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**The Effects of Midazolam on Pediatric Dental Patients with Asthma. NANCY KIL\* DDS, JIAN-FU ZHU DDS  
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**Purpose:** This study was performed to evaluate the safety and efficacy of midazolam in asthmatic patients undergoing dental treatment.

**Methods:** Twenty-four children, aged 19 to 65 months, with a diagnosis of mild to moderate asthma were given an oral dose of 0.5 mg/kg of midazolam. Oxygen saturation, respiratory rate and pulse rate were monitored before, during, immediately after, and thirty-minutes post-dental treatment by the investigating dentist and a nurse from the pulmonary medicine department at Children's Hospital of Michigan. The child's asthma score was also determined before and after treatment. The dental operator assessed the overall sedation outcome immediately after treatment.

**Results:** Twenty-three of the twenty-four subjects had asthma scores of "0" before and after treatment (asthma scores of "0" reflect an oxygen saturation of 95% or higher). During dental treatment, two patients had oxygen saturations of 94% at one point during treatment, however, oxygen saturation increased when the patient's head and neck were repositioned. Twenty-three of the twenty-four subjects had oxygen saturations above 95% at thirty minutes post-treatment. One subject left the dental clinic without notification to the operator before the thirty-minute post-operative evaluation could be made. Pulse rates and respiratory rates exhibited transitory increases, linked to when the child was stimulated. Statistical analysis was done by within-subjects repeated measures ANOVA and with a general linear model approach. No statistically significant differences occurred in oxygen saturation ( $F=1.643$ ;  $p=2.13$ ) and respiratory rate ( $F=.006$ ;  $p=.940$ ). However, significant differences did occur in pulse rate between 5 and 10 minutes (mean difference= $9.96\pm 3.84$ ,  $F=6.724$ ;  $p=.016$ ) and between 10 and 15 minutes (mean difference= $19.08\pm 5.50$ ,  $F=3.918$ ;  $p=.060$ ), as expected. No statistically significant differences occurred in asthma score, before and after treatment ( $p=1.00$ ). Twelve subjects were assessed to have excellent behavior, 5 subjects were satisfactory, and 7 subjects were unsatisfactory. No treatment was aborted.

**Conclusion:** Sedation with midazolam, when given orally at a dose of 0.5 mg/kg, produces little to no adverse effects on selected asthmatic patients. With adherence to the AAPD's Guidelines for the Elective Use of Conscious Sedation, midazolam has proven to be a safe and effective mean for sedation of patients with mild to moderate asthma.