



# Facial Trauma Among Pediatric Patients: A 4 Year Analysis of the NEISS Database



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## Introduction

Compared to the adult population, pediatric facial trauma is relatively uncommon but may cause significant long-term morbidity in the pediatric population. Such fractures may impose a significant psychosocial, as well as financial burden, to the patient and family.

Although much is known about the epidemiology of facial fractures in adults, there is sparse literature delineating the epidemiology and injury pattern in the pediatric population. Our goal was to evaluate the incidence of facial fractures among children and describe injury characteristics such as location and mechanism of fracture along with demographics.

## Methods

The National Electronic Injury Surveillance System (NEISS) was queried in order to collect data regarding the incidence and characteristics of facial trauma amongst the pediatric population.

Data on emergency department visits from January 1, 2012 to December 31, 2015 for pediatric patients presenting with evidence of facial trauma was included. Entries were evaluated for location of injury, mechanism of injury, associated injuries, and the presence of abuse or assault.

Statistical analysis of correlating injuries was performed with Chi-Squared and defined p-value of 0.05.

## Results

A total of 4,290 pediatric facial traumas were captured and analyzed (Table 1). Overall, most common site of fracture was the mandible (35.0%) followed by the nasal bone (30.4%; Table 2). In the 0-1 age subgroup, nasal fractures accounted for 46% of facial fractures. As patients aged, the rate of mandible fractures increased whereas nasal fractures decreased. In patients 5-18 years old, mandible fractures represented ~40% of fractures.

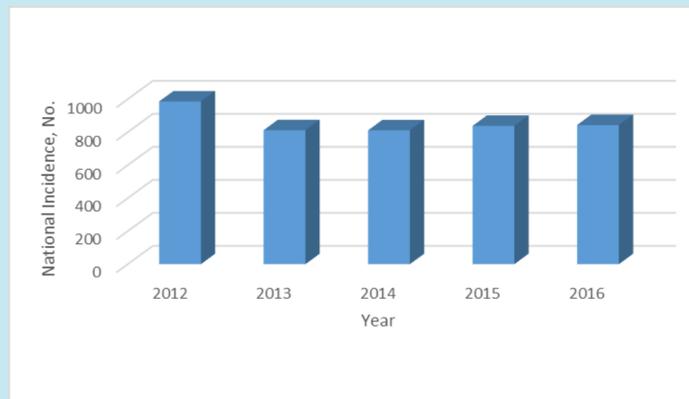


Table 1: Annual Incidence Facial Fractures Among Pediatric Patients Presenting to the Emergency Department

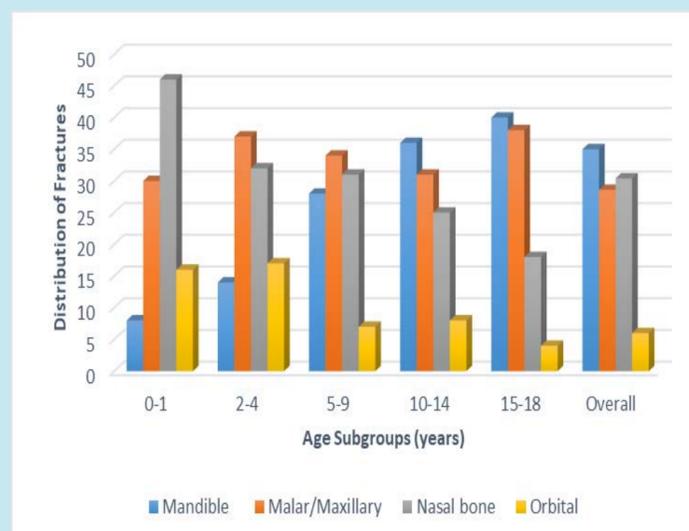


Table 2: Fracture type among all pediatric facial fractures (n = 4,290) by percentage of age group.

Team sports injuries accounted for a majority of the fractures (45%) followed by falls (18%; Table 3). Of sports-related injuries, baseball (20%) and basketball (12%) represented the most common causes of fracture.

Abuse or assault was noted in less than 1% of cases. Associated injuries were reported in approximately 44.3% of cases and most frequently included facial soft tissue injury (Table 4). Interestingly, there was an association between orbital fractures and occult cervical spine injuries (P<0.05).

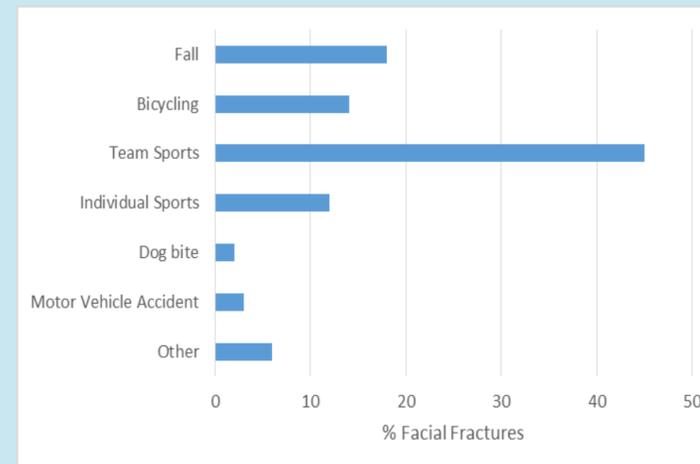


Table 3: Mechanism/Activity Leading to Facial Fractures Among Pediatric Patients

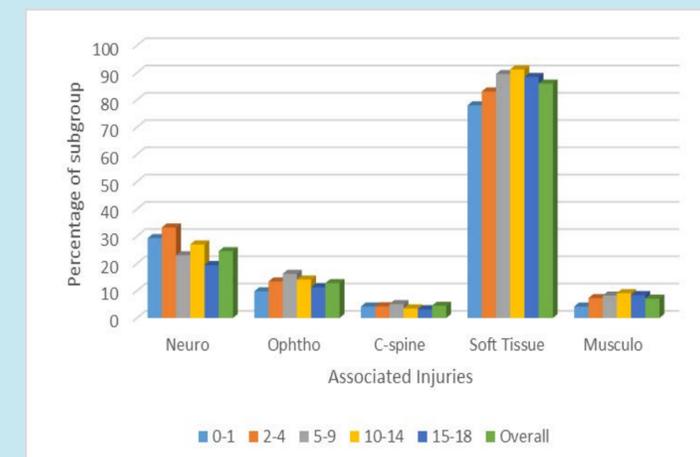


Table 4: Associated injuries categorized by age. (neuro, neurological, C-Spine, cervical spine;; ophtho, ophthalmologic; musculo, musculoskeletal).

## Discussion

The etiology and epidemiology of pediatric facial traumas is infrequently reported in the literature. Our analysis indicates that sports-related injuries represented the most common cause of pediatric facial trauma. According to the Kids' Inpatient Database and the Nationwide Inpatient Sample, facial fractures in the pediatric population comprise ~15% of all facial fractures. Despite the relatively low incidence, facial fractures in the pediatric population may incur significant morbidity and cost to the patient and family. In addition, outside of trauma centers, surgeons may have limited experience managing these types of fractures due to their low overall incidence.

Based on this cohort, abuse did not represent a major cause of facial trauma but should still be considered in evaluation of this patient demographic.

## Conclusions

Although pediatric facial fractures are uncommon, they may impose a significant burden to the patient. Our analysis suggests interventions such as more reliable in-game protective gear and patient/family education be reinforced to minimize risks of injury and any associated socioeconomic burden of injury.

## References

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