

- * Know the location of the fire extinguishers.
- * Fire resistant material drapes should be used to drape the operative site.
- * Flammable combustible anesthetics (e.g., oxygen, nitrous oxide), prep solutions (e.g. degreasers, tinctures), drying agents, ointments (e.g., petroleum jelly, hair spray, hair gel), plastics resins or flammable plastics (e.g., tracheal tubes, breathing circuits, warming blankets) or other materials should not be used near the laser site.
- * All combustible materials should kept away from heat, and stored in closed cabinets. All combustible fluid that is used in the surgical preparation (e.g. skin) should be fully dried prior to surgery.
- * Place drapes in a manner that allows for venting to remove any oxygen and flammable particles, the accumulation of which can lead to a fire from an errant arc or a spark.
- * Place evacuation suction under drapes to remove any oxygen.

INTRAOPERATIVE PRECAUTIONS

- * Activate the ESU or laser after all flammable prep solutions or aerosols are completely dry.
- * Place a wet sponge in the rectum if the surgical procedure involves the bowel or perineal area (lasers can burn through wet towels and ignite impervious drapes).
- * At no time lay a laser fiber directly on surgical drapes; wait until the fiber cools before contact is made with flammable fabric.
- * An endotracheal tube used during surgery in the aerodigestive track (i.e., oral, and laryngotracheal) should be laser safe.
- * When the surgical field is in close proximity to the patient's airway, extreme caution must be taken to

prevent patient injury from laser-induced ignition and flaming of the endotracheal tube.

- * Polyvinyl chloride tube (PVC ET) should not be used during laser surgery either wrapped or unwrapped.
- * A specially prepared foil wrapped, red rubber endotracheal tube can be used during laser surgery of the airway. NOTE: ET tube is laser specific.
- * The endotracheal tube should be inflated with sterile saline until the occlusion of the tracheal lumen occurs. Ethylene blue dye is added to the sterile saline as an indicator of cuff perforation.
- * Following placement of the endotracheal tube, moistened towels will be placed around the patient's face and/or coat facial hair near the surgical site with watersoluble surgical lubricating jelly to make it nonflammable.
- * Inspired oxygen should be maintained within a FiO₂ range of 0.25-0.30 while lasering if at all possible.



Fire: 321

University Police 911

Outside Callers 631-632-3333

UH Offsites Call 911 or local Fire Dept.

Environmental Health & Safety 632-6411

Biomedical Engineering 444-1420

Surgical Fire Safety in Ambulatory Facility



Common Sources of Ignition

- Fiber optic light sources
 - Defibrillators
 - Cautery pencils
 - Heated probes
- Cautery devices (hot temp)
- Electric surgical devices
- High-speed power drills and burs
 - Electric cords
 - Lasers
- Fiber optic cables
- Warming lights

Common Fuels in the Operating Room

- Dressings
- Operating room bedding/furnishings
- Gastrointestinal gases
- Patient hair
- Linen, drapes
- Prepping agents
- Ointments/tinctures/aerosols
- Staff attire
- Wrapped supplies
- Contacts

EMERGENCY PROCEDURE FOR FIGHTING FIRES ON A SURGICAL PATIENT

- * Stop the flow of breathing gases to the patient.
- * Remove the burning material from the patient.

- * Have another team member extinguish the burning material.
- * If needed, use a fire extinguisher to put out a fire involving the patient
- * Care for the patient
- * Resume patient ventilation
- * Control bleeding
- * Evacuate the patient if the room is dangerous from smoke or fire.
- * Examine the patient for injuries and treat accordingly.
- * Notify OR staff and floor department that a fire has occurred. Pull the alarm and call 321.
- * Isolate the room to contain smoke and fire.
- * Finally save involved materials and devices for later investigation.



FIRE SAFETY POINTS

- * Maintain laser in standby mode when not in use
- * Place ESU pencils in the holsters between applications.
- * Turn off or unplug any ESU not in use.
- * Use moist laps and sponges at the sterile field when ignition sources such as the ESU or high-speed drills are in use.
- * Keep sponges moist.
- * Apply water-soluble ointment to facial hair in the surgical field (mustache, eyebrows).
- * Remove contaminated ESU pencils, bipolar, Malis tips, etc., from the field or unplug from the energy source to prevent accidental activation.

- * During local or IV sedation in which supplemental O₂ may be used, turn off O₂ at least 60 seconds to allow for a return to ambient air conditions before beginning procedure if the ESU or other ignition source is used in the head, neck or facial areas.
- * Anesthesiologist should maintain a FiO₂ of 28 to 33 percent with a mixture of N₂ (don't use N₂O which supports combustion) to contain the enriched atmosphere to a minimum.
- * Avoid leaving light cords on drapes. The light sources called cold light are not cold. They are only cool enough to prevent burning of tissues by the heat emitted through the scope into the body.
- * Prior to using aerosols, tinctures, collodion and other flammable products, turn off and remove all ignition sources from the field.
- * Do not activate light source until cord is connected to scope, headlight, etc., Deactivate light source prior to disconnecting cord.
- * Do not use the ESU, disposable cauteries or other ignition sources near ointments.
- * Keep all pathways out of the room clear of cords.
- * Keep trash and linen hampers, equipment and machinery away from exit doors.
- * Maintain evacuation suction under drapes to remove any oxygen.

PERIOPERATIVE PRECAUTIONS

- * Laser should be tested prior to use.
- * Inspect that Biomedical labels are up to date.
- * Apply the dispersing electrode (ESU plate, grounding plate) to a dry, clean, muscular, hair-free area as close to the surgical site as possible.
- * Remove all pooled prep solutions. Be particularly vigilant when flammable solutions such as alcohol or alcohol containing solutions are used. Liquids should not be placed on the laser.