

Hazardous Medication List

Reducing occupational exposure to hazardous medications
for **ALL STAFF**

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Alberta Health Services / Covenant Health Hazardous Medication Classification

<p>KNOWN Hazard Medication</p>	<p>These medications are mainly antineoplastic medications as per National Institute for Occupational Safety and Health (NIOSH) Table 1, predominantly used in the treatment of cancer (chemotherapy) and in some cases, used for the treatment of other conditions (e.g., psoriasis, rheumatoid arthritis). KNOWN hazard medications are carcinogenic, cytotoxic and/or have manufacturer special handling information (MSHI) to protect workers handling the medications. Not all KNOWN hazard medications are cytotoxic or anti-neoplastic. These medications present a serious risk to the health or welfare of healthcare staff during occupational exposure.</p>
<p>POTENTIAL Hazard Medication</p>	<p>These medications meet one or more of NIOSH’s criteria for a hazardous medication but are not drugs that are known to be carcinogenic or probably carcinogenic.</p>
<p>REPRODUCTIVE Hazard Medication</p>	<p>These are mainly non-antineoplastic medications that only meet the NIOSH criteria as a developmental and/or reproductive hazard. They are not drugs that are known or probable carcinogenic agents.</p> <p>These medications may present an occupational exposure risk <u>only for certain individuals</u>; staff of childbearing years regardless of gender with a potential to conceive or fertilize, women who are pregnant, or women who are breast feeding.</p> <p>Should staff members have specific questions, they should discuss with their supervisors in consultation with their personal physicians and Workplace Health and Safety (WHS) to assess the risk of occupational exposure to these medications and the option of temporarily refraining from handling hazardous medications.</p> <p>Certain Reproductive Hazard Medications may only be applicable to a subset of the Reproductive population; see key points below.</p>
































Hazardous Medication List – Key Points

	Indicates the medication is a CYTOTOXIC agent. Cytotoxic refers to a substance or process which results in cell damage or cell death.
	Indicates REPRODUCTIVE Hazard Medications applicable to a subset of the reproductive population. <ul style="list-style-type: none">• Some REPRODUCTIVE Hazard medications have been identified to have specific parameters and may only be applicable to a subset of the reproductive population.• Refer to Appendix A for more detailed medication-specific information.
	Operational challenges have been identified and implementation is in progress.
	Gene therapy products require specialized clean up if spilled. AHS/COV staff:-Please contact the Hazardous Medication team at hazardousmedication@ahs.ca for details.
<p>The following products are NOT listed on the Hazardous Medication List, but may require special handling precautions:</p> <ul style="list-style-type: none">• Salts, PEGylated and liposomal medication - only the <i>parent compound</i> is listed (e.g., doxorubicin)• Combination products containing a hazardous medication. (e.g., spironolactone-hydrochlorothiazide)• Investigational / Clinical Trial medication as toxicological data is often incomplete or unavailable, except where current data indicates a hazardous risk. Follow the study protocol for safe handling precautions.• Chemicals and / or raw powders; follow the Safety Data Sheet (SDS) for safe handling precautions.• Radiopharmaceuticals: Nuclear Medicine has policies and procedures for the handling of these products	
<p>The Hazardous Medication List will be reviewed and updated on a periodic basis as new medication or information becomes available.</p> <p>Refer to Insite for the most current version.</p>	

HAZARDOUS MEDICATIONS

COMPLETE List:

K = KNOWN, P = POTENTIAL, R = REPRODUCTIVE

A							
abacavir	P	bosutinib	K	cyproterone	P	eriBULin	 K
abemaciclib	R	brentuximab vedotin	 K	cytarabine	 K	erlotinib	K
abiraterone	K	brigatinib	R	D		eslicarbazepine	R
acalabrutinib	 K	buserelin	K	daBRAFeNib	K	estradiol	P
acitretin	R	busulfan	 K	dacarbazine	 K	estramustine	 K
AFAtinib	K	C		dacomitinib	R	estrogen - conjugated	P
alefacept	P	cabazitaxel	 K	DACTINomycin	 K	estrogen - esterfied	P
alitreinoin	R	cabergoline	R	danazol	R	estrogen / progesterone combinations	P
alpelisib	R	cabozantinib	K	darolutamide	P	estropipate	P
altretamine	 K	capmatinib	R	daSATinib	K	etoposide	 K
ambrisentan	R	capecitabine	 K	DAUNOrubicin	 K	everolimus	 K
amifampridine	P	carBAMazepine	P	decitabine	 K	exemestane	K
amifostine	R	carbetocin	*	deferiprone	P	exenatide	P
amsacrine	 K	CARBOplatin	 K	degarelix	K	F	
anastrozole	K	carboprost	R	dexMEDEtomidine	 R	fedratinib	R
apalutamide	P	carfilzomib	 K	dexrazoxane	 K	finasteride	R
apomorphine	P	carmustine	 K	diethylstilbestrol	K	fingolimod	P
arsenic trioxide	 K	cenobamate	R	dihydroergotamine	R	floxuridine	 K
asciminib	R	ceritinib	R	dinoprostone	R	fluCONazole	R
avacopan	R	cetorelix acetate	R	divalproex sodium	R	fludarabine	 K
avapritinib	R	chlorambucil	 K	DOCEtaxel	 K	fluorouracil (5FU)	 K
aXitinib	K	chloramphenicol	K	DOXOrubicin	 K	fluoxymesterone	P
azaCITIDine	 K	chlormethine	 K	dronedarone	R	flutamide	K
azaTHIOprine	 K	choriogonadotropin alpha	R	dutasteride	R	fosphenytoin	P
B		cidofovir	K	E		fulvestrant	K
bacillus calmette-guérin (BCG)	 K	CISplatin	 K	edaravone	R	G / H	
baricitinib	P	cladribine	 K	enasidenib	P	ganciclovir	P
belantamab mafodotin	 K	cloBAZam	R	encorafenib	K	ganirelix acetate	R
belinostat	 K	clofarabine	 K	enfortumab vedotin	 K	gefitinib	K
bendamustine	 K	clomiPHENE	R	entecavir	P	gemcitabine	 K
bexarotene	K	clonazePAM	R	entrectinib	P	gemtuzumab ozogamicin	 K
bicalutamide	K	cobimetinib	R	enzalutamide	K	gilteritinib	P
bleomycin	 K	colchicine	R	epcoritamab	 K	glasdegib	P
blinatumomab	P	crizotinib	K	epiRUBicin	 K	gonadotropin, chorionic	R
bortezomib	 K	cyclophosphamide	 K	erdafitinib	P	goserelin	K
bosentan	R	cycloSPORINE	P	ergonovine (ergometrine) / methylegonovine	R	guadecitabine	 K

Bold BLUE type indicates a medication newly listed as of August 2023

* Reproductive Hazard Medication applicable to a subset of the reproductive population. See Appendix A

● Indicates a special circumstance. See information on page v.

◆, ■, and ◇ See special handling precautions on page 10.

HAZARDOUS MEDICATIONS

COMPLETE List (continued):

K = KNOWN, P = POTENTIAL, R = REPRODUCTIVE

histrelin	K
hydroxyUREA	K
I	
icatibant	R
IDArubicin	K
ifosfamide	K
iMAtinib	K
inotuzumab ozogamicin	K
irinotecan	K
isatuximab	R
ISOtretinoin	R
ivabradine	R
ixabepilone	K
ixazomib	K
J / K / L	
larotrectinib	R
leflunomide	P
lenalidomide	K
lenvatinib	R
letrozole	K
leuprolide	K
levonorgestrel	P
liraglutide recombinant	P
lomitapide	R
lomustine	K
lonafarnib	R
loncastuximab tesirine	K
lorlatinib	R
lurbinectedin	K
M	
macitentan	R
mavacamten	P
mecasermin	K
medroxyPROGESTERone	P
megestrol	K
melphalan	K
melphalan flufenamide	K
menotropins	R
mercaptopurine	K
methIMAZole	P
methotrexate	K
methylTESTOSTERone	R
midostaurin	K
miFEPRISone	R
miltefosine	R
mipomersen	P
mirvetuximab soravtansine	K
miSOPROStol	R
mitoMYcin	K
mitotane	K
mitoXANTRONE	K
mycophenolate mofetil	P
mycophenolic acid	P
N	
nafarelin	R
nelarabine	K
neratinib	P
nevirapine	P
niLOtinib	K
niraparib	K
O	
olaparib	P
omacetaxine	K
onasemnogene abeparvovec	K
ospemifene	P
oxaliplatin	K
oxandrolone	R
OXcarbazepine	P
oxytocin	R
P	
PACLitaxel	K
pacritinib	R
palifermin	P
pamidronate	R
panobinostat	K
PARoxetine	R
pasireotide	R
PAZOPanib	K
peginesatide	R
PEMEtrexed	K
pemigatinib	P
pentamidine	R
pentetate calcium	R
pentostatin	K
phenoxybenzamine	P
phenYTOIN	P
pipobroman	K
piritrexim isethionate	K
plerixafor	R
polatuzumab vedotin	K
pomalidomide	K
PONATinib	K
porfimer	K
posaconazole	R
PRALAtrexate	K
pralsetinib	P
procarbazine	K
progesterone	P
progestins	P
propylthiouracil	P
Q / R	
raloxifene	P
raltitrexed	K
rasagiline	P
regorafenib	K
remdesivir	P
ribavirin	R
ribociclib	R
riociguat	R
romiDEPsin	K
S	
sacituzumab govitecan	K
selinexor	R
selpercatinib	R
selumetinib	R
semaglutide	K
sirolimus	P
siponimod	R
sodium phenylbutyrate - ursodoxicoltaurine	R
sonidegib	R
SORAFenib	K
sotorasib	P
spironolactone	P
streptozocin	K
SUNItinib	K
T	
tacrolimus	P
tagraxofusp	K
talazoparib	K
tamoxifen	K
temazepam	R
temozolomide	K
temsrolimus	K
teniposide	K
teriflunomide	P
testosterone	R
thalidomide	K
thioguanine	K
thiotepa	K
tisotumab vedotin	K

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◆, ■, and ◇ See special handling precautions on page 10.

HAZARDOUS MEDICATIONS

COMPLETE List (continued):

K = KNOWN, P = POTENTIAL, R = REPRODUCTIVE

tofacitinib	P	tretinoin	R	valrubicin	▲ K	vorinostat	▲ K
topiramate	R	trifluridine / tipiracil (combination only)	▲ K	vanDETanib	K	W / X / Y / Z	
topotecan	▲ K	triptorelin	K	vemURAFenib	K	warfarin	R
toremifene	R	tucatinib	R	venetoclax	▲ K	zanubrutinib	K
trabectedin	▲ K	U / V		vigabatrin	R	zidovudine	P
trametinib	K	ulipristal	R	vinBLASStine	▲ K	ziprasidone	R
trastuzumab	R	upadacitinib	P	vinCRISStine	▲ K	ziv- aflibercept	K
trastuzumab deruxtecan	▲ K	uracil mustard	▲ K	vinorelbine	▲ K	zoledronic acid	R
trastuzumab emtansine	▲ K	urofollitropin	R	vismodegib	K	zonisamide	R
treosulfan	▲ K	valGANciclovir	P	voretigene neparvovec	■ K		
		valproate / valproic acid	R	voriconazole	R		

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* Reproductive Hazard Medication applicable to a subset of the reproductive population. See Appendix A

● Indicates a special circumstance. See information on page v.

◆, ■, and ◇ See special handling precautions on page 10.

KNOWN HAZARDOUS MEDICATIONS

KNOWN Hazardous Medication List:























A			
abiraterone			
acalabrutinib		chlormethine	
AFAtinib		cidofovir	
altretamine		CISplatin	
amsacrine		cladribine	
anastrozole		clofarabine	
arsenic trioxide		crizotinib	
aXitinib		cyclophosphamide	
azaCITIDine		cytarabine	
azaTHIOprine		D	
B		daBRAFeNib	
bacillus calmette-guérin (BCG)		dacarbazine	
belantamab mafodotin		DACTINomycin	
belinostat		daSATinib	
bendamustine		DAUNOrubicin	
bexarotene		decitabine	
bicalutamide		degarelix	
bleomycin		dexrazoxane	
bortezomib		diethylstilbestrol	
bosutinib		DOCEtaxel	
brentuximab vedotin		DOXOrubicin	
buserelin		E	
busulfan		encorafenib	
C		enfortumab vedotin	
cabazitaxel		enzalutamide	
cabozantinib		epcoritamab	
capecitabine		epiRUBicin	
CARBOplatin		eriBULin	
carfilzomib		erlotinib	
carmustine		estramustine	
chlorambucil		etoposide	
chloramphenicol		everolimus	
		exemestane	
		F	
		floxuridine	
		fludarabine	
		fluorouracil (5FU)	
		flutamide	
		fulvestrant	
		G / H	
		gefitinib	
		gemcitabine	
		gemtuzumab ozogamicin	
		goserelin	
		guadecitabine	
		histrelin	
		hydroxyUREA	
		I	
		IDArubicin	
		ifosfamide	
		iMAtinib	
		inotuzumab ozogamicin	
		irinotecan	
		ixabepilone	
		ixazomib	
		J / K / L	
		lenalidomide	
		letrozole	
		leuprolide	
		lomustine	
		loncastuximab tesirine	
		lurbinectedin	
		M	
		mecasermin	
		megestrol	
		melphalan	
		melphalan flufenamide	
		mercaptopurine	
		methotrexate	
		midostaurin	
		mirvetuximab soravtansine	
		mitoMYcin	
		mitotane	
		mitoXANTRONE	
		N	
		nelarabine	
		niLOtinib	
		niraparib	
		O	
		omacetaxine	
		onasemnogene abeparvovec	
		oxaliplatin	
		P	
		PACLitaxel	
		panobinostat	
		PAZOPanib	
		PEMEtrexed	
		pentostatin	
		pipobroman	
		piritrexim isethionate	
		polatuzumab vedotin	
		pomalidomide	
		PONATinib	
		porfimer	
		PRALAtrexate	
		procarbazine	
		Q / R	
		raltitrexed	
		regorafenib	
		romiDEPsin	
		S	
		sacituzumab govitecan	

Bold BLUE type indicates a medication newly listed as of August 2023

◆, ■ See special handling precautions on page 10.

KNOWN HAZARDOUS MEDICATIONS

KNOWN Hazardous Medication List (continued):

semaglutide	teniposide 	treosulfan 	vinCRIS ^t ine 
SORAFenib	thalidomide	trifluridine / tipiracil (combination only) 	vinorelbine 
streptozocin 	thioguanine 	triptorelin	vismodegib
SUNItinib	thiotepa 	U / V	voretigene neparvovec 
T	tisotumab vedotin 	uracil mustard 	vorinostat 
tagraxofusp 	topotecan 	valubicin 	W / X / Y / Z
talazoparib 	trabectedin 	vanDETanib	zanubrutinib
tamoxifen	trametinib	vemURAFenib	ziv- aflibercept
temozolomide 	trastuzumab deruxtecan 	venetoclax 	
temsirolimus	trastuzumab emtansine 	vinBLAS ^t ine 	

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◆, ■ See special handling precautions on page 10.

POTENTIAL HAZARDOUS MEDICATIONS

POTENTIAL Hazardous Medication List:

A	erdafitinib	M	progesterone
abacavir	estradiol	mavacamten	progestins
alefacept	estrogen - conjugated	medroxyPROGESTERone	propylthiouracil
amifampridine	estrogen - esterified	methIMAzole	Q / R
apalutamide	estrogen / progesterone combinations	mipomersen	raloxifene
apomorphine	estropipate	mycophenolate mofetil	rasagiline
B	exenatide	mycophenolic acid	remdesivir
baricitinib	F	N	S
blinatumomab	fingolimod	neratinib	sirolimus
C	fluoxymesterone	nevirapine	sotorasib
carBAMazepine	fosphenytoin	O	spironolactone
cycloSPORINE	G / H	olaparib	T
cyproterone	ganciclovir	ospemifene	tacrolimus
D	gilteritinib	OXcarbazepine	teriflunomide
darolutamide	glasdegib	P	tofacitinib
deferiprone	I / J / K / L	palifermin	U / V
E	leflunomide	pemigatinib	upadacitinib
enasidenib	levonorgestrel	phenoxybenzamine	valGANciclovir
entecavir	liraglutide recombinant	phenyTOIN	W / X / Y / Z
entrectinib		pralsetinib	zidovudine

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REPRODUCTIVE HAZARDOUS MEDICATIONS

REPRODUCTIVE Hazardous Medication List:

(applicable to staff members of any gender with reproductive potential)

A	dacomitinib	lomitapide	riociguat
abemaciclib	danazol	lonafarnib	S
acitretin	dexMEDEtomidine ●	lorlatinib	selinexor
alitretinoin	dihydroergotamine	M	selpercatinib
alpelisib	dinoprostone	macitentan	selumetinib
ambrisentan	divalproex sodium	menotropins	siponimod
amifostine	dronedarone	methylTESTOSTERone	sodium phenylbutyrate - ursodoxicoltaurine
asciminib	dutasteride	miFEPRIStone	sonidegib
avacopan	E	miltefosine	T
avapritinib	edaravone	miSOPROStol	temazepam
B	ergonovine (ergometrine) / methylergonovine	N	testosterone
bosentan	eslicarbazepine	nafarelin	topiramate
brigatinib	F	O	toremifene
C	fedratinib	oxandrolone	trastuzumab
cabergoline	finasteride	oxytocin ★	tretinoin
capmatinib	fluCONazole	P	tucatinib
carbetocin ★	G / H	pacritinib	U / V
carboprost	ganirelix acetate	pamidronate	ulipristal
cenobamate	gonadotropin, chorionic	PARoxetine	urofollitropin
ceritinib	I	pasireotide	valproate / valproic acid
cetorelix acetate	icatibant	peginesatide	vigabatrin
choriogonadotropin alpha	isatuximab	pentamidine ◆	voriconazole
cloBAZam	ISOTretinoin	pentetate calcium	W / X / Y / Z
clomiPHENE	ivabradine	plerixafor	warfarin
clonazePAM	J / K / L	posaconazole	ziprasidone
cobimetinib	larotrectinib	Q / R	zoledronic acid
colchicine	lenvatinib	ribavirin	zonisamide
D		ribociclib	

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★ REPRODUCTIVE Hazard Medication applicable to a subset of the reproductive population. See Appendix A

● Indicates a special circumstance. See information on page v.

◆ Special handling conditions. See page 10.

Medications removed from previous Hazardous Medication List:

- **atezolizumab:** change from REPRODUCTIVE to NOT hazardous: Although there is reproductive risk for patients, the danger to the fetus appears to be related to PD-1 and should not pose a risk to healthcare professionals. In addition, this would align with NIOSH findings for nivolumab and pembrolizumab, both of which also target PD-1.
- **avelumab:** change from REPRODUCTIVE to NOT hazardous: Although there is reproductive risk for patients, the danger to the fetus appears to be related to PD-1 and should not pose a risk to healthcare professionals. In addition, this would align with NIOSH findings for nivolumab and pembrolizumab, both of which also target PD-1.
- **durvalumab:** change from REPRODUCTIVE to NOT hazardous: Although there is reproductive risk for patients, the danger to the fetus appears to be related to PD-1 and should not pose a risk to healthcare professionals. In addition, this would align with NIOSH findings for nivolumab and pembrolizumab, both of which also target PD-1.
- **lapatinib:** NIOSH reviewed this medication and determined it has a toxic effect that does not meet the NIOSH definition of a hazardous drug.

Special Handling Considerations for Specified Hazardous Medications

◆ Bacillus Calmette-Guérin vaccine (BCG)

BCG, although classified as a vaccine, is used in the treatment of certain cancers. BCG should be prepared with aseptic techniques. To avoid cross-contamination, parenteral drugs should not be prepared in areas where BCG has been prepared. A separate area for the preparation of BCG suspension is recommended. All equipment, supplies, and receptacles in contact with BCG should be handled and disposed of as biohazardous. If preparation cannot be performed in a containment device, then respiratory protection, gloves, and a gown should be worn to avoid inhalation or contact with BCG organisms. Follow special handling guidelines.

BCG requires specialized clean up if spilled. AHS/COV staff: see the Hazardous Medication Insite page to access Lippincott Procedures: *Hazardous medication spill response* for information on handling hazardous medication spills including BCG.

Monoclonal Antibodies (mAbs)

While many monoclonal antibodies are classified by American Hospital Formulary Service (AHFS) as 10:00 antineoplastic medication, they are not typically classified as hazardous medication by NIOSH.

Monoclonal antibodies included on the Hazardous Medication List require handling precautions as per the PPE Guide.

◆ Pentamidine

For inhalation (administered by respiratory therapist). AHS/COV staff: follow special handling guidelines on the Respiratory Therapy Insite Page linked under Resources on the Hazardous Medication Insite page.

Extended Precautionary Period for Hazard Medications

A. KNOWN Hazard Medications Requiring PPE for Longer than 48 Hoursⁱ

Some hazardous medications require a longer precautionary period based on the time of excretion from the body. The following hazardous medications require the appropriate PPE from the start of the time of administration of the KNOWN hazard medication up to the number of days listed. ⁱⁱ

Hazardous Medication	Suggested precautionary period
brentuximab vedotin	14 days
carmustine	7 days
cyclophosphamide	5 days
DOXOrubicin	7 days
enfortumab vedotin	7 days
eriBULin mesylate	5 days
etoposide	5 days
imatinib mesylate	7 days
inotuzumab ozogamicin	28 days
ixabepilone	5 days
lurbinectedin	5 days
midostaurin	42 days
mirvetuximab soravtansine	14 days
mitoXANTRONE	7 days
niraparib	5 days
onasemnogene abeparvovec	28 days
polatuzumab vedotin	28 days
talazoparib	7 days
temsirolimus	14 days
tisotumab vedotin	7 days
trabectedin	14 days
trastuzumab deruxtecan	28 days
voretigene neparvovec	14 days
vinCRISline	7 days
vinorelbine	5 days

B. POTENTIAL and REPRODUCTIVE Hazardous medications.

POTENTIAL and REPRODUCTIVE RISK hazard medications on the AHS Hazardous Medication List do not require a precautionary period.

This document is subject to change.

Bold BLUE type indicates a medication newly listed as of August 2023

Appendix A: Reproductive Population Subset

(**REPRODUCTIVE** Hazardous medications with special handling parameters are indicated with an asterisk in the hazardous medication list.)

Hazardous Medication	Background	Mechanism of Action	PPE Recommendations
oxytocin	Oxytocin has been identified as a hazardous medication by NIOSH. It is considered a Table 2, primarily having adverse reproductive effects. PPE requirements are only applicable to a subset of the reproductive population.	<p>Oxytocin stimulates uterine contraction by activating G-protein-coupled receptors that trigger increases in intracellular calcium levels in uterine myofibrils. Oxytocin also increases local prostaglandin production, further stimulating uterine contraction.</p> <p>Oxytocin has specific receptors in the muscle lining of the uterus and the receptor concentration increases greatly during pregnancy, reaching a maximum in early labor at term.</p>	<p>Oxytocin is considered a REPRODUCTIVE Risk Medication. Per the references, the reproductive risk is identified to be in pregnant women in the 2 or 3rd trimester.</p> <p>It is recommended that the Hazardous Medication PPE described in the Guide be worn by this select group. Other individuals in the reproductive population (as described in the guide) may also choose to wear the PPE when handling oxytocin if they prefer</p>
carbetocin	Carbetocin has not been identified as a hazardous medication by NIOSH as it is not available in the USA, however PHMC has determined it should be handled in a similar manner as oxytocin. PPE requirements are only applicable to a subset of the reproductive population.	<p>Carbetocin is a synthetic analogue of oxytocin.</p> <p>Carbetocin binds oxytocin receptors located in uterine smooth muscle producing rhythmic uterine contractions characteristic to deliver, as well as increasing both the frequency of existing contractions and uterine tone. Enhances uterine involution early in postpartum.</p>	<p>Carbetocin is considered a REPRODUCTIVE Risk Medication. Per the references, the reproductive risk is identified to be in pregnant women in the 2 or 3rd trimester.</p> <p>It is recommended that the Hazardous Medication PPE described in the Guide be worn by this select group. Other individuals in the reproductive population (as described in the guide) may also choose to wear the PPE when handling carbetocin if they prefer.</p>

If you require more detailed information, please contact hazardousmedication@ahs.ca

This document is subject to change

Appendix B: AHS Classification of Hazardous Medications

AHS Hazardous Medication List Review

NIOSH has not published a Hazardous Drug list since 2016. Although a 2018 list was drafted it was never published, and a 2020 list remains in draft form. The Provincial Hazardous Medication Committee (PHMC) recognized that many new medications have come to market since the last NIOSH list and staff needs to be able to handle these medications safely. As such, a working group within PHMC has developed the AHS Hazardous Medication List, using NIOSH publications as the basis for review.

The general process is described below:

1. Review the references:
 - a. Is there a Manufacturer Special Handling Information (MSHI) attached?
 - b. Do the references mention carcinogenicity?
 - c. Do the references mention cytotoxicity?

If YES place on AHS KNOWN Hazardous Medication List unless it is a monoclonal antibody (mAb). If NO **OR** a mAb, proceed to step 2.
2. If the medication is a mAb, review for specific hazardous handling:
 - a. Is there specific hazardous handling (safe handling) information that indicates a risk to handle this medication? If YES place on AHS KNOWN Hazardous Medication List. If NO proceed to step 3.
3. Determine if the medication meets the NIOSH definition of a hazardous drug but does NOT have a MSHI and the information includes one or more of the types of toxicity described in the NIOSH definition including:
 - developmental toxicity (including teratogenicity)
 - reproductive toxicity
 - genotoxicity
 - organ toxicity at low doses
 - structure and toxicity profile that mimics existing drugs determined hazardous by the above criteria.
 - a. View Lexicomp information
 - i. Search for hazardous handling information (note: Lexicomp may refer to 2016 NIOSH list) related to the toxicities above; review any precautions listed.
 - b. View the product monograph.
 - i. Does the product monograph list any of the toxicities mentioned above at doses lower than the human therapeutic dose?

If NO, do not add to the AHS Hazardous Medication List. If YES proceed to step 4.
4. Does the medication ONLY meet NIOSH criteria as a developmental and/or reproductive hazard?

If YES, add to the AHS REPRODUCTIVE Hazard list; If NO (i.e., has genotoxicity, organ toxicity etc.) then add to the AHS POTENTIAL Hazard medication list.

Appendix C: NIOSH Classification of Hazardous Medications

NIOSH List of Hazardous Drugs in Healthcare Settings, 2020 (currently in draft)	
<u>Group 1:</u>	Drugs that meet the NIOSH definition of a hazardous drug and contain MSHI in the package insert; and/or are classified by the NTP as “known to be a human carcinogen,” or classified by IARC as “carcinogenic” or “probably carcinogenic.” In the 2016 List this table identified antineoplastic drugs, however, in this update not all the drugs on Table 1 are antineoplastic drugs. Note that many of these medications may also pose a reproductive risk for susceptible populations. (NIOSH Table 1)
<u>Group 2:</u>	Drugs that meet one or more of the NIOSH definitions of a hazardous drug but are not drugs which have MSHI or are classified by the NTP as “known to be a human carcinogen,” or classified by the IARC as “carcinogenic” or “probably carcinogenic,” some of which also have adverse reproductive effects for populations at risk. This table now also includes drugs that only meet the NIOSH criteria as a developmental (including teratogenicity) and/or reproductive hazard. In the 2016 update of the List this table did not include drugs that only posed a developmental and/or reproductive hazard. (NIOSH Table 2)
In the 2016 List, Table 3 provided a list of drugs that met the NIOSH criteria of a reproductive hazard (damaging to a male or female person’s ability to conceive or carry to term an offspring) or developmental hazard (able to cause disruption in the development of unborn children including teratogenic outcomes). In this 2020 List, those drugs that only meet NIOSH’s criteria as a developmental and/or reproductive hazard are identified in the supplemental information column with a blue notification; a separate Table is no longer provided.	

Developed by: AHS – Provincial Hazardous Medication Committee (PHMC); Hazardous Medication Evaluation Panel; PHMC Hazardous Medication List Working Group; Pharmacy Services Medication Quality and Safety Team (MQST); Health Professions, Strategy and Practice (HPSP); Pharmacy Services Technical Practice Leads, Human Factors, Workplace Health and Safety (WHS), and COV Medication Management & Safety Team.

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Please direct questions related to safe handling of hazardous medications to the WHS Services Team in your Zone or send your questions to hazardousmedication@albertahealthservices.ca

Document History

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ⁱ Product information and monographs at Drug Product Database, Lexicomp, DrugBank, and U.S. National Library of Medicine (Dailymed)

ⁱⁱ Government of South Australia, Cytotoxic Drugs and Related Waste [Internet]Department for Health and Ageing, Government of South Australia; June 2015 [cited 2021 October 22]. Available from <https://www.sahealth.sa.gov.au/wps/wcm/connect/f8aa68004b3f6cf6a340afe79043faf0/Safe+Handling+Cytotoxic+Guidelines.pdf?MOD=AJPERES&%3bCACHEID=ROOTWORKSPACE-f8aa68004b3f6cf6a340afe79043faf0-nwLgTKw>