

Summary of e-scooter related emergency department visits at Ottawa hospitals

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Summary

Emergency department (ED) visits at Ottawa hospitals related to e-scooters among those aged 16 to 59 decreased to 67 in 2022 compared to a high of 166 in 2021. ED visits were most common among young adults aged 20 to 29.

Most injuries were urgent ones that could progress to a serious problem requiring emergency intervention. In 2022, the upper extremities and the head, neck, and face were the most common body locations injured.¹

New in this report is an estimation of the time of the injury based on registration time. ED visits in 2021 and 2022 varied by year: in 2021, most ED visits occurred around 11PM and in 2022 around 9PM.

Background

The first e-scooter pilot in Ottawa began in 2020. As of April 1st, 2021, e-scooter related injuries were coded in hospital data systems using the International Statistical Classification of Diseases and Related Health Problem (ICD) code of *W02.08* “fall involving other specified sports equipment”². This code includes all falls from a scooter, including electric, motorized and non-motorized vehicles used for sports, leisure or locomotion. Previously, these types of falls were classified as *W05.00* “Fall involving wheelchair”. More detailed coding was added in the 2022 ICD coding to discriminate between electric e-scooters (*W02.080*), other motorized conveyances 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 2018 to June 2023.

Methods

- The National Ambulatory Care Reporting System (NACRS)³ was searched for injury related ED visits at Ottawa hospitals with an ICD code of *W02.08* from 2018 to fiscal

¹ The previous report included an error where the number of injuries for upper and lower extremities were transposed such that lower extremity injuries appeared more common than upper extremity injuries.

² Canadian Institute for Health Information. Updated ICD-10-CA coding direction: Homelessness, and falls from an electric scooter (escooter), mobility scooter, Segway® or hoverboard. Available from: <https://www.cihi.ca/en/bulletin/updated-icd-10-ca-coding-direction-homelessness-and-falls-from-an-electric-scooter>

³ 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>

quarter 1 of 2023 (June 2023), the most recent complete data available. This ICD code represents a type of fall.

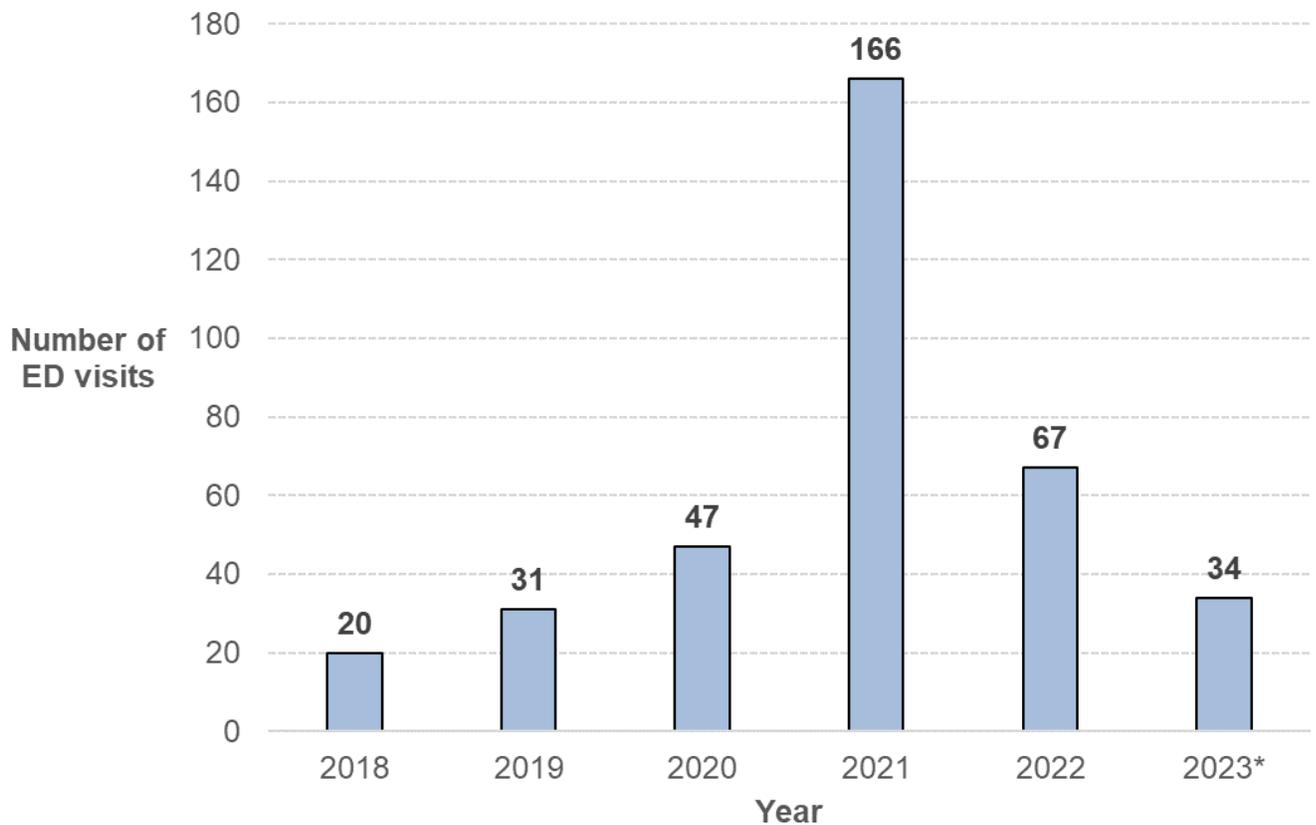
- Visits include injuries seen at Ottawa hospitals regardless of the patient's place of residence. This allows for the inclusion of tourists to the Ottawa area.
- Visits included only those seen between April to November among those aged 16 to 59. Sixteen is the minimum age to operate an e-scooter in Ottawa according to [Bylaw 2020-174](#) and those over 59 may 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/hover-boards 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)⁴, which is based on the presenting complaint and type and severity of the injury, was used.
- The most responsible diagnosis code was used to attribute the location of injury. The most responsible diagnosis code is determined by what injury represented the highest cost of care. This results in a single body location for each visit even if multiple locations were injured. A hierarchy was employed such that if multiple locations were specified, the visit would be coded according to the most vulnerable location (e.g., a neck and trunk injury was coded as a head/face/neck injury rather than a trunk injury).
- 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.
- Estimate totals and percentages are cumulative from 2020 onwards unless otherwise specified. Data from 2018 and 2019 are included in most tables as a pre-pilot comparison.

⁴ 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.

Results

A total of 314 ED visits with injuries that fit our inclusion criteria were seen from 2020 to June of 2023. The highest number of visits, 166, occurred in 2021 (**Figure 1**). This is over twice what was seen in the previous and subsequent year.

Figure 1: Emergency department visits at Ottawa hospitals for falls with W02.08 by year April – November 2018-2023*



*includes April-June of 2023

Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive.

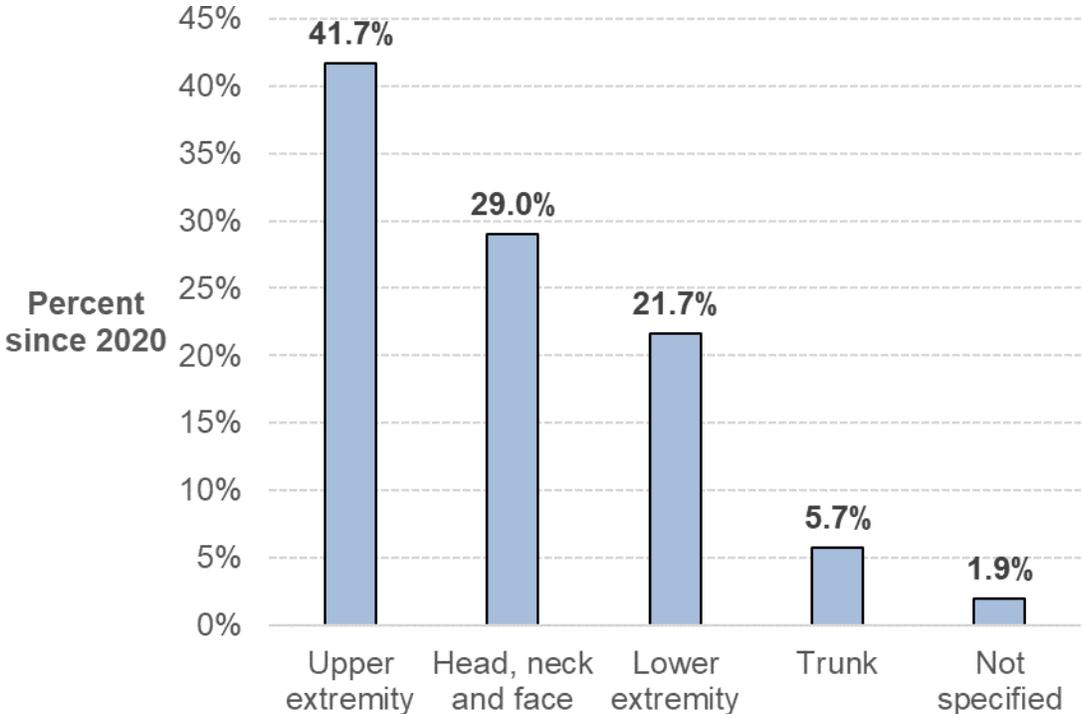
Source: National Ambulatory Care Reporting System 2018-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024.

ED visits were most common among those aged 20 to 29 years old (**The time** of ED visits in 2021 and 2022 varied by year: in 2021, most ED visits occurred around 11PM and in 2022 around 9PM (**Figure 3**).

Table 1) with approximately 53% of injuries among those under 30 since 2020.

Just over half the injuries since 2020 were 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 were the most common body sites injured (**Figure 2** **Figure 2: Emergency department visits at Ottawa hospitals for falls with W02.08 by body location of injury. April – November 2020-2023***



*includes April-June of 2023

Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive. Source: National Ambulatory Care Reporting System 2020-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024. Body location of injury is coded using the most responsible diagnosis.

Table 3).

The time of ED visits in 2021 and 2022 varied by year: in 2021, most ED visits occurred around 11PM and in 2022 around 9PM (**Figure 3**).

Table 1: Emergency department visits at Ottawa hospitals for falls with W02.08 by age group. April – November 2018-2023*

Age	2018	2019	2020	2021	2022	2023*	Total since 2020	Percent since 2020
16-19	5	8	7	20	10	3	40	12.7%
20-24	6	6	9	43	13	4	69	22.0%
25-29	2	2	5	34	12	7	58	18.5%
30-34	2	3	7	14	6	6	33	10.5%

35-39	2	2	5	14	6	5	30	9.6%
40-44	1	4	5	9	6	1	21	6.7%
45-49	0	2	2	8	5	3	18	5.7%
50-54	2	1	5	8	4	2	19	6.1%
55-59	0	3	2	16	5	3	26	8.3%
Total	20	31	47	166	67	34	314	

*includes April-June of 2023

Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive.

Source: National Ambulatory Care Reporting System 2018-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024.

Table 2: Emergency department visits at Ottawa hospitals for falls with W02.08 by triage level. April – November 2018-2023*

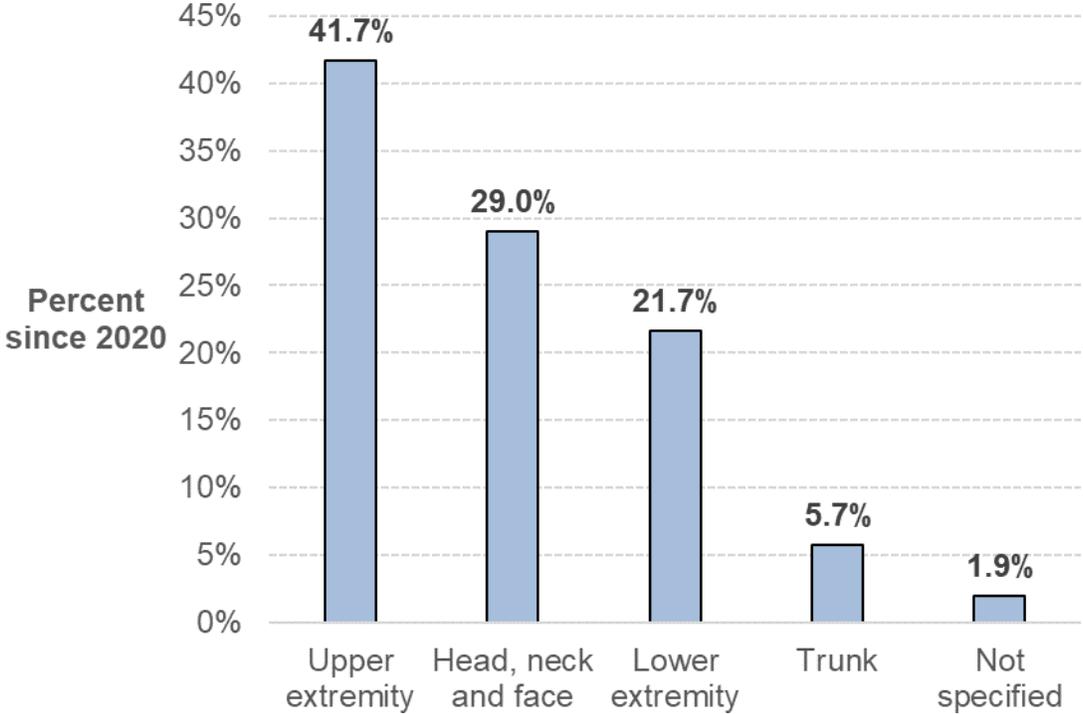
CTAS code	2018	2019	2020	2021	2022	2023*	Total since 2020	Percent since 2020
RESUSCITATION	0	0	0	0	0	0	0	0.0%
EMERGENT	2	3	3	24	10	5	42	13.4%
URGENT	7	12	23	91	33	21	168	53.5%
LESS-URGENT	10	13	17	38	18	7	80	25.5%
NON-URGENT	1	3	4	13	4	1	22	7.0%
Not reported	0	0	0	0	2	0	2	0.6%
Total	20	31	47	166	67	34	314	

* includes April-June of 2023

Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive.

Source: National Ambulatory Care Reporting System 2018-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024.

Figure 2: Emergency department visits at Ottawa hospitals for falls with W02.08 by body location of injury. April – November 2020-2023*



*includes April-June of 2023

Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive.

Source: National Ambulatory Care Reporting System 2020-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024. Body location of injury is coded using the most responsible diagnosis.

Table 3: Emergency department visits at Ottawa hospitals for falls with W02.08 by body location of injury. April – November 2018-2023*

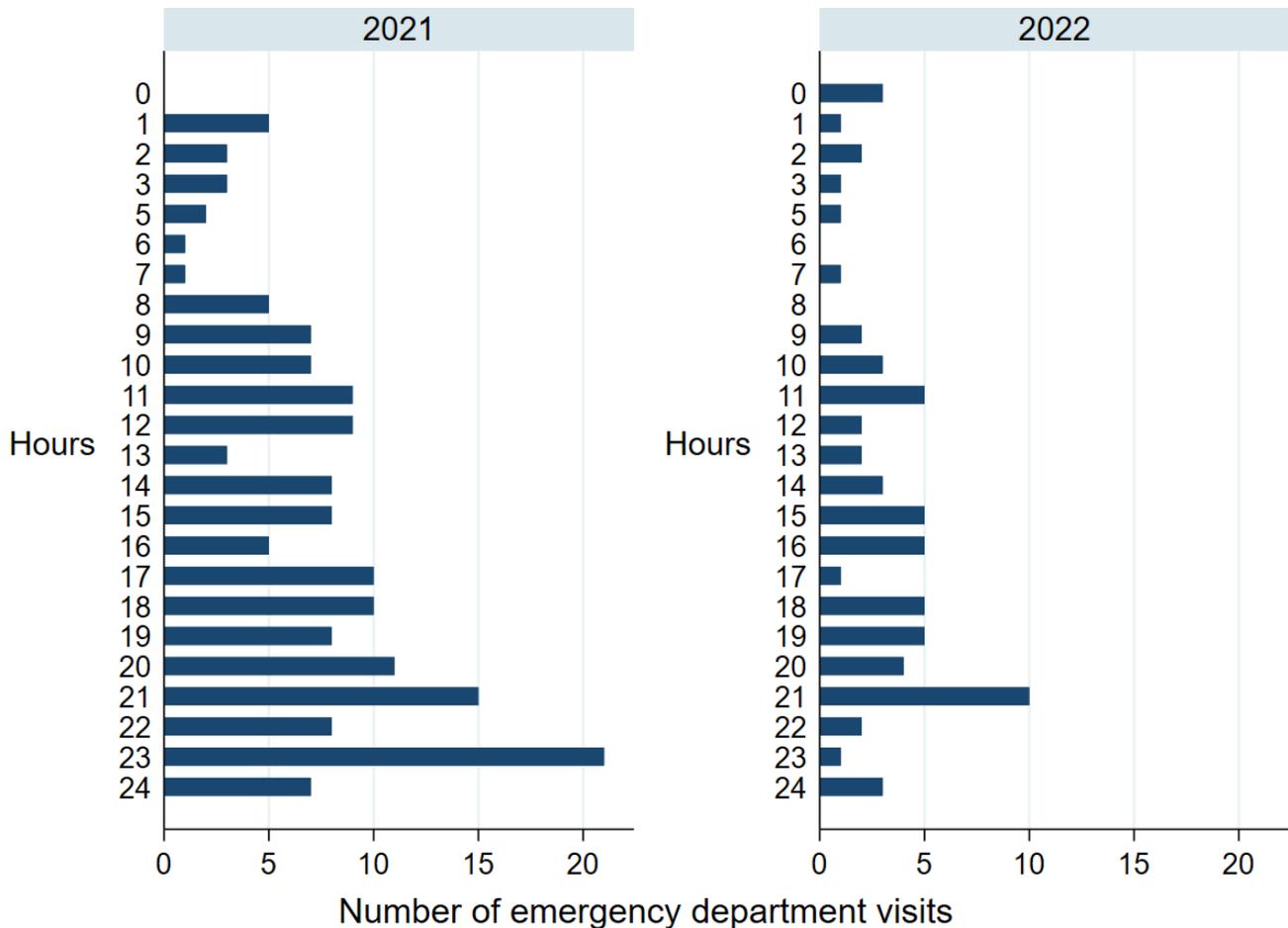
Body location	2018	2019	2020	2021	2022	2023*	Total since 2020	Percent since 2020
Upper extremity	7	14	14	76	30	11	131	41.7%
Head, neck, face	4	7	13	49	17	12	91	29.0%
Lower extremity	6	6	16	29	17	6	68	21.7%
Trunk	3	2	4	9	2	3	18	5.7%
Not specified	0	2	0	3	1	2	6	1.9%
Total	20	31	47	166	67	34	314	

*includes April-June of 2023

Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive.

Source: National Ambulatory Care Reporting System 2018-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024. Body location of injury is coded using the most responsible diagnosis.

Figure 3: Emergency department visits at Ottawa hospitals for falls with W02.08 by hour of registration. April - November 2021-2022



Data includes ED visits at Ottawa hospitals among those aged 16 to 59 inclusive.

Source: National Ambulatory Care Reporting System 2021-2023, IntelliHEALTH ONTARIO, Ontario Ministry of Health and Long-Term Care. Date Extracted: Jan 16, 2024. Hour is based on visit registration time rounded to the nearest hour.

Limitations

- 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 use 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 by age 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 having 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.