

Fire Safety Tool Kit

Instructions for Use of the Fire Risk Assessment Tool

Purpose of the Fire Risk Assessment Tool

- To assist the perioperative team in determining interventions required to decrease the risk for a perioperative fire.
- To provide a means of communicating the fire risk designation to the perioperative team for each individual patient.

Please note: The Fire Risk Assessment Tool is provided as a separate document in the AORN Fire Safety Tool Kit; this document provides information on how to use the tool.

There is a risk for fire during all operative and other invasive procedures when all three sides of the fire triangle (ie, ignition source, fuel, and oxidizer) are present. Complete a fire risk assessment for all patients during the time out. **For all questions in the Fire Risk Assessment Tool that have an affirmative response, implement fire safety interventions listed below and according to the health care facility's fire safety policies and procedures.** A sample of a perioperative fire safety policy and procedure is available in the Fire Safety Tool Kit.

How to Use the Fire Risk Assessment Tool

- Print it out.
- Laminate it.
- Place one in every OR.
- A fire risk assessment should be completed during the time out for every patient. The RN circulator should complete the Fire Risk Assessment Tool to determine the risk-level designation.
- The risk-level designation of **A, B, C, D, or E** is determined by the code assigned to each of the critical questions that has an affirmative response. A procedure may have one or more fire risk-level designations.
- The RN circulator should report the fire risk-level designations to the surgical team during the "time out" as "A, B, C, D, E" or any combinations of these letters.
- Each fire risk-level designation has corresponding interventions that should be implemented by the perioperative team before and/or during the procedure to decrease the risk for fire.

Risk Assessment Designations and Interventions

The following interventions for fire prevention are excerpted with permission from AORN's *Policy and Procedure Templates*, 5th Edition.

A: Is an alcohol-based skin antiseptic or other flammable solution being used preoperatively?

- Actions:
 - Use reusable or disposable sterile towels to absorb drips and excess solution during application.
 - Remove materials that are saturated with the skin antiseptic agent before draping the patient.
 - Wick excess solution with a sterile towel to help dry the surgical prep area completely.
 - Allow flammable skin antiseptics to dry completely and fumes to dissipate before surgical drapes are applied and before using a potential ignition source (eg, electrosurgical unit [ESU], laser).



- Conduct a skin prep time out to validate that the skin antiseptic is dry before draping the patient.
- Allow flammable solutions (eg, alcohol, collodion, tinctures) to dry completely and fumes to dissipate before using a potential ignition source.

B: Is the operative or other invasive procedure being performed above the xiphoid process or in the oropharynx?

- Actions:
 - Cover the head and facial hair near the surgical site with water-soluble gel.
 - Use an adhesive incise drape between the surgical site and the oxygen source.
 - Use a laryngeal mask airway or an endotracheal tube when the patient requires supplementary oxygen greater than 30%, unless using the tube is contraindicated by the procedure.
 - Inflate the endotracheal tube cuff with tinted solutions (eg, methylene blue).
 - Pack wet sponges around the back of the patient's throat during surgical procedures involving the airway.
 - Evacuate accumulated anesthetic gas using a metal suction cannula before an ignition source is used in or near an oxygen-enriched environment.
 - Evacuate surgical smoke in small or enclosed spaces (eg, back of the throat) when using electrosurgery or a laser near the endotracheal tube.
 - Suction the oropharynx deeply before using an ignition source if oxygen is used.
 - Check the anesthesia circuits for possible leaks.

C: Is open oxygen or nitrous oxide being administered?

- Actions:
 - Place drapes, including warming blankets with attached head drapes, over the patient's head in a manner that allows the oxygen to flow freely and not accumulate under the drapes.
 - Deliver 5 to 10 L/minute of medical air under the drapes to flush out excess oxygen via a second delivery system.
 - Use the lowest possible concentration of oxygen that provides adequate patient oxygen saturation.
 - Stop supplemental oxygen or nitrous oxide for 1 minute before using electrosurgery; battery-powered, hand-held cautery units; or lasers for head, neck, or upper chest procedures.
 - Turn off the flow of oxygen at the end of each procedure.

D: Is an ESU, laser, or fiber-optic light being used?

- Actions—ESU use:
 - Place the ESU in a location that does not put stress on the electrical cord.
 - Keep the electrical cord dry and free of kinks, knots, and bends.
 - Inspect the ESU cord before use, and do not use it if there is any evidence of breaks, nicks, or cracks in the outer insulation coating.
 - Keep the active electrode cord free of kinks and coils during use.
 - Only the person controlling the active electrode should activate the ESU.
 - Use the lowest possible power setting for the ESU.
 - Store the active electrode in a clean, dry, non-conductive safety holster when it is not in use.
 - Keep surgical drapes or linens away from the activated ESU.
 - Moisten drapes (if absorbent), towels, and sponges used near the active electrode tip.

- Do not use an ignition source to enter the bowel or the trachea.
- Keep the ESU active electrode away from oxygen, nitrous oxide, or combustible anesthetic gas sources if possible.
- Do not activate the active electrode in the presence of flammable agents until the agents are dry and vapors have dissipated (eg, alcohol-based skin antiseptics, tinctures, de-fatting agents, collodion, petroleum-based lubricants, phenol, aerosol adhesives, uncured methyl methacrylate).
- Keep the active electrode tip clean.
- Use active electrode tips according to the manufacturer's instructions.
- Use only active electrodes or return electrodes that are compatible with the ESU.
- Seat the active electrode tip securely into the electrosurgical hand piece.
- Do not alter the active electrode tip (eg, by bending, by using insulation sheaths made from flammable materials such as rubber catheters).
- Activate the active electrode only when it is in close proximity to the target tissue and away from other metal objects that could conduct heat or cause arcing.
- Inspect minimally invasive electrosurgical instruments for impaired insulation and remove them from service if the insulation is not intact.
- Use cut or blend settings instead of coagulation when possible.
- Remove the active electrode tip from the electrosurgical hand piece before discarding it.
- Remove the batteries or disable the cautery tip before disposing of battery-powered, hand-held cautery units.
- Actions—laser use:
 - Place the laser in a location that does not put stress on the electrical cord.
 - Keep the electrical cord dry and free of kinks, knots, and bends.
 - Inspect the laser cord before use, and do not use it if there is any evidence of breaks, nicks, or cracks in the outer insulation coating.
 - Only the person controlling the laser beam should activate the laser.
 - Do not activate the laser in the presence of flammable agents until the solutions are dry and vapors have dissipated (eg, alcohol-based skin prep antiseptics, tinctures, de-fatting agents, collodion, petroleum-based lubricants, phenol, aerosol adhesives, uncured methyl methacrylate).
 - Place the laser in standby mode when it is not in active use.
 - Use a laser-resistant endotracheal tube during upper airway procedures.
 - Place wet sponges around the endotracheal tube cuff if the laser is being operated in close proximity to the endotracheal tube.
 - Fill the endotracheal tube cuff with tinted solutions (eg, methylene blue) during laser procedures involving the patient's airway or aerodigestive tract.
 - Keep moist sponges, towels, and drapes around the surgical site for all laser procedures.
 - Keep wet towels and saline on the sterile field during all laser procedures.
 - Verify that water or saline and the appropriate type of fire extinguisher are immediately available before using the laser.
 - During perineal surgery, use moistened radiopaque sponges to cover or pack the anus.
- Actions—fiber-optic light use:
 - Place the light source in standby mode or turn it off when the cable is not in use.
 - Inspect light cables before use and remove them from service if broken light bundles are visible.
 - Connect all fiber-optic light cables before activating the light source.

- Place the light source on standby when disconnecting fiber-optic light cables.
- Secure the working end (ie, the end that is inserted into the body) of the endoscope or cord on a moist towel or away from any drapes, sponges, or other flammable materials.

E: Are there other possible contributors?

- Actions:
 - Select defibrillator paddles that are the appropriate size for the patient.
 - Use only manufacturer-recommended lubricants for defibrillator paddles and pads.
 - Use appropriate defibrillator paddle placement to allow optimal skin contact.
 - Slowly drip saline on a moving drill, burr, or saw blade.
 - Place drills or saws on the Mayo stand or back table when they are not in use.

Intervention Examples

The following are examples for determining the reportable code (A, B, C, D, E) for the Fire Risk Assessment:

An example for a patient having a carotid endarterectomy:

- The surgical site is above the xiphoid process.
 - Chlorhexidine gluconate with alcohol is used for the prep solution.
 - An ESU is used.
- >> The fire risk assessment for this situation would be reported as “A, B, D.”

An example for a patient having a total knee arthroplasty:

- Chlorhexidine gluconate with alcohol is used for the prep solution.
 - An ESU is used.
 - A moving drill burr or saw blade is used.
- >> The fire risk assessment for this situation would be reported as “A, D, E.”

An example for a patient having a vaginal hysterectomy with spinal anesthesia:

- Supplemental oxygen is at 35% to maintain the patient’s oxygen saturation > 95%.
 - Povidone iodine solution is used for the prep.
 - An ESU is used.
- >> The fire risk assessment for this situation would be reported as “C, D.”