

Operating room fires are a rare but preventable danger in modern healthcare operating rooms.

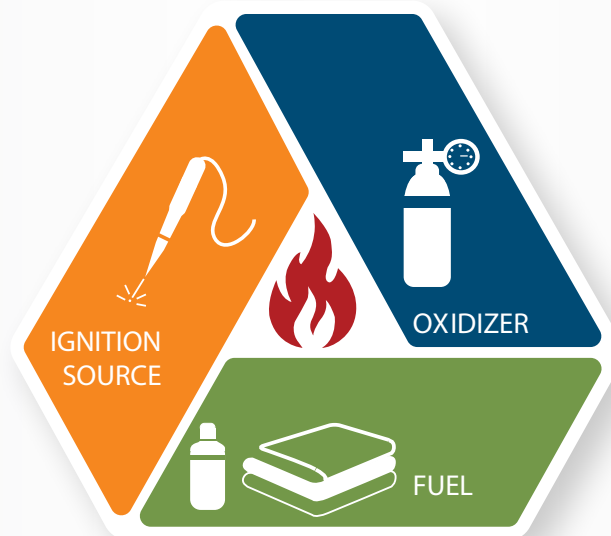
According to the Council on Surgical Perioperative Safety (CSPS), an estimated 550 to 650 surgical fires occur in the United States each year, some causing serious injury, disfigurement and even death.

Although the root causes of surgical fires are well understood, they still occur.<sup>1,2</sup>

Surgical fires can occur any time if all three elements of the 'Fire Triangle' (ignition source, fuel source and oxygen) are present. Oxygen greatly increases the risk of fire due to the enhanced rate of combustion and the lowered temperature at which fuel will ignite.

The most common ignition sources are electrosurgical equipment (68%) and lasers (13%). An oxygen-enriched environment is a contributing factor in at least 74% of all surgical fire cases.<sup>3</sup>

1. US Council on Surgical and Perioperative Safety – FDA's Preventing Surgical Fires Initiative, #7 2015. <http://www.cspsteam.org/7-fire-safety>
2. Administration: USF and D. Preventing Surgical Fires. <http://www.fda.gov/Drugs/DrugsSafety/SafeUseInitiative/PreventingSurgicalFires/default.htm>
3. ECRI <https://www.ecri.org/solutions/accident-investigation-services/surgical-fire-prevention>



## IGNITION SOURCE

Surgeon

Electrocautery,  
Laser, Fiber optic  
lights

## OXIDIZER

Anesthesiologist

Oxygen, Nitrous  
Oxide

## FUEL

Nursing/OR Staff

Linens, Supplies,  
Patient, Alcohol preps,  
Surgical drapes,  
ETT/Cannula

As per the AA001/AA031/AA041 Optiflow™ Nasal Interface User Instructions:

### Fire Danger

This product is an open oxygen delivery system. Open oxygen delivery can increase the risk of a surgical fire occurring, causing serious injury or death. Extreme care must be taken. The following is advised:

### Contraindication:

Do not use system with electrosurgery or electrocautery devices on the head or neck.

### Warning:

Do not use this product where ignition sources and fuel are present. Use with ignition sources and fuel present completes the fire triangle, increasing the risk of fire. The following steps should be taken to reduce the risk of a surgical fire occurring:

- Evaluate the oxygen needs of each individual patient and use the minimum supplementation required. Oxygen titration with a gas mixer should be considered.
- Ensure the use of this product is communicated to all operating room personnel when conducting the procedure's fire risk assessment.
- Ensure gas flow from the product is not in or near the surgical field AND the surgical site is free of all potential fuel sources, including alcohol skin preparation, gauze, sponges and drapes BEFORE potential ignition sources, such as electrosurgery, electrocautery or laser devices are used.
- Ensure the room is adequately ventilated as oxygen may accumulate over time.
- Ensure gas flow from the product does not pool under drapes.
- Follow the instructions for use of all surgical devices, including electrosurgery, electrocautery and laser devices, regarding oxygen delivery.

## Additional Reading



Safe Use of High-Flow Oxygen (HFNO) With Special Reference to Difficult Airway Management and Fire Risk Jeremy Cooper, MB, ChB, FANZCA; Benjamin Griffiths MBCh, GRCA; Jan Ehrenwerth, MD APSF Newsletter – The official journal of the Anesthesia Patient Safety Foundation. Volume 33, No 2, October 2018 <https://www.apsf.org/article/safe-use-of-high-flow-nasal-oxygen-hfno-with-specialreference-to-difficult-airwaymanagement-and-fire-risk/>



Safe Use of Intraoperative High-Flow Nasal Oxygen: A Surgical Perspective Alexandra T Muirhead, BBMed, MD, Steven T. F. Chan, PhD, FRACS, Hai T. Bui, FRACS, Ashely Hague, MBBS, FANZCA: Melbourne VIC, Australia. ANZ J Surg.2020. Letter to the Editor – The Royal Australasian College of Surgeons 2020. <https://pubmed.ncbi.nlm.nih.gov/32147917/>

This guide is not a substitute for the exercise of clinical judgement by an appropriately qualified healthcare professional, and it does not replace the user instructions. For a full product setup description, warnings, cautions, contraindications, system information and symbol explanations, refer to the user instructions for Fisher & Paykel Healthcare humidifiers, accessories, and patient interfaces.

Fisher & Paykel Healthcare, F&P, Optiflow and Optiflow Thrive are trademarks of Fisher & Paykel Healthcare Limited. For patent information, see [www.fphcare.com/ip](http://www.fphcare.com/ip) 629869 REV B © 2023 Fisher & Paykel Healthcare Limited.

Products available in certain markets only. Please contact your local Fisher & Paykel healthcare representative.