Pediatric Dental Patients Requiring Hospital General Anesthesia Due to Obesity

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BACKGROUND

Childhood obesity has increased substantially in recent decades, affecting multiple areas of healthcare, including pediatric dentistry.[1,3] The Centers for Disease Control and Prevention (CDC) defines obesity in children as a Body Mass Index (BMI) at or above the 95th percentile for age and sex,[1] with 14.7 million U.S. children (19.7%) currently affected.[1] As pediatric obesity rises, determining safe sedation strategies for uncooperative pediatric patients undergoing invasive dental procedures is critical. Up to 20% of pediatric dental patients receive pharmacological sedation,[3] and safety remains the primary concern.[2] The American Academy of Pediatric Dentistry (AAPD) and the American Academy of Pediatrics (AAP), guidelines recommend thorough pre-procedural evaluations, including BMI assessment, as elevated BMI increases the risk of airway complications.[5,6] Obese children have increased thoracoabdominal fat, reduced functional residual capacity, higher oxygen consumption, and faster oxyhemoglobin desaturation.[3] Altered anesthetic distribution and elimination further raise the risk of oversedation, delayed recovery, and cardiopulmonary complications.[3] Consequently, oral conscious sedation (OCS) outside a hospital setting may be unsafe, and general anesthesia in a controlled operating room is often preferable.

OBJECTIVE

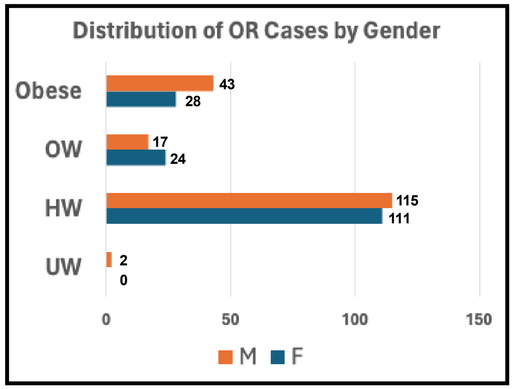
The aim of this study is to assess the number of pediatric dental cases at Children's Medical Center (CMC) in Dallas, Texas, classified as ASA I or ASA II in the operating room (OR) classified as obese.

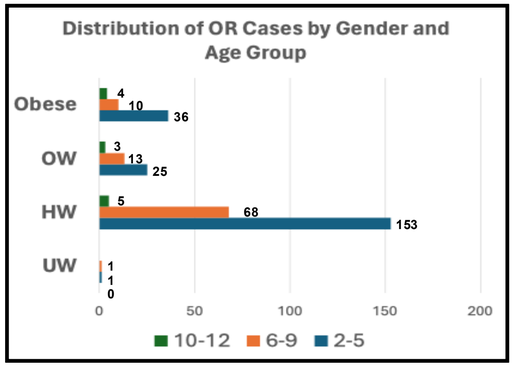
METHODS

- This retrospective cohort study used electronic medical records (Epic) to identify pediatric patients who underwent full-mouth dental rehabilitation (FMDR) in the OR at CMC from Jan 1, 2022-Dec 31, 2024, using CPT code 41899.
- A total of 1,791 Medicaid patients were initially identified. After applying inclusion and exclusion criteria, 340 patients aged 2–12 years classified as ASA I or II were included in the final cohort.
- Exclusion criteria included incomplete data, emergency department cases, procedures performed by the oral and maxillofacial surgeons or in the Plano OR.
- BMI percentiles were calculated using the CDC Child and Teen BMI Calculator. Patients were categorized as underweight (UW), healthy weight (HW), overweight (OW), or obese.
- SPSS statistical software and descriptive statistics was used for data analysis and to summarize the characteristics of the study population, respectively.

RESULTS

- The prevalence of obesity was 20.88%
- There was no statistically significant association between sex and weight category (Fisher's exact test, p = 0.23).
- There was a higher proportion of males classified as obese compared to females, but this difference was not statistically significant.
- No statistically significant association was found between age group and weight category (Fisher's exact test, p = 0.061).
- Due to a high proportion of zero counts in some subgroups, additional statistical analyses were limited.





CONCLUSION

The observed prevalence of obesity highlights the importance of careful pre-sedation assessment in pediatric dental patients. Data supports hospital-based general anesthesia as a safer option for obese pediatric patients. Further research is needed to evaluate obesity's impact on sedation outcomes and guide care decisions.

DISCUSSION

The obesity prevalence (20.88%) in this sample is consistent with national trends reported by the CDC, reinforcing the growing burden of pediatric obesity. Although no statistically significant associations were found between weight category and sex or age group, several clinically relevant trends were observed including a slightly higher prevalence in males and a possible increase in overweight and obesity with age. Importantly, a notable proportion of otherwise ASA I and II pediatric dental patients were overweight or obese. This is clinically relevant given the known risks of elevated BMI, including airway management challenges, oxygen desaturation, and altered anesthetic pharmacokinetics. These concerns support AAPD and AAP guidelines emphasizing thorough BMI assessment and consideration of FMDR in the OR for higher-BMI patients when OCS may pose increased risk.

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