A pharmacist was found to have grade II papillary transitional cell carcinoma.

An oncology nurse experienced projectile vomiting.

An oncology patient care assistant developed a skin reaction 30 minutes after emptying a urine-filled bedpan into a toilet.

Cases such as these illustrate the adverse health effects suffered by health care workers due to even low-level exposures to hazardous drugs. The five case reports included in a hazardous drugs alert from the National Institute for Occupational Safety and Health (NIOSH) also describe workers afflicted by allergic asthma and elevated biomarkers after exposure. These are only some of the conditions affecting workers exposed to powerful drugs used for cancer chemotherapy, antiviral treatments, hormone regimens, and other therapies. Infertility, miscarriage, and birth defects are others, the alert says.

NIOSH, the Occupational Safety and Health Administration (OSHA), and The Joint Commission distributed a letter1 to stakeholders nationwide in April 2011, calling attention to an update of a hazardous drugs list and guidelines previously published in 2004. The letter links to NIOSH’s “List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings, 2010” (http://www.cdc.gov/niosh/docs/2010-167/pdfs/2010-167.pdf) and the NIOSH alert, “Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings” (http://www.cdc.gov/niosh/docs/2004-165/pdfs/2004-165.pdf), which includes the five case reports.

Harmonizing the Efforts of Many Stakeholders

The NIOSH guidelines harmonize hazardous drug standards and recommendations developed over the years by OSHA, The Joint Commission (see the sidebar on page 7), the Environmental Protection Agency (EPA), the American Society of Health-System Pharmacists (ASHP), the Oncology Nurses Society (ONS), and other organizations, says Melissa McDiarmid, M.D., M.P.H., D.A.B.T., professor of medicine, epidemiology, and public health at the University of Maryland School of Medicine and director of its occupational health program.

“Everyone is working together now to abide by the recommendations in the NIOSH alert,” McDiarmid observes. “I

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**Joint Commission Standards Related to Hazardous Drug Management**

* Standard EC.02.02.01
  The hospital manages risks related to hazardous materials and waste.

* EP 5. The hospital minimizes risks associated with selecting, handling, storing, transporting, using, and disposing of hazardous chemicals.

* EP 8. The hospital minimizes risks associated with disposing of hazardous medications. (See also MM.01.01.03, EPs 1–3)

* EP 11. For managing hazardous materials and waste, the hospital has the permits, licenses, manifests, and material safety data sheets required by law and regulation.

* EP 12. The hospital labels hazardous materials and waste. Labels identify the contents and hazard warnings.*

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* Standard: MM.01.01.03
  The hospital safely manages high-alert and hazardous medications.

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* The Occupational Safety and Health Administration’s (OSHA’s) “Bloodborne Pathogens and Hazard Communications Standards” and the National Fire Protection Association (NFPA) provide details on labeling requirements.
希望我们正处于一个临界点。”研究发现，识别这些危害的工人已经数十年，甚至可以追溯到1970年代。2 最近的研究已发布在网站上，其目的是让任何人进入环境时都受到保护，建立一个更成熟的健康系统。McDiarmid指出。“我们正在努力解决安全领域的一个历史问题，把安全系统与历史上的观念联系起来。”

“我们正在建立一个非常符合患者安全的系统。”McDiarmid表示。NIOSH的指导原则特别重要，因为任何人都有可能接触到危险药物。“你需要检查药物从一个地方被准备好到另一个地方的路径——因为任何接触到该路径的人都有暴露的风险，”她解释道。 “解决方案是确保一个在健康护理中受益的安全系统。”

**NIOHS危险药物保护建议**

特定NIOSH建议保护工人免受危险药物暴露包括以下内容：

1. 在任何人开始工作前识别并评估工作场所的危害。
   - 定期审查危险药物库存、设备和实践；寻求影响工人的输入。
   - 进行定期培训审查，确保工人的安全。

2. 实施一个程序来安全处理药物，并每年审查。
   - 建立处理危险药物和清洁的程序。
   - 建立一般卫生程序——例如，不食用或饮水在可能接触药物的区域。

3. 发展用于正确使用和维护设计用于减少暴露的设备的程序。
   - 设备可能包括通风柜、封闭系统药物转移设备、无针系统和个人防护设备。

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McDiarmid表示，危险药物“必须得到尊重。”她表示，这种情况相当普遍，尽管实施了实践和设备的设计来减缓危险药物的风险。这些药物的痕迹可以在工作表面上，衣服或医疗设备中找到，以及在病人尿液中。

工人经常无意中将自己置于危险中，同时在工作空间或与材料一起工作时没有意识到被污染。根据CDC，每年约有550万美国医疗工作者是潜在暴露于危险药物，包括药房和护理人员，医生，研究实验室的工作人员，动物护理人员，环境服务人员，以及送货和接收人员。4 在自然健康护理和研究设置，以及在家庭护理设置和零售药房。

McDiarmid表示，必须采取特别措施，防止危险药物的接触。

**医疗机构负责执行标准**

为了保证工人的安全，OSHA标准要求雇主识别危险药物并公布它们。

员工必须也获得关于工作地点可能存在的危险的培训。5 NIOSH建议健康护理机构必须执行这些标准的益处。

指导原则鼓励管理团队采取领导角色在工人安全和健康以及发展和提供培训，评估受伤和预防疾病计划来持续改进，并为员工提供参与努力识别和解决危险的机会。

Continued on page 8
NIOSH Emphasizes Engineering and Administrative Controls, Proper Protective Equipment

Workers can be protected from exposures to hazardous drugs through engineering controls (such as ventilated cabinets), administrative controls, and proper protective equipment, the NIOSH guidelines say. See the box on page 7 for specific recommendations.

Washington State to Enforce NIOSH Standards

In Washington State, two bills were recently passed that go beyond the NIOSH recommendations. The first new law directs the state to enforce the NIOSH guidelines. The second requires that a cancer patient’s occupation be reported to a registry, and if the patient is retired, his or her primary occupation before retirement must be reported. This law will enable officials to track cancer cases to occupations.

The laws were sparked by articles that appeared in The Seattle Times in July 2010. The stories linked the lack of regulation with workplace contamination. Proponents of the new laws hope they serve as a model for similar legislation in other states.

Future Stakes Will Be Higher

McDiarmid says reducing the risks of hazardous drugs is imperative because the World Health Organization expects a 50% increase in cancer cases within the next 15 to 20 years. More patients means more workers will be needed, which “translates into a greater opportunity for health care workers to be exposed to these drugs,” says McDiarmid. Also, some chemotherapy drugs have begun to be used for the treatment of arthritis, multiple sclerosis, and other diseases, spreading potential hazards due to exposure even further.


References


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