

Spike in e-scooter injuries linked to ride-share boom

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They're new and they're fun. But the urban invasion by ride-share electric scooters has brought a corresponding jump in injuries and hospital admissions.

Electric scooters, or e-scooters, are battery-powered motorized versions of the push scooters popular with kids. They've been around for years, but the addition of GPS trackers and wireless connectivity has led to a boom in e-scooter rental and ride-share programs in major cities.

A recent study in *JAMA Surgery* found the annual number of e-scooter injuries in the United States climbed 222% from 4582 in 2014, when there were no scooter ride-share companies, to 14 651 in 2018, when rentals took off in North America and Europe.

The rate of injuries increased, too, from 6 per 100 000 people to 19 per 100 000 people. Nearly one-third of those injured had a head injury, more than double the rate experienced by cyclists. Annual hospital admissions related to e-scooters also spiked 365% during the same period, from 313 to 1374.

Researchers, city officials and ride-share companies like Bird, Lime and Lyft, attribute the uptick in injuries to the explosion in the numbers of e-scooters dotting urban landscapes and trips riders are making. The US National Association of City Transportation Officials estimates Americans made 38.5 million trips on e-scooters in 2018, surpassing the number of bike share trips.

E-scooter rental pilots are now underway in Calgary, Edmonton, Montreal, and cities across Ontario. Calgary's pilot logged 750 000 trips on Bird and Lime e-scooters from July to October last year,

putting the city among global leaders in e-scooter use. According to a mid-pilot report, e-scooter crashes resulted in 33 injuries serious enough to require an ambulance service last summer, but no admissions to intensive care or deaths. The top causes of crashes were speed, losing control of the scooter, and hitting a pothole or a stationary object such as a pole. Only one person who was seriously injured was wearing a helmet.

A broader set of data collected in Calgary last summer found e-scooter crashes led to 671 visits to emergency departments and urgent care centres. About 10% of these cases involved

trauma to the head, says Dr. Eddy Lang, an emergency physician involved in the investigation. He says wearing helmets should be mandatory. "It's definitely safer. Elbows heal. Wrists heal. But a concussion can have serious long-term consequences." A 2019 study of e-scooter injuries in the US found just 4.4% of injured riders presenting to emergency departments were wearing a helmet.

According to Alberta Health Services data, one person is seriously injured and admitted to hospital per 100 000 e-scooter rides, and serious injuries almost always occur to riders, not pedestrians. However, there are many more injuries that don't



E-scooter injuries are increasing as use of rent-by-the-minute scooters skyrockets.

result in hospital admissions, at a rate of one per 1500 rides. And according to the *JAMA Surgery* paper, more research is needed into scooter-related injuries among pedestrians and cyclists.

Where and how riders may use e-scooters varies by city, and the rules may be less stringent than for cyclists, with some cities allowing e-scooters on sidewalks and few requiring helmets.

In Calgary, e-scooters are allowed on sidewalks and bike paths. According to Andrew Sedor of the city's transportation department, the most severe injuries have resulted from run-ins with motor vehicles. Cities might see fewer severe injuries if they have infrastructure separating types of traffic, he says. Atlanta, which saw four e-scooter fatalities last summer, all involving collisions with motor vehicles, plans to triple its network of protected lanes for bikes and e-scooters by 2022.

Jurisdictions that bring in ride-share programs can also decide how fast rental scooters may go. Ontario has capped speeds at 24 km per hour, while Calgary's e-scooters top out at 20 km per hour. The city also plans to establish low speed zones in areas with heavier pedestrian and bicycle traffic, where scooters will

automatically slow to 12 km per hour based on GPS location.

But Calgary isn't mandating helmet use, largely because other jurisdictions have found it next to impossible to police. Sedor notes that provincial legislation requires bike riders to wear helmets, but few people renting electric bikes last summer did so. Culture change may be needed before tougher helmet rules could be enforced, he says. "It would really just be a difficult logistical exercise right now."

Other cities have encountered similar difficulties regulating e-scooters. Last fall, Edmonton mayor Don Iveson expressed doubts about continuing the city's e-scooter pilot, citing negative feedback from other road users. E-scooters are not allowed on sidewalks in Edmonton, but the rule has proven difficult to enforce.

Stewart Lyons, CEO for Bird's North American operations, says some injuries are bound to happen when so many people are trying out a new mode of transportation. "Yes, the absolute number [of injuries and hospital admissions] looks a bit scary and daunting, but the reality is that the number of rides increased at an exponential rate. The key is to make sure that you're always pushing the rate of injury down." Lyons says

that can be achieved by increasing helmet use, protecting routes for scooters and bikes, and reducing reckless behaviour such as scootering drunk and doubling-up riders.

A 2018 study, cited in Calgary's mid-pilot report, found that a third of all e-scooter injuries happen on a rider's first trip. Renters of Bird scooters must complete an online orientation module before they can make their first trip. As part of the pilots in Calgary, Edmonton and Montreal, Bird also hosts "safety days" in high-traffic locations, where staff give out helmets and show people how to use the scooters. A key lesson, Lyons says, is to keep both hands on the handlebars; no texting or selfies.

Nikan Namiri, lead author of the *JAMA Surgery* paper, hopes the reports of injuries are a wake-up call for cities to ensure they have the appropriate infrastructure and policies in place before allowing rental e-scooters. "I hope that policy-makers are more aware of the issue now, and that they are motivated to get policies in place quickly, so that when e-scooters hit the road, people aren't put at dangers because of a lack of municipal rules."

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