accumulated from *(check all that apply)*: ☐ Patient ☐ Medical Record ☐ Scene Witness
☑ EMT/Paramedics ☐ NYPD ☐ FDNY ☐ Other surrogate: _____

Patient brought in by *(check all that apply)*: ☑ EMT/Paramedics ☐ Walk-in ☐ FDNY ☐ NYPD

Patient Type *(check one)*: ☐ Pedestrian *(includes wheelchair, stroller)* ☐ Cyclist *(includes non-motorized scooters)*
Admitted *(check one)*: ☐ Yes ☐ No *(If died day of arrival, check here too: ☐)*
Transferred *(check one)*: ☐ No ☐ Yes, from: _____
(Name of Facility)

Age: _____

Gender: ☑ Male ☐ Female

Ethnicity: ☑ White *(non-Hisp)* ☐ Black ☐ Hispanic ☐ Unknown
☐ East Asian: *Mainland China, Hong Kong, Japan, Macau, Mongolia, North Korea, South Korea, and Taiwan*
☐ South Asian: *Bangladesh, British Indian Ocean Territory, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka*
☐ Other: _____

Number of years in NYC metro area: _____ ☐ Less than 1 year ☐ Unknown
Number of years in USA: _____ ☐ Less than 1 year ☐ Unknown

Primary Language: ☐ English ☐ Spanish ☐ Chinese ☐ Russian
☐ Polish ☐ Bengali ☐ Yiddish ☐ Other: _____

Zip code *(home address)*: _____ ☐ Unknown ☐ Outside USA ☐ No fixed address *(undomiciled)*

Insured: ☐ No ☑ Yes: _____

Approximate Height: _112_ ☐ FEET & INCHES 5 ☐ METERS
Check one: ☐ Patient estimate ☐ Broselow tape ☐ Measured height ☐ Clinician estimate
☐ Guardian estimate ☐ Medical record ☐ Driver's license ☐ Other: _____

Approximate Weight *(on arrival)*: _____ ☐ POUNDS ☐ KILOS
Check one: ☐ Patient estimate ☐ Broselow tape ☐ Measured height ☐ Clinician estimate
☐ Guardian estimate ☐ Medical record ☐ Driver's license ☐ Other: _____

Hearing Loss/ Deficit: ☐ No ☐ Unknown ☑ Yes → legally deaf: ☐ No ☐ Yes
(NOTE: Check 'yes' if patient normally wears hearing aids, etc., but did not have them at time of injury.)

(Overlay strip repeated:)

Patient Type *(check one)*: ☐ Pedestrian *(includes wheelchair, stroller)* ☐ Cyclist *(includes non-motorized scooters)*
Admitted *(check one)*: ☐ Yes ☐ No *(If died day of arrival, check here too: ☐)*
Transferred *(check one)*: ☐ No ☐ Yes, from: _____
(Name of Facility)

Age: _____

Visual Loss/ Deficit: ☑ No   ☐ Unknown   ☐ Yes → **legally blind:** ☐ No   ☐ Yes
(NOTE: Check 'yes' if patient normally wears corrective lenses, glasses, etc., but did not have them at time of injury.)

Distracting factor: ☐ None
   ☐ Electronic device *(check all that apply)*:
      ☐ *Music/ iPod*   ☐ *Cell phone-texting*   ☐ *Cell phone-talking*
      ☐ *Hand-held game*   ☐ *Other device (specify):* _____
   ☐ Other:

Contributing Medical Condition: ☐ None
   ☐ Yes *(check all that apply)*:
      ☐ *Unstable gait*   ☐ *Dementia*   ☐ *Seizure*   ☐ *Syncope*
      ☐ *Alcohol*   ☐ *Drugs*   ☐ *Other (specify):* _____

	No	Unknown	Yes
Was patient run over by vehicle?	☐ No	☐ Unknown	☐ Yes *(If foot only, check here too:* ☐*)*
Struck by side mirror of vehicle?	☐ No	☐ Unknown	☐ Yes
Was vehicle backing up?	☐ No	☐ Unknown	☐ Yes

	No	Yes	Unknown
Pedestrian was crossing *__with green light__* (in crosswalk):	☐ No	☐ Yes	☐ Unknown
Pedestrian was crossing *__against signal__* (in crosswalk):	☐ No	☐ Yes	☐ Unknown
Pedestrian was crossing *__mid-block__* (not in crosswalk):	☐ No	☐ Yes	☐ Unknown
Pedestrian was crossing at a *__STOP sign__*:	☐ No	☐ Yes	☐ Unknown

Other *(ONLY if none of the above apply)*: _____
(Examples: traffic cop inured on the job; delivery person loading/unloading vehicle, etc.)

☐ present, but elevated above street by 2 inches

	No	Yes	Unknown
Pedestrian was changing car tire:	☐ No	☐ Yes	☐ Unknown
Pedestrian was playing in road:	☐ No	☐ Yes	☐ Unknown
Pedestrian was in a wheelchair/mobility scooter:	☐ No	☐ Yes	☐ Unknown
Pedestrian was standing *__off-curb__* waiting to cross:	☐ No	☐ Yes	☐ Unknown

FOR __PEDIATRIC PEDESTRIANS__ ONLY *(i.e., 17 and under)*:

	No	Yes	Unknown
Child was in a stroller:	☐ No	☐ Yes	☐ Unknown
Supervised by adult/ guardian:	☐ No	☐ Yes	☐ Unknown
Unsupervised:	☐ No	☐ Yes	☐ Unknown
Child darted out into the street:	☐ No	☐ Yes	☐ Unknown
Child was getting into/out of a school bus:	☐ No	☐ Yes	☐ Unknown
Crossing guard available and on-duty?	☐ No	☐ Yes	☐ Unknown
Child's school within 2 blocks?	☐ No	☐ Yes	☐ Unknown

CYCLISTS ONLY *(non-motorized wheels, all ages)*:
Patient was riding: ☐ Bicycle   ☐ Skates/rollerblades   ☐ Skateboard
                      ☐ Non-motorized scooter   ☐ Other: _____
Protective gear *(check all that apply)*:   ☐ None   ☐ Elbow pads   ☐ Wrist guards   ☐ Knee pads
                                             ☐ Unknown   ☐ Other: _____

	No	Yes	Unknown
Cyclist was wearing a helmet:	☐ No	☐ Yes	☐ Unknown
Cyclist was working *(e.g., delivery, bike messenger)*:	☐ No	☐ Yes	☐ Unknown

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SCENE DATA

Date of Injury: ____ / ____ / ____ (mm/dd/yy)

Borough: ☐ Queens ☐ Manhattan ☐ Brooklyn ☐ Bronx ☐ Staten Island

Incident ZIP code: _____

Location *(Enter exact address, if available)*:
☐ Unknown ☐ Patient moved from scene   *(Example: 41ˢᵗ Avenue & 79ᵗʰ Street)*

Street Type *(check one)*: ☐ Limited access highway *(e.g., BQE)* ☐ Local street ☐ Local Avenue
☐ Unknown ☐ Arterial road ☐ Other: _____

Approx. time of injury:

	☐ No	☐ Yes	☐ Unknown
Morning rush (7-9 AM):	☐ No	☐ Yes	☐ Unknown
Afternoon rush (3-6 PM):	☐ No	☐ Yes	☐ Unknown

Day of Week: _____

Street/Avenue had *pedestrian island*: ☐ No ☐ Yes ☐ Unknown
Was patient on pedestrian island when struck? ☐ Yes ☐ No

Street/Avenue was: ☐ One way ☐ Two way ☐ Unknown
Number of active lanes: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 (or more)

Incident occurred *at traffic light*:	☐ No	☐ Yes	☐ Unknown
Incident occurred *at STOP sign*:	☐ No	☐ Yes	☐ Unknown
Incident occurred *middle of block*:	☐ No	☐ Yes	☐ Unknown
Street/Avenue had *speed bumps*:	☐ No	☐ Yes	☐ Unknown
Street/Avenue had *pedestrian island*:	☐ No	☐ Yes	☐ Unknown
Was patient on pedestrian island when struck?	☐ Yes	☐ No	

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Results

- Thus far as of May 2012 to the end of August 2013, the following data were accrued

- Incidents by gender

- Average age of patients involved

- Severity of injury (admissions vs discharge with minor injuries)

- Cyclists vs pedestrian incidents

- Days and time when most incidents occurred

- Children during rush hour

- Helmet use

- Red light being ignored

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Pedestrian Cases by Age

Total Number XX Patients May 2012- August 2013

37.58

34.53

29.40 29.24 28.55

40.68

41.48

29.45 29.37

36.50

32.11

28.99 28.30

24.92

28.63

33.74

50.0

37.5

25.0

12.5

0

May

July

September

November

January

March

May

July

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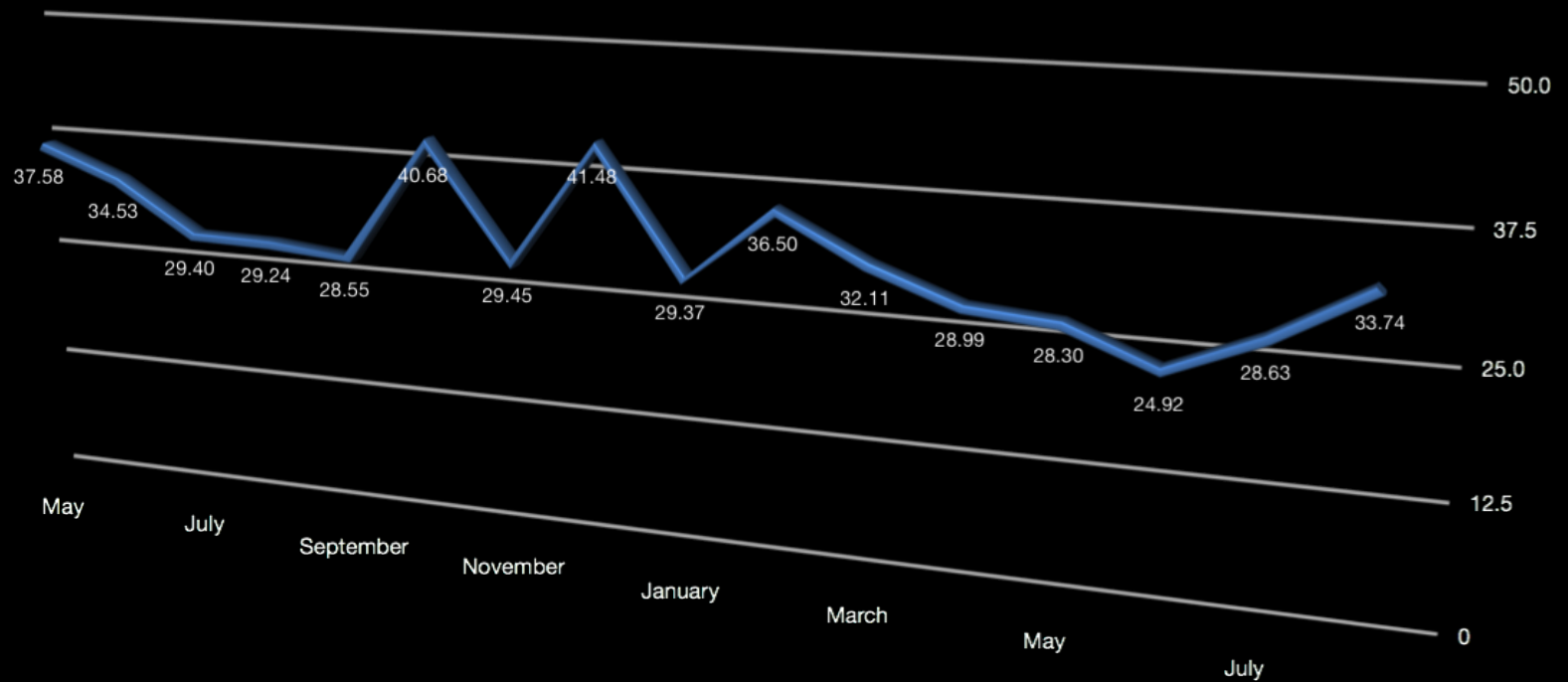
How Many Cyclists Vs Pedestrians?

Total Number 798 Patients May 2012- October 2013

29%

71%
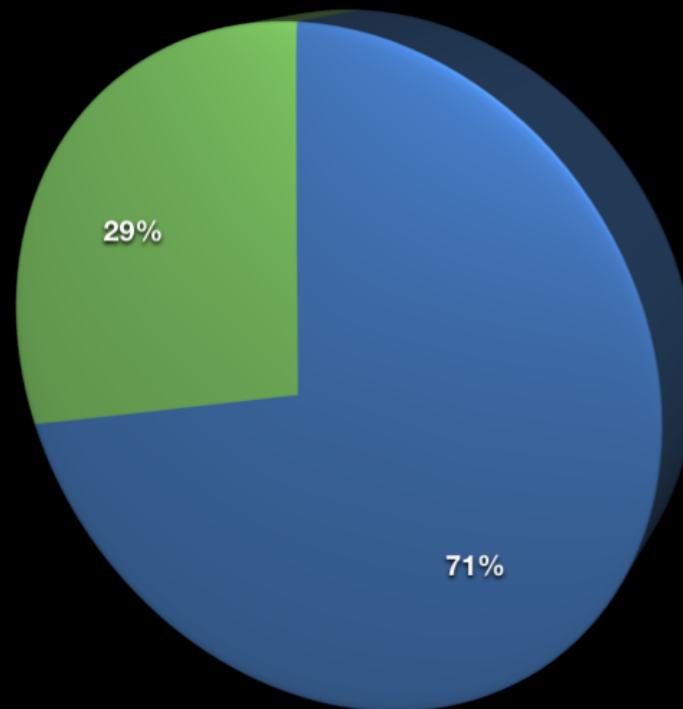
● Pedestrians   ● Cyclists

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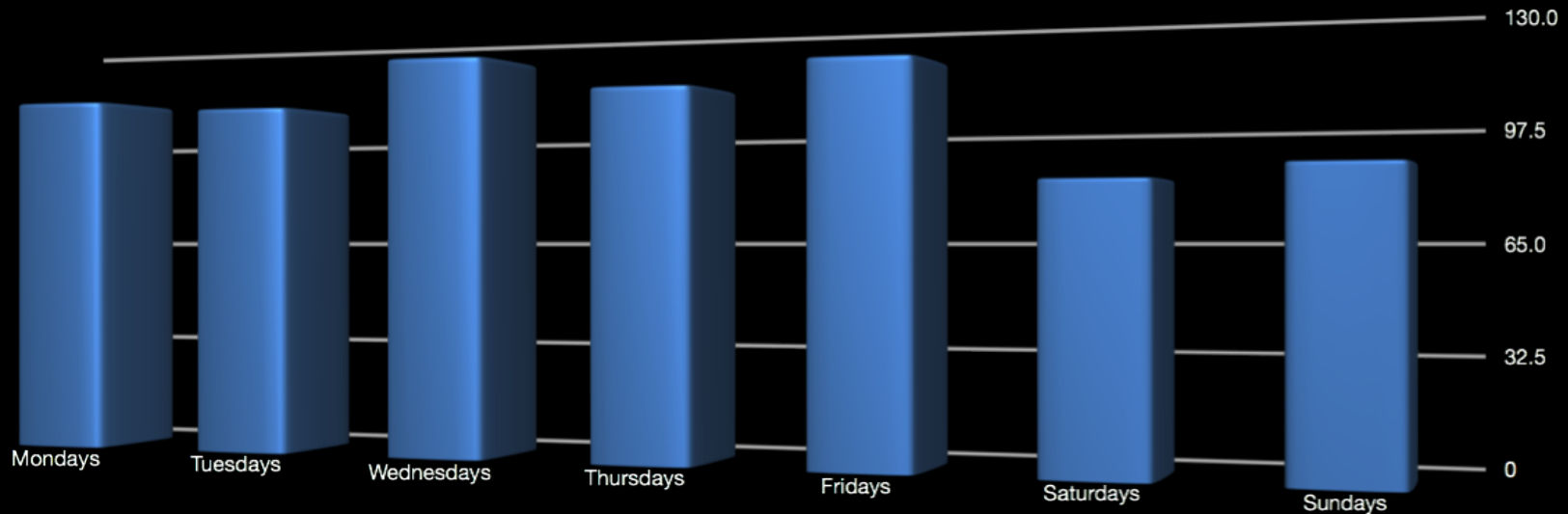
Times Where Most Incidents Occurred

Time of Triage

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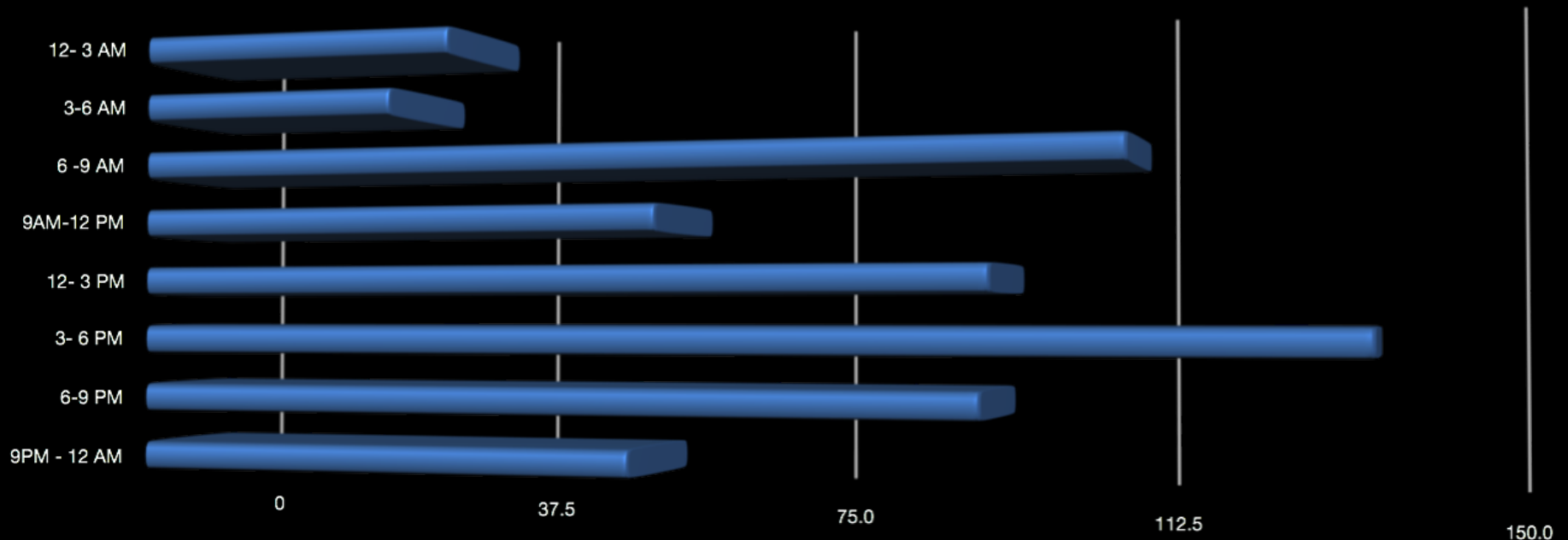
Impact on Pediatric Population

Total Number 220 Patients May 2012- October 2013

10%

90%

● Deaths ● Admissions ● Discharge With Minor Injury

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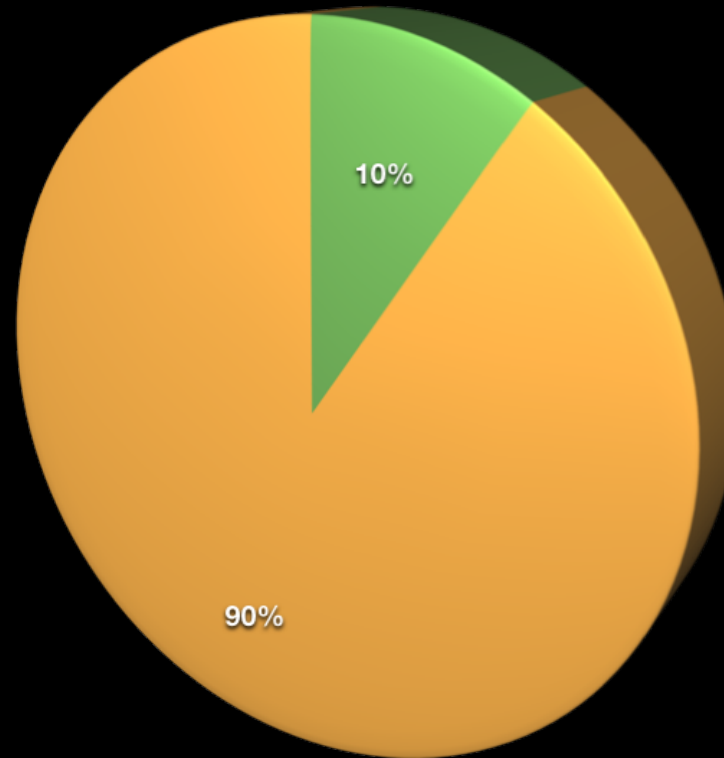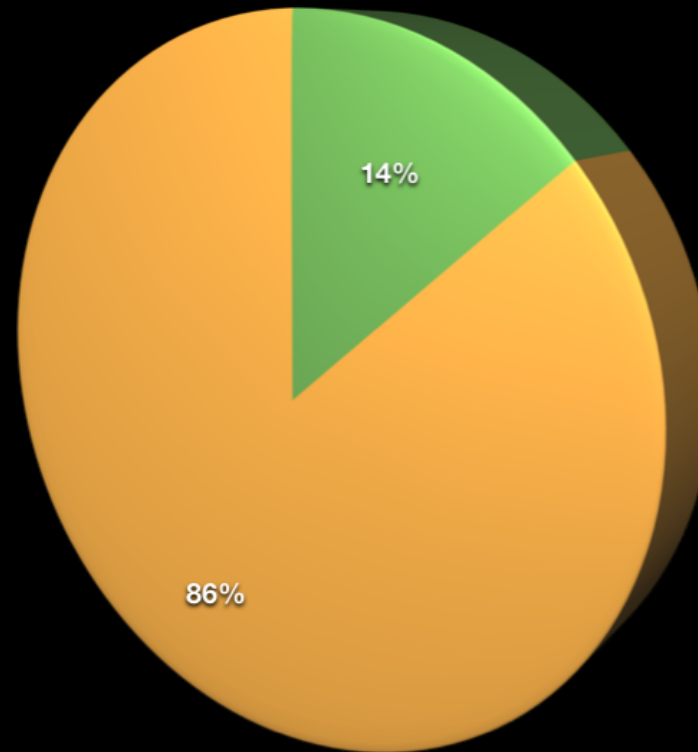
Pediatric Cyclists Struck

Total Number 48 Patients May 2012- October 2013

8%

92%
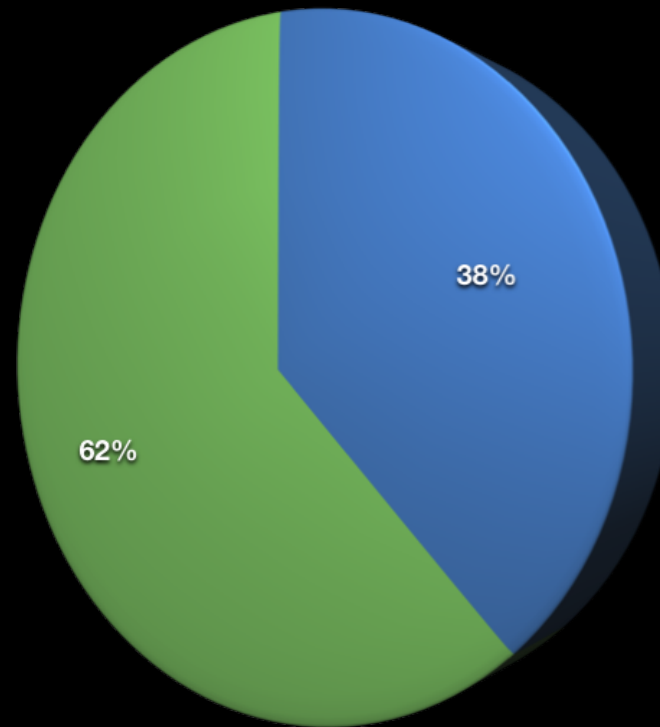
● Deaths   ● Admissions   ● Discharge With Minor Injury

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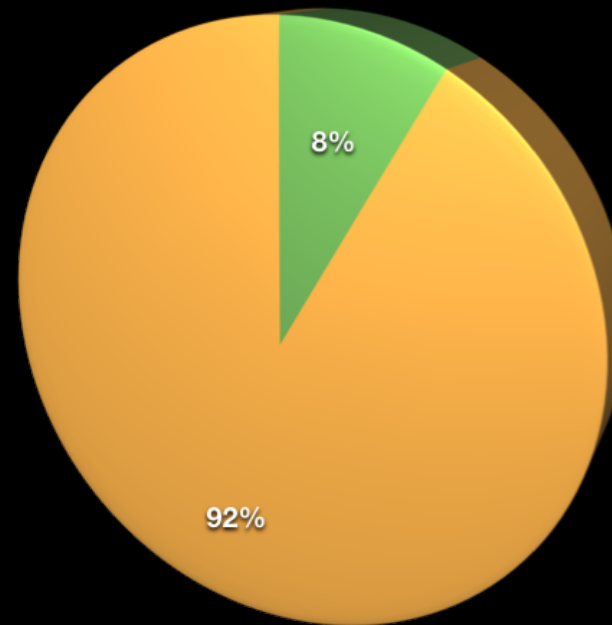
Adult Cyclists

Total Number 184 Patients May 2012- October 2013

14%

86%

● Deaths   ● Admissions   ● Discharged With Minor Injuries

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Children At Rush Hour

Total Number 220 Patients May 2012- October 2013

38%

62%
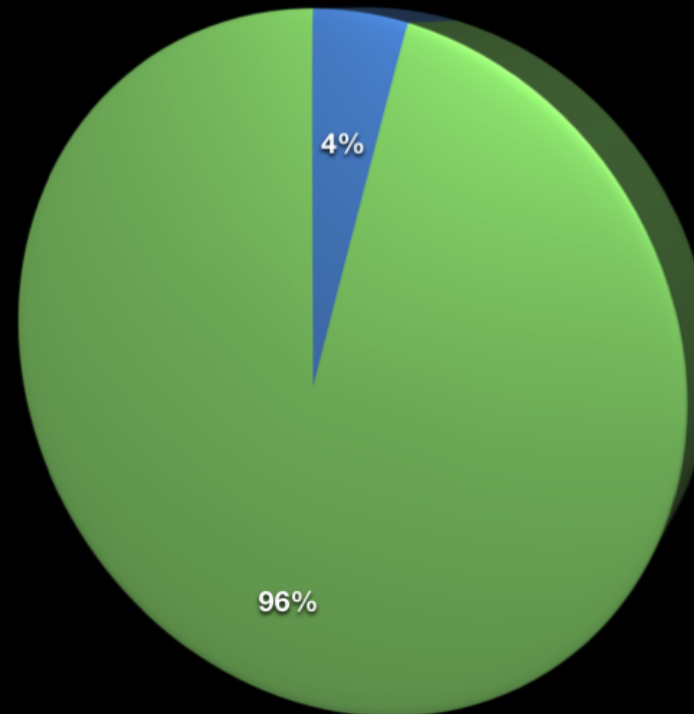
● Rush Hours (AM and PM) ● Non Rush Hours

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Bicycle Helmet Usage

Children & Helmets

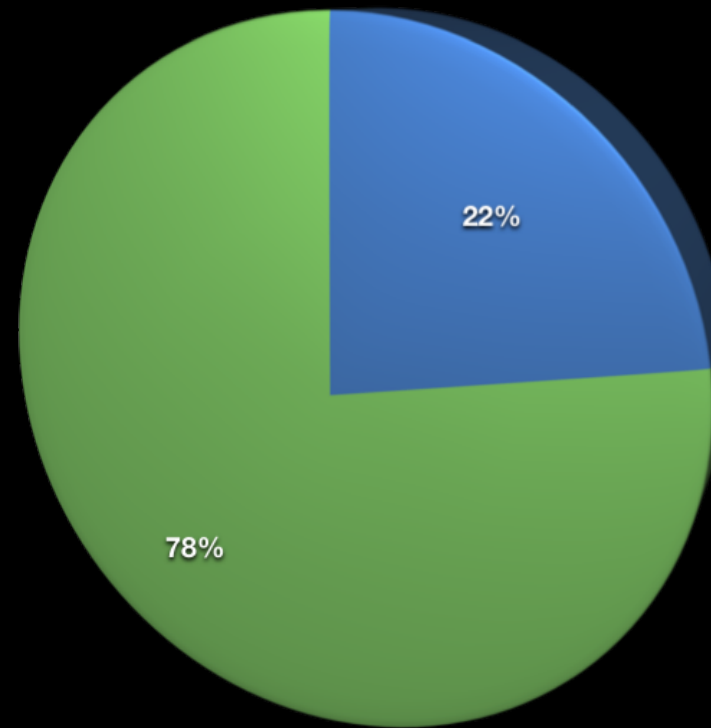Total Number 48 Patients May 2012- October 2013

4%

96%

● Helmeted   ● Non Helmeted

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Adults & Helmets

Total Number 184 Patients May 2012- October 2013

22%

78%

● Helmeted   ● Non Helmeted

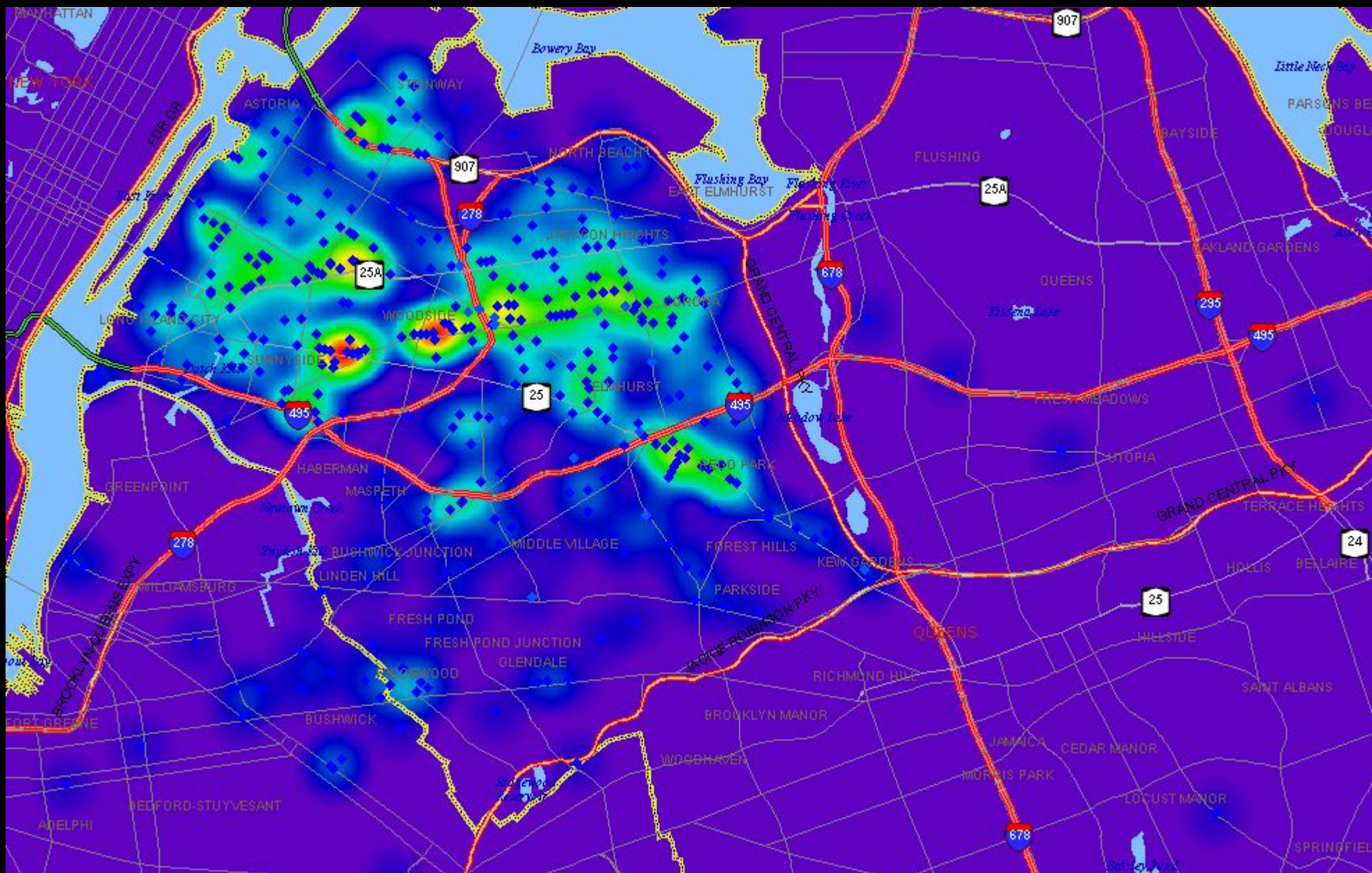Safer Streets NYC
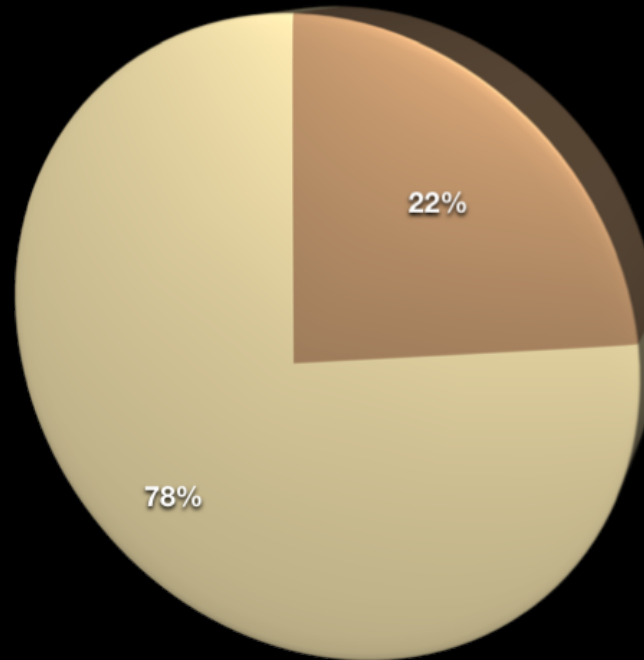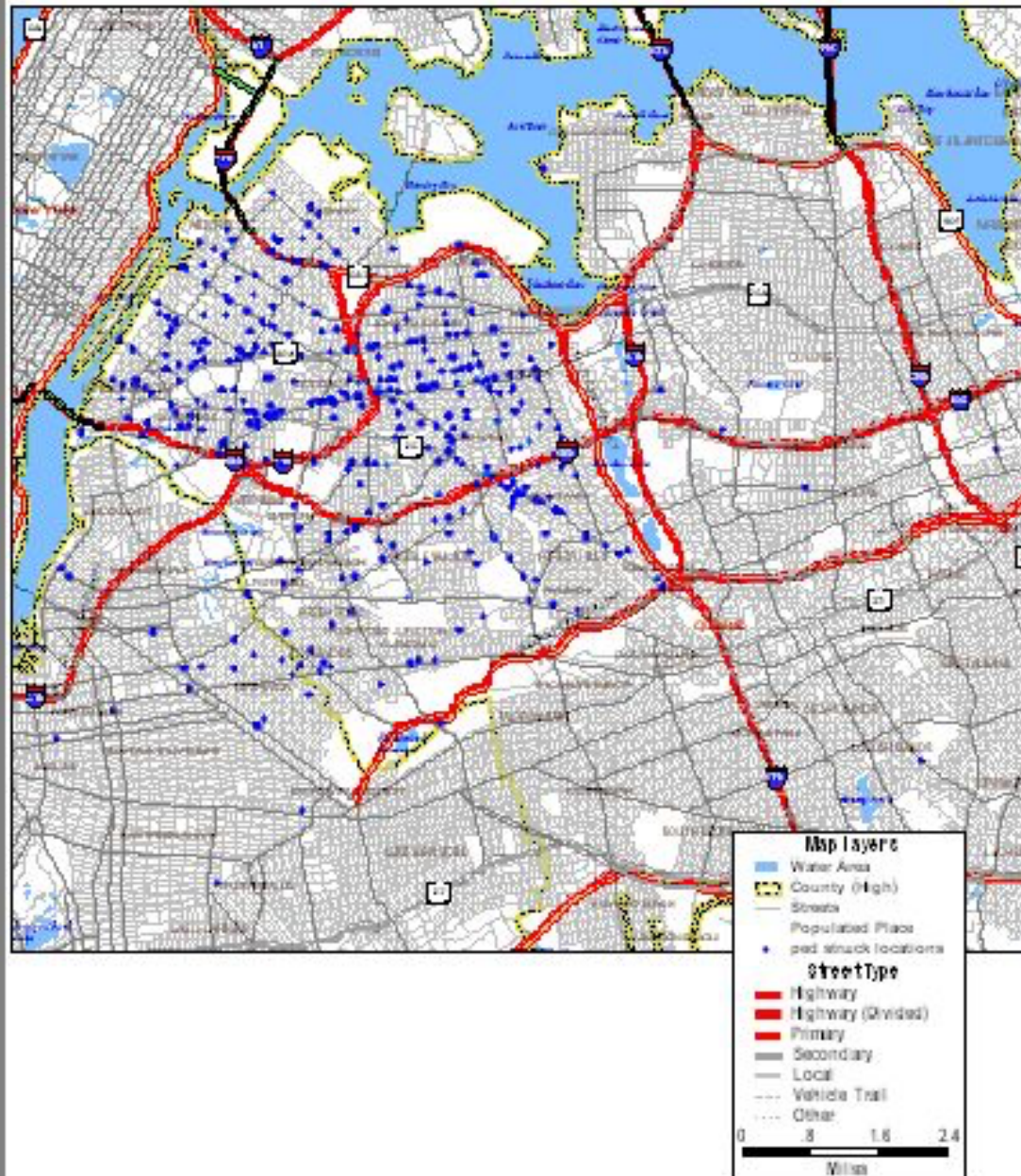
Descriptive Statistics

Pedestrian Injury Locations

- It appears that helmets continue to be an issue in our catchment area. Although bike usage is not as high foot traffic, the percentage of those presenting to the ED without helmets especially in children are high

Discussion

- The time where most incidents occur are during the mid week specifically during the evening rush hour as defined from 3 PM -6 PM

- There has been a localized density of incidents around Roosevelt Avenue which may be an area that needs improvement

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Conclusion

- Improvements on specific areas of Roosevelt Avenue could be potentially be constructed through DOT projects
- Past DOT projects have greatly improved pedestrian safety by widening medians such as in the following images

Conclusion

Before: Narrow Median

Before: Larger Pedestrian Island

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Conclusion

- A multilingual awareness campaign tailored to the unique diverse community of Elmhurst could make an impact in high incident areas

- Pedestrian signals could potentially stay longer for those elderly individuals who may need it through a registered a pedestrian signal preemption system whereby those with this RFID pendant could have extra time in crossing the street

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Conclusion

- Pedestrian injuries continue to be an important public health issue in NYC as seen firsthand by the neurosurgery department at Elmhurst.

- Elmhurst's Safer Streets NYC study over the next 3 years will gather vital data and will also include a retrospective arm to include demographic information on patients not initially enrolled at time of injury in order to avoid selection bias.

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Safer Streets NYC at Elmhurst Hospital Center Investigative Team:

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