

Caries Rates After Treatment in the Operating Room for Dental Rehabilitation



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ABSTRACT

Purpose: The purpose of this project was to determine if there is a significant difference in change of DMFT scores between patients from Holyoke Health Center that had a regular recall versus irregular recall schedule after being treated for early childhood caries in the operating room under general anesthesia under 5 years of age.

Methods: A quality improvement project was conducted to investigate the change in DMFT scores between patients of Holyoke Health Center that were treated in the operating room under general anesthesia under the age of 5 years between 2012-2019. Patients were grouped by their recall schedule—regular (seen every 6-8 months) vs. irregular. DMFT scores were calculated at initial time of being treated in the OR and after 3 year follow-up. The change in DMFT scores were documented and compared between groups.

Results: Fifty-six patients were included in the project. There was not a statistically significant difference between change in average DMFT scores between patients that were seen for regular recalls versus irregular recalls over a 3 year follow up period.

Conclusion: The majority of the patients (53 of the 56) had an irregular recall schedule, being seen nine or more months apart, and this may have skewed results of this project. This shows that providers may have to place more emphasis to return for regular exams. Further projects should be done to investigate risk factors for caries relapse at full mouth dental rehabilitation.

INTRODUCTION

Full dental rehabilitation under general anesthesia (GA) is a common approach for management of early childhood caries used by pediatric dentists. Early childhood caries (ECC) is defined as the presence of one or more carious (non-cavitated or cavitated lesions), missing (due to caries), or filled surfaces in a child under the age of six years.¹ Extent of decay and inability of very young patients to cooperate in a dental clinic setting are two reasons treatment in the operating room (OR) under GA may be indicated.^{1,3} The goal of the dentist is to complete all required treatment and counsel the patient's parent or guardian so that the disease is controlled and caries do not recur.

A previous study investigated rate of caries relapse and factors affecting relapse rates after full dental rehabilitation under GA completed in patients younger than six years old, and found that of those children that returned for all recall appointments, relapse rate was 22%.³ Risk factors for relapse include patient and parental compliance with diet modifications, exposure to topical or systemic fluoride, and time elapsed between follow-up and recall appointments.³ It is important that parents recognize the need for ongoing dental care and preventive therapy.

We hypothesize that there will be a smaller change in DMFT scores in patients that returned for regular recall after being treated in the OR under general anesthesia vs patients that did not return for regular recall due to consistent monitoring and instruction by their treating dentist. Patients that do return for regular recall may demonstrate better compliance with instruction by the dentist. The findings of this project may prove that recall status, regular or irregular, is a potential risk factor for new caries.

METHODS

This was a retrospective chart review quality improvement (QI) project to examine if there is a significant difference in change of DMFT scores between patients of the Holyoke Health Center that had a regular recall vs irregular recall schedule after being treated in the OR under GA under the age of five years for early childhood caries. Data was extracted from the NextGen dental software used at the Holyoke Health Center. A patient list was generated based on completion of the internal GA code (H0097- OR General Pediatric Cases) and subsequent completion of a periodic dental examination code (D0120). Inclusion criteria include patients four and younger who have been previously treated in the OR under GA and patients who returned for at least 1 recall examination following their treatment in the OR. Exclusion criteria include patients who were treated in the OR under GA but did not return for a recall examination, patients five years and older treated in the OR under GA, and patients with incomplete records. Data collected from NextGen was entered into a REDCap database. Medical record numbers and dates of service were extracted from the patient charts and entered in the data collection system. DMFT scores were calculated at time of being treated in the OR and after 3 year follow-up. Regular recall was defined as patients seen for periodic examination every 6-8 months and irregular recall was defined as patients seen over 9 months apart. The change in DMFT scores was documented and compared between patients that returned to the dental clinic regularly vs irregularly. Data was analyzed using t-tests and Chi-squared tests. Means or percentages were calculated for the data both overall and by study group (regular vs irregular recall schedule). Significance was set at p<0.05.

Table 1: Demographics

	Overall	Regular Recall	Irregular Recall	p-value
Gender	56	3	53	0.511
A. Male	27	2	25	
B. Female	29	1	28	
Age at time of FDR in OR	56	3	53	0.740
A. 1	0	0	0	
B. 2	10	1	9	
C. 3	18	1	17	
D. 4	28	1	27	
Race				0.632
A. White	10	1	9	
B. Black	1	0	1	
C. American Indian or Native Alaskan	0	0	0	
D. Asian	3	0	3	
E. Native Hawaiian or Other Pacific Islander	0	0	0	
F. Two or more races	20	0	20	
G. No Response	5	0	5	

Table 2: Comparison of DMFT score at time of FDR in OR under GA

	Overall	Regular Recall	Irregular Recall	p-value
DMFT Scores at time of GA	10.71	12	10.64	0.504
DMFT Scores at 3-year follow up	11.68	14	11.55	0.276
Change in DMFT score	0.97	2	0.91	0.178

RESULTS

Fifty-six patients were included in the project. Twenty-nine patients were female and 27 patients were male. Ten of the patients included in the study were two years old at the time of full dental rehabilitation in OR under GA, 18 were three years old, and 28 were four years old. Three patients were Asian, 1 patient was black, 15 patients were Hispanic, 5 patients had no response, 9 patients were white, and 20 patients were multiracial. There were no statistically significant differences in any demographic category reported between regular and irregular recall groups (Table 1).

According to this study's parameters, 53 patients held an irregular recall schedule, and 3 patients were seen at a regular recall schedule. The average initial DMFT score was 10.71—12 for patients maintaining regular recalls and 10.64 for those with irregular recalls. The average follow-up DMFT score of patients with a regular recall schedule was 14 compared with those with an irregular recall schedule, which was 11.55. There was not a statistically significant difference in change in average DMFT scores between patients that were seen for regular recalls versus irregular recalls over a 3 year follow up period (p=0.178) (Table 2).

CONCLUSIONS

The majority of the patients (53 of the 56) had an irregular recall schedule, being seen nine or more months apart, and this may have skewed results of this project. This shows that providers may have to place more emphasis to return for regular exams. Further projects should be done to investigate risk factors for caries relapse at full mouth dental rehabilitation.

This QI project serves as a starting point to assess new caries rate and relapse rate for patients treated for full mouth dental rehabilitation under general anesthesia who were seen at a regular versus irregular recall status. The findings of this project can help with changing scheduling protocols for patients seen under GA at the Holyoke Health Center. Based upon the results of this study, no conclusions can be made that a regular recall or irregular recall affects DMFT scores in patients younger than age five treated under GA for full mouth rehabilitation.

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