

PEDIATRIC PEDESTRIANS INJURED IN MOTOR VEHICLE INCIDENTS ATTENDED BY EMS

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INTRODUCTION

In 2022, pedestrian deaths reached a 40-year high, averaging 20 deaths per day.¹ Evidence has shown pediatric pedestrians are at a higher risk of incident due to a lack of cognitive, perceptual, and behavioral decision making compared to adults.²

OBJECTIVE

The purpose of this study is to describe the epidemiology of pediatric pedestrian struck by a motor-vehicle (MV) incidents attended by emergency medical services (EMS) in 2022.

METHODS

- Using the ImageTrend Collaborate national dataset, we analyzed 9-1-1 responses occurring in 2022.
- Patient was between the ages of 1 and 17 years.
- Pedestrian struck by a MV (ICD-10- codes V02-V04, V09).
- Patient demographics, urbanicity (metro, non-metro/rural), patient disposition, chief complaint anatomic location, initial patient acuity, and time/day incident occurred were examined.
- Descriptive analysis were performed.

Fig. 2

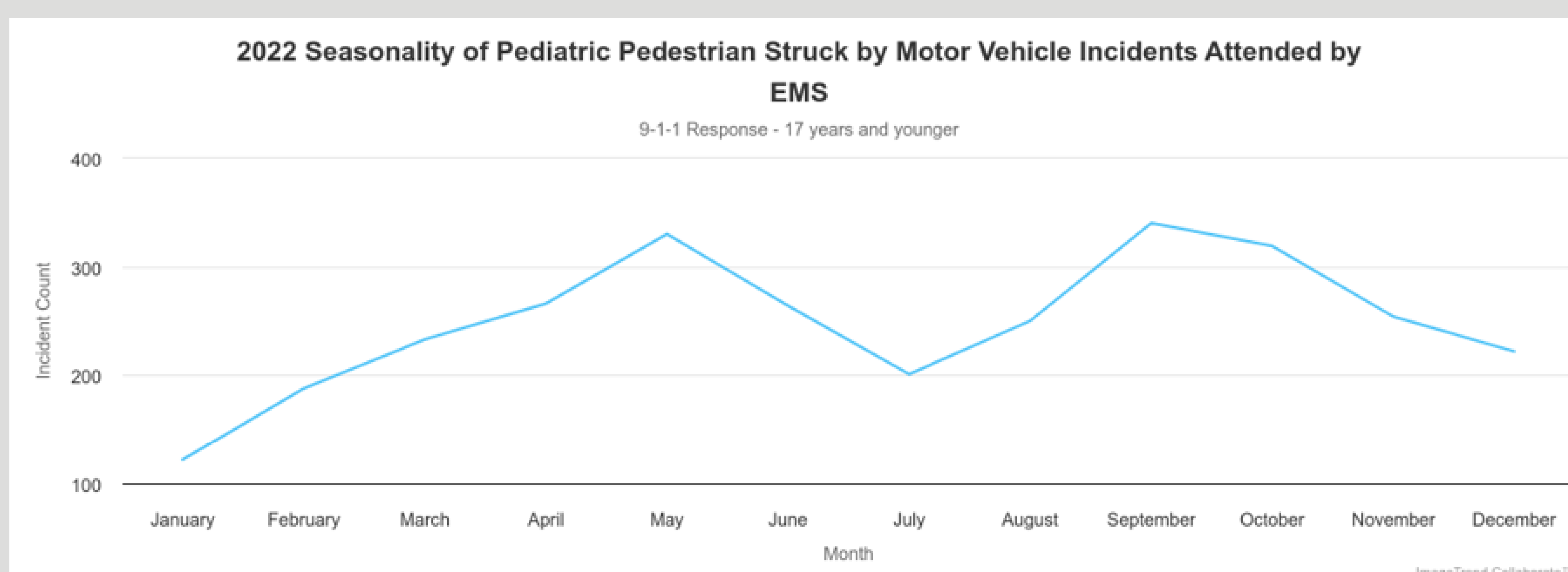


Table 1. Pediatric Pedestrian Struck by Motor Vehicle Incident Attended by EMS, 2022^a

Variable	Count (%)
N	2,989
Gender	
Female	1,194(40.0%)
Male	1,786 (60.0%)
Unknown	9
Age	
1-3 years	220 (7.4%)
3-5 years	420 (14.1%)
6-8 years	213 (7.1%)
9-11 years	425 (14.2%)
12-14 years	748 (25.0%)
15-17 years	963 (32.2%)
Race	
White	1,039 (34.8%)
Black/African American	619 (25.8%)
Hispanic	558 (23.3%)
Other/Multiple races	184 (6.2%)
Missing	589
Urbanicity	
Metro Area (RUCC 1-4)	2,628 (89.5%)
Non-metro/Rural (RUCC 5-9)	309 (10.5%)
Missing	52
Patient Disposition	
Treated and transported	1,861 (62.3%)
Refused care against medical advice	466 (15.6%)
Treated and transferred	274 (9.2%)
Treated and released	180 (6.0%)
Evaluated and no treatment required	139 (4.7%)
Assist	35 (1.2%)
Death	34 (1.1%)
Top 3 Chief Complaint Anatomic Location	
Lower Extremity	539(26.3%)
General/Global	675 (32.9%)
Head	416 (20.3%)
Patient Initial Acuity	
Lower Acuity	1,326 (61.1%)
Emergent	562 (25.9%)
Critical	262 (12.1%)
Dead	21 (1.1%)
Missing	818
Destination Team Pre-Arrival Alert if Transported	
Trauma	428 (23.0%)

Table . 1

^a 911 Response

^b Metro area includes counties located within a metropolitan area that has over 250,000 residents. Non-Metro area includes urban counties with at least 2,500 residents, that may or may not be adjacent to a metropolitan area. Rural denotes counties that are completely rural or urban with less than 2,500 people in an urban area.

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
0	7	1	3	3	0	1	3	18
1	6	4	3	0	0	3	3	19
2	3	1	1	0	1	1	1	8
3	1	0	1	1	1	1	0	5
4	1	4	0	1	0	1	0	7
5	2	0	0	0	2	0	0	4
6	2	6	16	8	12	6	0	50
7	1	37	53	36	61	37	2	227
8	3	24	26	23	34	31	8	149
9	8	5	8	11	8	12	10	62
10	11	6	7	9	9	18	16	76
11	14	12	15	11	10	19	12	93
12	16	9	18	16	13	20	22	114
13	15	7	22	15	23	18	26	126
14	21	31	41	34	31	32	29	219
15	22	43	69	50	43	59	27	313
16	27	45	45	44	54	47	40	302
17	42	37	38	38	41	52	33	281
18	33	39	47	47	45	43	35	289
19	23	38	30	36	24	55	27	233
20	15	26	16	28	23	32	31	171
21	12	9	16	10	18	28	16	109
22	7	6	6	6	10	15	27	77
23	1	3	4	7	4	8	10	37
Total	293	393	485	434	467	539	378	2,989

Fig. 1

Pediatric (1-17 years) Pedestrian Struck by MV Incidents attended by EMS, 2022

Fig. 1 Legend

Green	20 or less
Yellow	21-30
Orange	31-40
Dark Red	41 or more

RESULTS

- 2,989 pediatric patient struck by MV incidents,
- Majority of patients were male (60%), between the ages of 12-17 (57%), in metro areas (90%), and treated and transported (62%).
- 23% had a destination team alert for trauma.
- Fridays (18%) and 3:00-3:59pm (11%) had the highest rate of incidents.
- 40% of weekday incidents occurred between the hours of 3:00pm to 6:59pm; 15% from 7:00am to 8:59am.
- Seasonal trend with the lowest incidents occurring during winter months and then trended upward in spring/early summer and peaked again in September.

LIMITATIONS

Data is extracted as a convenience sample of EMS patients in the United States.

CONCLUSION

- Pediatric patients are most likely to be walking independently (12-17 years old) and walking to or from school/extracurricular activities based on days of week and times of highest incidents occurring.
- These findings can be valuable for allocating EMS and trauma-based resources during high-demand times, days and months.
- Priority should be placed on research that focuses on common themes and risk factors during peak hours of incidents so that prevention efforts can be established.

References:

1. Macek, K. (2023). Pedestrian Traffic Fatalities by State: 2022 Preliminary Data. <https://www.ghsa.org/resources/Pedestrians23> National Center for Statistics and Analysis. (2023, May). Children: 2021 data (Traffic Safety Facts, Report No. DOT HS 813 456).
2. National Highway Traffic Safety Administration. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813456>



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