Pediatric Emergency Dental Care: A Six-Month Retrospective Study

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Background

•Every year in the U.S., estimated 2 million visits to hospital emergency departments (EDs) for dental pain and more than 200,000 visits are made by children.
•Approximately 80% of dental-related ED visits were due to preventable conditions like abscesses and cavities.
•ED visits total up to approximately $1.6 billion annually. Medicaid covers about one-third of these costs.
•Emergency dental care utilization in the ED is driven by many factors: insurance type / lack of coverage, limited access to dental care, geographic limitations.
•No studies have investigated the medical history of pediatric patient utilizing services in university-based dental clinic.

Objectives & Hypotheses

Objectives:

•To assess patient demographics (age, sex, race, and ethnicity) and their association with emergency dental visits.
•To analyze the chief complaints and diagnoses among pediat patients seeking emergency dental care.
•To evaluate immediate treatment decisions (e.g., extractions, restorations, antibiotic prescriptions) and follow-up recommendations.
•To compare treatment patterns between medically healthy (ASA I) and medically complex (ASA II+) children.
•To investigate socio-demographic disparities in emergency dental service utilization, including differences by age, race, ethnicity, and insurance status.
•To determine statistical associations between medical complexity, presenting complaints, and treatment outcomes.
•To provide data-driven recommendations for improving resource allocation, preventive care, and treatment strategies in pediatric emergency dental care settings.

Null Hypotheses:

•H_{01}: There is no significant difference in emergency dental treatment utilization patterns between medically healthy (ASA I) and medically complex (ASA II+) pediatric patients.
•H_{02}: Socio-demographic factors, such as age, sex, race, ethnicity, and insurance status, do not significantly influence the likelihood of seeking emergency dental care.
•H_{03}: There is no significant difference in treatment between medically healthy and medically complex pediatric patients.

Methods

•This cross-sectional study retrospectively analyzed electronic dental health records (Axium) of children under 16 years of age who sought care at the University of Illinois Chicago College of Dentistry (UIC COD) Pediatric Dentistry Urgent Care Clinic over a six-month period from May to November 2021.
•Data extracted included patient demographics (age, sex, race, ethnicity), medical background, chief complaints (e.g., odontogenic pain, trauma, facial swelling), treatments provided (extractions, restorations, antibiotic prescriptions, referrals), and follow-up recommendations (comprehensive examinations, recalls, surgical interventions).
•All recorded medical conditions were collected, and patients were categorized according to American Society of Anesthesiologists (ASA) classification for analysis.
•Data collection was conducted by a single investigator to ensure consistency.
•Descriptive statistics were used to summarize demographic and clinical characteristics. Chi-squared and Fisher's exact tests were used to assess associations between ASA classification, presenting complaints, and treatment decisions. Logistic regression was performed to identify factors influencing treatment choices and follow-up recommendations.

Results

Demographic Characteristics

- The mean age was 6.01 years (SD = 3.09), with most patients between 3 and 8 years old. Males comprised 54.81% of the sample.
- Racial and ethnic distributions showed a predominance of White (60%) and Hispanic (43.66%) patients.
- Most patients (72.01%) were classified as ASA I (healthy), while 27.99% fell into ASA II or higher, indicating medical complexity (Figure 1).

Presenting Complaints and Diagnoses

- Odontogenic pain was the most frequent complaint (61.52%), followed by facial swelling (10.79%) and trauma-related issues (7.00%).
- The "Other" category (7.00%) included concerns such as space maintainer issues, crown loss, bruxism, and soft tissue conditions.
- Chronic odontogenic infection was the most prevalent diagnosis (48.40%), followed by dental caries (10.50%), acute infections (10.20%), and trauma (11.66%), (Figure 2).

Treatment and Follow-Up

- Extractions were the most common immediate treatment (51.60%), while 22.74% of cases required no immediate intervention. Restorative treatments, antibiotic prescriptions, and space maintainer management were less frequent. The most common follow-up visit was a comprehensive exam (33.24%), followed by recall appointments (22.74%), (Figure 3).

Statistical Associations

- Older children were more likely to present with complaints categorized as "Other" ($p = 0.019$) and receive treatments other than extractions ($p < 0.001$).
- Black patients were less likely to present with complaints in the "Other" category ($p = 0.036$) or receive restorative treatments ($p = 0.009$).
- Females were less likely to present with complaints in the "Other" category ($p = 0.037$) or receive restorative treatments ($p = 0.017$).
- Patients classified as ASA II+ were significantly older ($p = 0.0301$) and less likely to present with trauma ($p = 0.055$), but ASA classification did not significantly influence immediate treatment or follow-up recommendations.

Figure 1: Primary Conditions of ASAII/Above

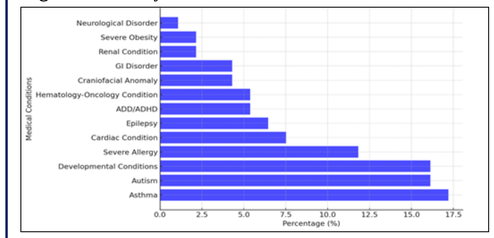


Figure 2: Primary Dental Diagnoses

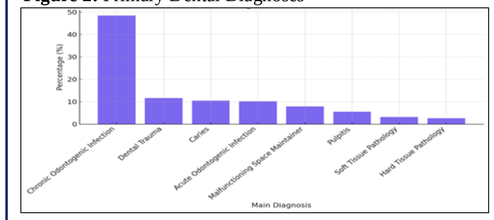
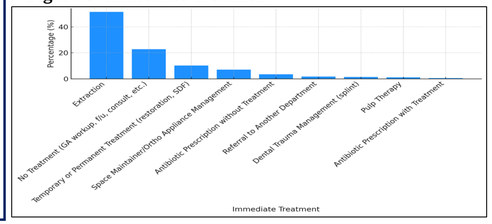


Figure 3: Immediate Treatment



Conclusions

Based on the results of this study, the following conclusions can be made:

- Dental caries and odontogenic infections are the primary reasons for pediatric emergency dental visits, with extractions being the most commonly performed treatment.
- Older children (ASA II+) are more likely to present with medical complexities, indicating a need for specialized care integration.
- Black patients more likely to have incomplete dental treatment compared to White patients.
- A significant proportion of patients required follow-up care, showing gaps in routine preventive dental services.

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