

## **Tools for Policy Development: *Recommendations for handling linens exposed to hazardous drugs***

“What is your laundry’s policy for handling linens that may have been exposed to hazardous drugs?” This question was the basis for this project and the beginning of an in-depth search to determine first, why there was a concern and secondly is that concern legitimate and what steps should be taken.

The most recent document on this subject from the OSHA was a 1995 update “Controlling Occupational Exposure to Hazardous Drugs (HD’s)”.<sup>i</sup> The introduction of this document includes a note regarding the concern of past attention focusing solely on drugs used to treat cancer. As a result, The American Society of Hospital Pharmacists (ASHP) has defined a new class of agents as “hazardous drugs”. “Hazardous drugs may include antineoplastic or cytotoxic agents, biologic agents, antiviral agents, or immunosuppressive agents. OSHA (1995) recommended that all investigational agents be regarded as potentially hazardous until information establishing their safety becomes available.”<sup>ii</sup>

The NAILM Board of Directors sought legal counsel for guidance on OSHA’s current policies and safety recommendations specific to this issue. Following research of OSHA’s regulatory requirements, the NIOSH Alert addressing this specific concern, the recommendations of other professional organizations to their industries on handling concerns and given the impressions that they have of laundry procedures this proposed methodology was developed.

The preparation, administration, and disposal of HD’s has the potential to expose pharmacists, nurses, physicians, and other healthcare workers to “potentially significant workplace levels of these chemicals.”<sup>iii</sup> Since there are no established thresholds for safe exposure the focus remains on limiting exposure for individuals who come into contact with HD’s. In the OSHA Technical Manual Section VI: Chapter 2 it states that:

Excreta from patients who have received certain antineoplastic drugs may contain high concentrations of the drug or its hazardous metabolites. For example, patients receiving cyclophosphamide excrete large amounts of the drug and its mutagenic metabolites. Patients treated with cisplatin have been shown to excrete potentially hazardous amounts of the drug. Unprotected handling of urine or urine-soaked sheets by nursing or housekeeping personnel poses a source of exposure.

The confusion regarding linen handling came from the OSHA recommendation that linen contaminated with HD’s be placed in specially marked laundry bags then a labeled impervious bag. The guidance that the laundry bag and contents should be “prewashed” before being added to other laundry poses many questions including what is meant by “prewashing” and how will the additional step provide a safe situation for laundry personnel handling the textiles in the first place?

The Oncology Nursing Society (ONS), in their publication “Safe Handling of Hazardous Drugs” recommends that bed linens or clothing contaminated with urine, feces or other excreta be pre-laundered before washing with other linens. Another alternative suggested by the ONS was to treat all laundry as though it were contaminated with hazardous drugs or infectious wastes. This organization is under the impression that “In such circumstances, linens contaminated with urine, feces, and other excreta (from people who may or may not be receiving hazardous drugs) are placed together in a single leak-proof bag. Subsequently, personnel donning PPE from head to toe double wash all laundry.”

Given that the definition of “double wash” poses more questions than answers and other organizations misapprehensions of healthcare textile processing do not appear to address the concern of protecting the laundry employee the NAILM Board of Directors sought a solution. The goal was to continue to afford patients the continued comfort of quality linens, gowns and bedding while protecting the employee when handling textiles exposed to HD’s.

NAILM felt that the most prudent step was to develop a methodology for handling HD exposed linens and to submit that proposal to OSHA for response. A survey of laundry facilities was conducted to determine what policies were in place and to develop a proposed method for limiting exposure for laundry personnel. It was imperative that this proposal be practical for institutional laundry operations while appropriately managing costs. Keeping in mind that guidelines of this nature must be broad enough to be applicable for this diverse industry, yet protect the worker.

### **Identifying Contaminated Textiles**

Since linen-handling personnel cannot distinguish textiles that have been exposed to hazardous drugs from other healthcare textiles it was NAILM’s premise that healthcare clinicians are best equipped to make that determination. This concern is shared by the American Society of Health-System Pharmacists reflected in a 1996 technical assistance bulletin that states, “The handling of hazardous drugs is a complex issue, and the advice of medical experts, occupational physicians, industrial hygienists, legal counsel, and others should be obtained when organizational policy is being established.”<sup>iv</sup> One of the ASHP’s first goals is that a “method should be present for identifying to personnel those drugs that require special precautions.” While they go on to say that the best way to accomplish this is through warning labels, this is not possible with the linens used by patients who have received these drugs within the last 48 hours. It was only logical for NAILM’s proposal to have the clinicians make that identification since they will be following special handling precautions when providing patient care. According to the 1994 OSHA Hazard Communication Standard, employers must develop an inventory of all the hazardous chemicals in the workplace. This information is provided to clinical staff and thereby caution laundry personnel of the need for special handling by placing the patient’s linens in a color-coded or otherwise specially identified bag (note – yellow bags are the standard practice for chemotherapy). This procedure would communicate the need for special handling by laundry personnel yet not breach the patient’s confidentiality.

### **Containment of Contaminated Textiles**

The NAILM proposal recommends that textiles used by patients who have received hazardous drugs in the past 48 hours – 7 days (based on the medication) are bagged at the place of use and put in a second container with a closed lid for transportation to the laundry processing facility. This concept was adapted from recommendations for handling hazardous drug waste. The Oncology Nursing Society states that “Plastic bags may be used to collect hazardous waste, such as the sealable bag that is used for drug transport, but these should then be placed inside a rigid waste container so that all waste is essentially “double bagged”.”<sup>v</sup>

### **Personal Protective Equipment (PPE)**

While other organizations may not fully address the specifics of personal protective equipment for laundry personnel, the NIOSH (National Institute for Occupational Safety and Health) document, Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings specifically states to, “wear two pairs of protective gloves and a disposable gown if you must handle linens, feces, or urine from patients who have received hazardous drugs within the last 48 hours or in some cases within the last 7 days.”<sup>vi</sup> The American Society for Testing and Materials (ASTM) has developed testing standards for assessing the resistance of medical gloves to permeation by chemotherapy drugs.<sup>vii</sup> Gloves selected for use with hazardous drugs should meet the ASTM standard. Recommendations of the NIOSH document also include the use of disposable gowns with appropriate barrier protection, ties in the back and cuffs. Face shields are suggested when there is a potential of splash to the eyes, nose and/or mouth. This PPE should be disposed of as hazardous waste according to facility policies.

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### **Linen Processing**

The NAILM proposal, in the absence of other laundry specific guidance, recommends that the bags be emptied from the secondary or rigid container and place them directly into a single batch washer without presorting to avoid potentially aerosolizing the contents. The laundry personnel should then gently remove the plastic bags leaving the contaminated textiles in the washer. Dispose of the individual bags as hazardous waste according to facility policy. The single batch washer is recommended to avoid any potential subsequent contamination through the use of a continuous batch washing system. Laundry managers should consult their chemical representatives for guidance on adequate wash formulas specific to post-sorted contaminated textiles of this nature.

### **Post-Sort Recommendations**

Since the HD exposed textiles are post-sorted laundry personnel should continue to follow standard precautions and dispose of all foreign matter (sharps, fecal material, etc.) according to hazardous waste guidelines as specified by the facility. It should, however, be noted that if sharps are detected in this specific laundry process, laundry personnel should “not place hazardous drug-contaminated sharps in red sharps containers that are used for infectious wastes, since these are often autoclaved or microwaved”.<sup>viii</sup> Items of this nature exposed to hazardous drugs should be disposed of according to the facilities hazardous-waste management guidelines which are not the same as those of the red-bag biohazard nature.

### **Medical Surveillance**

The most recent guidelines for medical surveillance continue to reference the 1999 OSHA Technical Manual: Controlling Occupational Exposure to Hazardous Drugs, Section VI Chapter 2 that recommends job-specific medical evaluations similar to those of the bloodborne pathogens recommendations. Laundry personnel should work closely with professional clinical personnel in developing the appropriate guidelines for both the establishment of the facility policies and procedures as well as the annual review based on new studies and updates to current work practice controls.

### **Common-Sense Based Conclusions**

The ASHP Guidelines on Handling Hazardous Drugs provides some excellent guidance for developing laundry policies and procedures for protecting linen-handlers from exposure to HD's. Their recommendation for a collaborative approach of policy development is highly applauded and recommended. “This program must be a collaborative effort with input from all affected departments, such as pharmacy, nursing, medical staff, housekeeping, transportation, maintenance, employee health, risk management, industrial hygiene, clinical laboratories, and safety officers.”

The ASHP prepublication document goes on to note that “Housekeeping and patient care assistants who handle drug waste and patient waste are also at risk and are sometimes not included in the safe handling training required by safety programs. Safety programs must be developed that identify and include all workers in the exposed population.”<sup>x</sup> They acknowledge that “workers may be exposed to a hazardous drug at many points in its life cycle. From manufacture, transport, and distribution to receipt, storage, preparation, administration, waste handling, and equipment maintenance and repair, all workers involved in these activities have the potential for contact with uncontained drug.”<sup>x</sup>

NAILM has submitted this proposal to Kentucky OSHA and Iowa OSHA (who have state OSHA plans) and received positive responses and continues to seek approval from federal OSHA. Until that time, laundry managers are encouraged to collaborate with other healthcare professionals to develop a written program that includes:

- A communication strategy to identify specific drugs used within a facility that have been identified as a hazardous drug and to clearly delineated the linen used by patients receiving those drugs in the last 48 hours to 7 days.

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- MSDS sheets for these drugs and the specific precautions and measures to be taken to eliminate/reduce the chance for exposure to linen handlers.
- Specific training for employees on the MSDS and the importance of using proper PPE
- Medical surveillance procedures
- Specific wash procedures and wash formulas
- Disposal of sharps, PPE and other disposable items exposed to HD's
- Annual review of these policies for updates and changes to protective practices.

However, it should be noted that the OSHA General Duty Clause, which basically states that the employer "shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees" does apply in this instance. It is also reasonable to assume that the purpose of the OSHA Hazard Communication Standard (29 CFR 1910.1200) is "to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees." Recent reports from laundry managers following surveys by the Joint Commission on Healthcare Accreditation (JCAHO) indicate continued inquiries regarding laundry processing policies that address the handling of linen exposed to HD's.

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<sup>i</sup> Occupational Safety and Health Administration, (1995), Controlling occupational exposure to hazardous drugs, OSHA Technical Manual Section VI: Chapter 2, Washington, DC: Author.

<sup>ii</sup> Blecher, C.S., Glynn-Tucker, E.M., McDiarmid, M, Newton, S.A. (2003) *Safe Handling of Hazardous Drugs*, p2

<sup>iii</sup> Occupational Safety and Health Administration, (1995), Controlling occupational exposure to hazardous drugs, OSHA Technical Manual Section VI: Chapter 2, Washington, DC: Author.

<sup>iv</sup> American Society of Health-System Pharmacists. ASHP technical assistance bulletin on handling cytotoxic and hazardous drugs. *Am J Hosp Pharm*. 1990; 47:1033-49.

<sup>v</sup> Blecher, C.S., Glynn-Tucker, E.M., McDiarmid, M, Newton, S.A. (2003) *Safe Handling of Hazardous Drugs*, pp 30-31.

<sup>vi</sup> National Institute for Occupational Safety and Health, Department of Health and Human Services. (2004). *Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings*. Retrieved October 11, 2004, from <http://www.cdc.gov/niosh/docs/2004-165/>

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<sup>vii</sup> American Society for Testing and Materials (ASTM) D 6978-05 Standard Practice for Assessment of Resistance of medical Gloves to Permeation by Chemotherapy Drugs. West Conshohocken, PA: ASTM; 2005.

<sup>viii</sup> National Institute for Occupational Safety and Health, Department of Health and Human Services. (2004). *Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings*. Retrieved October 11, 2004, from <http://www.cdc.gov/niosh/docs/2004-165/>

<sup>ix</sup> American Society of Health-System Pharmacists, (2005). ASHP Guidelines on Handling Hazardous Drugs. Retrieved February 2, 2006 from <http://www.ashp.org/bestpractices/new/HD-Prepub-final.pdf>

<sup>x</sup> American Society of Health-System Pharmacists, (2005). ASHP Guidelines on Handling Hazardous Drugs. Retrieved February 2, 2006 from <http://www.ashp.org/bestpractices/new/HD-Prepub-final.pdf>