UNIVERSITY OF LOUISVILLE
SCHOOL OF DENTISTRY

Traumatic Dental Injuries

Prevalence of Traumatic Dental Injuries in a Children's Emergency Department

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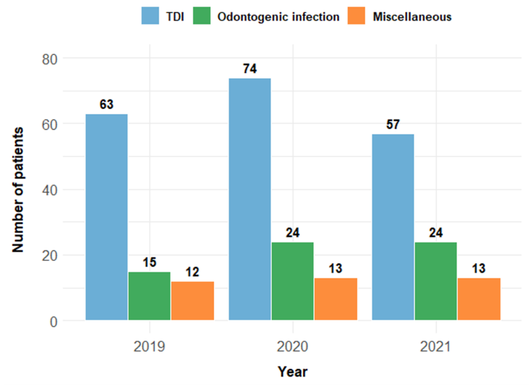
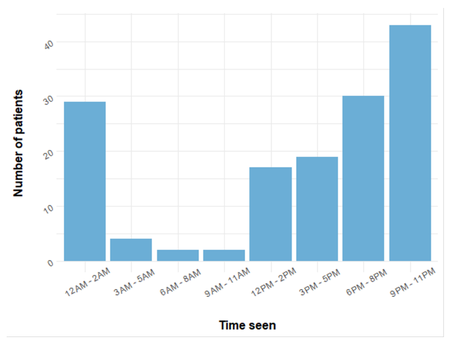
The purpose of this study is to assess the prevalence of Traumatic Dental Injuries (TDIs) in a Level I Pediatric Trauma Center. This retrospective study obtained dental records of TDIs presented at Norton Children's Hospital from a three-year span of January 2019 - December 2021. All notes submitted to Axium for code D9420 "Hospital On Call" were used as part of the sample collection. Descriptive statistics were used to determine frequency and associations between age, gender, etiology, diagnosis, accident location and time. The year 2020 was noted as COVID-19 pandemic lockdown year and was compared against pre-pandemic year 2019 and late-pandemic year 2021. Limited research studies have been completed on this topic globally. There is still a large gap of knowledge in understanding the current prevalence of TDIs in pediatric population in varying geographic locations.

Number of ED cases seen in 2019, 2020, 2021



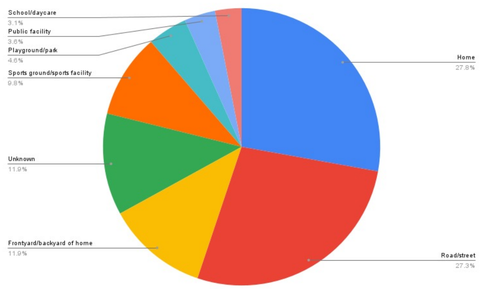
Popular Times of the Day



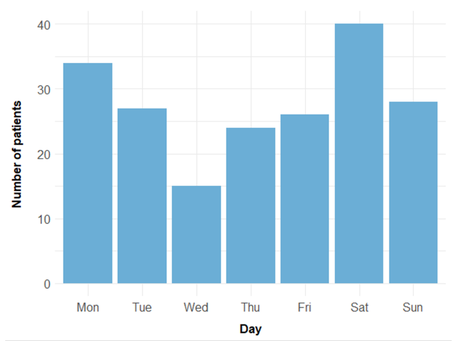
Age & Gender Distribution

Age group (years)	Female n (%)	Male n (%)	Total n (%)
<= 3	22 (29.7)	30 (25.0)	52 (26.8)
4-6	12 (16.2)	23 (19.2)	35 (18.0)
7-9	15 (20.3)	28 (23.3)	43 (22.2)
10-12	10 (13.5)	16 (13.3)	26 (13.4)
13-15	9 (12.2)	15 (12.5)	24 (12.4)
16-18	6 (8.1)	7 (5.8)	13 (6.7)
19-21	0 (0.0)	1 (0.8)	1 (0.5)
Total	74 (38.1)	120 (61.9)	194 (100.0)

Location where Injury occurred



Days of the Week of ED Visits



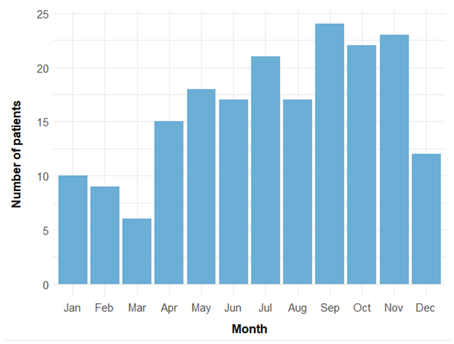
Type of Tooth Affected

Tooth type	Primary n (%)	Permanent n (%)	Total n (%)
Maxillary central incisor	98 (51)	148 (61.2)	246 (56.7)
Maxillary lateral incisor	44 (22.9)	40 (16.5)	84 (19.4)
Mandibular central incisor	18 (9.4)	24 (9.9)	42 (9.7)
Maxillary canine	15 (7.8)	7 (2.9)	22 (5.1)
Mandibular lateral incisor	12 (6.2)	9 (3.7)	21 (4.8)
Mandibular canine	3 (1.6)	4 (1.7)	7 (1.6)
Maxillary premolar	0 (0)	6 (2.5)	6 (1.4)
Maxillary molar	2 (1)	2 (0.8)	4 (0.9)
Mandibular premolar	0 (0)	2 (0.8)	2 (0.5)
Total	192 (44.2)	242 (55.8)	434 (100.0)

Types of TDI Presented in ED

TDI type	Count (n)	Percentage (%)
Lateral luxation	96	22.0
Avulsion	79	18.1
Subluxation	46	10.5
Intrusive luxation	45	10.3
Extrusive luxation	39	8.9
Enamel-dentin crown fracture	38	8.7
Enamel-dentin-pulp crown fracture	30	6.9
Enamel crown fracture	27	6.2
Concussion	17	3.9
Crown-root fracture	11	2.5
Alveolar fracture	5	1.1
None	3	0.7
Root fracture	1	0.2

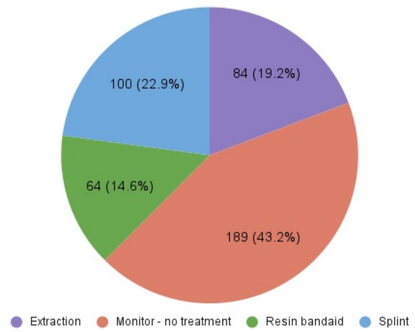
Months of the Year of ED Visits



Cause of Injury

Cause of Injury	Count (n)	Percentage (%)
Accidental fall	65	33.5
Motor vehicle accident	25	12.9
Struck an object	23	11.9
Sports injury	22	11.3
Recreational transport accident	15	7.7
Bicycle accident	13	6.7
Struck by another person	12	6.2
Attacked by animal	7	3.6
Struck by an object	6	3.1
Unknown	4	2.1
Gun shot wound	1	0.5
Seizure	1	0.5

Treatment Rendered in the ED



Results

194 TDI cases were seen in the ED, and a total of 434 teeth were affected and evaluated. While the year 2020 saw more TDIs compared to 2019 and 2021, chi-square analysis showed no statistical significance. 2020 and 2021 also showed more hospital admissions for odontogenic infections compared to 2019. Males have a higher prevalence (1.6 times more likely) than females to have TDIs. Age groups of less than 3 years of age and 7-9 years of age were most commonly seen. Accidental falls and inside homes were the most prevalent cause and location. Upper maxillary central incisors were most commonly affected primary and permanent teeth. Lateral luxations and avulsions were the most commonly seen injuries in the ED.

Conclusions

This study enabled healthcare providers to better understand the demographics and prevalence of TDIs in Kentucky. The study also aids in preparing future pediatric dental residents for taking hospital call.

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