Background
Chemotherapy drugs are cytotoxic and are often carcinogenic. Many studies utilizing chemotherapy drugs in animals can be hazardous to the researchers and Department/Division of Comparative Medicine (DCM) personnel from acute and chronic exposure.

Scope
This policy covers the use of chemotherapeutic drugs administered to animals and housed in DCM/laboratory spaces. This policy does not cover in vitro use of chemotherapeutics in the laboratory.

Policy
All personnel who handle chemotherapy drugs, or other cytotoxic drugs, should employ the outlined methods to minimize personal and environmental contamination by these agents.

Procedures
I. Chemotherapy drugs include, but are not limited to, the following: Amascrine, Bleomycin, Carboplatin, Carmustine, Chlorambucil, Cisplatin, Cyclophosphamide, Cyclosporin A, Dacarbazine, Dactinomycin, Daunorubicin, Docetaxel, Doxorubicin, Epirubicin (Ellence), Esorubicin, Etoposide, Etoposide Phosphate, Idarubicin, Ifosfamide, Irinotecan, Mechlorethamine, Menogaril, Mitomycin-C, Mitoxantrone, Oxaliplatin, Paclitaxel (Taxol), Tamoxifen, Teniposide, Topotecan, Vinblastine, Vincristine, Vinodesine, and Vinorelbine.

II. All investigators must contact DCM at least two weeks in advance of the administration of any chemotherapy agent.

III. Warning Signs for animal rooms will be prepared by DCM on Central and Waterfront Campuses (DCM-C), and by the Biosafety Officer on the West Campus. The signs will include agent name, hazard warning, PI name with contact information, Personal Protective Equipment (PPE), agent handling instructions, cage changing and bedding handling precautions, and hazardous waste and carcass disposal information.

IV. Training of research staff in preparation and handling of the agent is the responsibility of the Principal Investigator (PI). Training of research and DCM personnel for animal handling in DCM areas is the responsibility of DCM trainers. The Chemical Hygiene Officer will assist in training and SOP development.

V. All chemotherapy or cytotoxic agents at OHSU are to be prepared in a chemical fume hood or biological safety cabinet/tissue culture hood (BSC) over a disposable absorbent pad. Solutions of chemotherapy drugs should be prepared in the researcher’s laboratory and transferred to DCM in leak proof secondary containers.

VI. Proper PPE, including nitrile gloves, and a lab coat or disposable gown should be worn at all times during preparation of chemotherapy drugs. Glove cuffs should extend over lab coat/gown sleeves. All containers (tubes, vials, etc.) used to store chemotherapy drugs should be clearly labeled with the name of the drug, the date of preparation, and the date of expiration.

VII. PPE consistent with DCM policy must be worn at all times during administration of chemotherapy agents. At a minimum this is to include nitrile gloves and a disposable gown. The disposable gown should have a solid front and long sleeves. Glove cuffs should extend over gown sleeves. The use of
shoe covers is also recommended. A face shield or safety glasses should be worn whenever there is a possibility of splashing (e.g., when transferring liquids or during injections).

VIII. Animals should be placed on a disposable absorbent pad with plastic backing during administration of chemotherapy drugs. Cages containing animals that have been injected with chemotherapy drugs should be labeled in accordance with DCM policy. Cages should be labeled with a hazard warning sticker, the name of the chemotherapy agent administered, the date and time of injection, and contact information for the person responsible for the project, including an after hours number.

IX. When caring for or handling animals administered chemotherapy drugs, PPE consistent with DCM policy must be worn at all times for at least 48 hr following administration or until the bedding has been changed. At a minimum this includes nitrile gloves and a disposable gown. The disposable gown should have a solid front and long sleeves. Glove cuffs should extend over gown sleeves. The use of shoe covers, a surgical mask and a disposable hair cover is also recommended. A face shield or safety glasses should be worn whenever there is a possibility of splashing.

X. The first bedding change after administration of chemotherapy agents should be performed in a BSC or an approved alternative. Bedding should not be changed until at least 48 hr after administration of chemotherapy agents or as determined by the risk assessment. PPE consistent with DCM policy should be worn at all times while bedding is being changed. At a minimum this includes nitrile gloves and disposable gown. Glove cuffs should extend over gown sleeves. The use of shoe covers is also recommended. If a BSC is not available, a fit-tested N-95 respirator must be worn. Cages of animals injected with chemotherapy agents should never be changed in a laminar flow clean bench, or other apparatus that blows air toward the operator. Nitrile gloves should be worn when handling empty cages, until they are washed, after the first bedding change following injection with chemotherapy agents, or after subsequent bedding changes as long as there is potential for hazard exposure as determined by the risk assessment.

XI. All spilled chemotherapy drugs should be cleaned up immediately using the procedure outlined below:
   A. Proper PPE (nitrile gloves, disposable gown and shoe covers) should be worn at all times during spill clean-up.
   B. Absorb as much of the spilled chemotherapy drug as possible with paper towels or absorbent pads.
   C. Clean the area thoroughly with soap and water, using additional paper towels.

XII. Disposal of waste
   A. DCM-C and DCM-W: Dispose of syringes and needles used for administering chemotherapy drugs in red sharps containers.
   B. DCM-C and DCM-W: Dispose of used gloves, gowns, shoe covers, absorbent pads, paper towels, used bedding, animal carcasses and empty containers contaminated with chemotherapy drugs in a red biohazard bag. This bag should be sealed immediately and placed in a second red bag in a hazardous waste disposal container. Hazardous waste containers are disposed of under guidelines for infectious waste.

Refer to the OHSU Health Care Policies (available on the OHSU Intranet) for more information on the safe handling of chemotherapy drugs.

Definitions
Chemotherapeutic Drug—Drugs that are used to treat and stop the spread of a variety of cancers and leukemias by killing cancer cells.

Authority
OSHA Laboratory Standard 29 CFR 1910.1450