

FAST FACTS AND CONCEPTS #454
HAZARDOUS DRUG SAFE HANDLING FOR PATIENTS RECEIVING CANCER TREATMENT
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Background: Some medications used to treat cancer are classified as hazardous drugs (HDs). The risk of accidental exposure to these anti-neoplastic HDs in the home is increasing as more of these therapies, particularly targeted oral therapies, are being given in outpatient and home settings (1). Furthermore, continued use of targeted oral therapy among home hospice patients in the hopes of improving symptom control and quality of life is becoming a more common. This *Fast Fact* provides clinician education around safe handling of anti-neoplastic HDs in the hopes of improving the counseling we provide patients and their families about their safe use and handling.

What is a HD? Not all anticancer treatments are HDs. The National Institute for Occupational Safety and Health (NIOSH) provides a list of antineoplastic HDs (2). They define HDs as a medication with one of the following characteristics: carcinogenicity, teratogenicity, reproductive toxicity, organ toxicity at low doses, genotoxicity, or a drug structure/toxicity profile that matches a known HD (2). Unfortunately, this list is not updated frequently enough to keep up with the changes in oncologic care. Therefore, cancer care institutions must keep an updated list of HDs. Clinicians can also refer to the prescribing information of each medication when in doubt. Importantly, just because an agent is orally administered or given in an outpatient setting does not imply it is not potentially hazardous. Complex cytotoxic chemotherapy regimens are given in the outpatient setting, several of which can be given as multi-day home infusions (e.g., fluorouracil) and remain in the patient's bodily fluids for 48 hours or longer after administration (3,4). Furthermore, some oral agents, administered by the patient or caregiver, are known HDs and traces of the HD have been found on common home surfaces (5).

Administering oral HD: The patient should receive counseling on safe handling from oncology specialists upon initiation, however, this counseling often is skimmed over due to the vast information needed to be shared regarding prognosis, adverse events, scheduling, etc. The basics of safe handling are listed below and come from a checklist from the Oncology Nursing Society (ONS) (6,7). Specific questions should be directed to the oncology specialists.

- Store oral HD in the original container. Do not store in a pill box with or without other medications.
- Place an absorbent paper towel down on a surface, with a disposable medicine cup.
- Wash hands with soap and water and apply one pair of nitrile gloves.
- Open the medicine bottle and place the medication in the disposable medicine cup. Close the bottle.
- Deliver medication to the patient by handing the patient the cup.
- Wrap the paper towel used around the disposable medicine cup and place contents into a resealable plastic bag. Take gloves off and place in bag too. Seal bag and throw it away. Wash hands.
- Reliable websites provide safe handling information regarding specific HDs (see references 8,9).

Disposal of Unused HDs: Unused HDs should be disposed of by the patient or a designated caregiver/family member via a public medication disposal location. They should not be flushed down a toilet or sink. The Drug Enforcement Administration provides online information to help people to find the nearest disposal location (10). Although regulations can vary by state and region, hospice and other home-based clinicians are not able to dispose of HDs for the patient/caregiver (10).

Safe handling of bodily fluids in patients treated with HDs (11-14): Most HDs are excreted within 48-72 hours; however, some are present in urine and stool 7 days after administration. The American Cancer Society advises the handling precautions within 48-72 hours of the last HD dose (11); other publications recommend continuing precautions 7 days from the last HD dose (12).

- Sit on the toilet; place lid down before flushing to avoid splashing. Flush the toilet twice after use (including vomit). Keep the lid down when not in use so pets do not drink out of the water.
- Avoid sharing the same toilet with others if possible. Regardless, clean the toilet seat after use.
- Patients and caregivers should wash hands with warm water and soap after touching any bodily fluid. Caregivers should wear 2 pairs of throw-away gloves if they need to touch body fluids.

- Avoid washing any material that has bodily fluids on it by hand; use a washing machine if possible.
- Seal adult diapers, underwear, sanitary pads, etc. in 2 plastic bags and dispose in the regular trash.
- If the HD contaminated a surface, use a 5% bleach solution combined with detergent (13).
- While overall there is a paucity of good data regarding breast feeding during cancer treatment, there is concern that HDs could be transferred via breast milk (14). Hence, it is not recommended.

Safe sex practices during cancer treatment with HDs (15): Cancer specialists should address fertility options and concerns prior to starting anticancer therapy. Most patients receiving anticancer treatment can be sexually active even if they are receiving a HD (15).

- If the patient or partner can become pregnant, use an effective contraception. Barrier devices (e.g., condoms) are recommended during intercourse and oral sex for at least a week after the HD dose.
- After completion/discontinuation of treatment, patients may wish to become pregnant. Wash out periods are required for many HDs. Duration of time varies between weeks to a year. Patients should consult with the oncologist and/or cancer pharmacist before trying to become pregnant.

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