# Parental Behaviors after Comprehensive Dental Treatment Under General Anesthesia

**Michelle Pinon, DMD, MBA, MBS,[1] Alexandra Markou-Guzman, DMD,[2]**
**NYU Langone Dental Medicine, Providence, RI, [2]**
**Manuel Vazquez Sanchez, NYU Grossman School of Medicine**

**NYU Langone Hospitals-Advanced Education in Pediatric Dentistry**

## INTRODUCTION

Early Childhood Caries (ECC) is a prevalent and often severe dental condition affecting young children, with nearly half of preschoolers globally experiencing some form of ECC. Characterized by decayed, missing, or filled teeth in children under 71 months, ECC can lead to immediate health issues such as oral pain, eating difficulties, and disrupted sleep, as well as long-term complications like malnutrition, anemia, and academic challenges. The impact extends to families, who bear significant emotional and financial burdens due to frequent dental visits and treatment needs.

Traditionally, ECC treatment requires multiple dental appointments, which can be challenging due to the limited cooperation of young children. Full mouth rehabilitation under general anesthesia (GA) has become a recommended solution, offering the advantage of comprehensive treatment in a single visit. While this approach improves immediate health outcomes, the long-term success of GA-based treatments also depends on the behaviors of parents, especially in maintaining good oral hygiene practices for their children after the procedure.

Parents play a vital role in maintaining their child's oral health, especially when the child is too young to practice proper hygiene independently. Despite the clinical success of full mouth rehabilitation under GA, much is still to be determined about whether this intervention leads to lasting improvements in parental oral health behaviors, or if these behaviors ultimately influence long-term treatment outcomes.

## PURPOSE

This study aims to explore whether full mouth rehabilitation under GA leads to sustained improvements in parental oral health behaviors and whether these behaviors influence long-term outcomes in children's oral health. Specifically, we hypothesize that parental oral health behaviors and habits do not significantly improve following GA treatment for ECC. A retrospective chart review of pediatric patients who received treatment at Our Lady of Fatima (OLF) Hospital in collaboration with the Tri-County Community Action Agency will be conducted to assess the impact of GA treatment on both children and parent behaviors. The findings could provide valuable insights into the effectiveness of GA treatments and help inform strategies to promote lasting oral health improvements in pediatric populations.

## METHOD

This retrospective chart review will examine the impact of full mouth rehabilitation under general anesthesia (GA) on parental oral health behaviors and child oral health outcomes. Data will be analyzed from pediatric patients who received GA treatment for severe Early Childhood Caries (ECC) at Our Lady of Fatima Hospital in collaboration with the Tri-County Community Action Agency- Dental Clinic, Rhode Island. The study will focus on data collected from time 0 (one week after GA treatment post-op) and three months later at their 3 month recall.

Pediatric patients under 71 months of age diagnosed with severe ECC and treated with full mouth rehabilitation under GA between October 2024 through March 2025 will be included. Exclusion criteria are children with significant medical conditions or incomplete records. Descriptive statistics will summarize demographic and clinical data. Paired Chi-squared tests and Wilcoxon signed-rank tests will compare parental behaviors and child oral health measures at time 0 and three months later. Regression analysis will identify factors associated with improvements in child oral health.

Dentists can often observe improvements in oral hygiene during post-op appointments if the numbers on stainless steel crowns are still visible one week after treatment. Typically, these numbers will wear off after a few brushing sessions. If the numbers remain visible, it indicates that the parents may not be brushing effectively.

Data will be extracted from patient charts, including:

**Parental Behaviors**: Parental oral health practices (tooth brushing frequency) at time 0- one week after GA treatment to examine if numbers were brushed off of the stainless steel crowns.

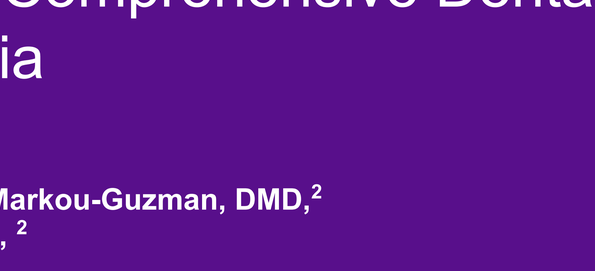
**Patient Demographics**: Age, gender, language and ethnicity

**Oral Health Assessments**: Plaque levels at time 0 and three months later post-treatment.

*The primary outcomes are:*

Parental Behaviors: Improvement in observed behaviors regarding child's oral health.

Child's Oral Health: Plaque levels recorded from time 0 to three months after GA treatment.




* Graph A = Plaque levels at 1-week post-op visit (all patients)
* Graph B= Plaque levels at 3 months post-op follow-up visit (all patients)
NA = no data available at 3month follow-up visit = did not show up for 3 month follow up appointment
Pie Chart = Were numbers present on the SSCs at post op appointment

**All Patient Characteristics**

| Characteristic | N = 51[1] |
|---|---|
| **Age** | 6.45 (2.14) |
| **Ethnicity** | |
| hispanic | 29 (64%) |
| non-hispanic | 16 (36%) |
| NA | 6 |
| **Language** | |
| English | 33 (65%) |
| Other Language | 18 (35%) |
| **PostOpPlaqueLevel** | |
| light | 32 (63%) |
| moderate | 6 (12%) |
| heavy | 13 (25%) |
| **Plaque3MO_fu** | |
| light | 7 (24%) |
| moderate | 7 (24%) |
| heavy | 15 (52%) |
| NA | 22 |
| **NumbersOnCrowns** | 26 (51%) |

[1] Mean (SD); n (%)

**Patient Characteristics by PostOp Plaque Level**

| Characteristic | light N = 32[1] | moderate N = 6[1] | heavy N = 13[1] | p-value[2] |
|---|---|---|---|---|
| **Age** | 6.50 (2.39) | 7.16 (1.86) | 6.00 (1.52) | 0.3 |
| **Ethnicity** | | | | 0.7 |
| hispanic | 18 (60%) | 4 (80%) | 7 (70%) | |
| non-hispanic | 12 (40%) | 1 (20%) | 3 (30%) | |
| NA | 2 | 1 | 3 | |
| **Language** | | | | 0.7 |
| English | 22 (69%) | 3 (50%) | 8 (62%) | |
| Other Language | 10 (31%) | 3 (50%) | 5 (38%) | |
| **Plaque3MO_fu** | | | | 0.053 |
| light | 7 (44%) | 0 (0%) | 0 (0%) | |
| moderate | 2 (13%) | 1 (33%) | 4 (40%) | |
| heavy | 7 (44%) | 2 (67%) | 6 (60%) | |
| NA | 16 | 3 | 3 | |
| **NumbersOnCrowns** | 9 (28%) | 6 (100%) | 11 (85%) | <0.001 |

[1] Mean (SD); n (%)
[2] Kruskal-Wallis rank sum test; Fisher's exact test

**Patient Characteristics by Numbers Present on Steel Crowns**

| Characteristic | no N = 25[1] | yes N = 26[1] | p-value[2] |
|---|---|---|---|
| **Age** | 6.90 (2.55) | 6.02 (1.57) | 0.3 |
| **Ethnicity** | | | 0.6 |
| hispanic | 14 (61%) | 15 (68%) | |
| non-hispanic | 9 (39%) | 7 (32%) | |
| NA | 2 | 4 | |
| **Language** | | | 0.5 |
| English | 15 (60%) | 18 (69%) | |
| Other Language | 10 (40%) | 8 (31%) | |
| **PostOpPlaqueLevel** | | | <0.001 |
| light | 23 (92%) | 9 (35%) | |
| moderate | 0 (0%) | 6 (23%) | |
| heavy | 2 (8.0%) | 11 (42%) | |
| **Plaque3MO_fu** | | | 0.6 |
| light | 4 (36%) | 3 (17%) | |
| moderate | 2 (18%) | 5 (28%) | |
| heavy | 5 (45%) | 10 (56%) | |
| NA | 14 | 8 | |

[1] Mean (SD); n (%)
[2] Wilcoxon rank sum exact test; Pearson's Chi-squared test; Fisher's exact test

## RESULTS

- A total of 51 pediatric patients were included in the study. There were no significant differences in plaque severity at the 3 month recall (3MRC) between patients who had numbers present on their stainless steel crowns at their 1 week post op appointment (did not brush well enough to remove numbers on crowns) and patients who did not have numbers present on their steel crowns.
- 7 of 16 people with light plaque at the 1 week post op, returned with light plaque at 3MRC, while 9 of 16 with light plaque returned with more severe plaque then they had at post op.
- Similarly, among the 10 of 13 with heavy plaque who returned to their 3MRC, only 4 showed an improvement, while 6 still had heavy plaque.
- The comparison of plaque levels at time 0 (1 week post op) and 3MRC showed a p-value of 0.053, indicating that there was no statistically significant improvement in plaque levels over the three-month period. As a result, we fail to reject the null hypothesis that plaque levels did not significantly improve. Specifically, there were no observed significant differences between patient age, ethnicity, or language and plaque severity at the 1 week post op appointment vs. 3MRC.
- This suggests that, for most children, oral hygiene habits did not improve after full mouth rehabilitation under general anesthesia, and plaque levels remained high or unchanged.
- An interesting finding included among the children with heavy plaque, only 50% (16 out of 32) returned for their 3 month cleaning (3MRC) after dental treatment under general anesthesia.

## CONCLUSIONS

This study aimed to assess the impact of full mouth rehabilitation under general anesthesia (GA) on both parental oral health behaviors and children's oral hygiene outcomes. Despite the immediate clinical success of GA treatment, the findings suggest that improvements in oral hygiene habits were not sustained over the three-month follow-up period. The lack of significant change in plaque levels indicates that most children did not exhibit long-term improvements in oral health, and plaque remained heavy for many. Furthermore, parental behaviors related to oral hygiene did not appear to substantially improve following the procedure.

These results highlight the importance of ongoing parental engagement and education in maintaining oral health after GA treatment. While GA can provide immediate relief and necessary dental interventions, long-term success may depend on reinforcing proper oral hygiene practices and follow-up care. Future studies should explore strategies for enhancing parental involvement and providing support to ensure sustained improvements in both child and parent oral health behaviors.

Ultimately, these findings suggest that additional interventions beyond GA treatment, such as targeted oral health education and regular follow-up visits, may be essential for achieving lasting improvements in pediatric oral health.

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