

# Bicycle-related Injuries Pre-Post COVID-19

INJURY PREVENTION CENTRE

September 2022



**Author**

Colleen Drul,  
Data Analyst

**Graphics/Design**

George Frost

**Editing**

Patti Stark  
Dr. Kathy Belton  
George Frost

**REPRODUCTION**

Reproduction, in its original form, is permitted for background use for private study, education instruction and research, provided appropriate credit is given to the Injury Prevention Centre. Citation in editorial copy, for newsprint, radio and television is permitted. The material may not be reproduced for commercial use or profit, promotion, resale, or publication in whole or in part without written permission from the Injury Prevention Centre.

For questions regarding this report, contact:

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

Email: [ipc@ualberta.ca](mailto:ipc@ualberta.ca)  
Phone: 780.492.6019

Web: [www.injurypreventioncentre.ca](http://www.injurypreventioncentre.ca)

**SUGGESTED CITATION**

*Bicycle-related Injuries in Alberta, Pre/Post COVID-19. Edmonton, AB: Injury Prevention Centre, 2022*

© 2022- Injury Prevention Centre, School of Public Health. University of Alberta. *Bicycle-related Injuries in Alberta, Pre/Post COVID-19* is made available under Creative Commons License BY-NC-ND 4.0

## INTRODUCTION

When the COVID-19 pandemic hit Canada in March 2020, forcing gyms to shutter and public transportation to suspend operations, millions of Albertans re-discovered bicycles as a safe, socially-distanced form of physical exercise and transportation.

This report examines bicycle-related injury Emergency Department / Urgent Care Centre visits and hospital admission rates by zone for 2 years prior to COVID-19, 2018 and 2019, and 2 years of COVID-19, 2020 and 2021.

This report calculated population-based rates using the direct measure. No adjustments were made on the number of riders, duration of riding, weather, or other factors which may influence ridership.

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).<sup>1</sup> 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.

### Data Selection

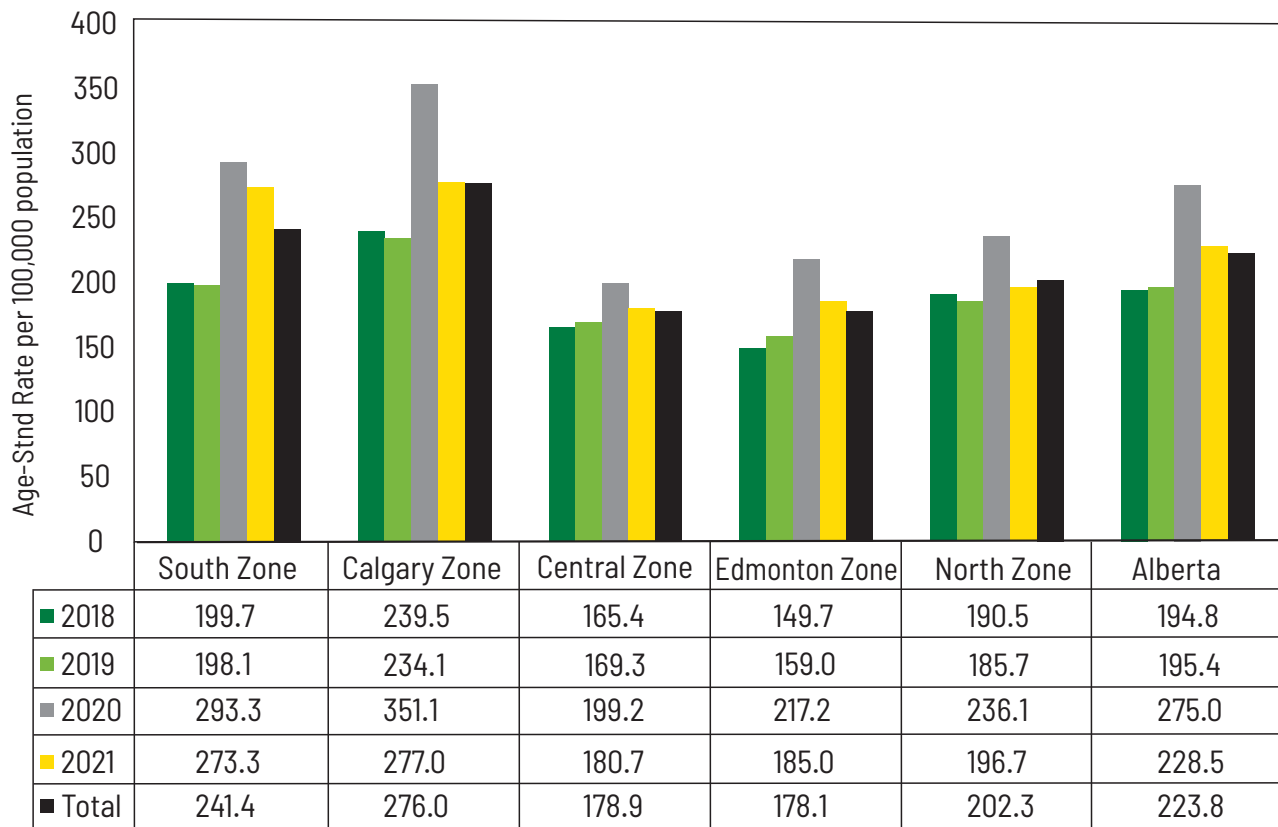
Data was obtained from Alberta Health Services for Emergency Department / Urgent Care Centre visits and hospital admissions for bicycling-related injuries with a visit / admit date between January 1, 2018 and December 31, 2021, with an ICD-10-CA (International Statistical Classification of Disease and Related Health Problems Tenth Revision, Canada) diagnosis code V10-V19 in any of the diagnosis fields.

Population data was obtained from the Alberta Health Interactive Database, Population Estimates. Accessed August 26, 2022.

Direct age-standardization method was used as it accounts for differences in the age structures of the populations being compared (study populations), by weighting their respective age-specific rates to the age distribution of a standard population. The Canadian population of 2011 was used as the standard population.

<sup>1</sup> Reference

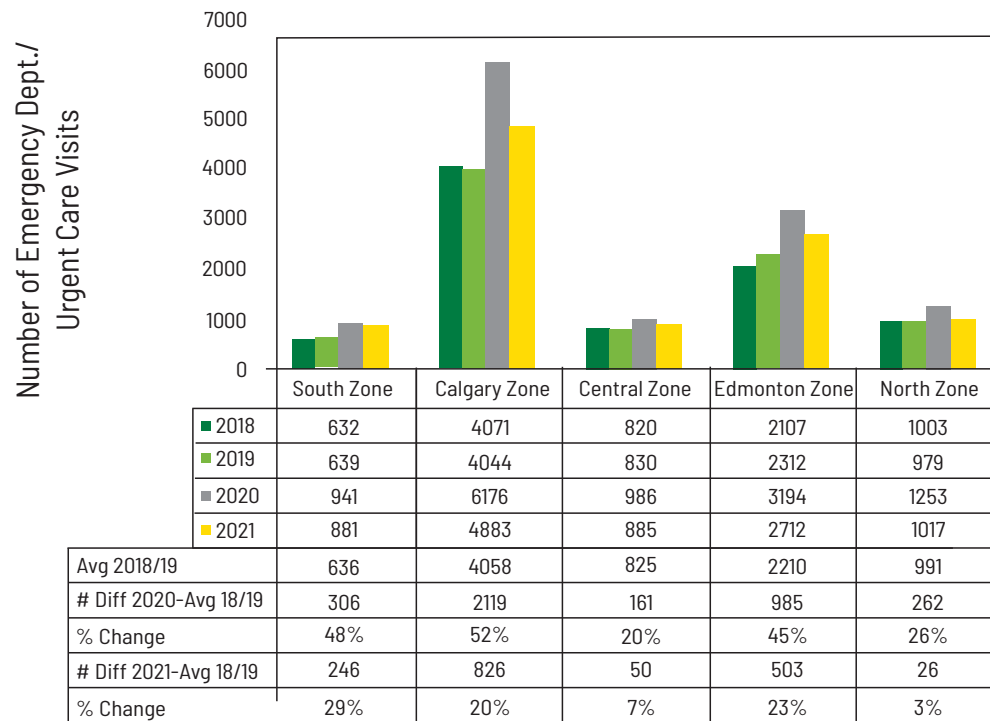
## Bicycle-related Injury Emergency Department / Urgent Care Centre Visit Rate Comparison by Zone, 2018-2021 (Age-Standardized rate per 100,000 population)



When we compare the age-standardized bicycle-related injury Emergency Department / Urgent Care Centre visit rates between zones, the South Zone and Calgary Zone had rates higher than the provincial rate.

Each of the zones experienced an increase in bicycle-related injury Emergency Department / Urgent Care Centre visits in 2020 and 2021 when compared to 2018 and 2019.

## Number of Bicycle-related Emergency Department / Urgent Care Centre Visits by Zone and Year, 2018-2021



When we look at the average number of bicycle-related injury Emergency Department / Urgent Care Centre visits in Alberta for 2018 and 2019 (prior to COVID-19) and compare the 2 year average (8,719 visits) with the number of bicycle-related injury visits in 2020 and 2021, we see that there was a 44% increase in bicycle-related injury visits in 2020 (12,550 visits) and a 19% (10,378 visits) increase between 2018-19 and 2021.

The Calgary Zone experienced the largest percent increase in the number of bicycle-related injury Emergency Department / Urgent Care Centre visits, with a 52% increase in 2020, compared to the average for 2018 and 2019 and a 20% increase in 2021.

The South Zone experienced the second largest percent increase in the number of bicycle-related injury Emergency Department / Urgent Care Centre visits, with a 48% increase in 2020, compared to the average for 2018 and 2019 and a 29% increase in 2021.

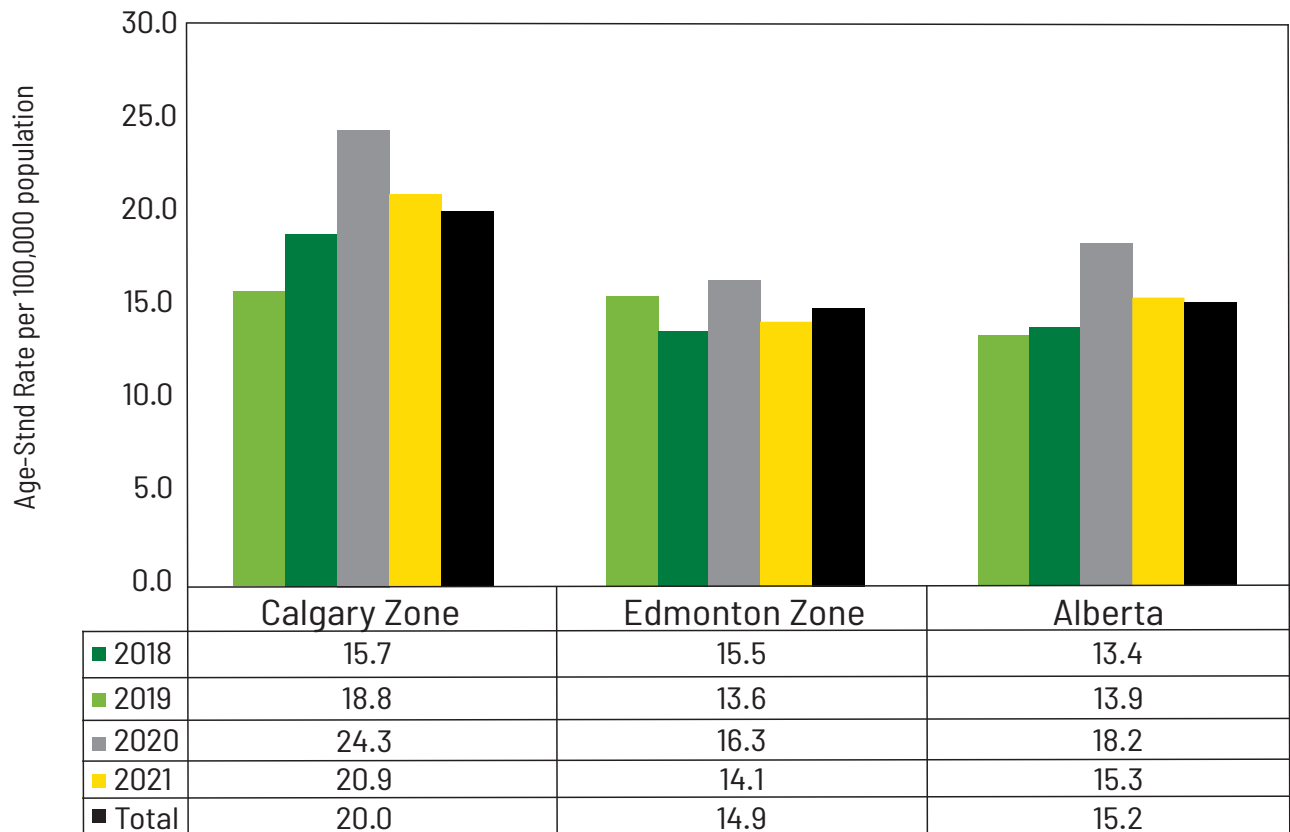
The Edmonton Zone had a 45% increase between the 2018-19 average and 2020 and a 23% increase from the 2018-19 average when compared to the number of 2021 bicycle-related injury Emergency Department / Urgent Care Centre visits.

The North Zone had a 26% increase between the 2018-19 average number of bicycle-related injury Emergency Department / Urgent Care Centre visits and 2020 and a 3% increase from the 2018-19 average and the number of 2021 bicycle-related injury Emergency Department / Urgent Care Centre visits.

The Central Zone had a 20% increase between the 2018-19 average and 2020, and a 7% increase from the 2018-19 average and the number of 2021 bicycle-related injury Emergency Department / Urgent Care Centre visits.

## Bicycle-related Injury Hospital Admissions Rate Comparison by Urban Zones, 2018-2021

(Age-Standardized rate per 100,000 population)



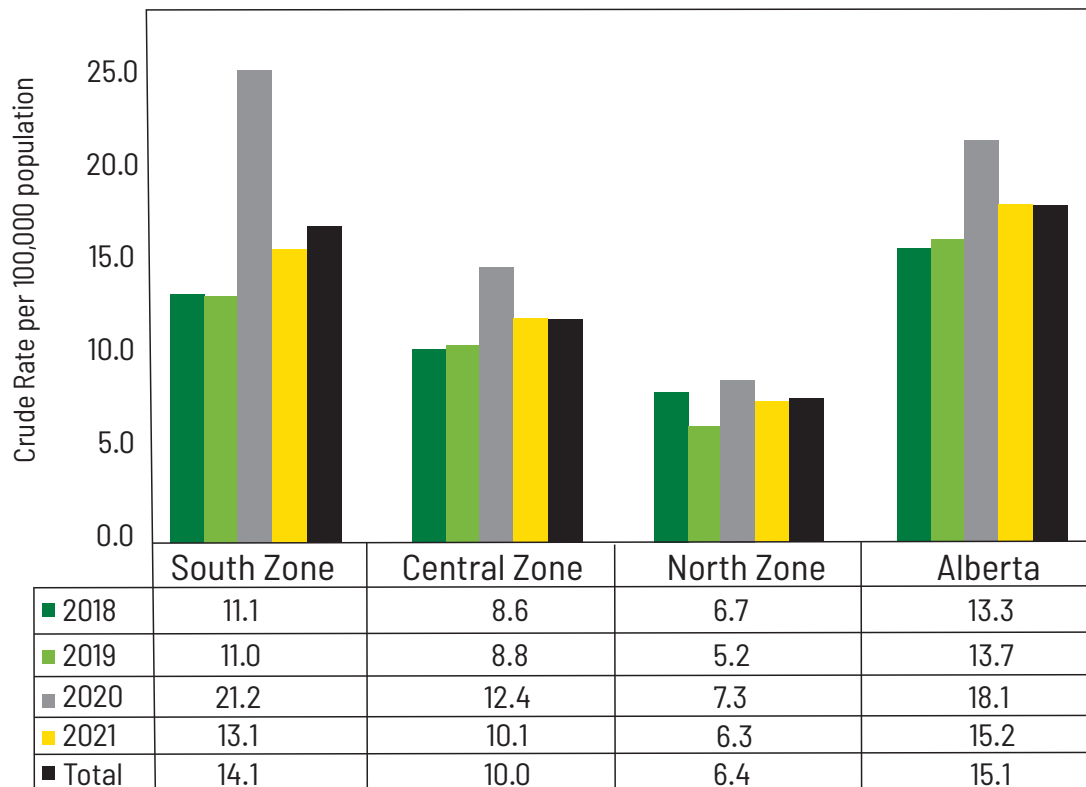
Due to the small number of hospital admissions by 5-year age groups for the rural zones, age-standardized rates could not be performed; crude rate comparisons are made on the next graph.

When we compared the age-standardized rates of bicycle-related injury hospital admissions, of the Calgary Zone and the Edmonton Zone to the Alberta rate, we see that the Calgary Zone had consistently higher rates than both the Edmonton Zone and Alberta.

The Calgary Zone, the Edmonton Zone, and Alberta each experienced an increase in bicycle-related injury hospital admissions in 2020, and a slight increase in 2021 when compared to 2018 and 2019.

## Bicycle-related Injury Hospital Admissions Rate Comparison by Rural Zones, 2018-2021

(Age-Standardized rate per 100,000 population)



Due to the small number of hospital admissions by 5-year age groups for the rural zone, age-standardized rates could not be performed; calculations for a crude rate were provided.

When we compared the age-standardized rates of bicycle-related injury hospital admissions, of the South, Central and North Zones to the Alberta rate, we see that the South Zone had consistently higher rates than the other rural zones. In 2020 the South Zone had a bicycle-related injury hospital admission rate higher than the Alberta rate.

Each of the rural zones experienced higher rates in 2020 and 2021 when compared to 2018 and 2019.



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](mailto: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](mailto:ipc@ualberta.ca)

[injurypreventioncentre.ca](http://injurypreventioncentre.ca)

© Copyright 2022 - Injury Prevention Centre

#### Funding and Support

Funding provided, in whole or in part, by Alberta Health. Provision of funding by Alberta Health does not signify that this project represents the policies or views of Alberta Health.