Christchurch Medicines Information Service
October 2025

CLINICAL PHARMACOLOGY
Te Whatu Ora Health New Zealand Waitaha Canterbury

medicines.information@cdhb.health.nz 03 364 0900 medicinesinformation.co.nz

Handling of Hazardous Medicines by Healthcare Workers

Medicines are considered hazardous if they can cause cancer, genetic mutations, reproductive harm, or serious organ toxicity at low doses. Risk from occupational exposure is dependent on several factors unique to each work setting such as:

- medicine formulation (route, frequency, duration, and magnitude of exposure).
- work practice (administration versus compounding or dispensing).
- presence or absence of personal protective equipment (PPE).
- personal risk factors such as pregnancy.

While systemic exposure from handling hazardous medicines is theoretically possible, specific quantitative data are very limited, and it is therefore recommended that PPE is used unless specific local institutional guidelines exist for individual medicines. This bulletin classifies the hazardous medicines available in Aotearoa, and provides information on safety measures to protect healthcare workers by minimising occupational exposure. International guidelines and classifications of hazardous medicines can vary quite widely; the tables below have been curated for Aotearoa healthcare settings based on the Australian eviQ guidelines and the USA's National Institute for Occupation Safety and Health (NIOSH). They are intended as a guide, rather than a complete representation of all hazardous medicines. All healthcare workers should use PPE for medicines in Table 1, and those who are pregnant or trying to conceive should use PPE for medicines in Tables 1 and 2.

Table 1: Cytotoxic Medicines

amsacrine	chlorambucil	epirubicin	ixazomib	procarbazine
arsenic trioxide	cidofovir	eribulin	lomustine	ralitrexed
azacitidine	cisplatin	etoposide	melphalan	temozolomide
azathioprine	cladribine	fludarabine	mercaptopurine	thiotepa
bendamustine	clofarabine	fluorouracil	methotrexate	tioguanine
bleomycin	cyclophosphamide	ganciclovir	mitomycin	topotecan
bortezomib	cytarabine	gemcitabine	mitotane	trastuzumab
brentuximab	dacarbazine	gemtuzumab	mitoxantrone	trifluridine + tipiracil
busulfan	dactinomycin	hydroxycarbamide	oxaliplatin	valganciclovir
cabazitaxel	daunorubicin	idarubicin	paclitaxel	vinblastine
capecitabine	dexrazoxane	ifosfamide	pegaspargase	vincristine
carboplatin	docetaxel	inotuzumab	pemetrexed	vindesine
carmustine	doxorubicin	irinotecan	pentostatin	

Table 2: Reproductive Hazardous Medicines (potential hazard to those who are pregnant or trying to conceive)

abemaciclib	cyproterone	ivabradine	osimertinib	testosterone
abiraterone	dabrafenib	leflunomide	oxcarbazepine	thalidomide
acitretin	dasatinib	lenalidomide	palbociclib	trametinib
afatinib	deferiprone	lenvatinib	pazopanib	topiramate
alectinib	dutasteride	letrozole	pembrolizumab	tretinoin
alitretinoin	encorafenib	leuprorelin	phenytoin	ulipristal
ambrisentan	enzalutamide	macitentan	plerifaxor	vemurafenib
atezolizumab	finasteride	medroxyprogesterone	pomalidomide	vigabatrin
axitinib	fingolimod	megestrol	ponatinib	vismodegib
bicalutamide	finasteride	midostaurin	propylthiouracil	warfarin
binimetinib	fluconazole	mifepristone	raloxifene	zonisamide
bosentan	flutamide	misoprostol	regorafenib	
carbamazepine	fulvestrant	mycophenolate	ribavirin	
carfilzomib	ganirelix	neratinib	ripretinib	
cetrorelix	goserelin	nilotinib	sodium valproate	
cobimetinib	ibrutinib	niraparib	sorafenib	
colchicine	imatinib	nivolumab	sunitinib	
crizotinib	isotretinoin	olaparib	teriflunomide	

Table 3: Recommended Safety Measures

The varying recommendations reflect the range of exposure potential for different activities and formulations, and are based on best practice advice from NIOSH. Intact tablets and capsules are unlikely to pose the same risk as manipulated oral dosage forms, liquids, or mixed injectables. Where possible, use formulations compounded by a pharmacy with specialised facilities, and closed systems for manipulations, such as oral dispensers and enteral syringes.

		Recommended Safety Measures			
Activity	**Formulation**	**Gloves**	**Gown**	**Mask**	**Safety glasses**
Receiving and unpacking	All	Yes	No	No	No
Dispensing or compounding	Intact tablets or capsules	Yes	No	No	No
	Crushing or manipulating tablets or capsules	Yes	Yes	Yes	Yes
	Oral liquid	Yes	Yes	Yes	Yes
	Topical	Yes	Yes	Yes	Yes
	Withdrawing or mixing injections from a vial	Yes	Yes	Yes	Yes
	Irrigation solution	Yes	Yes	Yes	Yes
	Aerosol powder or solution	Yes	Yes	Yes	Yes
Administration	Intact tablets or capsules	Yes	No	Yes if vomit potential	Yes if vomit potential
	Cut, crushed or uncoated tablets or capsules	Yes	Yes	Yes if vomit potential	Yes if vomit potential
	Prefilled syringes or infusions	Yes	Yes	Yes if splash potential	Yes if splash potential
	Oral liquid	Yes	Yes	Yes if vomit, splash or inhalation potential	Yes if vomit, splash or inhalation potential
	Topical	Yes	Yes	Yes if splash or inhalation potential	Yes if splash or inhalation potential
	Irrigation solution	Yes	Yes	Yes	Yes
	Aerosol powder or solution	Yes	Yes	Yes if splash or inhalation potential	Yes if splash or inhalation potential
Disposal	Body fluids	Yes	Yes	Yes if splash or inhalation potential	Yes if splash or inhalation potential
	Other contaminated waste	Yes	Yes	Yes if splash or inhalation potential	Yes if splash or inhalation potential
Routine Cleaning	All	Yes	Yes	No	No
Spill Cleaning	All	Yes	Yes	Yes	Yes

References

1. eviQ Cancer Institute New South Wales, Australia. eviQ Hazardous drugs table (909 v.9) [Internet]. [cited 2025 Oct 9]. Available from: https://www.eviq.org.au/clinical-resources/administration-of-anti-cancer-drugs/909-hazardous-drugs-table#hazardous-drugs-tables
2. U.S. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. NIOSH [2024] List of Hazardous Drugs in Healthcare Settings [Internet]. [cited 2025 Oct 9]. Available from: https://www.cdc.gov/niosh/docs/2025-103/pdfs/2025-103.pdf?id=10.26616/NIOSHPUB2025103
3. U.S. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. NIOSH [2023]. Managing Exposures to Hazardous Drugs: Information for Healthcare Settings. [cited 2025 Oct 9]; Available from: https://www.cdc.gov/niosh/docs/2023-130/default.html
4. eviQ Safe handling and waste management of hazardous drugs 188 v.9 [Internet]. [cited 2025 Oct 9]. Available from: https://www.eviq.org.au/clinical-resources/administration-of-anti-cancer-drugs/188-safe-handling-and-waste-management-of-hazardou
5. European Commission. Guidance for the safe management of hazardous medicinal products at work [Internet]. 2023 [cited 2025 Oct 9]. Available from: https://op.europa.eu/en/publication-detail/-/publication/8e504373-8a77-11ee-99ba-01aa75ed71a1/language-en