

Summary of emergency department visits from e-scooter injuries in Ottawa hospitals

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Summary

From 2022 to 2023, emergency department (ED) visits that may be associated with kick-type e-scooter falls doubled from 67 to 118 visits. So far, in 2024 (April to June and partial data to September), there were 54 e-scooter-related ED visits. The number of ED visits was highest in 2021 with 166. Some of the variation in the number of ED visits by year may reflect changes in ED coding, where prior to 2022, falls from e-scooters were not specified instead falls from all types of scooters and other leisure and sports vehicles were included. Most e-scooter related injury ED visits were among young adults under the age of 35.

The most common injuries presented at the ED related to e-scooters were those that could progress to a serious problem requiring emergency intervention. The upper extremities and the head, neck and face were most common body locations injured.

Estimating the time of the injury based on ED registration time, the time of visits varies by year. In both 2023 and 2024, most visits were in late afternoon to evening. Interpreting the time of visit must be done with caution because someone may attend ED sometime after the injury, if their symptoms worsen, for example.

Background

Prior to 2021, e-scooter injuries were classified as a “fall involving a wheelchair” (International Statistical Classification of Diseases and Related Health Problem (ICD) code: *W05.00*). As of April 1st, 2021, e-scooter related injuries were coded as a “fall involving other specified sports equipment” (ICD code: *W02.08*). This code includes falls from all types of scooters and include other electric, motorized, and non-motorized vehicles used for sports and leisure like Segways and hoverboards. In 2022, a specific code for electric e-scooters (*W02.080*) was introduced with additional specific codes to differentiate between other motorized personal transit vehicles like hoverboards and Segways (*W02.087*) and non-motorized scooters (*W02.088*).

This descriptive summary examines the changes in the number of ED visits that may be related to e-scooter injuries seen in Ottawa hospitals from 2019 to June 2024 and partial data to September 2024.

Methods

- The National Ambulatory Care Reporting System (NACRS)¹ was searched for injury related ED visits at Ottawa hospitals with an ICD code of W02.08 from 2019 to September 2024, the most recent complete data available. Data from July to September 2024 are incomplete. This ICD code represents a fall that involves an e-scooter.
- Visits include people with injuries seen at Ottawa hospitals regardless of the person's place of residence. This allows the inclusion of tourists to the Ottawa area.
- Visits included only those seen between April to November among those aged 16 to 59 except for 2024, which only included those seen between April and September. Sixteen is the minimum age to operate an e-scooter in Ottawa according to [Bylaw 2020-174](#) and those over 59 might be more likely to have a fall involving a mobility scooter rather than an e-scooter using historical coding.
- Visits from 2022 onwards that were attributed to Segways/hoverboards or non-motorized scooters were excluded.
- Falls that occurred at a home or residential institution were excluded based on the location of fall. See [Limitations](#).
- The Canadian Triage and Acuity Scale (CTAS)², which is based on the complaint and type and severity of the injury, was used to establish the severity of the injury.
- The most responsible diagnosis code was used to identify the location of the injury. The most responsible diagnosis is determined by the injury with the highest cost of care.
- Time of injury was estimated based on the registration time of the ED visit, rounded to the nearest hour for emergency department visits from 2021 onwards.

Results

Emergency department (ED) visits for e-scooter injuries was highest in 2021 (166 visits) followed by 2023 (118 visits) with relatively fewer seen in 2022 (67 visits). In 2024 (April to September), there were 54 ED visits. ED visits were most common among younger adults with almost 2/3 of ED visits in 2023 being among those under the age of 35, with the trend towards younger adults continuing in 2024 (61% of ED visits occurring in adults under 35 years old) (**Table 1**).

Injuries tend to be those considered “Urgent” (CTAS 3) and could progress to a serious problem requiring emergency interventions (**Table 2**).

Upper extremities; head neck and face; and lower extremities tend to be the common body sites injured (**Table 3**).

¹ Canadian Institute for Health Information. National Ambulatory Care Reporting System metadata (NACRS). Available from <https://www.cihi.ca/en/national-ambulatory-care-reporting-system-metadata-nacrs>

² Bullard MJ, Chan T, Brayman C, Warren D, Musgrave E, Unger B; Members of the CTAS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale (CTAS) Guidelines. CJEM. 2014 Nov;16(6):485-9.

In 2023 and so far in 2024, ED visits tended to be more common in late afternoon to evening. (Figure 1).

Table 1: Emergency department visits at Ottawa hospitals for e-scooter injuries by age group. April – November 2019-2024*

Age	2019	2020	2021	2022	2023	2024
16-19	8	7	20	10	12	3
20-24	6	9	43	13	14	8
25-29	2	5	34	12	29	12
30-34	3	7	14	6	18	10
35-39	2	5	14	6	12	4
40-44	4	5	9	6	10	3
45-49	2	2	8	5	6	8
50-54	1	5	8	4	12	4
55-59	3	2	16	5	5	2
Total	31	47	166	67	118	54

* Includes data from April-June and partial data to September 2024. Data includes ED visits for e-scooter injuries coded as W02.08 at Ottawa hospitals among those aged 16 to 59 inclusive. Source: National Ambulatory Care Reporting System 2019-2024, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: December 16, 2024.

Table 2: Emergency department visits at Ottawa hospitals for e-scooter injuries by triage level. April – November 2019-2024*

CTAS code	2019	2020	2021	2022	2023	2024*
RESUSCITATION	0	0	0	0	1	0
EMERGENT	3	3	24	10	18	2
URGENT	12	23	91	33	64	5
LESS-URGENT	13	17	38	18	28	6
NON-URGENT	3	4	13	4	7	3
Not reported	0	0	0	2	0	0
Total	31	47	166	67	118	16

* Includes data from April-June and partial data to September 2024. Data includes ED visits for e-scooter injuries coded as W02.08 at Ottawa hospitals among those aged 16 to 59 inclusive. Source: National Ambulatory Care Reporting System 2019-2024, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: December 16, 2024.

Table 3: Emergency department visits at Ottawa hospitals for e-scooter injuries by body location of injury. April – November 2019-2024*

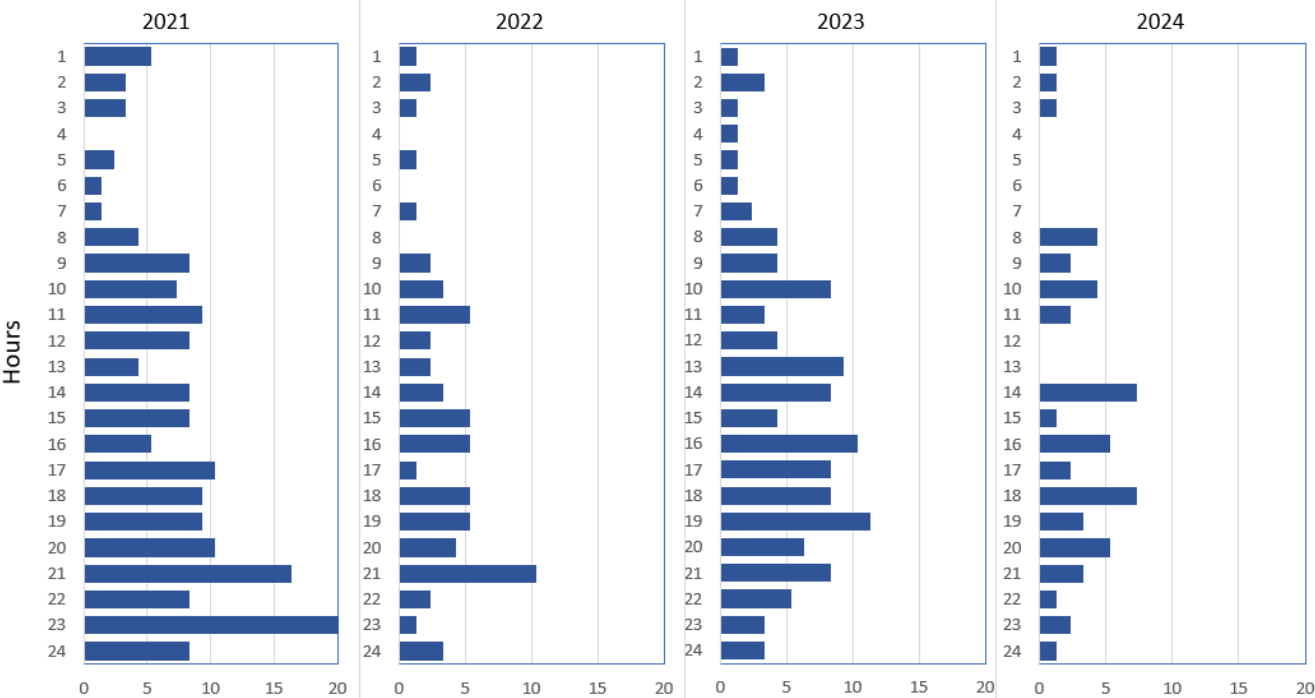
Body location	2019	2020	2021	2022	2023	2024*	Total
Head, neck, face	7	13	49	17	33	13	132
Trunk	2	4	9	2	3	3	23
Lower extremity	6	16	29	17	25	14	107
Upper extremity	14	14	76	30	48	23	205
Not specified	2	0	3	1	6	1	13
Total	31	47	166	67	118	54	483

* Includes data from April-June and partial data to September 2024.

Data includes ED visits for e-scooter injuries coded as W02.08 at Ottawa hospitals among those aged 16 to 59 inclusive.

Source: National Ambulatory Care Reporting System 2019-2024, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: December 16, 2024. Body location of injury is coded using the most responsible diagnosis.

Figure 1: Emergency department visits at Ottawa hospitals for e-scooter injuries by hour of registration. April - November 2021-2024*



* Includes data from April-June and partial data to September 2024. Data includes ED visits for e-scooter injuries coded as W02.08 at Ottawa hospitals among those aged 16 to 59 inclusive. Source: National Ambulatory Care Reporting System 2021-2024, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: December 16, 2024. Hour is based on visit registration time rounded to the nearest hour.

Limitations

- Data between July and September 2024 are preliminary and incomplete. Please interpret with caution.
- The ICD code used is not specific to e-scooters until 2022, where a very specific code was available. From 2022 onwards, all visits with a W02.08 prefix were explicitly coded to e-scooters (W02.080) for visits that otherwise met our age and time of year criteria. Historical estimates coded as W02.08 may include ED visits that are not e-scooter related, but this can't be determined from this data.
- By-age comparisons of the number of ED visits must be interpreted with caution when assessing risk by age. If younger people are more likely to participate in the use of an e-scooter, the rate or risk of injury among e-scooter riders may be lower among younger people compared to other age groups who are less likely to use an e-scooter. Data on ridership was not available for this analysis to estimate a rate by age.

- Small numbers of ED visits historically make by-year comparisons difficult for changes by age group, severity, or body location so these comparisons are not included.
- Unlike explicit transportation injury coding that is available for cyclists or pedestrian injuries, the context for W02.08 injuries, such as a traffic crash, can't be determined.
- Place of occurrence of the fall is poorly completed with approximately 2/3 of visits had no specific place of occurrence coded. Estimates may still include injuries that happened at a person's residence.
- The time of ED visit registration is only a proxy for the time of day the incident precipitating the emergency department visit may have occurred. For example, a person's symptoms may have worsened over time causing them to seek care somewhat later than the actual incident itself.
- Data on helmet use and details around the circumstances of the injury (e.g. speed) are not routinely collected and available for data extraction in NACRS.