




Preventing Airway Fire at the ASC and NORA




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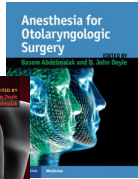
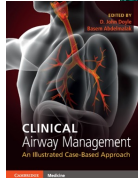
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Conflict Of Interest Disclosure

- Co-editor:
 - Anesthesia for Otolaryngology
 - Clinical Airway Management: an Illustrated Case Based Approach
- Speaker: Mindray


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Objectives

- Precautions for preventing airway fires
- Tips in management of airway fires

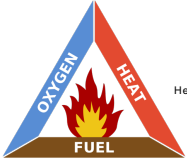
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
The Fire Triangle

Oxidizer:
Oxygen
Nitrous oxide




Igniting Energy:
LASER, Cautery
Thermoplasty catheter
Heat-generating light source/drill

Fuel:
ETT, Drapes
[Fire triangle - Fire triangle - Wikipedia](#)


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Safety Measures: Limitation of Oxidizers

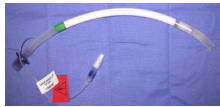
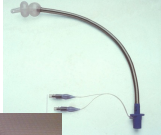

- The FiO₂ should be limited to the lowest concentration necessary to maintain acceptable O₂ sat.
- The balance of the FGF should be nitrogen (air) and/or helium
- Inhalation agents may be added as clinically indicated
- Nitrous oxide should not be used
- Communication



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Laser Resistant Tubes

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Safety Measures: Saline-filled Cuffs

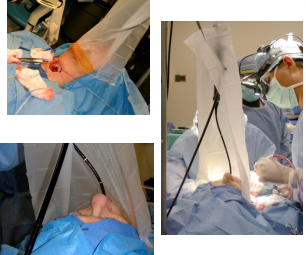
- Filling ETT cuffs with saline
- Methylene blue or other biocompatible and highly visible dye should be added to the saline
- The addition of fluid to the cuff system may prolong the process of cuff deflation.
- Have an extra endotracheal tube available for re-intubation in case a fire occurs.

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Facial and H & N Procedures


- Use minimal to no sedation
- Avoid using oxygen if feasible
- Separate O₂ from energy source
- Avoid oxygen tenting



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Thermoplasty




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Utility of Transnasal Humidified Rapid Insufflation Ventilatory Exchange for Microlaryngeal Surgery

Michael S. Benninger, MD; Emily S. Zhang, BS; Bonnie Chen, BS; William S. Tierney, MD, MS, MS; Basem Abdelmalak, MD; Paul C. Bryson, MD




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Intra-oral ignition of monopolar diathermy during transnasal humidified rapid-insufflation ventilatory exchange (THRIVE)

D. Onwochei,¹ K. El-Boghdady,¹ R. Oakley² and I. Ahmad³

- Palate Surgery in a 65 Y/O using HFNO
- Noticed an arc arising from the diathermy tip
- The Fire Triad:
 - Oxidizer
 - Fuel
 - Energy source



Anaesthesia 2017, 72, 781-783

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Safety and Utility of Transnasal Humidified Rapid-Insufflation Ventilatory Exchange (THRIVE) for Laser Laryngeal Surgery

- 172 cases, mostly subglottic stenosis
- No tube
- Laser safety protocol
- No airway fire

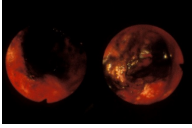
Khan NC, Vukkadala N, Saxena A, Damrose EJ, Nekhendzy V, Sung CK. Otolaryngol Head Neck Surg. 2023 Apr 6. doi: 10.1002/ohn.324. Online ahead of print


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What To Do For An Airway Fire

- Stop lasering, stop ventilation.
- Disconnect the circuit.
- Pull the burning material out.
- Douse fire with water
- When needed use CO₂ fire extinguisher





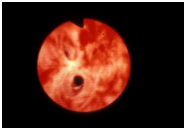
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What To Do After An Airway Fire

- Resume ventilation by mask.
- Re-intubation and respiratory support.
- Perform bronchoscopy
- Admit & monitor the patient in the ICU.
- Administer steroids?
- Administer antibiotics?





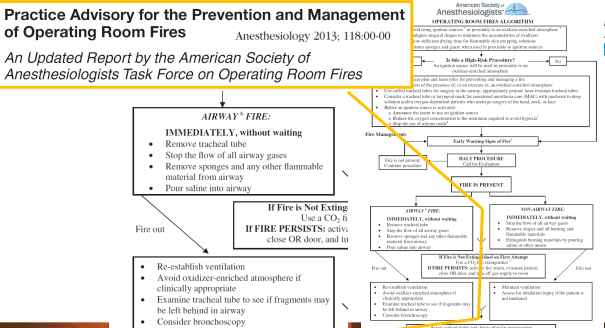
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Practice Advisory for the Prevention and Management of Operating Room Fires

Anesthesiology 2013; 118:00-00
An Updated Report by the American Society of Anesthesiologists Task Force on Operating Room Fires






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Summary


- The anesthesiologist should keep the administered oxygen levels to the minimum needed when a potential for an airway fire is present.
- Nitrous oxide should not be used during airway surgery
- A simple means to extinguish airway fires (e.g., 50 ml syringe filled with saline) should be immediately on hand. In addition, a CO₂ fire extinguisher is good to have nearby
- Preventive measures do not guarantee that fires will not occur; always be prepared
- Communication



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Thank you!
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