

STANDARDS FOR: Lasers: Intraoperative Use of

- POLICY:
1. All Perioperative staff (RNs, STs) will be properly trained by the UCHC Laser Safety Officer prior to using lasers and demonstrate competency.
 2. All surgeons booking use of lasers must have laser privileges granted through and documented by the Medical Staff Office.
 3. Postings will be placed on all entrances and exits to rooms where lasers are being used.
 4. Eyewear of the appropriate laser wavelength will be provided for staff and awake patients when lasers are being used.
 5. A smoke evacuator and laser masks will be used whenever laser plume is anticipated. N-95 respirator masks and powered air purifier respirators are neither indicated nor approved by Infection Control and Research Safety for use by staff when in the presence of a laser being used on patients with viruses (e.g., human papilloma virus).
 6. The operative field and patient airway will be prepared to minimize risk to the patient.
 7. A staff member solely devoted to operating the laser will be assigned to laser procedures, whenever possible.
 8. Only ET tubes that are rated compatible for use with lasers will be used in order to minimize the risk of tube combustion during airway procedures. If no compatibility data between the tube and laser exists, the surgeon and anesthesia provider (with Laser Safety Officer, as needed) will evaluate available manufacturer data and determine the safest course of therapy. For example, if the ET tube is rated as safe to use with CO₂ or YAG lasers and the pulsed dye laser delivers less energy to the operative site, pulsed dye laser will be considered safe therapy to use.

DESIRED PATIENT

- OUTCOME:
1. The patient will have no laser injury.
 2. The awake patient will demonstrate knowledge of the physiologic responses of the retina to the laser procedure as evidenced by proper wearing of protective eyewear throughout the procedure.
 3. The patient has care consistent with the perioperative plan of care.

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- CLINICAL ASSESSMENT AND CARE:
1. Provide the awake patient protective eyewear with lenses of the proper filter wavelength.
 2. Assess the operative site for proper wetness of drapes in immediate proximity to where the laser is being applied.
 3. For laser cases involving the airway, assess the operative site for tenting of drapes where oxygen concentration may be excessively high.

EQUIPMENT: Coherent CO₂ Laser
Cynosure Pulsed Dye Laser
Leased / rented laser
Smoke evacuator
Laser masks
Laser signs
Wavelength specific eyewear
Laser finish instrumentation
Basin of water

PROCEDURE:

<u>Action</u>	<u>Points of Emphasis</u>
1. Obtain appropriate key for desired laser from the approved storage location.	1. Laser key is never left in laser when unattended.
2. Post appropriate laser signs on all entrances and exits from room; make eyewear available to all staff in room and additional eyewear available at main entrance to room.	2. Awake patients receive proper eyewear; anesthetized patients have eyes protected with wet eye pads.
3. Test fire laser according to appropriate laser checklist; leased lasers will be checked by personnel from leasing company.	3. Notify Clinical Engineering if test firing fails to meet criteria; collaborate with surgeon if removal from service seems indicated.
4. Prepare back table with: a. basin of water and place in immediate proximity to site of laser use; and b. ebonized or brushed finish instruments to prevent scatter and unwanted tissue damage.	4. When ebonized or brushed finish instruments are unavailable, place moist sponges or cottonoids on surrounding tissue.
5. During airway laser cases, have rigid bronchoscope and trach set immediately available.	5. Specially covered endotracheal tubes will be used by anesthesiology.

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<u>Action</u>	<u>Points of Emphasis</u>
6. For perineal surgeries, wet towels will be placed around the operative area. For perianal procedures, a moistened sponge will be placed in the rectum.	
7. The laser operator will respond to physician directions to turn the laser on in a loud clear voice "Laser On".	
8. Place laser on standby mode when adjusting power or repositioning instrumentation; operator will respond "Laser on Standby", as above.	
9. Place laser foot pedal on same side as operator.	9. If monopolar or bipolar electro-surgical foot pedals are used, place them on side opposite laser operator.
10. Place bipolar electrosurgical active electrode on back table when not in use.	10. Inadvertent discharge of electrode is to be avoided.
11. Document all laser-related information in patient record, laser field.	
12. Log smoke evacuator use in 15 minute increments on filter; replace filter after: a. 60 minutes of use, b. whenever evidence of carbonization appears on filter ends or suction tubing, or c. filter smells of smoke	
13. Replace all tubings on smoke evacuator following use.	

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<u>Action</u>	<u>Points of Emphasis</u>
14. Document any undesired patient response on nursing record and generate <i>psn</i> report.	
15. In event of airway fire: a. shut off oxygen flow at anesthesia machine; b. disconnect breathing circuit delivering oxidizer to ET tube; c. remove any remaining segment of the ET tube or packing from patient's throat; d. use saline to extinguish fire; e. support airway with room air via bag-mask ventilation, as needed. Re-establish oxygen delivery as patient condition warrants; f. re-secure airway followed by an examination to determine extent of injury and necessary treatment and ventilate pt. with 100% oxygen, <i>prn</i> ; g. all material and devices to be saved for later investigation	15. Initiate Code Red response immediately; report fire to x7777. Save all materials and devices involved in the fire to help with any investigation.
16. Do not wipe digital display panels with anything other than soft cloth barely moistened with water; use alcohol only to wipe down laser arms and couplers.	16. Moisture on the digital display panel renders the laser inoperable; high-level disinfectants are caustic to the laser arm and couplers.
PATIENT TEACHING:	Instruct awake patients about eyewear and sounds emitted by laser.
REPORTABLE CONDITION:	Report any violations of laser safety to the supervisor; report may be made to the UCHC Laser Safety Committee, as needed.
DOCUMENTATION:	Pulsed Dye / Coherent CO ₂ Safety Checklists; manufacturer's suggested checklist for all leased / rented lasers; SIS on-line laser object documentation
APPROVAL:	Nursing Standards Committee Laser Safety Committee
EFFECTIVE DATE:	8/83
REVISION DATES:	11/90, 1/91. 2/92, 1/93, 5/93, 7/97, 5/00, 6/03, 2/06, 1/08, 7/09