

## **Scooter-related Injuries in Multnomah County July-November 2018**

1/14/2019

### **Key points**

- After reviewing emergency department and urgent care clinic data, the Health Department found no evidence of injury rates that would discourage a further scooter pilot in the City of Portland.
- We identified 176 emergency department visits related to scooters during the pilot period. There were approximately 700,000 e-scooter trips during this period.
- Multnomah County Health Department supports Vision Zero, the City of Portland's effort to eliminate serious and fatal traffic crash injuries. A key component of Vision Zero is ensuring that streets have safe spaces for all users.

### **Background**

The Health Department's Environmental Health Services team works to make neighborhoods healthier and more equitable in Multnomah County. As part of this effort, we partner with the Portland Bureau of Transportation (PBOT) to understand and monitor traffic crash injuries, a leading cause of injury death in the County. In the Fall of 2018, we examined health data from emergency department visits for scooter injuries. This followed the completion of the City of Portland's e-scooter pilot program, which ran from July 25 through November 20. This summary presents results of that analysis.

### **Methods**

We searched a state data system called ESSENCE that compiles records of emergency department and urgent care clinic visits, looking for the word "scooter" in specific parts of the record. We included visits that were made by people age 16 or older in Multnomah County, and removed records related to a mobility assistance device such as a motorized wheelchair. We reviewed cases for evidence of helmet use, intoxication, riding on the sidewalk, scooter malfunction, and characteristics of crashes between scooters and another mode of travel. The records include codes that have a small amount of information about the nature of the injury, such as the area of the body that was injured. They also include some basic demographic data, such as age and sex. Emergency department and urgent care visits do not capture complete data on scooter injuries. Some people likely did not seek medical treatment for minor injuries and therefore we have no record of those injuries.

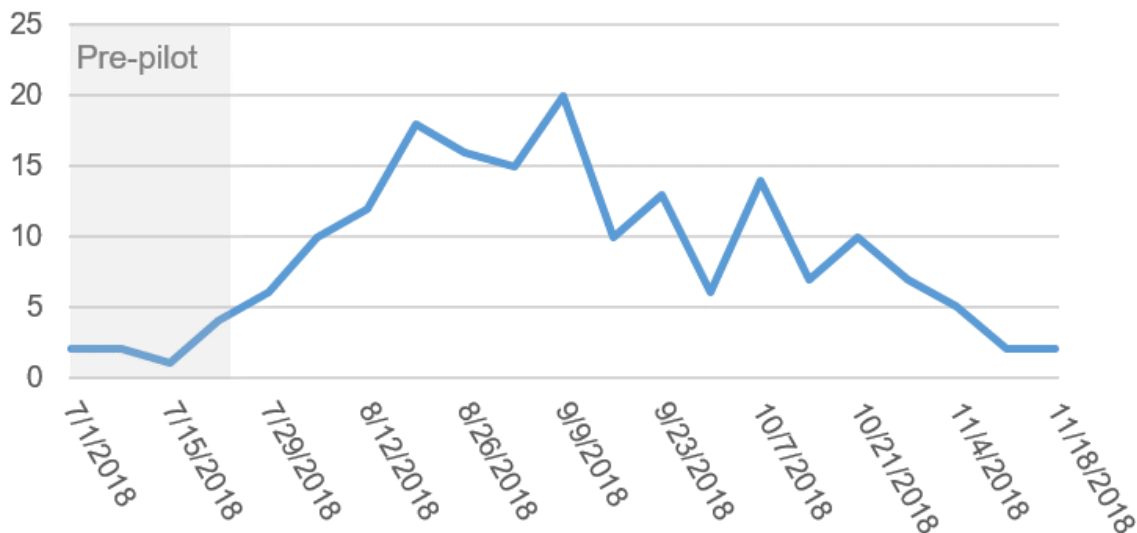
This is a rapid evaluation of emergency department visit counts and rates during the four-month pilot. More in-depth and more rigorous studies could reach conclusions beyond the scope of this one, but this approach allowed us to work quickly, in time for an evaluation of the pilot program.

### Injury trends and rates

We identified 176 emergency department and urgent care clinic visit records that appeared to be related to scooters during the pilot period. During this time there were approximately 700,000 scooter trips recorded on rental e-scooters, according to PBOT. We weren't able to distinguish which injury records were from rental e-scooters and which were from other types, such as kids' scooters or privately owned scooters.

Scooter injury visits increased around the time the pilot started, and declined to pre-pilot levels in the final weeks of the program. Before the pilot, emergency department and urgent care data showed about 1 scooter injury visit each week in the county. The rate increased to a high of about 20 visits per week in late August and early September, and then fell again to about 1 per week in November.

Weekly scooter-related ED visits  
Multnomah County



The chart above displays visit counts, but visits can also be calculated as a rate per mile traveled or per trip taken. During the pilot period, the overall rate of emergency department and urgent care visits for scooter injuries was 2.2 per 10,000 miles traveled on rental e-scooters, and 2.5 per 10,000 trips taken. These rates include injuries that may not be related to rental e-scooters, so the actual rate is likely lower.

### Injury types

We did not identify any fatal scooter injuries during the pilot period.

The data didn't allow us to categorize the severity of every injury. To assess the level of severity, we identified cases where an ambulance was called or a concussion was indicated in the data. About 13

percent of patients arrived by ambulance, potentially indicating more severe injuries. About 7 percent of the visits included a concussion diagnosis.

The most common injuries were head wounds, superficial injuries to knees and legs, and forearm fractures. About a third of injuries were to the head and neck area of the body.

### **Injury Visit Demographics**

Almost all of the emergency department and urgent care visits related to scooter injuries were for people between the ages of 18 and 44. Only 12 percent were for people 45 years or older, and only 5 percent were under 18. Males accounted for six out of ten visits.

### **Cause of Injury**

By far the most common cause of a scooter crash injury was falling (i.e. no reported contact with another person or vehicle), accounting for 83 percent of injury visits. Another 14 percent of visits resulted from colliding with a car or truck. Only 6 visits were for collisions with pedestrians or other scooters. The records did not include any information about fault.

Very few records included information on whether the patient was wearing a helmet. For 84 percent of visits, no information was recorded about helmet use. Of the 29 visits that recorded helmet use, 23 reported no helmet and 6 reported that the patient was wearing a helmet.

Riding on the sidewalk and scooter malfunctions were mentioned in only 1 percent of records each. About 9 percent of visit records included evidence of intoxication.

### **Comparing modes of travel**

There were an estimated 3,220 emergency department or urgent care visits for transportation-related injuries in Multnomah County during the pilot period. Scooter injuries accounted for approximately 5 percent of those. There were more than twice as many bicycle injury visits compared to scooter injury visits. We do not have comprehensive data on the amount of bicycle travel during the period, but it is possible that the rate of scooter injuries per mile traveled or per trip was higher than that for bicycle injuries. Data from the American Community Survey suggest that there were three to four times as many bicycle commute trips during the pilot as there were scooter trips.

There were 14 traffic crash deaths during the pilot period. None were related to the use of a scooter.

### **Conclusions**

Like all parts of the transportation system, using e-scooters entails risks. For any injury hazard, we would expect injuries to increase as exposure to the hazard increases. That is what we observed during the e-scooter pilot program.

The number of injury visits from scooters is small relative to total crash injuries, and many of the injuries were not severe. It may be the case that the rate of injury per mile, or per trip, is high compared to other modes, but we don't have enough data to make that conclusion. However, we did not find evidence of a number of injuries so large or of such severity that it would discourage further pilot programs in the City of Portland. Future evaluation should focus on characterizing the severity of injury. Monitoring injuries could be streamlined by focusing on the 18-44 age group.

Importantly, there may be health benefits or risks from scooters not captured by these data. For example, it would benefit both scooter users and non-users if scooters decrease noise and air pollution from traffic. To the extent that scooters facilitate walking and transit trips, they may encourage physical activity, which has many health benefits. Conversely, if scooter trips replace trips that would have otherwise been made by a more active mode, they could diminish physical activity among users.

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