NIOSH Publishes Guidelines to Protect Health Care Workers from Hazardous Drug Exposures

Health care professionals and others who handle hazardous drugs during compounding, administration, or maintenance activities should protect themselves from aerosol and splash exposures according to an Oct. 21 report from the National Institute for Occupational Safety and Health (NIOSH).\(^1\) Workers that could be affected include pharmacy and nursing personnel, physicians, operating room personnel, veterinary personnel, shipping and receiving personnel, laundry workers, waste handlers, and maintenance workers. Drugs considered hazardous include those that exhibit one or more of the following six characteristics in humans or animals: Carcinogenicity, teratogenicity or other developmental toxicity, reproductive toxicity, organ toxicity at low doses, and genotoxicity. For more information and a list of drugs that should be considered hazardous refer to NIOSH Publication No. 2004–165\(^2\).

In the October 2008 Workplace Solutions, NIOSH recommends minimizing exposure to hazardous drugs through practicing the currently recognized hierarchy of controls. These controls, in order of priority, are:

- Engineering Controls
- Administrative Controls
- Personal Protective Equipment (PPE)
Engineering controls include ventilated safety cabinets and closed transfer systems. Administrative controls include safe work practices and comprehensive safety and health training programs and work policies to reduce worker risk. PPE includes protective clothing and respiratory protection designed to reduce worker exposure to hazardous substances. PPE controls should only be used as a last resort if engineering and administrative controls are not sufficient or feasible.

In the absence of effective engineering and administrative controls, NIOSH recommends the following PPE to reduce worker exposure to hazardous drugs.

**Protective gloves** should be worn when handling hazardous drugs or when surface contamination may be present. Typical exam gloves do not offer protection from hazardous chemicals. The type of glove material (nitrile rubber, PVA, etc.) should be selected based on the chemicals handled and expected duration of exposure. Permeation and degradation data for specific glove types and exposures can be obtained from the glove manufacturer.

**Gowns** should be worn to protect workers from chemical splashes. Disposable coated or sealed gowns offer more protection than uncoated materials. Surgical scrubs and lab coats offer little protection from chemical splashes.

**Respiratory protection** should be worn to reduce worker exposure to airborne chemical hazards. When selecting respiratory protection the physical form of the airborne contaminant must be considered as well as the risk of splash or eye irritation. All respirators must be NIOSH approved. Employers offering workers respiratory protection must establish a written respiratory protection program meeting the requirements of the OSHA Respiratory Protection Standard 29 CFR 1910.134 including training, fit-testing, and medical surveillance. During a large release or spill of a hazardous drug or when exposure to airborne gas or vapor is suspected, NIOSH recommends the use of full-facepiece cartridge style respirator.
**Eye and face protection** is needed whenever there is a risk of chemical splash or exposure to chemicals that are irritating to the eyes or may be absorbed through the eyes. Standard safety glasses with side shields do not offer protection from chemical splash.

Chemical splash goggles should be worn. For maximum eye and face protection a face shield in combination with chemical splash goggles, or a full facepiece respirator can be worn.

NIOSH also suggests the use of other PPE such as sleeve, hair and shoe covers to reduce workers exposure, and recommends that all PPE be treated as contaminated for waste disposal.


**References**


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