

Two Year Analysis Determining Need for Hospital-based General Anesthesia versus Office-based General Anesthesia for Pediatric Dental Patients

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Purpose:

This study aim has two main goals in the evaluation of pediatric dental patients having full mouth dental rehabilitation under general anesthesia in the operating rooms at Stony Brook University Hospital: 1) to determine if the operating suite at Stony Brook University Hospital is the most appropriate place to treat this population; 2) investigate factors associated with full mouth dental rehabilitation under general anesthesia for pediatric and special needs patients with multiple carious lesions and uncooperative behavior, who are under the age of 18 years.

Introduction:

Dental caries is one of the most common chronic diseases in children and the special needs patient population. Children are often unable to tolerate dental treatment without sedation due to various reasons including anxiety, behavior obstacles, fear, extent of caries, medical complexity, or developmental and intellectual disabilities. Pediatric and special needs patients who are unable to receive care in the dental chair are often referred to Stony Brook University Hospital to receive comprehensive treatment under general anesthesia. Previous studies regarding full mouth dental rehabilitation under general anesthesia performed at Stony Brook University Hospital have been shown to take longer with a higher cost than providing general anesthesia in an office setting. 1

Methods:

Data from operating room cases conducted by the Department of Orthodontics and Pediatric Dentistry from 11/01/2021 to 10/31/2023 were analyzed in this two-year retrospective observational study. A chart review was conducted of all full mouth dental rehabilitation cases completed during the time period using data from the Stony Brook Dental axiUm EHR as well as the Stony Brook University Hospital Cerner FirstNet EHR. Data Variables collected included medical complexity, special needs versus neurotypical, ASA classification, whether ketamine pre-sedation was provided, duration of general anesthesia, operating room waitlist duration, amount of emergency extractions during the waitlist period, and patient age.

Inclusion Criteria: Patients under the age of 18 years who underwent full mouth dental rehabilitation under general anesthesia at Stony Brook University Hospital's Pediatric Dental Department.

Exclusion Criteria: Patients who did not meet the inclusion criteria.

Results:

A total of 296 patient records were reviewed who underwent full mouth dental rehabilitation under general anesthesia at Stony Brook University Hospital from 11/01/2021 to 10/31/2023. The records showed a total of 298 operating room cases completed by the Department of Orthodontics and Pediatric Dentistry. This included two patients who required two operating room appointments to complete the extent of treatment necessary.

Patients who had a diagnosis of developmental or intellectual disability were counted as special needs. Of the 296 patients treated, 34.12% (N=101) were special needs and 65.88% (N=195) were neurotypical patients. Wait times were calculated and measured in months, with a minimum wait time of 0.03 months, maximum wait time of 35.60 months, average wait time of 10.34 months, and median wait time of 11.28 months.

To determine the most appropriate setting for of the 298 cases completed, each case was evaluated by ASA and medical complexity, and reviewed by two dental anesthesiology attendings who provide general anesthesia care at Stony Brook University Hospital and in private offices. All of the ASA I and ASA II patients were automatically assumed to be appropriate for treatment in the private office setting. The charts of all ASA III patients were individually evaluated by the two attendings to determine the most appropriate setting of treatment under general anesthesia (in-hospital versus private office). The determination of the ASA status was initially determined by the dentist or physician anesthesiologist who treated the patient. The percent of operating room cases categorized as ASA I were 56.9% (N=169), categorized as ASA II were 30.3% (N=91), and categorized as ASA III were 12.8% (N=38). Of all cases completed, 94% (N=279) were deemed by dental anesthesiology faculty to be appropriate cases for private office general anesthesia, and 6% (N=18) to necessitate general anesthesia in a hospital setting.

Insurance coverage for all cases were reviewed. 9.4% (N=28) of cases were covered with private insurance, and 90.6% (N=270) were Medicaid.

Discussion & Conclusion:

The findings of this study shed light on several critical aspects regarding the provision of general anesthesia for pediatric dental patients, particularly those with multiple carious lesions and uncooperative behavior, as well as those with developmental or intellectual disabilities. The results underscore the importance of assessing the most appropriate setting for general anesthesia delivery, considering factors such as medical complexity, ASA classification, and patient waitlist duration.

One of the key findings of this study is the number of patients with developmental or intellectual disabilities requiring full mouth dental rehabilitation under general anesthesia. This highlights the unique challenges faced by this patient population and the necessity for specialized care tailored to their needs. Additionally, the significant waitlist duration observed in this study emphasizes the need for efficient scheduling and allocation of resources to minimize patient wait times and ensure timely access to care.

The analysis of ASA classification and medical complexity provides valuable insights into patient risk stratification and helps guide decision-making regarding the setting of general anesthesia delivery. Our findings show that a large majority of cases (94%) treated in the operating rooms at Stony Brook University Hospital are suitable for general anesthesia in an office setting. This could reduce healthcare costs and improve access to care for patients.

The predominance of Medicaid coverage for pediatric dental anesthesia procedures underscores the importance of addressing disparities in access to care and ensuring equitable distribution of resources. Strategies to improve reimbursement rates and streamline administrative processes may help facilitate access to care for underserved populations and reduce healthcare disparities.

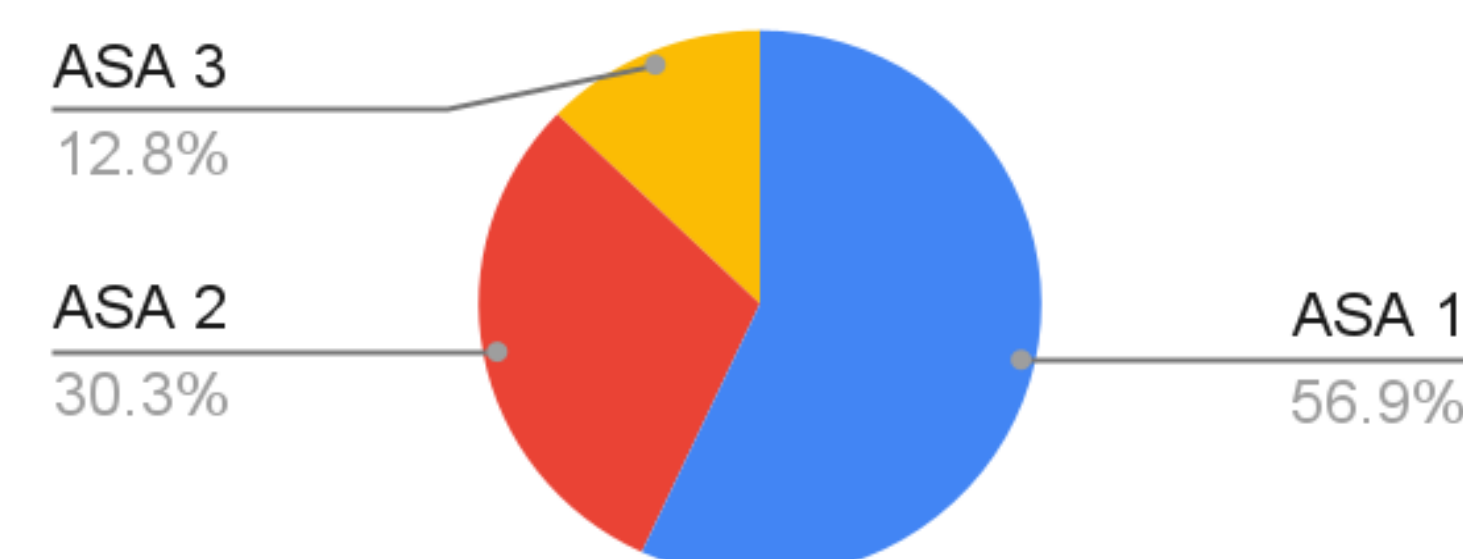
Overall, the findings of this study provide valuable insights into the factors influencing the provision of general anesthesia for pediatric dental patients and highlight opportunities for optimizing care delivery and resource allocation. Future research should focus on evaluating the long-term outcomes and cost-effectiveness of different anesthesia delivery models to further inform clinical practice and policy decision-making in pediatric dentistry.

References:

1. Rashewsky, S., Parameswaran, A., Sloane, C., Ferguson, F., & Epstein, R. (2012). Time and Cost Analysis: Pediatric Dental Rehabilitation with general anesthesia in the office and the hospital settings. Anesthesia Progress, 59(4), 147–153.

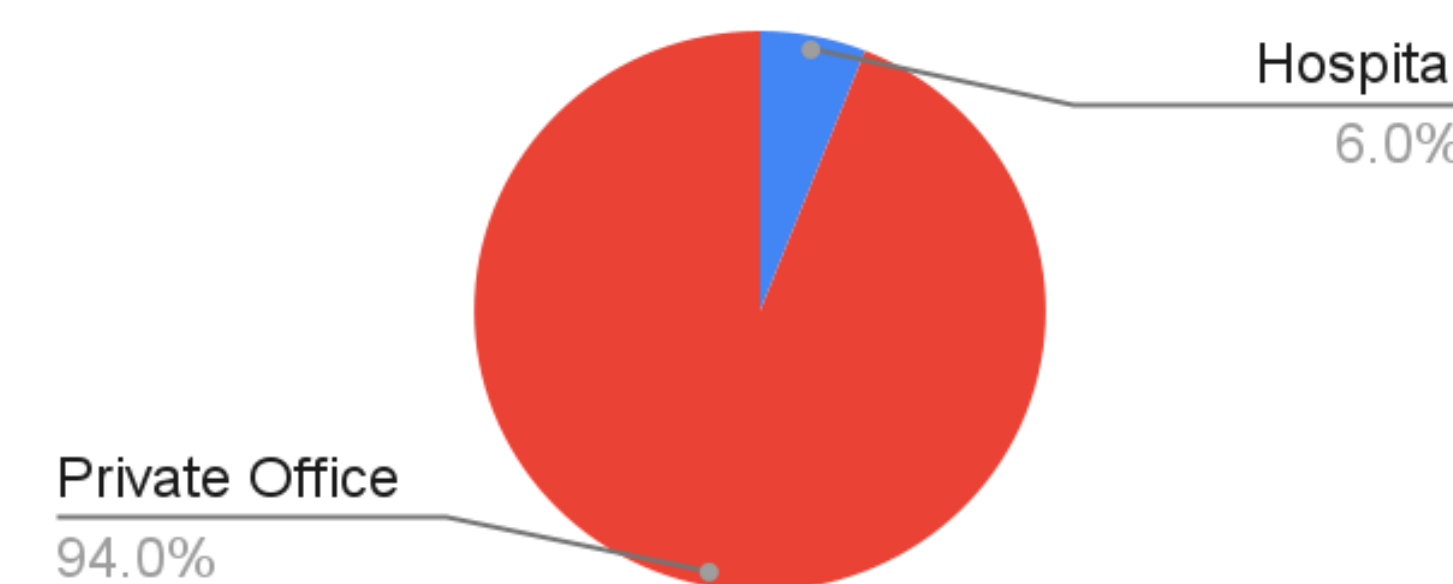
ASA Classification

Chart 1



General Anesthesia Setting

Chart 2



Insurance Coverage

Chart 3

