ImageTrend Short Report

August 2025: EMS Response to Pediatric Pedestrians and Pedal Cyclists Struck by Motor Vehicles

By Macall Leslie Salewon, MPH, Epidemiologist

Background

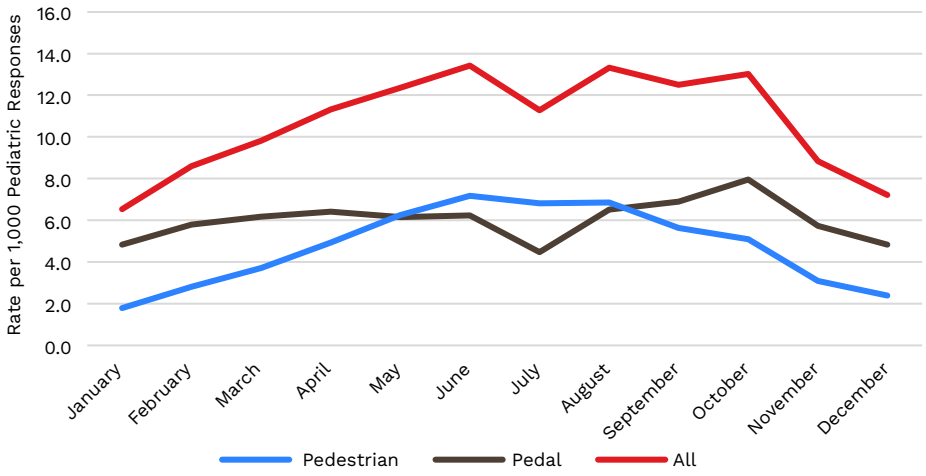
In the United States, traffic-related injuries involving pediatric pedestrians or pedal cyclists remain a serious public health issue. In 2023 alone, these incidents resulted in nearly **45,000 emergency department visits,** and **16% of pediatric traffic fatalities** were among children walking or biking.[1] [2] [3] Because walking and cycling are vital to children's independence, mobility, and health, understanding when, where, and how these injuries occur is critical to guiding EMS preparedness and community prevention efforts.

Key Findings

When do pediatric pedestrian accidents occur?

Pediatric pedestrian and pedal cyclist injuries follow a distinct seasonal trend, peaking between **May and October,** with combined incident rates exceeding **12 per 1,000 pediatric EMS responses during summer months.** Pediatric pedal cyclist incidents showed a seasonal peak in the summer months, while pedestrian incidents rose during the early school year during fall months.

Rate of Pediatric Pedestrian or Pedal Cyclists Struck by Motor Vehicles per 1,000 Pediatric Responses



Rate per 1,000 Pediatric Responses by Time and Day of Week

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
24:00-3:00	2.9	2.1	1.0	0.7	1.8	2.0	3.0	2.0
3:00-6:00	3.2	2.1	1.2	1.2	0.6	0.6	2.6	1.7
6:00-9:00	5.5	17.5	21.6	17.0	19.3	15.4	7.8	16.2
9:00-12:00	8.9	5.8	4.8	4.9	4.9	5.1	11.2	6.3
12:00-15:00	12.0	11.4	8.1	9.2	6.6	9.7	11.3	9.7
15:00-18:00	14.6	17.2	17.7	17.4	19.5	18.5	15.5	17.3
18:00-21:00	13.3	11.5	15.3	15.0	11.2	11.9	11.5	12.8
21:00-24:00	3.7	5.0	4.7	4.7	4.8	7.4	7.0	5.5
Total	9.9	10.9	11.4	11.1	10.6	10.9	10.5	10.8

In terms of timing, incidents **cluster around school and work commute times and after school activities,** especially between **3:00 PM and 9:00 PM,** and are most frequent on **weekdays**—notably **mornings on Tuesday & Thursday and afternoons on Thursday & Friday.**

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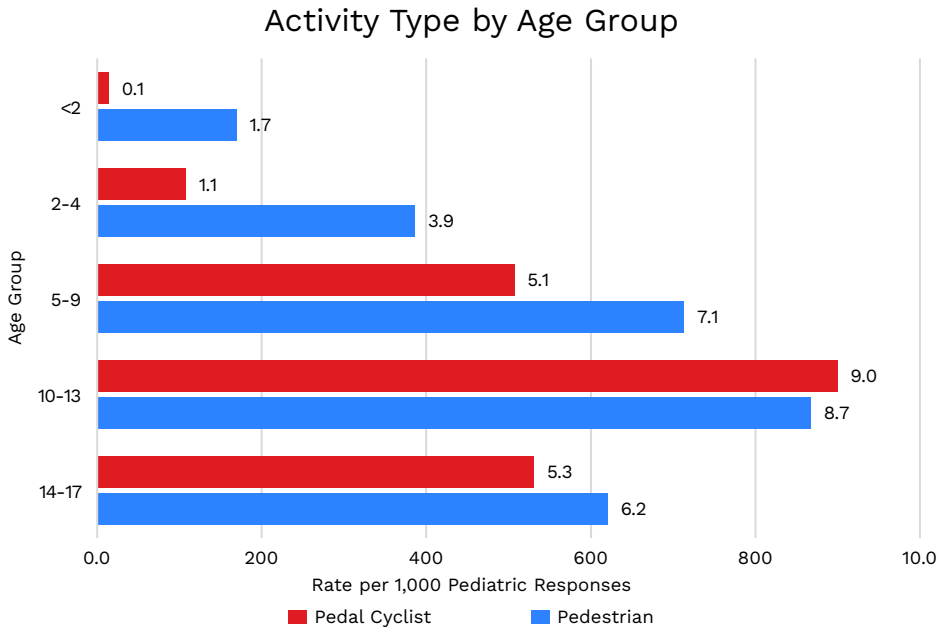
Key Findings

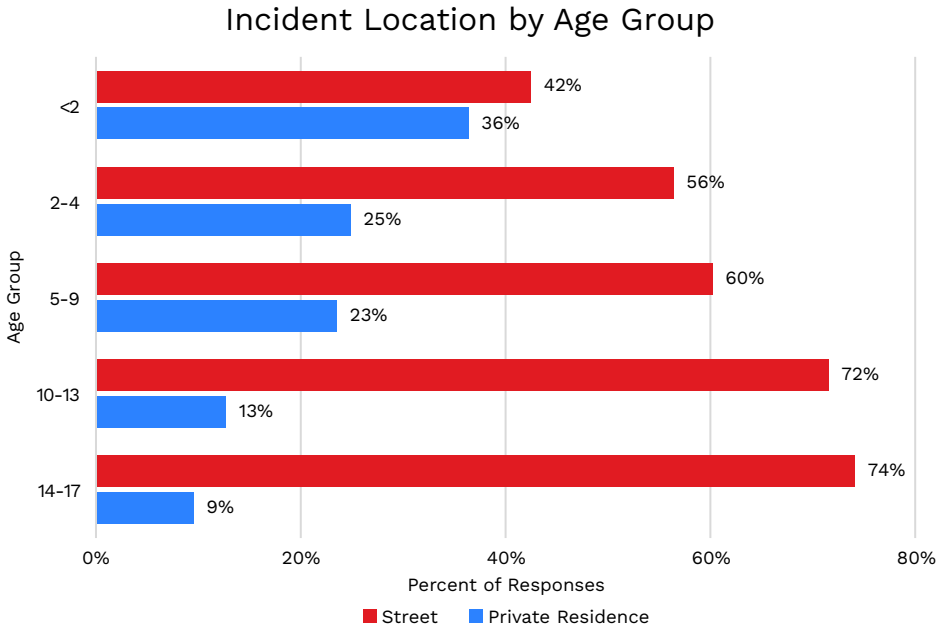
Patient Characteristics



- **68%** of all patients were **male**
- Children aged **10–13 years old** had the highest incident rates across both pedestrian (8.7) and pedal cyclist (9.0) categories
  - **5–9** and **14–17 year-olds** followed closely behind for pedestrian incidents
- **Younger children (2–4 years old)** had lower but still notable rates, especially as pedestrians

Where Are Incidents Occuring?

- **Street locations were predominant** for children **5 years and older,** especially ages **10–17 years old,** with over **70%** of incidents occurring on streets
- **Private residences** were a more common location for incidents in children under age 5 than in older age groups



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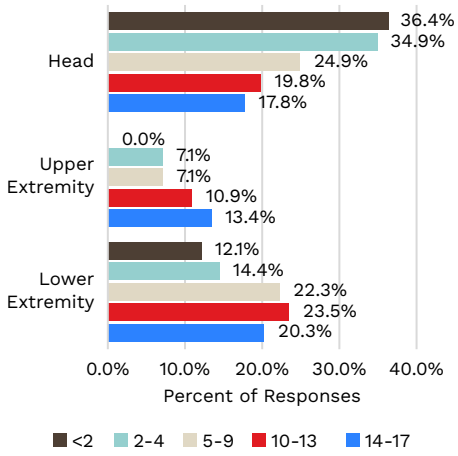
How Severe Are These Incidents?

- **11%** of pedestrian and **5%** of pedal cyclist incidents were classified as **critical** at initial EMS assessment
- **70%** of pedestrian patients and **62%** of cyclists were **transported to a hospital**
- Transport was **declined against medical advice** in a notable portion of patients:
  - **16%** of pedestrian patients
  - **24%** of cyclists

Location of Injury by Age Group



Injury Patterns by Age

- **Head injuries** were most common in children **under 5, with documentation in over one third of patients**
- **Lower extremity injuries** were predominant in older children **(14–17),** while **upper extremity injuries** were more evenly distributed

Call to Action

Promote public education using age-specific pedestrian and cyclist safety resources from the National Highway Traffic Safety Administration.
> NHSTA resources for pedestrian safety
> NHSTA resources for cyclist safety

Incorporate pediatric trauma training into EMS continuing education
> EMS1 Back to the Basics: Pediatric Trauma

Use time and location patterns to guide resource planning—such as placing crews in high-risk zones during school release hours or peak summer months.

About the data: This analysis was conducted using the **ImageTrend Collaborate™** 2024 dataset, a representative national EMS research resource4 consisting of de-identified data from agencies that opt into data-sharing. Pediatric pedestrian and cyclist incidents were identified based on **9-1-1 EMS activations** using the **eInjury.01** classification system.**Citations:**

1. Centers for Disease Control and Prevention (CDC). Web-based Injury Statistics Query and Reporting System (WISQARS) Fatal and Nonfatal Injury Reports: All Intents Pedestrian (traffic related) Nonfatal Emergency Department Visits and Rates per 100,000; Data Years: 2023, United States, <1 to 17, All Sexes, Disposition: All Cases. https://bit.ly/4mqUKDa. Accessed on 8/6/2025.
2. CDC. WISQARS Fatal and Nonfatal Injury Reports: All Intents Pedal cyclist (traffic related) Nonfatal Emergency Department Visits and Rates per 100,000; Data Years: 2023, United States, <1 to 17, All Sexes, Disposition: All Cases. https://bit.ly/3HjXoMa. Accessed on 8/6/2025.
3. National Highway Traffic Safety Administration. Fatality Analysis Reporting System (FARS): 2023 Annual Report File (ARF). Report Generated: Wednesday, August 6, 2025.
4. Ulintz AJ, Gage CB, Powell JR, Kamholz JC, Cash RE, Wang HE, Panchal AR. Evaluating ImageTrend Collaborate as a National EMS Dataset: A Cross-Sectional Comparison with the National EMS Information System. Prehosp Emerg Care. 2025 Jul 22:1-7. doi: 10.1080/10903127.2025.2526160. Epub ahead of print. PMID: 40623240.

Work With Us: ImageTrend's Clinical & Research Services team partners with EMS and healthcare organizations to uncover actionable insights and drive data-informed public health initiatives.

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> Learn more about participating in or conducting research with the ImageTrend Collaborate Dataset here: