

**HAZARDOUS MEDICATION PRECAUTIONS:
PERSONAL PROTECTIVE EQUIPMENT (PPE)**

For Activities Performed Outside of the Pharmacy						
Type of HD	Formulation	Activity	Double Gloves	Hazardous (Chemo) Gown	Eye Protection*	Respiratory Protection**
Antineoplastic	Tablets, Capsules and Oral Liquids	Administering/wasting from unit-dose package	No, single gloves only	No	Yes, if eye exposure potential	No
		<ul style="list-style-type: none"> Cutting, crushing, or otherwise manipulating tablets and capsules*** Administering/wasting manipulated tablets and capsules Reconstituting oral powders 	Yes	Yes	Yes, if eye exposure potential	Yes
	Injectables, Topicals and Other Dosage Forms	<ul style="list-style-type: none"> Administering/wasting Reconstituting injectable or topical powders Withdrawing from vial or ampoule 	Yes	Yes	Yes, if eye exposure potential; Required with BCG and Talimogene Laherparepvec	Yes, if inhalation potential; Required with BCG
Non-Antineoplastic	Tablets, Capsules and Oral Liquids	Administering/wasting from unit-dose package	No, single gloves only	No	Yes, if eye exposure potential	No
		<ul style="list-style-type: none"> Cutting, crushing, or otherwise manipulating tablets and capsules*** Administering/wasting manipulated tablets and capsules Reconstituting oral powders 	No, single gloves only	No	Yes, if eye exposure potential	Yes
	Injectables, Topicals and Other Dosage Forms	<ul style="list-style-type: none"> Administering/wasting Reconstituting injectable or topical powders Withdrawing from vial or ampoule 	No, single gloves only	No	Yes, if eye exposure potential	Yes, if inhalation potential
All HDs	All formulations	Handling product when removing from a sealed transport bag****	No, single gloves only	No	No	No
	Contaminated body fluid (up to 48 hours after receiving HDs)	Handling and disposal	Yes	Yes	Yes, if eye exposure potential	Yes, if inhalation potential
	Spills and leaks	Cleaning	Yes	Yes	Yes	Yes
	Contaminated clothing, dressings, linens, and other materials	Disposal and cleaning	Follow Standard Precautions			

* Full face shield or a combination of goggles and N-95 are used when liquid could splash or when full eye and face protection is needed (e.g., working above eye level, cleaning spills, intraoperative bladder treatments, aerosol treatments, disposal of contaminated body fluids).

**N-95 Respiratory Mask to be worn when there is risk of splashes, droplets, sprays, or airborne particles (e.g., spills, irrigation solutions, aerosol treatments, manipulation of tablets and capsules). A Powered Air Purifying Respirator (PAPR) with chemical cartridge is worn (1) when cleaning large spills (requiring more than one spill kit) or (2) for the following medications when a CSTD cannot be used for administration or when cleaning a spill : Carmustine, Cisplatin, Cyclophosphamide, Etoposide, 5-fluorouracil, Ifosfamide, Nitrogen mustard, Thiopeta

*** Avoid cutting or crushing tablets and opening capsules, whenever possible. Use pill crushers with handles and associated pouches that will contain medications to avoid cross-contamination. If liquid formulation is needed, contact the pharmacy.

****Handling hazardous medications during automated medication cabinet activities (e.g., loading, removing, returning) is considered minimal risk and no PPE is required.

**HAZARDOUS MEDICATION PRECAUTIONS:
PERSONAL PROTECTIVE EQUIPMENT (PPE)**

For Activities Performed Within the Pharmacy

Formulation	Activity	Type of HD	Double Gloves	Hazardous (Chemo) Gown	Shoe covers	Eye Protection	Respiratory Protection*	Perform in Biological Safety Cabinet (BSC)**
All formulations	<ul style="list-style-type: none"> • Receiving • Unpacking • Placing in storage*** 	All HDs	No, single gloves only	No	No	No	No	No
All formulations	<ul style="list-style-type: none"> • Cutting, crushing, or otherwise manipulating tablets and capsules • Reconstituting oral and topical powders • Sterile and non-sterile compounding 	All HDs	Yes (Phenol use double nitrile gloves)	Yes	Yes	No	No	Yes
<ul style="list-style-type: none"> • Tablets • Capsules • Oral or topical liquids 	<ul style="list-style-type: none"> • Counting or repackaging • Pouring liquids from one container to another 	All HDs	No, single gloves only	No	No	No	No	No
Spills and leaks	<ul style="list-style-type: none"> • Cleaning spills 	All HDs	Yes	Yes	Yes	Yes	Yes	N/A
Cleaning	<ul style="list-style-type: none"> • Monthly cleaning of Biological Safety Cabinet (BSC) 	All HDs	Yes	Yes	Yes	Yes	Yes	Yes

*For monthly cleaning of BSC, large spills (requiring more than one spill kit), or any spill of the following medications, a Powered Air Purifying Respirator (PAPR) with chemical cartridge is worn: Carmustine, Cisplatin, Cyclophosphamide, Etoposide, 5-fluorouraci, Ifosfamide, Nitrogen mustard, Thiotepea. For all other spills, an N-95 respirator is worn.

** If BSC is not available, refer to the PPE Chart for Activities Performed Outside of the Pharmacy

***Handling hazardous medications during automated medication cabinet activities (e.g., loading, removing, returning) is considered minimal risk and no PPE is required.

VUMC Hazardous Medication List

This document correlates directly with VUMC Policy: Hazardous Medication Handling

Refer to Hazardous Medication Precautions - Personal Protective Equipment (PPE) charts to identify PPE; note separate charts for activities performed outside the pharmacy vs those within the pharmacy.

Note: Antineoplastic medications are highlighted in yellow

Generic Name	Trade Name
abacavir	Ziagen
abemaciclib	Verzenio
abiraterone	Yonsa, Zytiga
acalabrutinib	Calquence
acitretin	Soriatane
ado-trastuzumab	Kadcyla
afatinib	Gilotrif
alectinib	Alecensa
alpelisib	Piqray
alitretinoin	Panretin
altretamine	Hexalen
ambrisentan	Letairis
amsacrine	AMSA PD
anastrozole	Arimidex
apalutamide	Erleada
apomorphine	Apokyn
arsenic trioxide	Trisenox
avapritinib	Ayvakit
axitinib	Inlyta
aza CITID ine	Vidaza, Onureg
aza THIO prine	Imuran
baricitinib	Olumiant
BCG vaccine	Theracys; Tice Vaccine
belantamab mafodotin-blmf	Blenrep
belinostat	Beleodaq
bendamustine	Bendeka, Treanda
bexarotene	Targretin
bicalutamide	Casodex
binimetinib	Mektovi
bleomycin	Blenoxane
bortezomib	Velcade
bosentan	Tracleer
bosutinib	Bosulif
brentuximab vedotin	Adcetris
brigatinib	Alunbrig
busulfan	Busulfex; Myleran
cabazitaxel	Jevtana
cabergoline	Dostinex
cabozantinib	Cabometyx; Cometriq
capecitabine	Xeloda
capmatinib	Tabrecta
car BAM azepine	Tegretol

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Generic Name	Trade Name
CARBO platin	Paraplatin
carfilzomib	Kyprolis
carmustine	BiCNU, Gliadel
ceritinib	Zykadia
cetorelix	Cetrotide
chlorambucil	Leukeran
chloramphenicol	Econochlor; Chloromycetin
choriogonadotropin	Ovidrel
cidofovir	Vistide
CIS platin	Platinol-AQ
cladribine	Leustatin; 2-CDA, Mavenclad
clofarabine	Clolar
clomi PHENE	Clomid
clonaze PAM	Klonopin
cobimetinib	Cotellic
colchicine	Colcrys
crizotinib	Xalkori
cyclophosphamide	Cytoxan
cyclo SPORINE	Sandimmune; Neoral; Gengraf
cytarabine	ARA-C; Cytosar-U
cytarabine, liposomal	Depocyt
dabrafenib	Tafinlar
dacarbazine	DTIC
dacomitinib	Vizimpro
DACTIN omycin	Cosmegen
darolutamide	Nubeqa
dasatinib	Sprycel
DAUNO rubicin	Cerubidine; Daunomycin
DAUNO rubicin, liposomal	Daunoxome
decitabine	Dacogen
decitabine / cedazuridine	Inqovi
deferiprone	Ferriprox
degarelix	Firmagon
dexrazoxane	Zinecard; Totect
diethylstilbestrol	NA
dinoprostone	Prepidil
divalproex	Depakote
DOCE taxel	Taxotere
DOXO rubicin	Adriamycin
DOXO rubicin, liposomal	Doxil; Lipodox
dronedarone	Multaq
dutasteride	Avodart
efavirenz	Sustiva
enasidenib	Idhifa

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Generic Name	Trade Name
enfortumab vedotin	Padcev
entecavir	Baraclude
entrectinib	Rozlytrek
enzalutamide	Xtandi
epiRUBicin	Ellence
erdafitinib	Balversa
ergonovine/methylergonovine	Ergotrate, Methergine
eriBULin	Halaven
erlotinib	Tarceva
eslicarbazepine	Aptiom
estradiol	All trade names
estramustine	Estracyt
estrogen/progesterone combinations	All trade names
estrogens	All trade names
estropipate	Ogen
etoposide	Toposar; VP 16
etoposide phosphate	Etopophos
everolimus	Afinitor
exemestane	Aromasin
fam-trastuzumab deruxtecan-nxki	Enhertu
fedratinib	Inrebic
finasteride	Propecia; Proscar
fingolimod	Gilenya
floxuridine	FUDR
fluconazole	Diflucan
fludarabine	Fludara
fluorouracil	Fluorouracil (5-FU), Efudex
fluoxymesterone	Halotestin
flutamide	Eulexin
fosphenytoin	Cerebyx
fostatinib	Tavalisse
fulvestrant	Faslodex
ganciclovir	Cytovene
ganirelix	Antagon
gefitinib	Iressa
gemcitabine	Gemzar
gemtuzumab ozogamicin	Mylotarg
gilteritinib	Xospata
gonadotropin, chorionic	Novarel, Pregnyl
goserelin	Zoladex
histrelin	Supprelin
hydrochloric acid (2N concentrated solution; diluted)	hydrochloric acid
hydroxyurea	Hydrea
ibrutinib	Imbruvica

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Generic Name	Trade Name
icatibant	Firazyr
ID arubicin HCL	IDArubicin HCL
idelalisib	Zydelig
ifosfamide	Ifex
imatinib mesylate	Gleevec
inotuzumab ozogamicin	Besponsa
irinotecan	Camptosar
ISO tretinoin	Accutane, Claravis
ivosidenib	Tibsovo
ixabepilone	Ixempra
ixazomib	Ninlaro
lapatinib	Tykerb
larotrectinib	Vitrakvi
leflunomide	Arava
lenalidomide	Revlimid
lenvatinib	Lenvima
letrozole	Femara
leuprolide	Eligard, Lupron, Fensolvi
liraglutide recombinant	Victoza
lomitapide	Juxtapid
lomustine	CeeNU
lurbinectedin	Zepzelca
macitentan	Opsumit
mechlorethamine	Mustargen, Valchlor
medroxy PROGESTER one acetate	Provera, Depo-Provera, Depo-SubQ Provera
megestrol	Megace, Megestrol
melphalan	Alkeran, Evomela
menotropins	Repronex
mercaptopurine	Purinethol
meth IMA azole	Tapazole
METHO trexate	Mexate-AQ
methyl TESTOSTER one	Android, Methitest
midostaurin	Rydapt
mifepristone	Korlym
mipomersen	Kynamro
mi SOPRO stol	Cytotec
mito MY cin	Mutamycin
mitotane	Lysodren
mito XANTRONE	Novantrone
moxetumomab pasudotox-tdfk	Lumoxiti
mycopheno LATE mofetil	Cellcept
mycopheno LIC ACID	Myfortic
nab- PACL itaxel protein-bound particles	Abraxane

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Generic Name	Trade Name
nafarelin	Synarel
nelarabine	Arranon
neratinib	Nerlynx
nevirapine	Viramune
nilotinib	Tasigna
nintedanib	Ofev
niraparib	Zejula
olaparib	Lynparza
olaratumab	Lartruvo
omacetaxin	Synribo
osimertinib	Tagrisso
ospemifene	Osphepa
oxaliplatin	Eloxatin
OX carbazepine	Trileptal
oxytocin	Pitocin, Syntocinon
PACL itaxel	Taxol
palbociclib	Ibrance
palifermin	Kepivance
paliperidone	Invega
pamidronate	Aredia
panobinostat	Farydak
PAR oxetine	Paxil
pasireotide	Signifor
PAZO panib	Votrient
PEME trexed disodium	Alimta
pemigatinib	Pemazyre
pentetate calcium trisodium	N/A
pentostatin	Nipent
pertuzumab	Perjeta
Pertuzumab / Traztuzumab / Hyaluronidase-zzxf	Phesgo
pexidartinib	Turalio
phenol	N/A
phenoxybenzamine	Dibenzyline
phenytoin	Dilantin
pipobroman	Vercite
plerixafor	Mozobil
polatuzumab vedotin	Polivy
pomalidomide	Pomalyst
PONAT inib	Iclusig
PRALA trexate	Folotyn
procarbazine	Matulane
progesterone	All trade names
progestins	All trade names
propylthiouracil	Propyl-Thyracil

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Generic Name	Trade Name
raloxifene	Evista
rasagiline	Azilect
regorafenib	Stivarga
ribavirin	Virazole, Rebetrol
ribociclib	Kisqali
riociguat	Adempas
ripretinib	Qinlock
risperidone	Risperdal
romidepsin	Istodax
rucaparib	Rubraca
ruxolitinib	Jakafi
sacituzumab govitecan-hziy	Trodelyv
selpercatinib	Retevmo
selumetinib	Koselugo
siponimod	Mayzent
sirolimus	Rapamune
sonidegib	Odomzo
sorafenib	Nexavar
spironolactone	Aldactone
streptozocin	Zanosar
sunitinib	Sutent
tacrolimus	Astragraf XL, Envarsus XR, Prograf, Protopic
talazoparib	Talzenna
talimogene laherparepvec	Imlygic
tamoxifen	Nolvadex
tazemetostat	Tazverik
telavancin	Vibativ
temazepam	Restoril
temozolomide	Temodar
temsirolimus	Torisel
teniposide	Vumon
teprotumumab-trbw	Tepezza
teriflunomide	Aubagio
testosterone	All trade names
thalidomide	Thalomid
thioguanine	Tabloid
thiotepa	Thiotepa, Tepadina
tofacitinib	Xeljanz
topiramate	topamax
topotecan	Hycamtin
toremifene	Fareston
trabectedin	Yondelis
trametinib	Mekinist
trastuzumab	Herceptin, Kanjinti

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Generic Name	Trade Name
trastuzumab / hyaluronidase	Herceptin Hylecta
tretinoin (All Trans Retinoic Acid or ATRA)	Retin-A, Vesanoid
trifluridine/tipiracil hydrochloride	Lonsurf
triptorelin	Trelstar, Triptodur
tucatinib	Tukysa
ulipristal	Ella
upadacitinib	Rinvoq
uracil mustard	NA
valGANciclovir	Valcyte
valproate/valproic acid	Depakote
valrubicin	Valstar
vandetanib	Caprelsa
vemurafenib	Zelboraf
venetoclax	Venclexta
vigabatrin	Sabril
vinBLAS ^{tine}	vinBLAS ^{tine}
vinCRIS ^{tine}	Vincaspar PFS
vinorelbine	Navelbine
vismodegib	Erivedge
voriconazole	Vfend
vorinostat	Zolinza
warfarin	Coumadin
zanubrutinib	Brukinsa
zidovudine	Retrovir
ziprasidone	Geodon
ziv-aflibercept	Zaltrap
zoledronic acid	Reclast, Zometa
zonisamide	Zonegran

References:

1. National Institute for Occupational Safety and Health (NIOSH) List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings, 2016. Retrieved from http://www.cdc.gov/niosh/topics/antineoplastic/pdf/hazardous-drugs-list_2016-161.pdf
2. Vanderbilt Specialty Pharmacy Drug List,
3. VUMC Safety Policy: Hazardous Medication Handling
4. Pharmacy SOP: Hazardous Medication and Product Handling