

**Department of Surgery  
2026 Research Day**

**Title:**

Impact of Socioeconomic Status on Outcomes after Facial Trauma: A TriNetX Retrospective Study

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**Background:**

Facial trauma represents a substantial public health burden, with its incidence, patterns, and outcomes influenced by socioeconomic factors. However, large-scale studies elucidating the impact of socioeconomic status (SES) on facial trauma are limited. A comprehensive assessment of fracture subtypes, at-risk populations, and associated outcomes is warranted to better understand disparities in facial trauma.

**Methods:**

A retrospective cohort study was conducted using the TriNetX Research Network. Patients were identified via emergency department (ED) visit and classified as low-SES or high-SES (ICD-10-CM Z59 code) within 1 month of the ED visit. Propensity score matching was performed on age, sex, race, and ethnicity. Primary outcomes included incidence of open head lacerations (S01) and facial fractures (S02), with subtype analyses for cranial vault, skull base, nasal bone, orbital floor, maxillary, dental, and mandibular fractures. Cohorts were stratified into pediatric (0-18), young adult (19-39), middle-aged (40-64), and older adult ( $\geq 65$ ) groups. For operative patients, secondary analysis assessed 30-day postoperative outcomes (ED visits, readmissions, opioid and NSAID prescriptions, mortality). Statistical significance was set at  $p < 0.006$ .

**Results (or Preliminary Results):**

In pediatric patients ( $n=20,262/\text{group}$ ), while there were no significant differences in fracture incidence, low-SES children had fewer head lacerations ( $p < 0.001$ ). Low-SES patients in the young-adult cohort ( $n=141,565/\text{group}$ ) had a significantly increased risk of facial fracture, most notably cranial vault, mandibular, and skull base fractures. These results were consistent with the middle-aged group ( $n=201,473/\text{group}$ ), where the risk of mandibular fractures was the greatest. In older adults, ( $n=62,648$ ), the incidence of cranial vault fractures was significantly elevated ( $p < 0.0001$ ). Among surgical patients ( $n=715/\text{group}$ ), low-SES patients had higher ED visit rates ( $p < 0.001$ ), readmissions ( $p=0.003$ ), and received fewer prescribed opioids ( $p=0.005$ ).

**Conclusions (or Preliminary Conclusions):**

Low SES is significantly associated with increased incidence of facial fractures (particularly mandibular, cranial vault, and skull base) among young and middle-aged adults, with incidence increasing through middle age. Inequities in postoperative healthcare utilization and pain management further underscore socioeconomic disparities. These findings highlight SES as a key parameter in the incidence of facial trauma and inform providers on pertinent patient risk factors to improve long-term outcomes. Future studies should explore enhancing management protocols by identifying high-risk patients, treatment failure or recurrence, and implementing quality improvement and outreach strategies to maximize follow-up.