

In-office Pediatric Dental Sedations in Rural vs. Urban Communities

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ABSTRACT

Purpose: To compare the availability of in-office sedation resources, practice management, and barriers in different regions in the United States.

Methods: A SurveyMonkey questionnaire containing 23 questions was emailed to active practicing pediatric dentists (n=7105) in the United States as obtained from the membership directory of the American Academy of Pediatric Dentistry.

Results: The response rate was 6% (n=423), with respondents from suburban (60%, n=253), urban (26%, n=112), and rural (14%, n=58) areas. Solo practitioners accounted for the most common practice type in rural areas (40%), while pediatric focused group practices were most prevalent in urban areas (45%). A total of 76% (n=321) use in-office sedation, including 58% (n=246) using oral sedation, 32% (n=135) IV sedation, and 47% (n=199) general anesthesia, consistent across rural and urban communities. In-office sedation was used by 69% (n=40) of rural and 73% (n=82) of urban dentists. Anesthesiologists were utilized by 58% (n=247) of respondents. Longer travel distances were noted to rural areas (78% >30 miles), compared to urban areas (50% <10 miles). Dentists in rural areas cited cost/insurance and travel distance as barriers to care (both 75%), while dentists in urban areas mostly noted cost/insurance (77%) as the main factor. The most common waitlist for both groups was 1-3 months (57% rural, 57% urban). No significant relationship was observed between urban or rural location, sedation usage, demographics or practice type.

Conclusion: While in-office sedations are utilized in both rural and urban communities, the primary difference observed in these practices was the distances anesthesiologists traveled.

INTRODUCTION

Traditional pediatric dental procedures often face limitations due to a child's temperament, special needs, or severe dental caries, which can prevent the completion of necessary treatments. To ensure patient, dentist, and staff safety, pharmacological behavior management techniques can be employed in the office to facilitate safe and efficient procedures.¹ Common sedation methods include oral sedation (enteral moderate sedation), IV sedation (parenteral deep sedation), and general anesthesia, aimed at reducing anxiety and pain during potential uncomfortable or painful procedures.² These techniques also help avoid the significantly higher costs associated with care in surgical centers or hospitals.³ The primary goal is to ensure patient welfare, enhance treatment quality, reduce disruptive behavior, and foster a positive psychological response to dental care.

While many pediatric dental offices strive to use traditional methods for dental treatment, these are often insufficient or unsafe due to various factors. In-office sedation has emerged as a safer, more efficient alternative for patients needing additional assistance.⁴ A 2012 study by Olabi et al. found that over 70% of board-certified U.S. pediatric dentists use some form of sedation in their practice, although only 20-40% employ a dental anesthesiologist. Many (60-70%) indicated they would utilize one if available.⁴ Further studies reveal a higher prevalence of untreated dental caries in rural communities compared to urban areas, with some rural regions seeing nearly half their child population living with untreated decay.^{5,6} This raises concerns about how rural communities, lacking access to dental anesthesiologists, manage in-office sedations, compared to urban areas with more resources and personnel to support such procedures.

The primary objective of this research study is to examine the use of various in-office sedation modalities in both rural and urban communities, along with identifying the additional resources required for their implementation. Additionally, the study aims to explore the challenges faced by dentists in resource-limited areas and the strategies they employ to overcome these obstacles.

MATERIALS AND METHODS

A questionnaire containing 23 questions was sent via SurveyMonkey to active practicing pediatric dentists in the United States (n=7105) as obtained from membership directory of the American Academy of Pediatric Dentistry. The data was collected over 8 weeks period with n=423 responding, and n=359 completing the survey in its entirety. The survey investigated members' demographics, frequency of sedations, sedation barriers, personnel dedicated for sedations, hospital privileges, and satisfaction with their sedation usage.

Participants were informed that the completion of the survey was voluntary and anonymous. There were no costs, expenses, or risks incurred to the participants associated with this research study. Institutional Review Board of the Albert Einstein College of Medicine approved this study #2024-15986.

Figure 1. Frequency of Sedations Utilized in Rural Areas

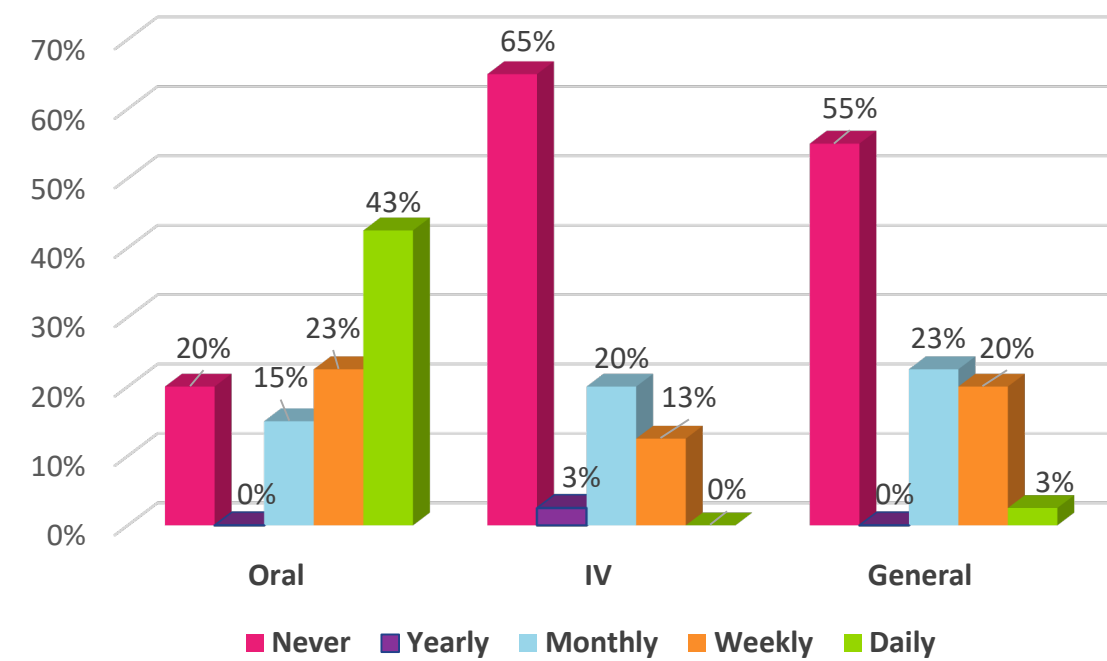


Figure 2. Frequency of Sedations Utilized in Urban Areas

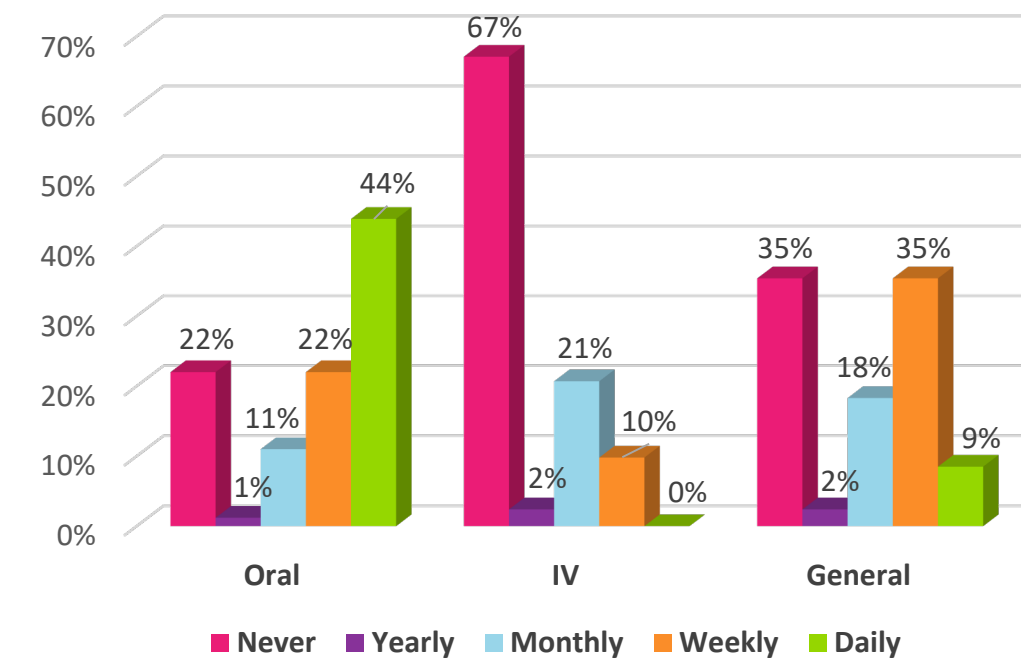


Figure 3. Patient Wait Time for Sedation

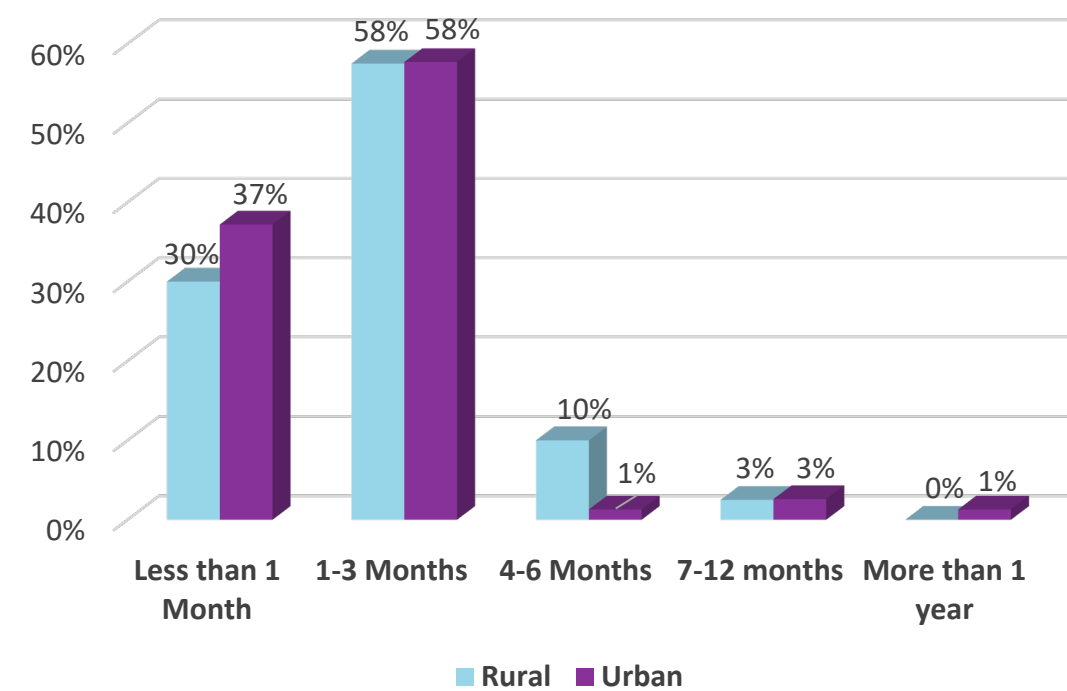
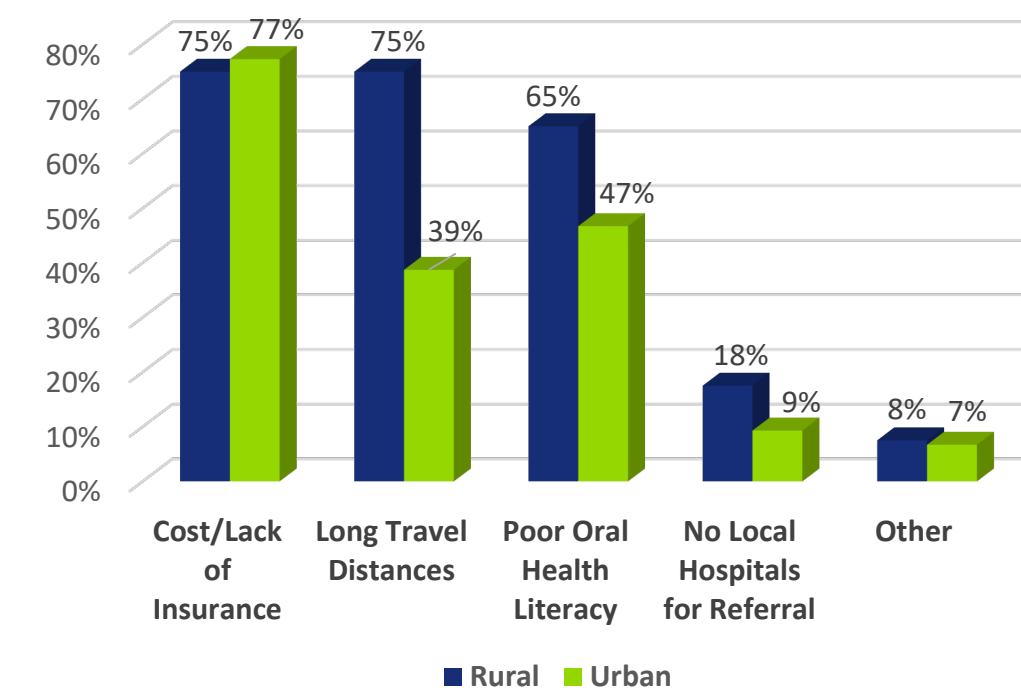


Figure 4. Patient Barriers to Sedation



RESULTS

Among the 423 respondents, 14% (n=58) practice in rural areas, 60% (n=253) in suburban areas, and 26% (n=112) in urban areas. In terms of years of practice, 21% (n=75) have been practicing for less than 5 years, 15% (n=63) for 5-10 years, 16% (n=59) for 11-15 years, 10% (n=39) for 16-20 years, 8% (n=29) for 21-25 years, and 26% (n=94) for more than 25 years. The gender distribution includes 52% (n=187) male, 47% (n=169) female, and 1% (n=4) who chose not to disclose. Age breakdown shows 19% (n=69) are 25-35 years old, 32% (n=113) are 36-45, 22% (n=80) are 46-55, 16% (n=58) are 56-65, and 11% (n=39) are over 65 years old. Regarding practice type, 50% (n=175) work in pediatric group practices, 25% (n=91) are solo practitioners, and 25% (n=93) practice in other settings like multi-specialty offices, universities, or community health clinics. Regional distribution was consistent across the all US regions. The demographics did not demonstrate any significant differences between rural and urban communities.

Sedation is frequently utilized, with 84% (n=301) of respondents indicating they offer in-office sedation. To facilitate a comparison between rural (n=58) and urban (n=112) practices, suburban data was excluded from the analysis. Both rural (69%, n=40) and urban (73%, n=82) dentists report similar usage of in-office sedation. Oral sedation is the most common form, used daily by 43% (n=17) of rural dentists and 44% (n=36) of urban dentists, with both groups averaging over 200 cases annually. IV sedation is rarely used, with 65% (n=26) of rural dentists and 67% (n=55) of urban dentists indicating it is never used. General anesthesia is also rarely used in rural areas (55%, n=22), while urban areas show a more balanced split between never used (35%, n=29) and weekly use (35%, n=29) (Figures 1 and 2).

Among rural dentists using in-office sedation, 58% (n=23) employ an anesthesiologist, compared to 72% (n=59) of urban dentists. Rural dentists typically have anesthesiologists travel more than 30 miles 78% of the time (n=18), while urban dentists report anesthesiologists travel less than 30 miles 80% of the time (n=45), with a statistically significant P -value = .000.

Both communities had an average wait time for 1-3 months (Figure 3). Barriers to sedation access in rural areas include cost/lack of insurance (75%, n=30), long travel distances (75%, n=30), and poor oral health literacy (65%, n=26). In urban areas, the main barrier is cost/lack of insurance (77%, n=58) (Figure 4). Both rural (85%, n=34) and urban (94%, n=77) dentists express satisfaction with the availability of in-office sedation. Hospital privileges are held by 70% (n=28) of rural dentists and 60% (n=47) of urban dentists.

CONCLUSIONS

Based on this study's results, the following conclusions can be made:

- Both rural and urban dentists frequently use in-office sedation, with similar patterns in the use of oral sedation, limited use of IV sedation and general anesthesia, hospital privileges for sedation, satisfaction with sedation practices, and shared barriers to access.
- The only significant difference observed was the travel distance for anesthesiologists: urban dentists typically have anesthesiologists travel less than 30 miles, while rural dentists' anesthesiologists often travel more than 30 miles.

BIBLIOGRAPHY

References available upon request.