State of California
Department of Industrial Relations
Occupational Safety and Health Standards Board

Petition File No. 611

Submitted by Maryrose Chan

March 12, 2026

State of California

Gavin Newsom, Governor

INTRODUCTION

California Nurses for Environmental Health and Justice submitted a petition by Barbara Sattler to the Occupational Safety and Health Standards Board (Board) on January 17, 2026. The petition requests to amend title 8 to require the use of fume hoods when crushing pharmaceuticals in health care facility settings.

REQUESTED ACTION

The petitioner is asking the Board to amend title 8 to mitigate the potential exposure to various medications when nurses crush pills to administer medication to patients. The petition includes a table of potential mitigation strategies with time frames and pro/con analysis.

APPENDIX: Potential Mitigation Strategies

Appendix Table 1: Timeframes and pros/cons for potential mitigation strategies for the exposure of nurses to medication particulate matter during the pill crushing process.

Timeframe	Mitigation Strategy	Pros	Cons
Immediate	Wear N95s and gloves when crushing pills	- Simple to implement immediately - Potentially high impact-to-cost ratio	Does not resolve the cause of the problem (i.e., the incidental exposures)
Short-Term	Prescribe liquid or powder forms of medications	Already available for some medications	- Not all medications are available in liquid or powder forms - Powdered forms may also release PM into the air
Moderate-Term	Only crush in ventilated rooms under fume hoods	- Demonstrated to be effective - Relatively cheap (approx. $2,000)	- Implementation time - Not all rooms may be large enough
Long-Term	Prescribe liquid pharmaceuticals to avoid pill crushing	Lack of crushing prevents PM formation at the root of the problem	- Not all medications are available in liquid form - Complex development process - Scope greater than State of CA authority

BACKGROUND/HISTORY

The Petition is broader than Labor Code 144.8 because the petition includes the handling of all drugs, not limited to the handling of antineoplastic drug and hazardous drugs as defined by National Institute for Occupational Safety and Health (NIOSH).

Assembly Bill AB 1202, Skinner. Occupational and health standards: hazardous drugs was approved by the Governor and Filed with the Secretary of State on October 9, 2023. The act added Labor Code 144.8

Labor Code 144.8

(a) As used in this section the following definitions shall apply:

(1) “Antineoplastic drug” means a chemotherapeutic agent that controls or kills cancer cells.
(2) “NIOSH” means the National Institute for Occupational Safety and Health.

(b) The board shall adopt an occupational safety and health standard for the handling of antineoplastic drugs in health care facilities regardless of the setting. In developing the standard, the board shall consider input from hospitals, practicing physicians from impacted specialties, including oncology, organizations representing health care personnel, including registered nurses and pharmacists, and other stakeholders, and shall determine a reasonable time for facilities to implement new requirements imposed by the adopted standard. The standard, to the extent feasible, shall be consistent with and not exceed recommendations in the NIOSH 2004 alert entitled “Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings,” as updated in 2010. The standard may incorporate applicable updates and changes to NIOSH guidelines.

PETITIONER’S ASSERTIONS

The Petitioner asserts:

- Tablet crushing is an exposure mechanism to drugs.
- Exposure to pharmaceutical particulate matter has been linked to adverse health impacts such as premature death in people with heart and lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased pulmonary function, and increased respiratory symptoms.
- Potential unknown adverse health risks due to cumulative exposure.

STAFF EVALUATION

Occupational Exposure

Although the petition was made on behalf of nurses, other occupations are also at risk, such as pharmacy employees, doctors, operating room personnel, environmental service workers, laboratory research workers, veterinary care workers, and shipping and receiving personnel.[1]

Analysis

Occupational exposure to pharmaceutical drugs is a recognized hazard. There are sufficient scientific literature and guidelines published by credible institutions including NIOSH to support the rulemaking to address exposure to hazardous drugs.

According to a meta study[2] that reviewed 2702 articles, nurses prepare hazardous drugs and there is a reported:

- Lack of education regarding the risk and safe handling;
- Inconsistent use of personal protective equipment (PPE);
- Inconsistent perception regarding the risk to exposure;
- Concern about the effect of wearing PPE when interacting with patients; and
- Perceived lack of time to wear their PPE.

Some medications are more hazardous or toxic than others. NIOSH publishes a list of hazardous drugs in the healthcare settings called NIOSH List of Hazardous Drugs in Healthcare Settings, 2024. The drugs included in the list warrant special handling, thus NIOSH developed a guidance document called Managing Hazardous Drug Exposures: Information for Healthcare Settings.

The NIOSH definition of a hazardous drug is a drug that is:

A. Approved for use in humans by FDA's Center for Drug Evaluation and Research (CDER),

B. Not otherwise regulated by the U.S. Nuclear Regulatory Commission, and

C. Either

[1] https://www.cdc.gov/niosh/healthcare/hazardous-drugs/index.html

[2] Pheona van Huizen, Philip L. Russo, Elizabeth Manias, Lisa Kuhn, Clifford J. Connell, Knowledge and safe handling practices affecting the occupational exposure of nurses and midwives to hazardous drugs: A mixed methods systematic review, International Journal of Nursing Studies, Volume 160, 2024, https://doi.org/10.1016/j.ijnurstu.2024.104907

1. Is accompanied by prescribing information in the “package insert” that includes a manufacturer’s special handling information (MSHI), or

2. Is determined to be a carcinogenic hazard, developmental hazard, reproductive hazard, genotoxic hazard, or other health hazard by exhibiting one or more of the following toxicity criteria in humans, animal models, or in vitro systems:

- Carcinogenicity,
- Developmental toxicity (including teratogenicity),
- Reproductive toxicity,
- Genotoxicity,
- Organ toxicity at low doses, or a
- Structure and toxicity profile that mimics existing drugs determined hazardous by exhibiting one of the previous five toxicity types.

Employers are required to identify and evaluate workplace hazards, unsafe conditions and work practices under the Injury and Illness Prevention Program. This means that the employer must perform a risk assessment and characterize the hazard. The level of risk to drug exposure is dependent on the toxicity of the drug and the extent of the exposure: (1) dosage form of the drug, (2) route of exposure, (3) frequency, duration, and magnitude of exposure, (4) work practices, and (5) presence or absence of controls. A risk evaluation or assessment is necessary to determine when engineering controls are necessary in health care facility settings.

Board staff does not recommend a blanket use of fume hoods when crushing medications or pharmaceuticals. However, written procedures under the Injury and Illness Prevention program to manage drug exposure are needed to protect the health of health care workers. The controls to manage exposure should include a risk assessment (toxicity of the drug, duration, frequency, etc.) and hierarchy of controls elimination, substitution, engineering controls, administrative controls, housekeeping, and personal protective equipment) including those mentioned by the petitioner.

Available Engineering Controls

NIOSH Publication: Managing Hazardous Drug Exposures: Information for Healthcare Settings

Engineering controls include biological safety cabinets (BSCs) and compounding aseptic containment isolators (CACIs) (Figure 3). Closed system drug-transfer devices (CSTDs) (Figure 4), robotic systems (Figure 5), and needleless systems are considered supplemental controls that should be used only in combination with primary engineering controls (i.e., BSCs and CACIs) to further protect against worker exposures to hazardous drugs.

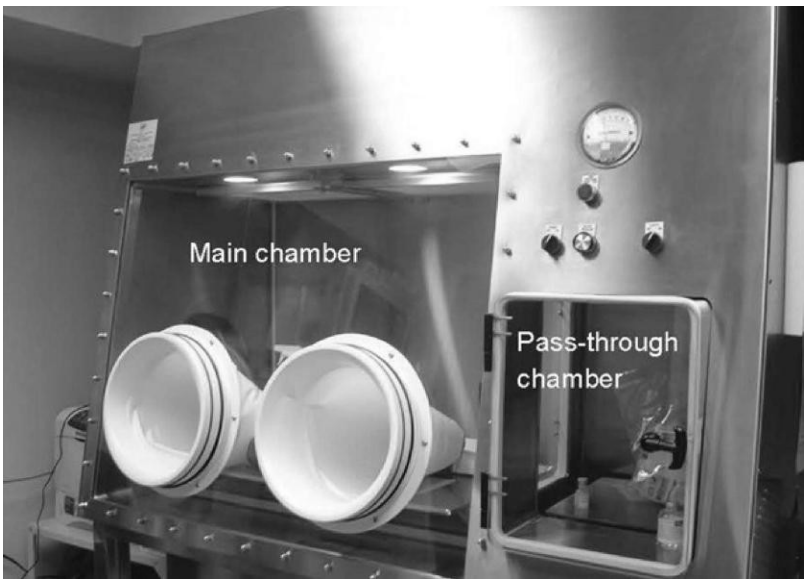

Figure 3. Compounding aseptic containment isolate (CACI)

Figure 4. Closed System Transfer Device (CSTD) devices include a bag or infusion adapter attached to an IV bag and a vial with syringe.

Figure 5. Robotic drug preparation system

From OSHA's etools [3]

Containment Primary Engineering Controls (C-PEC) and Ventilated Cabinets**:** Use approved C-PECs when preparing hazardous medications.

[3] https://www.osha.gov/etools/hospitals/pharmacy/preparation-handling-of-hazardous-drugs#:~:text=Antineoplastic%20drugs%20(cancer%2Dtreatment%20medications,%2C%20Cytosine%20arabinoside%2C%20and%20Fluorouracil.&text=Vertical%20Flow%2DLaminar%20Hood.,Horizontal%20Flow%20Laminar%20Hood.&text=Compound%20sterile%20and%20non%2Dsterile,USP%20797%20(USP%20797).&text=Ensure%20that%20BSCs%20contain:,containers%20for%20excess%20fluids%20disposal.

Vertical Flow Laminar Hood

Horizontal Flow Laminar Hood

Relevant Standards

Federal Standards

1910 Subpart Z. Toxic and Hazardous Substances

1910.1450 - Occupational exposure to hazardous chemicals in laboratories

California Standards

§5191. Occupational Exposure to Hazardous Chemicals in Laboratories

Cal/OSHA is currently working on developing a standard Occupational Exposure to Antineoplastic Drugs.

Other Standards, Guidelines, Codes

- NIOSH List of Hazardous Drugs in Healthcare Settings, 2024
- Managing Hazardous Drug Exposures: Information for Healthcare Settings. NIOSH (April 2023)
- Guidance for the safe management of hazardous medicinal products at work European Commission (2023)
- Work Precautions for Handling Hazardous Drugs Letter. OSHA, the Joint Commission and NIOSH, (April 4, 2011).
- Safe Handling of Hazardous Drugs for Veterinary Healthcare Workers. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 2010-150, (June 2010).
- Controlling Occupational Exposure to Hazardous Drugs: Medical Screening and Surveillance. OSHA, (August 1, 2016).

STAFF RECOMMENDATION

Board staff recommends Petition File No. 611 be GRANTED to the extent that Cal/OSHA can convene an advisory committee meeting to determine the scope and discuss methods and means to mitigate occupational exposure to pharmaceutical drugs. In addition, Board staff recommends that rulemaking on handling of hazardous drugs as defined by NIOSH, which includes anti-neoplastic drug (Labor Code 144.8) be prioritized over potential rulemaking for general handling of other drugs.