

Big Dangers On Our Roads

Examining the Effects of Large Vehicles on Pedestrian and Pedal-cyclist Injury Severity



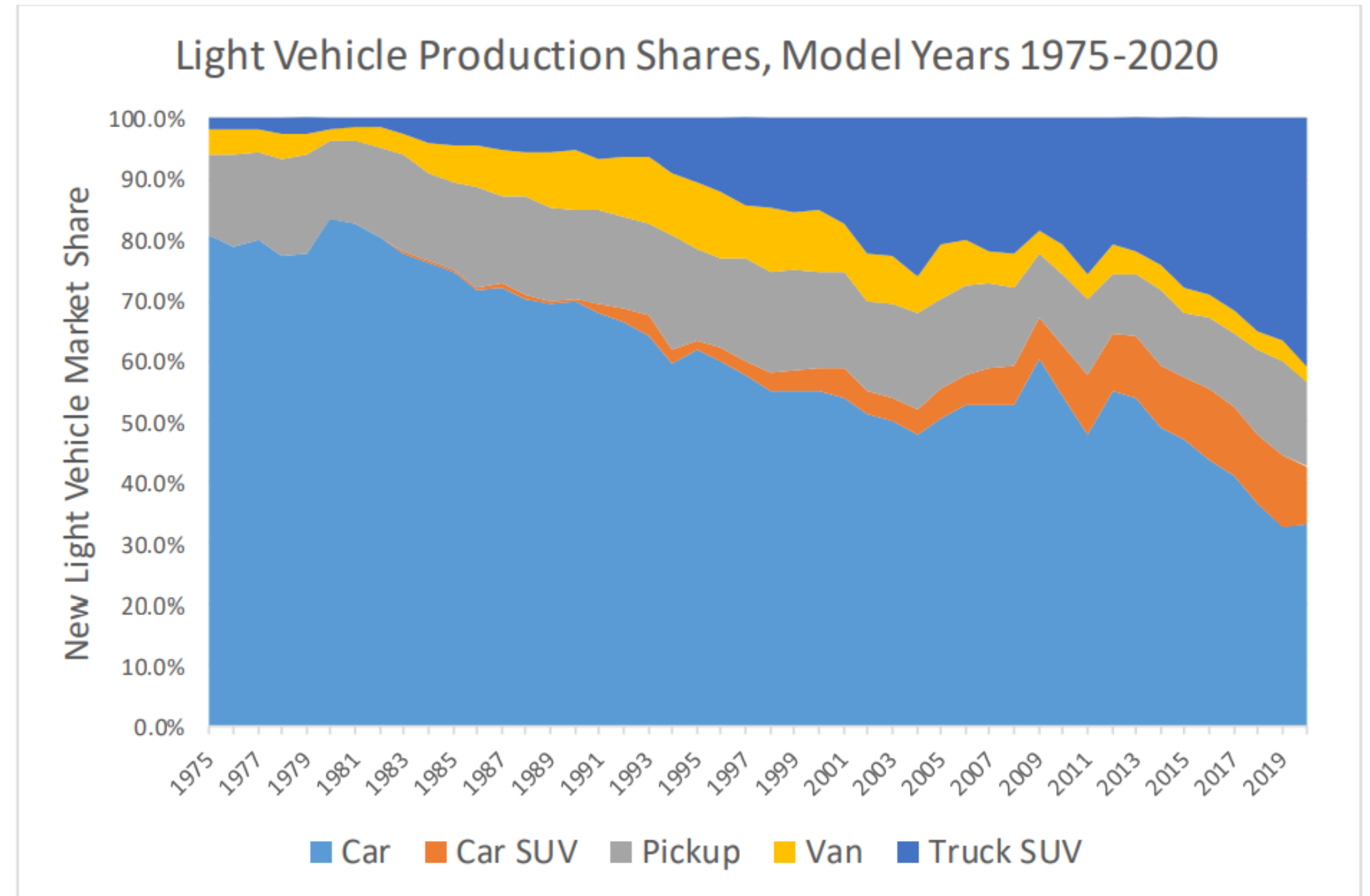
Fatal pedestrian and cycling crashes on the rise since 2009.

WHAT'S GOING ON?

The growth of large vehicles (pickup trucks, vans/minivans and SUVs) and replacement of passenger cars really took off in 2009.



*Figure 1: Light vehicle production shares, model years 1975-2020**



**Created by authors using EPA data*



**IS THERE A CONNECTION
BETWEEN MORE BIG
VEHICLES ON THE ROAD
AND INCREASING FATAL
PEDESTRIAN AND CYCLIST
CRASHES?**



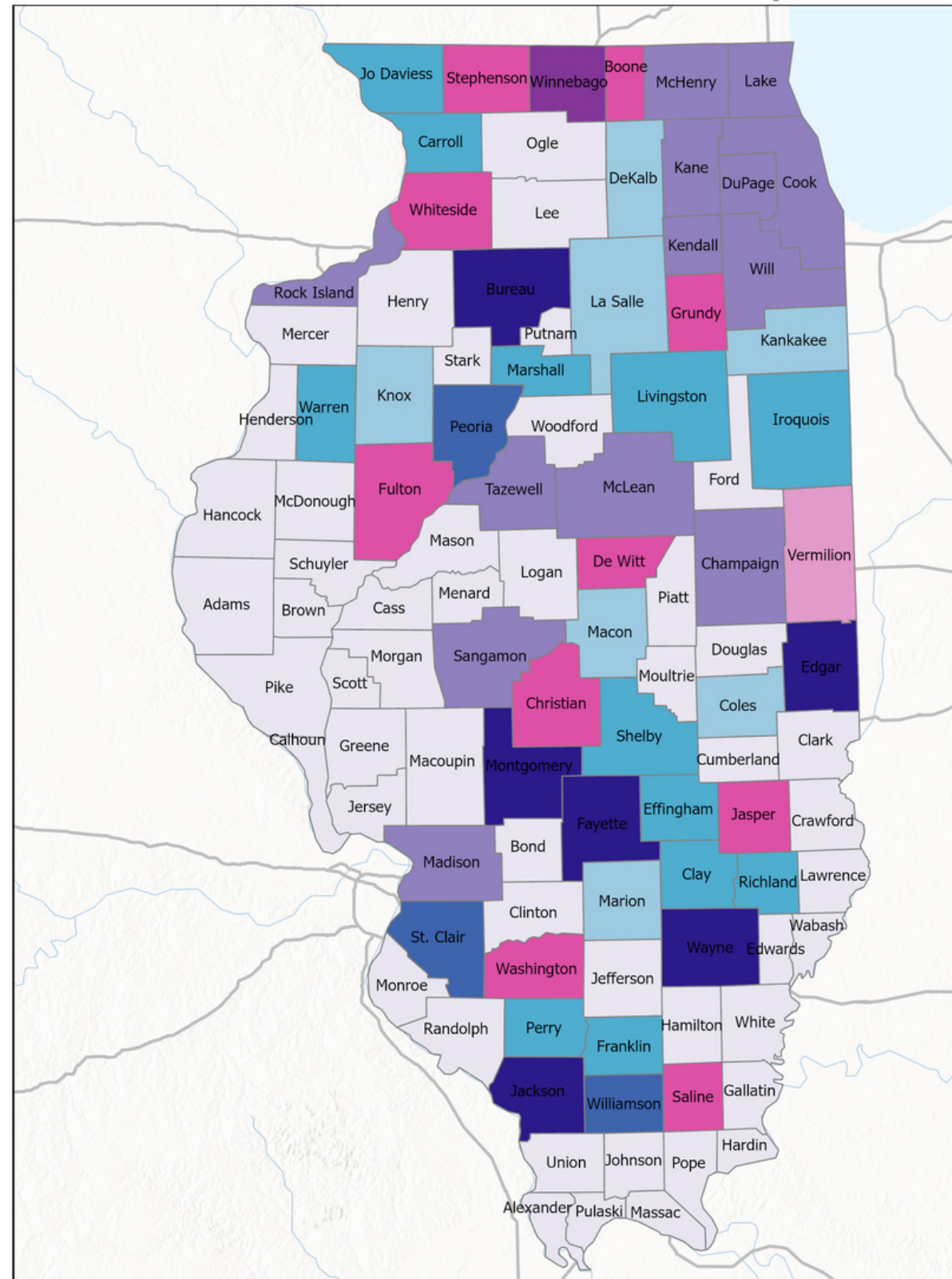
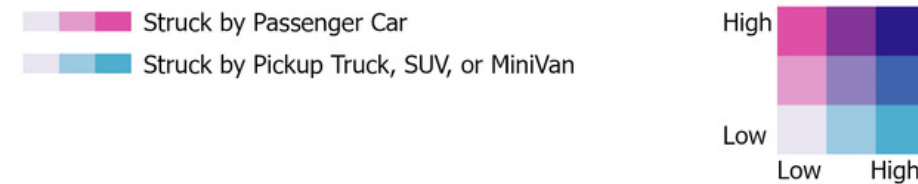
DATA FROM 2016 - 2018 SHOWED

- 23,090 crashes involved pedestrians and cyclists
- 14,552 pedestrians and 8,538 cyclists
- 477 fatalities



85.5%
**OF THE 477 FATALITIES
INVOLVING PEDESTRIANS
AND CYCLISTS WERE
PEDESTRIANS.**

Fatality Rate for Pedestrian Crash Victims Per 1,000,000 Residents



LARGE VEHICLES
WERE INVOLVED IN
JUST 26.1% OF
PEDESTRIAN &
CYCLIST CRASHES,
BUT WERE THE
STRIKING VEHICLE IN
44.1% OF FATALITIES.

While passenger cars were involved in 62% of cases, they represent just 38.4% of all fatalities.



SUVs were involved in almost 15% of fatal cases but were the striking vehicle in 1 in 4 cases - more than 25%.

Pickup trucks were involved in just 5.6% of fatal cases but were the striking vehicle in 12.6% of all fatalities.



LARGE VEHICLES
DISPROPORTIONATELY
KILL PEDESTRIANS
AND CYCLISTS
COMPARED TO THE
NUMBER OF CASES IN
WHICH THEY ARE
INVOLVED.

WHO IS MOST AFFECTED WHEN STRUCK BY A LARGE VEHICLE INSTEAD OF A CAR?

**CHILDREN
8X MORE
LIKELY
TO DIE**



**ADULTS
4X MORE
LIKELY
TO DIE**



**SENIORS 3X MORE
LIKELY TO DIE**



HOW DOES RACE EFFECT CRASH VICTIMS?

EXCLUDING CHICAGO...

**23% OF CRASH VICTIMS
WERE BLACK OR
AFRICAN AMERICAN**

DESPITE BEING ONLY
10% OF THE POPULATION

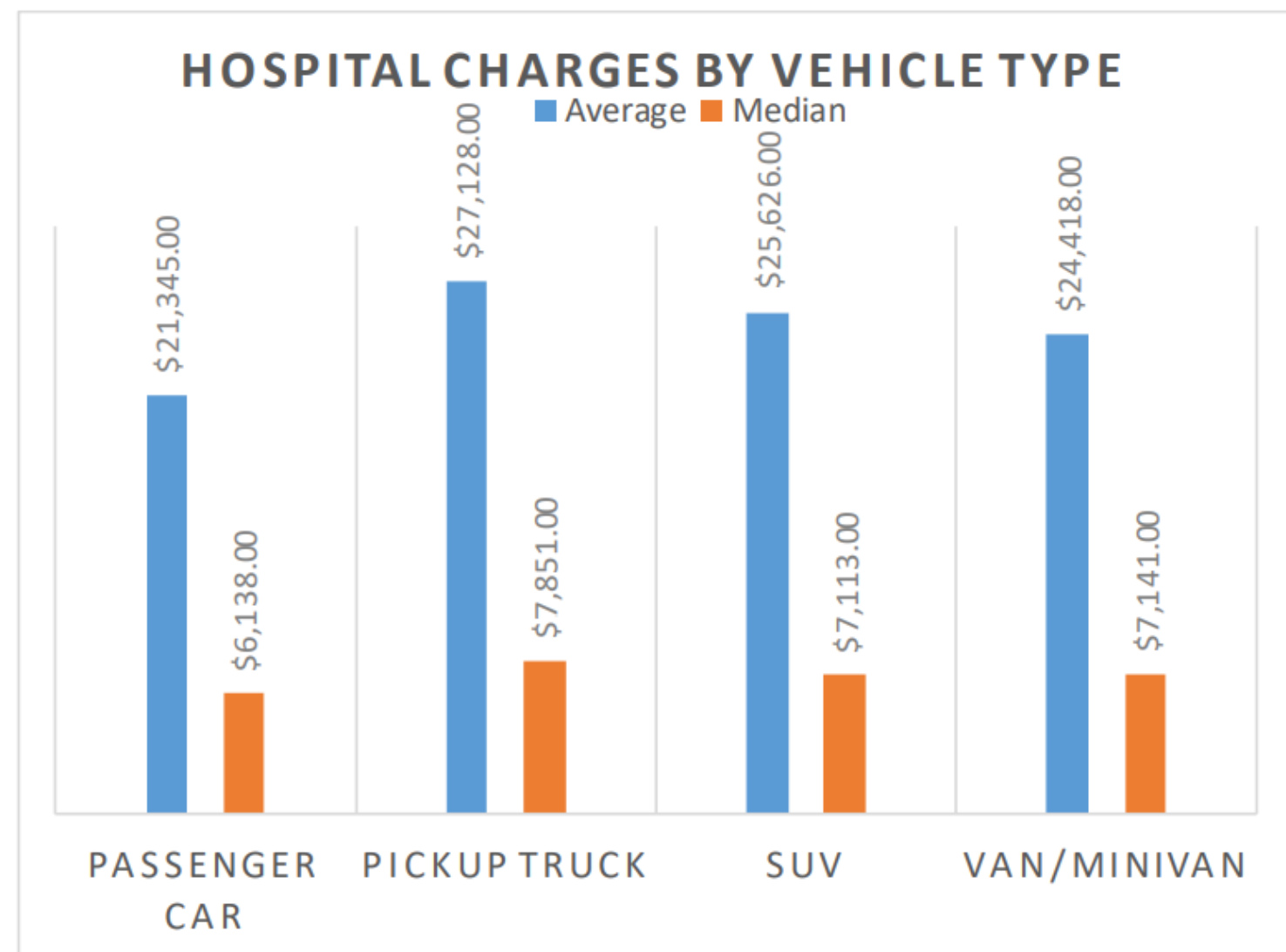
STATEWIDE...

**27% OF CRASH VICTIMS
WERE BLACK OR
AFRICAN AMERICAN**

DESPITE BEING ONLY
14% OF THE POPULATION



HOW DO LARGE VEHICLES AFFECT HOSPITAL CHARGES?

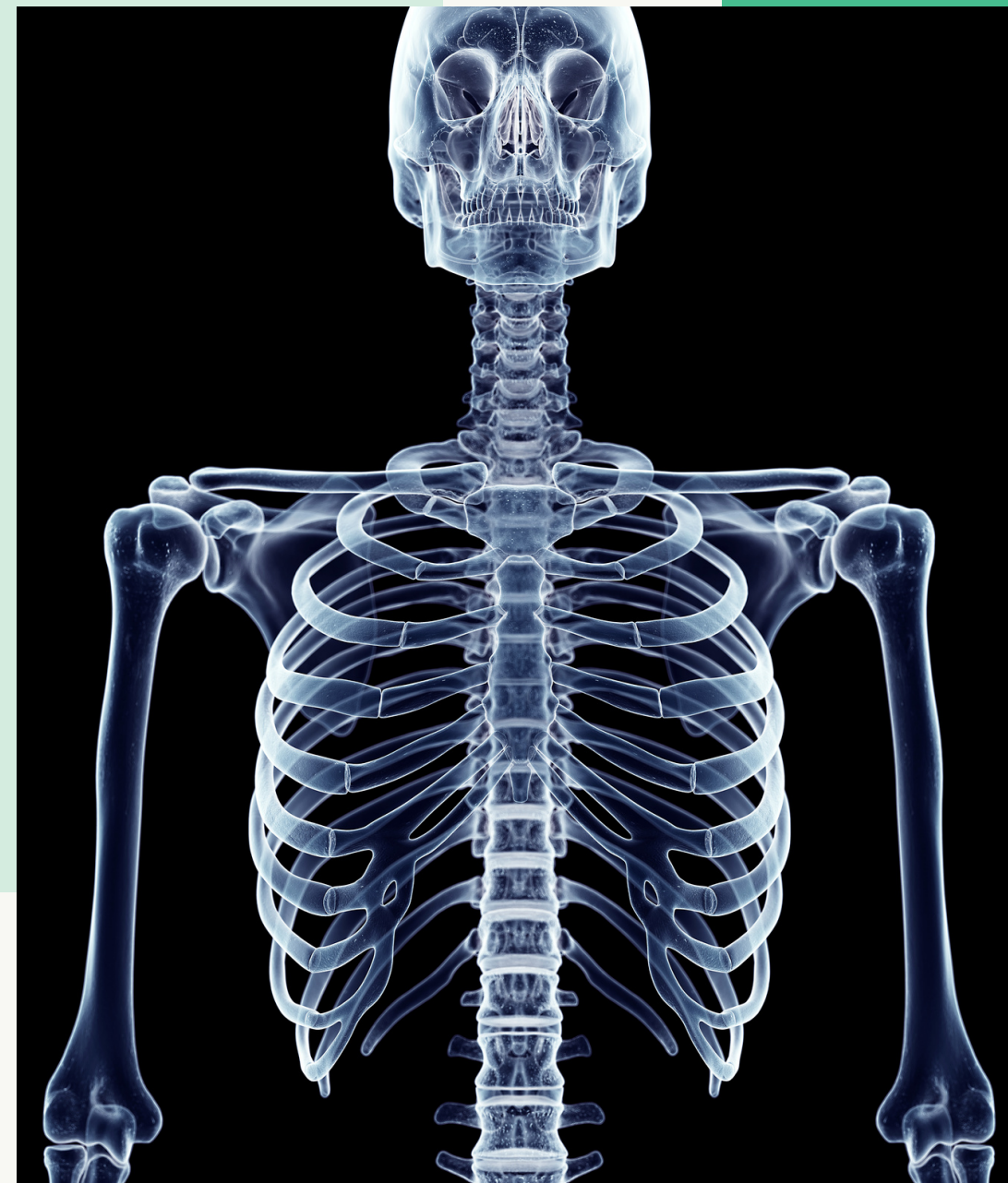


Pickup trucks resulted in the highest hospital charges of all vehicle types.



NEARLY 10%

OF ALL PEDESTRIANS OR PEDALCYCLISTS
STRUCK BY A PICKUP TRUCK RECEIVED A
NON-MINOR HEAD OR CHEST INJURY.



*Table 3: Distribution of moderate (greater than or equal to 2 on the abbreviated injury scale) and worse head and thorax injuries by vehicle type**

		Head Injury Severity		Thorax Injury Severity	
Vehicle Type	Proportion Involved in Crashes	Proportion of all >2 Head Injuries	Proportion of >2 Within Vehicle Type	Proportion of all >2 Thorax Injuries	Proportion of >2 Within Vehicle Type
Passenger Car	54.1%	58.6%	9.5%	42.1%	3.8%
Pickup Truck	5.6%	7%	11.1%	11.1%	9.7%
SUV	13.5%	16.2%	9.9%	17.4%	6.3%
Van/Minivan	5.7%	8.2%	10.6%	7.6%	6.6%

**Other vehicle types not presented in table; Abbreviated Injury Scale (AIS) 1: Minor, 2: Moderate, 3: Serious, 4: Severe, 5: Critical, 6: Maximal (untreatable)*

- Big vehicles have more blind spots.
- People and objects are harder to see.
- People are more often knocked down and run over.
- People hit by larger vehicles more commonly end up with more severe injuries to their heads and bodies compared to those hit by a car.

WHAT CAN BE DONE?

- VISION ZERO CHICAGO
- REDUCE SPEED LIMITS
- RATE & PENALIZE VEHICLES OF DANGER TO PEDESTRIANS & CYCLISTS
- MAKE AUTO BREAKING & BLIND SPOT MONITORING TECHNOLOGY A STANDARD ON LARGER VEHICLES