

It's Time to...

# Simplify Hazardous Drugs Management: Leading the Implementation of a District-wide easy-to-use System

**AUTHORED BY:** Sarah Bowen, Haematology/Oncology Pharmacist, CCLHD; Claire McCormack, Team Leader Pharmacist – Quality Use of Medicines and Education, CCLHD

## Background

- The identification and handling of cytotoxic drugs is generally well understood in healthcare settings.
- Other 'hazardous' drugs such as protein kinase inhibitors and other oral/injectable drugs that can cause mutagenic/ carcinogenic/ teratogenic harm are not as well defined and managed.
- Exposure to these drugs and related waste during preparation, administration and disposal presents an occupational hazard for health care workers
- Health services have a responsibility to manage and minimise this risk.

Image 1 – Hazardous drug handling management table

HAZARDOUS DRUGS CATEGORIES & HANDLING REQUIREMENTS V.6 (DECEMBER 2017)					
	CYTOTOXIC		HAZARDOUS - Universal Risk -	HAZARDOUS - Reproductive Risk -	
				Pregnant / trying to conceive staff (Risk of foetus)	Other staff:
Intact tablet/capsule:	GLOVES	Nitrile gloves	Nitrile gloves	Nitrile gloves	Gloves
	GOWN	No	No	No	No
	MASK	No	No	No	No
	GLASSES	No	No	No	No
Oral dose manipulation (e.g. cut/crush tablets):	NOTES	These manipulations must not be undertaken on ward Pharmacy to modify dose in isolator Once modified, use the following precautions:	These manipulations must not be undertaken on ward Pharmacy to modify dose in isolator Once modified, use the following precautions:	Nitrile gloves	Gloves
	GLOVES	Nitrile gloves	Nitrile gloves	Nitrile gloves	Gloves
	GOWN	Yes	Yes	Yes	No
	GLASSES	Yes	Yes	Yes	No
Oral Liquid:	GLOVES	Nitrile gloves	Nitrile gloves	Nitrile gloves	Gloves
	GOWN	Yes	Yes	Yes	No
	MASK	Yes	Yes	Yes	No
	GLASSES	Yes	Yes	Yes	No
Injectable:	NOTES	Must not be drawn up on ward Pharmacy to prepare dose in isolator To be administered by Cytotoxic trained staff using:	Must not be drawn up on ward Pharmacy to prepare dose in isolator To be administered by nursing staff using:	Nitrile gloves	Gloves
	GLOVES	Nitrile gloves	Nitrile gloves	Nitrile gloves	Gloves
	GOWN	Yes	Yes	Yes	No
	GLASSES	Yes	Yes	Yes	No
Topical:	GLOVES	Nitrile gloves	Nitrile gloves	Nitrile gloves	Gloves
	GOWN	No	No	No	No
	MASK	No	No	No	No
	GLASSES	No	No	No	No

## Results

Creation of these resources has provided clear, consistent guidelines for staff on management of these drugs.

Preliminary survey results indicate staff feel more confident in their ability to distinguish between different hazardous drugs categories and in directing themselves and other staff how to handle and manage hazardous drugs when referring to the developed resources.

Making such resources universally available has also limited pressure on Pharmacy staff to provide repeated individual advice.

Image 3 – The proportion of different health professionals who took the Hazardous Drug Survey

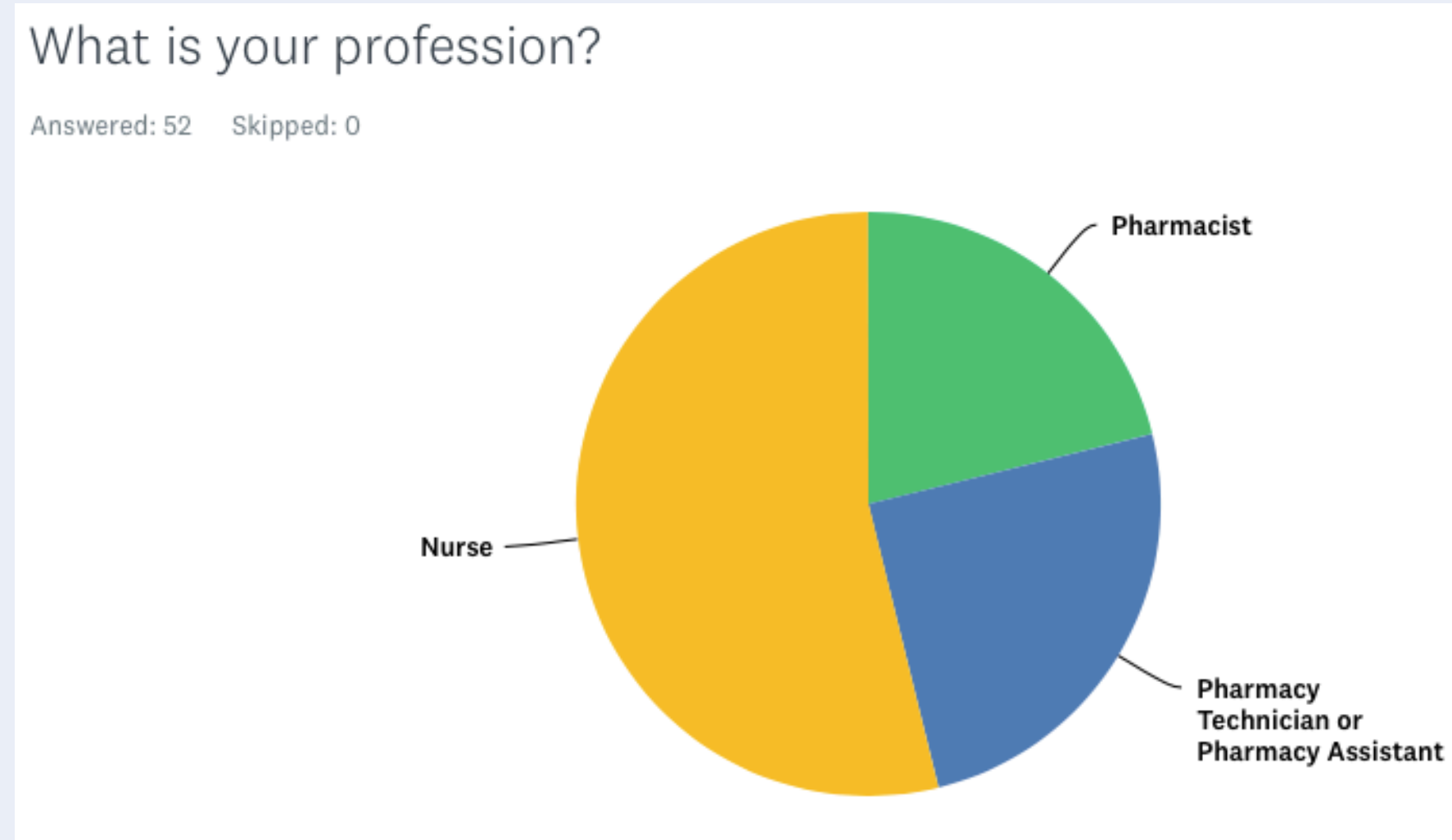


Image 4 – Survey results: Confidence in identifying Hazardous Drugs

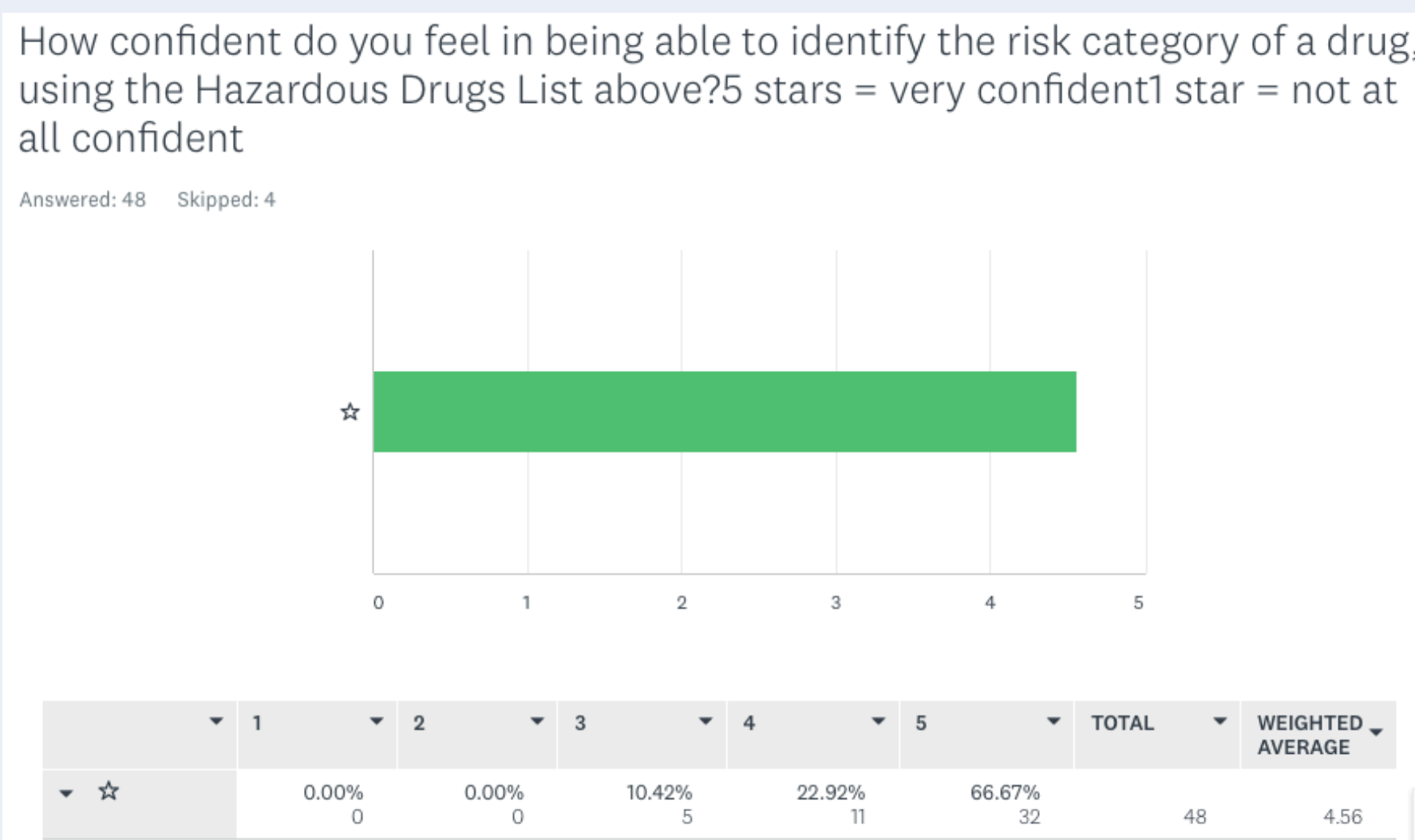
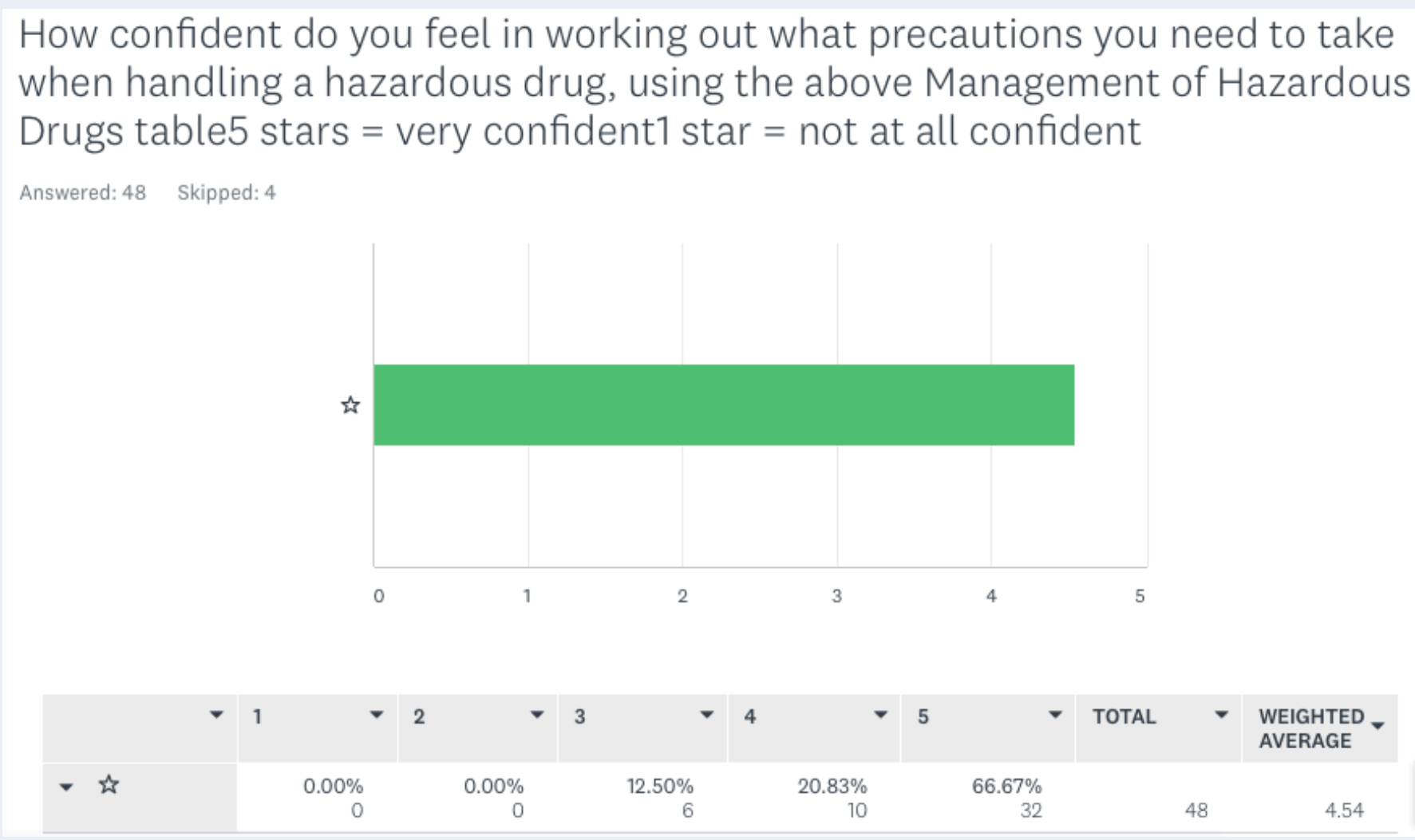


Image 5 – Survey results: Confidence in the handling of Hazardous Drugs



Survey was conducted through www.surveymonkey.com

## Aim

To develop and implement an easy-to-use identification and management system for handling hazardous drugs within a Local Health District (LHD) to improve staff safety.

## Method

A Pharmacy-led LHD-wide working party was established to address the issue of Hazardous drug identification and management within the LHD facilities.

The working party consulted Australian and international hazardous drugs lists and literature surrounding the handling of these drugs to adapt and develop an identification and management system/tool that could be applied in the Australian hospital environment.

A decision was taken to allocate Identified drugs one of three risk categories: **Cytotoxic**; **Hazardous - Universal Risk**; or **Hazardous - Reproductive Risk**. A corresponding table was created addressing handling requirements of different drug forms (e.g. PPE, administration/preparation authority) and management (e.g. bodily waste, linen) according to their risk category. (Image 1)

An Australian-centric, alphabetical categorised hazardous drugs list was then also developed to apply this system and make it workable for staff (Image 2)

Extensive consultation with Nursing, Medical, Environmental Services and LHD Executive staff was part of the approval process

Once approved, these resources were made available to staff via LHD intranet. Pharmacists and key nursing staff were given education non how to use the resources and then conducted unit-based education to explain their utility to front-line staff.

A survey was undertaken 3 months post initial education to evaluate awareness, knowledge and use of tools

Image 2 – One form of the Australian-centric, alphabetical categorised hazardous drugs list

CCLHD HAZARDOUS & CYTOTOXIC DRUG LIST V.8 (JUNE 2018)			
CYTOTOXIC	HAZARDOUS - Universal Risk -	Risk Stratification	HAZARDOUS - Reproductive Risk -
Actinomycin D	Abiraterone	Antineoplastic AHFS	Actretin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Adapalene
Actinomycin D	Abiraterone	Antineoplastic AHFS	Albendazole
Actinomycin D	Abiraterone	Antineoplastic AHFS; IARC 1	Ambrisentan
Actinomycin D	Abiraterone	Live, attenuated vaccination	Amikacin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Artemether+Lumefantrine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Atorvastatin
Actinomycin D	Abiraterone	Immunosuppressant AHFS; IARC 1	Azathioprine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Benoxinate (oxybuprocaine)
Actinomycin D	Abiraterone	Antineoplastic AHFS	Bosentan
Actinomycin D	Abiraterone	Antineoplastic AHFS	Candesartan
Actinomycin D	Abiraterone	Antineoplastic AHFS	Captopril
Actinomycin D	Abiraterone	Antineoplastic AHFS	Carbamazepine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Cidofovir
Actinomycin D	Abiraterone	Antineoplastic AHFS	Colchicine
Actinomycin D	Abiraterone	Antineoplastic MIMS	Danazol
Actinomycin D	Abiraterone	Antineoplastic AHFS	Doxycycline
Actinomycin D	Abiraterone	Antineoplastic AHFS	Dydrogesterone
Actinomycin D	Abiraterone	Antineoplastic AHFS	Efavirenz
Actinomycin D	Abiraterone	Antineoplastic MIMS	Enalapril
Actinomycin D	Abiraterone	Biologic Response Inhibitor; MSHG	Eprosartan
Actinomycin D	Abiraterone	Antineoplastic AHFS	Ethosuximide
Actinomycin D	Abiraterone	Antineoplastic MIMS	Finasteride
Actinomycin D	Abiraterone	Immunosuppressant AHFS	Fingolimod
Actinomycin D	Abiraterone	Antineoplastic AHFS	Fluconazole
Actinomycin D	Abiraterone	Antineoplastic AHFS	Fluvastatin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Fosinopril
Actinomycin D	Abiraterone	Antineoplastic AHFS	Gentamicin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Hydroxychloroquine
Actinomycin D	Abiraterone	Immunosuppressant AHFS	Interferon beta-1a
Actinomycin D	Abiraterone	Antineoplastic AHFS; IARC 1	Interferon beta-1b
Actinomycin D	Abiraterone	Antineoplastic AHFS	Irbesartan
Actinomycin D	Abiraterone	Biologic Response Inhibitor; MSHG	Isotretinoin
Actinomycin D	Abiraterone	Cell Stimulant and Proliferant AHFS	Ivabradine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Lamotrigine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Lefunomide
Actinomycin D	Abiraterone	Antineoplastic AHFS	Lisinopril
Actinomycin D	Abiraterone	Antineoplastic AHFS	Lithium
Actinomycin D	Abiraterone	Antineoplastic AHFS	Losartan
Actinomycin D	Abiraterone	Antineoplastic AHFS	Medroxyprogesterone
Actinomycin D	Abiraterone	Antineoplastic AHFS	Methylene blue
Actinomycin D	Abiraterone	Antineoplastic AHFS	Minocycline
Actinomycin D	Abiraterone	Antineoplastic AHFS	Misoprostol
Actinomycin D	Abiraterone	Antineoplastic AHFS	Nafarelin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Nicotine replacement therapy
Actinomycin D	Abiraterone	Antineoplastic AHFS	Neomycin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Neomycin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Oestrogens, conjugated
Actinomycin D	Abiraterone	Antineoplastic AHFS	Omeprazole
Actinomycin D	Abiraterone	Antineoplastic AHFS	Paroxetine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Perindopril
Actinomycin D	Abiraterone	Antineoplastic AHFS	Pertuzumab
Actinomycin D	Abiraterone	Antineoplastic AHFS	Phenobarbitone
Actinomycin D	Abiraterone	Antineoplastic AHFS	Phenytoin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Pravastatin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Primidone
Actinomycin D	Abiraterone	Antineoplastic AHFS	Quinine
Actinomycin D	Abiraterone	Antineoplastic AHFS	Raltegravir
Actinomycin D	Abiraterone	Antineoplastic AHFS	Ramipril
Actinomycin D	Abiraterone	Antineoplastic AHFS	Ribavirin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Rosuvastatin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Simvastatin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Sodium valproate
Actinomycin D	Abiraterone	Antineoplastic AHFS	Sulfhame
Actinomycin D	Abiraterone	Antineoplastic AHFS	Tazarotene
Actinomycin D	Abiraterone	Antineoplastic AHFS	Telmisartan
Actinomycin D	Abiraterone	Antineoplastic MIMS	Terlipressin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Testosterone
Actinomycin D	Abiraterone	Antineoplastic AHFS	Tetracosactrin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Tetracycline
Actinomycin D	Abiraterone	Antineoplastic MIMS	Tibolone
Actinomycin D	Abiraterone	Biologic Response Inhibitor; MSHG	Tobramycin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Tolvaptan
Actinomycin D	Abiraterone	Antineoplastic MIMS	Topiramate
Actinomycin D	Abiraterone	Immunosuppressant AHFS	Valganciclovir
Actinomycin D	Abiraterone	Antineoplastic AHFS	Valproate
Actinomycin D	Abiraterone	Antineoplastic AHFS	Valsartan
Actinomycin D	Abiraterone	Antineoplastic AHFS	Vigabatrin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Warfarin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Zonisamide
Actinomycin D	Abiraterone	Antineoplastic AHFS	LATE ADDITIONS
Actinomycin D	Abiraterone	Antineoplastic AHFS	Dapagliflozin
Actinomycin D	Abiraterone	Antineoplastic AHFS	Dutasteride
Actinomycin D	Abiraterone	Antineoplastic AHFS	Empagliflozin

## Leading the Way

It is important to empower all staff in the management of hazardous drugs. Preliminary survey results indicated, that while the hazardous drugs tables has increased awareness and confidence in identifying and handling hazardous drugs, only 55% of respondents knew where to find the hazardous drugs information on the intranet. Continuous education will be important in maintaining the value of this initiative. As the world of oncology and other medicine continually changes, the hazardous drugs information will undergo annual review by the oncology pharmacy department.

## Conclusion

Initiative and leadership by a Pharmacy-led working party to implement an easy-to-use identification and management system for handling hazardous drugs has resulted in the development of a number of key resources that have started to improve staff understanding of safe practices required to handle hazardous drugs within the LHD.

## Acknowledgements

CCLHD Hazardous Drugs Working Party  
Davide Gilbert, Tim Garrett, Jessica Hagan  
CCLHD Pharmacy Department

## References

1. NCI/NIH List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings, 2016 Available from [https://www.nci.nih.gov/infocenter/nci\\_60987](https://www.nci.nih.gov/infocenter/nci_60987)
2. Prescribing Medicines in Pregnancy Database Available from <https://www.tga.gov.au/resources/medicines-pregnancy-database>
3. Supporting Document – Safe Handling and Waste Management of Hazardous Drugs Available from <https://www.nsw.gov.au/health/central-coast-administration-of-antineoplastic-drugs/safe-handling-and-waste-management-of-hazardous-drugs>
4. Supporting Document – Hazardous Drugs Table Available from <https://www.nsw.gov.au/health/central-coast-administration-of-antineoplastic-drugs/hazardous-drugs-table>



Health  
Central Coast  
Local Health District