6 Recommendations to Prevent Surgical Fires

Written by Rob Kurtz | October 14, 2011

The FDA recently launched a new surgical fire prevention website. Here are six recommendations for healthcare professionals on preventing surgical fires from FDA.

1. Conduct a fire risk assessment at the beginning of each procedure. The highest risk procedures involve an ignition source, delivery of supplemental oxygen, and the operation of the ignition source near the oxygen (e.g., head, neck or upper chest surgery).

2. Use supplemental oxygen safely.

- Evaluate if supplemental oxygen is needed for each patient. Any increase in oxygen concentration in the surgical field increases the chance of fire.
- If supplemental oxygen is necessary, particularly for surgery in the head, neck or upper chest area:
    - Deliver the minimum concentration of oxygen needed to maintain adequate oxygen saturation for your patient.
    - Use a closed oxygen delivery system such as an endotracheal tube or laryngeal mask whenever possible, especially if high concentrations of supplemental oxygen (greater than 30 percent) are being delivered.
    - Take additional precautions to exclude oxygen from the field if using an open delivery system. These precautions include draping techniques that avoid accumulation of oxygen in the surgical field, the use of incise or fenestrated drapes which may help isolate oxygen from the surgical site, blowing air to wash out excess oxygen, or alternatively, scavenging oxygen from the field.

3. Use alcohol-based (flammable) skin preparation agents safely.

- Prevent alcohol-based antiseptics from pooling during skin preparation. For example use the appropriate size applicator for the surgical site.
- Remove alcohol-soaked materials from the prep area.
- Allow adequate drying time, as prescribed in the labeling, for the specific product. If the product is used on hairy areas or in skin folds, extend the drying time.
- Ensure the skin is dry before draping the patient and beginning surgery.

4. Use devices and other surgical equipment safely.

- Consider alternatives to using an ignition source for surgery of the head, neck and upper chest if high concentrations of supplemental oxygen (greater than 30 percent) are being delivered. If an ignition source must be used, know that it is safer to do so after allowing time for the oxygen

concentration to decrease. It may take several minutes for a reduction of oxygen concentration in the area even after stopping the gas or lowering its concentration.

- When not in use, place ignition sources, such as ESUs and electrocautery devices, in a holster and *not* on the patient or drapes.
- Understand that surgical drapes and other fuel sources can ignite easily and burn in an oxygen-enriched environment, even if the products are described as "flame-resistant."

5. Encourage communication among members of your surgical team.

- Ensure the anesthesia professional delivering the gases is communicating with the surgeon controlling the ignition source and the clinician applying the skin preparation agent.

6. Plan how to manage a surgical fire. For example, understand how to extinguish a fire burning on a patient, develop evacuation procedures, conduct fire drills, and keep saline handy to put out a fire.