

**OCCUPATIONAL SAFETY  
AND HEALTH STANDARDS BOARD**

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**PROPOSED DECISION OF THE  
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD  
REGARDING PETITION FILE NO. 567**

**INTRODUCTION**

On October 10, 2017, a proposal was submitted to the Occupational Safety and Health Standards Board (Board or OSHSB) on behalf of the California Nurses Association/National Nurses United (CNA/NNU or Petitioner). The subject of the submission was described therein as a “Petition for Adoption of a Standard Protecting Healthcare Personnel from Exposure to Surgical Plume/Smoke Generated During Medical Procedures.” In accordance with Labor Code Section 142.2, the submission has been assigned OSHSB Petition File No. 567, and duly considered by the Board.

Labor Code Section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health and requires the Board to consider such proposals and to render its decision no later than six months following their receipt.

**SUMMARY**

Petition No. 567 proposes that the Board, in concert with the Division of Occupational Safety and Health (Division), evaluate the need for regulatory protection of healthcare workers from exposure to surgical plume or smoke. It proposes that such requirements cover, at minimum, all health care workers employed by general acute care hospitals licensed pursuant to subdivision (a), (b), or (f) of Section 1250 of the Health and Safety Code, including inpatient and outpatient settings and clinics on the license of the hospital.

The Petition proposes that protective measures to be evaluated include Local Exhaust Ventilation (LEV), as distinct from general room ventilation which it characterizes as less suitable to the capture of contaminants emanating from a surgical plume source. The two major LEV approaches cited, are portable (perhaps device integrated) smoke evacuators and directional room suction systems. Also proposed is the consideration of work practice requirements, to address such concerns as proper protective equipment operation and upkeep.

Most specifically, CNA/NNU asks that in developing a standard, the Board consider using as benchmarks the International Standards Organization's (ISO) Systems for evacuation of plume generation by medical devices (*ISO 16571:2014*), and Canadian Standards Association, Plume scavenging in surgical, diagnostic, therapeutic, and aesthetic settings standard (*Z305.13-13*).

**Position of Federal OSHA**

No Federal OSHA regulation would appear to clearly address hazards of surgical smoke. *Code of Federal Regulations, Title 29, Part 1910, Subpart Z*, does place limits upon occupational exposure to certain substances potentially present in surgical plume. However, it has not been established that surgical plume contains concentrations of any Subpart Z enumerated chemical in excess of those limits, and no known Federal OSHA enforcement action has alleged such a concentration.

As for whether the Federal bloodborne pathogen regulation, *Title 29, Part 1910.1030*, may apply to the potential hazard of infectious agents being carried aloft within surgical plume, an advisory letter issued by the Federal OSHA Director of Enforcement has concluded it does not.<sup>1</sup>

Nonetheless, emerging Federal OSHA concerns about the issue are evident in the following advisory statement found on the agency's website in January, 2018: "*Local smoke evacuation systems have been recommended by consensus organizations, and may improve the quality of the operating field. Employers should be aware of this emerging problem and advise employees of the hazards of laser smoke.*"<sup>2</sup>

### EVALUATION BY DIVISION

The January 18, 2018, Petition evaluation of Division provides an extensively annotated summary of peer reviewed research raising concerns about the potential occupational hazards posed by surgical plume and smoke. Among those concerns were the potentially hazardous compounds and even possibly infectious agents rising into the breathing zone of attending employees, and into the wider workspace. Among those compounds and agents were benzene, dioxins, formaldehyde, and viruses.

Also cited by Division, were reputable research findings, including those published within the American Journal of Industrial Medicine, indicating that fewer than half of surveyed medical facilities used engineering controls to reduce surgical smoke produced during procedures, and that many of those employers failed to train employees about the potential hazards of surgical plume.

The evaluation of Division also scrutinized possibly applicable existing Title 8 safety orders, in support of its well-considered opinion that employees within California are not adequately protected at present, from the potential hazards posed by surgical plume in the workplace. Division therefore recommends the convening of an advisory committee to consider potential rulemaking development to address these potential hazards.

### EVALUATION BY BOARD STAFF

As with that of Division, the January 29, 2018, evaluation by Board staff, documents consideration of numerous peer-review scientific studies raising concerns about the potential occupational health hazards posed by surgical plume. Board staff also analyzes existing Title 8 safety orders, in the context of Federal OSHA regulations and policies, in explaining its concerns about the questionable adequacy of existing regulations to address potential hazards posed by surgical plume and smoke in the workplace.

Board staff also is of an opinion, consistent with that request of Petitioner that any undertaken rulemaking development should take into consideration, as guideline references, both the *2013 Canadian Standards Group, Z305.13-13, Plume scavenging in surgical, diagnostic, therapeutic, and aesthetic settings*; and the *2014 International Standards Organization, ISO 16571, "Systems for evacuation of plume generated by medical devices."*

A guiding principle also identified by Board staff as important, was that of a well-established industrial

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<sup>1</sup> Federal OSHA Director Enforcement, advisory letter dated September 6, 2000.

<sup>2</sup> <https://www.osha.gov/SLTC/laserelectrosurgeryplume/index.html>

hygiene hierarchy of protective means, namely: engineering controls first, administrative controls second, and lastly, personal protective equipment (i.e. respiratory protection, in the present case).

Board staff concurs with Division in recommending that an advisory committee be convened to consider the potential development of a rulemaking proposal.

### **DISCUSSION**

In deciding this question, the Board has the benefit of a well substantiated proposal by Petitioner, and both Division, and Board staff recommendations supported by extensive citation to authoritative research, and well-reasoned analysis. Given consideration of each, it would appear the increasing recognition of potential workplace hazards posed by surgical plume and smoke, adequately justifies the convening of an advisory committee to consider development of a rulemaking proposal addressing the potential occupational hazards posed by surgical plume and smoke. The Board will expect any such rulemaking development process to take into careful consideration those workplace conditions identified by health care professionals as essential to the uncompromised delivery of health care to patients.

### **DECISION**

Having considered Petition No. 567, and associated analyses and recommendations of the Division and Board staff, the Board conditionally grants the Petition, such that Division is requested to convene within one year of this Decision, a committee composed of experts in the subject area of occupational health science, and those in surgical practice, along with stakeholders to include Petitioner and health care organizations employing its members, to consider development of a rulemaking proposal addressing the potential occupational hazards posed by surgical plume and smoke. Considerations should include incorporation into any resulting proposal of work practices and training requirements assuring proper operation and upkeep of protective equipment. In addition, engineering controls, and more particularly local exhaust ventilation, should be given careful considered as a primary means of employee protection.