

# [NM-191] Anesthetic Management for Airway Laser Procedures in Pediatric Patients differs from ASA Practice Advisory Recommendations: Results from a Survey of SPA Members

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## Introduction:

Laser surgeries involving the pediatric airway are challenging because oxygenation and ventilation requirements need to be balanced with the inherent fire risk of these procedures. The American Society of Anesthesiologists (ASA) recommendations from the Practice Advisory for the Prevention and Management of Operating Room fires (ASA-PA) fail to address the relative lack of infant-sized laser-safe equipment and the much faster onset of oxygen desaturation in the pediatric population. The aim of this study was to identify how practice patterns of pediatric anesthesiologists differ from the ASA suggestions.

## Methods:

An online survey was developed in a multi-step process: Topics of interest were identified and questions created. These were evaluated by content experts and subsequently tested by medical and lay persons for unambiguity and comprehensiveness. Lastly, the survey was pilot-tested by pediatric anesthesia providers before being distributed through the Society for Pediatric Anesthesia (SPA) email list. Exempt status was granted by our institutional IRB.

## Results:

Responses from 288 SPA members were collected, 265 (92%) of whom participated in pediatric airway laser surgery. A majority of those (90%) indicated reducing concentrations of oxygen during pediatric airway laser surgeries as their goal, but only 8% reported not using supplemental oxygen during these procedures. 156 (59%) persons reported having intubated with a regular endotracheal tube (ETT) during laser airway procedures, 38% of whom commented on the limited availability of appropriately sized laser-safe tubes. Contrary to the ASA-PA recommendation to “wait several minutes” between oxygen administration and laser use, 93% of respondents reported waiting only 0-60 seconds and 34% did not wait at all. Questioned about the maximum concentration of inspired oxygen (FiO<sub>2</sub>) used during the actual laser episodes, 21, 20, and 9% of respondents reported using >50% FiO<sub>2</sub> in patients with a native airway, laser-safe, and regular ETT, respectively. Fire risk was at least of occasional concern for 65% of respondents. Most were aware of the ASA-PA and the fact that it contains recommendations about airway laser procedures (92% and 62%, respectively), but only 31% knew that pediatric-specific recommendations are not addressed. Five respondents (1.7%) reported having personally experienced an airway fire in a pediatric patient undergoing laser airway surgery.

## Conclusion:

Although most pediatric anesthesiologists appear to be aware of the inherent fire risk of airway laser procedures, anesthetic management for infants and children deviates from the recommendations found in the ASA-PA. In particular, laser-safe equipment is not always available for pediatric patients; and many practitioners do not wait between oxygen administration and laser use. Although this survey cannot link practice with outcome, results suggest that airway fires do indeed occur in children during laser airway surgery.

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