



Just the Facts...

Guidelines for Controlling Occupational Exposure to Hazardous Drugs

A select number of drugs can be healing for patients but harmful to exposed health care workers (HCWs). Cytotoxic drugs (CDs) make up the majority of the hazardous drugs (HDs). Other potential HDs include anesthetic agents, aerosolized drugs, estrogens, opiates, and experimental drugs. Workers risking occupational exposure include pharmacists, nurses, physicians, respiratory therapists, and other HCWs who prepare, administer, transport, handle, and dispose of HDs.

Occupational exposure to HDs can cause serious adverse health effects, including genetic damage, cancer, birth defects, fertility problems, and organ toxicity. To date, OSHA has not set specific permissible exposure limits or standards for all HDs. However, OSHA has issued guidelines urging health care employers to set up a HD Safety and Health Program (HDSHP) and to keep occupational exposures as low as possible.

Personnel

HD Officer. Medical Treatment Facility (MTF) commanders should appoint an individual to set up and carry out the HDSHP. Ideal candidates for this position include pharmacists, safety and health representatives, nurses, and industrial hygienists. More important the HD Officer should know the safety and health risks associated with HDs used in the MTF and the safety precautions that will prevent or minimize occupational exposure(s).

HD Committee. MTF commanders should establish a committee to formulate policies for evaluating, selecting, procuring, distributing, and using therapeutic agents and pharmaceuticals as well as recommending education and training programs for all exposed HCWs. To carry out these responsibilities effectively, the committee should include representatives from the medical and nursing staffs; pharmacy; preventive medicine; hospital education and training; safety; and logistics, including supply, housekeeping, and maintenance.

HDSHP

At a minimum the HDSHP should address the following elements:

Hazard Identification and Safety Precautions. A multi-disciplinary team of pharmacy/toxicology, occupational health, industrial hygiene, and other trained professionals should identify HDs used in their MTFs. The team should consider the following characteristics when deciding to designate a drug as hazardous:

- ◆ The American Hospital Formulary Service Drug Information lists the drug as Therapeutic Category 10:00 (Antineoplastic).
- ◆ The drug manufacturer suggests special isolation techniques when HCWs handle, administer, or discard the drug.
- ◆ The drug is a known human mutagen, carcinogen, or reproductive toxicant and animal carcinogen or teratogen.
- ◆ The drug is known to be acutely toxic to an organ system.

Another method for identifying potentially HDs and for developing handling procedures are described in a paper titled "Pharmaceuticals as Hospital Hazards: Managing the Risks." See *Journal of Occupational Medicine*, Volume 33, No. 2, February 1991.

Safety precautions to prevent occupational exposures to HDs include effective engineering controls, and administrative controls, and personal protective equipment (PPE).

Engineering controls are preferred since they control worker exposures by containing the contaminants at their source and by reducing the quantity of contaminants released into the work environment. Examples of engineering controls include biological safety cabinets, negative chamber booths, and sharps containers.

Administrative controls are used to control worker exposures by reducing the time that they spend in contaminated areas. Examples of administrative controls include job rotation, job transfer, and modified work schedules.

PPE must be used in conjunction with engineering and administrative controls whenever they cannot sufficiently reduce worker exposures to acceptable limits. Examples of PPE include safety glasses or goggles, face shields, gloves, gowns, and respirators.

Ventilation Systems. Ventilation systems such as BSCs, isolation rooms, and negative chamber booths contain and remove hazardous aerosols only when they operate properly. Therefore, the HDSHP should specify the procedures for carrying out regular certification and maintenance checks of ventilation systems by qualified individuals. In addition, the HDSHP should include a requirement for HCWs to verify that ventilation systems are operational before starting any work or procedures.

SOPs. The HDSHP should reference any SOPs related to HD receipt, storage, preparation, administration, and disposal. Some related SOPs may include hazard communication, emergency preparedness, hazardous material spill prevention and response, waste disposal, linen management, medical surveillance, accident reporting, and departmental-specific HD SOPs. Supervisors of affected HCWs should keep copies of the HDSHP and reference SOPs in locations that are readily available to all HCWs, including temporary workers, contractors, and trainees.

Investigational Drugs. Use of investigational HDs requires compliance with established clinical investigation and human use review regulations and prior written approval by the Army's Surgeon General or his designee.

Information and Training Programs. All HCWs having potential occupational exposure to HDs must receive adequate training before they assume their job duties. Potentially exposed workers must understand the safety and health hazards of HDs and they must know the safe work practices to prevent occupational exposure(s). Also, supervisors of potentially exposed HCWs should be trained to regularly evaluate the work area and work procedures to detect safety and health hazards; make sure that control measures are functional and properly used; and reinforce worker training.

Medical Surveillance and Examinations. The HDSHP should reference the MTF's occupational health policies for providing preplacement, routine and termination or transfer examinations for HCWs exposed to HDs. In addition, the plan should reference procedures for providing medical examinations following acute exposures to HDs. Any occurrence of exposure-related disease or adverse health effects should initiate an immediate investigation into the effectiveness of the safety precautions currently in use.

Recordkeeping. Army MTFs should keep records to show that the HDSHP is carried out as it was designed. At a minimum, records should include the results of annual program evaluations, ventilation system maintenance records, worker medical records and education and training records, and if applicable, investigational HD approvals and reports.

Effectiveness evaluations. The HD Officer should evaluate the HDSHP for effectiveness at least annually and update the HDSHP as necessary. The HD committee and the MTF safety committee should review the annual effectiveness evaluations, departmental-specific HD SOPs, and periodic reports of incidents, injuries, and equipment failures and suggest ways to improve the program as needed. In addition, work area supervisors should update department specific policies and procedures as needed, but at least once every three years.

Additional Information

More detailed information for setting up and carrying out a HDSHP are found in USACHPPM TG 149, Guidelines for Controlling Occupational Exposure to Hazardous Drugs.