Chemotherapy Safe Handling

Limiting nursing exposure with a hazardous drug control program

Rachael Crickman, DNP, RN, AOCNS®, and Deborah S. Finnell, DNS, PMHNP-BC, CARN-AP, FAAN

BACKGROUND: Nurses and other healthcare workers are at risk for adverse health consequences from occupational exposure to hazardous drugs.

OBJECTIVES: An evidence-based program for nurses was implemented to improve safe handling practices and reduce exposure to hazardous drugs.

METHODS: A quasiexperimental design was used, with pre- and post-tests of knowledge about chemotherapy exposure and pre- and post-test observations of compliance with donning and doffing personal protective equipment (PPE). Surface wipe tests were conducted to determine hazardous drug contamination in care areas. A toolkit of interventions, including hazardous drug identification, standardization of PPE, and education, was used.

FINDINGS: Mean knowledge scores of chemotherapy improved after education. Correct donning of PPE was high before and after the intervention, and the correct doffing sequence improved postintervention. One sample was positive for 5-fluorouracil, affirming the difficulty of maintaining an environment free of contamination.

KEYWORDS
occupational exposure; drug therapy; nurses; personal protective equipment

DIGITAL OBJECT IDENTIFIER
10.1188/17.CJON.73-78

NURSES AND OTHER HEALTHCARE WORKERS are at risk for adverse health consequences from occupational exposure to hazardous drugs when caring for patients. Medications are considered hazardous if they have the potential to cause negative health effects. The majority of these medications are antineoplastic or chemotherapy drugs (National Institute for Occupational Safety and Health [NIOSH], 2014). The use of chemotherapy and hazardous antineoplastic medications is expanding in other areas of health care (Thompson, 2013). The risks of handling hazardous antineoplastic drugs are well documented and include acute and chronic side effects (Polovich, 2011; Suspiro & Prista, 2011; Valanis, Vollmer, Labuhn, & Glass, 1993, 1997; Valanis, Vollmer, & Steele, 1999).

A unique challenge associated with the administration of antineoplastic and other hazardous drugs is the lack of established limits for healthcare worker exposure (Connor, Lawson, Polovich, & McDiarmid, 2014; Gambrell & Moore, 2006). Therefore, how little or how much hazardous drug exposure contributes to adverse health effects is unclear. Despite the lack of evidence, mitigating the potential harm to healthcare workers is warranted. In one systematic review (Crickman & Finnel, 2016), five methods to reduce occupational exposure were identified: (a) the development of engineering controls, (b) personal protective equipment (PPE) use, (c) medical and environmental monitoring for common antineoplastic drugs, (d) hazard identification, and (e) a comprehensive hazardous drug control program that provides education and training for healthcare workers.

Polovich and Clark (2012) examined factors that affect nurses' PPE use, which included barriers to adherence, workplace safety climate, and patient/nurse ratios. The study revealed that institutional practices and personal behaviors affect occupational exposure. PPE is considered the last line of defense in protecting nurses and other healthcare workers who handle hazardous drugs. Addressing knowledge deficits is essential but may not be sufficient to protect healthcare workers. Knowledge alone does not consistently lead to behavior change; however, acknowledging poor safe handling behavior is critical for reducing exposure (Geer, Curbow, Anna, Lees, & Buckley, 2006).

Legislative change is often needed to effect practice change. Until recently, guidelines for the safe handling of hazardous drugs were primarily

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