Factors Influencing Nurses’ Use of Hazardous Drug Safe Handling Precautions

Ying Siou Lin, RN, MSN, Yu Chia Chang, RN, MSN, Yen-Chun Lin, RN, PhD, and Meei-Fang Lou, RN, PhD

The National Institute for Occupational Safety and Health ([NIOSH], 2004) defines hazardous drugs (HDs) as inherently toxic drugs posing a risk to healthcare providers. They are characterized as having carcinogenicity, teratogenicity, reproductive toxicity, genotoxicity, and organ toxicity at low doses. Nurses comprise the largest proportion of healthcare providers who make contact with HDs during multiple types of clinical activities (Connor & McDiarmid, 2006). Because acceptable doses of occupational exposure to HDs have not yet been determined, current recommendations suggest that nurses take measures for the safe handling of HDs to reduce exposure to risk and environmental contamination as much as possible (Eisenberg, 2018).

The Oncology Nursing Society’s *Chemotherapy and Biotherapy Guidelines and Recommendations for Practice* (Polovich, Olsen, & LeFebvre, 2014) establishes protective measures for nurses exposed to HDs during clinical activities, with reference to guidelines by NIOSH (2004) and the American Society of Health System Pharmacists (2006). The measures outlined by Polovich et al. (2014) are based on a five-level, pyramid-shaped Hierarchy of Controls that can be followed by administrators and nurses. The top level of the pyramid involves reducing drug toxicity to control the risk from exposure, but this is generally not feasible in clinical practice. The remaining levels in the pyramid are similarly ranked, from most effective to least effective, according to how effective they are at controlling exposure: engineering controls, administrative controls, work practice controls, and personal protective equipment (PPE). Engineering controls reduce exposure through the use of equipment like biologic safety cabinets when preparing HDs and closed-system transfer devices when preparing and administering HDs. Administrative controls consist of policies and procedures for safe HD handling put in place by hospital management, regular updates to HD lists, education and training, medical surveillance,