

Ensuring Healthcare Worker Safety When Handling Hazardous Drugs

This is a joint position statement from the Oncology Nursing Society, the American Society of Clinical Oncology, and the Hematology/Oncology Pharmacy Association.

Hazardous drugs (HDs) are chemicals that demonstrate one or more of the following characteristics: carcinogenicity, genotoxicity, teratogenicity, reproductive toxicity, or organ toxicity. In addition, newer drugs with a structural or toxicity profile that mimics an agent known to be hazardous by one of the aforementioned criteria also should be treated as such (National Institute for Occupational Safety and Health [NIOSH], 2014). Healthcare workers (HCWs) potentially are exposed to HDs in the workplace during drug preparation, administration, and disposal, and when handling patients' excreta following treatment with these drugs. More than 100 studies since 1994 have documented evidence of contamination of the work environment with HDs, which increases the potential for exposure of nurses, pharmacists, and other HCWs when these agents are handled without appropriate precautions.

More than 50 studies have demonstrated the presence of HDs in the urine of HCWs, indicating actual exposure. Occupational exposure to HDs has been associated with acute symptoms such as nasal sores and hair loss, adverse reproductive outcomes such as infertility and miscarriages, genetic changes such as DNA damage, and an increased occurrence of cancer (Centers for Disease Control and Prevention, 2014).

The Occupational Safety and Health Administration ([OSHA], 1986) acknowledged the occupational risks of HDs and issued recommendations for their safe handling nearly 30 years ago. Updated guidelines from NIOSH and professional societies subsequently have been published (American Society of Health-System Pharmacists, 2006; NIOSH, 2014; Polovich, Olsen, & LeFebvre, 2014). All guidelines address the need for HD-related policies and procedures, education and training, and safe-handling precautions in organizations in which HDs are present. Safe-handling precautions include the use of safety equipment, safe work practices, and personal protective equipment (PPE). When used consistently, recommended precautions can reduce occupational HD exposure (NIOSH, 2004).

Occupational HD exposure can be minimized by a comprehensive HD safe-handling program based on a hierarchy of controls (Connor & McDiarmid, 2006). When a hazard cannot be eliminated, engineering controls are recommended to control exposure. Biologic safety cabinets and compounding aseptic containment isolators are primary engineering controls, and closed-system transfer devices are supplemental engineering controls, both of which reduce HD exposure. Administrative controls are the next level of protection and include safe-handling policies and procedures, hazard communication, education, and medical surveillance of those who potentially are exposed. Finally, PPE that has been tested for use with HDs provides barrier protection for workers. PPE includes gowns, gloves, eye and face shields, and respirator protection, depending on the HD-handling activities.

Nurses and pharmacists usually work as employees rather than independent practitioners in hospitals, clinics, and offices; therefore, employers and employees share the responsibility for HD safe handling.

It is the position of the Oncology Nursing Society, the American Society of Clinical Oncology, and the Hematology/Oncology Pharmacy Association that

- Organizations in which hazardous drugs (HDs) are present will establish evidence-based policies and procedures for safe handling that comply with regulatory requirements.
- Organizations in which HDs are prepared and administered will provide and maintain primary engineering controls and evaluate the use of supplemental engineering controls, such as closed-system transfer devices to reduce worker exposure.
- Organizations in which HDs are present will ensure that appropriate personal protective equipment is available to all staff to minimize exposure.

- Organizations in which HDs are present will provide education and training specific to each worker's role for staff who potentially are exposed. Education, training, and competency evaluation will include the risks of exposure, including the reproductive and developmental effects, the recommended precautions for specific handling activities, safe handling of contaminated patient excreta, proper disposal of contaminated waste, and how to handle acute exposure.
- Organizations in which HDs are present will protect the right of staff who are trying to conceive, pregnant, or breast feeding to engage in alternative duty that does not require HD handling.
- Organizations in which HDs are present will ensure that patients who receive these drugs and their caregivers receive education about safe handling to minimize unintended exposure.
- Organizations will ensure that HD waste is disposed of according to regulatory guidelines and in a manner that protects staff and the environment.
- Our professional societies will continue to explore evidence-based strategies for mitigation of risk associated with handling HDs and share recommendations with our respective members.

Approved by the Oncology Nursing Society Board of Directors, January 2015. Reviewed January 2016.

Review by the Hematology/Oncology Pharmacy Association and the American Society of Clinical Oncology Boards of Directors, April 2016.

References

American Society of Health-System Pharmacists. (2006). ASHP guidelines on handling hazardous drugs. *American Journal of Health-System Pharmacists*, 63, 1172–1193. doi:10.2146/ajhp050529

Centers for Disease Control and Prevention. (2014). Occupational exposure to antineoplastic agents and other hazardous drugs: Recent publications, guidelines, review articles and surveys. Retrieved from <http://www.cdc.gov/niosh/topics/antineoplastic/pubs.html>

Connor, T.H., & McDiarmid, M.A. (2006). Preventing occupational exposures to antineoplastic drugs in health care settings. *CA: A Cancer Journal for Clinicians*, 56, 354–365. doi:10.3322/canjclin.56.6.354

National Institute for Occupational Safety and Health. (2004). Preventing occupational exposure to antineoplastic and other hazardous drugs in health care settings. Retrieved from <http://www.cdc.gov/niosh/docs/2004-165>

National Institute for Occupational Safety and Health. (2014). NIOSH list of antineoplastic and other hazardous drugs in healthcare settings 2014. Retrieved from http://www.cdc.gov/niosh/docs/2014-138/pdfs/2014-138_v3.pdf

Occupational Safety and Health Administration. (1986). Guidelines for cytotoxic (antineoplastic) drugs. Retrieved from https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1702

Polovich, M., Olsen, M., & LeFebvre, K.B. (Eds.). (2014). *Chemotherapy and biotherapy guidelines and recommendations for practice (4th ed.)*. Pittsburgh, PA: Oncology Nursing Society.