

DEPARTMENT OF THE ARMY
US ARMY MEDICAL DEPARTMENT ACTIVITY
Fort Huachuca, Arizona 85613-7079

MEDDAC MEMO
No. 40-168

27 February 2008

Facility Engineering
PREVENTION OF SURGICAL FIRES

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1. **HISTORY:** This is a revision of this publication.

2. **PURPOSE:** To provide a local written plan of action to prevent and act in the event of fire associated with surgical procedures.

3. **SCOPE.** This memorandum applies to all staff, clinics, services, and sections within RWBAHC that perform major or minor surgical procedures.

4. **REFERENCES:** MEDCOM Regulation 40-48, Fires Associated with the Performance of Surgical Procedures.

5. **RESPONSIBILITIES:**
 - 5.1 The Head Nurse, Operating Room is the local subject matter expert and educator regarding the prevention of surgical fires.

 - 5.2 RWBAHC staff will comply with prevention reporting, medical examination, and documentation requirements.

6. **GENERAL:** Understanding the prevention of the Fire Hazard Trilogy. Ignition, Fuel, Oxygen. The key to fire prevention is to reduce the risk associated with each of the components required for combustion.
 - 6.1 **Ignition Sources:** Electric cautery (ESU/ECU), Electrical equipment short-circuit (spark or arc), High intensity Light cords, Endoscopes, Drills Defibrillators, and Warmers.

 - 6.2 **Fuel Sources:** Drapes, Gowns, Sponges, Gauze, Prep Solutions, Alcohols, Adhesive tapes, Towels, Hair & ointments.

*This memo supersedes MEDDAC MEMO 40-168, 12 Sep 06

6.3 OXYGEN-Oxidant Enriched Atmosphere (OEA-exceeds 21% O₂):

Anesthesia compounds entrapped in: Airways, catheters, tracheostomy tubes, Anesthesia circuits, breathing tubes, masks, drapes. Surgical sites: Gastrointestinal tract, bowel or perineal emissions.

7. PROCEDURES.**7.1 The "SEVEN ABSOLUTES" for FIRE PREVENTION:**

7.1.1 Proper application of ESU (HOLSTER the BOVIE when not in use to avoid accidental activation). Ground patient properly per the cautery dispersion pad.

7.1.2 Drying of prep solutions or aerosols and clear the prepped area of any pooled prep solution and soaked drapes.

7.1.3 Fiber optic LIGHT cords and sources can start fires. Complete all cable connections before activating the source. Place source on standby when not in use.

7.1.4 Proper venting of drapes. Avoid use of plastic bags to cover patients. Place drapes in a manner that allows for venting of gas to prevent oxidant enriched environment for an errant arc or spark.

7.1.5 Electrosurgical units (ESU) should not be used to cut tracheal rings and enter the airway. Using scissors or a scalpel instead will avoid the risk of fire. For procedures involving the airway, inflate the endotracheal tube with methylene blue water.

7.1.6 Ensure that a basin of sterile saline/water is readily available as well as moist sponges or towels for emergency quenching of fire.

7.1.7 Ensure that an appropriate fire extinguisher and or fire blanket is available.

7.1.8 If a fire does occur activate R.A.C.E.= Rescue, Alert, Confine, and Escape/Extinguish.

7.2 ADDITIONAL PREVENTIVE MEASURES:

7.2.1 Check biomedical calibration stickers on equipment.

7.2.2 Inspect all cords for cuts or nicks in insulation or loose connection at plug or receptacle ends. Keep all cords clear of traffic pathways.

7.2.3 Insert all plugs completely into the receptacles to prevent arcing.

7.2.4 Use gowns and drapes that pass the National Fire Protection Association, (NFPA) 702-1980 test (not just Consumer Product Safety Commission Std)

7.2.5 Avoid use of plastic bags to cover patients, they are extremely flammable and can trap oxygen.

7.2.6 Apply the dispersing electrode (grounding pad) for the ESU to a dry, clean, muscular area, as close to the surgical site as possible.

7.2.7 Activate the ESU only after all flammable prep solutions or aerosols are dry or completely evaporated.

7.2.8 Place ESU pencils in holsters when not in use.

7.2.9 Make certain the foot switch for the ESU cannot be tripped accidentally.

7.2.10 As an option, shielding with wet substrates (wet towel square-off) may create "non-ignitable zone".

7.2.11 Place a wet sponge in the rectum if the surgical procedure involves the bowel or perineal area.

7.2.12 Use sterile 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.

7.2.13 Apply water-soluble ointment (Surgilube) may be applied to facial hair (mustaches, eyebrows, etc) in the surgical field.

7.2.14 Sterile saline/water must be readily accessible for quenching flames.

7.2.15 Place drapes in such a manner as to allow venting of gas to prevent oxidant build-up.

7.2.16 Keep trash containers, linen hampers, and equipment away from exit doors.

7.2.17 Do not activate light source until cord is connected to scope, headlight, etc.

7.2.18 Deactivate light source prior to disconnecting cord.

7.2.19 Staff will be familiar with gas supply shutoff, electrical circuit breakers, and fire alarm / extinguishers location.

7.3 IN CASE OF FIRE: RESCUE, ALERT, CONFINE, EXTINGUISH/ESCAPE=R.A.C.E.

RESCUE:

- If drapes are burning, remove them from the patient immediately.
- The anesthesia provider must turn off O2 and N2O.
- Smother the fire with a fire blanket, or heavy cloth material.
- NFPA fire extinguisher should be readily available.
- Ventilate the patient with air and use IV agents to maintain anesthesia.

ALARM:

- Call the fire code - PULL THE ALARM.

CONFINE:

- Make sure all doors to the room are closed as well as the corridor doors. Lights should be turned off (if in the OR Emergency Lighting should come on). And, if it is safe to try to extinguish the fire, you should do so. Otherwise, you should evacuate immediately.

EXTINGUISH/ESCAPE:

- ANESTHESIA PROVIDER: collects minimal drugs to maintain anesthesia during transport.
- SURGEON: controls and maintains the surgical wound while helping move the patient out of the room.

- CIRCULATING NURSE: disconnects anesthesia gas lines, unplugs all electrical equipment, and helps in moving anesthesia machine and cart if necessary. Help to transport patient by disconnecting leads, securing IV solutions, obtain Ambu bag & portable O2 tank, portable EKG monitor.
- SCRUB TECH: gathers minimal instruments onto a mayo tray or basin and help to move.
- Last person to leave the operating room should close the doors.

7.4 AFTER THE FIRE:

7.4.1 Do not remove anything from the OR - leave for Fire Department Investigators

7.4.2 Make notes to assist with After Action Report/Investigation

7.4.3 Complete Incident Report

7.4.4 Conduct Critical Incident Stress Debriefing

The proponent of this publication is Safety Office. Users are invited to send comments and suggested improvements on DA Form 2028 directly to Commander, RWBAHC, ATTN: MCXJ-SO, Fort Huachuca, AZ 85613-7079.

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