



Pre- and Post-COVID Injury Emergency Department Visits in Alberta

INJURY PREVENTION CENTRE

December 2023

PRE- AND POST-COVID INJURY EMERGENCY DEPARTMENT VISITS IN ALBERTA

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Special Thanks

Karen Isrealson, Alberta Health Services

Author

Colleen Drul, injury Data Analyst

Edit & Layout

George Frost

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For questions regarding this report, contact:

Injury Prevention Centre, School of Public Health
4-248 ECHA, University of Alberta
11405 87 Avenue NW
Edmonton AB T6G 1C9

Email: ipc@ualberta.ca

Phone: 780.492.6019

Web: www.injurypreventioncentre.ca

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Introduction

On March 11, 2020 the World Health Organization (WHO) declared COVID-19 viral disease a pandemic.

As the COVID-19 pandemic developed and intensified throughout Alberta in the early part of 2020, the provincial government and healthcare system enacted a range of mitigation strategies and operational changes to address the increasing number of infections in the community. Initial public health strategies recommended avoiding unnecessary healthcare utilization to decrease virus spread and to ensure that there was enough capacity to handle spikes in COVID-19 cases.¹

In addition, different public health-related mandates, including the stay-at-home order, business closures, and mandatory wearing of masks were implemented to prevent and mitigate the spread of the virus.²

While the number of patients who visited Emergency Departments (EDs) due to COVID-19 significantly increased, health systems noticed a change in ED visits for acute care unrelated to COVID-19.³

All mechanisms of injury were reviewed to evaluate the impact COVID-19 had on emergency department visits. This report examines select mechanisms of injuries in which the number of emergency department visits was most affected. The mechanisms of injury which will be reported are:

- all injuries
- bicycles
- all terrain vehicles
- trampolines
- seniors falls

Method

Data from Emergency Department visits and urgent care clinic visits in Alberta are included. Rehabilitation, psychiatric, and subacute activity has been excluded.

The assignment of the mechanism of injury is based on the first external cause code (V01-Y36.9) in any diagnosis field identified on each visit.

Data Sources:

- Alberta Health Services, Reporting Services, Data and Analytics

Case Definition: Emergency Department Visits are derived from the Alberta Ambulatory Care Classification System file. Records from emergency departments and community urgent and advanced care centers (Airdrie Community Health Centre, Cochrane Community Health Centre, East Edmonton Health Centre, Okotoks Health and Wellness Centre, Sheldon M. Chumir Health Centre, South Calgary Health Centre) are included. Injury visits are identified using the first occurrence of ICD9 or ICD10 injury diagnoses codes except for the adverse event which injury diagnoses codes don't have to be the first occurrence. Visits are included if there is an injury code in any diagnosis position (e.g. most responsible or any other diagnosis).

1. Jeffery MM, D'Onofrio G, Paek H, Platts-Mills TF, Soares WE, Hoppe JA, Genes N, Nath B, Melnick ER. Trends in emergency department visits and hospital admissions in health care systems in 5 states in the first months of the COVID-19 pandemic in the US. *JAMA internal medicine*. 2020 Oct 1;180(10):1328–33.

2. Gallaway MS, Rigler J, Robinson S, Herrick K, Livar E, Komatsu KK, Brady S, Cunico J, Christ CM. Trends in COVID-19 incidence after implementation of mitigation measures—Arizona, January 22–August 7, 2020. *Morbidity and Mortality Weekly Report*. 2020 Oct 9;69(40):1460.

3. Westgard BC, Morgan MW, Vazquez-Benitez G, Erickson LO, Zwank MD. An analysis of changes in emergency department visits after a state declaration during the time of COVID-19. *Annals of Emergency Medicine*. 2020 Nov 1;76(5):595–601.

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Selection of Mechanisms of Injury

The selection of leading mechanisms of injury included in this report was based on the percentage change of number of injury-related emergency department visits between pre-COVID (average of 2018 and 2019) and COVID (2020 and 2021) and the availability of actionable prevention strategies.

The mechanisms of injury being reported are: bicycles, all-terrain vehicles (ATV) injuries, seniors fall, and trampoline-related injuries.

Injuries are defined as the physical damage a person suffers from mechanical energy (a motor vehicle crash), thermal energy (a burn from a flame), electrical energy (a shock) or chemical energy (poisoning) or from the absence of essentials such as heat (resulting in frost bite or hypothermia) or oxygen (resulting in suffocation). Injury can be further categorized as unintentional (unexpected), such as falling or drowning, or intentional (having an intent to harm oneself or others), such as suicide or violence.

Definitions for preventable leading causes

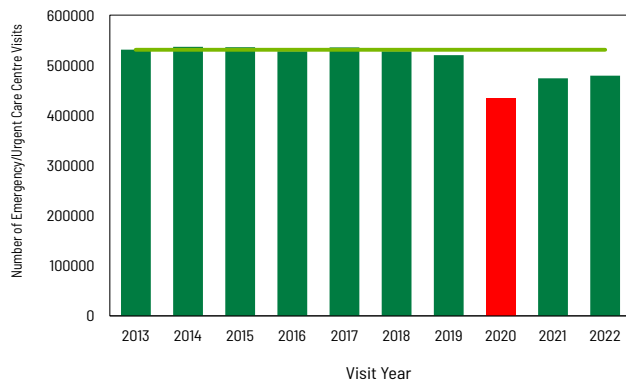
- All injuries includes: any sustained injuries, excluding adverse events and medical / surgical complications.
- Falls include: ice and snow, slipping / tripping / stumbling, due to collision with, or pushing by another person, while being carried or supported by another person, falls involving wheelchairs and other type of walking devices, from furniture, playground equipment including trampolines, stairs / steps, ladders / scaffolding, out of / from buildings or structures, falls from high place, falls from one level to another, falls on same level, unspecified falls (W00-W01, W03-W19). Excludes sports-related falls (W02.*)
- Off-road vehicles include: all motor vehicles designed primarily for off-road use. This includes, all terrain vehicles (ATV), quads, side-by-sides, utility vehicles, dirt bikes and snowmobiles.

This report examines the number of injury-related emergency department visits prior to COVID-19 and post COVID-19. The pre-COVID-19 average number of visits includes those between 2013 and 2019. Post COVID-19 average number of visits for 2020, 2021 and 2022.

This report analyzes the number of visits. Data for further analysis was not available. There is no analysis on sex.

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Number of Injury-related Emergency Department Visits by Year, Alberta, 2013-2022



All Injuries (excluding adverse events and medical / surgical complication)

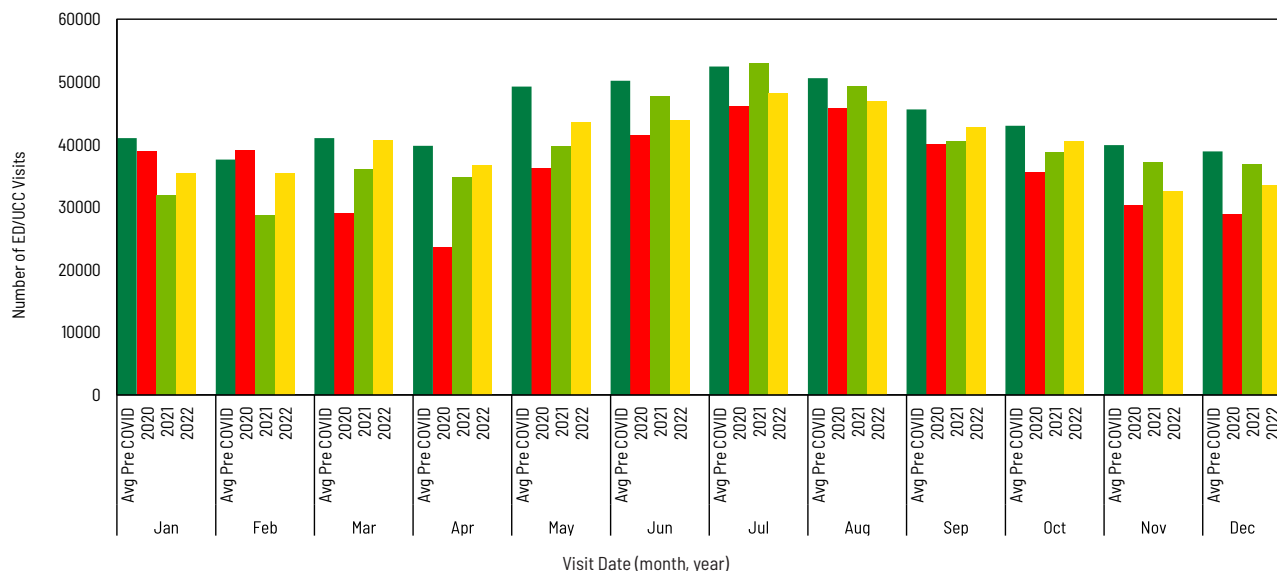
Between 2013 and 2019, there was an average of 530,878 injury-related emergency department visits each year.

In 2020 (start of COVID-19), the number of visits dropped to 473,765. This is a 18% decrease from the previous year's average.

The number of injury visits in 2021 was 11% below the pre-COVID-19 average number of visits.

The number of injury visits in 2022 was 10% below the pre-COVID-19 average number of visits.

Number of Injury-related Emergency Department Visits by Year and Visit Month, Alberta 2013-2022

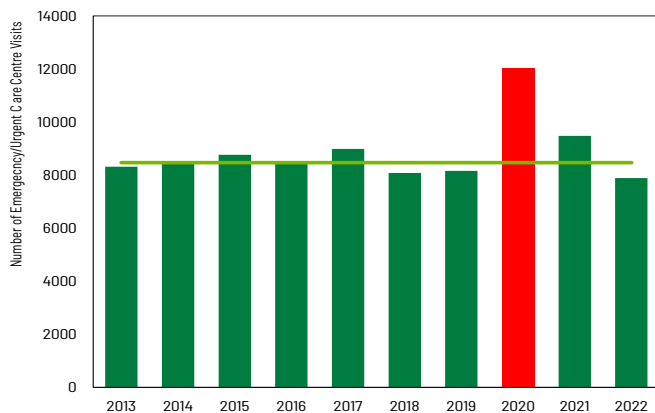


When comparing the number of injury-related emergency department visits in 2020, 2021 and 2022 with pre-COVID averages (2013-2019), the largest decrease was experienced in April 2020 with a 41% decrease in visits. March 2020

experienced a 29% decrease in comparison to the average pre-COVID-19. December 2020 had a decrease from the years previous averages with 26% fewer injury-related emergency department visits.

PRE- AND POST-COVID INJURY EMERGENCY DEPARTMENT VISITS IN ALBERTA

Number of Bicycle-related Emergency Department Visits by Year, Alberta, 2013-2022



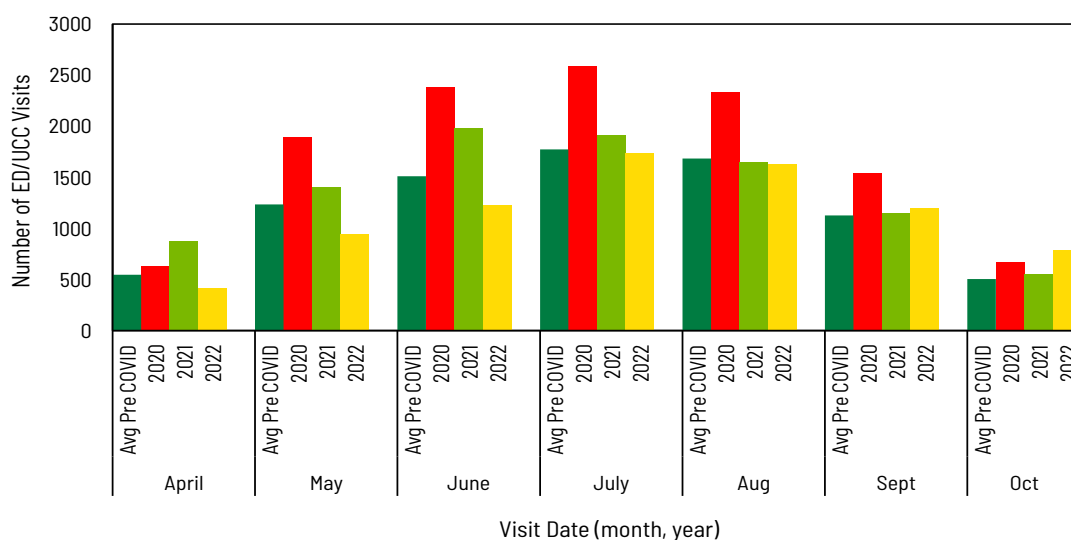
Between 2013 and 2019, there was an average of 8,466 bicycle-related emergency department visits each year.

In 2020 (start of COVID-19), the number of visits increased to 12,037. This was a 42% increase from the previous year's average.

The number of bicycle-related injury visits in 2021 was 12% higher than the pre-COVID-19 average number of visits.

The number of injury visits in 2022 was 7% below the pre-COVID-19 average number of visits.

Number of Bicycle-related Injury Emergency Department Visits by Year and Visit Month, Alberta 2013-2022

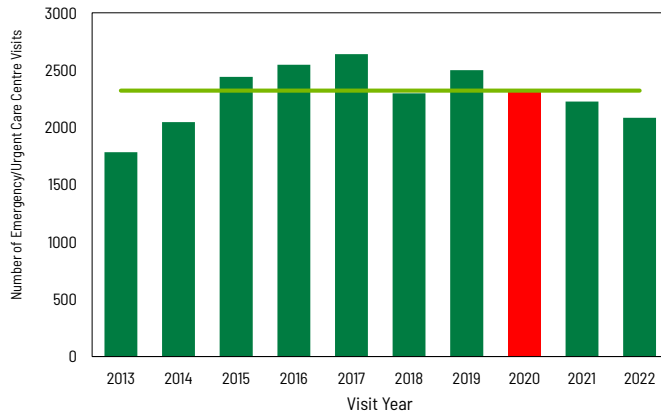


When comparing the number of bicycle-related emergency department visits during the peak riding season of April to October in 2020, 2021, and 2022 with pre-COVID-19 averages (2013-2019), the largest increase was experienced in June 2020 with a 58%

increase in the number of visits. May 2020 shows a 53% increase in comparison to the pre-COVID-19 averages. July 2020 had an increase from the years' previous averages with 46% more visits.

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Number of Trampoline-related Emergency Department Visits by Year, Alberta, 2013-2022



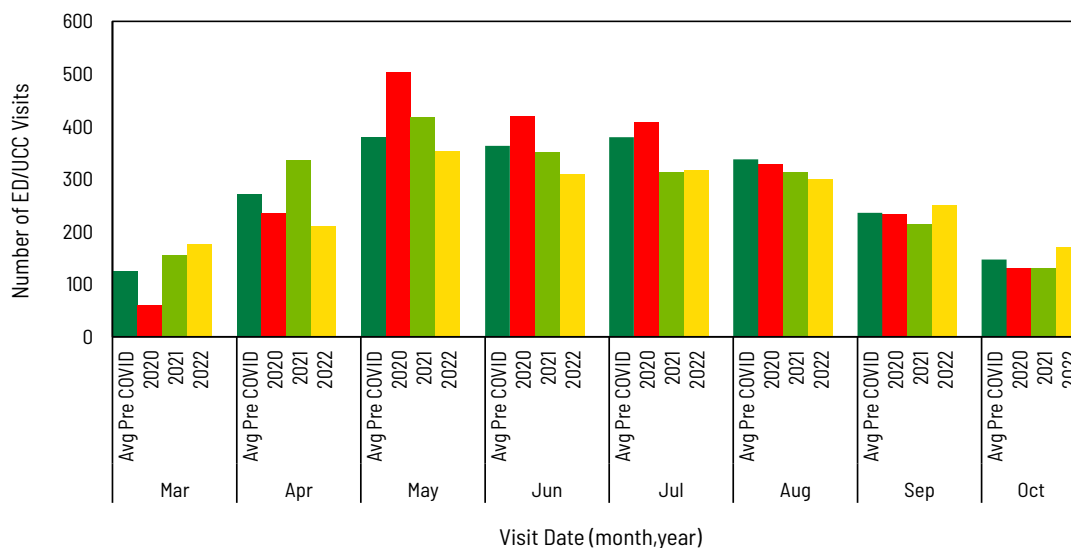
Between 2013 and 2019, there was an average of 2,321 trampoline-related emergency department visits each year.

In 2020 (start of COVID-19), the number of visits decreased to 2,312.

The number of trampoline-related injury visits in 2021 was 4% lower than the pre-COVID-19 average number of visits.

The number of injury visits in 2022 was 10% below the pre-COVID-19 average number of visits.

Number of Trampoline-related Injury Emergency Department Visits by Year and Visit Month, Alberta 2013-2022



When comparing the number of trampoline-related emergency department visits between March and October 2020, 2021, and 2022 with pre-COVID-19 averages (2013-2019), the largest increase was experienced in May 2020 with a 32% increase in the number of visits. March 2020 experienced a 52%

decrease in comparison to the pre-COVID-19 averages.

May, June, and July 2020 had trampoline-related emergency department visits higher than the previous years' average.

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Number of All-Terrain Vehicle-related Emergency Department Visits by Year, Alberta, 2013-2022



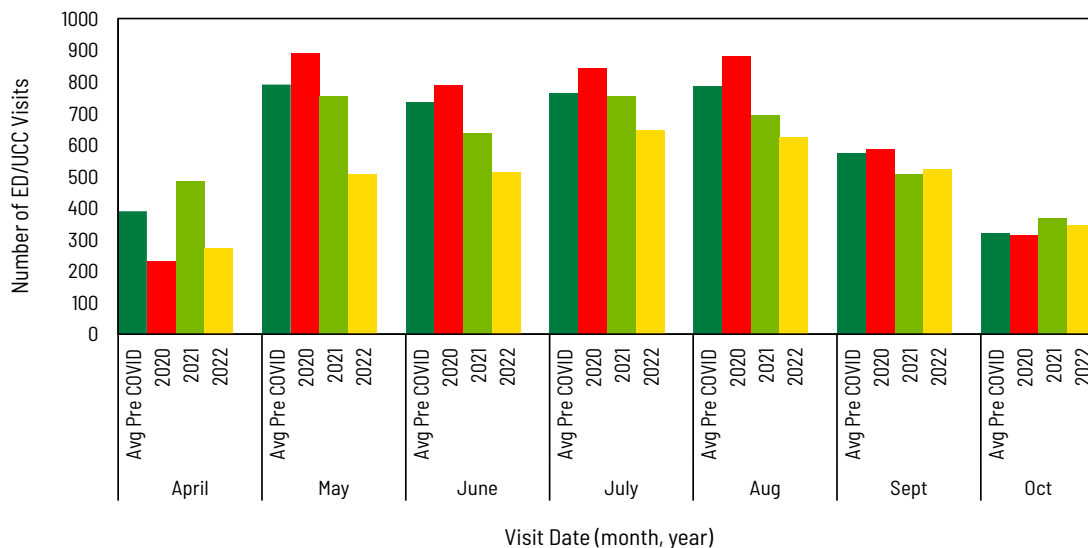
Between 2013 and 2019, there was an average of 4,277 all-terrain vehicle-related emergency department visits each year.

In 2020 (start of COVID-19), the number of visits increased to 4,530 visits. This was a 6% increase from the previous year's average.

The number of all terrain vehicle-related injury visits in 2021 was 2% lower than the pre-COVID-19 average number of visits.

The number of injury visits in 2022 was 20% below the pre-COVID-19 average number of visits.

Number of All Terrain Vehicle-related Injury Emergency Department Visits by Year and Visit Month, Alberta 2013-2022



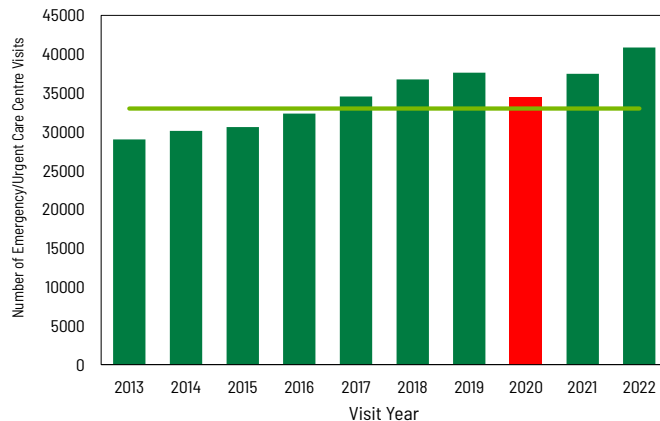
When comparing the number of all terrain vehicle-related emergency department visits between April and October 2020, 2021, and 2022 with pre-COVID-19 averages (2013-2019), the largest increase was experienced in May and August 2020, each with a 12% increase in the number visits. April 2020

experienced a 41% decrease in comparison to the pre-COVID-19 averages.

May through September 2020 had all terrain vehicle-related emergency department visits higher than the previous years average.

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Number of Seniors (65+ yrs) Fall-related Emergency Department Visits by Year, Alberta, 2013-2022



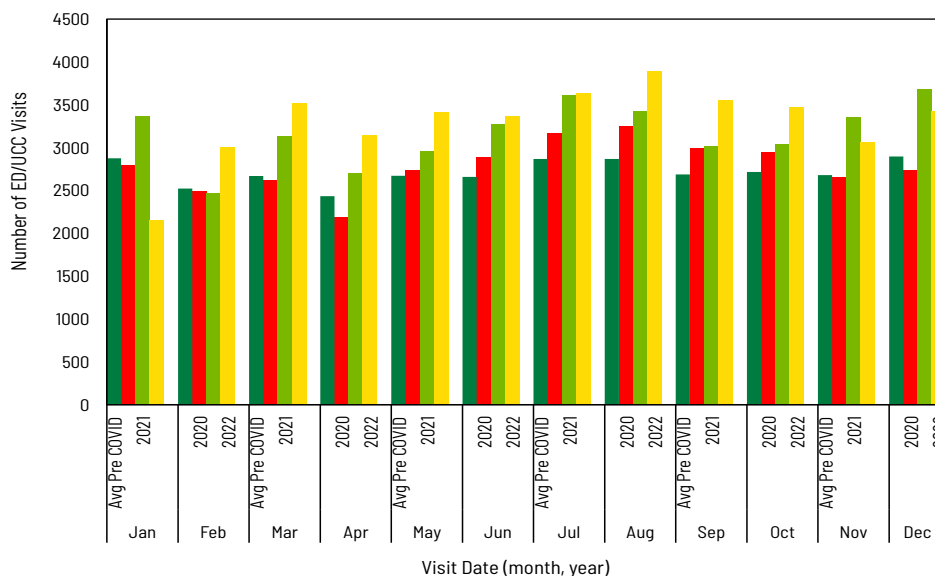
Between 2013 and 2019, there was an average of 33,000 seniors fall-related emergency department visits each year.

In 2020 (start of COVID-19), the number of visits increased to 34,467 visits. This was a 4% increase from the previous year's average.

The number of seniors fall-related injury visits in 2021 was 14% higher than the pre-COVID-19 average number of visits.

The number of injury visits in 2022 was 24% above the pre-COVID-19 average number of visits.

Number of Seniors (65+ yrs) Fall-related Injury Emergency Department Visits by Year and Month, Alberta 2013-2022



When comparing the number of seniors fall-related emergency department visits in 2020, 2021, and 2022 with pre-COVID-19 averages (2013-2019), the largest decrease was experienced in April 2020

with a 12% decrease in the number of fall-related visits.

If you would like additional information about this topic or other types of injuries, please visit <http://injurypreventioncentre.ca> or contact us via phone at **780.492.6019** or email ipc@ualberta.ca



INJURY PREVENTION CENTRE
4-248 ECHA, University of Alberta
11405 87 Ave NW
Edmonton AB T6G 1C9

Phone 780.492.6019
ipc@ualberta.ca

injurypreventioncentre.ca

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