



Analysis of Dental Claims to Evaluate the Impact of COVID-19

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BACKGROUND

Coronavirus Disease-2019 (COVID-19) caused by severe acute respiratory syndrome Coronavirus 2 (SARS CoV-2) was declared a global pandemic by the World Health Organization in March of 2020. The American Dental Association (ADA) released a statement on March 16, 2020 recommending all dentists nationwide, including all dental specialists, to postpone elective procedures and to focus solely on emergency dental care.² Limited data exists regarding the impact of COVID-19 on the type of dental treatment provided in the pediatric population following the start of the COVID-19 pandemic. The impact of delaying dental treatment can be provided by information gathered from pediatric dental offices and pediatric dental residencies nationwide using dental claims. Data obtained from private and state-funded insurance claims provides actual treatment completed to be used for comparison. This retrospective study aimed to evaluate changes in dental restorative treatment and routine surgical treatment provided to pediatric patients as a result of the COVID-19 pandemic.

METHODS

Paid Medicaid dental claims collected from an urban outpatient dental clinic from March 13, 2019-December 31, 2019 and March 13, 2020-December 31, 2020 were included in the analysis for comparison. Deidentified claims of children ages 2 to 13 years old were included in the study. Dental procedures were selected based on Current Dental Terminology (CDT) codes for simple dental extractions (D7140) and restorative procedures – one-surface restorations (D2140, D2330, D2391), multi-surface restorations (D2150, D2331, D2332, D2335, D2392), full-coverage restorations (D2390, D2930) and pulpal therapy (D3120, D3110, D3220). Information including patient age at time of treatment, date and treatment location were obtained. Statistical analyses were performed to compare the rates of procedure types per month and per child between 2019 and 2020 using negative binomial regression.

TABLES AND FIGURES

Procedure Type	2019	2020
Extraction (D7140)	679 (39%)	391 (43%)
1-surface restoration (D2140, D2330, D2391)	162 (9%)	87 (9%)
Multi-surface restoration (D2150, D2331, D2332, D2335, D2392)	65 (4%)	35 (4%)
Full-coverage restoration (D2390, D2930)	775 (44%)	365 (40%)
Pulpal therapy (D3120, D3110, D3220)	70 (4%)	39 (4%)
Totals	1,751 (100%)	917 (100%)

Table 1: Total number of claims per CDT code in 2019 and 2020

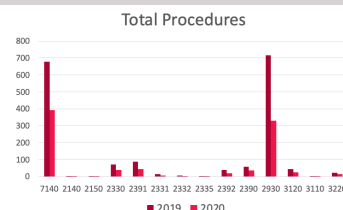


Figure 1: Total number of procedures completed per CDT code

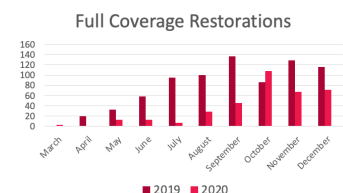


Figure 2: Total number of full-coverage restorations completed per month in 2019 and 2020

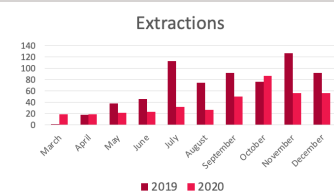


Figure 3: Total number of extractions completed per month in 2019 and 2020

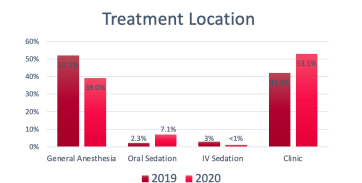


Figure 4: Treatment location of included claims for 2019 and 2020

RESULTS

- 2,668 claims were included for analysis in this study. A total of 1,751 claims were included from March 13, 2019 to December 31, 2019 and 917 claims were included from March 13, 2020 to December 31, 2020 (Table 1, Figure 1).
- The majority of claims in 2019 were from patients treated in the operating room, while in 2020 the majority of claims were from patients treated in the outpatient clinic (Figure 4).
- Procedure rates per month and procedure rates per child were used for comparisons. Full-coverage restoration procedure rates per month were significantly higher in 2019 than 2020 ($p < 0.016$) (Figure 2). Extractions, one-surface restorations, multi-surface restorations, and pulpal therapy comparisons were not statistically significant, although a similar trend ($p < 0.10$) was found for total procedures ($p < 0.056$) (Figure 1), extractions ($p < 0.064$) (Figure 3), and multi-surface restorations ($p < 0.084$).
- Full coverage restoration procedure rates per individual child were significantly higher in 2019 than 2020 ($p < 0.021$). None of the other comparisons reached statistical significance, although a similar trend ($p < 0.10$) was found for total procedures ($p < 0.059$).
- Completed claims in 2020 indicate a 13% decrease in General Anesthesia utilization, a 5% increase of oral sedation utilization, and an 11% increase in ambulatory care. (Figure 4).

CONCLUSION

1. The number of full-coverage restorations completed in 2020 for children ages 2-13 years old decreased due to delayed care caused by the COVID-19 pandemic.
2. The relative number of full-coverage restorations completed per child and per month in 2020 was significantly lower than full-coverage restorations completed in 2019.
3. More procedures were completed in the outpatient setting in 2020 versus the surgical setting: oral sedation was also utilized more due to delays in providing comprehensive dental treatment in the operating room at the start of the COVID-19 pandemic.

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