Wisconsin Trauma Report

2021 Year in Review: Updates and Statistics

In support of the Wisconsin Trauma Care System

The purpose of this report is to inform key partners, including the Wisconsin public, on the trends of traumatic injury throughout Wisconsin. For more information on this report, or to request Wisconsin Trauma Registry data, contact the Wisconsin Department of Health Services (DHS) Trauma Team. All data for this report is from Wisconsin's Trauma Registry and meets the Trauma Registry Inclusion Criteria as found in the Wisconsin State Trauma Registry Data Dictionary. Only hospitals with trauma level classifications submit data to Wisconsin's Trauma Registry.

In This Edition

A Message From the Trauma Team

2021 saw a return to traumatic injury trends more in line with what was seen before the COVID-19 pandemic, but many of the challenges due to the pandemic remained, compounding those challenges inherent to trauma systems. Trauma staff, like you, in the Wisconsin Trauma Care System rose to these challenges. We are grateful for the quality of care provided and dedication to performance improvement shown by the Wisconsin Trauma Care System. If you have any further questions or suggestions for information that should be included in future editions, please let us know.

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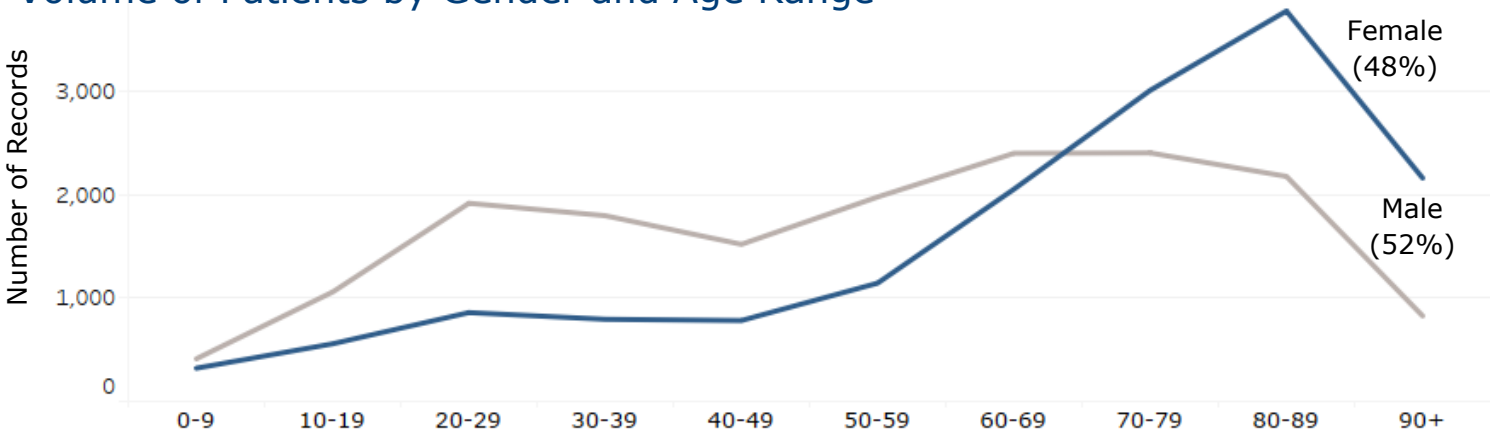
P-02087 (08/2022)

2021 Trauma Summary

38,205 Trauma System Entries
32,193 Unique Injury Events

All data for this report were exported on June 30, 2022.
Patients may have multiple injury events or may be transferred to multiple facilities; as a result, they may have more than one entry in the Trauma Registry or more than one medical record ID. For much of the visualizations and statistics presented, only data from the final trauma system hospital a patient was seen at are included to ensure that patients are only counted once. These will be referred to as "Unique Injury Events." Previous yearly reports that used all trauma system entries may have higher counts.

Volume of Patients by Gender and Age Range



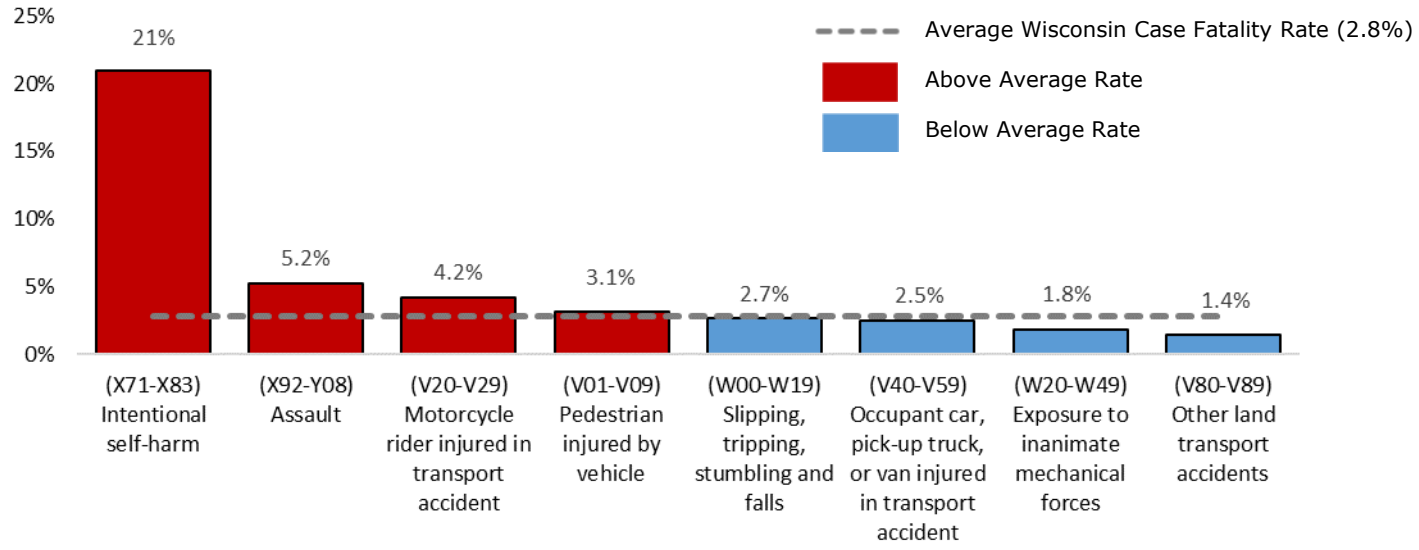
Top Five Injury Categories by Age Range

(ICD-10 Code) Mechanism of Injury	0	1-4	5-9	10-14	15-17	18-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
(W00-W19) Slipping, tripping, stumbling, and falls	68	154	142	85	39	64	145	370	588	886	2241	3917	4969	5692
(V40-V59) Occupant car, pick-up truck, or van injured in transport accident	6	23	43	68	219	264	543	910	602	496	467	369	263	129
(V80-V89) Other land transport accidents	1	15	43	94	87	53	101	216	226	222	195	106	42	21
(X92-Y08) Assault	1	1	1	8	39	65	202	411	257	157	103	44	9	3
(W20-W49) Exposure to inanimate mechanical forces*	0	31	28	39	35	35	99	177	204	155	206	120	73	26

*Exposure to inanimate mechanical forces includes ICD-10 codes for accidental injuries from intimate objects such as falling objects, sports equipment, power and non-power tools, machinery, firearms, sharp objects, and fireworks

Case Fatality Rate by Mechanism Category (Top 8 Causes of Mortality)

Incident ICD-10 Injury Category	Total Cases	Percent of All Injuries	Deaths	Case Fatality Rate
(X71-X83) Intentional self-harm	262	0.81%	55	21%
(X92-Y08) Assault	1290	4.00%	67	5.2%
(V20-V29) Motorcycle rider injured in transport accident	1130	3.50%	47	4.2%
(V01-V09) Pedestrian injured by vehicle	446	1.40%	14	3.1%
(W00-W19) Slipping, tripping, stumbling and falls	18998	59%	513	2.7%
(V40-V59) Occupant car, pick-up truck, or van injured in transport accident	4337	13%	108	2.5%
(W20-W49) Exposure to inanimate mechanical forces	1193	3.70%	21	1.8%
(V80-V89) Other land transport accidents	1350	4.20%	19	1.4%



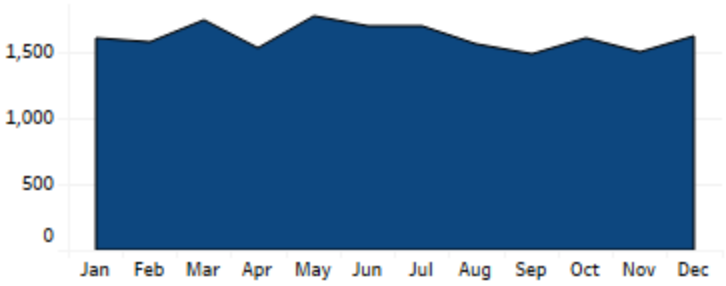
Case Fatality Rate by Mechanism Category only includes patients who were not transferred to out-of-state or non-trauma system hospitals, as their final disposition at those hospitals is not recorded in the Trauma Registry.

2021 Data in Review

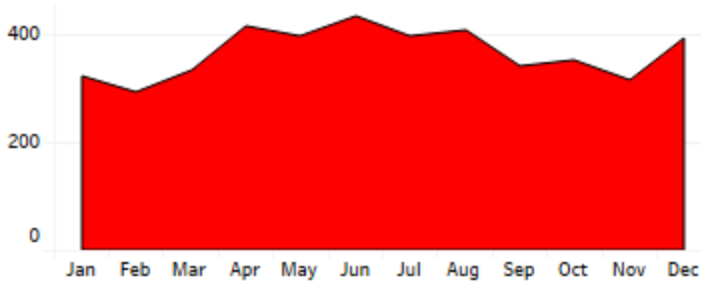
Analyses include patients admitted between January 1 and December 31, 2021

Top 8 Injury Mechanism Categories for 2021

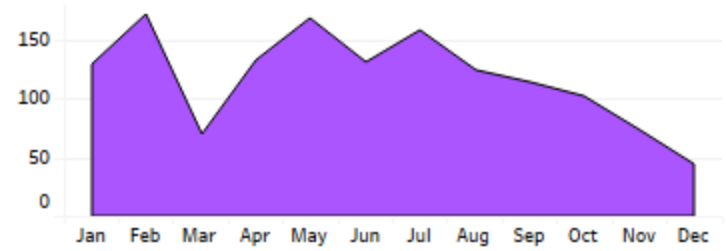
1) Slipping, tripping, stumbling and falls



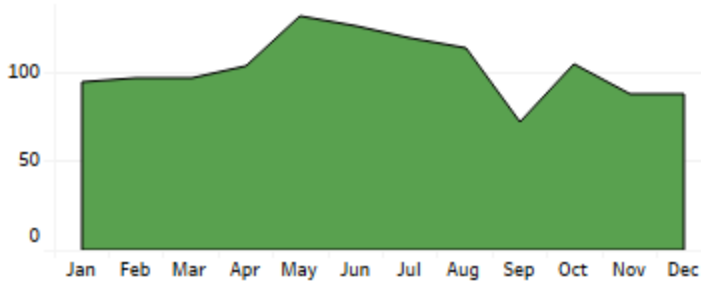
2) Occupant of car, pick-up truck, or van injury



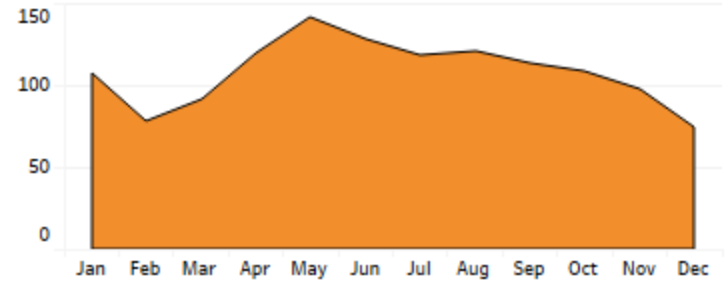
3) "Other" land transport accidents (ATVs, snowmobiles, agriculture vehicles, etc)



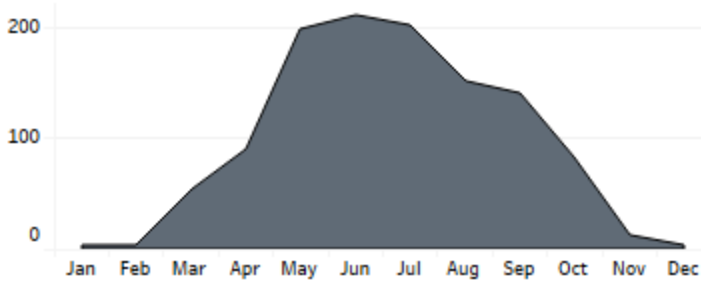
4) Exposure to inanimate mechanical forces



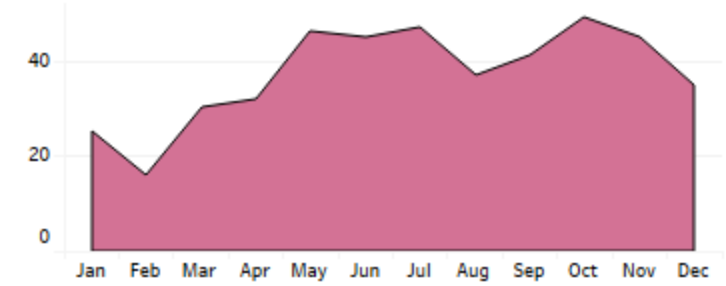
5) Assault



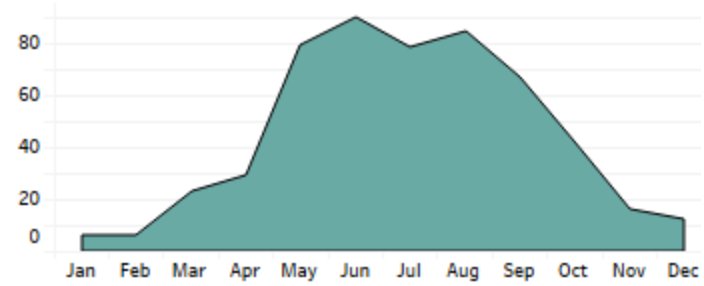
6) Motorcycle rider injury



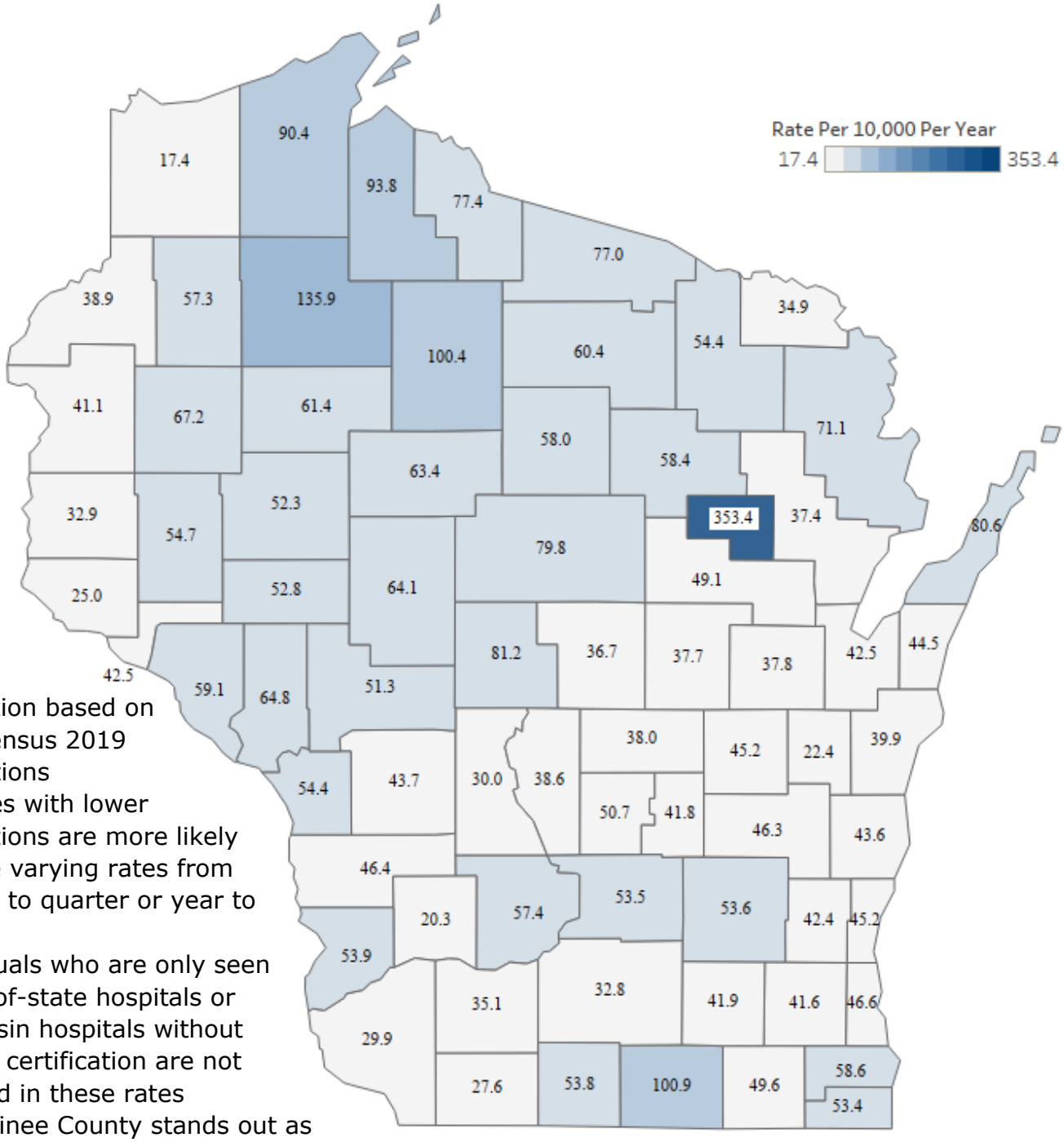
7) Pedestrian injured by vehicle



8) Pedal cycle rider injury

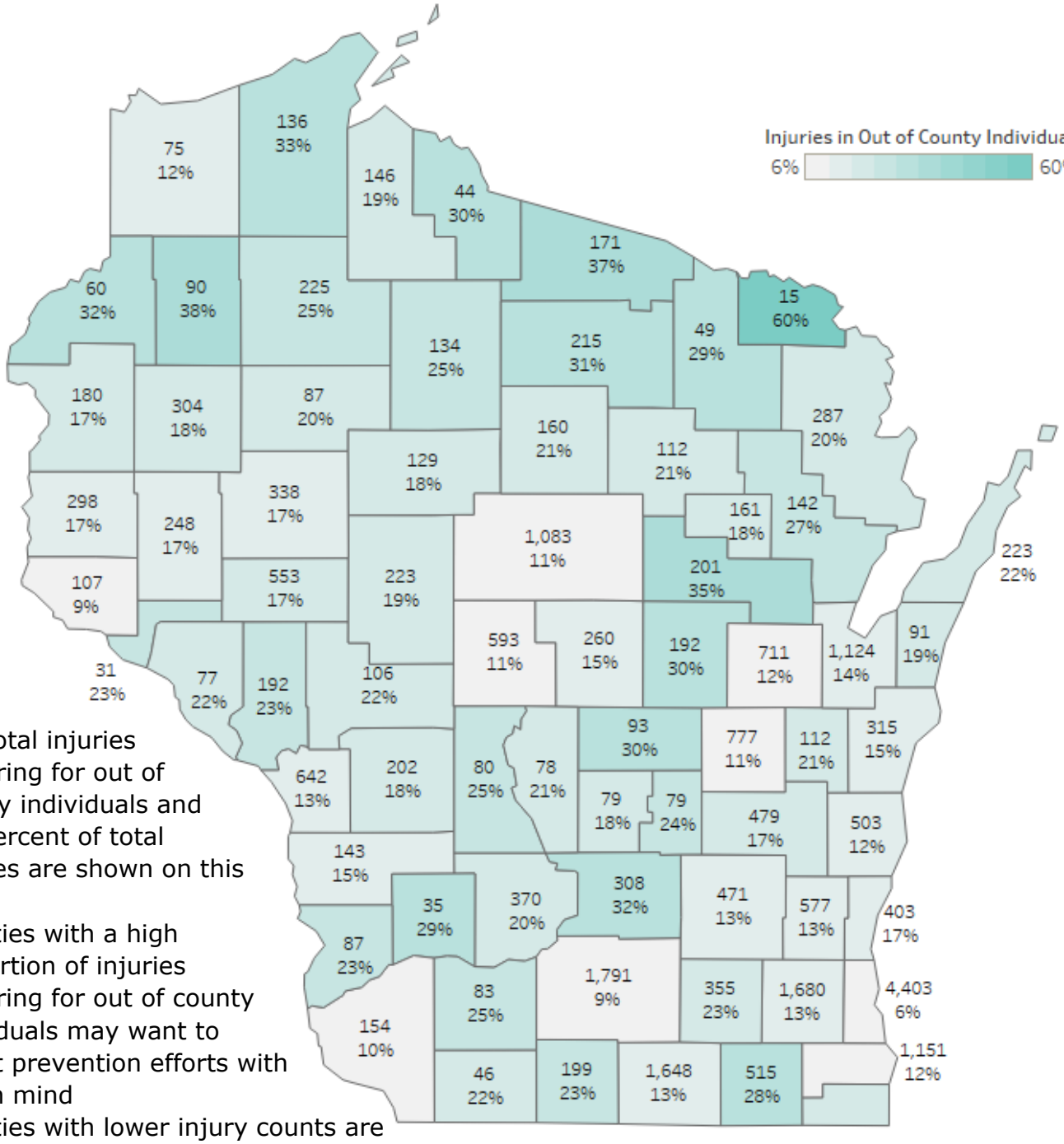


Crude Rate of Traumatic Injuries per 10,000 by Incident County



- Population based on U.S. Census 2019 estimations
- Counties with lower populations are more likely to have varying rates from quarter to quarter or year to year
- Individuals who are only seen at out-of-state hospitals or Wisconsin hospitals without trauma certification are not included in these rates
- Menominee County stands out as having a high rate of injuries. The age distribution of injuries is similar to other counties, but there is a much higher incidence of fall injuries and vehicle-related injuries, as well as a somewhat above-average incidence of other injuries

Injuries and Proportion of Total Injuries for Out of County Individuals by County



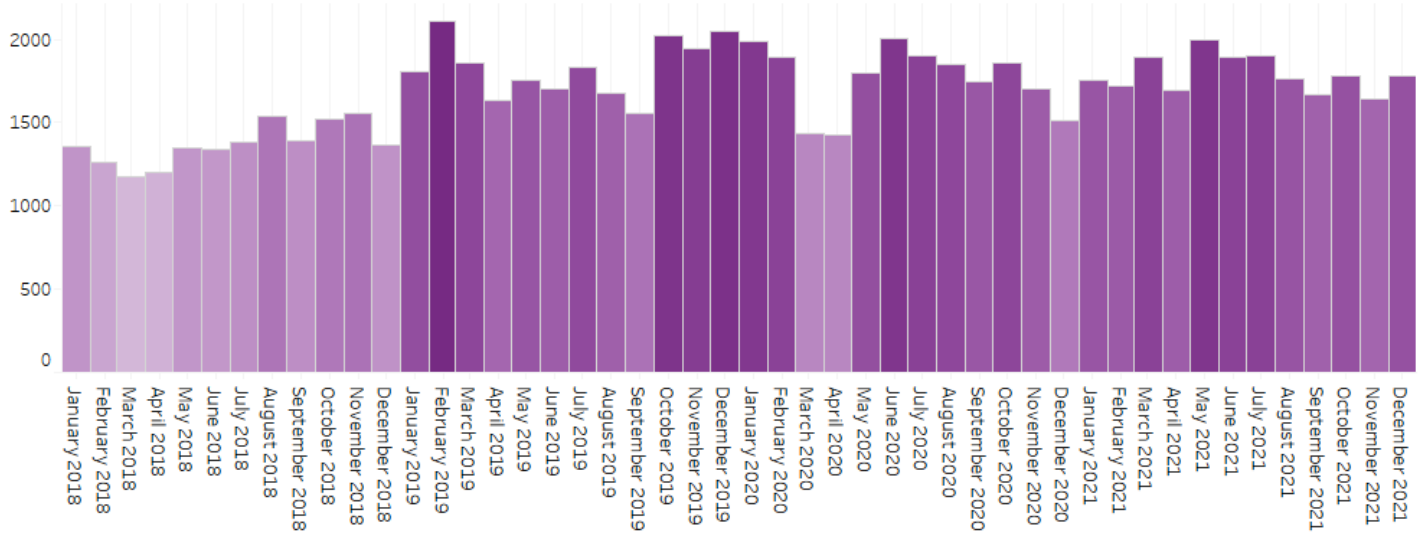
- The total injuries occurring for out of county individuals and the percent of total injuries are shown on this map
- Counties with a high proportion of injuries occurring for out of county individuals may want to target prevention efforts with this in mind
- Counties with lower injury counts are more likely to have varying counts and percentages from quarter-to-quarter or year-to-year

Focus on Falls

Focus on Falls in Wisconsin

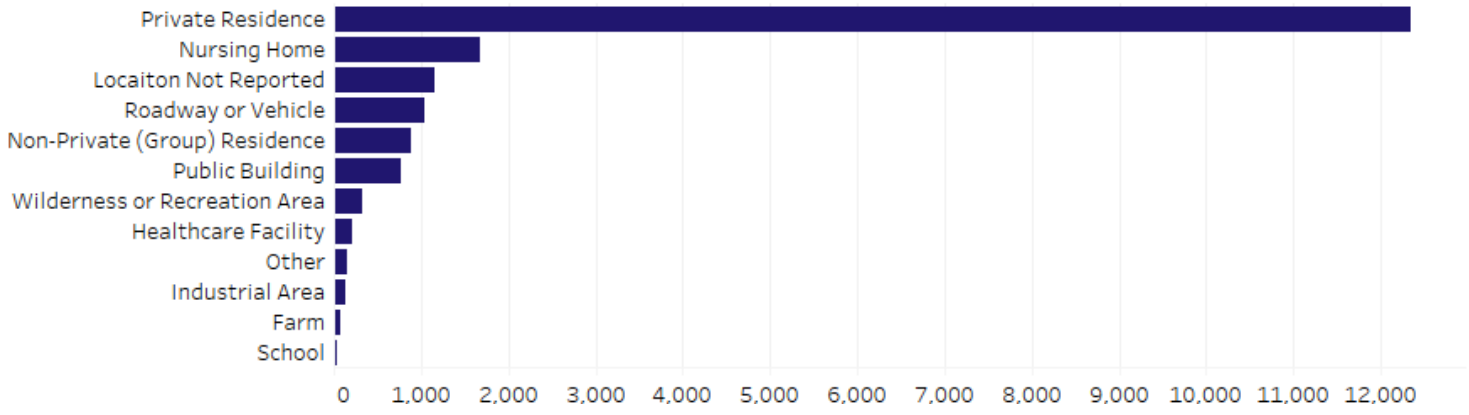
Falls make up a significant proportion of the injuries that are entered into the trauma registry database, and they can cause a variety of different injuries such as broken bones or head injuries. Falls can be caused by medical conditions, difficulties with walking and balance, and home hazards such as uneven steps or rugs and objects that can be tripped over. According to the Centers for Disease Control and Prevention (CDC), Wisconsin's rate of older adult falls is about the same as the national average, but Wisconsin has a higher rate of deaths from falling compared to the national average. All figures in the "Focus on Falls" section include only injuries in adults 20 years of age or older.

Adult Falls by Month over Time



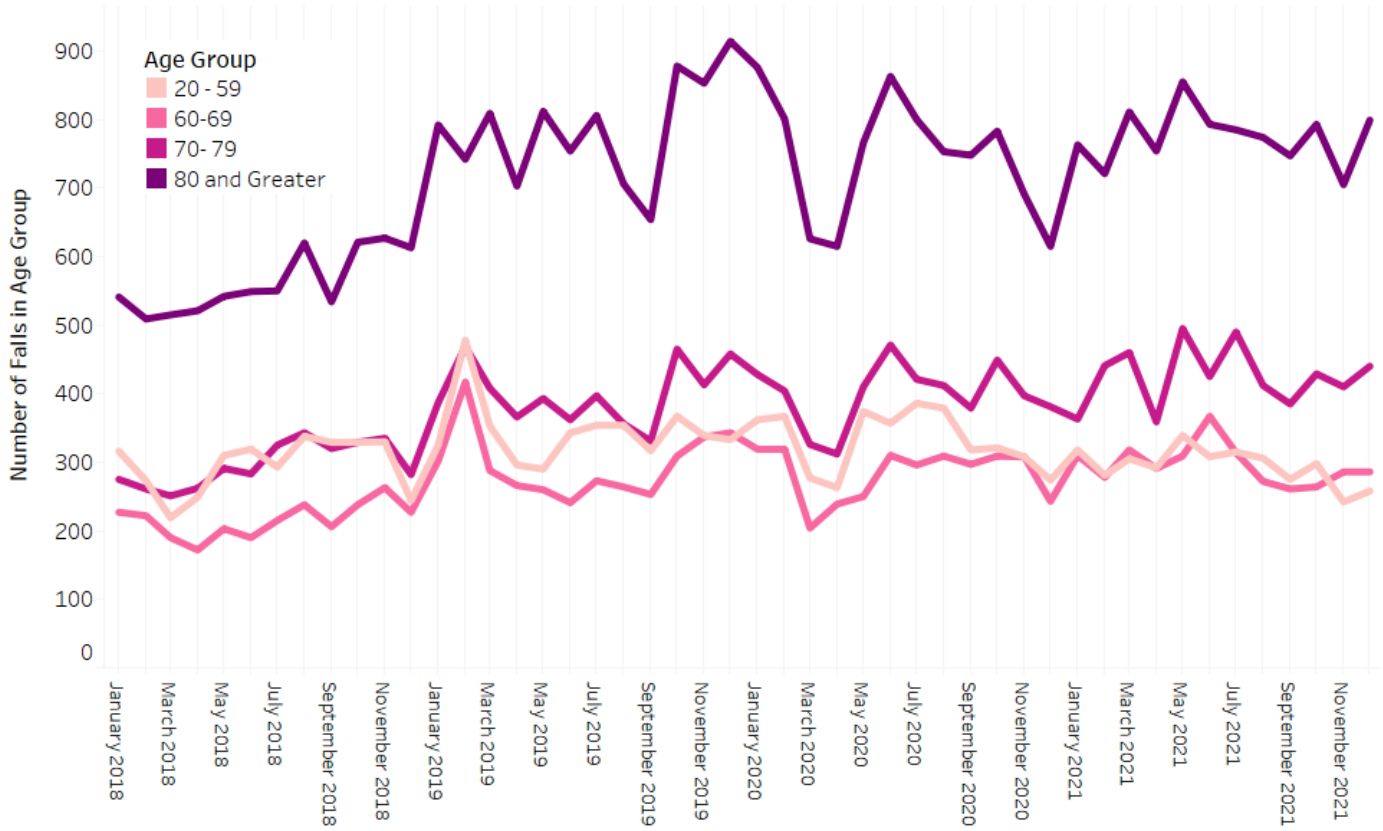
Falls injuries seen in the trauma care system have been relatively steady in recent years. In some years, winter months have significantly higher falls, but recent winters have not followed this pattern. Most falls occur in or around individuals' private residences.

Fall Injury Locations in 2021



Focus on Falls

Falls By Age Group

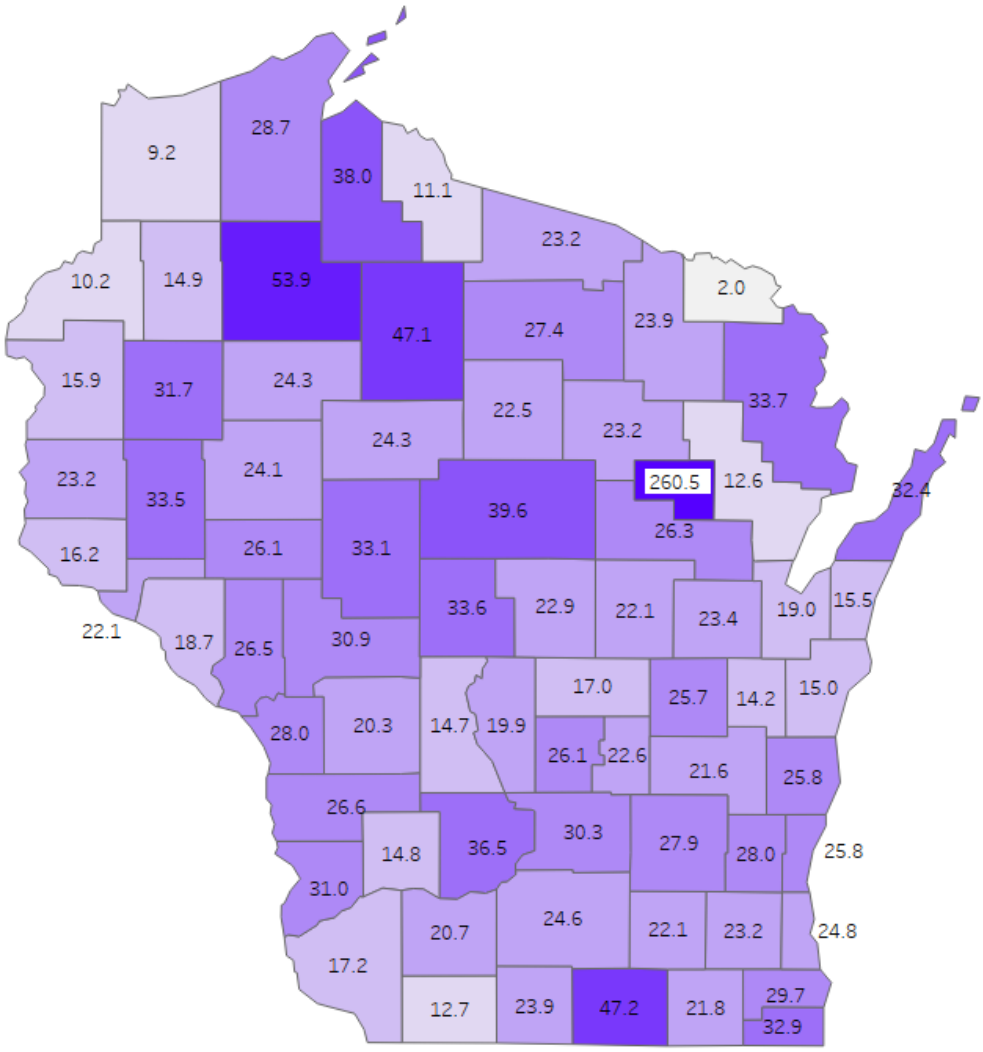


Older age groups are at higher risk for falls and at higher risk for incurring injuries from falls. Falls can have lasting impacts on an individual's health, but there are a variety of steps that people can take to reduce their chance of falling. These include improving lighting, reducing clutter, and making commonly used items easily accessible. People should also consider working with an occupational therapist, their local aging and disability resource center, or other specialists for more advice.

You can find more resources on preventing falls on CDC's Stopping Elderly Accidents, Deaths & Injuries website or on Wisconsin Institute for Healthy Aging's website.

Focus on Falls

Age Adjusted Fall Rate

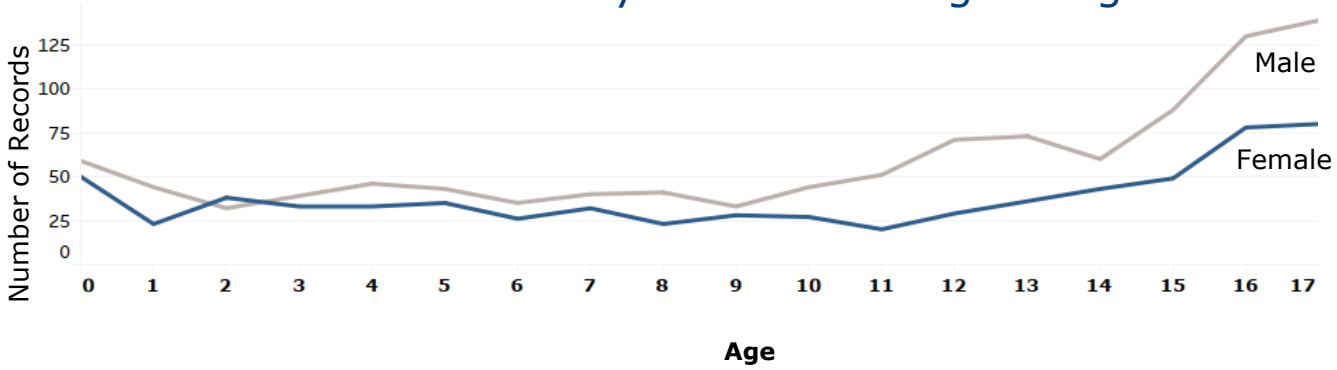


Age adjustment shows us what the rates of disease or injury might be if all populations had the same age distribution. Crude rates are useful to compare the overall number of incidents but can be very sensitive to differences in ages by geography. By adjusting for age, we can control for differences in each county's underlying age. We know that older populations are more likely to suffer injuries from falls, so age adjusting can help us highlight counties with higher than expected rates of fall injuries than would be expected based on their age distribution. There might be differences within counties that puts individuals at higher risk of fall injuries and a higher age-adjusted rate may indicate that a county might benefit more from fall prevention interventions.

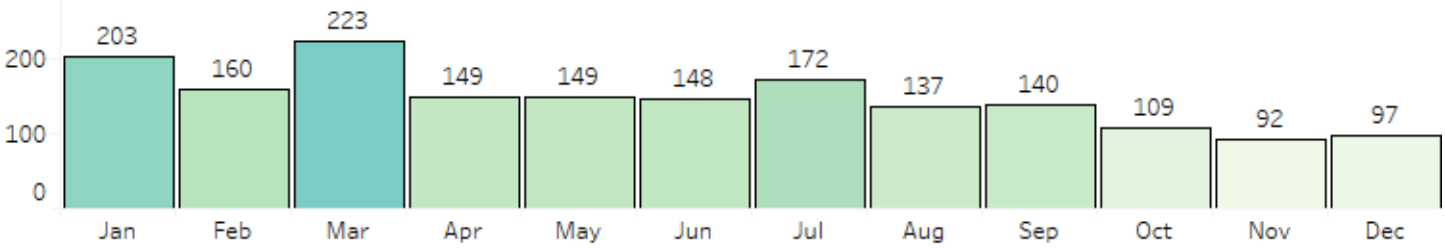
2021 Pediatric Trauma Data

2,584 Pediatric Records
1,779 Unique Injury Events

Volume of Pediatric Patients by Gender and Age Range



Volume of Pediatric Trauma Patients by Emergency Department Admission Month



Top 5 Pediatric Injury Categories by Age Group

(ICD-10 Code Category) Mechanisms of Injury	0-4	5-9	10-14	15-17
(W00-W19) Slipping, tripping, stumbling and falls	222	142	85	39
(V40-V59) Occupant car, pick-up truck, or van injured in transport accident	29	43	68	219
(V80-V89) Other land transport accidents	16	43	94	87
(W20-W49) Exposure to inanimate mechanical forces	31	28	39	35
(V00, V10-V19) Recreation Transport Activity (ski, skateboard, bike, etc injury)	7	30	51	36

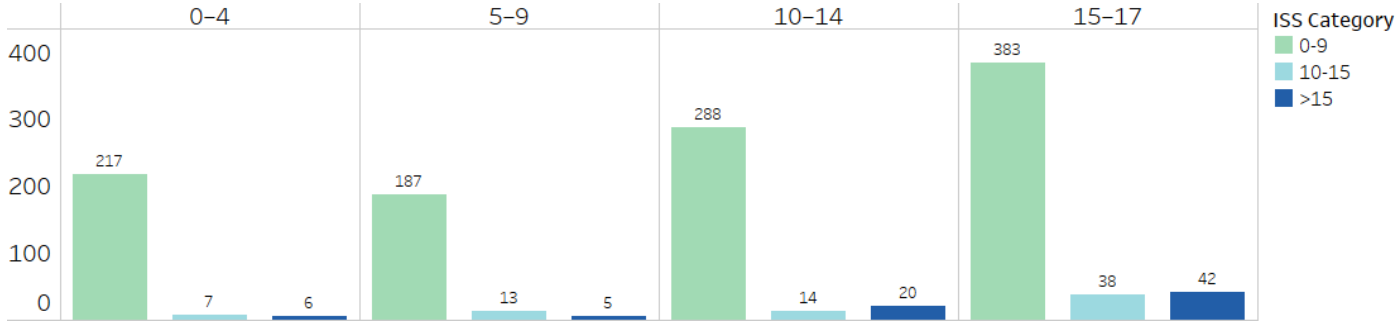
2021 Pediatric Trauma Data

Analyses include patients admitted between January 1 and December 31, 2021

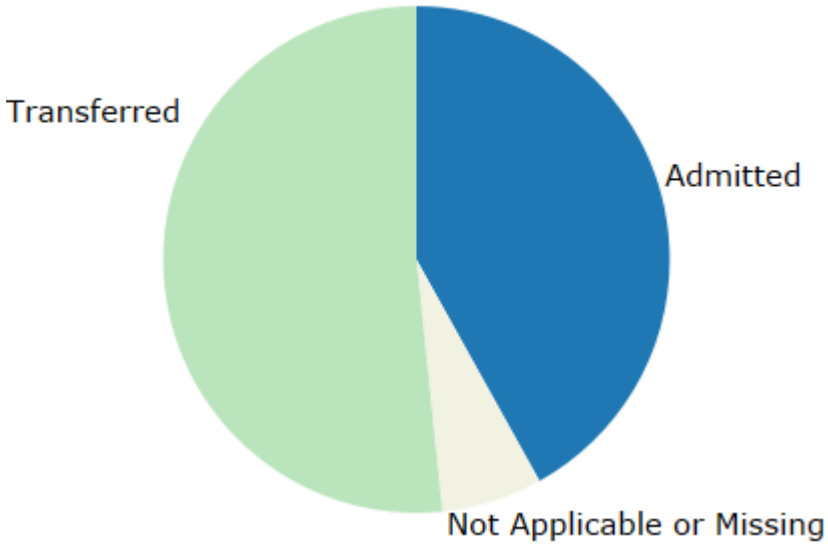
The Importance of Non-Pediatric Trauma Care Centers

Almost **8 of 10** pediatric patients (78%) whose injuries met inclusion criteria received their initial care at a hospital that is not designated as a Level I or Level II Pediatric Trauma Center. This highlights the role that non-pediatric trauma centers play in caring for our sick and injured pediatric trauma patients in Wisconsin.

Volume of Pediatric Trauma Patients Initially Seen at Non-Pediatric Trauma Care Centers by Age and Injury Severity Score (ISS)



Admission and Transfers Among Major Trauma (ISS >15) Pediatric Patients Seen at Non-Pediatric Trauma Care Centers for Initial Care



42% of major trauma patients age 17 and under that were initially seen at a non-pediatric trauma care center were admitted to that hospital.

52% of these patients were transferred to another hospital.

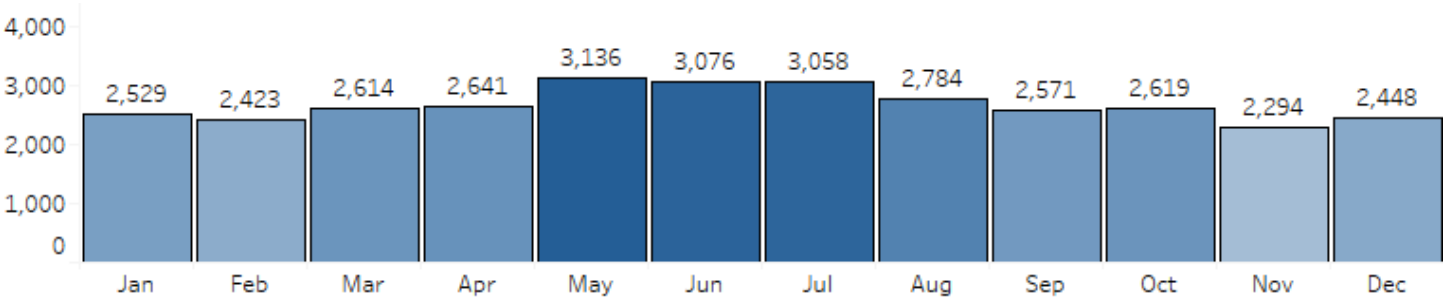
The remaining 6% is made up those who were not transferred or admitted or for whom this information was missing.

2021 and 2020 Comparison

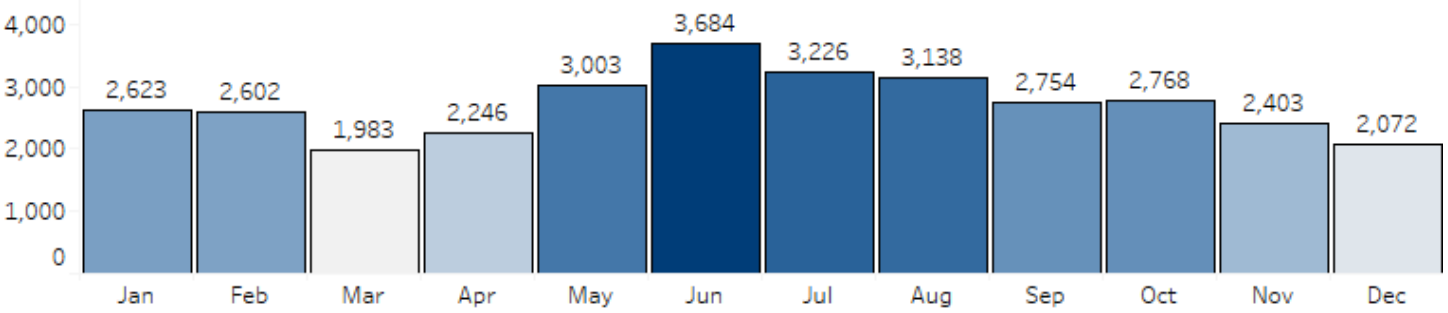
Trauma Incidents by Month for 2021 and 2020

The number of trauma incidents in 2021 decreased compared to 2020 (32,193 in 2021 versus 32,502 in 2020) and the distribution of Injury Severity Scores (ISS) was similar. However, the pattern of some types of trauma was different. 2021 saw a return to a more normal pattern of traumatic injuries while 2020 had a suppressed number of traumatic injuries in March and April at the beginning of the COVID-19 pandemic and an unusually high number of traumatic injuries in the summer, particularly in June.

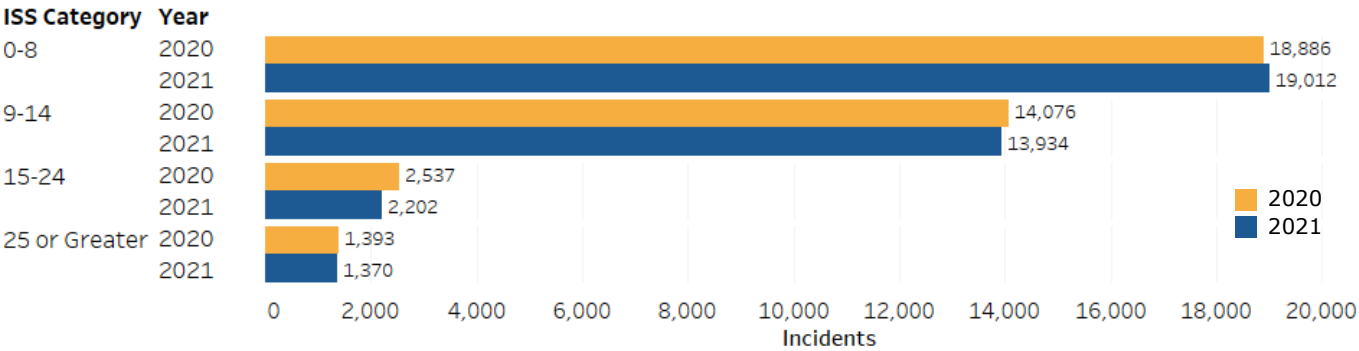
Trauma Incidents by Month, 2021



Trauma Incidents by Month, 2020



ISS Score Distribution

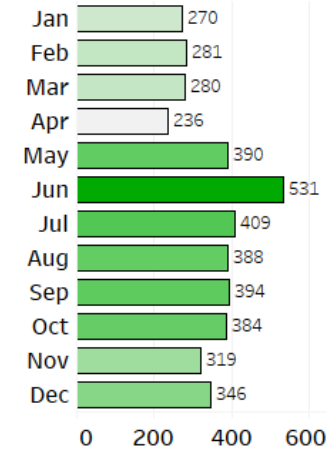


2021 and 2020 Comparison

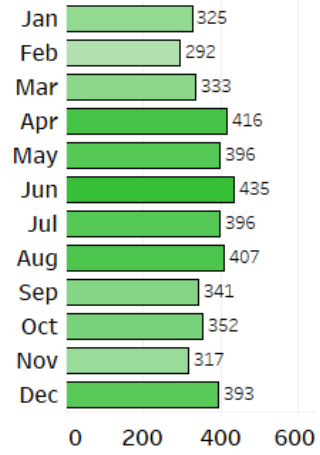
Car, Truck, and Van Trauma

The number of traumas associated with car, pickup truck, and van accidents increased slightly from 2020 (4,228 injuries) to 2021 (4,403 injuries).

2020 Vehicle Trauma



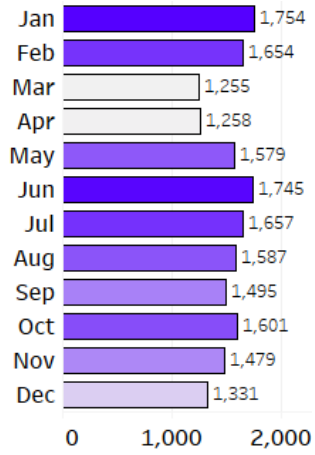
2021 Vehicle Trauma



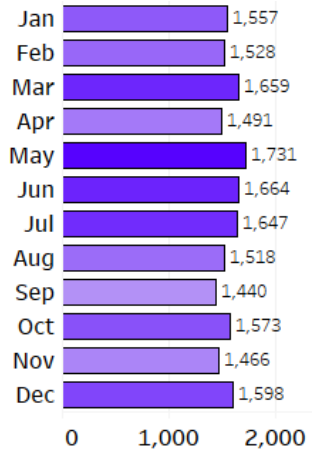
Adult Falls

Fall injuries increased somewhat from 2020 to 2021, going from 18,395 fall injuries in 2020 to 18,872 in 2021.

2020 Adult Falls



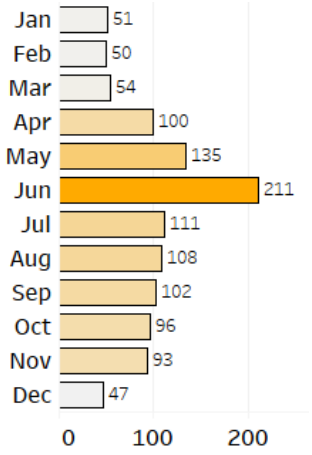
2021 Adult Falls



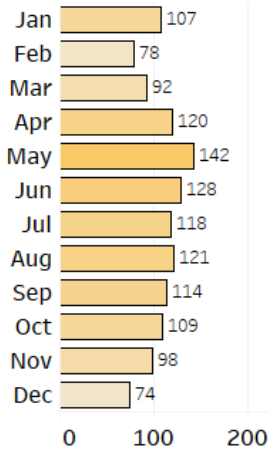
Assault Trauma

There were much higher counts of trauma due to assault in 2021 than in 2020 (1,158 in 2020 versus 1,301 in 2021, a 12% increase) with a peak in May and overall higher counts in spring and summer.

2020 Assaults



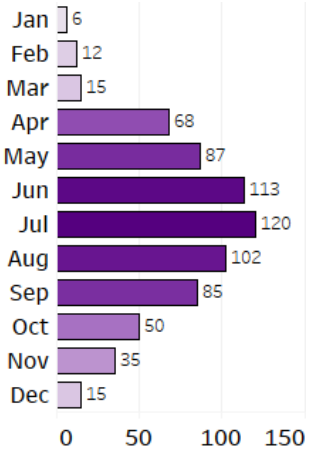
2021 Assaults



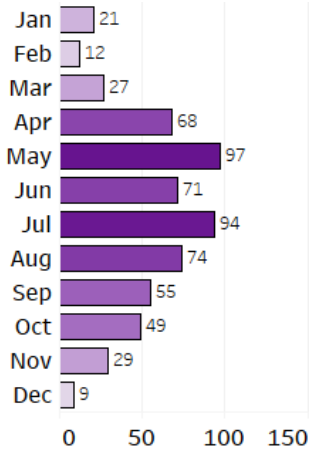
ATV/Off-Road Vehicle Trauma

Trauma occurring during the use of ATVs or other off-road vehicles decreased by 14% between 2020 (708 trauma injuries) and 2021 (606 injuries).

2020 ATV Traumas



2021 ATV Traumas



Outstanding Submission Timeliness

Analyses include patients admitted between January 1 and December 31, 2021

Recognition for Timeliness of Data Reporting in 2021

The below facilities completed records with exceptional timeliness. Only incidents meeting inclusion criteria were evaluated.

Platinum: 100% of Records Closed Within 60 Days of Patient Discharge

Aspirus Divine Savior Hospital

Aspirus Stanley Hospital

Aspirus Stevens Point Hospital

Aurora Medical Center Bay Area

Gundersen Tri-County Hospital and Clinics

Marshfield Medical Center - Neillsville

Mayo Clinic Health System - Northland

ProHealth Oconomowoc Memorial Hospital

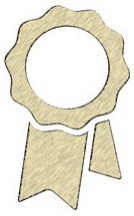
ProHealth Waukesha Memorial Hospital

Ripon Medical Center

Upland Hills Health

Western Wisconsin Health

Gold: 99.9%–99.0% of Records Closed Within 60 Days of Patient Discharge



UnityPoint Health - Meriter

Aurora Medical Center Oshkosh

Froedtert Menomonee Falls Hospital

Aurora St. Luke's Medical Center South Shore

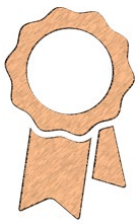
SSM Health St. Mary's Hospital - Janesville

Silver: 98.9%–98.0% of Records Closed Within 60 Days of Patient Discharge

Bellin Memorial Hospital

Aurora Medical Center Washington County

Bronze: 97.9%–95.0% of Records Closed Within 60 Days of Patient Discharge



St. Mary's Hospital Medical Center

Froedtert West Bend Hospital

Amery Hospital & Clinic

Beloit Memorial Hospital

Aurora Medical Center Burlington

Aurora West Allis Medical Center

Aurora St. Luke's Medical Center