

# Trends in Post-Pandemic Pediatric Dental Emergencies at Stony Brook Dental Care Center

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## BACKGROUND

Pediatric dental emergencies encompass a spectrum of conditions that include trauma, facial swelling, and dental pain. These urgent conditions require immediate attention and treatment.

Recent studies aim to characterize dental emergencies among their pediatric patients. Many of these studies were completed in urban hospitals or clinics during the COVID-19 pandemic when required precautions significantly altered access to both routine and emergency care. Two studies in urban settings during the COVID-19 pandemic found pain from dental caries and trauma, respectively, to be the most frequent emergency <sup>1,3</sup>. Pandemic restrictions did not reflect a normative time in society; thus, analyzing data from this time may not yield results consistent with normative, non-pandemic periods. A pre-pandemic study from 2018 indicated pain with resulting extraction, often using sedation, was the most common emergency <sup>2</sup>.

The purpose of this study was to characterize the types of pediatric dental emergencies and assess the frequency in which they present to Stony Brook Dental Care Center (SBDCC) in the recent post-pandemic period. Statistical analyses for patients who returned to the clinic determined if demographics impact results.

## METHODS

This retrospective chart review was approved by IRB (2025-00635) and utilized the electronic dental record system at SBDCC to evaluate pediatric patients who presented for emergency treatment. Six hundred and four encounters were collected from the SBDCC Pediatric Center over a two-year period 05.11.2023 – 05.11.2025. Only patients under 18 years old at the time of treatment were included. Encounters were identified using limited exam and palliative care procedure codes. Extracted variables include chief complaint, age, sex, race, behavior, payor, patient-of-record status, and return visit(s) to SBDCC.

The data analysis included parametric and nonparametric analyses including descriptive statistics, chi square test of independence, standardized residuals, and likelihood ratios. A p-value of less than 0.05 was used to determine significance. For significant Chi Square tests, standardized residuals were used to determine which factors had the greatest impact on significant results. If the magnitude of the standardized residual is greater than 2, the corresponding factor contributes to the significant result.

## RESULTS

### Return to SBDCC Post Treatment

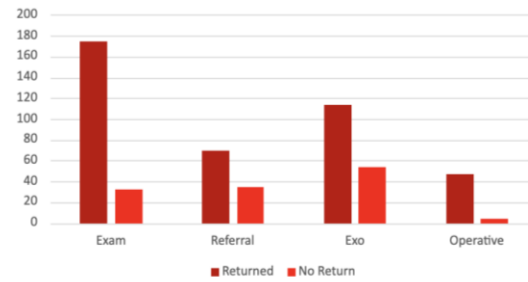


Figure 1. Number of patients who returned to SBDCC following varied emergency treatments. Chi Square, p-value = 0.0013. Standardized residuals determined those who had exams (-2.05) and operative (-2.17) were more likely to return. Those with extractions (2.74) and referrals (2.48) were less likely to return.

### Treatment Rendered

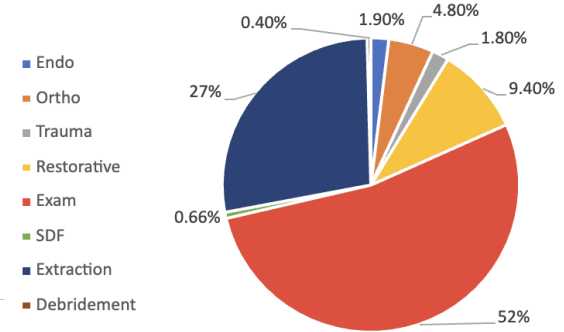


Figure 2. Category of treatment rendered during each emergency encounter represented by percentage of total appointments. Emergency care most frequently provided were exams, extractions, and restorative.

## DISCUSSION AND CONCLUSIONS

Investigation of pediatric dental emergencies at SBDCC spanning a two-year period shows pain was the most commonly reported chief complaint. The most common treatment rendered at emergency visits included exam, extraction, and referral (Figure 2).

Patient ages ranged from 0.2-17.78 years with an average age of 9.63 years. No significant trend was found comparing patient age with chief complaint. However, age did significantly impact the reported behavior during appointments. Patients 0-6 years were more likely to present as Frankl 1 or 2 while those aged 12-16 years were more often Frankl 4 (Figure 4). Of analyses run, no other demographic, race and sex, had significance.

When examining types of treatment provided, those who received examinations or restorative treatment were more likely to return for additional appointments. Similar analysis determined that when specialty referrals or extractions were provided, patients were less likely to return (Figure 1.) Evaluation of patient of record status revealed that patients of record who presented for emergency visits were more likely to return for follow up (Figure 3). Type of insurance proved to play a role in returning for follow up as well. Those who presented with no insurance or no insurance listed were significantly less likely to return for care.

These findings highlight the influence of patient age and treatment rendered on behavior and follow up. Understanding these trends may help to guide clinical expectations and allow for a more tailored patient and parent education. The American Academy of Pediatric Dentistry recognizes emergency care for infants, children, adolescents, and individuals with special health care needs is an essential duty of every dentist<sup>4</sup>. The ability of a practitioner to render appropriate emergent care as well as to refer to the patient's dental home is critical in ensuring continued post-emergent patient evaluation and follow-up.

### Return to SBDCC By Patient of Record Status

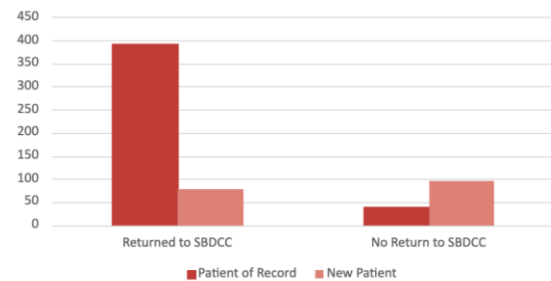


Figure 3. Patients of record and new patients analyzed by follow up pattern at SBDCC. Chi Square, p-value = 1.4 x 10<sup>-34</sup>. Standard residual analysis indicates all compared values were significant.

### Frankl Score By Age

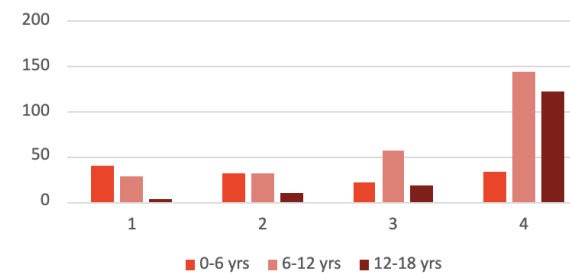


Figure 4. Frankl score reported for each emergency encounter by patient age. Chi Square, p-value = 1.82 x 10<sup>-20</sup>. Standardized residual statistics show significance is driven by Frankl 1, 2 in ages 0-6 and Frankl 4 in ages 12-18.

## LIMITATIONS

Data points for this study were obtained solely from the SBDCC. Residents evaluate emergency patients at Stony Brook University Hospital in addition to those at SBDCC. Thus, further research could include emergency patients evaluated in the hospital setting.

## REFERENCES



The investigators thank Yang Zhou, Senior IT Analyst, for assistance with electronic dental record data.