Patterns of, and factors associated with, diphenhydramine use amongst a sample of people who regularly inject illicit drugs in Australia, 2023

Paul Dietze, Joanna Wilson, Zachary Lloyd & Dylan Vella-Horne
This report was prepared by the Burnet Institute
For further information: paul.dietze@burnet.edu.au

Key Findings

Australia IDRS

3% (n=22) of the national IDRS sample reported past six month **diphenhydramine** use.

Most (91%; n=20) of these participants resided in **Melbourne**, with very little use reported in other capital cities.

Among those who reported recent use and responded (n=16), most (94%; n=15) reported **co-injection with heroin.**

Diphenhydramine use was **associated** with younger age, past year overdose, and nominating heroin as their drug of choice.

Last update: 15 July 2024

Introduction

Diphenhydramine is an antihistamine with sedative properties used to treat insomnia as well as various other conditions such as allergies and common cold symptoms. In Australia, the drug is available as Unisom gel capsules. The use of diphenhydramine is reported by people who inject drugs, often involving practices similar to those observed with temazepam gel capsules prior to their withdrawal from the market.[1]

Recent analyses of data from the SuperMIX cohort in Melbourne and data collected from clients of the Melbourne Supervised Injecting Room (MSIR) show that diphenhydramine use is common in Melbourne.[2] In this context, both oral and injected use of the drug have been reported. MSIR service data show that co-injection of diphenhydramine and heroin is typically reported among those using diphenhydramine.[2] This practice is of concern given that co-injection of diphenhydramine is associated with markers of injecting related harms (e.g. overdose, vein damage/collapse).[1,3]

Using a cross-sectional sample of people who regularly inject drugs, recruited from all Australian capital cities in 2023, this bulletin aims to examine patterns of, and factors associated with, diphenhydramine use.

Methods

Data were collected as part of the Illicit Drug Reporting System (IDRS). Annual interviews were conducted with people aged 18 or older residing in capital city areas of Australia who injected illicit or non-prescribed drugs on a monthly or more frequent basis.

In 2023, 820 participants were recruited from capital cities in each jurisdiction, with a target of 150 participants in Melbourne and Sydney, and 100 in the remaining cities. These interviews were conducted predominately via face-to-face surveys as well as telephone surveys in some instances after the onset of the COVID-19 pandemic. Please refer to the IDRS Background and Methods document for further details.

Diphenhydramine use was captured through a series of questions, including: any (past six month) use of diphenhydramine, injection of diphenhydramine, and co-injection of diphenhydramine with other drugs (most notably heroin). Potential demographic, drug use, and health and wellbeing correlates of diphenhydramine use, based on theoretical relevance, were examined in bivariate logistic regression models with the significance level set at $p<0.05$. Due to the small numbers reporting past six month use, no multivariable analyses were undertaken.

For information regarding the characteristics of the national IDRS sample in 2023, please refer to the National 2023 IDRS report.

Results

Patterns of diphenhydramine use

In 2023:

- 3% (n=22) of the national IDRS sample reported diphenhydramine use in the past six months.

Among those who reported recent diphenhydramine use and responded:

- 40% reported using diphenhydramine every second day or more frequently.
- Most (91%; n=20) resided in Melbourne.
- The large majority (94%; n=16) reported co-injection of diphenhydramine with heroin.

Correlates of any diphenhydramine use

Participants who were younger, and reported unstable housing, were more likely to report any past six month diphenhydramine use. Those who reported heroin as their drug of choice, and those who reported past year overdose, had greater odds of past six month diphenhydramine use.

Table 1: Bivariate relationships of selected variables with past six month diphenhydramine use.

	No diphenhydramine use (n=795)	Diphenhydramine use (n=22)	Odds ratio	95% CI	*p*
Mean age (years)	46	41	0.95	0.91-0.99	**0.028**
Sex assigned at birth % (n)					
Male	68 (539)	77 (17)	1.62	0.59-4.43	0.352
Female	32 (256)	23 (≤5)	-		
Housing stability status % (n)					
Stable	73 (573)	55 (12)	0.44	0.19-1.05	0.064
Unstable*	27 (213)	45 (10)	-		
Injecting frequency (past month) % (n)					
>Weekly	83 (656)	91 (20)	2.11	0.49-9.17	0.315
Weekly or less	17 (139)	9 (≤5)	-		
Drug of choice % (n)					
Heroin	40 (316)	77 (17)	5.14	1.88-14.11	**0.001**
Other	60 (479)	23 (5)	-		
Current OAT % (n)					
Yes	34 (269)	50 (11)	1.96	0.84-4.58	0.120
No	66 (527)	50 (11)	-		
Past year overdose (any drug) % (n)					
Yes	17 (136)	41 (6)	3.29	1.38-7.85	**0.007**
No	83 (646)	59 (13)	-		
Past month needle sharing % (n)					
Yes	10 (75)	14 (≤5)	1.49	0.43-5.15	0.530
No	90 (707)	86 (19)	-		

*unstable accommodation includes people without accommodation (rough sleeping or squatting, including sleeping in car), people living in temporary or crisis accommodation (shelter/refuge, drug treatment residence), people living in inadequate or insecure accommodation (boarding house/hostel, couch surfing, including at home of friends or family)). OAT=opioid agonist therapy. Significant findings ($p<0.05$) bolded.

Discussion

Past six month diphenhydramine use in the IDRS sample remained low in 2023 (3%), and stable from previous years (3% in 2020-2022) [4]. The only jurisdictional sample in which this practice was established was among those residing in Melbourne. Those who reported past six month use were using frequently and often co-injecting with heroin. Past six month diphenhydramine use was associated with younger age and nominating heroin as a drug of choice. Although use was not statistically significantly associated with risk behaviours (e.g., recent needle sharing, greater injecting frequency) statistical power was limited by small numbers reporting diphenhydramine use, and use was associated with past year overdose. Given that this is a cross-sectional survey, it is not possible to determine the direction of this relationship, and further research is needed to determine whether diphenhydramine use increases the risk of overdose, particularly opioid overdose.

References

1. Higgs P, Dwyer R, Duong D, et al. Heroin-gel capsule cocktails and groin injecting practices among ethnic Vietnamese in Melbourne, Australia. Int J Drug Policy 2009;20(4):340-6. DOI: 10.1016/j.drugpo.2008.05.001.
2. Medically Supervised Injecting Room Review Panel. Review of the Medically Supervised Injecting Room. Melbourne: State Government of Victoria, 2020.
3. Palmer A, Higgs P, Scott N, Agius P, Maher L, Dietze P. Prevalence and correlates of simultaneous, multiple substance injection (co-injection) among people who inject drugs in Melbourne, Australia. Addiction 2021;116(4):876-888. DOI: 10.1111/add.15217.
4. Sutherland R, Uporova J, King C, et al. Australian Drug Trends 2023: Key Findings from the National Illicit Drug Reporting System (IDRS) Interviews. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney, 2023.

Funding and Copyright

Funded by the Australian Government Department of Health and Aged Care under the Drug and Alcohol Program

Recommended Citation

Dietze P, Wilson J, Lloyd, Z, Vella-Horne, D. Patterns of, and factors associated with, diphenhydramine use amongst a sample of people who regularly inject illicit drugs in Australia, 2023. Drug Trends Bulletin Series. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney; 2024. Available from: https://doi.org/10.26190/unsworks/30310

Acknowledgements

- The participants who were interviewed for the IDRS in the present and in previous years.
- The agencies that assisted with recruitment and interviewing.
- The IDRS is funded by the Australian Government of Health and Aged Care under the Drug and Alcohol Program.

Participating Researchers and Research Centres

- Dr Rachel Sutherland, Antonia Karlsson, Julia Uporova, Olivia Price, Cate King, Udesha Chandrasena, Professor Louisa Degenhardt, Professor Michael Farrell and Associate Professor Amy Peacock, National Drug and Alcohol Research Centre, University of New South Wales, New South Wales;
- Joanna Wilson, Dylan Vella-Horne and Professor Paul Dietze, Burnet, Victoria;
- Sophie Radke, Lauren Stafford and Associate Professor Raimondo Bruno, School of Psychology, University of Tasmania, Tasmania;
- Seraina Agramunt and Professor Simon Lenton, National Drug Research Institute and enAble Institute, Curtin University, Western Australia; and
- Catherine Daly, Dr Jennifer Juckel, Dr Natalie Thomas, Lawrence Rivera and Associate Professor Caroline Salom, Institute for Social Science Research, The University of Queensland, Queensland.