

# Repeated Dental Surgery under General Anesthesia for Medically Complex Patients



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## INTRODUCTION

- The specialty of pediatric dentistry has a unique distinction of providing preventive and therapeutic oral health care with a patient population defined by an age-specific cutoff and with additional services for patients with special healthcare needs.<sup>1</sup>
- While some patients are treated in an outpatient clinic setting with basic behavior management, some patients require advanced behavior management which includes general anesthesia (GA).<sup>2</sup>
- General Anesthesia (GA) is an advanced behavior management technique. Indications for dental treatment under GA include pre-cooperative behavior due to young age, severe dental anxiety, complex medical history, extent of dental procedures needed, or special health care needs (SHCN).<sup>3</sup>
- Patients with SHCN have higher risks for caries, which often require additional needs of extensive and complex treatment under GA.<sup>4</sup>
- For patients with SHCN, repeat care under GA is more likely due to their level of cooperation and difficulty of compliance for home care and dental visits.<sup>5-8</sup>

## PURPOSE

- The purpose of this study is to evaluate whether there is an increased risk for repeat full mouth oral rehabilitation (FMOR) under general anesthesia (GA) for patients with complex medical history or behavior-related conditions.

## METHOD

- Participants**
  - Pediatric patients of a community health center in San Diego County ages 1-9 years old, who received FMOR under GA, between January 1, 2010, and January 1, 2015.
- Procedure**
  - This was a retrospective chart review. Information collected included: demographic information, ASA status, types of SHCN (solely behavior-related, behavior/medical related, solely medical-related), dental diagnosis (caries, calculus, loose teeth, etc.), date(s) of FMOR.
- Statistical Analysis**
  - Data was collected in RedCap (NYU Langone Hospital in New York). A bivariate analysis was completed with significance level set  $p=0.05$ .

Table 1.	Combined data (N= 262)	Number of GA visits		
		1 (N= 247)	2 or more (N= 15)	P value
Age at 1st GA, mean(SD)	4.31 (1.86)	4.30 (1.85)	4.47 (2.10)	0.743
Gender, N(%)				0.867
Female	119 (45.4)	113 (45.7)	6 (40.0)	
Male	143 (54.6)	134 (54.3)	9 (60.0)	
Insurance, N(%)				0.637
Medi-Cal insurance	248 (94.7)	233 (94.3)	15 (100.0)	
Non Medi-Cal	11 (4.2)	11 (4.5)	0 (0.0)	
Non/uninsured	3 (1.1)	3 (1.2)	0 (0.0)	
ASA status, N(%)				0.019
I	114 (43.5)	112 (45.3)	2 (13.3)	
II	135 (51.5)	122 (49.4)	13 (86.7)	
III	13 (5.0)	13 (5.3)	0 (0.0)	
ASA status, N(%)				0.031
I	114 (43.5)	112 (45.3)	2 (13.3)	
II+III	148 (56.5)	135 (54.7)	13 (86.7)	
Types of Special Needs (combined ASA II and III), N(%)				0.352
Medical	62 (41.9)	59 (43.7)	3 (23.1)	
Behavioral	27 (18.2)	24 (17.8)	3 (23.1)	
Both	59 (39.9)	52 (38.5)	7 (53.8)	
Dental Diagnosis - Multiple choice, Total 278, N(%)				0.084
Caries	254 (91.4)	240 (98.8)	14 (93.3)	
Calculus	10 (3.8)	8 (3.2)	2 (13.3)	
Loose teeth	4 (1.5)	3 (1.2)	1 (6.7)	
Other	10 (3.8)	10 (4.0)	0 (0.0)	

Table 2.	ASA status			
	I N=114	II N=135	III N=13	P
Age at 1st GA (mean (SD))	3.46 (1.24)	4.89 (1.95)	5.77 (2.39)	<0.001
Special Health Care Needs	Medical N=62	Behavioral N=27	Both N=59	P
	Age at 1st GA (mean (SD))	4.50 (2.09)	5.44 (1.15)	5.24 (2.13)

Table 1. Patient Demographics and Characteristics

Table 2. Mean Age at 1st GA Visit with Different ASA Status and SHCN Types

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## RESULTS

- Out of 262 patients, 119 were girls and 143 were boys ranging in age from 1 year to 9 years at their first GA visits (mean age  $4.3 \pm 1.86$  years). 94.7% of the children had Medi-Cal, 4.2% had other insurance, but 1% (n= 3) were self-paid patients. The fifteen patients who underwent more than 1 GA event had Medi-Cal insurance. (Table 1)
- Medically complex patients (ASA II and III) are more likely to have more GA events compared to healthy patients (ASA I) ( $P=0.031$ ); however, there are no statistical difference among different types of SHCN, whether it was behavioral, medical, or both (Table 1).
- There are statistically significant differences in the mean age at the 1st GA among different ASA groups ( $P<0.001$ ) and SHCN sub-groups ( $P=0.049$ ) (Table 2).

## LIMITATIONS AND STRENGTH

- The study population comprised more male patients which can represent an imbalanced sampling method.
- Some subjects received FMOR before or after the study time range. Other medical treatments under GA might be prioritized to their dental needs impacting the age at time of first dental GA FMOR procedure.
- A strength of the study is a large sample of a medically complex population.

## CONCLUSIONS

- Within the limitations of our study, there are statistically significantly more GA events for medically complex patients regardless of whether the patient has a behavior-related or non-behavior related condition.
- It is important to educate parents/caregivers to provide adequate oral hygiene at home and to follow up regularly for recall visits.
- Additional emphasis in preparing patients and parents for future additional GA events to provide FMOR may be warranted when treating patients with SHCN.

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