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September 29, 2025

Christine Hoffman
Senior Safety Engineer
California Department of Industrial Relations
Division of Occupational Safety and Health
1515 Clay St., Suite 1901
Oakland, California 94612

Via Email: rs@dir.ca.gov

RE: Discussion Draft: § 51XX. Occupational Exposure to Plume in Health Care

Dear Ms. Hoffman:

On behalf of the Association for periOperative Registered Nurses (AORN) and our more than 4,300 members in California, we write to comment on the Cal/OSHA discussion draft of possible regulatory language regarding AB 1007 (2023-2024; Occupational safety and health standards: plume). As the leading expert on the management of surgical smoke, AORN appreciates the opportunity to provide our comments and information to the Division.

Thank you for including AORN's *Guideline for Surgical Smoke Safety* as part of the discussion draft Appendix A. AORN's evidence-based *Guidelines for Perioperative Practice* are the gold standard for operating room practice. Updated annually, these *Guidelines* provide the only evidence-based national recommendations for patient and healthcare worker safety in the surgical setting. AORN's evidence-based *Guideline for Surgical Smoke Safety* documents the harmful effects of surgical smoke and the safety hazard it poses to patients and perioperative personnel. This *Guideline* also outlines recommendations for safe and cost-effective smoke evacuation.

AORN Comments by Section

AORN suggests the introductory language on scope and application of the regulation include more detail:

(a) Scope and Application. This section applies to occupational exposure to the hazard of surgical smoke plume in general acute care hospitals and ambulatory surgical centers.

Definitions

AORN has suggestions for clarifications and additions to definitions enumerated in Section (b). Specifically,

(12) “Plume evacuation system (PES)” means smoke evacuators, laser plume evacuators, plume scavengers, and local exhaust ventilators that, when used in concert with other engineering controls and equipment, and to the extent technologically feasible, capture and remove plume at the site of origin and before plume can make contact with the eyes or contact with the respiratory tract. Plume evacuation systems include plume capture devices (e.g. wand, tubing) and may be portable or permanently installed.

(13) “Site-of-origin” means the location where surgical smoke plume is generated from tissue ~~is~~ being altered, worked on, or destroyed by an energy-based medical device or devices.

Additionally, if the Division is comfortable clarifying the terminology used in AB 1007, AORN suggests changing the term “plume” to “surgical smoke plume” and thus expanding the definition of surgical smoke plume to read:

“Surgical smoke plume means the gaseous by-product produced by energy-generating devices including surgical plume, smoke plume, bio-aerosols, laser-generated airborne contaminants, or lung-damaging dust.”

The terminology could then be updated throughout the discussion draft.

Finally, in this Section we suggest adding a new term, “plume capture device,” defined as:

“Any tubing, wand, or accessory connected to the plume evacuation system that collects the surgical smoke plume as close as possible to the site of origin as necessary to effectively capture plume before it can make contact with the eyes or respiratory tract.”

Written Exposure Control Plan

This Section is comprehensive and provides the necessary elements and details important to an effective written exposure control plan. AORN suggests two small changes to strengthen and clarify the requirements outlined:

(1) Employers shall establish, implement, and maintain a written exposure control plan that provides clear instructions for the effective use of plume evacuation systems to minimize manage employee exposure to plume and that contains all the elements in subsection (c)(2).

(F) Effective procedures for obtaining the active involvement of employees and authorized employee representatives in all elements of the exposure control plan including, but not limited to:

Identifying and evaluating exposures to surgical smoke plume;

Control Measures

AORN has suggestions for language changes in this Section that reflect the recommendations in our *Guideline for Surgical Smoke Safety* and best practices. Once again, we recommend stronger language and replacement of the word “minimize” as it relates to employee exposure to harmful surgical smoke plume. We suggest:

(1) Engineering Controls.

(A) Plume Evacuation Systems. Exposure to plume shall be prevented by plume evacuation systems to the greatest extent feasible. Plume evacuation systems and their plume capture devices shall:

1. Be ~~in-operation~~ activated and used to capture and filter plume continually whenever plume is generated.
4. Be used in accordance with the manufacturer’s instructions, and, if permanently installed, be constructed, installed, inspected, tested, and maintained in accordance with section 5143. ~~and in accordance with the manufacturer’s instructions.~~

(2) Administrative controls shall be used to ~~minimize~~ prevent employee exposure to plume to the greatest extent feasible.

Additionally, under Control Measures, AORN suggests deleting entirely (d)4:

~~(4) The employer shall provide and ensure employees use appropriate eye protection where plume may contact the eyes of an employee.~~

Eye protection worn in surgery is to protect the wearer from fluids and would not suffice to protect the wearer’s eyes from surgical smoke. The intent of the regulation is to ensure that surgical smoke plume is evacuated before it makes contact with the eyes or respiratory tracts of the occupants of the room.

Training

AORN supports the Division’s outline for training employees exposed to surgical smoke plume and appreciates the level of detail included in this section.

Recordkeeping

AORN notes that the draft outlines recordkeeping for plume evacuation systems that, based on the language used in the draft, covers permanently installed systems. We suggest

changing the language used in (f)(3) to make clear that the Division is referring to both portable and permanently installed plume evacuation systems.

We appreciate the Division's attention to implementing AB 1007 in a manner that best protects the health and safety of everyone in the operating room. AORN's state affiliate, the California Alliance for Perioperative Practice (CAPP), has offered to provide demonstrations on surgical smoke plume evacuation and coordinate facility visits to observe the various surgical smoke plume evacuation equipment used in operating rooms. CAPP's members are on the front lines of surgical health care and risk daily exposure to harmful surgical smoke plume to provide care for California residents. We encourage the Division to take advantage of CAPP's offer to demonstrate the equipment in California operating rooms as the Division formulates its surgical smoke plume evacuation regulations.

We genuinely appreciate the Division's attention to this important health care worker safety issue, and are happy to provide additional information, research, and discussion at the Division's request. We can also make available AORN's *Guideline* author, Emily Jones, PhD, RN, CNOR, EBP-C, as a resource to the Division.

Sincerely,

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