Powered Air Purifying Respirators for Health Care: Regulatory Perspective

Deborah Gold, MPH, CIH
Deputy Chief for Health and Engineering Services
Cal/OSHA
dgold@dir.ca.gov

August 2014
Regulations Affecting PAPR Use in Health Care

  - Applies to control of all occupational diseases caused by breathing contaminated air
  - Referenced by standards controlling chemical exposures e.g. Formaldehyde, Ethylene Oxide, other chemicals with permissible exposure limits

- **Hazardous Waste and Emergency Response Operations (8 CCR 5192, 29 CFR 1910.120)**
  - First receivers, the 2005 OSHA document recommended the use of a PAPR providing an APF of 1000 for hospital decontamination zone personnel who have initial contact with patients contaminated at the scene of a hazardous materials release
  - Spills

- **Bloodborne Pathogens (8 CCR 5193, 29 CFR 1910.1030)**
  - Requires splash protection for the eyes, mouth, and mucous membranes
California’s Aerosol Transmissible Disease Standard (8 CCR 5199)

• (g)(3)(B)”... the employer shall provide a powered air purifying respirator (PAPR) with a High Efficiency Particulate Air (HEPA) filter(s), or a respirator providing equivalent or greater protection, to employees who perform high hazard procedures on [airborne infectious disease] AirID cases or suspected cases and to employees who perform high hazard procedures on cadavers potentially infected with [aerosol transmissible pathogens] ATPs, unless the employer determines that this use would interfere with the successful performance of the required task or tasks. This determination shall be documented in accordance with the ATD Plan and shall be reviewed by the employer and employees at least annually in accordance with subsection (d)(3)

• Exceptions for:
  – Patient in booth or other ventilated enclosure and employee remains outside
  – Paramedics and other field EMT applications.
Top 3 barriers to, or opportunities to improve, effective usage of PAPRs in health care settings:

1) Infection control concerns, particularly in “sterile” environments.
2) Ability of respirator to maintain protection in different work postures, and when exposed to intentional or unintentional disruption of configuration
3) Necessity for well-devised program for use, training, and maintenance
Top 4 ideas to improve NPPTL certification

1) What is a “sterile field” under current operating room procedures, and how does use of various PAPR designs impact on infection prevention?
   A. Can PAPR design be improved to direct and/or filter exhausted air?
   B. What are appropriate procedures for disinfection of PAPR components? Which components need to be disposable?

2) Aim for a better APF than 25 for common health care PAPRS while increasing usability, and include the specific APF range, as confirmed by NIOSH in the respirator certification.

3) Address durability of PAPR system, including ability to maintain configuration, flow, and protection in different postures. At a minimum PAPRs should be labeled for postures in which they are certified.

4) The written materials included with respirator certification should include clear, plainly written statements to facilitate employer selection and employee training on the use, advantages, and limitations of specific equipment. This should include information regarding testing of chemical agents against hazardous drugs.