

FIRE SAFETY IN THE PERIOPERATIVE SETTING

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LEARNING OBJECTIVES

1. Increased knowledge of appropriate actions to take to extinguish an OR fire.
2. Knowledge how to protect patients and personnel during a fire.
3. How to use a fire extinguisher.
4. Knowledge of hospital policy regarding a fire.



LOCATION OF FIRES

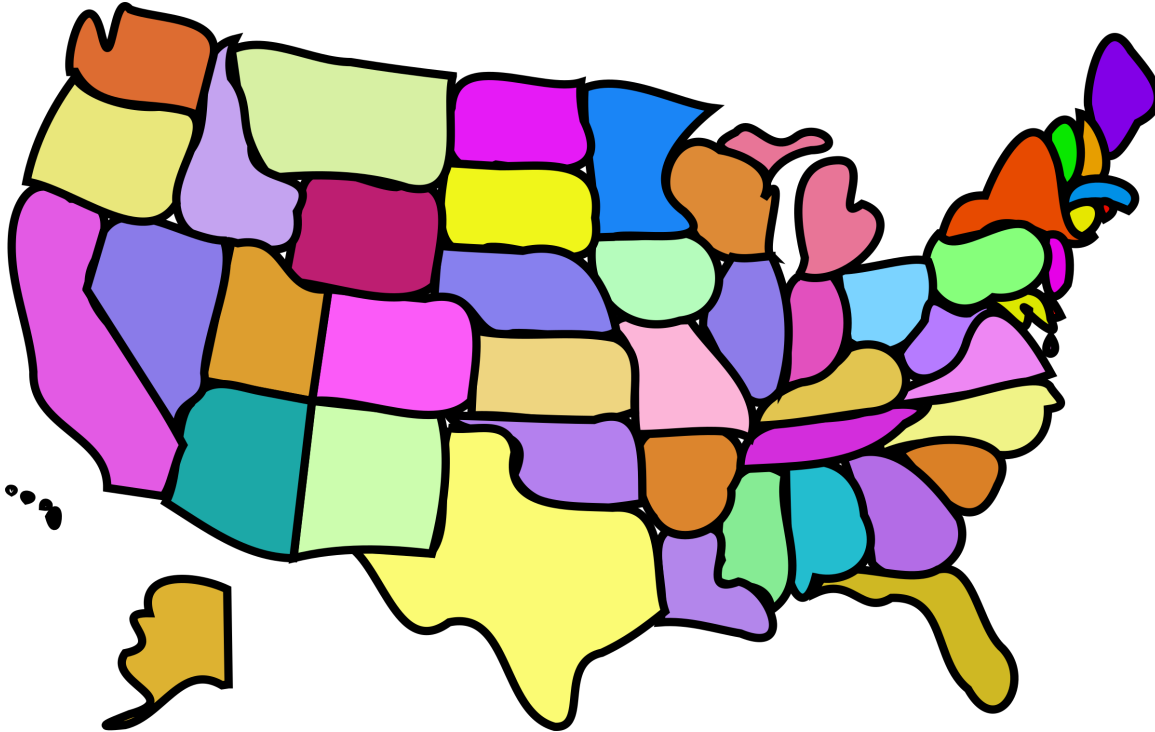
AMBULATORY SURGERY
CENTERS

HOSPITALS

PHYSICIAN OFFICES



FIRE FACTS



Estimated Frequency:

200 to 240 per year in the United States

- 44% head, neck, or upper chest
- 26% elsewhere on the patient
- 21% in the airway

IGNITION SOURCES

- Laser beam
- Electrosurgical unit
- Argon
- Power tools
- Light cord
- Electrical Equipment
- Defibrillator



OXIDIZERS

- Oxygen
- Oxygen-enriched environment
- Nitrous oxide

FUELS

- Patient
- Personnel
- Drapes, Dressings, Tapes
- Gowns, Linens, Head coverings, hair
- Sponges
- Alcohol-based skin prep
- Endotracheal tubes

INTERVENTIONS TO PREVENT FIRE

- Be sure to place the patient return electrodes on a large muscle.
- Inspect electrical cord and keep them from coiling.
- Be sure to secure the ESU in the appropriate holster.
- Secure laser fiber and place wet towels around surrounding tissue.
- Keep the light source in Standby until use.
- Tent drapes to allow free air flow.
- Keep the oxygen percentage as low as patient can tolerate during head and neck cases.
- Use an incise drape if possible.
- Be sure to use wet/moist sponges around the surgical site. Especially, if in the throat.



INTERVENTIONS

- Ensure there are no anesthesia circuit leaks.
- Turn off the oxygen at the end of every procedure.
- Use water-based ointment and not oil-based ointment in facial hair or near the surgical site.
- Prevent pooling of skin prep solutions.
- Always remove prep-soaked linens.
- ALWAYS!!! Allow skin-prep agents to dry and fumes to dissipate prior to draping.
- Conduct a skin prep “time out”

WHO IS RESPONSIBLE FOR PREVENTION

TEAM EFFORT!!!

- Nurses
- Surgical techs
- Surgeons
- Assistants
- Environmental Services
- Administration team members

FIRE PREVENTION ASSESSMENT

- Prior to the start of any and all procedures.
- Total participation from ALL TEAM members.
- Communicate during the “Time Out”.
- Identify Ignition sources that are present.
- Identify Fuels that are present.
- Identify the potential for the presence of oxygen-enriched environment.
- Document the assessment.

FIGHTING FIRES ON OR IN A PATIENT

- Alert the team that there is a fire.
- Assist the Anesthesia staff to turn off/stop the flow of gases.
- Remove burning materials away from the patient.
- Have another team member extinguish the fire.
 - Extinguish the fire with water or saline.
 - Use a fire extinguisher as the last response.
 - Extinguish the fire (burning materials) on the floor.
 - Be sure to care for the patient.
 - Save all the involved materials.
- Assess the surgical field for a secondary fire on the underlying drapes or towels.
- Assess for injury.
- Report the injury to the physician.
- Document your assessment.
- Activate the Fire system if necessary.
- Notify the proper chain of command.

ENDOTRACHEAL TUBE FIRE

- Call for help.
- Assist Anesthesia.
 - Immediately remove the tube and any segments of the burned tube.
 - Disconnect the tube from oxygen source.
 - Pour water or saline into the airway.
 - Turn off the flow of gases.
 - Care for the patient:
 - Reestablish the airway.
 - Ventilate with air until you are sure there is no more debris smoldering or burning.
 - Examine the airway.

EQUIPMENT FIRES

- Call for help.
- Disconnect the equipment from the electrical source.
- Shut off the equipment if unable to disconnect.
- Turn off gases to equipment if applicable.
- Assess the size of the fire to determine if equipment can be removed safely or if evacuation is necessary.
- Extinguish the fire with a extinguisher, if appropriate.
- Activate the fire system.
- Notify appropriate chain of command.

WHAT IF THERE IS A FIRE SOMEWHERE OTHER THAN THE OR AREA

- Stay in your assigned area until you are designated to go somewhere else.
- Stay calm.
- Do not start a case in your room (elective procedure).
- Wait for further instructions which may be to prepare for evacuation.

FIRE EXTINGUISHER STEPS:

- **P** Pull the pin.
- **A** Aim the nozzle at the base of the fire.
- **S** Squeeze the handle.
- **S** Sweep the stream over the base of the fire.

EVACUATION STEPS:

- **R** Rescue
- **A** Alarm/Alert
- **C** Confine/Contain
- **E** Evacuate

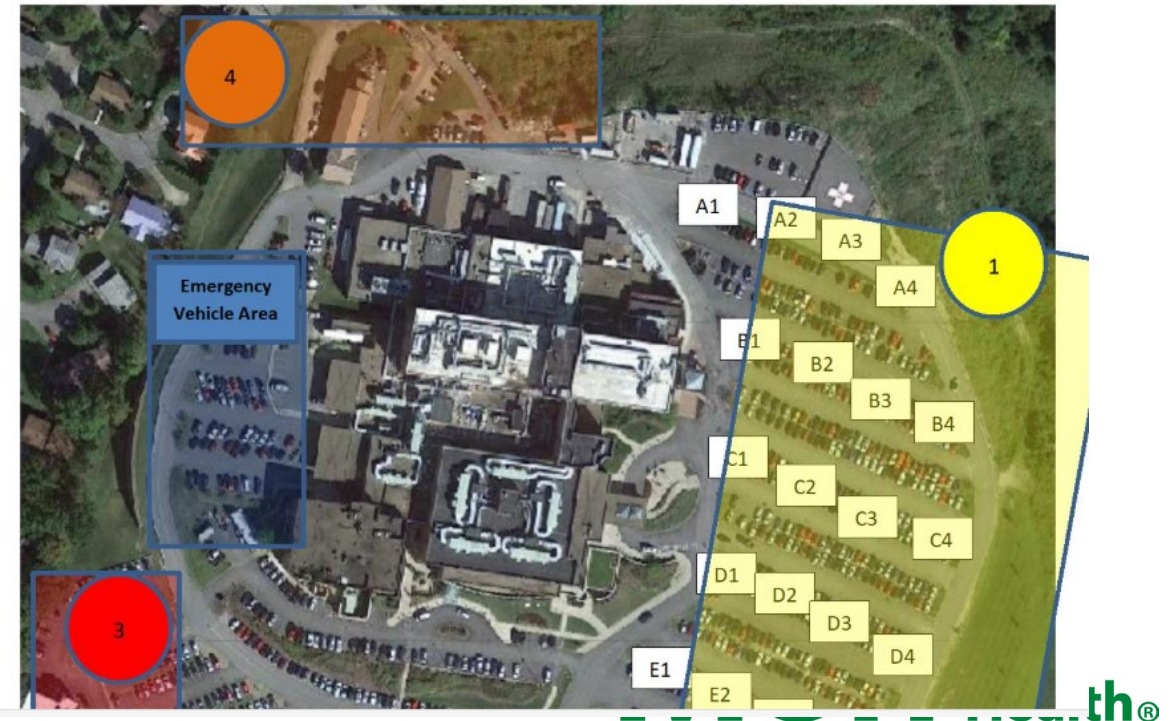
EVACUATION PLAN

Who determines evacuation?

1. Incident command

- ❖ Lateral transfer
- ❖ Horizontal transfer
- ❖ Evacuation

OR-SURGICARE MOA PARKING LOT RED ZONE #3



REFERENCES:

Clarke JR, Bruley ME. Surgical fires: trends associated with prevention efforts. *Pa Patient Saf Advis*. 2012;9(2):130-135. .

Guideline for a safe environment of care, *In: Guidelines for Perioperative Practice*. Denver, CO: AORN, Inc.

Lucas SR. Surgical Fire Prevention and Extinguishment. AORN Webinar. October 2016.
https://www.aorn.org/Member_Apps/Product/Detail?productID=9715



 Vandalia Health