

# Oral Chemotherapy

## An evidence-based practice change for safe handling of patient waste

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**BACKGROUND:** Safe handling practices for patient waste have focused on patients receiving IV chemotherapy, but these practices do not address safe handling for patients receiving oral chemotherapy.

**OBJECTIVES:** The aim of this article is to evaluate evidence and formulate best practice recommendations for handling and disposing waste from patients receiving oral chemotherapy.

**METHODS:** A literature search established a framework for the project. For healthcare providers and staff, procedures were established to access biohazard supplies and to follow safe handling of patient waste post-oral chemotherapy administration. Supply cost utilization was evaluated pre- and postimplementation. Staff perceptions were assessed six months after project implementation.

**FINDINGS:** The cost of supplies per patient day increased minimally. Staff self-reported use of biohazard precautions when handling patients' waste increased. The majority of staff reported that they had access to supplies and were knowledgeable regarding safe handling procedures six months after this practice change.

### KEYWORDS

chemotherapy; antineoplastic drugs; safe handling; evidence-based practice

### DIGITAL OBJECT IDENTIFIER

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**CONCERNS ABOUT HEALTHCARE PERSONNEL EXPOSURES** to antineoplastic drugs, also known as chemotherapy, began in the early 1970s by the National Institute for Occupational Safety and Health (NIOSH, 2016). Even low levels of staff exposure to these hazardous drugs are associated with adverse events, such as contact dermatitis, ocular irritation, liver damage, respiratory tissue damage, spontaneous abortion, and cancers (Lester, 2012; Nassan et al., 2020; Power & Coyne, 2018; Simmons, 2010). Results from the Nurses' Health Study 3 demonstrate an association between nurse self-reported handling of antineoplastic drugs and miscarriage; this association was stronger among nurses who did not always use personal protective equipment (PPE) (Nassan et al., 2020). Among the 2,440 nurses included in the study, PPE usage was suboptimal, with 77% reporting always using gloves and 44% reporting always using gowns when handling chemotherapy (Nassan et al., 2020). Similarly, a study of oncology healthcare workers demonstrated that PPE use when handling chemotherapy was lower than the national recommendations (Graeve et al., 2017). Chemotherapy administered orally is also absorbed by dermal contact with contaminated surfaces, inhalation, or splashes in the eyes (Power & Coyne, 2018; Simmons, 2010). Healthcare personnel who prepare and administer chemotherapy, including oral chemotherapy agents (OCAs), often underestimate the associated risks (Simmons, 2010; Weingart et al., 2008), despite their frequent exposure to these hazardous drugs (Neuss et al., 2013, 2016).

NIOSH identifies and categorizes hazardous drugs based on carcinogenicity, teratogenicity, and reproductive toxicity. The drugs are categorized into the following three major groups (NIOSH, 2016):

- Group 1: antineoplastic drugs, including many that pose reproductive risk
- Group 2: non-antineoplastic drugs that meet one or more of the NIOSH criteria for hazardous drugs
- Group 3: drugs that primarily pose reproductive risk to men and women trying to conceive and women who are pregnant or breastfeeding

With this hazardous drug list, NIOSH provides general guidance for universal precautions for staff when handling these drugs during manufacture, distribution, receipt, storage, transportation, compounding, administration, waste handling, and care of treated patients (NIOSH, 2016). The U.S. Pharmacopeia (USP) General Chapter <800> presents safe handling