

Bureau of Highway Safety Serious Injury Analysis 2023

June 30, 2025

Prepared for the Bureau of Highway Safety

Survey Research Center
Catherine Cutler Institute for Health & Social Policy
University of Southern Maine



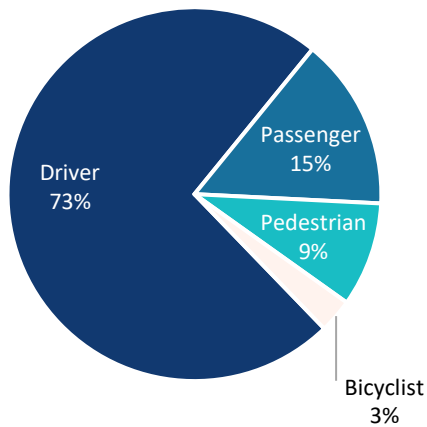
Contents

Serious Injuries	1
Impaired Driving.....	5
Occupant Protection	9
Speeding.....	13
Pedestrians	17
Bicyclists.....	20
Motorcyclists.....	23
Young Drivers	29
Senior Drivers	32

Serious Injuries

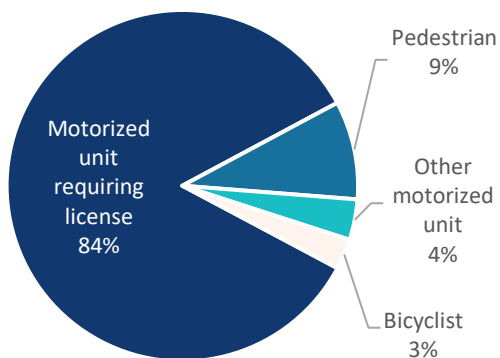
This report summarizes the findings from an analysis of highway crashes resulting in serious injuries in 2023. The dataset used for analysis contained a total of 1439 records, each representing an individual involved in a serious injury crash. In total, there were 680 serious injury crashes in 2023 and 751 serious injuries.

Serious Injury by Person Type



A total of 751 drivers, passengers, bicyclists, and pedestrians were seriously injured as a result of highway crashes in 2023. The majority of these serious injuries (73%) were driver injuries, 15% were passenger injuries, 9% were pedestrian injuries, and the remaining 3% were bicyclist injuries.

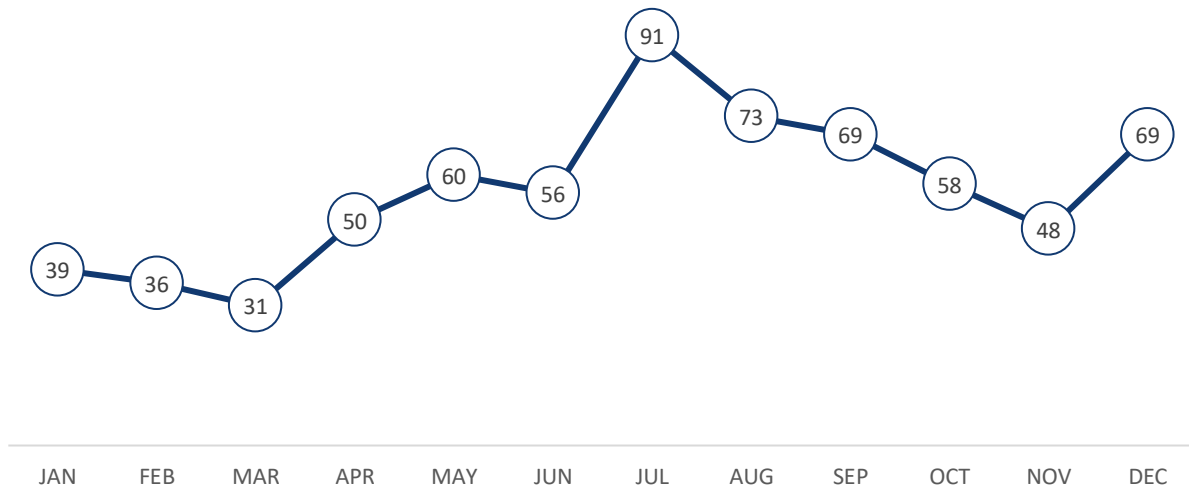
Serious Injury by Unit Type



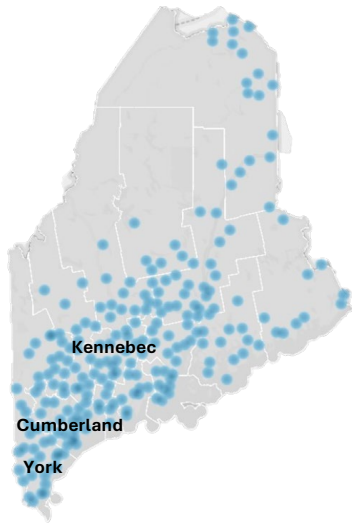
The majority of seriously injured persons, 84%, were occupants of motorized vehicles requiring a driver's license (e.g., cars, motorcycles, etc.), 9% were pedestrians, 4% were operating or riding other motorized vehicles (e.g., ATVs or snowmobiles), and 3% were bicyclists.

Serious Injury Crashes by Month

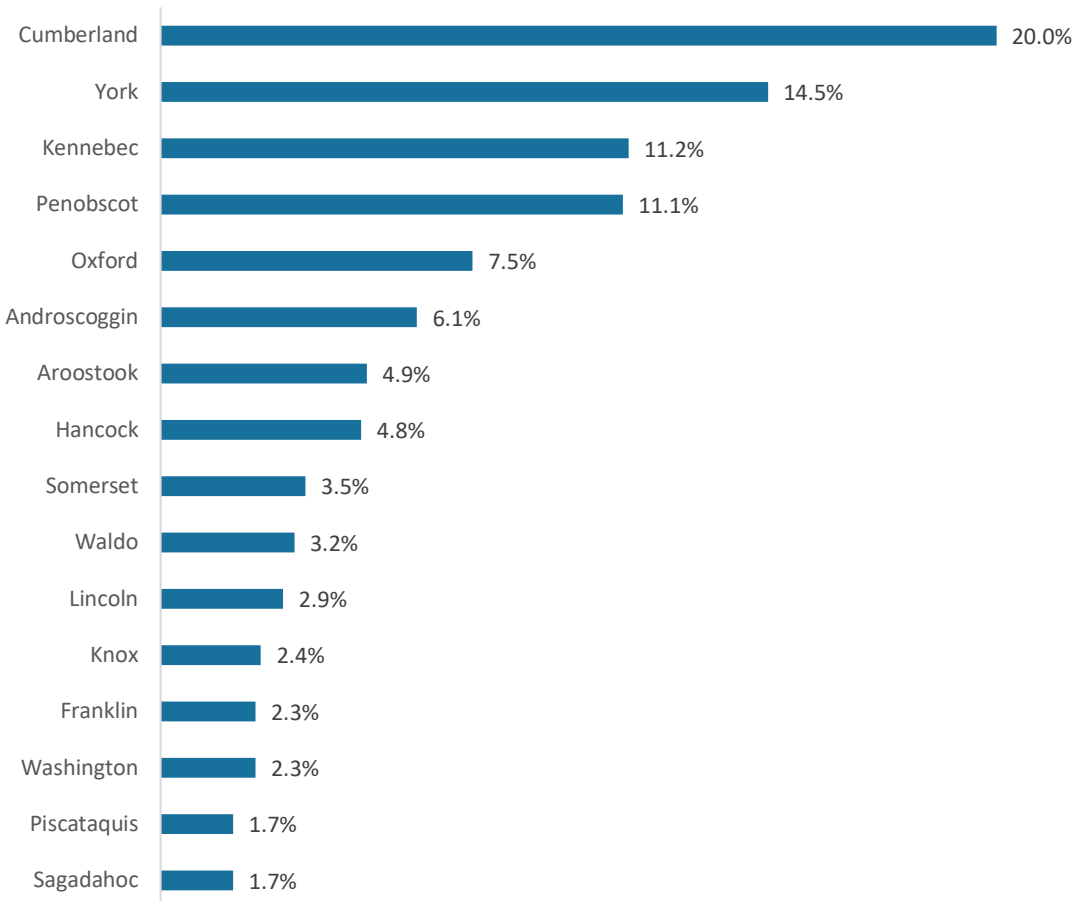
While Maine's roads are most dangerous during the winter months, a higher number of serious injury crashes occur during warmer months. This may reflect a reduction in the number of miles driven during winter months and/or increased care taken by drivers when navigating during inclement weather. A little more than a third (34%) of all serious injuries in 2023 occurred in July, August, and September.



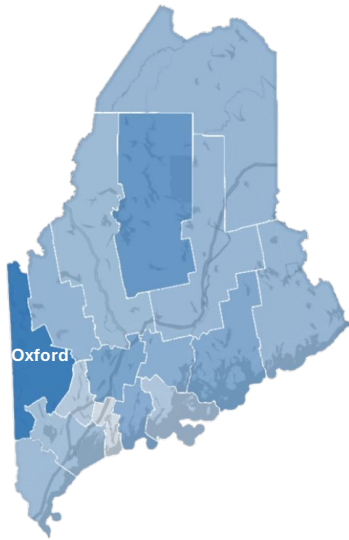
Serious Injuries by County



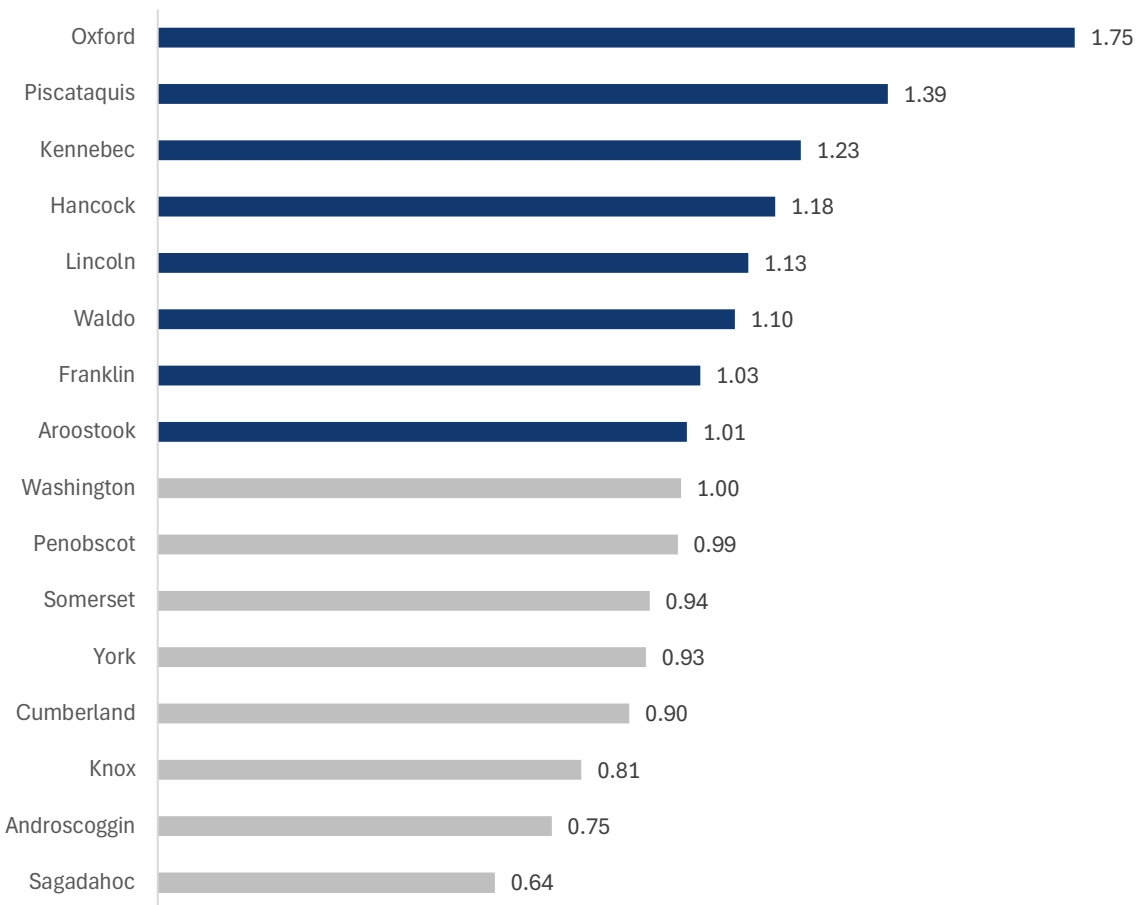
Approximately 20.0% of the 751 serious injuries in 2023 occurred in Cumberland County, followed by 14.5% in York County, and 11.2% in Kennebec County.



Serious Injury Crashes by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate serious injury rates, relative rates were computed by dividing the serious injury rate of each county by its population rate. Oxford County, which held 4.26% of the population according to the last 5-year American Community Survey, had 7.46% of the serious injuries in 2023, resulting in a relative rate of 1.75. This rate is disproportionately high, as are the rates of all the counties displayed in blue below.

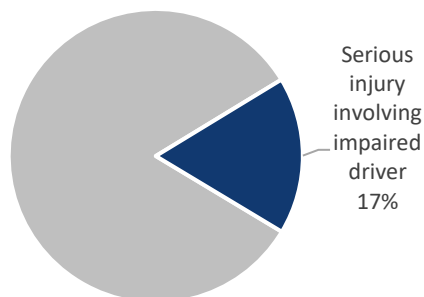


Impaired Driving

Summary

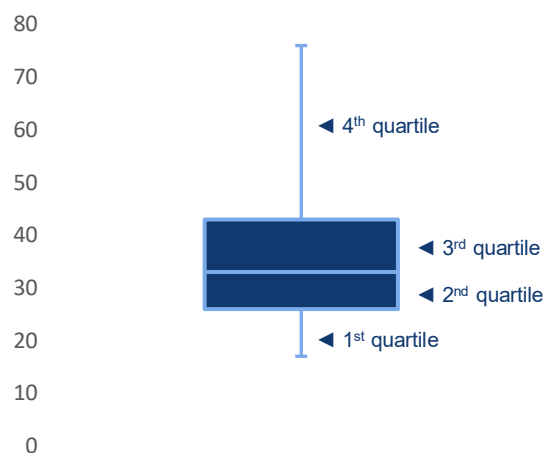
- ◆ There were 113 impaired-driving serious injury crashes involving 114 impaired drivers in 2023.
- ◆ There were 130 impaired-driving-related serious injuries during this period.
- ◆ Seventeen percent (17%) of all serious injuries involved an impaired driver.
- ◆ Twelve percent (12%) of all drivers involved in serious injury crashes were impaired.

Impaired-Driving Serious Injuries



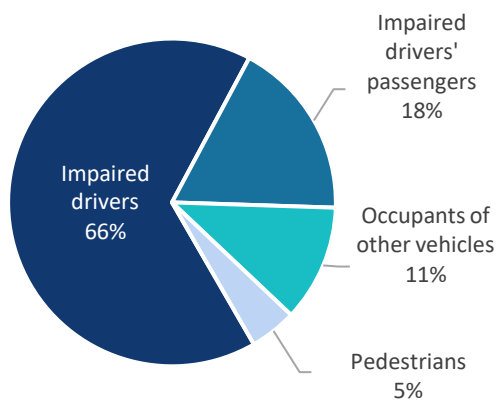
Approximately 17% of all serious injuries involved an impaired driver.

Impaired Driving and Age



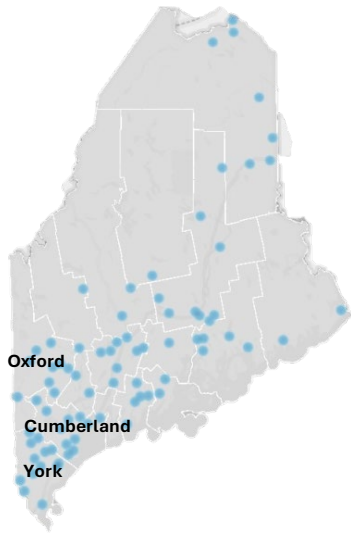
The median age of drivers operating under the influence in serious injury crashes was 35, meaning half of the impaired drivers were younger than 35 and half were older. One-quarter of all drivers operating under the influence were between the ages of 15 and 24, and one-quarter were between the ages of 24 and 35. These are dense distributions compared to the remaining two quartiles, which together span the ages of 35 and 82; as such, the bottom two age quartiles might make good targets for public safety messages.

Impaired-Driving Serious Injuries by Person Type

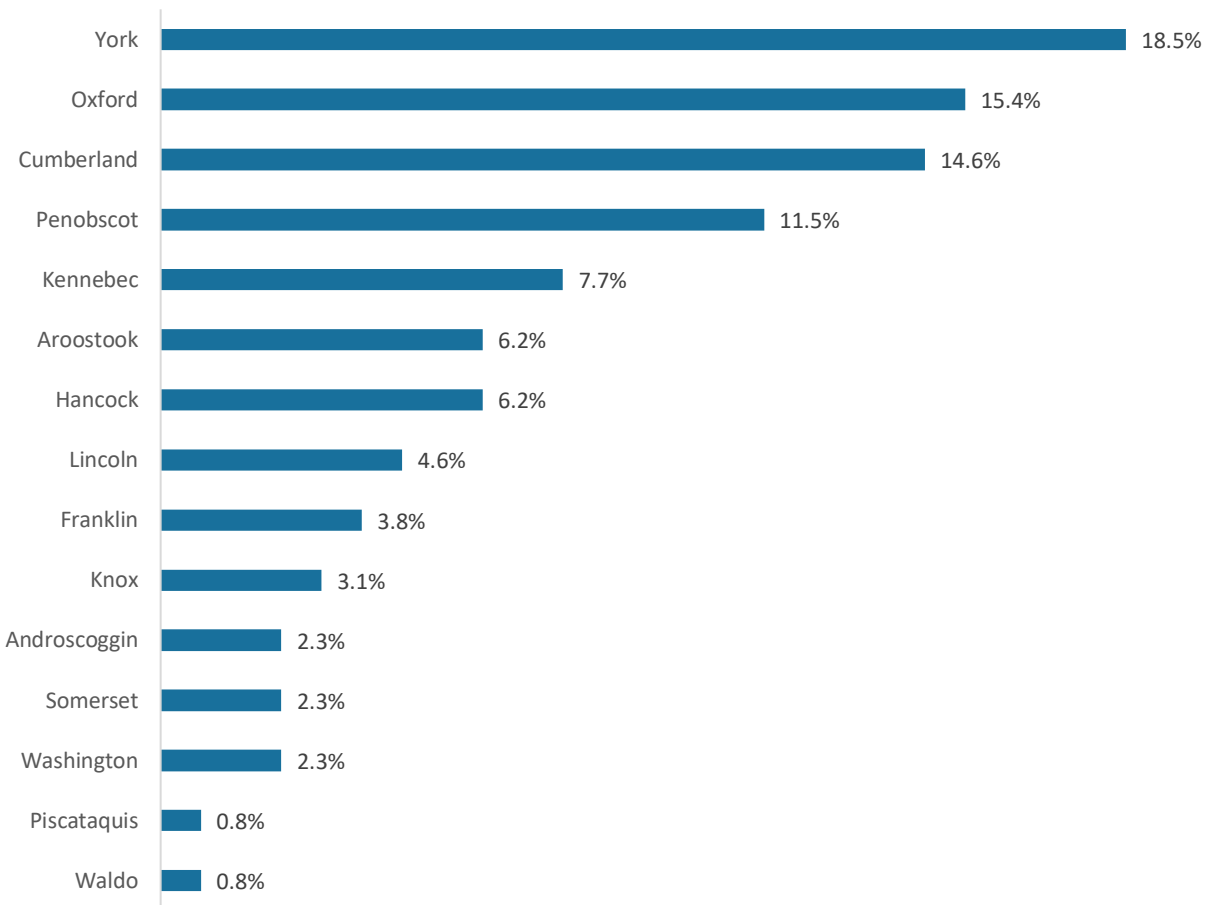


Crashes involving impaired driving resulted in 130 serious injuries in 2023. The majority of these serious injuries (66%) involved injury to the impaired driver. An additional 18% of serious injuries involved the impaired drivers' passengers. This suggests that 84% of the risk associated with impaired driving is borne by impaired drivers and their passengers. An additional 16% of serious injuries involved occupants of other vehicles and pedestrians.

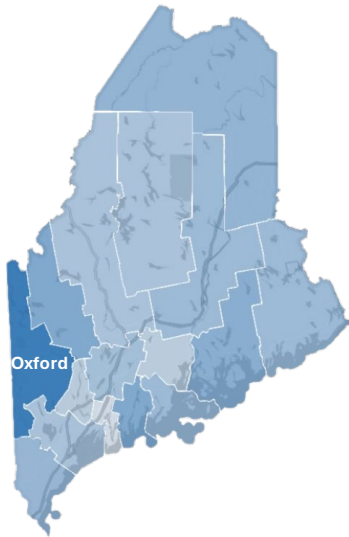
Impaired-Driving Serious Injuries by County



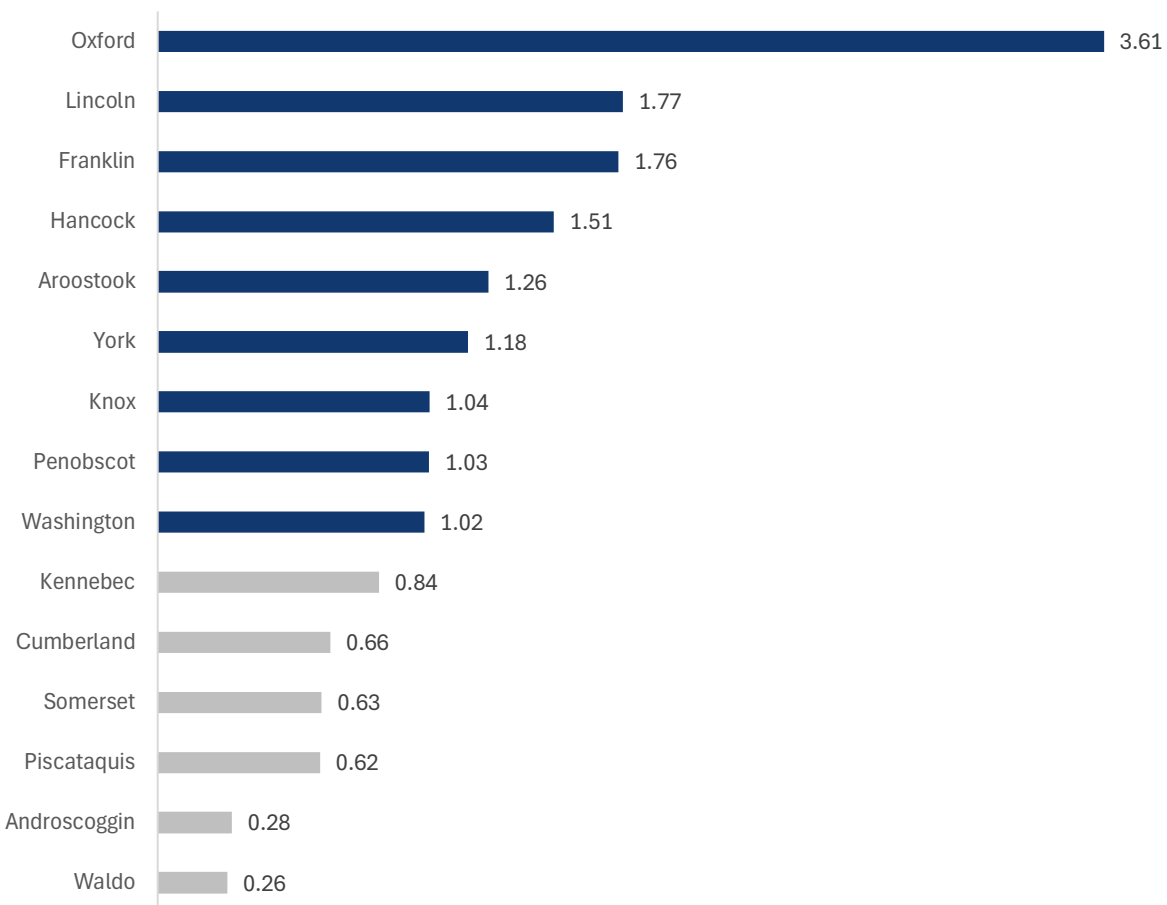
Approximately 18.5% of the 130 impaired-driving serious injuries in 2023 occurred in York County, followed by 15.4% in Oxford County, and 14.6% in Cumberland County.



Impaired-Driving Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate driver-impaired serious injury rates, relative rates were computed by dividing the driver-impaired serious injury rate of each county by its population rate. Oxford County, which held 4.26% of the population according to the last 5-year American Community Survey, had 15.38% of the driver-impaired serious injuries in 2023 resulting in a relative rate of 3.61. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

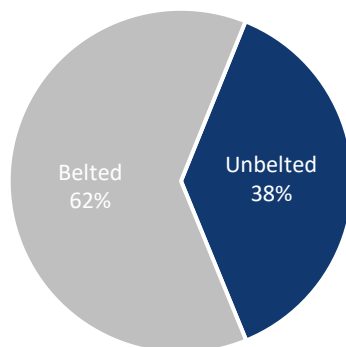


Occupant Protection

Summary

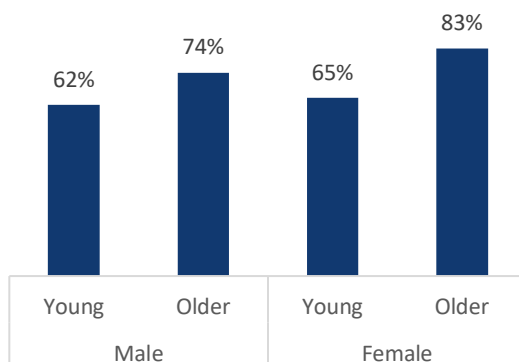
- ◆ Over a third (38%) of the occupants with serious injuries in 2023 who were required to be belted were not.
- ◆ Seventy-five percent (75%) of those involved in serious injury crashes (injured or not) were wearing seat belts while 25% were not.
- ◆ Seventy-two percent (72%) of males involved in serious injury crashes in 2023 were wearing seat belts while 80% of females were.
- ◆ At 63%, those 20 years of age and younger were less likely than older occupants to be wearing a seat belt, at 77%.

Unbelted Occupant Serious Injuries



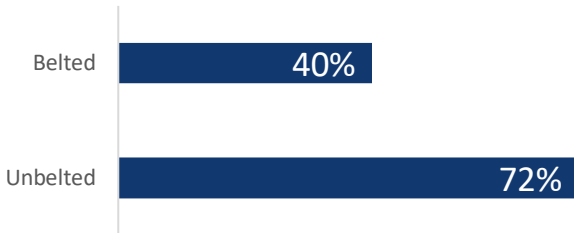
More than a third (38%) of all occupants with serious injuries who were required to be belted were not.

Unbelted Occupant by Sex and Age



While 62% of all occupants involved in serious injury crashes were belted, young (under age 21) male occupants were less likely to be belted than other occupants. Only 62% of young male occupants were belted, compared to all other occupants, with rates ranging from 65% to 83%.

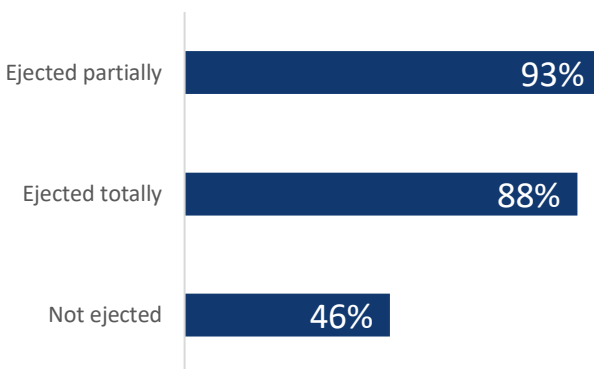
Impact of Seat Belt Use on Serious Injuries



Approximately 48% of all people involved in serious injury crashes in 2023 who were required to wear seat belts were **seriously injured**, but unbelted occupants were injured at a significantly higher rate (72%) than belted occupants (40%). Seat belt use may partially determine who is and is not seriously injured in a serious injury crash.

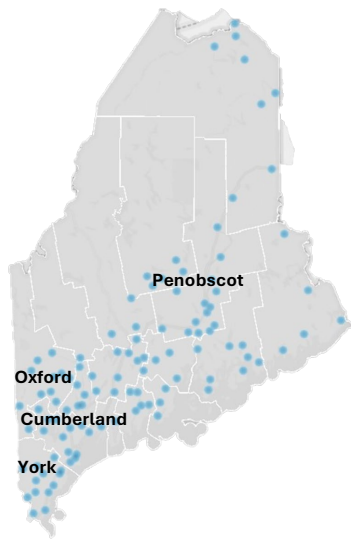


Seat belt use protects occupants in part by preventing them from being **ejected** during crashes. Approximately 14% of all those who were not belted were partially or fully ejected from their vehicles during serious injury crashes, while 1% of those who were belted were ejected.

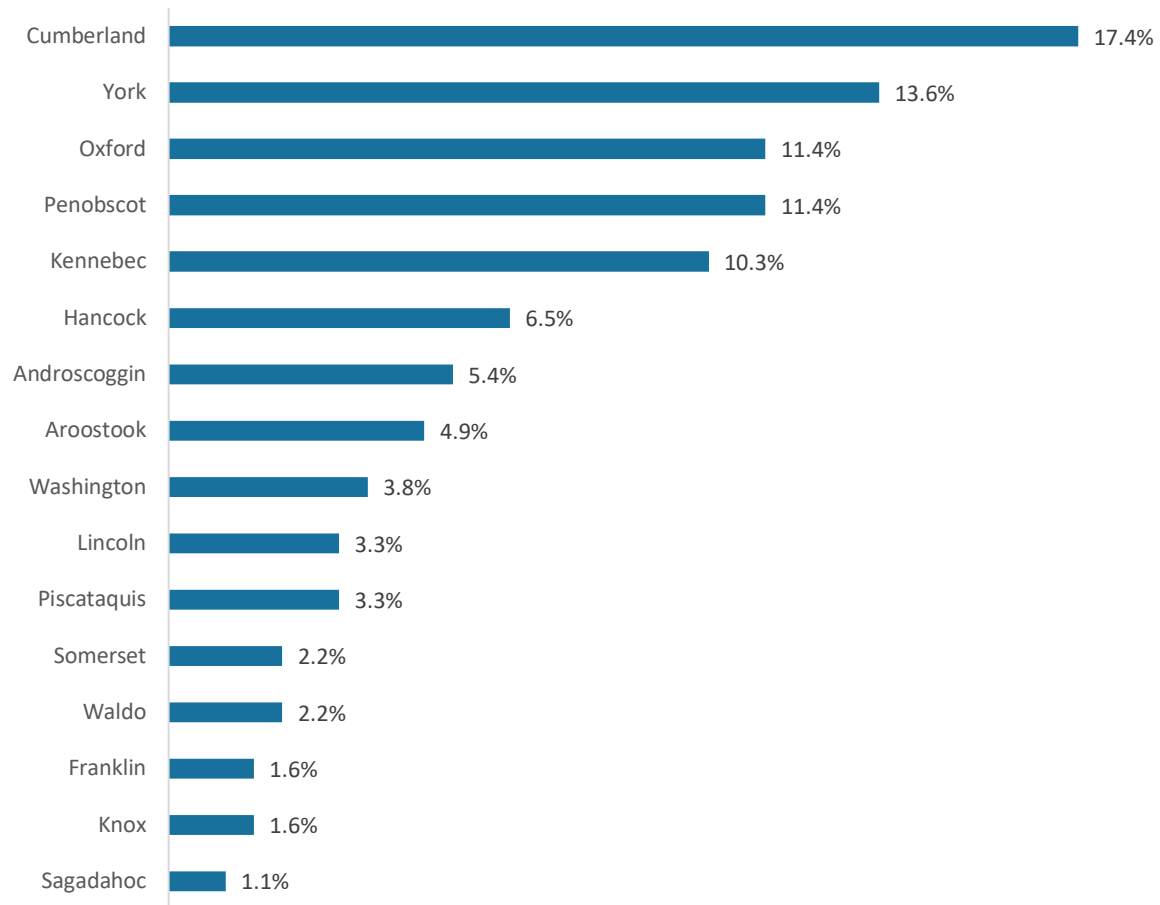


Ejection, in turn, results in a much higher probability of **serious injury**. While 46% of those who were not ejected nevertheless were seriously injured, the rates were much higher for those who were totally or partially ejected at 88% and 93%, respectively.

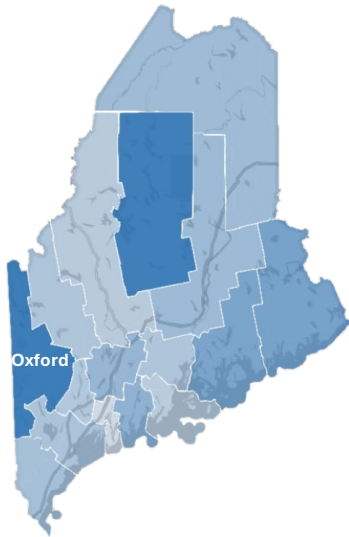
Unbelted Occupant Serious Injuries by County



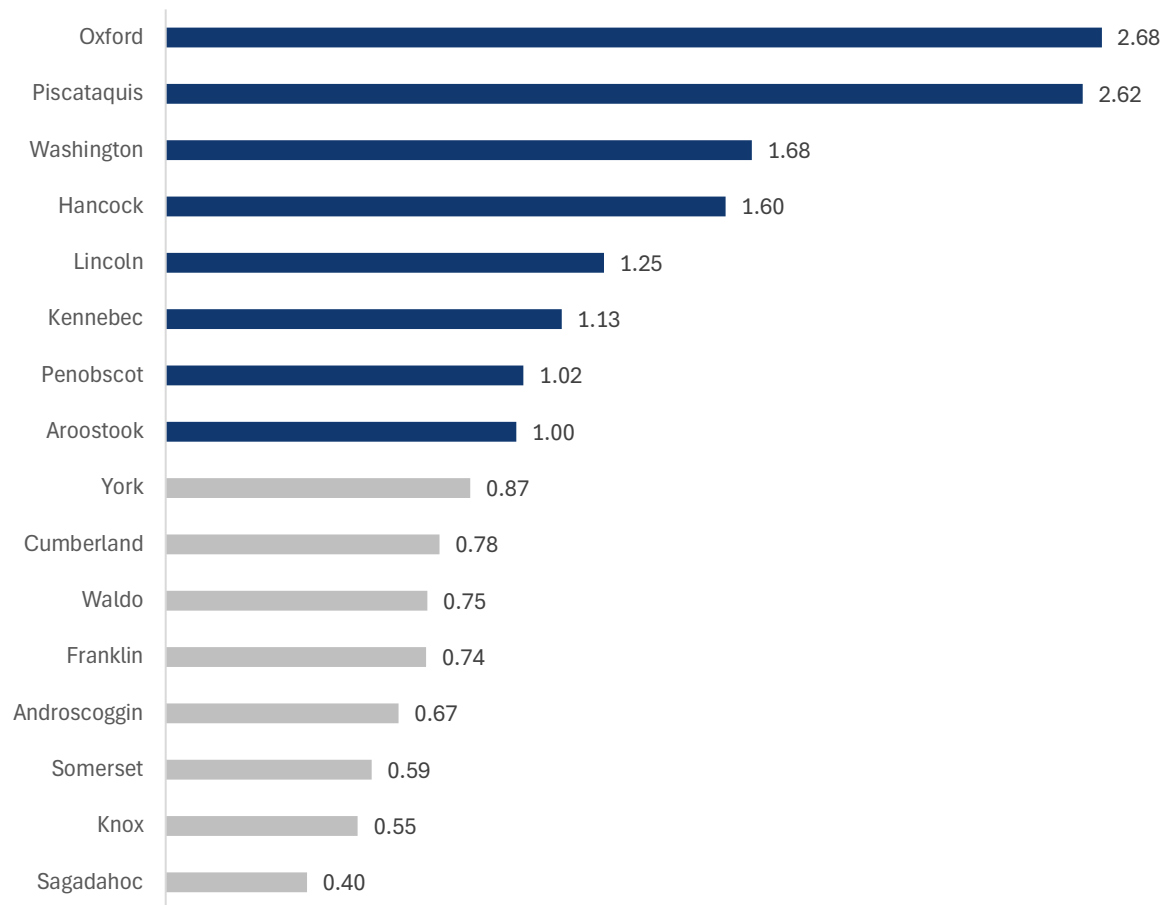
Approximately 17.4% of the 184 unbelted occupant serious injuries in 2023 occurred in Cumberland County, with another 13.6% in York County, and 11.4% each in Oxford and Penobscot Counties.



Unbelted Occupant Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate unbelted serious injury rates, relative rates were computed by dividing the unbelted serious injury rate of each county by its population rate. Oxford County, which held 4.26% of the population according to the last 5-year American Community Survey, had 11.41% of the unbelted serious injuries in 2023, resulting in a relative rate of 2.68. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

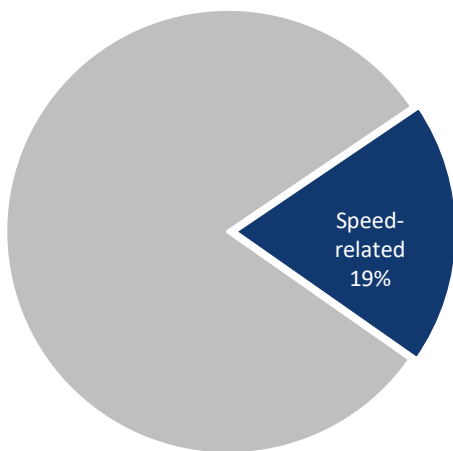


Speeding

Summary

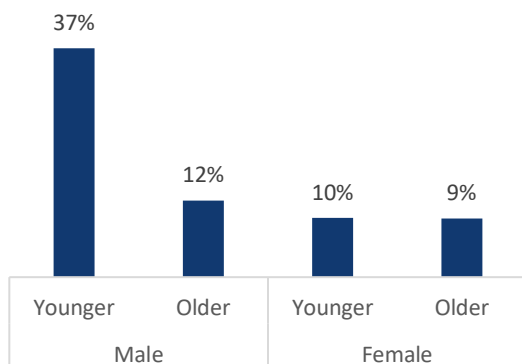
- ◆ There were 124 speed-related serious injury crashes in 2023.
- ◆ There were 142 speed-related serious injuries in 2023, including 107 driver injuries, 33 passenger injuries, and 2 pedestrian injuries.
- ◆ Nineteen percent (19%) of all serious injuries were speed related.

Speed-Related Serious Injuries



In 2023, there were 142 serious injuries related to speeding. This was approximately 19% of all serious injuries.

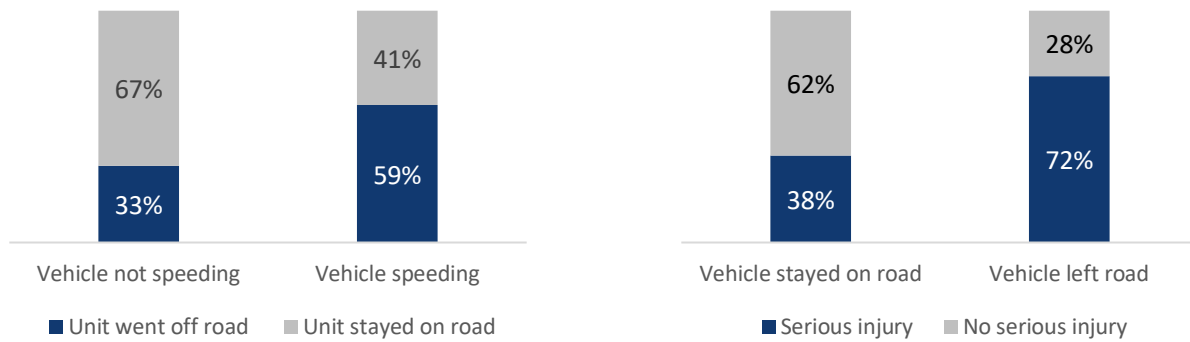
Speeding by Sex and Age



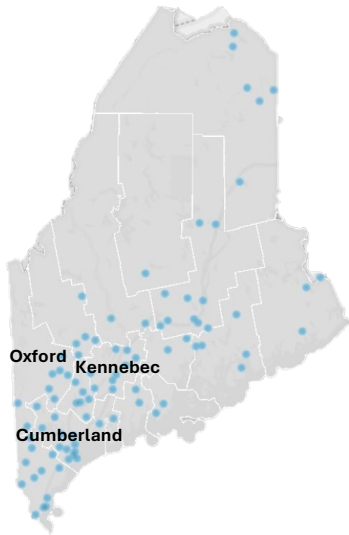
While 13% of all drivers involved in serious injury crashes were speeding, young (under age 21) male drivers were more likely to be speeding than other drivers. Thirty-seven percent (37%) of young male drivers were speeding, compared to all other drivers, with rates between 9% and 12%.

Speed-Related Serious Injuries and Leaving the Road

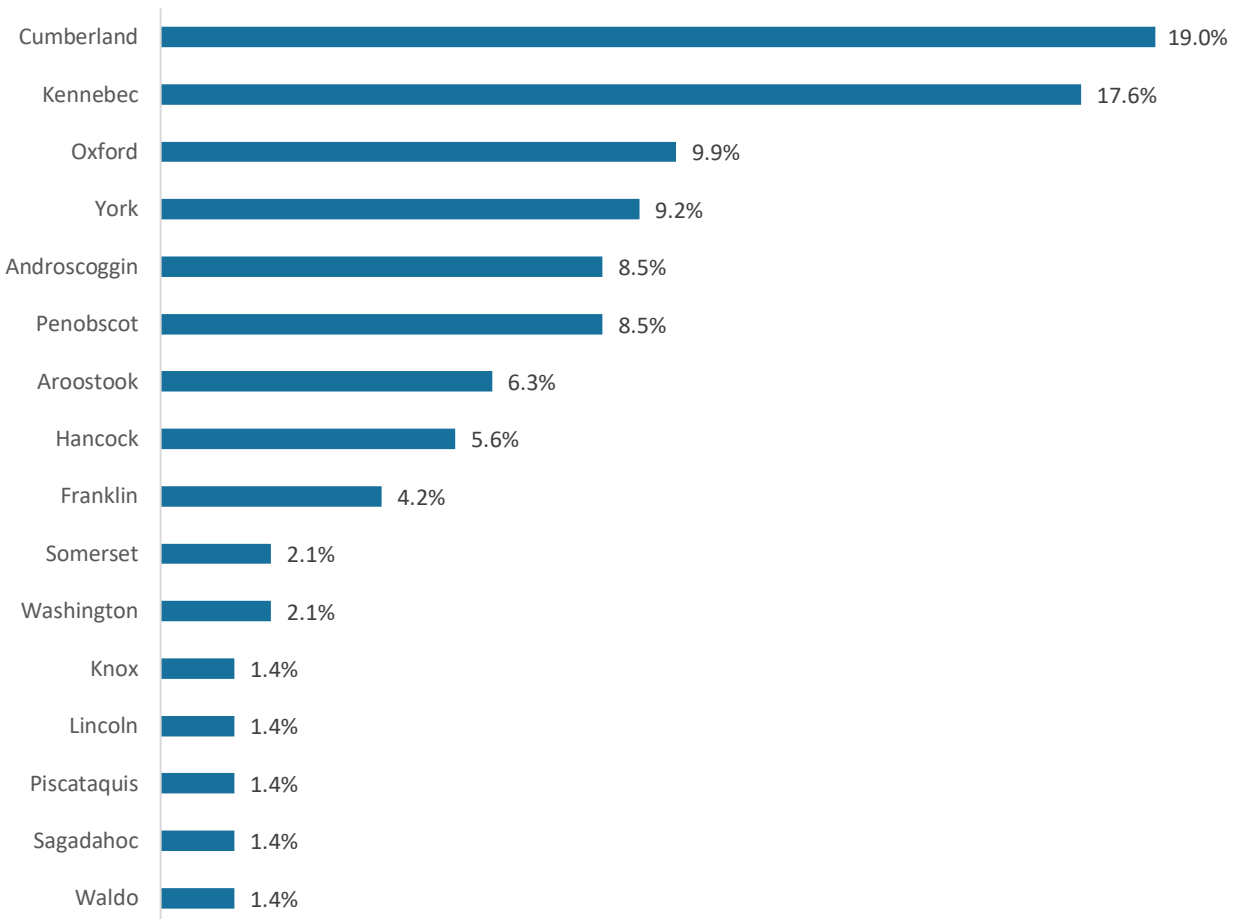
Approximately 33% of non-speeding vehicles left the road, while 59% of speeding vehicles did so. This is an important distinction because a larger proportion of people involved in serious injury crashes in which the vehicle leaves the road are seriously injured. Approximately 38% of occupants involved in crashes in which the vehicle remains on the road are seriously injured, but when the vehicle leaves the road, the proportion rises to 72%.



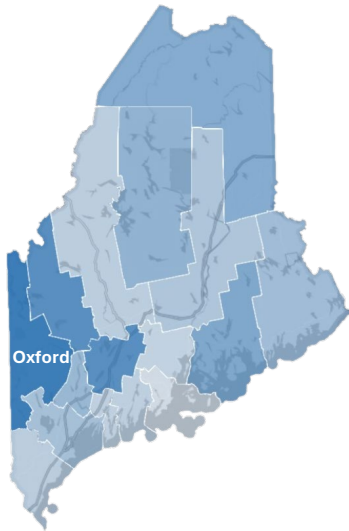
Speed-Related Serious Injuries by County



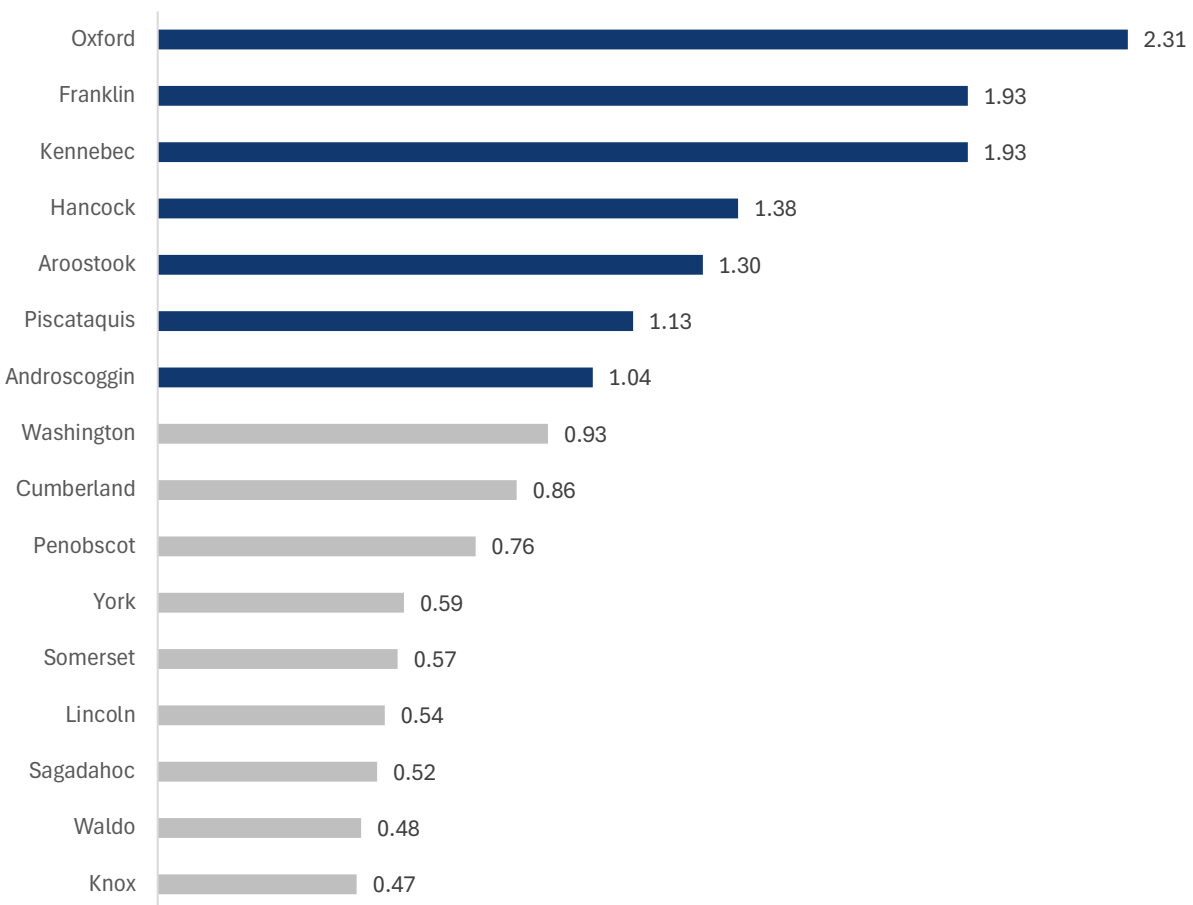
Approximately 19.0% of the 142 speed-related serious injuries in 2023 occurred in Cumberland County, followed by 17.6% in Kennebec County, and 9.9% in Oxford County.



Speed-Related Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate speed-related serious injury rates, relative rates were computed by dividing the speed-related serious injury rate of each county by its population rate. Oxford County, which held 4.26% of the population according to the last 5-year American Community Survey, had 9.86% of the speed-related serious injuries in 2023, resulting in a relative rate of 2.31. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

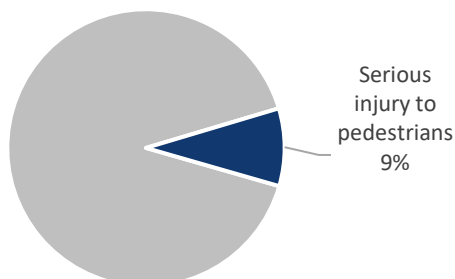


Pedestrians

Summary

- ◆ There were 64 crashes resulting in serious injury to pedestrians in 2023 and 68 pedestrians seriously injured.
- ◆ Over half (53%) of the pedestrians who were seriously injured in crashes were injured after dark.

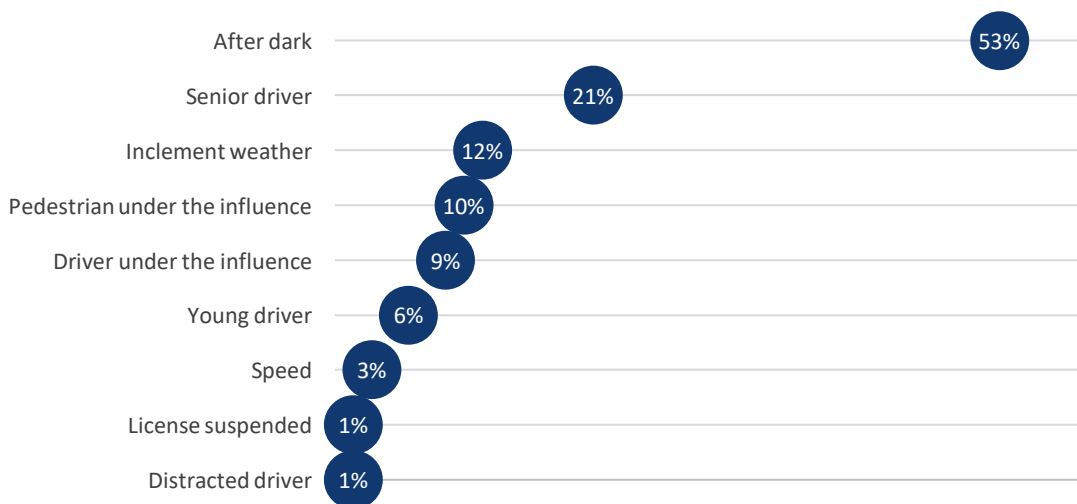
Pedestrian Serious Injuries



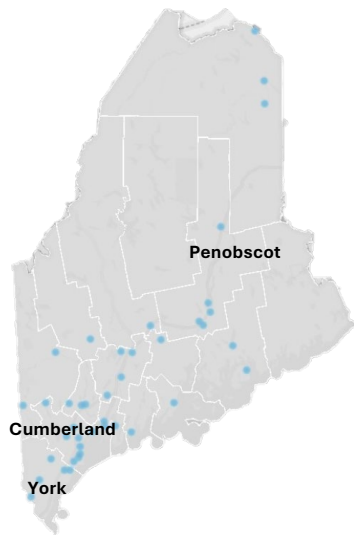
Approximately 9% of serious injuries were to pedestrians.

Pedestrian Serious Injuries and Other Factors

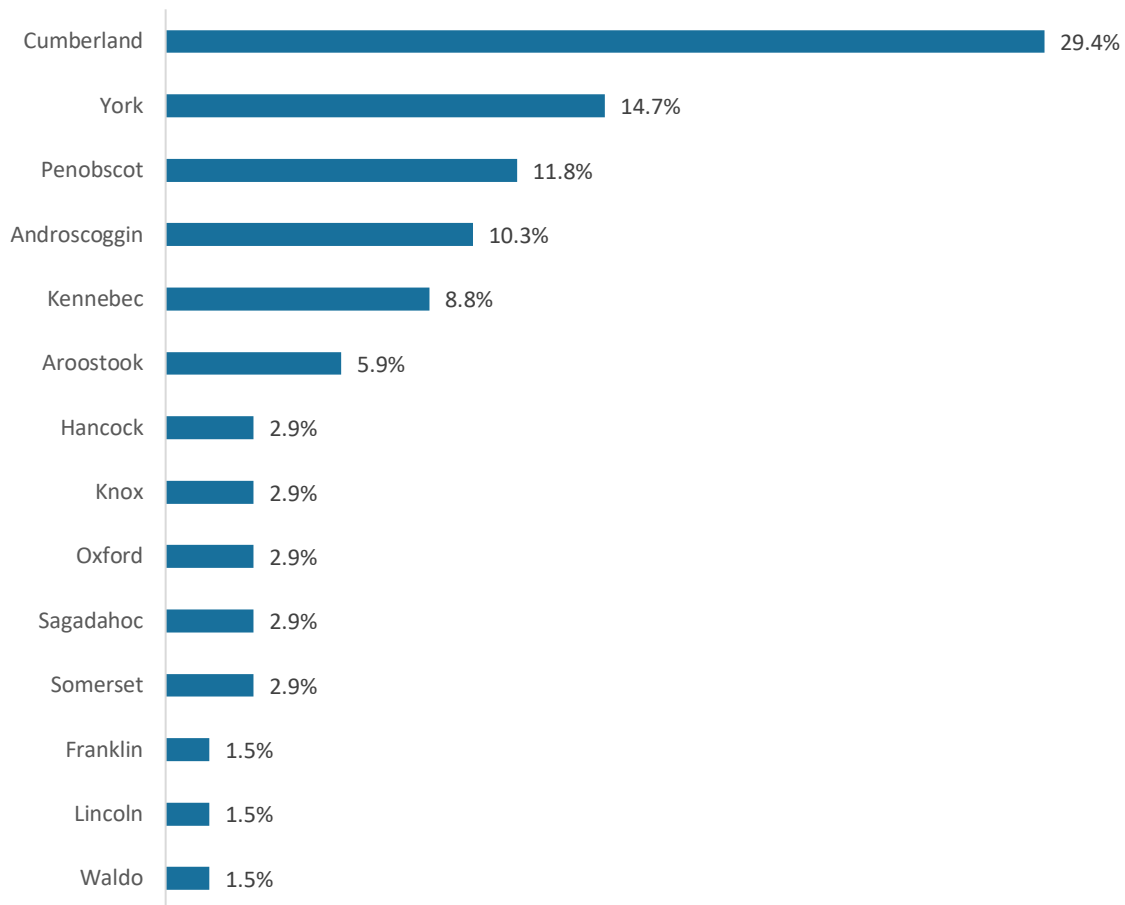
A number of factors contribute to the serious injury of pedestrians. The following table summarizes the percentage of serious injury associated with some of these known factors. The highest contributing factor was *after dark*, at 53%. A little over a quarter (26%) of pedestrian serious injuries were not associated with any of the factors presented below.



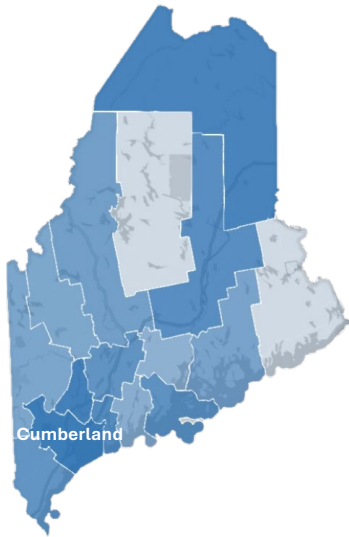
Pedestrian Serious Injuries by County



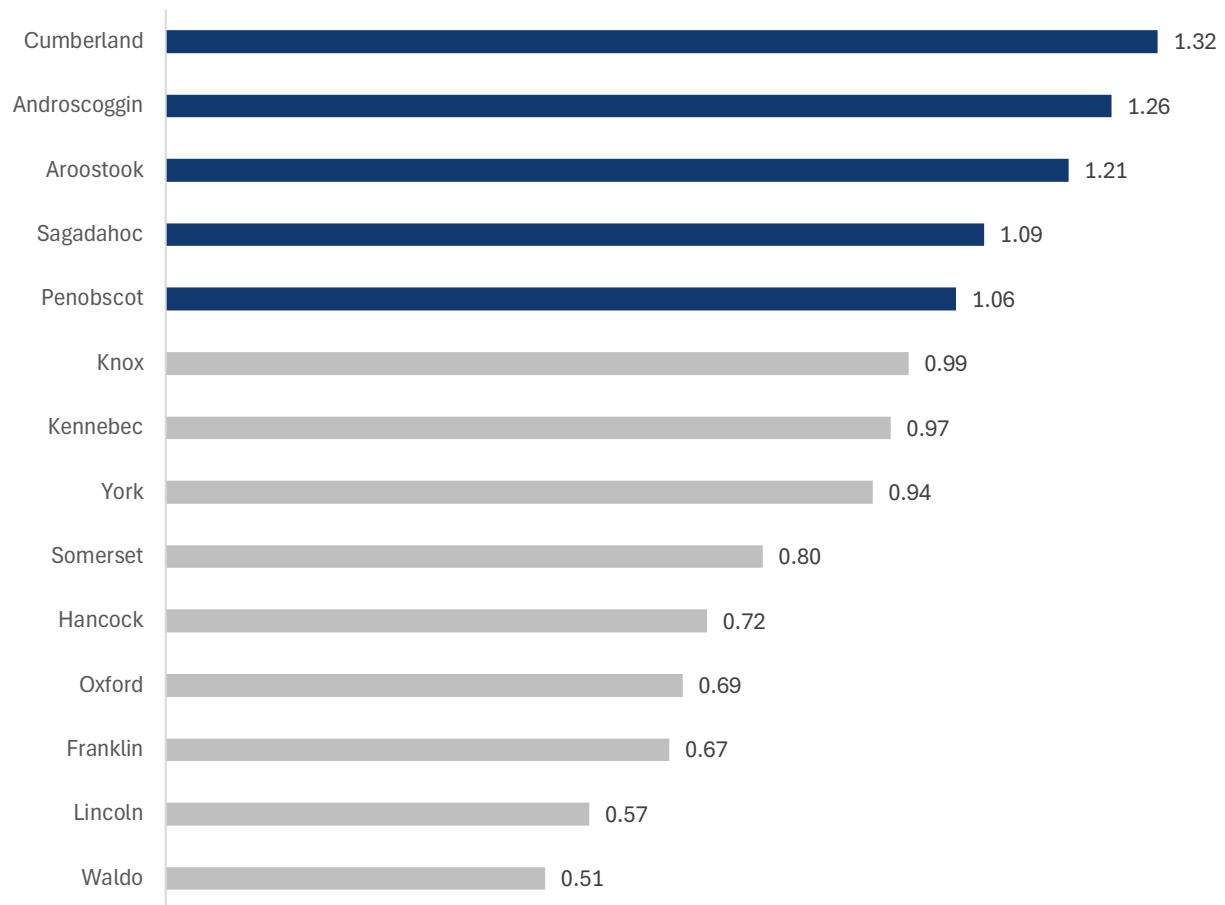
Approximately 29.4% of the 68 pedestrian serious injuries in 2023 occurred in Cumberland County, followed by 14.7% in York County, and 11.8 in Penobscot County.



Pedestrian Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate pedestrian serious injury rates, relative rates were computed by dividing the pedestrian serious injury rate of each county by its population rate. Cumberland County, which held 22.21% of the population according to the last 5-year American Community Survey, had 29.41% of the pedestrian serious injuries in 2023, resulting in a relative rate of 1.32. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

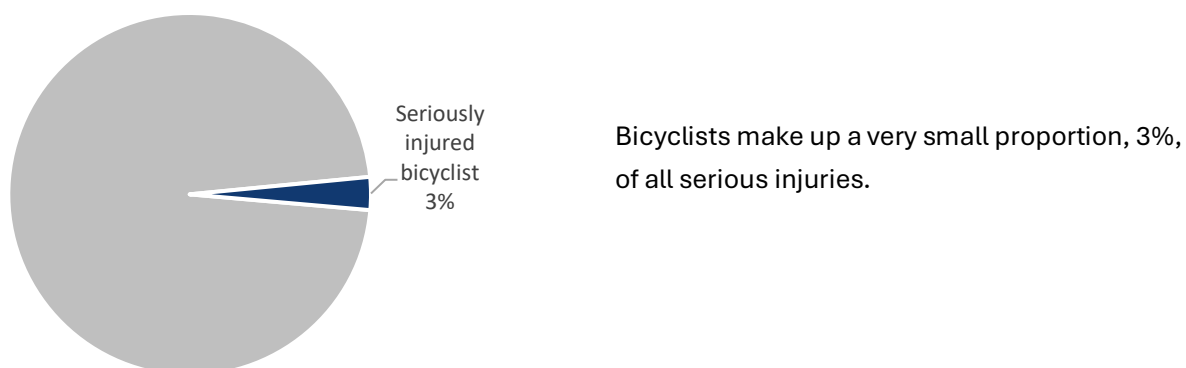


Bicyclists

Summary

- ◆ There were 22 crashes resulting in serious injury to 22 bicyclists in 2023.

Bicyclist Serious Injuries



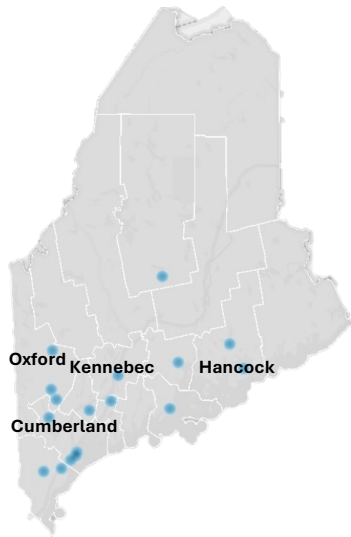
Bicyclist Serious Injuries and Other Factors

A number of factors contribute to the serious injury of bicyclists:

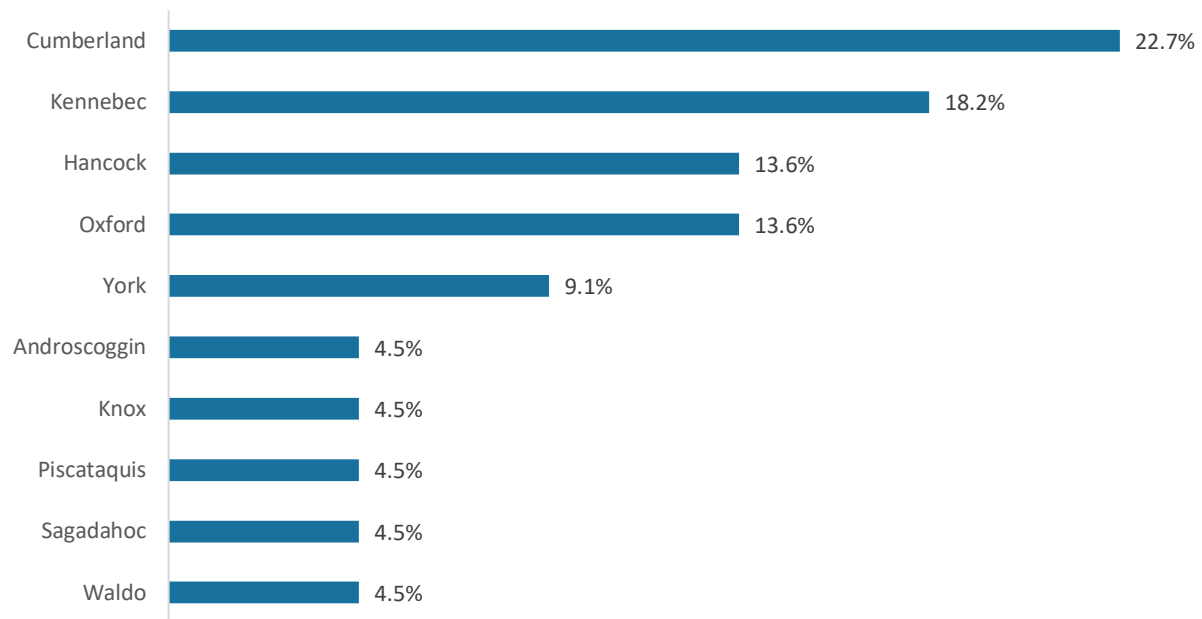
- ◆ 5 serious injuries involved young (\leq age 20) bicyclist
- ◆ 4 serious injuries involved riding after dark
- ◆ 3 serious injuries involved a senior (\geq age 65) bicyclist
- ◆ 2 serious injuries involved inclement weather
- ◆ 2 serious injuries involved a senior (\geq age 65) vehicle driver
- ◆ 1 serious injury involved an impaired bicyclist
- ◆ 1 serious injury involved a driver with a suspended license

A little over a third (36%) of bicyclist serious injuries were not associated with any of the factors presented above.

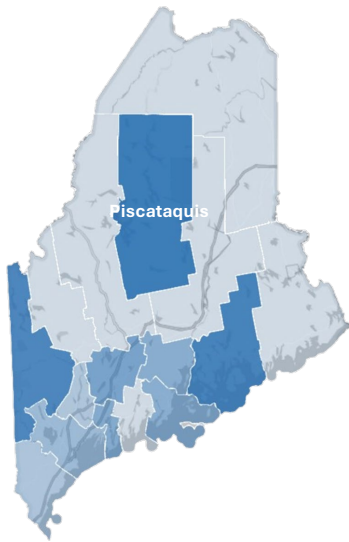
Bicyclist Serious Injuries by County



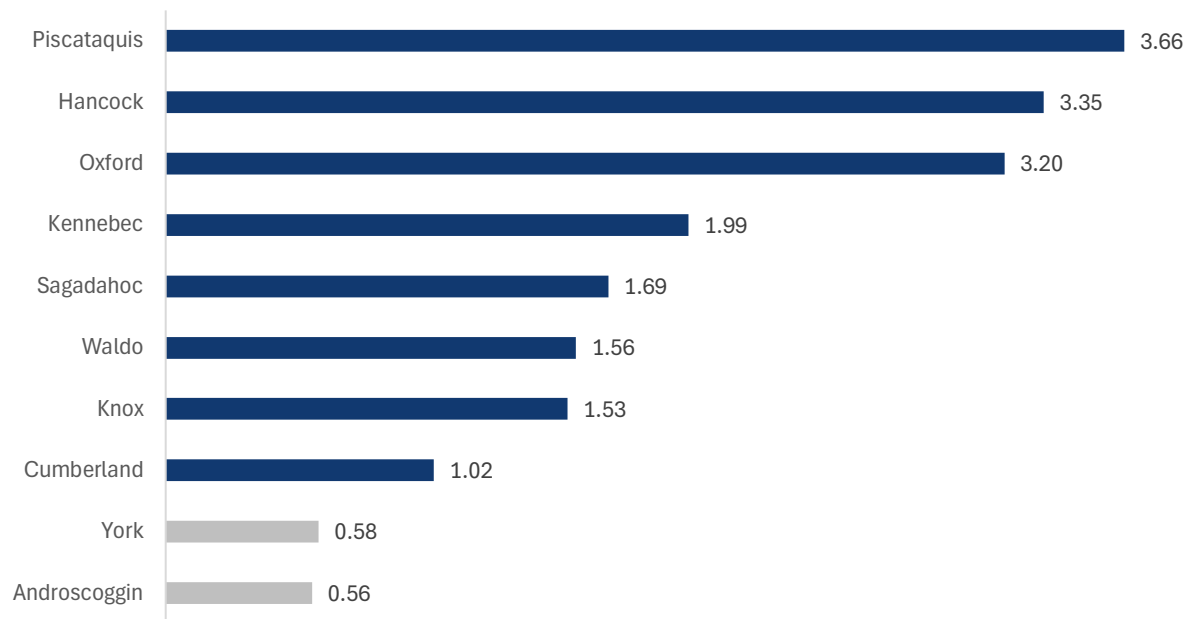
Approximately 22.7% of the 22 bicyclist serious injuries in 2023 occurred in Cumberland County, followed by 18.2% in Kennebec County, and 13.6% each in Hancock and Oxford Counties.



Bicyclist Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate bicyclist serious injury rates, relative rates were computed by dividing the bicyclist serious injury rate of each county by its population rate. Piscataquis County, which held 1.24% of the population according to the last 5-year American Community Survey, had 4.55% of the bicyclist serious injuries in 2023, resulting in a relative rate of 3.66. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

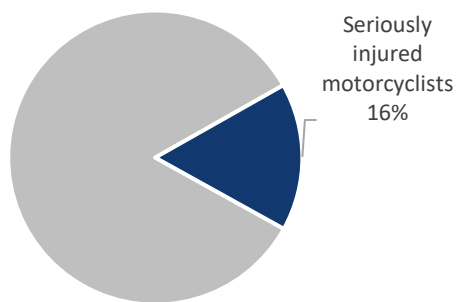


Motorcyclists

Summary

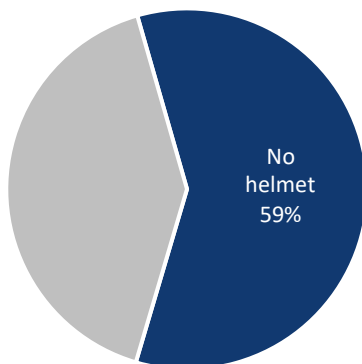
- ◆ There were 118 crashes resulting in serious injury to motorcyclists in 2023 involving 136 motorcyclists (124 drivers and 12 passengers).
- ◆ One hundred twenty-two (122) motorcyclists were seriously injured in these crashes (114 drivers and 8 passengers).

Motorcyclist Serious Injuries



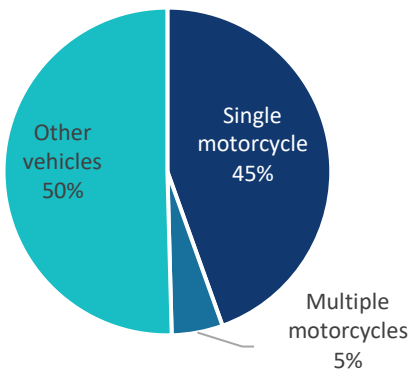
Seriously injured motorcyclists accounted for 16% of all serious injuries in 2023.

Motorcyclist Serious Injuries and Helmet Use



Approximately 59% of seriously injured motorcyclists were not using a (DOT-compliant) helmet.

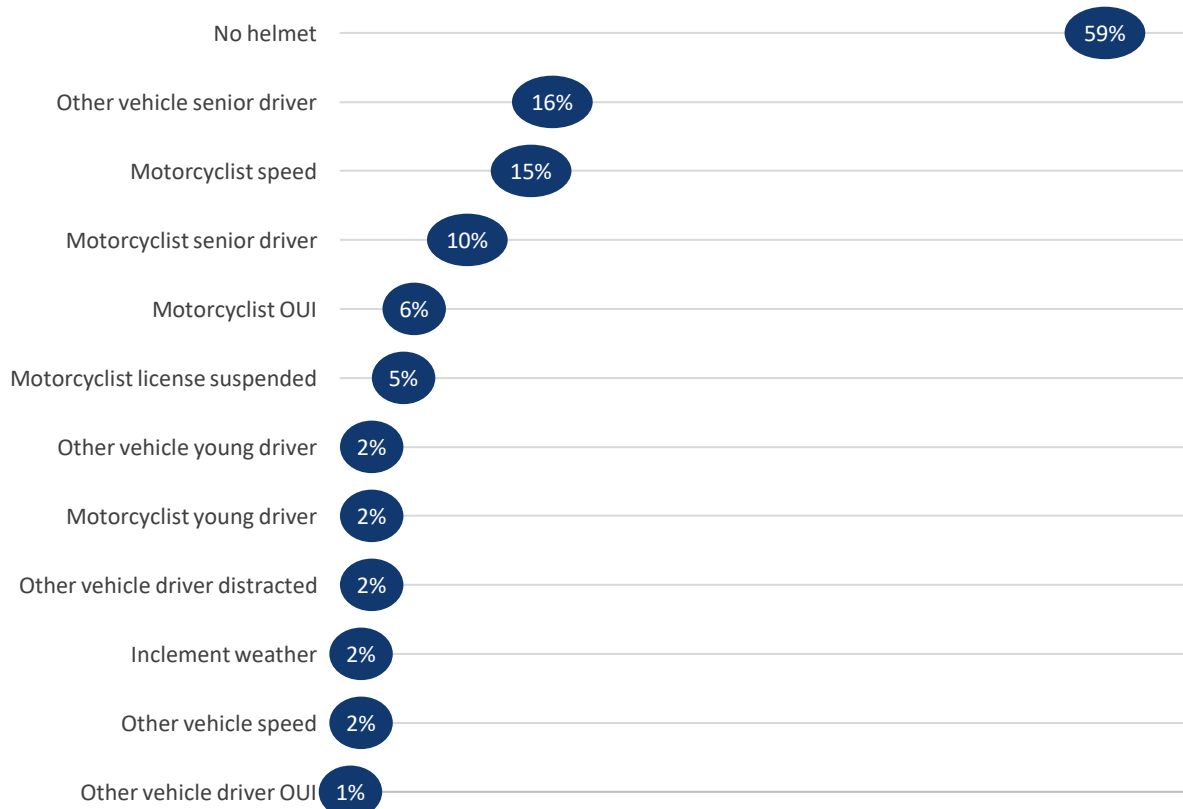
Other Vehicle Involvement



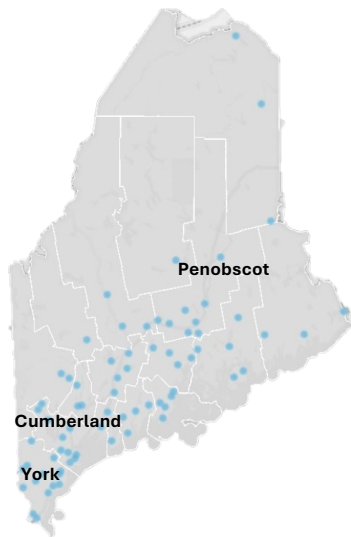
In approximately 45% of all crashes involving a seriously injured motorcyclist, only a single motorcycle was involved. In an additional 5%, another motorcycle was involved. In 50%, at least one other non-motorcycle vehicle was involved. Thus, half (50%) of all crashes involving a seriously injured motorcyclist involved only one or two motorcycles but no other vehicle.

Motorcyclist Serious Injuries and Other Factors

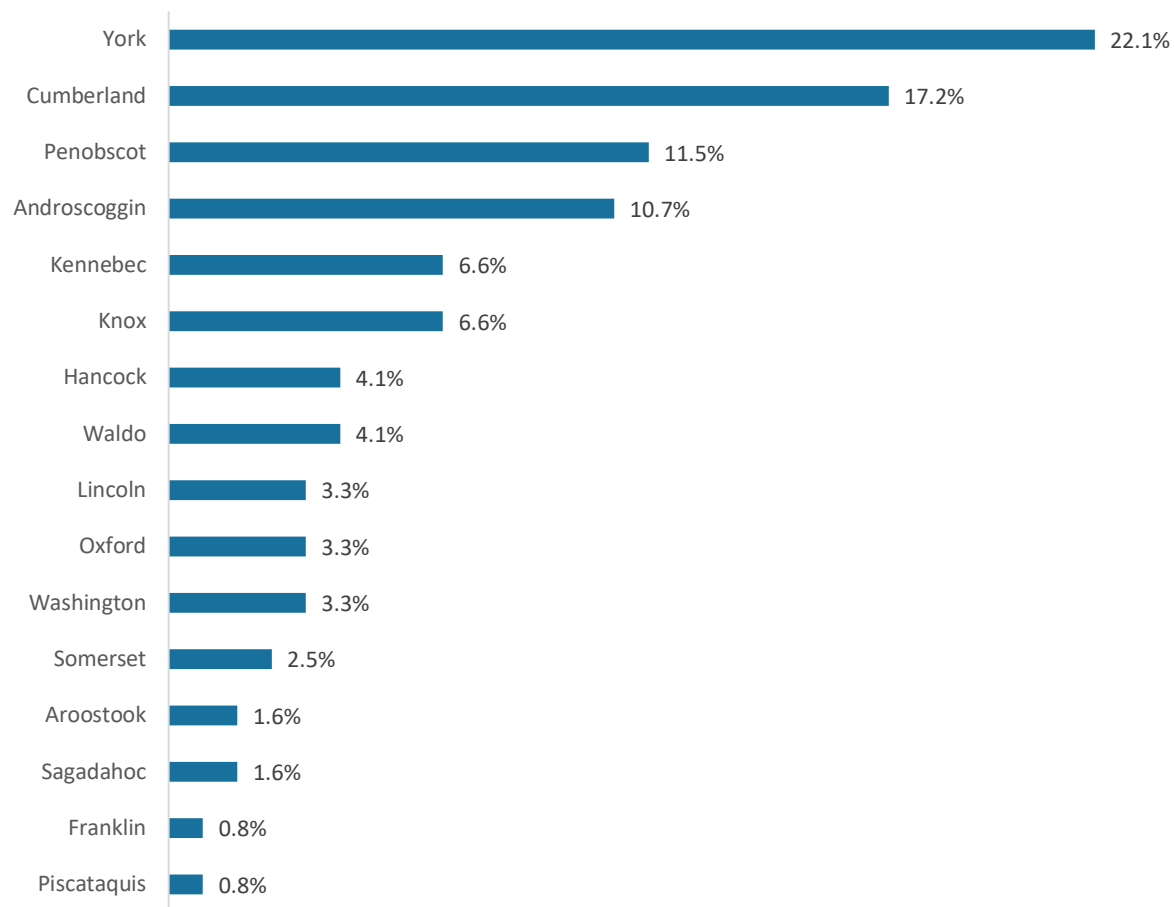
A number of factors may contribute to the serious injury of motorcyclists. The following graphic displays the percentage of serious injuries associated with each factor. The highest contributing factor was *no helmet*, at 59%, followed by *other vehicle senior driver*, at 16%. Only 20% of all serious injuries to motorcyclists were not associated with any of the factors shown.



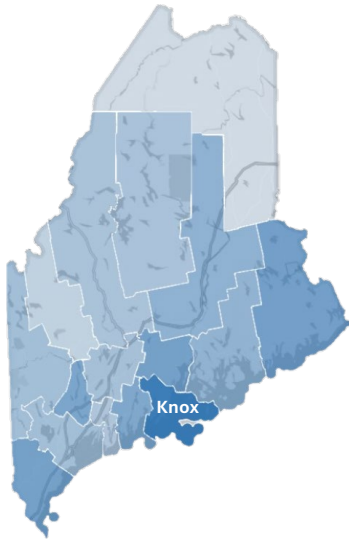
Motorcyclist Serious Injuries by County



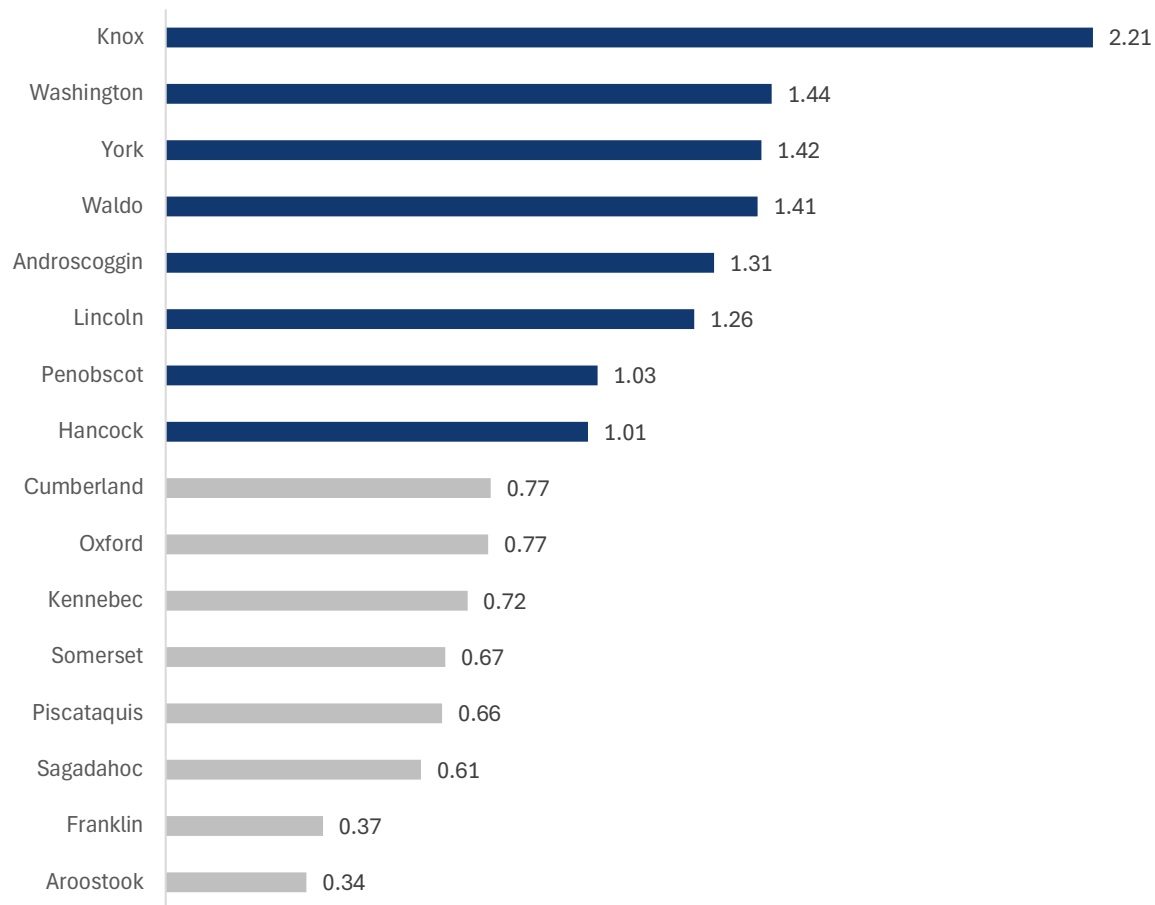
Approximately 22.1% of the 122 motorcyclist serious injuries in 2023 occurred in York County, followed by 17.2% in Cumberland County, and 11.5% in Penobscot County.



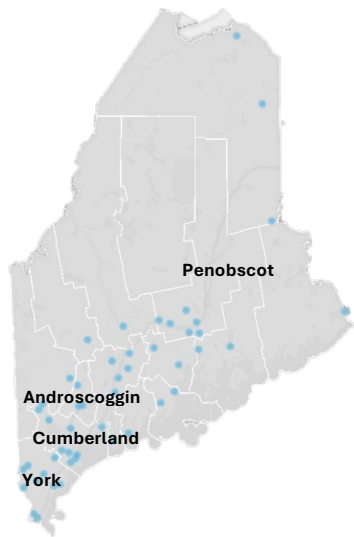
Motorcyclist Serious Injuries by County, Relative Rate



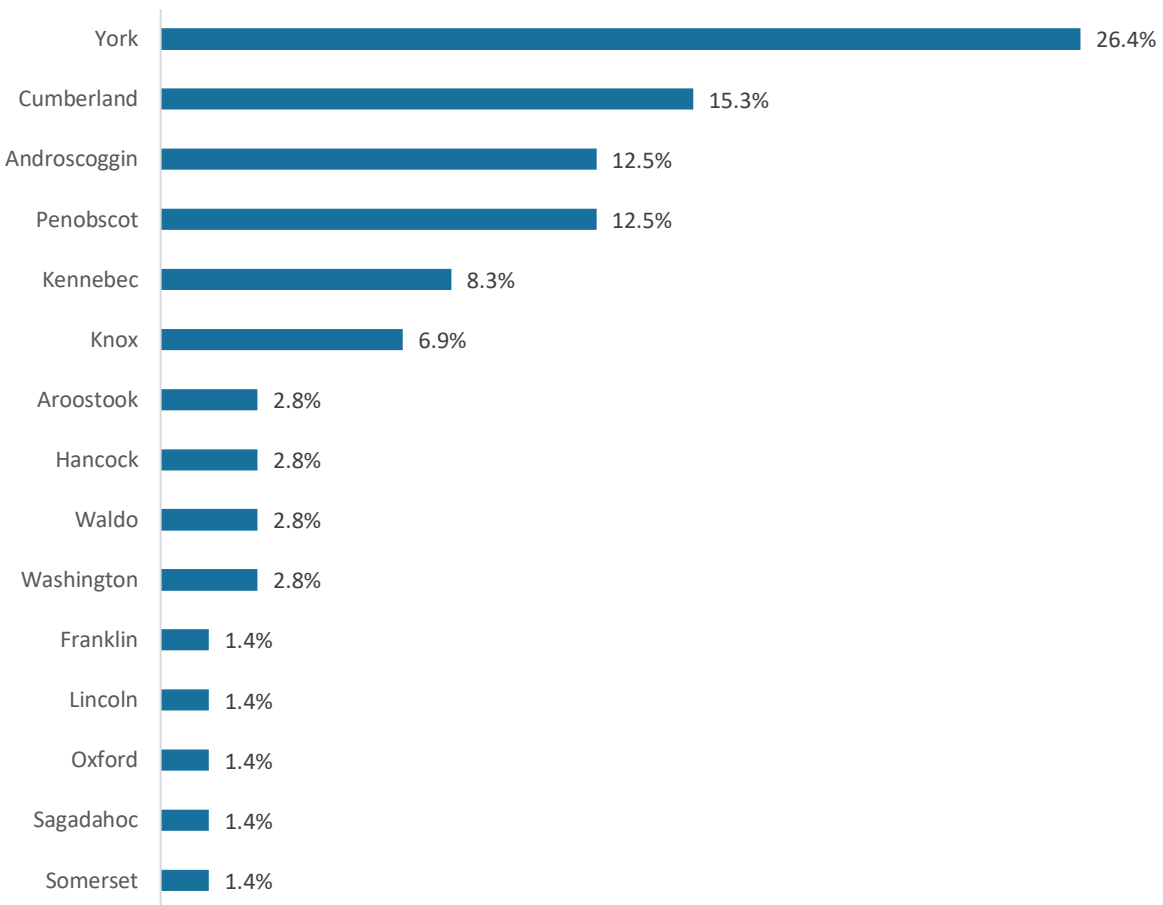
Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate motorcyclist serious injury rates, relative rates were computed by dividing the serious injury rate of each county by its population rate. Knox County, which held 2.97% of the population according to the last 5-year American Community Survey, had 6.56% of the motorcyclist serious injuries in 2023, resulting in a relative rate of 2.21. This rate is disproportionately high, as are the rates of all counties displayed in blue below.



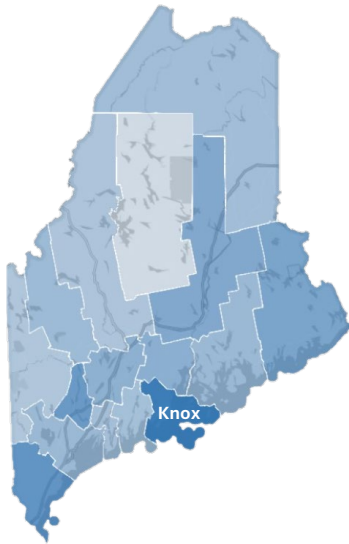
Unhelmeted Motorcyclist Serious Injuries by County



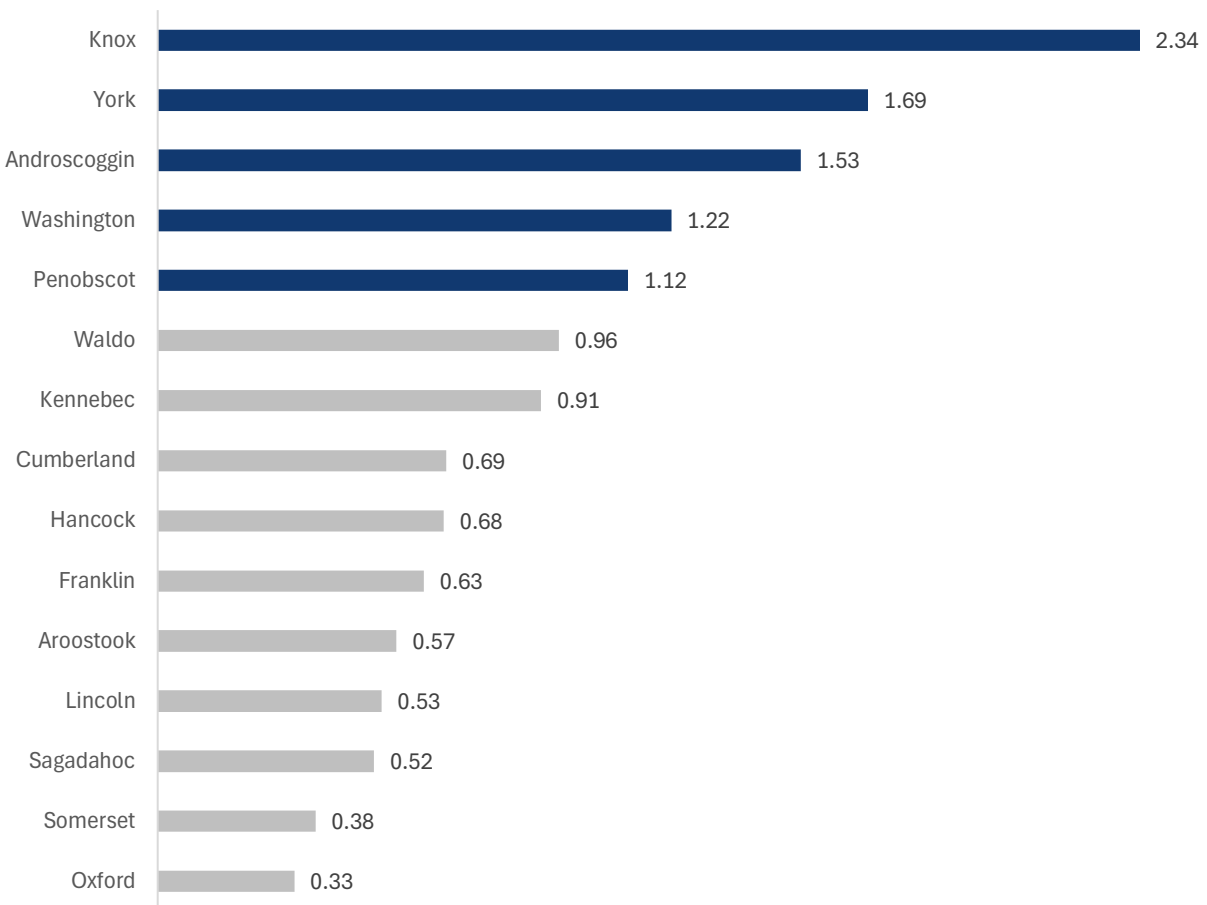
Approximately 26.4% of the 72 unhelmeted motorcyclist serious injuries in 2023 occurred in York County, with another 15.3% in Cumberland County, and another 12.5% each in Androscoggin and Penobscot Counties.



Unhelmeted Motorcyclist Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate unhelmeted motorcyclist serious injury rates, relative rates were computed by dividing the unhelmeted motorcyclist serious injury rate of each county by its population rate. Knox County, which held 2.97% of the population according to the last 5-year American Community Survey, had 6.94% of the unhelmeted motorcyclist serious injuries in 2023, resulting in a relative rate of 2.34. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

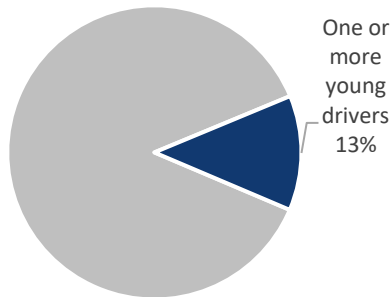


Young Drivers

Summary

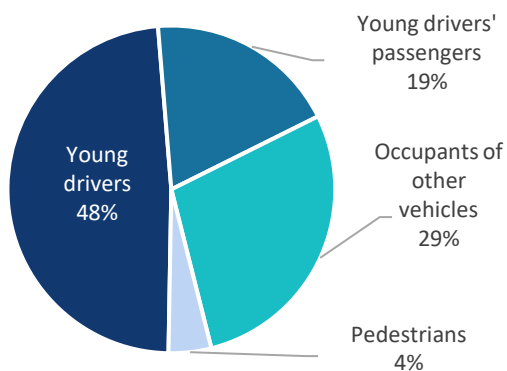
- ◆ Young drivers (ages 16 to 20) were involved in 80 of the 680 crashes (12%) that resulted in serious injury in 2023.
- ◆ Ninety-five (95) of the 751 serious injuries involved a young driver (13%).
- ◆ Nine percent (9%) of drivers involved in crashes resulting in serious injury in 2023 were young drivers.

Young-Driver-Related Serious Injuries



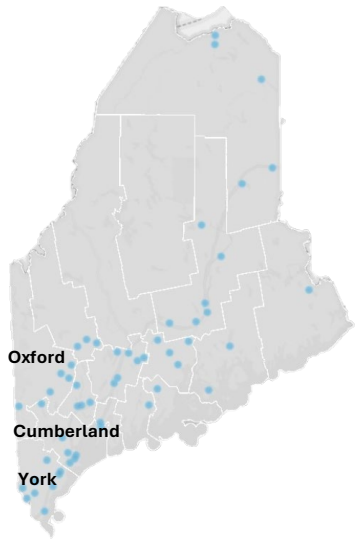
A total of 95 serious injuries were associated with young drivers (ages 16 to 20) in 2023. These injuries accounted for 13% of all serious injuries.

Young-Driver-Related Serious Injuries by Person Type

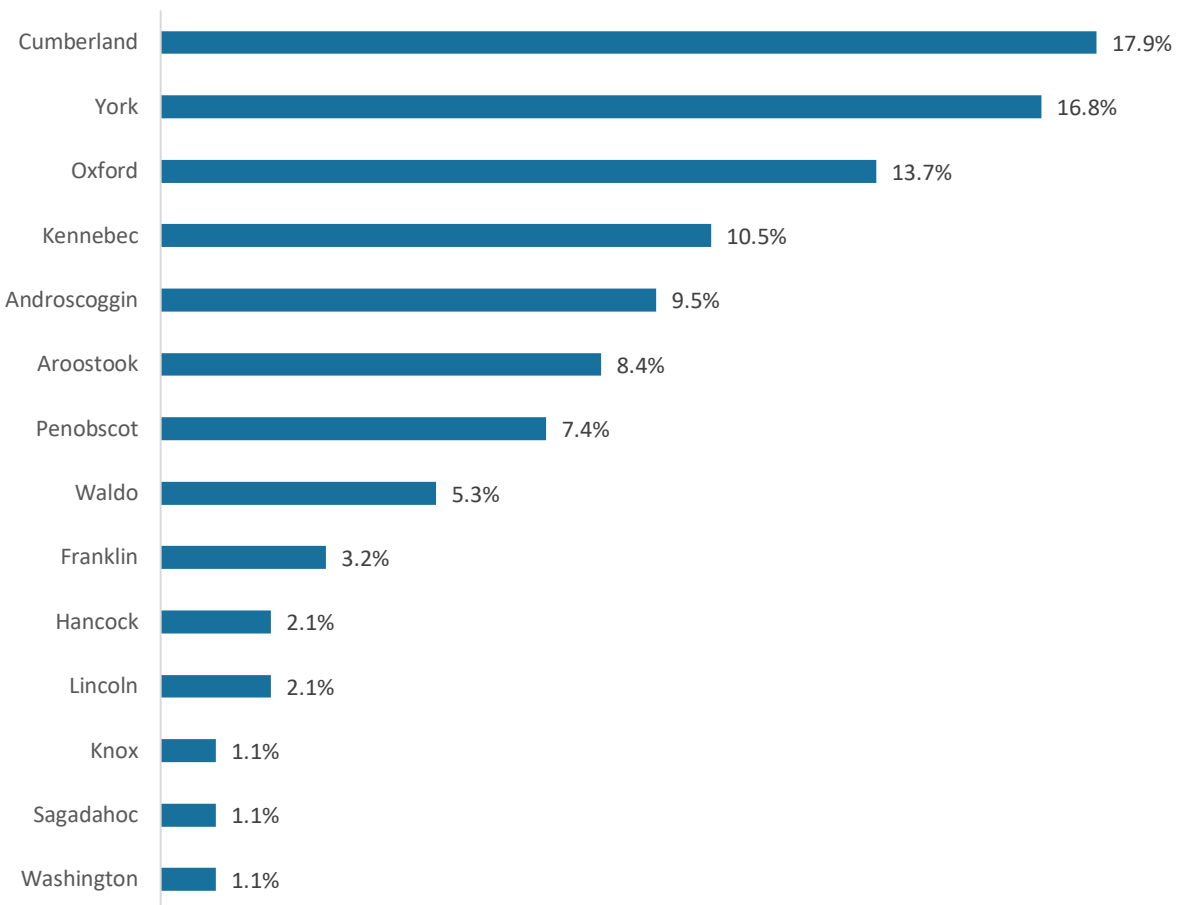


Many of the serious injuries associated with young drivers (48%) were sustained by a young driver. An additional 19% of serious injuries were sustained by a young drivers' passengers. This suggests that 67% of the risk associated with young drivers is borne by young drivers and their passengers. An additional 28% of serious injuries were sustained by occupants of other vehicles and 4% were sustained by pedestrians.

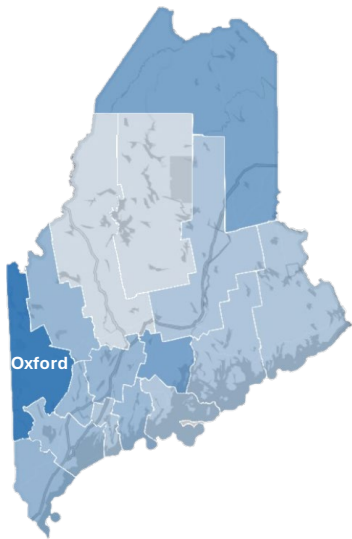
Young-Driver-Related Serious Injuries by County



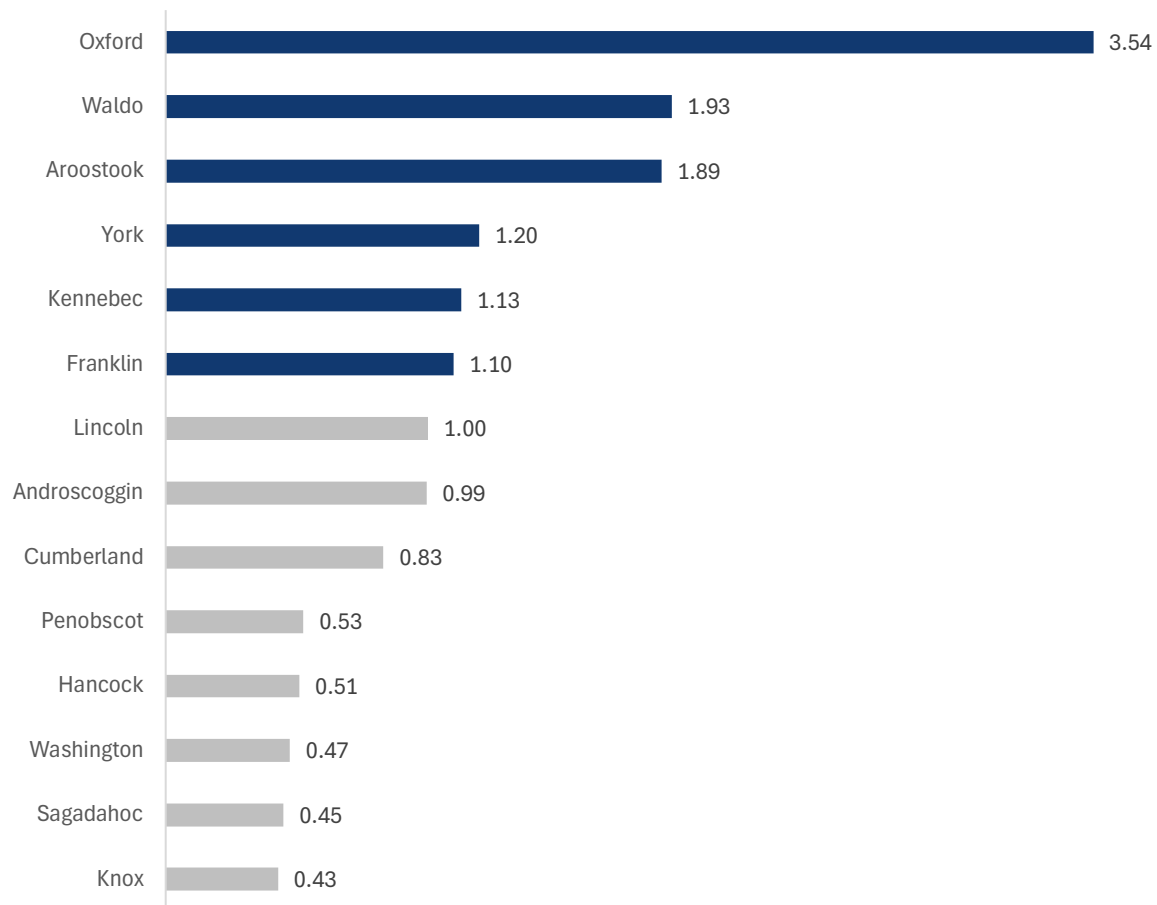
Approximately 17.9% of the 95 young-driver-related serious injuries in 2023 occurred in Cumberland County, followed by 16.8% in York County, and 13.7% in Oxford County.



Young-Driver-Related Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate young-driver-related serious injury rates, relative rates were computed by dividing the young-driver-related serious injury rate of each county by its population rate. Oxford County, which held 3.87% of the youth population (aged 16 to 20) according to the last 5-year American Community Survey, had 13.68% of the young-driver-related serious injuries in 2023, resulting in a relative rate of 3.54. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

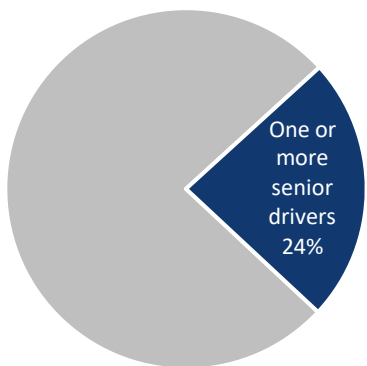


Senior Drivers

Summary

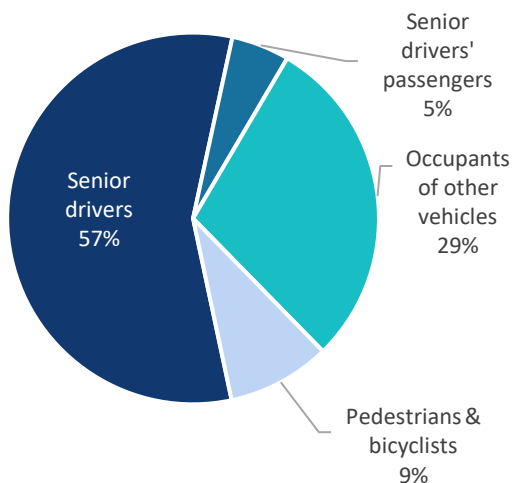
- ◆ Senior drivers were involved in 159 of the 680 crashes (23%) that resulted in serious injury in 2023.
- ◆ Of the 751 serious injuries that occurred, 178 (24%) involved a senior driver.

Senior-Driver-Related Serious Injuries



A total of 178 serious injuries were associated with senior drivers (ages 65 and older) in 2023. These injuries accounted for 24% of all serious injuries.

Senior-Driver-Related Seriously Injuries by Person Type



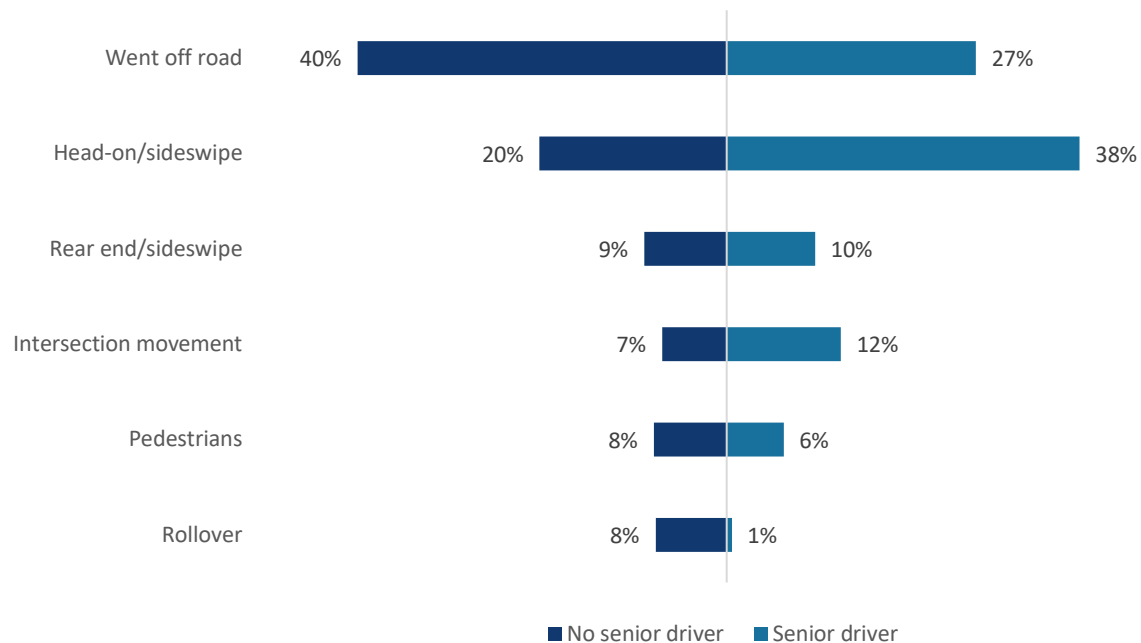
Many of the serious injuries associated with senior drivers, 57%, were sustained by the senior driver. An additional 5% of injuries were sustained by the senior drivers' passengers. This suggests that 62% of the risk associated with senior drivers is borne by senior drivers and their passengers. An additional 38% of serious injuries were sustained by occupants of other vehicles, bicyclists, and pedestrians.

Type of Crash

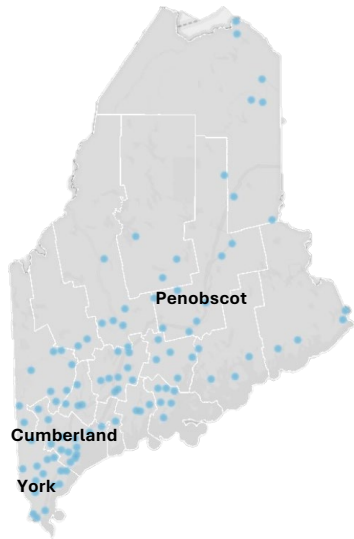
The majority (92%) of **all** serious injuries in 2023 were related to one of the following crash types:

- ◆ Went off road (37%)
- ◆ Head-on/sideswipe (25%)
- ◆ Rear-end/sideswipe (9%)
- ◆ Intersection movement (8%)
- ◆ Pedestrians (7%)
- ◆ Rollover (6%)

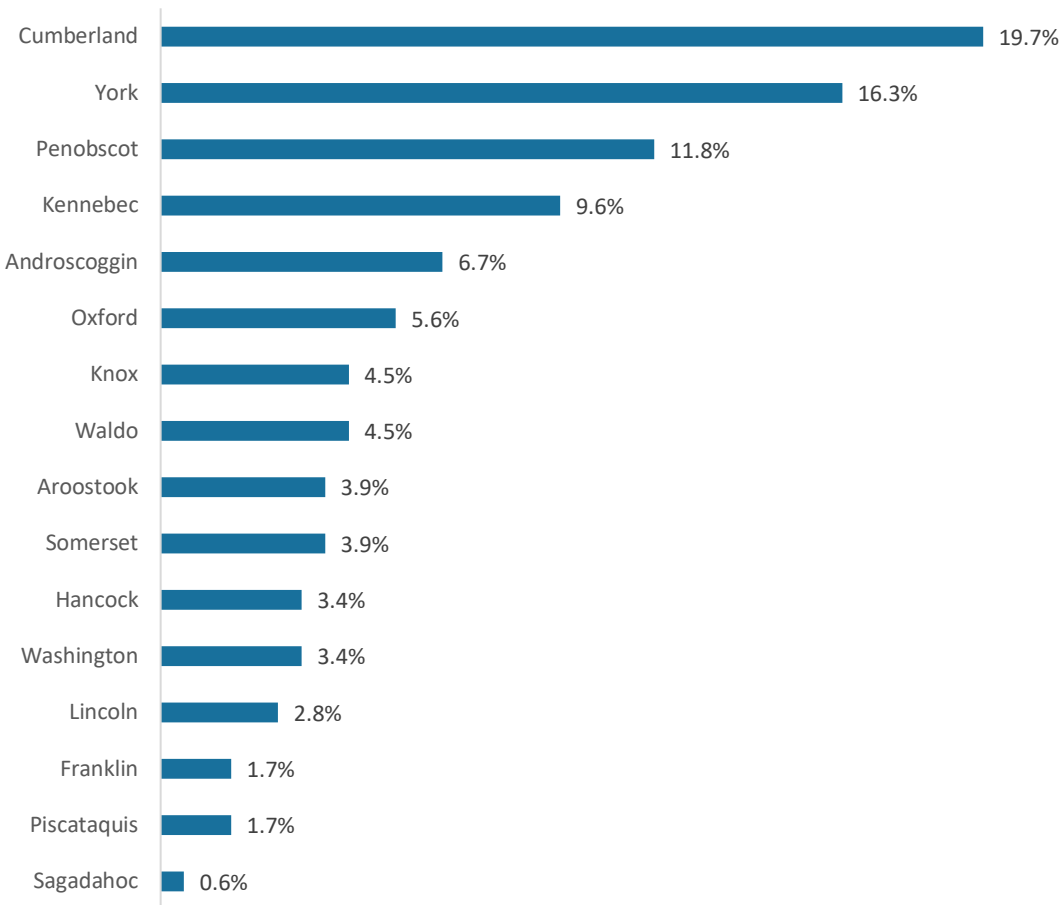
The top categories differed, however, depending on whether the crash involved a senior driver, as shown in the graphic below. Crashes involving a senior driver were most likely to be *head-on/sideswipe* crashes. This type of crash accounted for 38% of all serious injury crashes involving a senior driver and 20% of all crashes involving no senior drivers. Crashes involving no senior driver were most likely to be *went off road* crashes. This type of crash accounted for 40% of all serious injury crashes involving no senior drivers and 27% of all crashes involving a senior driver.



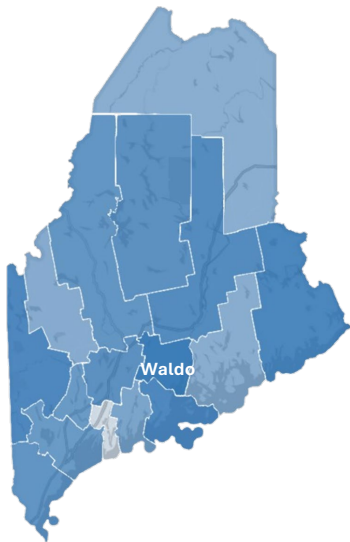
Senior-Driver-Related Serious Injuries by County



Approximately 19.7% of the 178 senior-driver-related serious injuries in 2023 occurred in Cumberland County, followed by 16.3% in York County, and 11.8% in Penobscot County.



Senior-Driver-Related Serious Injuries by County, Relative Rate



Often, the highest rates of a given event are observed in the most populous counties. To identify disproportionate senior-driver-related serious injury rates, relative rates were computed by dividing the senior-driver-related serious injury rate of each county by its population rate. Waldo County, which held 3.25% of the senior population (aged 65 and older) according to the last 5-year American Community Survey, had 4.49% of the senior-driver-related serious injuries in 2023, resulting in a relative rate of 1.38. This rate is disproportionately high, as are the rates of all counties displayed in blue below.

