

University of Maryland School of Dentistry
650 W Baltimore St, Baltimore, MD 21201

The Increased Need for Sedation in Dental Education

Arya Mazda Mansouri, DDS Candidate, Class of 2020
Monica Tiu, DDS, Assistant Clinical Instructor
Marvin Leventer, DDS, Assistant Clinical Professor

1334 Dasher Ln., Reston, VA 20190
(703)-717-2408

Abstract:

There is an increased need and interest for sedation in private practice across the country. There are also a greater number of dentists and specialists entering the work force every year. In order to improve the safety and outcome of sedation, there should be a greater emphasis on the various modes of sedation in pre-doctoral dental education. To determine a baseline on students' knowledge and attitude towards sedation, a survey was conducted of University of Maryland School of Dentistry (UMSOD) pre-doctoral students. Results showed that the majority of dental students were unsatisfied with their sedation experiences and uncomfortable offering sedation in the future to their patients. To improve this outlook, dental schools should stress additional sedation courses and incorporate further clinical sedation experiences for dental students. The goal is ultimately to revise dental curriculums across the country, further educating pre-doctoral students on ways to utilize pain control via sedation, enhancing their ability to provide the utmost oral health care.

Introduction:

According to the American Dental Association, the increase in the overall number of dentists practicing in the United States between 2001 and 2017 has risen by 20%.¹ Within that time span there was an 18.69% increase in the number of oral surgeons, 16.34% increase in periodontists, 15.91% increase in prosthodontists, and 84.62% increase in pediatric dentists.¹ In addition to the increase in practitioners, there is a rise in complex dental treatment such as full mouth rehabilitations and implant-retained prostheses. The American Academy of Implant Dentistry states there are approximately 3 million people in the United States who have implants, and estimates show that number is increasing by 500,000 each year.² Furthermore, there are a growing number of baby boomers needing dental treatment. The population of baby boomers presently in the United States ages 55-73 is currently over 71 million.³ By the age of 74, an estimated 26% of seniors will be completely edentulous.⁴

With the increase in the number of dentists, placement of implants, and a large aging population, there is a greater need for sedation in private practice. It is important for pre-doctoral dental students to receive proficient training in administering various modes of sedation including nitrous oxide and oral sedation to aid in patient comfort. Currently, in dental schools throughout the country, students' education with administering nitrous oxide, oral, and IV sedation vary greatly.

Methods:

A survey was conducted at UMSOD in May of 2018. The pre-doctorate classes comprising of first through fourth-year students received the survey through their school-issued email address. 82 students responded to the survey, which consisted of 13 questions relevant to sedation literacy and experiences.

Survey Answers:

- a) Strongly agree
- b) Agree
- c) Neither agree nor disagree
- d) Disagree
- e) Strongly disagree

Survey Questions:

1. Please select your current year: 1st year, 2nd year, 3rd year, 4th year
2. As a dental student, I am satisfied with my training in Nitrous Oxide sedation.
3. As a dental student, I am satisfied with my training in oral sedation.
4. As a dental student, I received adequate exposure to all modalities of anesthesia (i.e., moderate sedation, deep sedation, general anesthesia).
5. I have gained enough experience in dental school and will be comfortable offering oral sedation in private practice.
6. I have gained enough experience in dental school and will be comfortable offering Nitrous Oxide in private practice.
7. I would like more clinical sedation experiences in dental school.
8. I would give up other courses for more sedation courses.
9. Dental school adequately prepares me to manage the risks of sedation.
10. I plan to apply to dental anesthesia post-graduate residency program.
11. I plan to apply to another dental specialty post-graduate residency program.
12. I plan to bring in another dentist/physician to my office to administer IV sedation or general anesthesia.
13. After graduation, I plan to take additional CE courses in sedation.

Results:

38% of dental students felt that they did not receive adequate experiences with oral sedation. These students felt that they would not be comfortable offering oral sedation in private practice, while 33% were undecided. Furthermore, 34% of dental students felt that they did not receive sufficient exposure to all modalities of anesthesia, while 28% of students were undecided. According to the data above, students did not receive sufficient information to formulate an opinion concerning the different modes of sedation/anesthesia and felt uncomfortable administering sedation based on their lack of experience.

54% of dental students strongly agreed and 42% agreed that they would like more clinical sedation experiences in dental school. Moreover, 40% of students strongly agreed and 37% agreed that they would give up or shorten other courses to accommodate more sedation courses in their curriculum. 53% of dental students also disagreed or strongly disagreed that they will be comfortable offering oral sedation in private practice. In

regards to oral sedation, over 46% of dental students were not satisfied with their training in oral sedation, while 30% of dental students neither agreed nor disagreed concerning their satisfaction towards oral sedation training. The data also displayed that 33% strongly agreed and 47% of dental students agreed that they were interested in taking additional continuing education courses in sedation following dental school. Lastly, the most telling statistic is the yearning of predoctoral dental students to gain more education on this topic, as 96% agreed and strongly agreed that they would like more clinical sedation experiences in dental school.

Discussion:

Based on the results of the survey it was found that dental students are very interested in receiving more clinical sedation experiences. The strong number of dental students who plan on taking additional continuing education courses following dental school and those who would be in favor of modifying the curriculum illustrate this. This survey will be resubmitted at the end of the next academic school year to ascertain if there is consistent interest in greater clinical sedation education.

At UMSOD, there are several barriers to increasing clinical sedation experiences. Other institutions may have similar obstacles. For example, the student curriculum is already set, and additional time is needed to incorporate sedation into the program. Furthermore, the infrastructure in pre-doctoral clinic does not readily support sedation. Most operatories are not centrally plumbed for nitrous oxide administration. Also, finding adequate faculty coverage is a challenge. Currently, predoctoral students at UMSOD only observe treating patients under nitrous, oral, or IV sedation in pediatric and oral & maxillofacial surgery departments.

There is a great deal of variation amongst sedation exposure in both pre and post-graduate training. The Commission of Dental Accreditation (CODA) has listed several sedation requirements for different programs. However, these requirements are vague and generalized. For example, in pre-doctoral education, CODA requires competency of pain and anxiety in a manner defined by the school.⁵ Similarly, there are currently no specific sedation requirements for residents enrolled in an Advanced Education in General Dentistry (AEGD) except to have didactic and clinical training beyond that accomplished in pre-doctoral training in pain and anxiety control utilizing behavioral and/or pharmacological techniques.⁶ Dentists enrolled in a General Practice Residency (GPR) are assigned to a 70-hour anesthesia rotation that includes airway management, understanding of the use of pharmacologic agents, and recognition and treatment of anesthetic emergencies. This does not necessarily emphasize hands-on clinical experience.⁷ As a result, students' and residents' sedation experiences will drastically vary between programs.

As a proposed solution specific to UMSOD, a dental anesthesiology clerkship could be offered to both junior and senior students in the pre-doctoral setting. The clerkship would serve to provide more clinical experiences and as a supplement to oral surgery and

dental anesthesiology introductory courses. The goal is to support dental students with the confidence and the means to provide sedation options to their own patients. Students in the dental anesthesiology clerkship would complete a small number of restorative cases under nitrous oxide or oral sedation when supervision is adequate. Presently, at UMSOD, pre-doctoral students cannot treat patients under oral sedation. The hope is for this to change in the near future. As of now, only post-graduate residents can administer oral sedation in their respective departments.

Conclusion:

With the current CODA requirements regarding sedation, new dentists have a significant disadvantage in regards to incorporating sedation into their practice in the future. Due to the lack of clinical sedation exposure, pre-doctoral students would have to either enroll in a post-graduate residency or take costly sedation-specific continuing education courses in order to gain those experiences. Dental education in the pre-doctoral settings is not sufficient to prepare students to administer sedation safely or effectively in private practice.

Sedation is a great tool that can help aid patient comfort while shortening the amount of appointments needed to complete extensive treatment plans. There is an amplified need for sedation in private practice; therefore, dental education should provide pre-doctoral students with the confidence to become proficient at administering it.

References:

¹ Association, A. D. (Ed.). (n.d.). Supply and Profile of Dentists. Retrieved October 5, 2018, from <https://www.ada.org/en/science-research/health-policy-institute/data-center/supply-and-profile-of-dentists>

² American Academy of Implant Dentistry. (n.d.). Dental Implants Facts and Figures. Retrieved October 5, 2018, from https://www.aaid.com/about/Press_Room/Dental_Implants_FAQ.html

³ Population of the U.S. by sex and age 2017 | Statistic. (2018, June). Retrieved October 10, 2018, from <https://www.statista.com/statistics/241488/population-of-the-us-by-sex-and-age/>

⁴ Oral and maxillofacial surgeons: the experts in face, mouth and jaw surgery [Internet] Rosemont (IL): American Association of Oral and Maxillofacial Surgeons; [cited 2014 Apr 21]. Available from: <http://www.aaoms.org/conditions-and-treatments/dental-implants>.

⁵ Ada.org. (2018, Section 2-24 e). *Accreditation Standards For Dental Education Programs*. [online] Available at <https://www.ada.org/~media/CODA/Files/pde.pdf?la=en> [Accessed 13 Oct. 2018].

⁶ Ada.org. (2018, Section 2-2 g). *Accreditation Standards for Advanced Education Programs in General Dentistry*. [online] Available at: https://www.ada.org/~media/CODA/Files/Advanced_Education_General_Dentistry_Standards.pdf?la=en [Accessed 13 Oct. 2018].

⁷ Ada.org. (2018, Section 2-5). *Accreditation Standards for Advanced Education Programs in General Practice Residency*. [online] Available at: https://www.ada.org/~media/CODA/Files/General_Practice_Residency_Standards.pdf?la=en [Accessed 13 Oct. 2018].