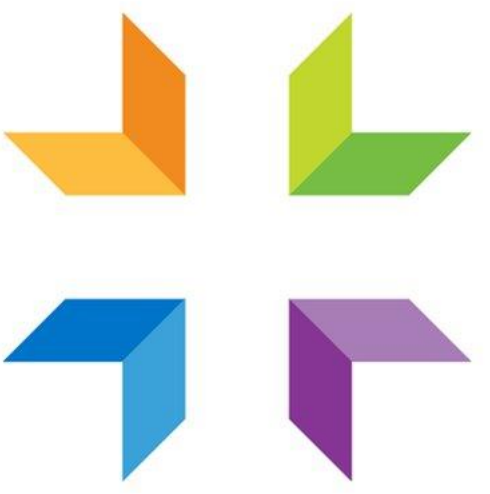


Pediatric Dentists' Sedation Practices Following Dental Anesthesiology's Specialty Recognition

Sarah Curtis, DMD¹, Kimberly Walters, DMD² John Conry, BDS³

1. Hennepin Healthcare, Pediatric Dentistry Resident 2. Hennepin Healthcare, Pediatric Dentistry Resident 3. Hennepin Healthcare Pediatric Dentistry Residency Casual Staff



Introduction

In March 2019, the American Dental Association adopted a resolution following an application submitted by the American Society of Dentist Anesthesiologists requesting that dental anesthesiology be recognized as a specialty. This resolution was approved, and dental anesthesiology became a recognized specialty.

There is an obvious opportunity for pediatric dentists and dental anesthesiologists to collaborate by providing sedation and general anesthesia in the office for young children. Office-based anesthesia by dental anesthesiologists is a unique and efficient mode of anesthesia care, resulting in significantly shorter treatment wait times when compared to a hospital or a surgery center.¹ In addition, there are significant cost savings, Saxen et al. noted an 84% cost savings for in-office anesthesia compared to a hospital operating room after reviewing 750 pediatric dental patients undergoing general anesthesia¹. Other benefits for in-office anesthesia include shorter waiting time, circumventing competition for operating room time with medical providers, and avoiding the need to obtain hospital privileges². A 2011 survey of pediatric dentistry residency directors revealed that state and dental anesthesia regulations were the most significant barrier to more widespread use of dental anesthesiologists by pediatric dental offices³.

Studies have not considered the impact that the recognition of dental anesthesiology may have on the sedation practice trends of pediatric dentists in the future. Prior to this recognition, there had been evidence of a growing trend towards the use of in-office general anesthesia for pediatric dental rehabilitation supported by a 2011 survey of the American Society of Dentist Anesthesiologists' membership, which found that 42% of the members spent a majority of their practice working with pediatric dentists to provide anesthesia care for children in the age range of 2 to 5 years old¹. This finding was again supported by an additional survey of the ASDA membership, completed in 2016, that confirmed that 47% of anesthesia services were for pediatric dental care⁴. According to a 2012 survey of board-certified pediatric dentists, it was reported that 20-40% used dentist anesthesiologists for in-office anesthesia and that 60-70% would use one if this was an available option in their area¹. This study, the first since dental anesthesiology became a recognized specialty, seeks to ascertain the frequency and level of anesthesia used, who the providers are, and how these variables differ by region and by provider years in practice, while also giving consideration to how the newly designated specialty of dental anesthesiology may influence delivery of services in the future.

Purpose

To identify changes in sedation practices of pediatric dentists now that dental anesthesiology is a recognized specialty by the American Dental Association

Hypothesis

Pediatric dentists would be more inclined to utilize dental anesthesiologists in their offices, and this might result in a move away from moderate sedation techniques and a move towards deep sedation and/or general anesthesia.

Methods

A 12-item survey using the AAPD LISTSERV database and online survey service, Survey Monkey, was distributed to pediatric dentists and pediatric dental residents. The study protocol was approved by Hennepin Healthcare Institutional Review Board. Participants were asked about current Current sedation practices, changes in sedation practices over the last 5 years, and plans for future sedation practices were assessed in the survey. The survey was sent 2 times to encourage participation by recipients with access to the survey unavailable after completion to ensure duplicate responses were not obtained.

Results

The overall response rate was 9%. Regional distribution of the survey respondents yielded 21.95% from the Western region as the most frequent response and Southwestern Region with the least number of responses at 18% of respondents. The most frequent responses in regards to years practicing pediatric dentistry were those in the categories of 0-5 years and 20+ years (25% for both categories), and those practicing for 16-20 years provided the least responses, yielding 9.5% of the responses.

Current residents responded that 72% planned to continue with in-office sedation (excluding nitrous oxide) following graduation. 85% of respondents reported they currently or plan to administer minimal sedation utilizing nitrous oxide, while 56% of respondents currently or plan to administer moderate sedation. 48% of the respondents currently or plan to provide deep sedation administered by the outside provider, and 46% currently or plan to provide in-office general anesthesia administered by the outside provider.

Which levels of sedation do you currently or plan to administer in office (select all that apply)

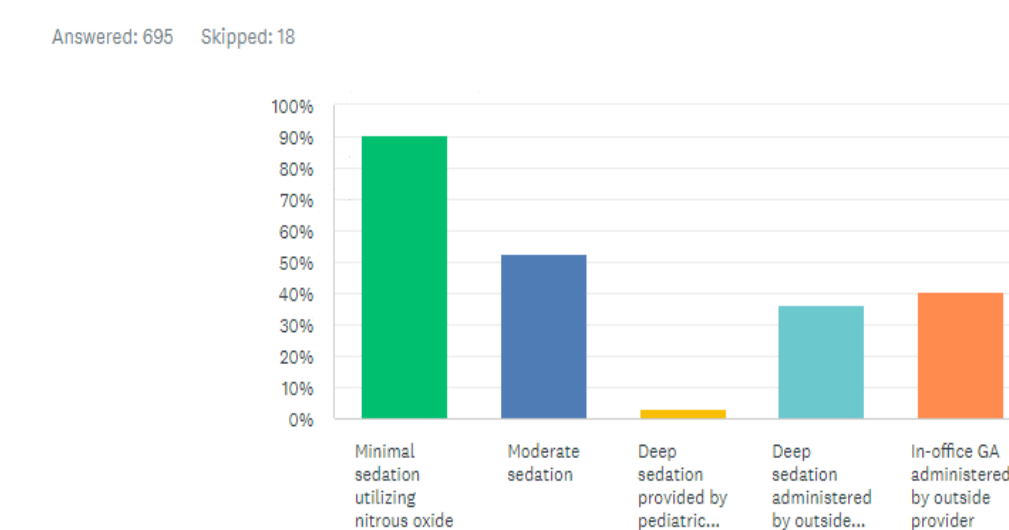


Figure 1: Respondents current and future administration of sedation levels. Over 90% of respondents reported nitrous oxide utilization, 52% reported moderate sedation utilization, 36% reported deep sedation administered by an outside provider, and 41% reported in-office GA administration.

Results, continued

35% of respondents reported preference for utilizing a dental anesthesiologist, and 36% of respondents reported preference for an anesthesiologist to provide the anesthesia for in-office deep sedation. 8% of respondents reported that they did not have a preference in anesthesia provider between dental anesthesiologist, anesthesiologist, or CRNA. Respondents reported greatest availability of dental anesthesiologists (46%), followed by anesthesiologists (32%). In regards to nitrous oxide utilization, 55% of currently practicing providers reported no change in usage and 33% reported an increased use.

If utilizing an outside anesthesia provider, which provider have you noticed is most available for your schedule/needs?

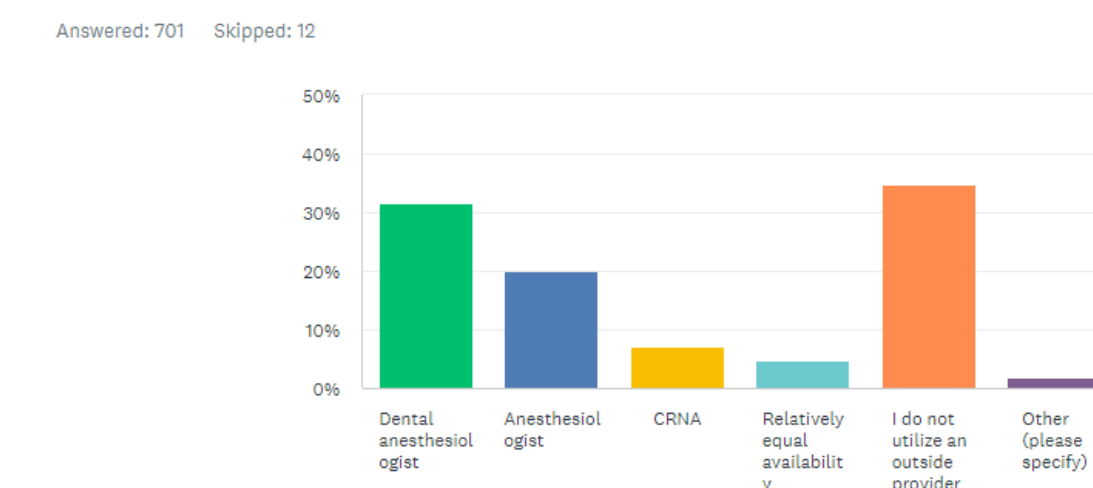


Figure 2: Respondents perceived availability of anesthesia providers was reported. Dental anesthesiologists were reported with the greatest perceived availability between dental anesthesiologists, anesthesiologists, and CRNAs.

If you plan to or currently bring in an outside anesthesia provider, which provider is most preferred if all providers had equal availability?

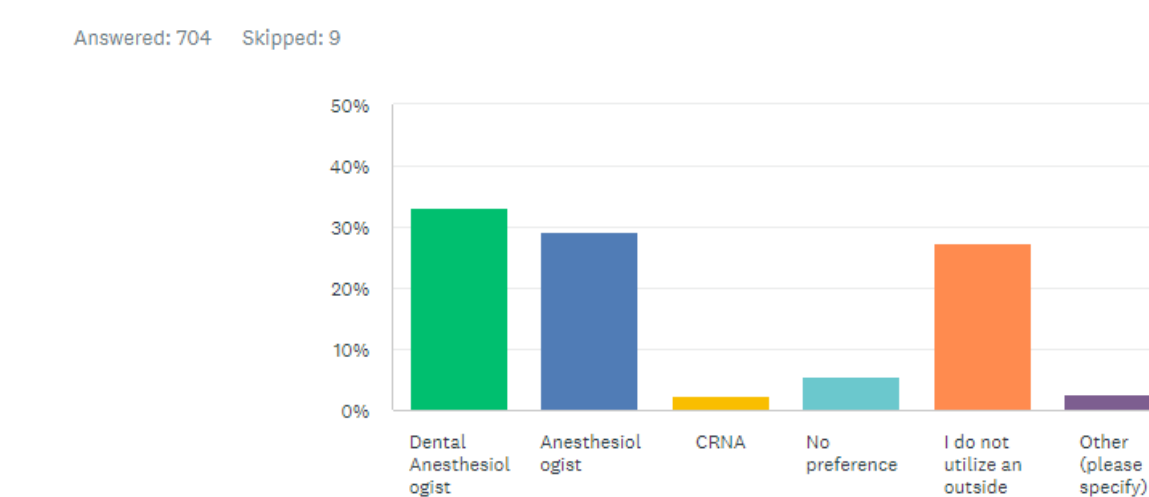


Figure 3: Respondents reported their preferred anesthesia provider given equal availability. 33% reported preference for dental anesthesiologists and 29% reported preference for anesthesiologists/

35% of respondents reported no change in utilization, 25% reported increased utilization, 20% reported decreased utilization, and 20% reported not utilizing moderate sedation in their practices in the last five years. Currently practicing respondents reported their change in in-office deep utilization. 15% of respondents reported no change in in-office deep sedation utilization in the last 5 years, while 25% reported an increased utilization. 47% of practicing providers reported no utilization of in-office deep sedation provided by an outside provider in the last 5 years. Since dental anesthesiologists became a recognized specialty, 61% of practitioners report no change in utilization and 36% report an increased utilization of dental anesthesiologists.

For currently practicing providers, how has your in-office deep sedation utilizing outside providers shifted in the last 5 years?

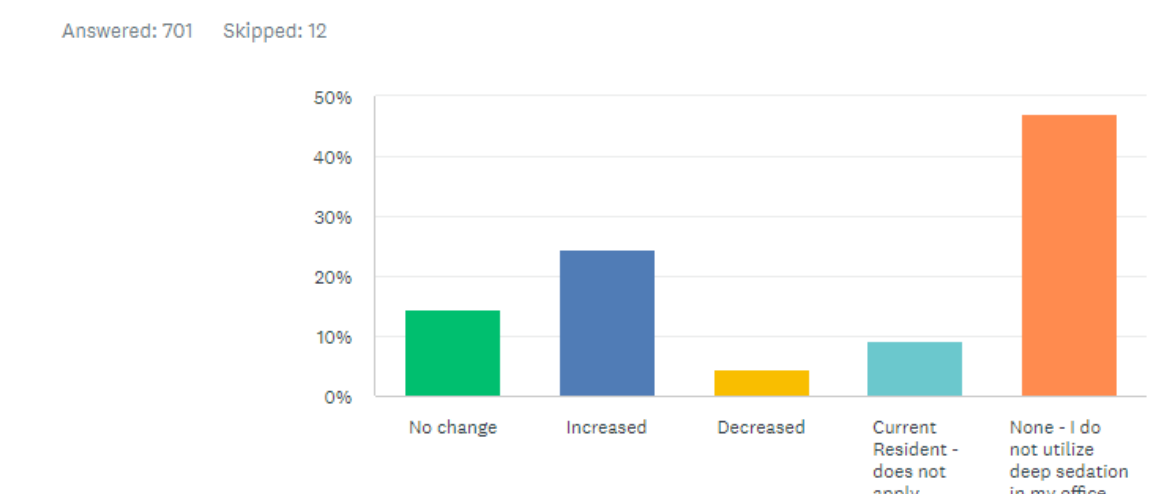


Figure 4: Currently practicing respondents reported their change in in-office deep utilization. 15% of respondents reported no change in in-office deep sedation utilization in the last 5 years, while 25% reported an increased utilization. 47% of practicing providers reported no utilization of in-office deep sedation provided by an outside provider in the last 5 years.

Since dental anesthesiologists became a recognized specialty in 2019, how has your utilization changed?

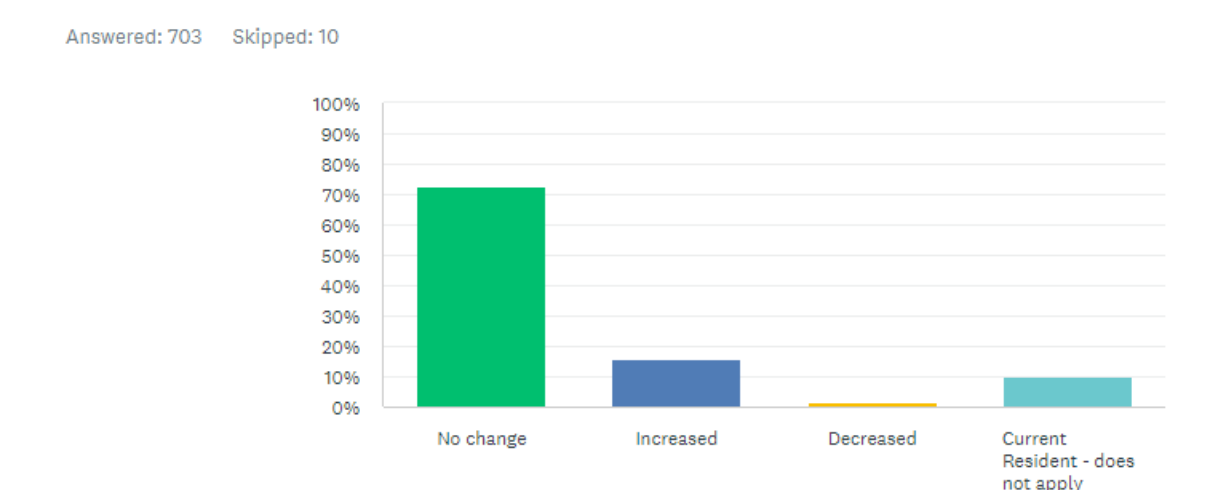


Figure 5: Respondents reported their perceived change in dental anesthesiologist utilization shift since 2019 when the specialty was recognized. 72% of respondents reported no change in utilization, and 16% of practicing pediatric dentists reported an increased utilization.

Conclusions

There has been a reported increased use of in-office deep sedation by dental anesthesiologists over the last five years. Dental anesthesiologists were more accessible to pediatric dentists than other anesthesia providers. The majority of practitioners report either unchanged or increased usage of dental anesthesiologists in their practices since dental anesthesiology become a recognized specialty.

The researchers rejected the hypothesis given that there was not a significant decrease in moderate sedation noted in survey results.

This study had multiple limitations. Survey studies can be subjective with potential for memory bias. Each individual may have differing definitions of sedation levels thereby affecting responses.

Future studies can consider the affect of reimbursement on provider likelihood to provide in-office sedation and types of sedation.

References

1. Saxen MA, Urman RD, Yepes JF, Gabriel RA, Jones JE. Comparison of Anesthesia for Dental/Oral Surgery by Office-based Dentist Anesthesiologists versus Operating Room-based Physician Anesthesiologists. *Anesth Prog*. 2017;64(4):212-220. doi:10.2344/anpr-65-01-04
2. Pham L, Tanbonliang T, Dizon MB, Huang A, Cooke M. Trends in General Anesthesia Utilization by Board-Certified Pediatric Dentists. *Pediatric Dentistry*. 2018 Mar;40(2):124-130
3. Hicks CG, Jones JE, Saxen MA, et al. Demand in pediatric dentistry for sedation and general anesthesia by dentist anesthesiologists: a survey of directors of dentist anesthesiologist and pediatric dentistry residencies. *Anesth Prog*. 2012;59(1):3-11. doi:10.2344/11-17.1
4. Young AS, Fischer MW, Lang NS, Cooke MR. Practice Patterns of Dentist Anesthesiologists in North America. *Anesth Prog*. 2018;65(1):9-15. doi:10.2344/anpr-64-04-11