

# UNIVERSITY OF TOLEDO HEALTH SCIENCE CAMPUS

SUBJECT: ANESTHESIA SAFETY AND  
OXYGEN ENRICHED ATMOSPHERE SAFETY

Procedure No: HM-08-022

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## PROCEDURE STATEMENT

To promote the safe practice of anesthesia throughout the University of Toledo.

## PURPOSE OF PROCEDURE

To provide guidelines to promote patient and staff safety in areas of the University where anesthetics are administered.

## PROCEDURE

### I. Approved Locations

Anesthetic agents shall be administered in the following areas:

- Main Operating Room Nos: 1, 2, 3, 4, 5, 6, 9, 11, 12, 13, 14
- Cysto No. 7
- Dental Clinic
- Catheterization Lab, Radiology
- Trauma Room, Emergency Department
- Computerized Tomography room
- Magnetic Resonance Imaging room
- Animal facilities in HEB or Wolfe Hall
- Pain Medicine Clinic
- Research laboratories where there is an approved protocol by the institutional IACUC.
- George Issac Center

Each of the above listed, approved locations shall have all usual equipment and emergency medications present for the conduct of anesthesia and shall be identified by signs posted prominently within each location which state: *"USE NO FLAMMABLE AGENTS, THIS LOCATION."*

Anesthetic agents may occasionally be used at other locations in the Medical Center under the direction of the chairman of the Department of Anesthesiology or his designee when warranted by patient condition or necessitation by proper patient care. In all such instances, the Chairman or his designee will first ensure that all necessary monitoring and resuscitation equipment and drugs are present and functioning before initiating anesthesia.

### II. Anesthetic Agents

The use and storage of flammable agents, whether anesthetics, skin cleansers, tape removers, or germicides, in approved anesthesia locations, is prohibited. These prohibited agents shall include, but not be limited to, the following:

Acetone	Ethyl Chloride
Cyclopropane	Ethylene
Diethyl Ether	Fluoroxene
Divinyl Ether	

Only anesthetic agents/drugs which are clearly labeled shall be used. When an anesthetic agent/drug is transferred from manufacturer's container to an anesthetic vaporizer, the machine's reservoir shall be labeled. Any other agents/drugs brought to the anesthetic location shall have the manufacturer's label and, if transferred to other containers, the proper label must appear on the container and/or syringe.

Storage of anesthetic agents should be in secure locations.

### III. Electrical Safety

No electrical equipment, except that judged and tagged by Biomedical Engineering or licensed electrician as being electrically safe, shall be used in any anesthesia location.

Use of individually owned electrical equipment is prohibited without proper authorization. Unauthorized personal electrical equipment used in the Medical Center is subject to immediate removal as a potential safety hazard.

It is the responsibility of the owner of the equipment to secure authorization for its use following the procedure in Policy No. S-08-020 "Electrically Powered Devices."

Photographic lighting equipment used in the anesthesia locations shall be of a totally enclosed type or so constructed as to prevent the escape of sparks, hot metal particles, or shattered glass.

All anesthetizing locations where open surgical and/or cystoscopy/arthroscopy or similar procedures are done will be considered wet environments for the purposes of electrical safety. As such, only isolated or ground fault circuit interrupter protected circuits will be allowed in these locations. All electrical equipment used in these locations must have hospital grade three prong grounded electrical connections and GFCI protection.

### IV. Isolated Power Supply Panels

Isolated power supply panels where present shall be tested at least monthly by the Facilities Maintenance Department and only when the circuit is not otherwise in use. A permanent record shall be maintained by the Facilities Maintenance Department and be available to all authorized personnel upon request.

When a line isolation monitor indicates the presence of a hazardous condition, the following will occur:

- a. The most recently connected electrical device shall be unplugged and removed from contact with the patient.
- b. Electrical equipment not needed for life support or monitoring shall be unplugged and removed from contact with the patient until the fault is identified and repaired.
- c. Flammable agents, if present for special and approved purposes, shall be eliminated as rapidly as possible from the breathing circuit and removed from the machine until the hazard has been terminated.
- d. Biomedical Engineering and Maintenance personnel will be advised of the problem promptly.
- e. Offending electrical equipment will be tagged as defective, and expeditiously repaired and not be re-used until cleared by Biomedical Engineering, or Facilities Maintenance.
- f. The anesthetizing location in question shall be avoided until the line isolation defect has been remedied.

### V. Gas Scavenging

- a. Waste gas scavenging systems shall be used in all operating suites or select locations during operative procedures.
- b. Air monitoring shall be undertaken by Environmental Health and Radiation Safety to ensure airborne concentrations remain under occupational exposure limits.

## VI. Anesthesia Equipment Safety

Testing of anesthesia equipment shall be the responsibility of Biomedical Engineering Services. Anesthesia equipment shall be tested before each use for availability, readiness, cleanliness, sterility where required, and working condition, and thereafter maintained at a frequency to insure safe and sanitary operation. Scheduled and unscheduled maintenance of anesthesia equipment shall be the responsibility of Outside Contractor and/or Biomedical Engineering Services. Records of anesthesia equipment maintenance shall be maintained in the Biomedical Engineering Services and be available to all authorized Medical Center personnel upon request.

Anesthesia related safety training shall be the responsibility of the Chairman of the Department of Anesthesiology or designee, working as necessary in conjunction with the Environmental Health and Radiation Safety Department.

### Medical Gas Shut Off Valves Protocol, OR and George Isaac Surgery Center Areas

Upon confirmation of an actual fire in the OR or George Isaac Surgery Center area, the following steps will be taken in collaboration with the circulating nurse:

1. Determine if there is oxygen in use in the room
2. Determine how many patients in the department are using oxygen
3. The anesthesia attending physician will make arrangements for alternative/portable source of oxygen for all patients in the affected area\*
4. The anesthesia attending physician will then shut off the main oxygen valve for that OR room, PACU or the George Isaac Surgery Center

\*If feasible, the fire response team may turn off oxygen at the source to avoid shutting off the main gas line, if so instructed by an anesthesia team member.

Surgical temperatures and humidity shall be maintained at a level of patient comfort and safety according to code. Records concerning testing of temperature and humidity shall be kept in the Computer Log and also be on file in the Facilities Maintenance Department and available to authorized personnel upon request.

## VIII. Oxygen Enriched Atmosphere

Before the use of oxygen takes place in a patient care or other area, the following steps shall be taken:

- Warn patients and visitors, if present, about smoking and flames.

During the use of oxygen in any patient care or other area, the following guidelines shall be followed:

- Do not use alcohol, ether, or any other flammable liquids in the room or area.
- Avoid the use of any material which might provide a spark from static electricity.
- Do not use open arcing or sparking electrical equipment in the room.
- Be on the look-out for any possible source of ignition and, if one is found, remove it from the room.

As soon as the use of oxygen is completed, remove the needed equipment and fittings from the room.

If a fire or explosion should occur in a room in which oxygen is in use, follow the fire plan policy. The oxygen should be shut off as soon as possible by appropriate personnel.

### Medical Gas Shutoff Valves Protocol in Patient Rooms and other areas of campus

Upon confirmation by the senior campus police officer on duty of an actual fire in a patient care area, the following steps will be taken in collaboration with the charge nurse:

- Determine if there is oxygen in use in the patient room
- Determine how many patients on the unit are using oxygen
- Page "Respiratory Stat, Code Red, to (name of location)..."
- Upon arrival of Respiratory staff, that staffer will make arrangements for alternative/portable source of oxygen for all patients on that unit\*

- Respiratory staff will then instruct the senior campus police officer to shut off the main oxygen valve for that unit

\*If feasible, the fire response team may turn off oxygen at the source in the room to avoid shutting off the main gas line.

#### Back-Up Oxygen

Back-up oxygen cylinders for use on anesthesia machines are available in disaster resources in the event of the loss of house oxygen.

SEE ALSO Policy HM-08-003, Compressed Gas Transport, Use and Storage, and HM-08-016 Environmental/Occupational Monitoring and Medical Surveillance.

NOTE: Procedures in this policy shall conform to NFPA 99 and NFPA 101. Both are available upon request from the Environmental Health and Safety Department.

Source: Safety & Health Committee

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