



POSITION STATEMENT

Surgical Smoke and Bio-Aerosols

PREAMBLE

AORN recognizes that exposure to surgical smoke and bio-aerosols poses a hazard to patients and perioperative professionals. Smoke and bio-aerosols are routinely produced by surgical instruments; eg, lasers, electrosurgical units, radiofrequency devices, ultrasonic devices, power tools. Research studies have confirmed that plume and bio-aerosols contain odor-causing and odorless toxic gases, vapors, dead and live cellular debris (including blood fragments), and viruses.¹⁻⁷ These airborne contaminants can pose respiratory, ocular, dermatological and other health-related risks, including mutagenic and carcinogenic potential, to patients and operating room personnel.¹⁻⁷

OSHA estimates that 500,000 health care workers are exposed to surgical smoke each year.⁸ Although the long-term deleterious effects from exposure to surgical smoke and bio-aerosols have not been clearly established, AORN supports the need to be proactive to prevent harm. Understanding the environmental hazards of surgical smoke and bio-aerosols produced during operative and invasive procedures is paramount to the implementation of adequate protective measures for both patients and personnel involved in their care. AORN also recognizes that this hazard exists in practice areas that extend beyond the perioperative environment, such as obstetrical surgical services, cardiac cath labs, emergency rooms, interventional radiology, endoscopy suites, clinics, and physician offices.

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AORN believes that exposure to surgical smoke and bio-aerosols can and should be controlled. Health care professionals are responsible for learning about surgical smoke and bio-aerosols and taking steps to minimize the risks associated with these hazards.

AORN recommends the following risk reduction strategies:

- Use local exhaust ventilation (.1 micron filtration at 99.999% efficiency)
 - Central smoke evacuation systems
 - Portable smoke evacuation units
 - Wall suction with inline filter
 - Laparoscopic evacuation/filtration systems
- Use personal protective equipment
 - High filtration surgical masks worn properly
 - Protective eye wear
 - Skin protection (eg, gloves)
- Educate perioperative staff
 - Develop and implement training programs
 - Demonstrate competencies on equipment and supplies
 - Comply with federal, state, and local regulations and standards
 - Document and maintain educational activities

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